MICROSOFT FACE API FACIAL RECOGNITION

Stone, Andrea

From: Barbieri, John <JBarbieri@springfieldpolice.net>
Sent: Wednesday, December 13, 2017 10:30 AM
To: Schwarz, William J
Subject: FW: Panasonic Security Solutions for the Springfield Police Department
Attachments: WHY ADVIDIA.pdf; 2017 Panasonic Video Surveillance Catalog.pdf; VI7 Key Features 2017.pdf; PANASONIC PTZ PDF NEW FOLDER 08-1PTZ Facial Recognition.pdf

Importance: High

FYI

John R. Barbieri
Police Commissioner
130 Pearl Street
Springfield, MA 01101
413.787.6313

From: Morgan, Kretonia [mailto:kretonia.morgan@ext.us.panasonic.com]
Sent: Tuesday, December 12, 2017 4:54 PM
To: Barbieri, John
Subject: Panasonic Security Solutions for the Springfield Police Department
Importance: High

Commissioner Barbier,

Panasonic Company leading IP video surveillance management software powered by Video Insight is used by over 25,000 customers in the financial, government, retail, and transportation sectors with a very strong presence in the education market consisting of 5,000 K-12 school/college customer. Video Insight is the easiest and most cost-effective enterprise VMS with support for over 3,000 camera models and integration with the top access control solutions in the market. Panasonic can upgrade your existing video surveillance system or design a new one altogether. We can work with you directly or through your systems integrator, as we have excellent working relationships with technology professionals nationwide.We would love for you to consider the Panasonic Security Solution for any current or upcoming projects.

Download | Panasonic Security System

security.panasonic.com

Welcome to Panasonic Security System support site. Find solutions and help for your Panasonic Security System products from our online information. Download manual ...

Video Insight software provides a sophisticated, yet, easy-to-manage system that allows you to record and monitor live video from a centralized location, the internet, or even from a Smartphone or device (iPhone/iPad, Blackberry, Droid). Because Video Insight is designed for multi-facility use, it is perfect for governmental entities which can often have dozens of buildings, sometimes in different cities and states.

Operating on your existing network infrastructure, Video Insight makes efficient use of bandwidth, and is typically less taxing on your system than our competitors, freeing up much-needed space for other computer network functions. In the aftermath of an incident – a theft, confidentiality breach, vandalism employee conflict situation – exporting recorded video to burn on a cd or email to law enforcement/security is so simple that virtually no training is required for employees to be up and running on the system shortly after installation.

We offer a U.S.-based technical support staff which operates on a one-hour call back guarantee so your organization will never be without the dedicated customer service you deserve.

http://security.us.panasonic.com/

Video Management Software and Surveillance System ...

security.us.panasonic.com

Panasonic provides IP video management software and surveillance system.

* – Learn why Video Insight is the premier VMS provider for across the US
* – Review the full catalog of cameras provided by Advidia; No license fees if used in conjunction with Video Insight Management software
* – See what some of our largest customers have to say about VI
* – Download and install our VMS software completely free of charge for 60 days with use for up to 99 cameras
* – Play around with a live stream of cameras from our office
* - A basic introduction to our software's features and functionality.

If you have any questions, please don't hesitate to contact me directly at (713) 581-9248.

We have many vendors in the local market area that I would be more than happy to get you in contact with. Please let me know if you have any questions.

Request your free pilot here!
(Download our IPhone or Android mobile app and instantly connect to our demo server!)

KreTonia Morgan

Customer Engagement Specialist - North Territory
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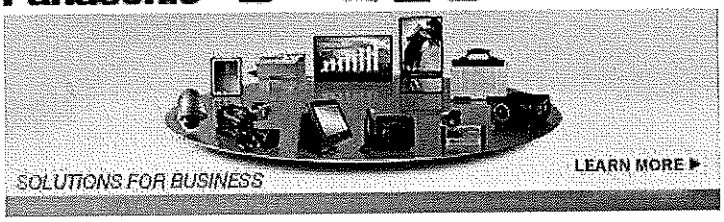
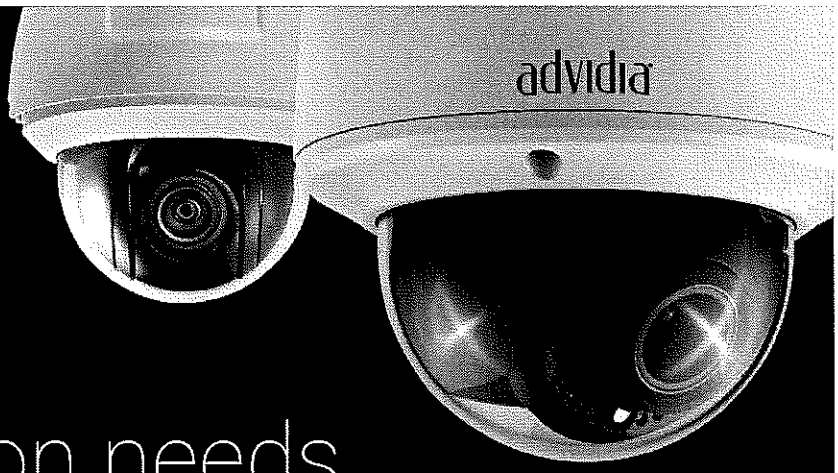
Panasonic



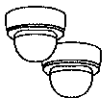


IP cameras for all application needs

Why Advidia?

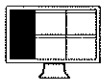
The Advidia line of IP network video surveillance products provides a wide range of affordable IP camera models and encoders that are perfect for video surveillance projects of any size. **Each network camera and encoder includes a free enterprise Video Management Software (VMS) license, a 3-year warranty, and FREE software updates for the life of the product.**

Since its introduction to the market in 2006, Advidia has been deployed by a large number of campuses across North America looking for a complete video surveillance solution that's cost effective, reliable, and easy to use. Advidia's world-class, U.S. based technical support, advance replacement, and robust features like health monitoring, automated Failover, and video wall add yet another layer of value to its already rich product offering.



• Wide Range of Professional Camera Models with Free Video Insight VMS Software License

Advidia cameras are preconfigured with a free license of Video Insight enterprise VMS software, 3 years of advance replacement warranty, and free SUP for the life of the camera.



• Powerful Enterprise VMS Software Included

Each Advidia camera includes a free license of Video Insight VMS software. A powerful enterprise VMS solution that supports over 2,400 camera models from more than 100 manufacturers and integrates with most popular access control models.

ONVIF • ONVIF

The Advidia cameras are ONVIF Compliant, which ensures interoperability between IP-based physical security products – regardless of brand. This allows system integrators and end users to easily design and build network video systems with devices from different vendors.

• Pricing – Lower Total Cost of Ownership (TCO)

Advidia offers the most cost-effective solution for any video surveillance project.

• A Warranty Like No Other

The Advidia line of IP video surveillance cameras is backed by a 3-year warranty with advance replacement. Your replacement product ships as soon as you contact support.

• World-Class U.S.-Based Tech Support

Advidia products are backed by a world-class, U.S.-based technical support team that operates on a One-Hour Callback Guarantee.

Panasonic

i-PRO EXTREME

EXTREME PERFORMANCE UNDER EXTREME CONDITIONS

2017 VIDEO SURVEILLANCE CATALOG

WHY PANASONIC?

From the company that brought you the first security camera in 1957 and invented over a dozen industry standards, Panasonic provides industry-leading solutions to capture, record, manage and analyze surveillance video. Panasonic provides a comprehensive lineup of video surveillance products and solutions that offer the industry's highest picture quality, mission-critical reliability and the industry's lowest total cost of ownership. When it counts, you can count on Panasonic video surveillance products and systems to deliver.

SURVEILLANCE AND MONITORING SYSTEMS LINEUP

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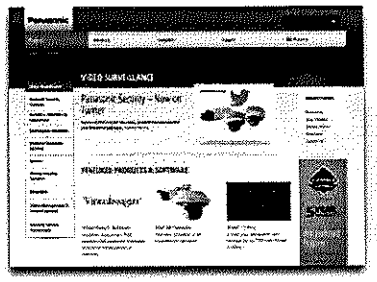


Visit www.panasonic.com/security for the most up-to-date news on Panasonic video surveillance products.

Panasonic

i-PRO PREFERRED

Sign up today and enjoy the free benefits

Panasonic's new i-PRO Preferred Program provides added value to your i-PRO video surveillance camera purchase without adding cost. i-PRO Preferred strengthens your warranty, expedites service response, and includes a bundled Video Insight camera license. New and current owners of select i-PRO camera models* are eligible upon registration for a free upgrade to this preferred service status.

Enjoy these benefits:

5 YEAR WARRANTY
Add a two-year extended warranty to your existing three-year factory warranty upon registration.

VIDEOINSIGHT UNLIMITED LICENSE
While competitive manufacturers charge an annual camera license fee for each camera connected to their VMS, you'll enjoy a bundled Video Insight camera license with each eligible i-PRO camera.

PRIORITY ADVANCE EXCHANGE
Receive replacement units shipped the same day with overnight delivery.

Sign up today at www.us.panasonic.com/ipropreferred.

*U.S. purchasers only. Select Panasonic i-PRO cameras with a manufacturing date after October 2017 for both the VI VMS license and the additional two-year warranty extension are eligible.

NEW H.265

Panasonic Introduces a completely new line up of Extreme Performance i-PRO Cameras, Recorders and Management Software Delivering EXTREME PERFORMANCE UNDER EXTREME CONDITIONS

New i-PRO platform cameras deliver Extreme Visibility with outstanding low-light performance from their 1/3" sensors that rival many 1/2" sensor cameras and feature an industry leading 144dB of Extreme Dynamic Range delivering balanced exposure and accurate color in even the most challenging lighting environments. Auto-Intelligence features like automatic scene-detection continuously monitor the field of view and instantly adjust the cameras parameters to optimize for best image capture based on scene dynamics, compensating for motion and constantly changing lighting. i-PRO's Extreme Compression begins with industry standard H.265 encoding generating up to a 50% reduction in bandwidth compared to H.264 and Panasonic's Advanced Smart Coding and Intelligent Face Coding features push that figure up to an 80% reduction. Extreme Reliability is enabled by technologies like HDD Dynamic Power Control for the new WJ-NX400 class recorder that reduces the frequency of HDD failures and greatly extends their working life and Automatic-Failover which allows two recorders to run in tandem for seamless redundancy in mission critical applications. Panasonic's i-PRO Preferred Program stands behind i-PRO's Extreme Reliability by adding 2 years of factory warranty to the standard 3 year warranty on cameras. i-PRO's Extreme Data Security means the new i-PRO Extreme surveillance platform employs PC-level IP-Data Security standards via Panasonic's Secure Communications Suite and robust authentication using Symantec Device Certificates delivering comprehensive end-to-end data protection on all new i-PRO Extreme-based cameras, recorders and video management software.

i-PRO EXTREME

EXTREME VISIBILITY

ENABLES CAPTURE OF THE HIGHEST QUALITY IMAGES AUTOMATICALLY EVEN IN VERY DYNAMIC AND CHALLENGING LIGHTING ENVIRONMENTS

INTELLIGENT AUTO Continuously monitors scene dynamics and automatically adjusts key camera settings in real-time to optimize captured images
EXTREME SUPER DYNAMIC RANGE Extends Dynamic range to an industry leading 144dB enabling balanced scene exposure even in the most difficult lighting conditions
COLOR NIGHT VISION Delivers outstanding low-light performance with accurate color rendition from a 1/3" sensor, rivaling performance from more costly ½" sensor cameras

EXTREME COMPRESSION

INDUSTRY STANDARD H.265 AND PANASONIC'S SMART CODING TECHNOLOGIES DELIVER THE HIGHEST QUALITY IMAGES AT THE LOWEST BITRATES

H.265 COMPRESSION Industry standard H.265 compression delivers high quality images while reducing streaming and storage requirements by approximately 50% over H.264
SMART CODING Working on top of H.265, Smart Coding technologies like GOP Control and Auto-VIQS reduce bandwidth requirements even further for up to an 80% efficiency over H.264
SMART FACIAL CODING Automatically detects faces and self-learns motion-areas of a scene to ensure the highest quality recording of detected faces and regions of interest

EXTREME RELIABILITY

NEW TECHNOLOGIES DELIVER LOW FAILURE RATES AND THE 5 YEAR i-PRO PREFERRED WARRANTY STANDS BEHIND PANASONIC'S HIGH RELIABILITY

HDD POWER CONTROL HDD Dynamic Power Control technology intelligently powers down HDD's without risking recording loss, extending HDD life up to 7 years*
AUTO-FAILOVER New WJ-NX400 recorders can be connected in tandem to enable seamless recording redundancy for mission critical applications
5 YEAR WARRANTY Panasonic's i-PRO Preferred program adds an additional 2 years to the factory 3 year warranty on i-PRO cameras for a total of 5 years which includes Advanced Exchange**

EXTREME DATA SECURITY

PANASONIC'S SECURE COMMUNICATION SUITE AND SYMANTEC'S DEVICE CERTIFICATION ENSURES ROBUST END-TO-END IP SECURITY

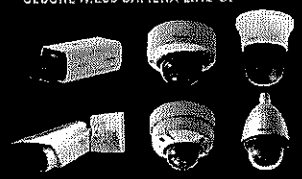
SECURE COMMUNICATION A PC-level security suite embedded in all new i-PRO Extreme Cameras, Recorders and Management Software enabling data and communications encryption
SYMANTEC AUTHENTICATION Panasonic's has partnered with Symantec, the global leader in cybersecurity, to deploy their reliable Device Certificate technology on all i-PRO Extreme devices
FIPS CERTIFIED i-PRO Extreme products meet the Federal Information Processing Standard (FIPS) 140-2 Level 1, as required for FBI and Public Safety use

i-PRO EXTREME

Panasonic

NEW CAMERAS H.265

SECURE H.265 CAMERA LINE-UP



NEW H.265 i-PRO HD & Full HD 60fps camera line-up featuring Extreme Visibility, Extreme Compression, Extreme Reliability and Extreme Data Security performance

EXTREME VISIBILITY
- Ultra High Sensitivity 0.008 lx (HD), 0.012 lx (FHD)
- Color Night Vision – Full Color in low light
- Extreme Super Dynamic Range 144dB
- Auto Scene-detection and Optimization

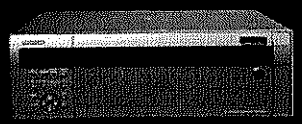
EXTREME COMPRESSION
- H.265 Compression – Fully H.264 Compatible
- Smart Coding – Long GOP Mode, Auto VIQS
- Smart Facial Coding

EXTREME RELIABILITY
- Easy-Install ClearSight™ Dome
- Integrated Image Stabilization on PTZ's
- Reliable night time image capture via built-in IR*

EXTREME DATA SECURITY
- Secure Communication Suite
- Symantec Device Certificates

WJ-NX400 H.265

SECURE H.265 SYSTEM RECORDER



NEW H.265/H.264 high-throughput and scalable recorder featuring integrated GUI and robust embedded IP security enabling a secure end-to-end PC-Less surveillance solution

SECURE HIGH BANDWIDTH RECORDING
- 64 Channels – 128 Max (H.265/264)
- 384Mbps recording bandwidth
- Secure Communication and Symantec Device Certificates

PC-LESS SURVEILLANCE SOLUTION
- Built-in GUI and Dual HDMI Outputs
- Automatic camera configuration
- 2nd Stream Recording for mobile playback

SCALABLE STORAGE
- (9) Integrated Drive-bays RAID/5/6
- External storage expansion up to 270TB

HIGH RELIABILITY AND REDUNDANCY
- Dynamic HDD Power Management increases HDD life
- Redundant fail-over using 2nd Recorder

WV-ASM300 H.265

SECURE H.265 VIDEO MANAGEMENT

NEW Powerful Windows® application enables a secure, scalable H.265 ready, multi-camera, multi-recorder surveillance management environment

FULLY INTEGRATED & SECURE
- Camera control, viewing and recorder management
- Integrates i-PRO Extreme H.265 & i-PRO H.264 equipment
- Secure Communication and Symantec Device Certificates

POWERFUL USER INTERFACE
- *NEW* UI design & 4K native GUI enhances usability
- Automatic camera configuration wizard
- Now include multi-monitor and WJ-CU950 support

SCALABLE AND EXTENDABLE
- Base: 100 recorders, 64 encoders and 256 cameras
- Expandable to thousands of cameras, recorders and encoders

EASY TRIAL OPTIONS
- *NEW* FREE limited version supports 16 Cameras/1 Recorder
- No annual licence fees

i-PRO EXTREME H.265 SERIES LINE-UP

CAMERA														
Indoor Box	Full HD	WV-S1131	Oct-16	(CS Mount)	–	–	Yes	–	Yes	Yes	In/Out	Yes	–	–
	HD	WV-S1131	Oct-16	(CS Mount)	–	–	Yes	–	Yes	Yes	In/Out	Yes	–	–
Outdoor Box	Full HD	WV-S1531LTN	Mar-17	Yes	Yes	Yes	Yes	Yes	Yes	Yes	In/Out	Yes	Yes	Yes
		WV-S1531LN	Dec-16	Yes	–	Yes	Yes	Yes	Yes	Yes	In/Out	Yes	Yes	Yes
	HD	WV-S1511LN	Dec-16	Yes	–	–	Yes	Yes	Yes	Yes	In/Out	Yes	Yes	Yes
Indoor Dome	Full HD	WV-S2132L	Dec-16	Yes	–	Yes	Yes	Yes	Yes	Yes	In/Out	Yes	–	–
	HD	WV-S2131L	Dec-16	Yes	–	–	Yes	Yes	Yes	Yes	In/Out	Yes	–	–
		WV-S2110	Dec-16	Yes	–	–	Yes	–	IR-B/W	No	Mic	–	–	–
Indoor Vandal Dome	Full HD	WV-S2731L	Dec-16	Yes	–	Yes	Yes	Yes	Yes	Yes	In/Out	Yes	–	–
	HD	WV-S2711L	Dec-16	Yes	–	–	Yes	Yes	Yes	Yes	In/Out	Yes	Yes	–
Outdoor Vandal Dome	Full HD	WV-S2531LTN	Mar-17	Yes	Yes	Yes	Yes	Yes	Yes	Yes	In/Out	Yes	Yes	Yes
		WV-S2531LN	Dec-16	Yes	–	Yes	Yes	Yes	Yes	Yes	In/Out	Yes	Yes	Yes
	HD	WV-S2511LN	Dec-16	Yes	–	–	Yes	Yes	Yes	Yes	In/Out	Yes	Yes	Yes

RECORDER			
64-Channel H.265 NVR	WJ-NX400	Dec-16	i-Pro Extreme H.265 Network Video Recorder
Expansion Unit	WJ-HDE400	Dec-16	HDD Expansion Unit for WJ-NX400
Extension Software	WJ-NXE48CH	Dec-16	32 Channel Extension Software for WJ-NX400

SOFTWARE			
Video Management Application	WV-ASM300	Dec-16	i-PRO Extreme H.265 Video Management Software Supports 16 Cameras and 1 NVR free without activation
	WV-ASM300UG	Dec-16	Upgrade License from ASM200 to ASM300
	WV-ASM300CL	FY17 Q1	Concurrent Access Version for ASM300

NEW

PANASONIC UNVEILS AERO PTZ CAMERA FOR EXTREME ENVIRONMENTS

Panasonic has introduced the Aero PTZ, a new, environmentally rugged pan/tilt/zoom (PTZ) camera built to deliver high-performance surveillance in extreme weather conditions. Lightweight at approx. 17.64 pounds, the Aero PTZ is designed to operate in mission-critical applications including vital infrastructure in cities, ports, airports, traffic, highways, railways and more.

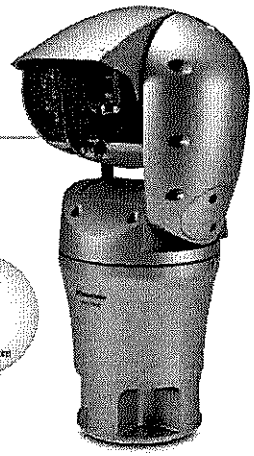
AeroPTZ

FULL HD RESOLUTION WITH 360-DEGREE VIEWING

- The Aero PTZ delivers Full HD resolution of 1080p at 60 fps with a 30X optical zoom lens
- Hybrid image stabilization suppresses vibrations between 1 to 30 HZ, to keep images stable
- 360-degree Sphere Vision 3D viewing provides 360-degree continuous panning and +/- 90-degree tilt range
- IR Illuminator is integrated with a zoom interlocking lens, which provides up to an additional 500 feet of visibility in complete darkness (Optional)
- Integrated with Smart Coding technology that reduces bandwidth up to 80% without sacrificing image quality
- Super Dynamic Light Range Compensation ensures and a wider dynamic range compared to conventional cameras

HIGHLY RUGGED, SLEEK BODY DESIGNED FOR EXTREME CONDITIONS

- High strength, sleek fiber glass body and borosilicate glass provides salt and air corrosion protection, making it highly durable in even the toughest weather conditions from salty wind gusts, to harsh sunshine to the severe artic cold.
- Unique intelligent-radius bodyline minimizes wind drag for more stability and prevents snow and dirt accumulation
- Fully water and dust proof conforming to IP67, NEMA-4X compliant and IK10 environmental specifications
- Operates in the hottest and coldest conditions from -58°F to +140°F
- Wind load durability at 135mph (operational)
- Built-in wiper and defroster



AERO PTZ CAMERA ACCESSORIES

Panasonic

EXTREME PERFORMANCE UNDER EXTREME CONDITIONS

WV-SUD638

RUGGED PTZ CAMERA FOR EXTREME ENVIRONMENTS

1080p 60fps

30x Optical Zoom

INTEGRATED WIPER & DEFROSTER
Provides clear visibility in wet and icy conditions

360° Spherical profile withstands hurricane force winds up to 135mph

INTEGRATED WITH SMART CODING
Advanced compression technology that reduces bandwidth up to 80% without sacrificing video quality

Provides up to 500 feet of visibility in complete darkness (Optional)

Gyro-driven technology suppresses vibrations between 1 to 30 Hz to keep images stable

360° continuous panning, up to 200° per second and +/- 90-degree tilt range

Delivers high performance in extreme hot or cold environments -58 °F to +140 °F

Light-weight body (approx. 17 lbs) resists salt air corrosion, conforms to ISO14993 and is IK10 compliant

Conforms to IP66, IP67, NEMA-4X compliant

Operates from 100 to 240 volts AC or PoE (60W)

Pre-engineered pole mount, wall mount, and corner mounts are available

Shown with optional IR LED

AeroPTZ

UPDATED

PANASONIC INTRODUCES SMART CODING TECHNOLOGY – REDUCE BANDWIDTH WITHOUT SACRIFICING VIDEO QUALITY

Introducing Panasonic Smart Coding, an in-camera surveillance technology that reduces bandwidth usage up to 80% without sacrificing video quality. It delivers the resolution and frame rates you demand, while substantially lowering storage and networking costs.

UP TO 80%* BANDWIDTH REDUCTION

Smart Coding is available on all standard new 1, 3, 5, 6 & True 4K Series cameras.

And Smart Coding is available on all new i-PRO Extreme (H.265) cameras.

HOW DOES SMART CODING WORK?

Smart Coding combines 2 Encoding Load Reduction technologies & 2 Noise Reduction technologies together to provide a bit rate reduction of up to 80%, in the video without losing image quality.

NOISE REDUCTION

3D-MNR reduces grainy noise generated in low-illuminance environments.

FDF reduces fine noise that is generated at slightly low illuminance.

ENCODING LOAD REDUCTION

GOP Control reduces encoding data by using p-frame in place of i-frame when no motion is detected.

Auto-VIQS can automatically determine areas with and without motion and reduce the data volume of those without motion.

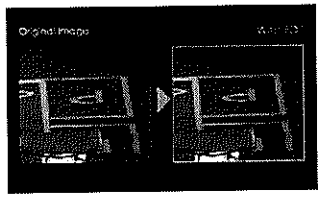
*3D-MNR & FDF are not available in Panasonic True 4K cameras.

Panasonic

NOISE REDUCTION

FREQUENCY DIVIDED FILTER (FDF)

To remove fine noise from low-light footage, FDF separates camera output by frequency, removes noise and then recomposes the data, resulting in crisper, cleaner video.



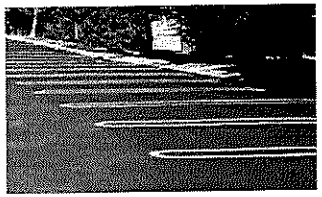
3D-MULTI-PROCESS NOISE REDUCTION (3D-MNR)

3D-MNR reduces bit rates by reducing video noise and grain.
The result: cleaner final images that stream at significantly lower bit rates.

ENCODING LOAD REDUCTION

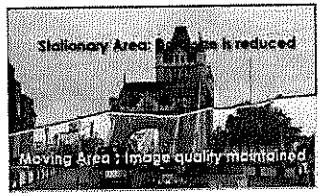
GROUP OF PICTURE (GOP) CONTROL

GOP Control strips out data related to motionless elements in the scene, lowering bit rates. When moving objects enter the frame, the bitrate increases to capture the action.



AUTO-VARIABLE IMAGE QUALITY ON SPECIFIED AREA (VIQS)

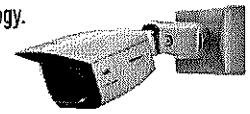
Auto-VIQS finds moving areas automatically and reduces image quality of less motion area to save bandwidth.



FOR MORE INFORMATION, VISIT: info.panasonic.com/smart-coding

ULTRA-HIGH 4K PICTURE QUALITY FOR DETAILED, WIDE-AREA MONITORING WITH A SINGLE CAMERA

Now Featuring H.264 Smart Coding GOP Technology.
Up to 80% lower bandwidth with the same image quality.



4K ULTRA HD

TRUE 4K

WV-SPV781L	WV-SFV781L
4K Vandal Resistant Weatherproof Network Camera	4K Vandal Resistant Weatherproof Dome Network Camera

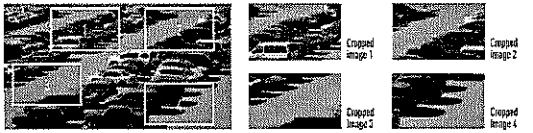
ULTRA HIGH-DEFINITION, 4K PICTURE QUALITY

Ultra HD 4K cameras offer 27 times the resolution of conventional analog cameras (VGA), nine times that of standard HD (1,280 x 720) and four times that of Full HD (1,920 x 1,080). This means that the finer details of images remain clear even when you need to magnify only a part of the image.

The high performance lens used by Panasonic's 4K cameras provides uniformly high-resolution images from the center out to the edges.

CROPPING FUNCTION

A given area within a single image can be selected, cropped and displayed. For example, areas with high monitoring priority, such as a parking garage entrance or a hallway, can be selected and displayed for easy viewing. You can still keep an eye on the overall image while also focusing on specific areas. With PTZ cameras, when the lens is pointed in a single direction, other areas go out of view during that time, but with a 4K camera you can monitor the entire area while also watching specific areas requiring more focused monitoring.



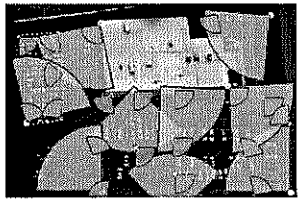
4K (3,840 x 2,160) HD (1,280 x 720) x 4

WIDE-AREA MONITORING

A single 4K camera can effectively monitor a wider area, which allows you to reduce the total number of cameras while also eliminating blind spots. Monitoring can be performed not only at vertical and horizontal angles, but for deeper depths as well.

And, even when monitoring within the same area, 4K's increased range means that the number of units required is reduced substantially compared to that of conventional cameras. This translates into reduced costs for the cameras themselves, less installation time and labor, and lower maintenance costs.

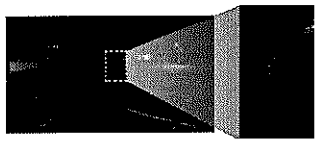
4K-ready monitors can also reduce the number of monitors needed in the control room.



Panasonic

LOW LIGHT READY

The camera's ultra-high 4K resolution allows it to capture color images in dim, low-light conditions. In even darker conditions, the camera can use its monochrome inversion function to switch to black-and-white images, and in zero-light conditions it can accurately display what is happening in front of it using infrared LED vision.



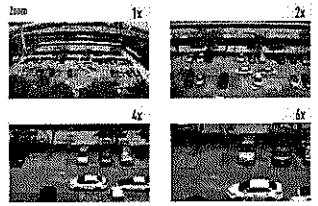
Light near subject : 1 lx

HIGH-POWER 6X ZOOM LENS WITH AN ULTRA-WIDE ANGLE OF 100°

An optical 6x zoom lens comes standard. The viewing angle range and zoom power can be set in line with conditions where the camera is installed.

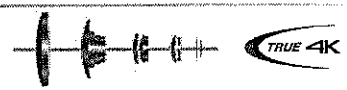
Using a proprietary 3-drive lens system, Panasonic has developed a high-power 6x zoom lens with an ultra-wide viewing angle of 100°, a type of lens that is extremely difficult to produce using conventional optical design methods.

The lens is capable of capturing an extremely wide area, allowing effective 4K coverage of outdoor areas.



- Ultra-wide-angle 100°: Wide-angle monitoring of parking lots, stadiums etc, utilizing 4K resolution
- Telephoto 17°: Monitoring of individuals or crowds from a distance

PANASONIC'S TRUE 4K TECHNOLOGY



Panasonic's Propriety 3-Drive Lens System

The i-PRO TRUE 4K NW Camera is equipped with Panasonic's proprietary 3-drive lens system, which simultaneously drives two zoom lenses and one focus lens. Having three lenses all driven independently allows them to be smaller and their drive areas reduced, and has thus enabled us to make the camera compact enough to fit in a standard camera body while providing a high-power 6x zoom with high 4K picture quality viewed from an ultra-wide-angle of 100°.

Refined Resolution and Superior Contrast for a Higher Level of Video Imaging

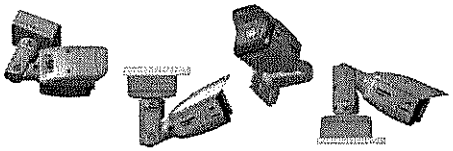
In order to create a sharp, clear texture, 12 lenses in four groups are used to provide the ultra-high resolution expected of 4K in every part of the image, from center to edge. Both a higher level of representational precision and a more compact lens system are achieved. Plus, all lenses are glass, while aspheric lenses are also used extensively to reduce aberrations to the ultimate degree. The clear depiction, sharp resolution and beautiful color reproduction necessary for true 4K monitoring have all been successfully achieved.

EASY INSTALLATION

Various design features have been added to shorten installation times. The camera has also been designed to be capable of pointing in the preferred direction at the preferred location.

Dome Type WV-SFV781L

When attached to the mounting plate, the camera's direction can be easily changed at intervals of 90°. Rotating the viewing area around the lens further allows the lens to be pointed in the desired direction. The combination of a 6x optical zoom and autofocus also shortens the amount of time required for fine tuning the installation.



Box Type WV-SPV781L

A total of three adjustment points on the camera base and arms enables its position to be fine tuned to allow accurate pointing.

VIDEO INSIGHT v6 – VIDEO MANAGEMENT SOFTWARE NOW BUNDLED WITH MONITORCAST (ACCESS CONTROL)

Now Supporting i-PRO Extreme H.265 Cameras
Including Bundled VI Software License on all Panasonic and Advidia Cameras.

Panasonic acquired Video Insight, a leading developer of video management software, to expand its surveillance recording and monitoring capabilities and fulfill the company's ongoing strategy of delivering choice and flexibility to end users.

Video Insight is a member of the Panasonic Group and a leading IP video surveillance management software used by over 25,000 customers in the financial, government, retail, and transportation sectors with a very strong presence in the education market consisting of 5,000 K-12 school/college customers. Video Insight is the easiest and most cost-effective Enterprise VMS with support for over 3,000 camera models and integration with the top access control solutions in the market.

Panasonic is including a bundled camera license with all recent-model i-PRO and Advidia cameras in combination with Video Insight software. For a list of Panasonic camera models bundled with a unlimited camera license, visit us.panasonic.com/VideoInsight.

MONITORCAST

MonitorCast is an enterprise access control product that comes bundled with VI Monitor 6. MonitorCast v3.5 features compliment most facilities, allowing them to access to the most used features in the access control industry. In addition, MonitorCast is designed to support Mercury access control boards.

MonitorCast

VI TV

VI TV is a security camera video management app on Apple TV that allows users access to live and recorded video from any camera on any Video Insight server.

PRE-CONFIGURED SERVERS

Video Insight Servers come pre-loaded, activated, and tested with the full Video Insight Software Suite. The "plug and play" servers are ready immediately out-of-the box for a quick start to record and view your cameras. We have a wide variety of NVR configurations available based on the number of IP cameras, the amount of storage, and the processing capacity. Both towers and rack mounts are available. For a full list of pre-configured servers, please visit business.panasonic.com/products-videosurveillance-servers.

Panasonic

ADVIDIA

The Advidia brand is a solid performing yet cost effective product set that when coupled with the Video Insight Recording Solution, offers a perfect complement to the Panasonic brand of highly featured products and solutions. Advidia cameras come in many different form factors (bullet, dome & PTZ) to meet your needs. Visit business.panasonic.com/advidia for more information.

advidia

YOUR SYSTEM SCALES WITHOUT LIMITATIONS

Video Insight's 64-bit VMS supports an industry-leading number of cameras per server, unlimited scalability, client workstations, users with simple integration to legacy systems, centralized administration of the system and more.

LOWER TOTAL COST OF OWNERSHIP (TCO) THAN ANY OTHER ENTERPRISE VMS

Affordability, flexibility and a simple licensing model are what sets Video Insight apart. VI provides the most cost-effective enterprise-class VMS solution on the market. With Video Insight, end users receive a perpetual license that includes a wide range of enterprise features—and no hidden fees.

EASY INTEGRATION WITH EXISTING SYSTEMS

Video Insight easily integrates with your existing systems, including access control and building management. Our robust SDK and API make it easy to integrate video or alarms into a centralized console.

MAXIMIZE UPTIME AND PROTECTION

Maximize protection with redundant recording to multiple Network Video Recorders (NVRs). Health Monitor, automated failover, and easy-to-use load balancing allow migration of cameras between servers. All of these features can provide high system availability for both live and recorded video at all times. User access privileges and security features ensure tamper-free protection of all your video, data and audio.

VI MOBILE—SURVEILLANCE ANYWHERE

VI Mobile is a video management system app that allows authorized "on the go" users to access live and recorded video from any camera on any server. Users can view and control PTZ cameras, and view images in full resolution and high frame rates with H.264. The app imports all settings from a single address, providing users access to individual cameras or groups of cameras in predefined layouts. Users can save or email snapshots, view recorded images by alarm or specific times and view thumbnail images on facility maps. Users can also trigger events to display customized actions on Monitor Station/VI Monitor directly from mobile devices.

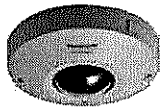
DELIVERING SHARPER IMAGES WITH HIGHER SENSITIVITY

Presenting a 9 Megapixel 360-degree Network Camera with Built-In Analytics.

ULTRA 360 4K

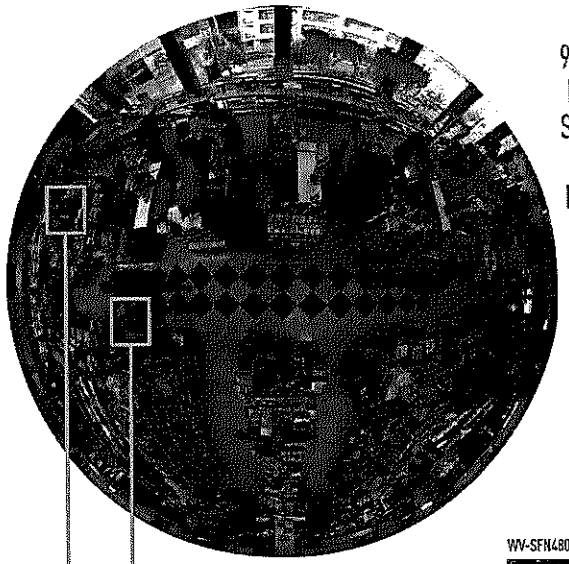
WV-SFN480

360-degree Indoor Dome
9 Megapixel Network Camera



WV-SF438

360-degree Vandal Resistant
Outdoor Dome
9 Megapixel Network Camera

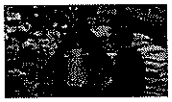


9M (3K × 3K) HIGH-RESOLUTION H.264 PERFORMANCE ENABLES SHARP RENDERING OF OBJECTS AND PEOPLE'S FACES AT THE EDGE SECTIONS OF THE FISHEYE

NOW WITH SMART CODING

UP TO **80%** BANDWIDTH REDUCTION

WV-SFN480



WV-SF438

Panasonic

COMPLETE WITH POWERFUL ANALYTICS BUILT-IN

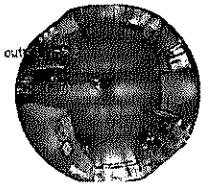
HEAT MAP*

This provides visualization of the traffic patterns by people and how long they stay in one place. For example, you can place products based on how people tend to flow within the store and arrange objects so that they do not interfere with the movement of people.

Requires WV-ASM300/ASM200 client.

PEOPLE COUNTING

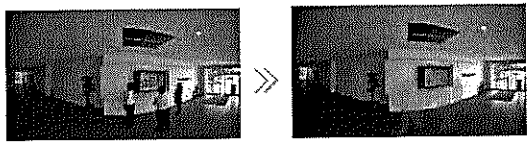
This counts the number of people passing through a selected preset location. The People Counting function can provide statistics on the number of people entering and leaving a specific zone and other useful data.



MOVING OBJECT REMOVAL (MOR)

Enables monitoring of changes only to the surrounding environment by removing people and other moving objects from the video. This function can be used with camera images for confirming how products placed in a salesroom are selling while also respecting the privacy of customers in store surveillance.

*To enable analytics, please add the optional WV-SAE200 software.



The ULTRA 360-degree lineup features the "Three Ultras" for establishing a new standard for video monitoring.

ULTRA HIGH RESOLUTION

Includes a 12-megapixel high-sensitivity sensor capable of 4K image output for producing high-resolution images up to 9M (3K × 3K) in Fisheye mode. Detailed monitoring in all directions using the wide range of distribution modes and Multi-stream. (Fisheye mode, Panorama mode, Double Panorama mode, Quad PTZ mode, Single PTZ mode, 4 Stream mode).

ULTRA HIGH SENSITIVITY

Provides natural-looking, crystal-clear images even in dim locations. Includes a new powerful image sensor and new lens. Automatic switching between day/night shooting modes and the linked Auto Back Focus enables monitoring even in dim environments.

ULTRA INTELLIGENT

Heat-map / People Counting (Cross line) / MOR (Moving Object Remover). Focuses on the movement of people for providing a video-based intelligent solution for use in marketing.

STANDARD H.264 LINE-UP FEATURES HIGH PERFORMANCE & NEW SMART CODING TECHNOLOGY

UniPhier® The next-generation UniPhier® Camera Platform is the heart of Panasonic's top-of-the-line 6 Series, midrange 5 Series, 3 Series and now entry-level 1 Series camera lines. Featuring a newly developed high-sensitivity MOS Sensor and Shadow H.264 Compression Engine, the powerful UniPhier® Platform delivers sharp and natural color images with exceptional low-light performance capability (down to .01 lux). The new Codec Engine attains the best video compression performance to provide superb image quality while providing savings on bandwidth and the recording system.

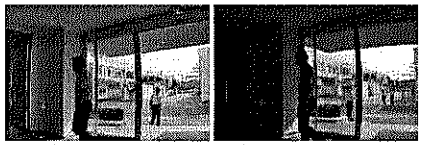
The UniPhier® Platform—developed exclusively by Panasonic for use in its 6, 5, 3 and 1 Series cameras—offers innovative functions like Enhanced Super Dynamic Range (133dB) video dynamic range and 60-frames-per-second performance in 1080p and 720p, delivering outstanding performance even in the most dynamic and challenging lighting conditions. The cameras have the ability to encode up to four H.264 streams to ensure simultaneous real-time monitoring, high-resolution recording and mobile access.

NEW 1 SERIES MODELS *NOW AVAILABLE*

WV-SFV110/M WV-SFN110 WV-SFV130/M WV-SFN130

ENHANCED SUPER DYNAMIC LIGHT RANGE COMPENSATION

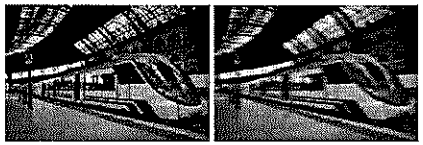
Featuring industry-leading 133db (1 Series up to 122dB) Enhanced Super Dynamic and Adaptive Black Stretch (ABS) technologies, the new 1/3/5/6 Series cameras allow you to see images that you couldn't see before.



Enhanced Super Dynamic: 133dB Wide Dynamic Range | Conventional Super Dynamic Range

EXCEPTIONAL IMAGE QUALITY

The 3/5/6 Series cameras' ultrafast frame rate of 60 fps combines with their high-resolution video quality to ensure crisp, smooth motion for applications in casinos, airports, stadiums and much more.



60 fps Simulated | 30 fps Simulated

Panasonic

SMART CODING REDUCES BIT RATES UP TO 80% WITHOUT SACRIFICING IMAGE QUALITY

Smart Coding is the only in-camera surveillance technology that reduces bandwidth usage up to 80% without sacrificing video quality. This more efficient, fully compliant H.264 implementation delivers the same high quality resolution and frame rates topreserve forensic detail, while substantially lowering your storage and network costs.

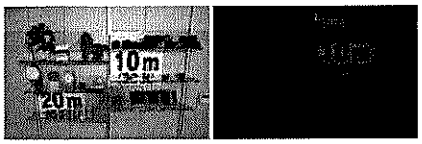
UP TO 80% BANDWIDTH REDUCTION

Panasonic combines three advanced signal processing technologies – Group of Picture Control, 3D-Multi-Process Noise Reduction and Frequency Divided Filter – which together provide a bit rate reduction of up to 80%, in the video without losing image quality.

This breakthrough innovation comes standard on all new 1, 3, 5 and 6 Series cameras, or as a free upgrade for these models.

HIGH SENSITIVITY WITH MULTIPROCESSING NOISE REDUCTION

With a combination of 3D noise reduction and multiprocess noise reduction (MNR), both the bright area and the dark area of an image are faithfully reproduced with minimum noise in high-sensitivity image recording.



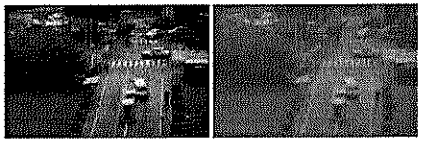
WV-SFV631 at 0.57 Lux | Conventional Camera at 0.57 Lux

EASE OF INSTALLATION

The 1/3/5/6 Series cameras are easy to install, with six patterns of holes for various gang boxes, a 4-point locking mechanism to simplify the mounting direction, a non-screw lock PTY mechanism to enable quicker angle adjustment and a flat-bottom body to enable installation without a surface mounting unit.

WEATHER COMPENSATION

To help improve the captured image in poor weather conditions, such as smog, fog or smoke, the visibility of the 1/3/5/6 Series cameras can be enhanced in any weather condition.



Fog Compensation ON | Fog Compensation OFF

SMART DOF (DEPTH OF FIELD)—6 SERIES ONLY

With this new feature, a 6 Series camera controls both the iris and the shutter to deliver a deeper depth of field. The depth of field (DOF) is automatically optimized to enhance focus for both near and far objects within the camera's view.

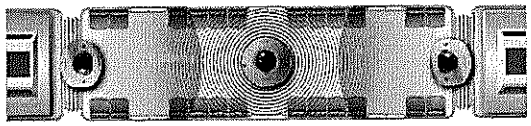
6 Series | Conventional Fixed Dome Camera

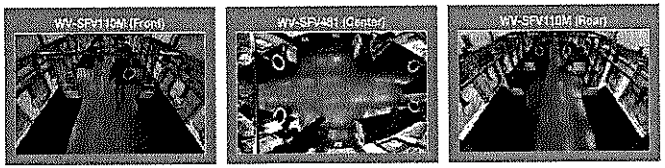
FOR MORE INFORMATION ON 6 Series, 5 Series, 3 Series NEW, AND 1 Series NEW, VISIT www.us.panasonic.com/uniphier

TRANSIT SURVEILLANCE SOLUTIONS

Our NEW i-PRO Transit solution equips transit agencies with the tools to provide a safer environment for bus passengers and drivers while protecting the vehicles from theft and vandalism and reducing expensive manpower requirements to manually upload video data. The system provides complete video surveillance of the inside and outside of the bus—improving response times to incidents as well as increasing the chances of arrest and conviction should a crime occur, helping reduce time spent in litigation.

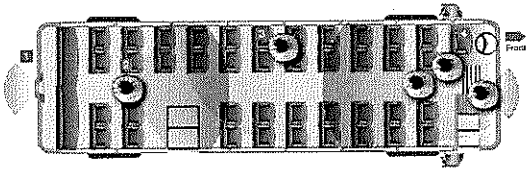
IN TRAINS





180-degree Panorama mode

IN BUSES



Wide Coverage without Blind Spots
The application of rain-wash coating to the dome cover provides clearer visibility, allowing good security to be maintained even when the camera is installed in an environment subject to rain or water splashing. In addition, the coating resists attachment of dirt to the dome cover, and also allows dirt to be washed off easily during rainfall or other exposure to water.

Compatible with EN50155 "Railway applications" and EN45545 "Fire safety on rolling stock"
EN50155 "Railway applications": Electronic equipment used on rolling stock
EN45545 "Fire safety on rolling stock": Preventive fire protection in railway vehicles – Fire behavior and fire side effects of materials and parts.

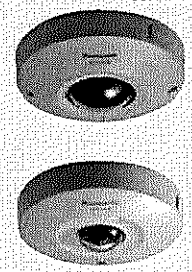
Panasonic

TRANSIT SOLUTION RELATED PRODUCTS

360-degree Dome Network Cameras

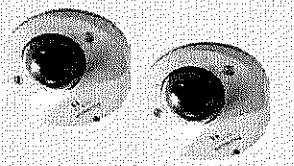
WV-SFV481
- 360° monitoring with a wide variety of transmission modes: Panorama, Double Panorama, Quad PTZ, Single PTZ, and Quad streams (H.264)
- 9 mega (2,992x2,992) pixel images up to 15 fps by new 4K ULTRA HD engine
- Compatible with EN50155 "Railway applications" and EN45545 "Fire safety on rolling stock"
- Low profile design for discrete installation
- Vandal resistant mechanism for high reliability
- IP66 rated water and dust resistant. Compatible with IEC60529 measurement standard, Type 4X (UL50), NEMA 4X compliant

WV-SW458MA
- 360° monitoring with a wide variety of transmission modes: Panorama, Double Panorama, Quad PTZ, Single PTZ, and Quad streams (H.264/VGA)
- 1080p Full HD images up to 30 fps
- Compatible with EN50155 "Railway applications" and DIN 5510-2 "Fire safety on rolling stock"
- Low profile design for discrete installation
- Vandal resistant mechanism for high reliability
- IP66 rated water and dust resistant. Compatible with IEC60529 measurement standard, Type 4X (UL50), NEMA 4X compliant



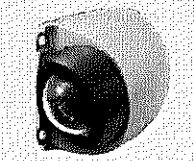
Compact Size Dome Network Camera

WV-SFV130M/110M
- 1080p Full HD images (WV-SFV130M), 720p HD images (WV-SFV110M) up to 30 fps
- High sensitivity with Day/Night (Electrical) function: 0.04 lx (Color), 0.03 lx (B/W) at F2.3 (WV-SFV110M)
- Compatible with EN50155 "Railway applications" and EN45545 "Fire safety on rolling stock".
- Low profile design for discrete installation
- Vandal resistant mechanism for high reliability
- IP66 rated water and dust resistant. Compatible with IEC60529 measurement standard, Type 4X (UL50), NEMA 4X compliant



Rugged Mobile Network Camera

WV-SBV131M / WV-SBV111M
- 1080p Full HD images (WV-SBV131M), 720p HD images (WV-SBV111M) up to 30 fps
- High sensitivity with Day/Night (Electrical) function: 0.04 lx (Color), 0.03 lx (B/W) at F2.2 (WV-SBV111M)
- The camera conforms to the IP66, Type 4X (UL50) and IP6K9K, is compliant with NEMA 4X ratings, and provides high dust resistance and waterproof performance.
- Achieves high-level vibration resistance with EN50155 and MIL-STD-810G compliance
- Adoption of a scratch resistant dome cover with a compact and sleek design is optimal for cameras installed on the outside of a vehicle.
- Vandal resistant mechanism for high reliability

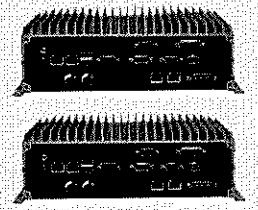


Transit Recorders

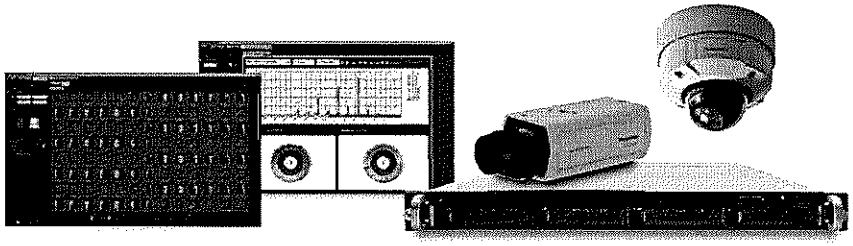
i-PRO TRANSIT NETWORK VIDEO RECORDER
- Powered by the Intel® Core™ i7 Processor for high-speed performance
- Runs Windows® OS for optimal software compatibility
- Supports two M12 Ethernet connections

RECOMMENDED MOBILE RECORDER FOR BUS (VTC7110)*
Bring unrivaled computing power and exceptional video graphics handling onto the bus with this rugged, mobile-ready recorder. With its ability to record and wirelessly transmit HD video from up to four IP cameras (up to 16 with an optional expansion switch), transit control rooms can be given complete situational awareness of the vehicle in real time.

*This is a product from NEXCOM International Co., Ltd. Contact a sales representative to purchase it.



WV-ASF900W—FacePro™



Windows® server-based face recognition and analytics platform featuring high-speed face searching and matching.

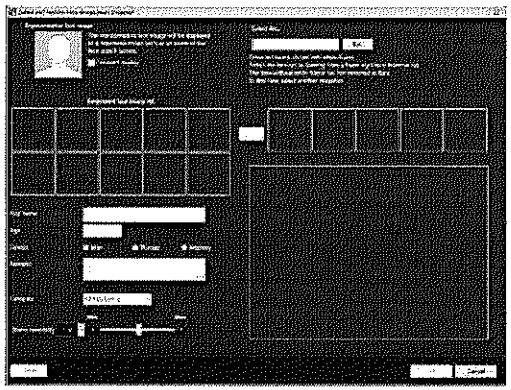
The WV-ASF900W FacePro™ Facial Recognition is a software solution and software engine that automatically performs verification of a person's face using live video streams or digital images from Panasonic i-PRO cameras to match against a database of enrolled faces and perform notification and alerting of face matches. Boasting a real-time processing capacity of up to 20 cameras per server, FacePro can execute high-speed searches of up to 1,000 registered reference faces on both live and recorded video, and each server can store up to 10 million detected face images depending on configuration.

For flexibility, reference face images can be registered from source video or imported via BMP, JPG and PNG files and can be searched for a match in a matter of seconds. FacePro also provides advanced age and gender analytics reporting and the ability to set flexible alarm triggers on matched faces using live cameras. The platform can support multiple simultaneous client sessions with Panasonic's WV-ASM200W and WV-ASM970W software applications.

In addition to live-camera face matching, FacePro features the ability to perform searches and display face matches from a database of historical captured faces. Face match results are displayed for each camera in the system and in chronological order, enabling you to quickly track a person of interest moving through your facility. More refined face searching can be performed by specific camera or date.

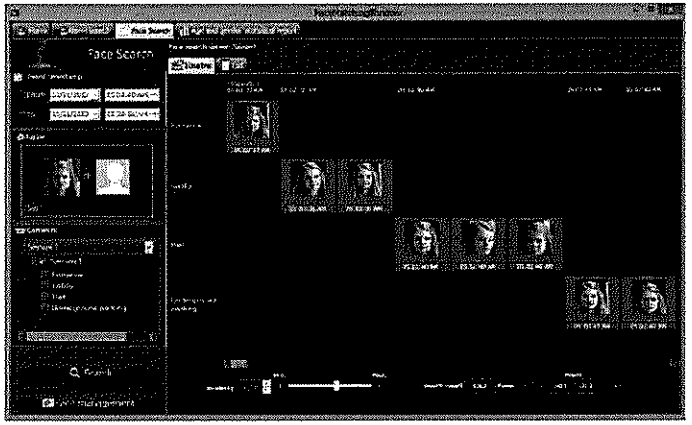
How Do I Benefit from FacePro Facial Recognition?

It reduces costs by eliminating personnel to monitor entrances. It provides instant notification, and lowers your risk by reducing and preventing violent confrontations during capture, as well as by instantly alerting you of unwanted persons entering your facility. It's simple and easy to use and does not require physical contact, and it's the only feasible solution to use with large crowds in your facility. In addition, it improves your service and sales potential by recognizing customers.



Panasonic

Its analysis capabilities permit you to count the number of detected faces and evaluate their age and gender, displaying the results on the screen as a statistical graph. This graphical view of a visitor's age and gender can be provided with a 15-minute, 30-minute, hourly, daily, weekly and monthly view for retail and marketing applications. This statistical data can be saved as a CSV file for analytical use.



- Fast multicamera face matching on both live and previously captured video
- Real-time processing capacity of up to 20 cameras* per server with a 10 million-face database capacity
- Enrollment of 1,000 "Known Faces" into "Watch Lists" for Instant Match Alerts
- High-speed search of video recordings based on reference faces (5 million captured faces searched in about 3 seconds)
- Utilizes Face Best-Shot option (SAE-ASF), available for Panasonic i-PRO cameras (WV-SP306, WV-SP305 and WV-SC385 models and WV-SPN631, WV-SPN611, WV-SPN531, WV-SPN311 models and WV-SFV631LT model)
- Flexible alarm triggers on matched faces using live cameras
- Requires ASM300/ASM200/ASM970 client software
- Ideal for Panasonic customers who have either WJ-ND400 or WJ-NV200/300 NVR

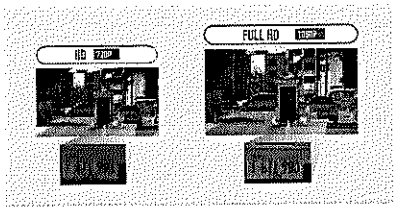
*12 Cameras or more require dual-cpu FacePro server model.

HIGH PICTURE QUALITY, HIGH SENSITIVITY

Providing natural looking, sharp video optimized for a wide range of installation environments and conditions.

HIGH RESOLUTION

The Panasonic i-PRO SmartHD Series of network cameras are high definition (HD) cameras capable of shooting video at Full HD (1,920x1,080) and HD (1280x720). These cameras can record up to 60 images per second (60 fps), even at Full HD resolutions for the capture of exceptionally clear images of moving objects. The resolution, frame rate, and other parameters can be adjusted for the installation location and subject for obtaining the optimum settings for your specific environment.

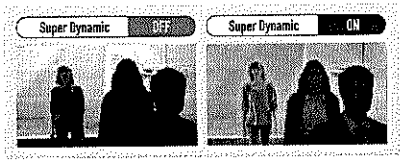


Smart DoF (Depth of Field)

The i-PRO SmartHD Series cameras are ideal for shooting in locations with depth. When recording areas with depth, such as straight passageways or wide spaces, the optimum image can be captured with focal points simultaneously at both the near and far ends of the image.

ENHANCED SUPER DYNAMIC

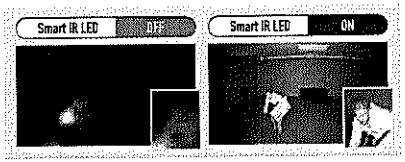
In installation environments with differences in brightness, the Super Dynamic (SD) function brightens dim areas with low visibility and reduces the brightness of areas where blown-out highlights can occur due to over-brightness, providing a natural image that is easy to view. In building entrances and similar locations, this enables the capturing of sharp images of people's faces as they enter from the outside when exposed to direct sunlight.
With the Super Dynamic (SD) function, the camera can be installed without worrying about lighting conditions that vary based on the time of day and season.



0 LUX PITCH DARK LOCATIONS

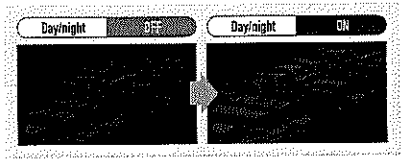
Cameras with a **Smart IR LED** can be used to monitor environments that are completely dark. This enables areas without the level of illumination required to be monitored to prevent graffiti, illegal dumping, and property destruction.

Smart IR LED can illuminate a wide area so that monitoring is not limited to a specific part of the image. The built-in IR LED of the i Series can capture subjects up to 30 meters away. Light levels are automatically adjusted for blown out highlights and screen whitening when the IR LED shines on a subject close-by, making the right areas highly visible.
The IR LED is covered to make it difficult to detect from the outside or to know which way the lens is pointing.



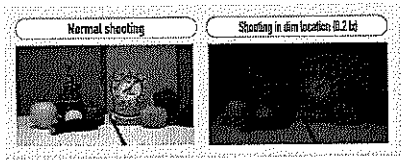
DAY/NIGHT AUTOMATIC MODE SWITCHING

In stores, warehouses, and other locations where it is bright during the day but dark at night, the camera can automatically determine the brightness of the area and record video under the optimum conditions. During nighttime hours, the camera automatically switches to black-and-white video for providing footage with high visibility.



STRONG LOW LIGHT PERFORMANCE IN COLOR

Monitoring is possible even in dim locations.
Panasonic's proprietary technology enables high-sensitivity shooting that enables distinguishing of color hues even in dimly-lit locations.

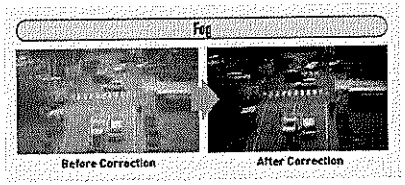


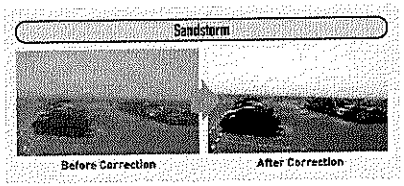
*Supported functions and specifications differ according to the models. See the specifications for each model.

IMAGE COMPENSATION

FOG / SANDSTORM COMPENSATION

A full array of features are provided for optimum shooting in fog, sandstorms, and other hazy environments.
Haziness due to fog or a sandstorm is automatically removed by this function providing clear, sharp video footage.

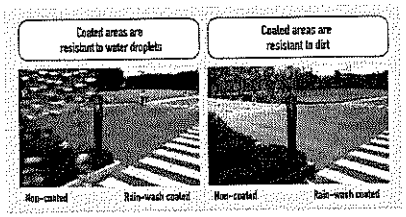




VISIBILITY ENHANCEMENT COATING

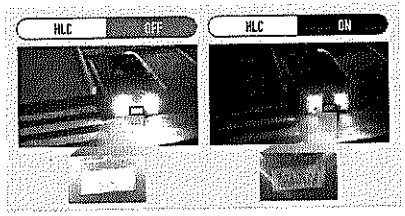
Water droplets from rain can adhere to the dome cover of the camera and hinder the shooting of clear images.
In our Rain-wash coated models, a special coating is applied so that water droplets are repelled allowing clear images to be recorded even during rainfall. This coating is also effective at repelling dirt so that cleaning of the dome cover is required less frequently.

- WV-SFV781L / WV-SFV781L / WV-SW598 / WV-SW397A / WV-SW396A / WV-SW395A



HIGH LIGHT COMPENSATION

For cameras installed at locations along roads or at entrances and exits to parking lots, the glare of headlights and other strong light sources shining into the camera lens can prevent the reading of license plates and surrounding areas.
Enabling the HLC (High light compensation) function reduces the brightness of strong light sources and enhances the surrounding areas for optimum video recording.



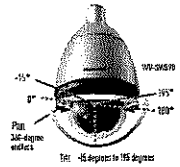
*Supported functions and specifications differ according to the models. See the specifications for each model.

MONITORING WITHOUT BLIND SPOTS

PTZ (Pan-Tilt-Zoom) cameras and omnidirectional cameras enable wide-area monitoring. Multiple cameras can be combined for more efficient monitoring and to eliminate blind spots.

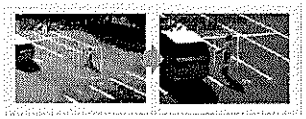
PTZ CAMERA FOR WIDE RANGE MONITORING AND A HIGH ZOOM RATIO

Normal fixed lens cameras can only monitor in a certain direction, but the lens of a PTZ camera can be operated remotely to switch to the direction you want to view.
Detailed areas can also be zoomed in to a maximum of 90x. Since the cameras can be infinitely rotated 360 degrees at a high speed of 300 degrees/sec, you will not miss the subjects you want to monitor.



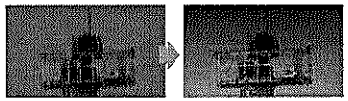
Preset Position / Preset Sequences
If the locations you want to monitor are fixed, you can register them in advance and move to them with a single touch or automatically patrol the registered locations. Data can be saved to a recorder when automatically patrolling the registered locations, without intervention by an operator. Ranges that cannot be covered with a single fixed lens camera can be covered by patrolling.

Advanced Auto Tracking
The pan, tilt, and zoom functions can be combined for automatically tracking the movement of a subject.
If the tracked subject moves out of the camera's shootable range, notification is sent to other cameras so that the tracking process can be carried on without interruption.



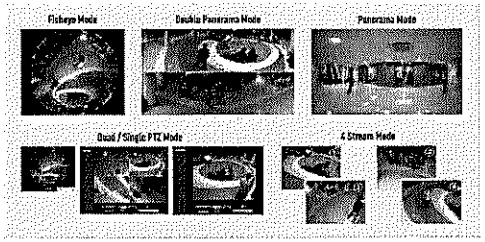
AUTO EYELID MECHANISM (AEM)

When the direction of the camera lens is tilted upward from the horizontal plane, the video image can appear doubled due to the distorting effect of the dome cover and other causes.
The Panasonic WV-SW598A uses an AEM function to reduce this double-image effect and enables shooting of images up to 15° upward from the horizontal plane. This allows the use of auto tracking and other functions over a wider movement range of the subject.



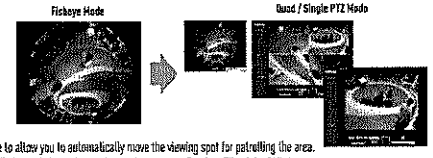
360-DEGREE MONITORING

The 360-degree Network Camera can capture images around the camera lens in all directions.
Available modes include Fisheye, Double Panorama, Panorama, Quad PTZ, and 4 Stream, and the camera can output video images based on the selected video mode for reduced loads on the viewing system.



DE-WARPING

The 360-degree Network Camera can generate and output video images for each mode within the camera unit. Also, the Network Disk Recorder (WJ-NV300) or i-PRO Management Software (WV-ASM200) can be used on 360°omnidirectional images captured by Fisheye Mode to convert to a format that is easier to view, such as Quad PTZ. Because the 360°omnidirectional video image is stored in the recorder, nothing is missed within the viewing area.



In addition, the area that you want to view can be selected using a controller or mouse to allow you to automatically move the viewing spot for patrolling the area.
Even during patrolling, areas not visible on the screen are all stored in the recorder in Fisheye Mode so that nothing is left unseen. The Pan-Tilt of the 360-degree Network Camera does not use mechanical components, and so provides a smooth movement without the mechanized wear that could adversely affect camera longevity.

*Supported functions and specifications differ according to the models. See the specifications for each model.

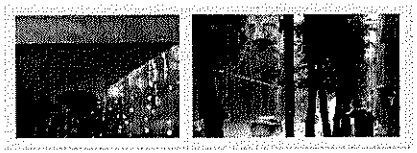
SUPPORT FOR VARIOUS INSTALLATION ENVIRONMENTS

Panasonic network cameras are available in a full lineup of products custom-tailored for a wide range of installation environments. Their specialized design also helps to reduce the work required for installation.

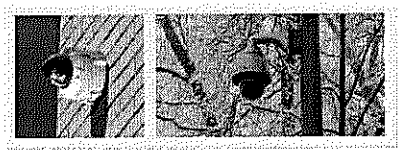
SELECT THE SPECIALIZED MODEL FOR YOUR INSTALLATION ENVIRONMENT

Rainwater protection for outdoor installations
The outdoor models have a waterproof and dustproof structure that is rated IP66 for outdoor installation without requiring insertion in a special housing or other weatherproofing protection.

IP66 standard



Temperature protection for outdoor installations
Models can be selected to match your specific installation conditions and can be installed in environments with temperatures ranging from +55°C to -50°C.
*The supported temperature range varies depending on the specific model.



DEHUMIDIFICATION DEVICE

The network camera outdoor models have a built-in dehumidifier device to lower the internal humidity for preventing cloudiness due to condensation. This eliminates blurry video images caused by clouding of the camera dome cover when installed in locations with high humidity or extreme temperature changes over the course of the day.

Vandal Resistant
When installed in locations that are prone to vandalism and tampering, measures are required for preventing damage to the camera.
Models featuring the Vandal Resistant mechanism are ideal for installation in these types of locations.

VANDAL RESISTANT MECHANISM

Models featuring the Vandal Resistant mechanism include a shock absorber around the internal lens.
Even if the dome cover is subjected to a potentially damaging impact, the shock absorber will absorb this impact to protect the internal structure from damage.

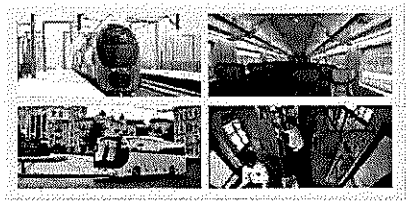
*Supported functions and specifications differ according to the models. See the specifications for each model.

SUPPORT FOR VARIOUS INSTALLATION ENVIRONMENTS (continued)

Panasonic network cameras are available in a full lineup of products custom-tailored for a wide range of installation environments. Their specialized design also helps to reduce the work required for installation.

Onboard Model

A lineup of network cameras is also available with anti-vibration and other specific features for installation in cars, buses, and other vehicles.
The WV-SBV131M, WV-SBV111M, WV-SW155MA, WV-SW158, WV-SW458MA, and WV-SFV481 are compliant with the EN50155 European railway standards.

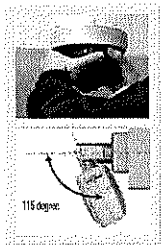


Mount on the Outside of the Vehicle

The rugged mobile network camera WV-SBV131M, WV-SBV111M meets the United States Department of Defense Military Standards MIL-STD-810G to withstand even the harshest of environments.
Also meeting the highest International Protection Standards IP6K9K, the camera is dust tight and waterproof.
Meeting such standards allows the camera to be mounted on the outside of busses and trains, which are constantly shaking and rained on.
The lenses' hard coated surface allows the vehicle to be put through a carwash.
Capable of withstanding temperatures ranging from -40 °C and up to +60 °C (-40 °F and up to 140 °F) the camera is highly versatile.

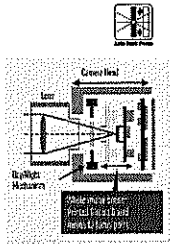
Reduced Installation Time

The i-PRO SmartHD Series cameras include a number of features for reducing the time required for installation.
If you want to change the camera direction after installation, the camera direction can be changed in 90° steps without removing the base (SFV, SFR, SFN models).
The dome cover can also be easily removed to change the direction of the lens.
For Outdoor Box type cameras (SPW models), the stay can be bent to one of two levels to allow installation with a high degree of freedom.



ABF (Auto back Focus)

The ABF feature automatically adjusts the image sensor position when changing from color to B/W mode, optimize the back focus required for clear, sharp images. In addition, the one-push Auto Back Focus feature sharply reduces the time required to focus cameras during installation, allowing focus to be set using the optional system controller.
The ABF function can also automatically sense and adjust to slight focal length changes due to parts warping caused by temperature changes in the area where the camera is installed.



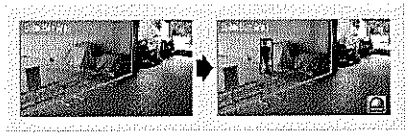
Please find the Transit camera specifications on page 25.

*Supported functions and specifications differ according to the models. See the specifications for each model.

INTELLIGENT VIDEO MOTION DETECTION

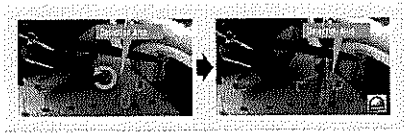
The camera itself features intelligent functionality for notifying the administrator about changes to situations or dangers using a variety of methods. This eliminates the need to constantly watch the screen in the control room for reducing the TCO.

INTRUDER DETECTION
Crossing over the fence



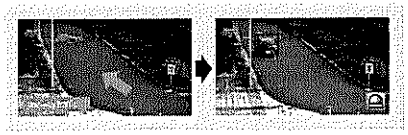
Detects
- the motion of objects in the viewing or detection area. Frames and tracks are displayed around the detected moving object in the live image. Up to 8 objects can be detected simultaneously.

LOITERING DETECTION
Objects staying longer than a specified time



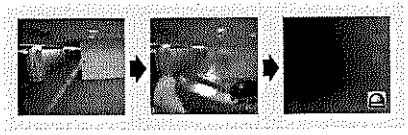
Detects
- objects loitering for longer than a specified time, from 10 sec to 5 min.

DIRECTION DETECTION *1
Objects moving in a specified direction



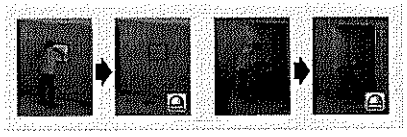
Detects
- objects moving in a specified direction. Up to 8 directions can be specified.
*1 Type 1, Type 2, Type 3 network cameras. Refer to the specification pages P.17 - 27 (except for WV-SFN481 and WV-SFR481).

SCENE CHANGE DETECTION
Interference such as blockage of the lens with a cloth or spray paint



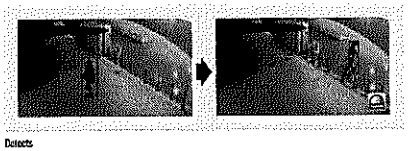
Detects
- interference caused by tampering with the camera, such as a manual change in the camera direction or blockage of the lens with a cloth or spray paint.

OBJECT DETECTION *2
Removed Object Detection **Abandoned Object Detection**



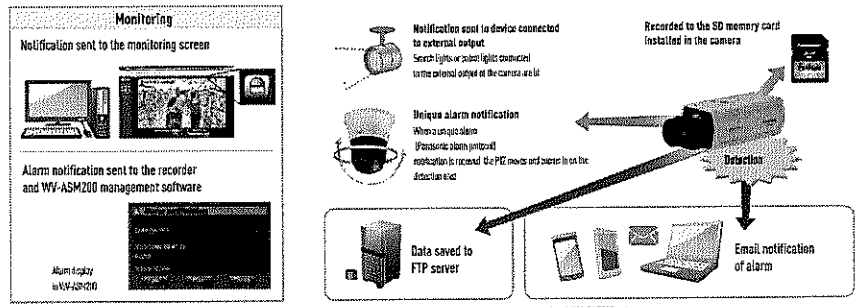
Detects
- alerts the operator when a lost or removed object is detected.
*2 Type 2, Type 3 network cameras. Refer to the specification pages P.17 - 27 (only).

CROSS LINE DETECTION *2
A person who crosses the virtual line to the specified direction



Detects
- alerts the operator when people or objects cross the imaginary lines.
*2 Type 2, Type 3 network cameras. Refer to the specification pages P.17 - 27 (only).

ACTIONS WHEN AN ALARM IS DETECTED



*Supported functions and specifications differ according to the models. See the specifications for each model. To enable I-VMD, please add the optional WV-SAE200 software.

Panasonic

CAMERA TYPE		DAY/NIGHT		
Appearance		NEW Available September 2014 ONVIF S WV-SUD639 4D1080P	ONVIF S G WV-SW598A 4D1080P	ONVIF S G WV-SW397B HD720P
Sensor		1/3 MOS	1/3 MOS	1/3 MOS
Codec and Transmission	Video Codec	H.264 / JPEG	H.264 / JPEG	H.264 / JPEG
	H.264 multi stream	4	2	2
	JPEG multi stream	6 (Variable)	6	6
	Smart Coding	—	—	—
Max. Resolution	16 : 9	1920 x 1080	1920 x 1080	1280 x 720
	4 : 3	1280 x 960	1280 x 960	1280 x 960
Max. FPS @Max. Resolution	H.264	60 fps (1080p)	30 fps (1080p)	30 fps (2.4 MP)
	JPEG	30 fps (1080p)	30 fps (1080p)	30 fps (2.4 MP)
Super Dynamic / WDR / BLC		Super-D	Super-D	Super-D
Day/Night		Yes (ICR)	Yes (ICR)	Yes (ICR)
ABF (Auto Back Focus) / Focus Assist		Auto Focus	Auto Focus	Auto Focus
Min. Illumination	Color	0.06 lx @F1.6	0.15 lx @F1.6	0.3 lx @F1.6
	Color (Sens up)	0.004 lx (16x)	0.009 lx (16x)	0.019 lx (16x)
	B/W	0.0 lx @F1.6 (w/IR)	0.018 lx @F1.6	0.04 lx @F1.6
	B/W (Sens up)	—	0.001 lx (16x)	0.003 lx (16x)
Lens		f= 4.3 to 129 mm, F1.6	f= 4.3 to 129 mm, F1.6	f= 4.3 to 129 mm, F1.6
Angular field of view	16 : 9	H: 2.3 to 64 deg. / V: 1.3 to 38 deg.	H: 2.6 to 64.6 deg. / V: 1.6 to 38.2 deg.	H: 2.6 to 64.6 deg. / V: 1.6 to 38.2 deg.
	4 : 3	H: 1.8 to 50 deg. / V: 1.3 to 38 deg.	H: 1.4 to 44.4 deg. / V: 1.1 to 33.8 deg.	H: 1.4 to 44.4 deg. / V: 1.1 to 33.8 deg.
Pan	Range	Endless	Endless	Endless
	Speed	200 deg/sec	300 deg/sec	300 deg/sec
Tilt	Range	Upright: -50 to +90 deg. / Forward tilt: -90 to +90 deg. / Hanging: +30 to -90 deg.	-15 to +195 deg.	-15 to +195 deg.
	Speed	200 deg/sec	300 deg/sec	300 deg/sec
360 Pan-Flip		—	—	—
Number of Preset Positions		256	256	256
Patrol		Yes	Yes	Yes
Auto Tracking		Yes	Yes (advanced)	Yes (advanced)
Optical Zoom		30x	30x	30x (45x with Extra Zoom at HD)
Digital Zoom		12x	12x	12x
VMD (Video Motion Detection)		Yes (4-areas)	Yes (4-areas)	Yes (4-areas)
i-VMD (Intelligent VMD) (w/extension software)		—	—	—
VIDS		Yes (8-areas)	Yes (2-areas)	Yes (2-areas)
Max. Connection		14	14	14
Audio	In (Line)	Yes	Yes	Yes
	In (Built-in MIC)	—	—	—
	Out	Yes	Yes	Yes
	Codec	G.711 / G.726 / AAC	G.711 / G.726 / AAC (*2)	G.711 / G.726 / AAC (*2)
	Audio Detection Alarm	Yes	Yes	Yes
SD memory Card	Slot	—	Yes (SDXC)	Yes (SDXC)
	Password & Alter Detection	—	—	—
	Audio REC	—	Yes	Yes
External I/O		Yes (3) (*4)	Yes (3) (*3)	Yes (3) (*3)
Monitor Out		—	Yes (Composite)	Yes (Composite)
Vandal Resistant		20J, IK10	20J, IK10	20J, IK10
Water and Dust Resistance		IP67 / IP66 / NEMA 4X	IP66 / NEMA 4	IP66
Temperature		-58°F to +140°F	-58°F to +131°F (24 V / 60 W PoE) (*4) -22°F to +131°F (PoE+)	-58°F to +131°F (24 V) -22°F to +131°F (PoE+)
Power Source		AC100 to 240V / 60W Injector	24 V AC / PoE+	24 V AC / PoE+
Dehumidification device		Yes	Yes	Yes
Other Functions		Built-in wiper, Defloster	Built-in heater, Rain wash coating, Auto Eyelid Mechanism	Built-in heater, Auto Eyelid Mechanism, Rain wash coating (WV-SW397A)
Mounting Options		See page 50	See page 50	See page 50

(*2): Only for SD REC (*3): Alarm In1 (Day/Night In), Alarm In2/Alarm Out3, Alarm In3(AUX Out) (1 for each) (*4): Typical PoE Injector

CAMERA TYPE		DAY/NIGHT		
Appearance		ONVIF S WV-SW395A HD720P	ONVIF S G WV-SC588A 4D1080P	ONVIF S G WV-SC387A HD720P
Sensor		1/3 MOS	1/3 MOS	1/3 MOS
Codec and Transmission	Video Codec	H.264 / MPEG-4 / JPEG	H.264 / JPEG	H.264 / JPEG
	H.264 multi stream	2	2	2
	JPEG multi stream	6	6	6
	Smart Coding	—	—	—
Max. Resolution	16 : 9	1280 x 720	1920 x 1080	1280 x 720
	4 : 3	1280 x 960	1280 x 960	1280 x 960
Max. FPS @Max. Resolution	H.264	30 fps (1.3 MP)	30 fps (1080p)	30 fps (2.4 MP)
	JPEG	30 fps (1.3 MP)	30 fps (1080p)	30 fps (2.4 MP)
Super Dynamic / WDR / BLC		Super-D	Super-D	Super-D
Day/Night		Yes (ICR)	Yes (ICR)	Yes (ICR)
ABF (Auto Back Focus) / Focus Assist		Auto Focus	Auto Focus	Auto Focus
Min. Illumination	Color	0.5 lx @F1.6	0.5 lx @F1.6	0.3 lx @F1.6
	Color (Sens up)	0.03 lx (16x)	0.03 lx (16x)	0.019 lx (16x)
	B/W	0.06 lx @F1.6	0.06 lx@F1.6	0.04 lx @F1.6
	B/W (Sens up)	0.004 lx (16x)	0.004 lx (16x)	0.003 lx (16x)
Lens		f= 4.7 to 84.6 mm, F1.6	f= 4.3 to 129 mm, F1.6	f= 4.3 to 129 mm, F1.6
Angular field of view	16 : 9	H: 3.2 to 55.2 deg. / V: 1.9 to 31.9 deg.	H: 2.34 to 55.1 deg. / V: 1.36 to 30.4 deg.	H: 2.34 to 55.1 deg. / V: 1.36 to 30.4 deg.
	4 : 3	H: 3.2 to 55.2 deg. / V: 2.4 to 42.1 deg.	H: 1.6 to 45.2 deg. / V: 1.2 to 34.3 deg.	H: 1.6 to 45.2 deg. / V: 1.2 to 34.3 deg.
Pan	Range	0 to +350 deg.	Endless	Endless
	Speed	300 deg/sec	300 deg/sec	300 deg/sec
Tilt	Range	-30 to +90 deg.	-25 to +205 deg.	-25 to +205 deg.
	Speed	100 deg/sec	300 deg/sec	300 deg/sec
360 Pan-Flip		Yes	—	—
Number of Preset Positions		64	256	256
Patrol		—	Yes	Yes
Auto Tracking		Yes	Yes (advanced)	Yes (advanced)
Optical Zoom		18x	30x	36x (45x with Extra Zoom at HD)
Digital Zoom		12x	12x	12x
VMD (Video Motion Detection)		Yes (4-areas)	Yes (4-areas)	Yes (4-areas)
i-VMD (Intelligent VMD) (w/extension software)		—	—	—
VIDS		—	Yes (2-areas)	Yes (2-areas)
Max. Connection		14	14	14
Audio	In (Line)	Yes	Yes	Yes
	In (Built-in MIC)	—	—	—
	Out	Yes	Yes	Yes
	Codec	G.711 / G.726	G.711 / G.726 / AAC (*1)	G.711 / G.726 / AAC (*1)
	Audio Detection Alarm	—	Yes	Yes
SD memory Card	Slot	Yes (SDHC)	Yes (SDXC)	Yes (SDXC)
	Password & Alter Detection	—	—	—
	Audio REC	—	Yes	Yes
External I/O		Yes (3) (*3)	Yes (3) (*2)	Yes (3) (*2)
Monitor Out		Yes (Composite)	Yes (Mini-jack)	Yes (Mini-jack)
Vandal Resistant		20J, IK10	—	—
Water and Dust Resistance		IP66	—	—
Temperature		-40°F to +122°F (24 V) -22°F to +122°F (PoE+)	+14°F to +131°F	+14°F to +131°F
Power Source		24 V AC / PoE+	12 V DC / PoE	12 V DC / PoE
Dehumidification device		Yes	—	—
Other Functions		Built-in heater, Rain wash coating (WV-SW395A)	Dome less	Dome less
Mounting Options		See page 50	See pages 48, 49	See pages 48, 49

(*1): Only for SD REC (*2): Alarm In1 (Day/Night In), Alarm In2/Alarm Out1, Alarm In3/AUX Out (1 for each)

CAMERA SERIES		BOX TYPE	
Appearance		ONVIF S WV-SC385 HD720P	ONVIF S WV-SC384 HD720P
Sensor		1/3 MOS	1/3 MOS
Codec and Transmission	Video Codec	H.264 / MPEG-4 / JPEG	H.264 / MPEG-4 / JPEG
	H.264 multi stream	2	2
	JPEG multi stream	6	6
	Smart Coding	—	—
Max. Resolution	16 : 9	1280 x 720	1280 x 720
	4 : 3	1280 x 960	1280 x 960
Max. FPS @Max. Resolution	H.264	30 fps (1.3 MP)	30 fps (1.3 MP)
	JPEG	30 fps (1.3 MP)	30 fps (1.3 MP)
Super Dynamic / WDR / BLC		Super-D	WDR
Day/Night		Yes (ICR)	Yes (Electrical)
ABF (Auto Back Focus) / Focus Assist		Auto Focus	Auto Focus
Min. Illumination	Color	0.5 lx @F1.6	0.6 lx @F1.6
	Color (Sens up)	0.03 lx (16x)	0.038 lx (16x)
	B/W	0.06 lx @F1.6	0.5 lx @F1.6
	B/W (Sens up)	0.004 lx (16x)	0.03 lx (16x)
Lens		f= 4.7 to 84.6 mm, F1.6	f= 4.7 to 84.6 mm, F1.6
Angular field of view	16 : 9	H: 3.2 to 55.2 deg. / V: 1.9 to 31.9 deg.	H: 3.2 to 55.2 deg. / V: 1.9 to 31.9 deg.
	4 : 3	H: 3.2 to 55.2 deg. / V: 2.4 to 42.1 deg.	H: 3.2 to 55.2 deg. / V: 2.4 to 42.1 deg.
Pan	Range	0 to +359 deg.	0 to +359 deg.
	Speed	300 deg/sec	300 deg/sec
Tilt	Range	-30 to +90 deg.	-30 to +90 deg.
	Speed	100 deg/sec	100 deg/sec
360 Pan-Flip		Yes	Yes
Number of Preset Positions		64	64
Patrol		—	—
Auto Tracking		Yes	—
Optical Zoom		18x	18x
Digital Zoom		12x	8x
VMD (Video Motion Detection)		Yes (4-areas)	Yes (4-areas)
i-VMD (Intelligent VMD) (w/extension software)		—	—
VIQS		—	—
Max. Connection		14	14
Audio	In (Line)	Yes	Yes
	In (Built-in MIC)	—	—
	Out	Yes	Yes
	Codec	G.711 / G.726	G.711 / G.726
	Audio Detection Alarm	—	—
SD memory Card	Slot	Yes (SDHC)	Yes (SDHC)
	Password & Alter Detection	—	—
	Audio REC	—	—
External I/O		Yes (3/1)	Yes (3/1)
Monitor Out		Yes (Mini-jack)	Yes (Mini-jack)
Vandal Resistant		—	—
Water and Dust Resistance		—	—
Temperature		+14°F to +122°F	+14°F to +122°F
Power Source		12 V DC / PoE	12 V DC / PoE
Dehumidification device		—	—
Other Functions		—	—
Mounting Options		See pages 48, 49	See pages 48, 49

(*1): Only for SD REC (*2): Alarm In1(Day/Night In), Alarm Out1(Alarm Out), Alarm In2(AUX Out) (x1 for each)

CAMERA SERIES		FIXED DOME				
Appearance		ONVIF S WV-SFV781L 4k Engine	ONVIF S WV-SFV631LT HD1080P	ONVIF S WV-SFV631L HD1080P	ONVIF S WV-SFV611L HD720P	ONVIF S WV-SFV531 HD1080P
Sensor		1/1.7 MOS	1/3 MOS	1/3 MOS	1/3 MOS	1/3 MOS
Codec and Transmission	Video Codec	H.264 / JPEG	H.264 / JPEG	H.264 / JPEG	H.264 / JPEG	H.264 / JPEG
	H.264 multi stream	4	4	4	4	4
	JPEG multi stream	2	6 (Variable)	6 (Variable)	6 (Variable)	6 (Variable)
	Smart Coding	Yes (GOP Only)	Yes	Yes	Yes	Yes
Max. Resolution	16 : 9	3840 x 2160	1920 x 1080	1920 x 1080	1280 x 720	1920 x 1080
	4 : 3	4000 x 3000	2048 x 1536 (*1)	2048 x 1536 (*1)	1280 x 960	2048 x 1536 (*1)
Max. FPS @Max. Resolution	H.264	30fps (4K)	60fps (1080p)	60fps (1080p)	60fps (720p)	60fps (1080p)
	JPEG	15fps (12 MP)	30fps (3 MP)	30fps (3 MP)	30fps (1.3 MP)	30fps (3 MP)
Super Dynamic / WDR / BLC		WDR	Enhanced SD	Enhanced SD	Enhanced SD	Enhanced SD
Day/Night		Yes (ICR)	Yes (ICR)	Yes (ICR)	Yes (ICR)	Yes (ICR)
ABF (Auto Back Focus) / Focus Assist		ABF	ABF	ABF	ABF	ABF
Min. Illumination	Color	0.3 lx @F1.6	0.06 lx @F1.6	0.04 lx @F1.3	0.01 lx@F1.3	0.07 lx @F1.6
	Color (Sens up)	0.02 lx (16x)	0.0045 lx (16x)	0.003 lx (16x)	0.0007 lx (16x)	0.005 lx (16x)
	B/W	0.0 lx @F1.6 (w/IR)	0.0 lx @F1.6 (w/IR)	0.0 lx @F1.3 (w/IR)	0.0 lx @F1.3 (w/IR)	0.01 lx @F1.6
	B/W (Sens up)	—	—	—	—	0.0007 lx (16x)
Lens		f=4.2 to 29.2 mm, F1.6 Motorized	f= 9 to 22 mm, F1.6 Motorized	f= 2.8 to 10 mm, F1.3 Motorized	f= 2.8 to 10 mm, F1.3 Motorized	f=2.8 to 9.5 mm, F1.6
Angular field of view	16 : 9	H: 17 to 96 deg. V: 9.3 to 54 deg.	H: 13.8 to 33.9 deg. V: 7.7 to 17.8 deg.	H: 28.8 to 102.6 deg. V: 16.8 to 56.8 deg.	H: 26.4 to 93.7 deg. V: 14.8 to 51.6 deg.	H: 31 to 109 deg. V: 18 to 59 deg.
	4 : 3	H: 17 to 100 deg. V: 13 to 75 deg.	H: 11.5 to 27.9 deg. V: 8.6 to 19.9 deg.	H: 23.7 to 84.3 deg. V: 17.8 to 62.4 deg.	H: 26.4 to 93.7 deg. V: 20 to 69.3 deg.	H: 26 to 89 deg. V: 20 to 66 deg.
Adjusting Angle	Pan	-180 to +180 deg.	-180 to +180 deg.	-180 to +180 deg.	-180 to +180 deg.	-180 to +180 deg.
	Tilt	0 to +85 deg.	0 to +85 deg.	0 to +85 deg.	0 to +85 deg.	-85 to +85 deg.
Optical Zoom		6x	2.4x	3.6x	3.6x	3.3x
Digital Zoom		4x	4x	4x	4x	4x
VMD (Video Motion Detection)		Yes (4-areas)	Yes (4-areas)	Yes (4-areas)	Yes (4-areas)	Yes (4-areas)
i-VMD (Intelligent VMD) (w/extension software)		—	Yes (Type2)	Yes (Type2)	Yes (Type2)	Yes (Type2)
VIQS		Yes (8-areas)	Yes (8-areas)	Yes (8-areas)	Yes (8-areas)	Yes (8-areas)
Max. Connection		14	14	14	14	14
Audio	In (Line)	Yes	Yes	Yes	Yes	Yes
	In (Built-in MIC)	—	—	—	—	—
	Out	Yes	Yes	Yes	Yes	Yes
	Codec	G.711 / G.726 / AAC (*2)	G.711 / G.726 / AAC	G.711 / G.726 / AAC	G.711 / G.726 / AAC	G.711 / G.726 / AAC
	Audio Detection Alarm	—	Yes	Yes	Yes	Yes
SD memory Card	Slot	Yes (SDXC)	Yes (SDXC x 2)	Yes (SDXC x 2)	Yes (SDXC x 2)	Yes (SDXC)
	Password & Alter Detection	—	Yes (V1.52)	Yes (V1.52)	Yes (V1.52)	Yes
	Audio REC	Yes	Yes	Yes	Yes	Yes
External I/O		Yes (3) (*3)	Yes (3) (*4)	Yes (3) (*4)	Yes (3) (*4)	Yes (3) (*4)
Monitor Out		Yes (RCA)	Yes (mini jack)	Yes (mini jack)	Yes (mini jack)	Yes (mini jack)
Vandal Resistant		20J, IK10	50J, IK10	50J, IK10	50J, IK10	50J, IK10
Water and Dust Resistance		IP66 / NEMA 4X	IP66 / NEMA 4X	IP66 / NEMA 4X	IP66 / NEMA 4X	IP66 / NEMA 4X
Temperature		-49°F to +122°F	-49°F to +122°F	-49°F to +122°F	-49°F to +122°F	-49°F to +122°F
Power Source		12 V DC / PoE	12 V DC / PoE	12 V DC / PoE	12 V DC / PoE	12 V DC / PoE
Dehumidification device		Yes	Yes	Yes	Yes	Yes
Other Functions		Smart-DoF, Built-in heater, Rain wash coating, Built-in IR LED	Smart-DoF, Built-in heater, Built-in IR LED	Smart-DoF, Built-in heater, Built-in IR LED	Smart-DoF, Built-in heater, Built-in IR LED	Built-in heater
Mounting Options		See pages 46, 47	See pages 46, 47	See pages 46, 47	See pages 46, 47	See pages 46, 47

(*1): w/Super resolution (*2): Only for SD REC (*3): Alarm In1(Day/Night In), Alarm Out1, Alarm In2(Alarm Out), Alarm In3(AUX Out), Day/Night Out) (x1 for each) (*4): Alarm In1(Day/Night In), Alarm In2(Alarm Out), Alarm In3(AUX Out) (x1 for each)

Panasonic

CAMERA TYPE		FIXED DOME			
Appearance				NEW	NEW
		ONVIF S WV-SFV311A FD720P	ONVIF S WV-SFV310A FD720P	ONVIF S WV-SFV130M/WV-SFV130MM (*5) FD1080P	ONVIF S WV-SFV110/WV-SFV110M(*5) FD720P
Sensor		1/3 MOS	1/3 MOS	1/3 MOS	1/3 MOS
Codec and Transmission	Video Codec	H.264 / JPEG	H.264 / JPEG	H.264 / JPEG	H.264 / JPEG
	H.264 multi stream	4	4	4	4
	JPEG multi stream	6 (Variable)	6 (Variable)	6 (Variable)	6 (Variable)
	Smart Coding	Yes	Yes	Yes	Yes
Max. Resolution	16 : 9	1920 x 1080 (*1) / 1280 x 720	1920 x 1080 (*1) / 1280 x 720	1920 x 1080	1280 x 720
	4 : 3	1280 x 960	1280 x 960	2048x1536	1280 x 960
Max. FPS @Max. Resolution	H.264	60fps (720p)	60fps (720p)	30fps (3MP)	30fps (1.3MP)
	JPEG	30fps (1.3 MP)	30fps (1.3 MP)	30fps (3MP)	30fps (1.3MP)
Super Dynamic / WDR / BLC		Enhanced SD	Enhanced SD	Super Dynamic	Super Dynamic
Day/Night		Yes (ICR)	Yes (Electrical)	Yes (Electrical)	Yes (Electrical)
ABF (Auto Back Focus) / Focus Assist		ABF	Focus Assist	—	—
Min. Illumination	Color	0.01 lx @F1.6	0.01 lx @F1.6	0.1 lx @F2.3	0.04 lx @F2.3
	Color (Sens up)	0.0007 lx (16x)	0.0007 lx (16x)	0.007 lx (16x)	0.003 lx (16x)
	B/W	0.003 lx @F1.6	0.003 lx @F1.6	0.08 lx @F2.3	0.03 lx @F2.3
	B/W (Sens up)	0.0002 lx (16x)	0.0005 lx (16x)	0.005 lx (16x)	0.002 lx (16x)
Lens		f= 2.8 to 10 mm, F1.6	f= 2.8 to 10 mm, F1.6	f= 2.8mm, F2.3	f= 2.8mm, F2.3
Angular field of view	16 : 9	H: 28 to 99 deg. V: 16 to 54 deg.	H: 28 to 99 deg. V: 16 to 54 deg.	H: 108 deg. V: 60 deg.	H: 108 deg. V: 55 deg.
	4 : 3	H: 28 to 99 deg. V: 21 to 72 deg.	H: 28 to 99 deg. V: 21 to 72 deg.	H: 89 deg. V: 66 deg.	H: 100 deg. V: 73 deg.
Adjusting Angle	Pan	-180 to +180 deg.	-180 to +180 deg.	-20 to +20 deg.	-20 to +20 deg.
	Tilt	-85 to +85 deg.	-85 to +85 deg.	-20 to +90 deg.	-20 to +90 deg.
Optical Zoom		3.6x	3.6x	—	—
Digital Zoom		4x	4x	4x	4x
VMD (Video Motion Detection)		Yes (4-areas)	Yes (4-areas)	Yes (4-areas)	Yes (4-areas)
i-VMD (Intelligent VMD) (w/extension software)		Yes	Yes	Yes (Type2)	Yes (Type2)
VIQS		Yes (8-areas)	Yes (8-areas)	Yes (8-areas)	Yes (8-areas)
Max. Connection		14	14	14	14
Audio	In (Line)	Yes	—	—	—
	In (Built-in MIC)	—	—	Yes	Yes
	Out	Yes	—	—	—
	Codec	G.711 / G.726 / AAC	—	G.711 / G.726 / AAC	G.711 / G.726 / AAC
	Audio Detection Alarm	Yes	—	Yes	Yes
SD memory Card	Slot	Yes (SDXC)	Yes (SDXC)	Yes (SDXC)	Yes (SDXC)
	Password & Alter Detection	Yes	Yes	Yes	Yes
	Audio REC	Yes	—	Yes	Yes
External I/O		Yes (3) (*3)	Yes (3) (*4)	—	—
Monitor Out		Yes (mini jack)	Yes (mini jack)	—	—
Vandal Resistant		50J, IK10	50J, IK10	IK10	IK10
Water and Dust Resistance		IP66 / NEMA 4X	IP66 / NEMA 4X	IP66 / NEMA 4X	IP66 / NEMA 4X
Temperature		-49°F to +122°F (in operation)	-49°F to +122°F (in operation)	-49°F to +140°F	-49°F to +140°F
Power Source		12 V DC / PoE	12 V DC / PoE	PoE	PoE
Dehumidification device		Yes	Yes	—	—
Other Functions		Built-in heater	Built-in heater	Railway Application (EN50155-T3, EN50121, EN45545, EN50498 and ECE-R10 (SFV130M))	Railway Application (EN50155-T3, EN50121, EN45545, EN50498 and ECE-R10 (SFV110M))
Mounting Options		See pages 46, 47	See pages 46, 47	TBA	TBA

(*1): w/o Simple Full-HD mode (Resolution names) (*2): Alarm In1(Day/Night In), Alarm In2(Alarm Out), Alarm In3(AUX Out)(5V for each) (*3): Alarm In1 (Day/Night In, Auto-tracer adjustment), Alarm In 2 (Alarm Out), Alarm In 3 (AUX Out)(5V for each)
(*4): Alarm In1 (As In-tracer adjustment), Alarm In 2 (Alarm Out), Alarm In 3 (AUX Out)(5V for each) (*5): SFV110/SFV130: 10BASE-T/100BASE-TX, IEEE802.3af/at compliant, SFV110M/SFV130M: 100BASE-T/1000BASE-TX, M12 connector

CAMERA TYPE		FIXED DOME				
Appearance		NEW	NEW			
		ONVIF S WV-SBV131M (*4) HD1080P	ONVIF S WV-SBV111M (*4) FD720P	ONVIF S WV-SW115 HD720P	ONVIF S WV-SFR631L HD1080P	ONVIF S WV-SFR611L HD720P
Sensor		1/3 MOS	1/3 MOS	1/3 MOS	1/3 MOS	1/3 MOS
Codec and Transmission	Video Codec	H.264 / JPEG	H.264 / JPEG	H.264 / JPEG	H.264 / JPEG	H.264 / JPEG
	H.264 multi stream	4	4	2	4	4
	JPEG multi stream	6 (Variable)	6 (Variable)	6	6 (Variable)	6 (Variable)
	Smart Coding	—	—	—	Yes	Yes
Max. Resolution	16 : 9	1920 x 1080	1280 x 720	1280 x 720	1920 x 1080	1280 x 720
	4 : 3	2048 x 1536 (*2)	1280 x 960	1280 x 960	2048 x 1536 (*1)	1280 x 960
Max. FPS @Max. Resolution	H.264	30fps (1080p)	30fps (720p)	30fps (1.3 MP)	60fps (1080p)	60fps (720p)
	JPEG	30fps (3 MP)	30fps (1.3 MP)	30fps (1.3 MP)	30fps (3 MP) (*1)	30fps (1.3 MP)
Super Dynamic / WDR / BLC		WDR	WDR	Super-D	Enhanced SD	Enhanced SD
Day/Night		Yes (Electrical)	Yes (Electrical)	Yes (Electrical)	Yes (ICR)	Yes (ICR)
ABF (Auto Back Focus) / Focus Assist		—	—	—	ABF	ABF
Min. Illumination	Color	0.1 lx @f2.2	0.04 lx @F2.2	0.8 lx @F2.2	0.04 lx @F1.3	0.01 lx @F1.3
	Color (Sens up)	0.007 lx (16x)	0.003 lx (16x)	0.05 lx (16x)	0.003 lx (16x)	0.0007 lx (16x)
	B/W	0.06 lx @F2.2	0.03 lx @F2.2	0.4 lx @F2.2	0.0 lx @F1.3(w/IR)	0.0 lx @F1.3(w/IR)
	B/W (Sens up)	0.004 lx (16x)	0.002 lx (16x)	0.04 lx (16x)	—	—
Lens		f= 1.95 mm, F2.2	f= 1.95 mm, F2.2	f= 1.95 mm, F2.2	f= 2.8 to 10 mm, F1.3 Motorized	f= 2.8 to 10 mm, F1.3 Motorized
Angular field of view	16 : 9	H: 109 deg. V: 73 deg.	H: 104 deg. V: 69 deg.	H: 104 deg. V: 68 deg.	H: 28.8 to 102.9 deg. V: 16.0 to 56.2 deg.	H: 26.4 to 94.0 deg. V: 14.7 to 51.8 deg.
	4 : 3	H: 97 deg. V: 79 deg.	H: 104 deg. V: 85 deg.	H: 104 deg. V: 85 deg.	H: 23.8 to 84.4 deg. V: 17.8 to 62.6 deg.	H: 26.4 to 94.0 deg. V: 19.8 to 69.5 deg.
Adjusting Angle	Pan	-178 to +178 deg.	-178 to +178 deg.	-30 to +30 deg.	-180 to +180 deg.	-180 to +180 deg.
	Tilt	-90 to +90 deg.	-90 to +90 deg.	-30 to +30 deg.	0 to +85 deg.	0 to +85 deg.
Optical Zoom		—	—	—	3.6x	3.6x
Digital Zoom		3x	3x	4x	4x	4x
VMD (Video Motion Detection)		Yes (4-areas)	Yes (4-areas)	Yes	Yes (4-areas)	Yes (4-areas)
i-VMD (Intelligent VMD) (w/extension software)		—	—	—	Yes (Type2)	Yes (Type2)
VIQS		Yes (8-areas)	Yes (8-areas)	Yes. (1-area)	Yes (8-areas)	Yes (8-areas)
Max. Connection		14	14	14	14	14
Audio	In (Line)	Yes	Yes	—	Yes	Yes
	In (Built-in MIC)	—	—	—	—	—
	Out	Yes	Yes	—	Yes	Yes
	Codec	G.726(ADPCM)	G.726(ADPCM)	—	G.711 / G.726 / AAC	G.711 / G.726 / AAC
	Audio Detection Alarm	—	—	—	Yes	Yes
SD memory Card	Slot	Yes (SDXC)	Yes (SDXC)	Yes (SDHC)	Yes (SDXC x 2)	Yes (SDXC x 2)
	Password & Alter Detection	—	—	—	Yes (V1.52)	Yes (V1.52)
	Audio REC	—	—	—	Yes	Yes
External I/O		—	—	—	Yes (3) (*2)	Yes (3) (*2)
Monitor Out		—	—	—	Yes (mini jack)	Yes (mini jack)
Vandal Resistant		IK10	IK10	20J, IK10	20J, IK10	20J, IK10
Water and Dust Resistance		IP69K / IP66 / NEMA 4X	IP69K / IP66 / NEMA 4X	IP66 / NEMA 4X	—	—
Temperature		-49°F to +140°F	-49°F to +140°F	-22°F to +122°F	+14°F to +122°F	+14°F to +122°F
Power Source		PoE	PoE	PoE	12 V DC / PoE	12 V DC / PoE
Dehumidification device		—	—	—	—	—
Other Functions		MIL-STD-810G EN50155-T3, EN50121, EN45545, EN50498, ECE-R10	MIL-STD-810G EN50155-T3, EN50121, EN45545, EN50498, ECE-R10	EN50155, EN50121	Smart-DoF, Built-in IR LED	Smart-DoF, Built-in IR LED
Mounting Options		TBA	TBA		See pages 46, 47	See pages 46, 47

(*1): w/Clear resolution (*2): Alarm In1(Day/Night In), Alarm In2(Alarm Out), Alarm In3(AUX Out)(5V for each) (*3): Alarm In1, Alarm In2(Alarm Out), Alarm In3(AUX Out)(5V for each)
(*4): SBV131M/111M: 10BASE-T/100BASE-TX, M12 connector

Panasonic

CAMERA TYPE		FIXED DOME			
Appearance		ONVIF WV-SFR531	ONVIF WV-SFR311A	ONVIF WV-SFR310A	ONVIF WV-SFN631L
Sensor		1/3 MOS	1/3 MOS	1/3 MOS	1/3 MOS
Codec and Transmission	Video Codec	H.264 / JPEG	H.264 / JPEG	H.264 / JPEG	H.264 / JPEG
	H.264 multi stream	4	4	4	4
	JPEG multi stream	6 (Variable)	6 (Variable)	6 (Variable)	6 (Variable)
	Smart Coding	Yes	Yes	Yes	Yes
Max. Resolution	16 : 9	1920 x 1080	1920 x 1080 (*1) / 1280 x 720	1920 x 1080 (*1) / 1280 x 720	1920 x 1080
	4 : 3	2048 x 1536 (*1)	1280 x 960	1280 x 960	2048 x 1536 (*2)
Max. FPS @Max. Resolution	H.264	60fps (1080p)	50fps (720p)	60fps (720p)	60fps (1080p)
	JPEG	30fps (3 MP) (*1)	30fps (1.3 MP)	30fps (1.3 MP)	30fps (3 MP) (*2)
Super Dynamic / WDR / BLC		Enhanced SD	Enhanced SD	Enhanced SD	Enhanced SD
Day/Night		Yes (ICR)	Yes (ICR)	Yes (Electrical)	Yes (ICR)
ABF (Auto Back Focus) / Focus Assist		ABF	ABF	Focus Assist	ABF
Min. Illumination	Color	0.07 lx @F1.6	0.01 lx @F1.6	0.01 lx @F1.6	0.84 lx @F1.3
	Color (Sens up)	0.005 lx (16x)	0.0007 lx (16x)	0.0007 lx (16x)	0.063 lx (16x)
	B/W	0.01 lx @F1.6	0.003 lx @F1.6	0.005 lx @F1.6	0.9 lx @F1.3 (w/IR)
	B/W (Sens up)	0.0007 lx (16x)	0.0002 lx (16x)	0.0005 lx (16x)	—
Lens		f=2.8 to 9.5 mm, F1.6	f= 2.8 to 10 mm, F1.6	f= 2.8 to 10 mm, F1.6	f= 2.8 to 10 mm, F1.3 Motorized
Angular field of view	16 : 9	H: 31 to 109 deg. V: 18 to 59 deg.	H: 28 to 99 deg. V: 16 to 54 deg.	H: 28 to 99 deg. V: 16 to 54 deg.	H: 29.3 to 104.1 deg. V: 16.2 to 56.8 deg.
	4 : 3	H: 26 to 89 deg. V: 20 to 66 deg.	H: 28 to 99 deg. V: 21 to 72 deg.	H: 28 to 99 deg. V: 21 to 72 deg.	H: 24.0 to 85.5 deg. V: 18.0 to 63.3 deg.
Adjusting Angle	Pan	+120(right) to -240(left) deg.	+128 to -248 deg.	+128 to -240 deg.	-180 to +180 deg.
	Tilt	-85 to +85 deg.	-85 to +85 deg.	-85 to +85 deg.	0 to +85 deg.
Optical Zoom		3.3x	3.6x	3.6x	3.6x
Digital Zoom		4x	4x	4x	4x
VMD (Video Motion Detection)		Yes (4-areas)	Yes (4-areas)	Yes (4-areas)	Yes (4-areas)
i-VMD (Intelligent VMD) (w/extension software)		Yes (Type2)	Yes	Yes	Yes (Type2)
VIQS		Yes (8-areas)	Yes (8-areas)	Yes (8-areas)	Yes (8-areas)
Max. Connection		14	14	14	14
Audio	In (Line)	Yes	Yes	—	Yes
	In (Built-in MIC)	—	—	—	—
	Out	Yes	Yes	—	Yes
	Codec	G.711 / G.726 / AAC	G.711 / G.726 / AAC	—	G.711 / G.726 / AAC
	Audio Detection Alarm	Yes	Yes	—	Yes
SD memory Card	Slot	Yes (SDXC)	Yes (SDXC)	Yes (SDXC)	Yes (SDXC x 2)
	Password & Alter Detection	Yes	Yes	Yes	Yes (V1.52)
	Audio REC	Yes	Yes	—	Yes
External I/O		Yes (3) (*3)	Yes (3) (*3)	Yes (3) (*4)	Yes (3) (*5)
Monitor Out		Yes (mini jack)	Yes (mini jack)	Yes (mini jack)	Yes (mini jack)
Vandal Resistant		IK10	IK10	IK10	—
Water and Dust Resistance		—	—	—	—
Temperature		+14°F to +122°F	+14°F to +122°F	+14°F to +122°F	+14°F to +122°F
Power Source		12 V DC / PoE	12 V DC / PoE	12 V DC / PoE	12 V DC / PoE
Dehumidification device		—	—	—	—
Other Functions		—	—	—	Smart-DeF, Built-in IR LED
Mounting Options		See pages 46, 47	See pages 46, 47	See pages 46, 47	See pages 46, 47

(*1) With Simple Full-HD mode (resolution name) (*2) Without resolution (*3) Alarm In1 (Day/Night In, Auto time adjustment), Alarm In 2 (Alarm Out), Alarm In 3 (ABF Out) (x1 for each)
(*4) Alarm In1 (Auto time adjustment), Alarm In 2 (Alarm Out), Alarm In 3 (AUX Out) (x1 for each) (*5) Alarm In1 (Day/Night In), Alarm In2 (Alarm Out), Alarm In3 (AUX Out) (x1 for each)

CAMERA TYPE		FIXED DOME		
Appearance		ONVIF WV-SFN631L	ONVIF WV-SFN531	ONVIF WV-SFN311A
Sensor		1/3 MOS	1/3 MOS	1/3 MOS
Codec and Transmission	Video Codec	H.264 / JPEG	H.264 / JPEG	H.264 / JPEG
	H.264 multi stream	4	4	4
	JPEG multi stream	6 (Variable)	6 (Variable)	6 (Variable)
	Smart Coding	Yes	Yes	Yes
Max. Resolution	16 : 9	1280 x 720	1920 x 1080	1920 x 1080 (*1) / 1280 x 720
	4 : 3	1280 x 960	2048 x 1536 (*1)	1280 x 960
Max. FPS @Max. Resolution	H.264	60fps (720p)	60fps (1080p)	60fps (720p)
	JPEG	30fps (1.3 MP)	30fps (3 MP) (*1)	30fps (1.3 MP)
Super Dynamic / WDR / BLC		Enhanced SD	Enhanced SD	Enhanced SD
Day/Night		Yes (ICR)	Yes (ICR)	Yes (ICR)
ABF (Auto Back Focus) / Focus Assist		ABF	ABF	ABF
Min. Illumination	Color	0.01 lx @F1.3	0.07 lx @F1.6	0.01 lx @F1.6
	Color (Sens up)	0.0007 lx (16x)	0.005 lx (16x)	0.0007 lx (16x)
	B/W	0.0 lx @F1.3 (w/IR)	0.01 lx @F1.6	0.003 lx @F1.6
	B/W (Sens up)	—	0.0007 lx (16x)	0.0002 lx (16x)
Lens		f= 2.8 to 10 mm, F1.3 Motorized	f=2.8 to 9.5 mm, F1.6	f= 2.8 to 10 mm, F1.6
Angular field of view	16 : 9	H: 26.5 to 95.1 deg. V: 14.9 to 52.3 deg.	H: 32 to 110 deg. V: 18 to 60 deg.	H: 28 to 100 deg. V: 16 to 54 deg.
	4 : 3	H: 26.7 to 95.1 deg. V: 20.0 to 70.2 deg.	H: 27 to 91 deg. V: 20 to 66 deg.	H: 28 to 100 deg. V: 21 to 73 deg.
Adjusting Angle	Pan	-180 to +180 deg.	-120(right) to -240(left) deg.	+128 to -240 deg.
	Tilt	0 to +85 deg.	-85 to +85 deg.	-85 to +85 deg.
Optical Zoom		3.6x	3.3x	3.6x
Digital Zoom		4x	4x	4x
VMD (Video Motion Detection)		Yes (4-areas)	Yes (4-areas)	Yes (4-areas)
i-VMD (Intelligent VMD) (w/extension software)		Yes (Type2)	Yes (Type2)	Yes
VIQS		Yes (8-areas)	Yes (8-areas)	Yes (8-areas)
Max. Connection		14	14	14
Audio	In (Line)	Yes	Yes	Yes
	In (Built-in MIC)	—	—	—
	Out	Yes	Yes	Yes
	Codec	G.711 / G.726 / AAC	G.711 / G.726 / AAC	G.711 / G.726 / AAC
	Audio Detection Alarm	Yes	Yes	Yes
SD memory Card	Slot	Yes (SDXC x 2)	Yes (SDXC)	Yes (SDXC)
	Password & Alter Detection	Yes (V1.52)	Yes	Yes
	Audio REC	Yes	Yes	Yes
External I/O		Yes (3) (*4)	Yes (3) (*2)	Yes (3) (*2)
Monitor Out		Yes (mini jack)	Yes (mini jack)	Yes (mini jack)
Vandal Resistant		—	—	—
Water and Dust Resistance		—	—	—
Temperature		+14°F to +122°F	+14°F to +122°F	+14°F to +122°F
Power Source		12 V DC / PoE	12 V DC / PoE	12 V DC / PoE
Dehumidification device		—	—	—
Other Functions		Smart-DeF, Built-in IR LED	—	—
Mounting Options		See pages 46, 47	See pages 46, 47	See pages 46, 47

(*1) With Simple Full-HD mode (resolution name) (*2) Alarm In1 (Day/Night In, Auto time adjustment), Alarm In 2 (Alarm Out), Alarm In 3 (AUX Out) (x1 for each)
(*3) Alarm In1 (Auto time adjustment), Alarm In 2 (Alarm Out), Alarm In 3 (AUX Out) (x1 for each)

Panasonic

CAMERA TYPE		FIXED DOME		
Appearance		ONVIF S WV-SFN310A HD720P	NEW ONVIF S WV-SFN130 HD1080P	NEW ONVIF S WV-SFN110 HD720P
Sensor		1/3 MOS	1/3 MOS	1/3 MOS
Codec and Transmission	Video Codec	H.264 / JPEG	H.264 / JPEG	H.264 / JPEG
	H.264 multi stream	4	4	4
	JPEG multi stream	4 (Variable)	4 (Variable)	4 (Variable)
	Smart Coding	Yes	Yes	Yes
Max. Resolution	16 : 9	1920 x 1080(*1) / 1280 x 720	1920 x 1080	1280 x 720
	4 : 3	1280 x 960	2048 x 1536	1280 x 960
Max. FPS @Max. Resolution	H.264	60fps (720p)	30fps (3MP)	30fps (1.3MP)
	JPEG	30fps (1.3 MP)	30fps (3MP)	30fps (1.3MP)
Super Dynamic / WDR / BLC		Enhanced SD	Super Dynamic	Super Dynamic
Day/Night		Yes (Electrical)	Yes (Electrical)	Yes (Electrical)
ABF (Auto Back Focus) / Focus Assist		Focus Assist	—	—
Min. Illumination	Color	0.01 lx @F1.6	0.1 lx @F2.3	0.04 lx @F2.3
	Color (Sens up)	0.0007 lx (16x)	0.007 lx (16x)	0.003 lx (16x)
	B/W	0.008 lx @F1.6	0.08 lx @F2.3	0.03 lx @F2.3
	B/W (Sens up)	0.0005 lx (16x)	0.005 lx (16x)	0.002 lx (16x)
Lens		f= 2.8 to 10 mm, F1.6	f= 2.8mm, F2.3	f= 2.8mm, F2.3
Angular field of view	16 : 9	H: 28 to 108 deg. V: 16 to 54 deg.	H: 108 deg. V: 60 deg.	H: 108 deg. V: 55 deg.
	4 : 3	H: 28 to 100 deg. V: 21 to 73 deg.	H: 89 deg. V: 66 deg.	H: 100 deg. V: 73 deg.
Adjusting Angle	Pan	+120 to -240 deg.	-26 to +26 deg.	-20 to +20 deg.
	Tilt	-85 to +85 deg.	-26 to +90 deg.	-20 to +90 deg.
Optical Zoom		3.6x	—	—
Digital Zoom		4x	4x	4x
VMD (Video Motion Detection)		Yes (4-areas)	Yes (4-areas)	Yes (4-areas)
i-VMD (Intelligent VMD) (w/extension software)		Yes	Yes (Type2)	Yes (Type2)
VIOS		Yes (8-areas)	Yes (8-areas)	Yes (8-areas)
Max. Connection		14	14	14
Audio	In (Line)	—	—	—
	In (Built-in MIC)	Yes	Yes	Yes
	Out	—	—	—
	Codec	G.711 / G.726 / AAC	G.711 / G.726 / AAC	G.711 / G.726 / AAC
	Audio Detection Alarm	Yes	Yes	Yes
SD memory Card	Slot	Yes (SDXC)	Yes (SDXC)	Yes (SDXC)
	Password & Alter Detection	Yes	Yes	Yes
	Audio REC	Yes	Yes	Yes
External I/O		Yes (3) (*3)	—	—
Monitor Out		Yes (mini jack)	—	—
Vandal Resistant		—	—	—
Water and Dust Resistance		—	—	—
Temperature		+14°F to +122°F	-32°F to +104°F	-32°F to +104°F
Power Source		12 V DC / PoE	PoE	PoE
Dehumidification device		—	—	—
Other Functions		—	—	—
Mounting Options		See pages 46, 47	TBA	TBA

(*1) With Simple Full-HD mode (Resolution select) (*2) Alarm In1 (Day/Night In, Auto time adjustment), Alarm In 2 (Alarm Out), Alarm In 3 (AUX Out) (x1 for each)
(*3) Alarm In1 (Auto time adjustment), Alarm In 2 (Alarm Out), Alarm In 3 (AUX Out) (x1 for each)

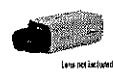
CAMERA TYPE		PANORAMIC DOME				
Appearance		ONVIF S WV-SFV481 4K Engine	ONVIF S WV-SW458(/SW458MA)(*1) HD1080P	ONVIF S WV-SFN480 4K Engine	ONVIF S WV-SF448 HD1080P	ONVIF S WV-SF438 HD1080P
Sensor		1/2 MOS	1/2 MOS	1/2 MOS	1/3 MOS	1/3 MOS
Codec and Transmission	Video Codec	H.264 / JPEG	H.264 / JPEG	H.264 / JPEG	H.264 / JPEG	H.264 / JPEG
	H.264 multi stream	2	2	2	2	2
	JPEG multi stream	2	4	2	4	4
	Smart Coding	Yes (GOP Only)	—	Yes (GOP Only)	—	—
Max. Resolution	16 : 9	2560 x 1440	1920 x 1080	2560 x 1440	1920 x 1080	1920 x 1080
	4 : 3	2560 x 1920 2992 x 2992 (1:1)	H.264: 1280 x 960 JPEG : 2048 x 1536	2560 x 1920 2992 x 2992 (1:1)	H.264: 1280 x 960 JPEG : 2048 x 1536	H.264: 1280 x 960 JPEG : 2048 x 1536
Max. FPS @Max. Resolution	H.264	30fps (4 M)	30fps (1080p)	30fps (4 M)	30fps (1080p)	30fps (1080p)
	JPEG	30fps (4 M)	15fps (3 MP) / 30fps (1080p)	30fps (4 M)	15fps (3 MP) / 30fps (1080p)	15fps (3 MP) / 30fps (1080p)
Super Dynamic / WDR / BLC		WDR	Super-D	WDR	Super-D	Super-D
Day/Night		Yes (ICR)	Yes (Electrical)	Yes (Electrical)	Yes (Electrical)	Yes (Electrical)
ABF (Auto Back Focus) / Focus Assist		ABF	—	ABF	—	—
Min. Illumination	Color	0.3 lx @F1.9	1.5 lx@F2.4	0.3 lx @F1.9	1.5 lx @F2.4	1.5 lx @F2.4
	Color (Sens up)	0.02 lx (16x)	0.1 lx (16x)	0.02 lx (16x)	0.1 lx (16x)	0.1 lx (16x)
	B/W	0.04 lx @F1.9	1.2 lx @F2.4	0.2 lx @F1.9	1.2 lx @F2.4	1.2 lx @F2.4
	B/W (Sens up)	0.003 lx (16x)	0.08 lx (16x)	0.01 lx (16x)	0.08 lx (16x)	0.08 lx (16x)
Lens		f= 1.39 mm, F1.9	f= 0.837 mm, F2.4	f= 1.39 mm, F1.9	f= 0.837 mm, F2.4	f= 0.837 mm, F2.4
Angular field of view	1 : 1	H: 190 deg. V: 190 deg.	H: 182 deg. V: 176 deg.	H: 190 deg. V: 190 deg.	H: 182 deg. V: 176 deg.	H: 186 deg. V: 181 deg.
Adjusting Angle	Pan	±45 deg.	—	±45 deg.	—	—
	Tilt	±45 deg.	—	±45 deg.	—	—
Optical Zoom		—	—	—	—	—
Digital Zoom		4x	4x	4x	4x	4x
VMD (Video Motion Detection)		Yes (4-areas)	Yes (4-areas)	Yes (4-areas)	Yes (4-areas)	Yes (4-areas)
i-VMD (Intelligent VMD) (w/extension software)		Yes (Type3)	—	Yes (Type3)	—	—
VIOS		Yes (8-areas)	Yes (2-areas)	Yes (8-areas)	Yes (2-areas)	Yes (2-areas)
Max. Connection		14	14	14	14	14
Audio	In (Line)	Yes	Yes	Yes	Yes	Yes
	In (Built-in MIC)	—	—	Yes	Yes	Yes
	Out	Yes	Yes	Yes	Yes	Yes
	Codec	G.711 / G.726 / AAC	G.711 / G.726	G.711 / G.726 / AAC	G.711 / G.726	G.711 / G.726
	Audio Detection Alarm	—	—	—	—	—
SD memory Card	Slot	Yes (SDXC)	Yes (SDXC)	Yes (SDXC)	Yes (SDXC)	Yes (SDXC)
	Password & Alter Detection	—	—	—	—	—
	Audio REC	Yes (ACC)	—	Yes (ACC)	—	—
External I/O		Yes (3) (*2)	Yes (3) (*3)	Yes (3) (*3)	Yes (3) (*4)	Yes (3) (*3)
Monitor Out		Yes (BCA)	—	Yes(BCA)	—	—
Vandal Resistant		50J, IK10	50J, IK10	—	20J, IK10	—
Water and Dust Resistance		IP66 / NEMA 4X	IP66 / NEMA 4X	—	—	—
Temperature		-40°F to +122°F	-40°F to +122°F	Ceiling / Wall /Mount bracket: +14°F to +122°F Desktop / Tripod: +14°F to +104°F	+14°F to +122°F	+14°F to +122°F
Power Source		12 V DC / PoE	12 V DC / PoE	12 V DC / PoE	12 V DC / PoE	12 V DC / PoE
Dehumidification device		Yes	Yes	—	—	—
Other Functions		360° monitoring, EN50155-T3, EN50121, DIN5510	360° monitoring, EN50155-T3, EN50121, DIN5510, ECE-R10(WV-SW458MA)	360° monitoring	360° monitoring, Mechanical shutter	360° monitoring
Mounting Options		See pages 46, 47	See pages 46, 47			

(*1) SW458: TERMINAL-E100BASE-TX, RJ45 connector, SW458MA: TERMINAL-R/100BASE-TX, M12 connector (*2) Alarm In1(Day/Night In), Alarm In2(Alarm Out), Alarm In3(AUX Out) (x1 for each)
(*3) Alarm In1, Alarm In2(Alarm Out), Alarm In3(AUX Out)(x1 for each) (*4) Alarm In1(Primary action In), Alarm In2(Alarm Out), Alarm In3(AUX Out) (x1 for each)

Panasonic

CAMERA TYPE		BOX			
Appearance					
		ONVIF WV-SPV781L 4K Engine	ONVIF WV-SPW631LT HD1080P	ONVIF WV-SPW631L HD1080P	ONVIF WV-SPW611L HD720P
Sensor		1/1.7 MOS	1/3 MOS	1/3 MOS	1/3 MOS
Codec and Transmission	Video Codec	H.264 / JPEG	H.264 / JPEG	H.264 / JPEG	H.264 / JPEG
	H.264 multi stream	4	4	4	4
	JPEG multi stream	2	6 (Variable)	6 (Variable)	6 (Variable)
	Smart Coding	Yes (GOP Only)	Yes	Yes	Yes
Max. Resolution	16 : 9	3840 x 2160	1920 x 1080	1920 x 1080	1280 x 720
	4 : 3	4000 x 3000	2048 x 1536 (*1)	2048 x 1536 (*1)	1280 x 960
Max. FPS @Max. Resolution	H.264	30fps (4K)	60fps (1080p)	60fps (1080p)	60fps (720p)
	JPEG	15fps (12 MP)	30fps (3 MP)	30fps (3 MP)	30fps (1.3 MP)
Super Dynamic / WDR / BLC		WDR	Enhanced SD	Enhanced SD	Enhanced SD
Day/Night		Yes (ICR)	Yes (ICR)	Yes (ICR)	Yes (ICR)
ABF (Auto Back Focus) / Focus Assist		ABF	ABF	ABF	ABF
Min. Illumination	Color	0.3 lx @F1.6	0.06 lx @F1.6	0.04 lx @F1.3	0.01 lx @F1.3
	Color (Sens up)	0.02 lx (16x)	0.004 lx (16x)	0.003 lx (16x)	0.0007 lx (16x)
	B/W	0.0 lx @F1.6 (w/IR)	0.0 lx @F1.6 (w/IR)	0.0 lx @F1.3 (w/IR)	0.0 lx @F1.3 (w/IR)
	B/W (Sens up)	—	—	—	—
Lens		f=4.2 to 25.2 mm, F1.6 Motorized	f= 9 to 22 mm, F1.6 Motorized	f= 2.8 to 10 mm, F1.3 Motorized	f= 2.8 to 10 mm, F1.3 Motorized
Angular field of view	16 : 9	H: 17 to 97 deg. V: 9.4 to 55 deg.	H: 13.8 to 33.6 deg. V: 7.7 to 18.1 deg.	H: 30.9 to 105.4 deg. V: 17.4 to 57.3 deg.	H: 28.4 to 96.2 deg. V: 16.1 to 52.8 deg.
	4 : 3	H: 16 to 101 deg. V: 13 to 76 deg.	H: 11.5 to 27.4 deg. V: 8.6 to 20.1 deg.	H: 25.8 to 86.4 deg. V: 19.3 to 63.9 deg.	H: 28.4 to 96.2 deg. V: 21.4 to 71.0 deg.
Adjusting Angle	Pan	—	—	—	—
	Tilt	—	—	—	—
Optical Zoom		6x	2.4x	3.6x	3.6x
Digital Zoom		4x	4x	4x	4x
VMD (Video Motion Detection)		Yes (4-areas)	Yes (4-areas)	Yes (4-areas)	Yes (4-areas)
i-VMD (Intelligent VMD) (w/extension software)		—	Yes (Type2)	Yes (Type2)	Yes (Type2)
VIOS		Yes (8-areas)	Yes (8-areas)	Yes (8-areas)	Yes (8-areas)
Max. Connection		14	14	14	14
Audio	In (Line)	Yes	Yes	Yes	Yes
	In (Built-in MIC)	—	—	—	—
	Out	Yes	Yes	Yes	Yes
	Codec	G.711 / G.726 / AAC (*2)	G.711 / G.726 / AAC	G.711 / G.726 / AAC	G.711 / G.726 / AAC
	Audio Detection Alarm	—	Yes	Yes	Yes
SD memory Card	Slot	Yes (SDXC)	Yes (SDXC x 2)	Yes (SDXC x 2)	Yes (SDXC x 2)
	Password & Alter Detection	—	Yes	Yes	Yes
	Audio REC	Yes	Yes (AAC)	Yes (AAC)	Yes (AAC)
External I/O		Yes (3) (*3)	Yes (3) (*4)	Yes (3) (*4)	Yes (3) (*4)
Monitor Out		Yes (RCA)	Yes (RCA)	Yes (RCA)	Yes (RCA)
Vandal Resistant		IK9, IK10	—	—	—
Water and Dust Resistance		IP66 / NEMA 4X	IP66 / NEMA 4X	IP66 / NEMA 4X	IP66 / NEMA 4X
Temperature		-49°F to +122°F	-40°F to +122°F	-40°F to +122°F	-40°F to +122°F
Power Source		12 V DC / PoE	12 V DC / PoE	12 V DC / PoE	12 V DC / PoE
Dehumidification device		Yes	Yes	Yes	Yes
Other Functions		Built-in heater, Rain wash coating, Built-in IR LED	Built-in heater, Built-in IR LED	Built-in heater, Built-in IR LED	Built-in heater, Built-in IR LED
Mounting Options		See page 51	See page 51	See page 51	See page 51

(*1) w/Super resolution (*2) Only for SD REC (*3) Alarm In (Day/Night In), Alarm In (Alarm Out), Alarm In (AUX Out, Day/Night Out) (x1 for each) (*4) Alarm In (Day/Night In), Alarm In (Alarm Out), Alarm In (AUX Out) (x1 for each)

CAMERA TYPE		BOX					
Appearance			NEW	NEW	Lens not included 	Lens not included	
		ONVIF WV-SPW611 HD720P	ONVIF WV-SPW531AL HD1080P	ONVIF WV-SPW311AL HD720P	ONVIF WV-SPN631 HD1080P	ONVIF WV-SPN611 HD720P	
Sensor		1/3 MOS	1/3 MOS	1/3 MOS	1/3 MOS	1/3 MOS	
Codec and Transmission	Video Codec	H.264 / JPEG	H.264 / JPEG	H.264 / JPEG	H.264 / JPEG	H.264 / JPEG	
	H.264 multi stream	4	4	4	4	4	
	JPEG multi stream	6 (Variable)	6 (Variable)	6 (Variable)	6 (Variable)	6 (Variable)	
	Smart Coding	Yes	Yes	Yes	Yes	Yes	
Max. Resolution	16 : 9	1280 x 720	1920 x 1080	1920 x 1080 (*1) / 1280 x 720	1920 x 1080	1280 x 720	
	4 : 3	1280 x 960	2048 x 1536	1920 x 1080 (*1)	2048 x 1536 (*1)	1280 x 960	
Max. FPS @Max. Resolution	H.264	60fps (720p)	60fps (1080p)	60fps (720p)	60fps (1080p)	60fps (720p)	
	JPEG	30fps (1.3 MP)	30fps (3 MP)	30fps (1.3 MP)	30fps (3 MP) (*1)	30fps (1.3 MP)	
Super Dynamic / WDR / BLC		Enhanced SD	Enhanced SD	Enhanced SD	Enhanced SD	Enhanced SD	
Day/Night		Yes (ICR)	Yes (ICR)	Yes (ICR)	Yes (ICR)	Yes (ICR)	
ABF (Auto Back Focus) / Focus Assist		ABF	ABF	ABF	ABF	ABF	
Min. Illumination	Color	0.01 lx @F1.3	0.07 lx @F1.6	0.02 lx @F1.6	0.04 lx @F1.4	0.01 lx @F1.4	
	Color (Sens up)	0.0007 lx (16x)	0.005 lx (16x)	0.005 lx (16x)	0.003 lx (16x)	0.0007 lx (16x)	
	B/W	0.003 lx @F1.3	0.0 lx @F1.6 (w/IR)	0.0 lx @F1.6 (w/IR)	0.01 lx @F1.4	0.003 lx @F1.4	
	B/W (Sens up)	0.0002 lx (16x)	—	—	0.0007 lx (16x)	0.0002 lx (16x)	
Lens		f= 2.8 to 10 mm, F1.3 Motorized	f= 2.8 to 10 mm, F1.6	f= 2.8 to 10 mm, F1.6	CS Mount	CS Mount	
Angular field of view	16 : 9	H: 28.4 to 96.2 deg. V: 16.1 to 52.8 deg.	H: 31 to 112 deg. V: 17 to 60 deg.	H: 28 to 102 deg. V: 16 to 55 deg.	—	—	
	4 : 3	H: 28.4 to 96.2 deg. V: 21.4 to 71.0 deg.	H: 26 to 91 deg. V: 19 to 67 deg.	H: 28 to 102 deg. V: 21 to 76 deg.	—	—	
Adjusting Angle	Pan	—	-180 to +180 deg.	-180 to +180 deg.	—	—	
	Tilt	—	0 to +90 deg.	0 to +90 deg.	—	—	
Optical Zoom		3.6x	3.6x	3.6x	—	—	
Digital Zoom		4x	4x	4x	4x	4x	
VMD (Video Motion Detection)		Yes (4-areas)	Yes (4-areas)	Yes (4-areas)	Yes (4-areas)	Yes (4-areas)	
i-VMD (Intelligent VMD) (w/extension software)		Yes (Type2)	Yes (Type2)	Yes (Type2)	Yes (Type2)	Yes (Type2)	
VIOS		Yes (8-areas)	Yes (8-areas)	Yes (8-areas)	Yes (8-areas)	Yes (8-areas)	
Max. Connection		14	14	14	14	14	
Audio	In (Line)	Yes	Yes	Yes	Yes	Yes	
	In (Built-in MIC)	—	—	—	—	—	
	Out	Yes	Yes	Yes	Yes	Yes	
	Codec	G.711 / G.726 / AAC	G.711 / G.726 / AAC	G.711 / G.726 / AAC	G.711 / G.726 / AAC	G.711 / G.726 / AAC	
	Audio Detection Alarm	Yes	Yes	Yes	Yes	Yes	
SD memory Card	Slot	Yes (SDXC x 2)	Yes (SDXC)	Yes (SDXC)	Yes (SDXC x 2)	Yes (SDXC x 2)	
	Password & Alter Detection	Yes	Yes	Yes	Yes	Yes	
	Audio REC	Yes (AAC)	Yes (AAC)	Yes (AAC)	Yes (AAC)	Yes (AAC)	
External I/O		Yes (3) (*4)	Yes (3) (*2)	Yes (3) (*2)	Yes (3) (*2)	Yes (3) (*2)	
Monitor Out		Yes (RCA)	Yes (RCA)	Yes (RCA)	Yes (RCA)	Yes (RCA)	
Vandal Resistant		—	—	—	—	—	
Water and Dust Resistance		IP66 / NEMA 4X	IP66 / NEMA 4X	IP66 / NEMA 4X	—	—	
Temperature		-40°F to +122°F	-40°F to +122°F	-40°F to +122°F	+14°F to +122°F	+14°F to +122°F	
Power Source		12 V DC / PoE	12 V DC / PoE	12 V DC / PoE	12 V DC / PoE	12 V DC / PoE	
Dehumidification device		Yes	Yes	Yes	—	—	
Other Functions		Built-in heater	Built-in IR LED	Built-in IR LED	Optional Extension Unit	Optional Extension Unit	
Mounting Options		See page 51	See page 51	See page 51	See page 51	See page 51	

(*1) w/Simple Fast-HD mode (Instahorizontal) (*2) Alarm In1 (Day/Night In, Auto time adjustment), Alarm In 2 (Alarm Out), Alarm In 3 (AUX Out) (x1 for each

Panasonic

CAMERA TYPE		BOX / TURRET			
Appearance		Lens not included ONVIF WV-SPN531A H.264/H.265	Lens not included ONVIF WV-SPN311A H.264	Lens not included ONVIF WV-SPN310A H.264	ONVIF WV-SP105 H.264
Sensor		1/3 MOS	1/3 MOS	1/3 MOS	1/3 MOS
Codec and Transmission	Video Codec	H.264 / JPEG	H.264 / JPEG	H.264 / JPEG	H.264 / JPEG
	H.264 multi stream	4	4	4	2
	JPEG multi stream	6 (Variable)	6 (Variable)	6 (Variable)	6
	Smart Coding	Yes	Yes	Yes	—
Max. Resolution	16 : 9	1920 x 1080	1920 x 1080 (*1) / 1280 x 720	1920 x 1080 (*1) / 1280 x 720	1280 x 720
	4 : 3	2048 x 1536	1280 x 960	1280 x 960	1280 x 960
Max. FPS @Max. Resolution	H.264	60fps (1080p)	60fps (720p)	60fps (720p)	30fps (1.3 MP)
	JPEG	30fps (3 MP)	30fps (1.3 MP)	30fps (1.3 MP)	30fps (1.3 MP)
Super Dynamic / WDR / BLC		Enhanced SD	Enhanced SD	Enhanced SD	BLC
Day/Night		Yes (ICR)	Yes (ICR)	Yes (Electrical)	Yes (Electrical)
ABF (Auto Back Focus) / Focus Assist		ABF	ABF	Focus Assist	—
Min. Illumination	Color	0.04 lx @F1.4	0.01 lx @F1.4	0.01 lx @F1.4	0.8 lx @F2.2
	Color (Sens up)	0.003 lx (16x)	0.0007 lx (16x)	0.0007 lx (16x)	0.05 lx (16x)
	B/W	0.01 lx @F1.4	0.003 lx @F1.4	0.008 lx @F1.4	0.4 lx @F2.2
	B/W (Sens up)	0.0007 lx (16x)	0.0002 lx (16x)	0.0005 lx (16x)	0.03 lx (16x)
Lens		CS Mount	CS Mount	CS Mount	f= 3.54 mm, F2.2
Angular field of view	16 : 9	—	—	—	H: 76.3 deg. V: 42.6 deg.
	4 : 3	—	—	—	H: 70.3 deg. V: 55.4 deg.
Adjusting Angle	Pan	—	—	—	—
	Tilt	—	—	—	—
Optical Zoom		—	—	—	—
Digital Zoom		4x	4x	4x	4x
VMD (Video Motion Detection)		Yes (4-areas)	Yes (4-areas)	Yes (4-areas)	Yes (4-areas)
i-VMD (Intelligent VMD) (w/extension software)		Yes (Type2)	Yes (Type2)	Yes (Type2)	—
VIQS		Yes (8-areas)	Yes (8-areas)	Yes (8-areas)	Yes (1-area)
Max. Connection		14	14	14	14
Audio	In (Line)	Yes	Yes	—	—
	In (Built-in MIC)	—	—	Yes	—
	Out	Yes	Yes	—	—
	Codec	G.711 / G.726 / AAC	G.711 / G.726 / AAC	G.711 / G.726 / AAC	—
	Audio Detection Alarm	Yes	Yes	Yes	—
SD memory Card	Slot	Yes (SDXC)	Yes (SDXC)	Yes (SDXC)	—
	Password & Alter Detection	Yes	Yes	Yes	—
	Audio REC	Yes (AAC)	Yes (AAC)	Yes (AAC)	—
External I/O		Yes (3) (*3)	Yes (3) (*3)	Yes (3) (*3)	—
Monitor Out		Yes (RCA)	Yes (RCA)	Yes (RCA)	—
Vandal Resistant		—	—	—	—
Water and Dust Resistance		—	—	—	—
Temperature		+14°F to +122°F	+14°F to +122°F	+14°F to +122°F	+32°F to +104°F
Power Source		12 V DC / PoE	12 V DC / PoE	12 V DC / PoE	12 V DC / PoE
Dehumidification device		—	—	—	—
Other Functions		—	—	—	—
Mounting Options		See page 51	See page 51	See page 51	See page 51

(*1): with Simple Full-HD mode (Resolution name) (*3): Alarm In1 (Day/Night In, Auto time adjustment), Alarm In 2 (Alarm Out1, Alarm In 3 (AUX Out) (In1 for each)

(*3): Alarm In1 (Auto time adjustment), Alarm In 2 (Alarm Out), Alarm In 3 (AUX Out) (In1 for each)

CAMERA TYPE		PAN / TILT				
Appearance		ONVIF WV-SW175 H.264	ONVIF WV-SW174W H.264	ONVIF WV-SW172 VGA	ONVIF WV-ST165 H.264	ONVIF WV-ST162 VGA
Sensor		1/4 MOS	1/4 MOS	1/4 MOS	1/4 MOS	1/4 MOS
Codec and Transmission	Video Codec	H.264 / JPEG	H.264 / JPEG	H.264 / JPEG	H.264 / JPEG	H.264 / JPEG
	H.264 multi stream	2	2	2	2	2
	JPEG multi stream	6	6	6	6	6
	Smart Coding	—	—	—	—	—
Max. Resolution	16 : 9	1280 x 720	1280 x 720	640 x 360	1280 x 720	640 x 360
	4 : 3	1280 x 960	1280 x 960	800 x 600	1280 x 960	800 x 600
Max. FPS @Max. Resolution	H.264	30fps (1.3 MP)	30fps (1.3 MP)	30fps (SVGA)	30fps (1.3 MP)	30fps (SVGA)
	JPEG	30fps (1.3 MP)	30fps (1.3 MP)	30fps (SVGA)	30fps (1.3 MP)	30fps (SVGA)
Super Dynamic / WDR / BLC		BLC	BLC	BLC	BLC	BLC
Day/Night		Yes (Electrical)	Yes (Electrical)	Yes (Electrical)	Yes (Electrical)	Yes (Electrical)
ABF (Auto Back Focus) / Focus Assist		—	—	—	—	—
Min. Illumination	Color	0.6 lx @F2.2	0.6 lx @F2.2	0.6 lx @F2.2	0.6 lx @F2.2	0.6 lx @F2.2
	Color (Sens up)	0.038 lx (16x)	0.038 lx (16x)	0.038 lx (16x)	0.038 lx (16x)	0.038 lx (16x)
	B/W	0.5 lx @F2.2	0.5 lx @F2.2	0.5 lx @F2.2	0.5 lx @F2.2	0.5 lx @F2.2
	B/W (Sens up)	0.03 lx (16x)	0.03 lx (16x)	0.03 lx (16x)	0.03 lx (16x)	0.03 lx (16x)
Lens		f= 1.95 mm, F2.2	f= 1.95 mm, F2.2	f= 1.95 mm, F2.2	f= 1.95 mm, F2.2	f= 1.95 mm, F2.2
Angular field of view	16 : 9	H: 85 deg. V: 53 deg.	H: 85 deg. V: 53 deg.	H: 85 deg. V: 53 deg.	H: 85 deg. V: 53 deg.	H: 85 deg. V: 53 deg.
	4 : 3	H: 85 deg. V: 68 deg.	H: 85 deg. V: 68 deg.	H: 85 deg. V: 68 deg.	H: 85 deg. V: 68 deg.	H: 85 deg. V: 68 deg.
Pan	Range	-47.5 to +47.5 deg.	-47.5 to +47.5 deg.	-47.5 to +47.5 deg.	-47.5 to +47.5 deg.	-47.5 to +47.5 deg.
	Speed	80 deg/sec	80 deg/sec	80 deg/sec	80 deg/sec	80 deg/sec
Tilt	Range	-45 to +10 deg.	-45 to +10 deg.	-45 to +10 deg.	-45 to +10 deg.	-45 to +10 deg.
	Speed	80 deg/sec	80 deg/sec	80 deg/sec	80 deg/sec	80 deg/sec
360 Pan-Flip		—	—	—	—	—
Number of Preset Positions		64	64	64	64	64
Patrol		—	—	—	—	—
Auto Tracking		—	—	—	—	—
Optical Zoom		—	—	—	—	—
Digital Zoom		16x	16x	16x	16x	16x
VMD (Video Motion Detection)		Yes	Yes	Yes	Yes	Yes
i-VMD (Intelligent VMD) (w/extension software)		—	—	—	—	—
VIQS		—	—	—	—	—
Max. Connection		14	14	14	14	14
Audio	In (Line)	Yes	Yes	Yes	Yes	Yes
	In (Built-in MIC)	Yes	Yes	Yes	Yes	Yes
	Out	Yes	Yes	Yes	Yes	Yes
	Codec	G.711 / G.726	G.711 / G.726	G.711 / G.726	G.711 / G.726	G.711 / G.726
	Audio Detection Alarm	—	—	—	—	—
SD memory Card	Slot	Yes	—	Yes	Yes	Yes
	Password & Alter Detection	—	—	—	—	—
	Audio REC	—	—	—	—	—
External I/O		Yes (3) (*1)	Yes (3) (*1)	Yes (3) (*1)	Yes (3) (*1)	Yes (3) (*1)
Monitor Out		Yes	Yes	Yes	Yes	Yes
Vandal Resistant		—	—	—	—	—
Water and Dust Resistance		IP55	IP55	IP55	—	—
Temperature		-4°F to +122°F	-4°F to +122°F	-4°F to +122°F	+32°F to +104°F	+32°F to +104°F
Power Source		12 V DC / PoE	12 V DC	12 V DC / PoE	12 V DC / PoE	12 V DC / PoE
Dehumidification device		—	—	—	—	—
Other Functions		—	Wireless (11 n/b/g)	—	—	—
Mounting Options						

(*1): Alarm In1, Alarm In2 (Alarm Out), Alarm In3 (AUX Out) (In1 for each)

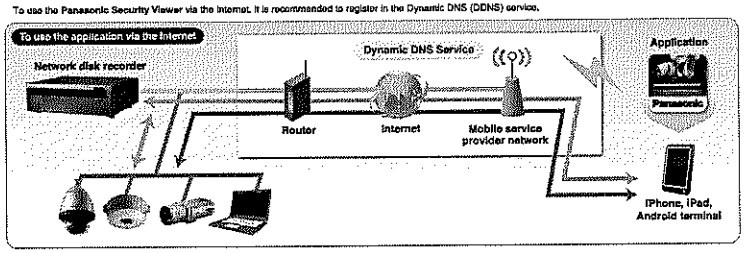
Panasonic Security Viewer App (VERSION 2.2.0)

Panasonic Security Viewer is an application that can view the images from i-PRO SmartHD Series Network Cameras and Network Disk Recorders (WJ-NV200/WJ-NV300/WJ-ND400/WJ-HD716/WJ-HD616).

By connecting a terminal to a 3G/4G or wireless LAN (Wi-Fi), it is possible to view live images from cameras and recorded images stored on recorders.

Preface

To use the Panasonic Security Viewer via the Internet, it is recommended to register in the Dynamic DNS (DDNS) service.



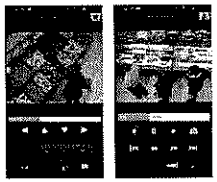
A PC is required to register a Dynamic DNS Service and configure the settings of the router.

- Download the Panasonic Security Viewer application on the Google Play™ store, Apple App Store.

Direct Camera connection • Live monitoring

Via recorder • Live monitoring • Playback

Features of the application



Network disk recorder

- Live image: Live images from the network cameras connected to the recorder
- Playing back recorded images: To play back the images stored on the recorder
  * Re-encoding playback images for smartphones or tablet PC screen size/ frame rate
- Time and date search: To search the images to play back based on the time and date

Network camera

- Network camera control*
  (Resolution switchover, focus, panning/tilting, zoom, preset position switchover)
  * Depends on the network camera functions.

Android™

Outline of the application

Application name	Panasonic Security Viewer version 2.1
OS	Android™ OS 4.0 is recommended.
How to get the application	Download from the Google Play™ store.
Date to start the service	End of June
Operation check terminals	Panasonic Toughpad FZ-A1, JT-B1, Galaxy S2, Galaxy S3, Galaxy S4

- Download the application from here.

Android™ http://security.panasonic.com/pss/security/psv/android/index.html

iPhone/iPad

Outline of the application

Application name	Panasonic Security Viewer version 2.1
OS	iOS 5.1 or later
How to get the application	Download from the App Store.
Date to start the service	End of June
Operation check terminals	iPhone4s, iPhone5, iPhone5S, iPad2, iPod touch (5th)

- Download the application from here.

iPhone / iPad http://security.panasonic.com/pss/security/psv/ios/index.html

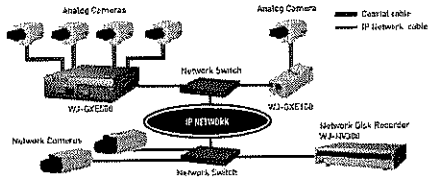
Easily migrate to an advanced IP system while still using the existing assets of your analog system

Effective utilization of analog cameras

ENCODER

- Analog cameras can be connected to the IP network simply by connecting them to the encoder.
- A maximum of four analog cameras can be connected to the WV-GXE500, and one analog camera can be connected to the WV-GXE100.
- Video captured by analog cameras can be saved to a recorder installed on the IP network in the same way as network cameras.

Basic System Connection Example



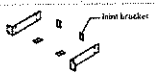
4 CH H.264 Video Encoder

WJ-GXE500

[12 V DC or PoE]

Optional Accessory

[19 inch] Rack Mount Bracket
WJ-Q204/2S
[for mounting three WJ-GXE500]



1 CH H.264 Video Encoder

WJ-GXE100

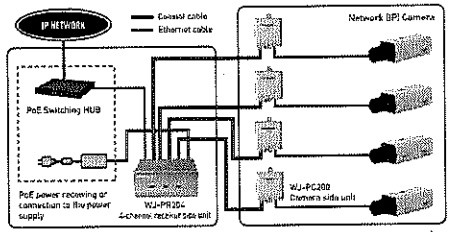
[12 V DC or PoE]

Effective utilization of cabling

COAXIAL LAN CONVERTER

- The coaxial cables of existing analog cameras can be used for expanding the reach of the IP network.

Basic System Connection Example



*With PoE function: 500 m (1,640 feet 5 inches)/Without PoE function: 2 km (6,561 feet 8 inches)

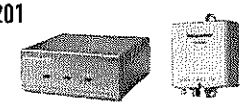
Coaxial LAN cables can be used up to distances of 2 km.
Power can also be supplied to PoE cameras for distances of up to 500 m. PoE+ cameras for distances of up to 300 m.

Coaxial - LAN Converter with PoE function

4-channel receiver side unit
WJ-PR204

Camera side unit
WJ-PC200

1-channel receiver side unit
WJ-PR201
[Indoor use only]



NEW Receiver side unit

Camera side unit

Optional Accessory

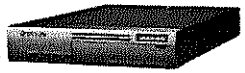
Rack Mount Connecting Fitting
BY-HCA10A
[for mounting three or four Receiver side unit]

Network Video Decoder

Multi Channel High Definition Video Decoder

WJ-GXD400

[12 V DC, 100 V–240 V AC adaptor attached]



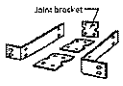
- Up to 256 cameras, including cameras connected to the i-Pro Network Video Encoder [WJ-GXE500], can be registered
- HDMI interface supporting 1,920 x 1,080 display size
- 1x AVGA image with 2x VGA images or 6x VGA images can be displayed in multiscreen mode
- Each of VGA images can be displayed at 25 frames/s.
- Superior reliability and installation flexibility with an embedded OS
- Up to 64 camera groups can be registered and called up in response to power on, group sequence and schedule program.

Optional Accessories

[19 inch] Rack Mount Bracket
WV-Q204/1S
[for mounting one WJ-GXD400]

[19 inch] Rack Mount Bracket
WV-Q204/2S
[for mounting two WJ-GXD400]

*Only 2 pieces of joint brackets are necessary. One piece of joint bracket will be unnecessary.



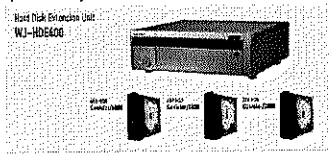
Panasonic

Network Disk Recorder

WJ-ND400

(120 V AC, NTSC; 220-240 V AC, PAL)

Optional Accessory

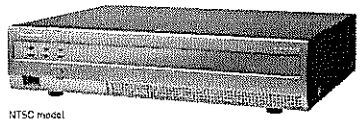


- H.264, MPEG-4 and JPEG multi format
- Up to 64 network cameras can be connected and recorded (Video and Audio)
- Various Recording Mode: Manual, Schedule including Event (Pre/Post), Emergency
- VMD search (works with i-PRO cameras or WJ-NT314)
- Up to 54 HDD slots with 9 HDD slots in the main unit and five WJ-HDE400 optional Extension Units each with 9 HDD slots
- RAID5/6, Embedded OS, Data encryption for reliability
- Optional HDD: 6TB HDD Canister/6000; 4TB HDD Canister/4000; 3TB HDD Canister/3000; 2TB HDD Canister/2000

Network Disk Recorder

WJ-NV300

(120 V AC, NTSC; 220 V-240 V AC, PAL)



NTSC model

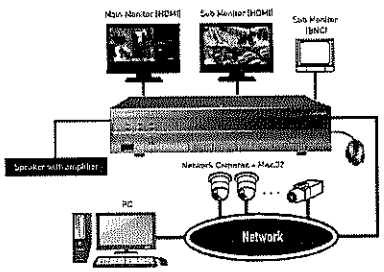
- H.264 and JPEG multi format
- 16 (NTSC) / 9 (PAL) network cameras can be connected and recorded as default. Up to 32*1 network cameras can be connected and recorded.
- Quick setup by automatic camera detection and simple setup wizard without the use of PC
- Simple mouse operation by new GUI without the use of PC
- Supports the Full HD output (HDMI)
- HDD capacity is expandable up to 20 HDD slots (2 HDD slots in the main unit and 2 optional WJ-HDE400 Hard Disk Extension Units each with 9 HDD slots).
- Supports 360-degree network microphone (WV-SMR10)

*1 Two Additional Camera Kits WJ-NVE30 are necessary (NTSC). Three Additional Camera Kits WJ-NVE30 are necessary (PAL)

Additional Camera kit : **WJ-NVE30**

Optional Accessory

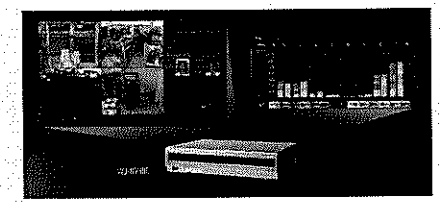
Power Source	220 - 240 V AC, 50 Hz (PAL) 120 V AC, 60 Hz (NTSC)
Power Consumption	Approx. 130 W
Dimensions	430 mm (W) x 132 mm (H) x 400 mm (D) (16-15/16" (W) x 5-3/16" (H) x 15-12/16" (D)) (excluding rubber feet and projections)
Weight	13.5 kg (29.8 lbs.) (When no HDD exist) 20 kg (44.15 lbs.) (When 9 HDDs are installed)

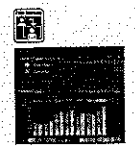


Easy Operation and Setup without PC

Additional Business Intelligence Kit WJ-NVF30

Additional Business Intelligence Kit NVF20 is a license kit intended to improve the usefulness of Network Disk Recorder WJ-NV300 / WJ-NV200.





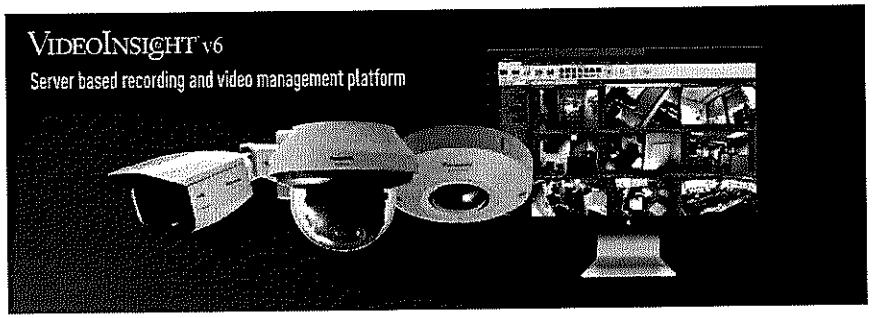
- **New statistical processing functions such as "People counting" and "Face matching / Age & Gender judgment"**
- The number of detected human faces can be displayed on a statistical chart separated by age & gender for a single day or a specified time period.
- Age distribution groups are displayed by separate colors.
- The statistical data can be saved as a CSV file on a SDHC/SD memory card or on a PC connected over a network.

* CSV file: A file that can be edited using a spreadsheet software such as Microsoft® Office Excel®

* To use this product, it is necessary to register the license (Registration Key) for Additional Business Intelligence Kit into the WJ-NV300/WJ-NV200 in use.

VideoInsight v6

Server based recording and video management platform



Scalable enterprise VMS solution that captures, manages and stores video surveillance across a network - on a single or multiple locations - and supports the broadest range of IP and analog camera models. Video Insight is the perfect solution for multi-facility configurations including schools, universities, hospitals, healthcare providers, law enforcement and SMBs.

NO LICENSE REQUIRED FOR SELECT PANASONIC CAMERAS

Unlimited Video Insight software license is available with the purchase of select Panasonic cameras manufactured after October 2014.

SURVEILLANCE FROM ANYWHERE

Monitor Station, Web Client and Mobile App share powerful features that allow you to access live and recorded video no matter where you are.

SUPPORT FOR 3,000 CAMERAS FROM 100+ MANUFACTURERS

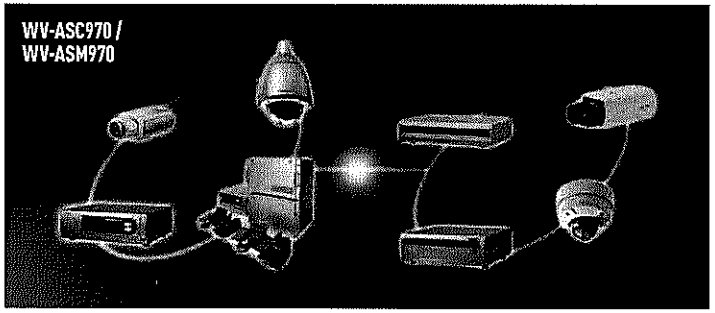
WIDE ACCESS CONTROL INTEGRATION

Video Insight supports single and bi-directional integration of access control alarms from the leading vendors.

SUPPORT FOR OVER 130 ENCODERS

Integration to over 130 encoders so that our customers can affordably convert analog-to-IP and maximize the use of existing resources by turning their analog video system into a network video system.

Panasonic



PMPU3000 NETWORK

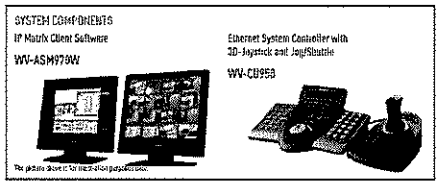
IP MATRIX APPLIANCE

- Easy and smooth integration from analog to IP system
- Flexible system design: analog, IP and hybrid analog/IP
- Up to 64 recorders, 1,024 monitors and 2,048 cameras (in case with encoder) can be registered
- Camera/sequence/monitor selection, camera control and recorder control can be made with the optional system controller WV-CU950
- Supported recorders: WJ-ND400 series, WJ-ND300 series, WJ-ND200 series, WJ-NV200 series, WJ-HD300 series, WJ-RT416 series, WJ-HD616/716 series
- Redundant function supported (redundant function can consist of two WV-ASC970 servers as main server and standby server)
- Up to 64 ND400 recorders can be registered as standby recorder for backup purpose of serious problems on main recorders

WV-ASM970W NETWORK

IP MATRIX CLIENT SOFTWARE

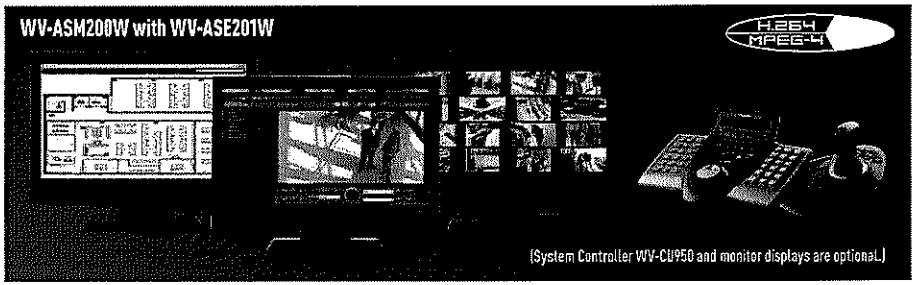
- Multimonitor option enables simultaneous use of operation screen and monitor screen (1 / 4 / 7 / 9 / 10 / 13 / 16 split) on a dedicated monitor; two-monitor operation is also available
- Up to 30 ips/camera can be displayed in 16 split screens in MPEG-4 2 Mbps mode (depending on the camera, camera setup and PC performance)
- Up to 30 ips/camera can be displayed in 16 split screens in H.264 1.5 Mbps mode with VGA (depending on the camera, camera setup and PC performance)
- Image resolution dynamically changes depending on the screen mode: VGA for quad screen, QVGA for 16 split screens, enabling optimum network usage (depending on the camera mode)
- Decoder mode supported (WV-ASM970W can be used as PC-based decoder instead of WJ-GXD400)
- WV-ASE902W: Max. 16 screen x 4 monitor support



WV-ASM200W

I-PRO MANAGEMENT SOFTWARE

- Supports 16:9 video stream and 16:9 HD monitor; displays 16:9 and 4:3 videos from IP cameras on the same screen
- H.264 recording data in the SD/SDHC memory card can be downloaded
- Convert file format from n3r (proprietary format) to MP4 and WMV
- Up to 100 recorders, 64 encoders and 256 directly connected cameras can be registered
- Up to 6,400 cameras registered in the recorders and 256 cameras registered in the encoders are automatically registered in the WV-ASM200W (the number of cameras depends on the recorder and encoder)
- Up to 16x 30 ips/camera images can be displayed in H.264 1.5 Mbps mode
- Fisheye image correction/de-warp
- Software License Products
  -WV-SAE100W: Face Detection XML
  -WV-SAE200W: WMD



WV-ASE201W / ASE202W / ASE203W / ASE204W / ASE205W / ASE231W

EXTENSION SOFTWARE

- WV-ASE201W: Three monitors, system controller (WV-CU950) support
- WV-ASE202W: Max. 64 screen support
- WV-ASE203W: Increases number of recorder registration
- WV-ASE204W: Supports WJ-GXD400
- WV-ASE205W: Image compensation (Fog/Snow)
- WV-ASE231W: Client for WV-ASF900W

FACEPRO – WV-ASF900W

FACIAL RECOGNITION ANALYTICS PLATFORM

FACIAL RECOGNITION ANALYTICS PLATFORM RUNNING IN THE VIDEO SURVEILLANCE SYSTEM

- Add-on face matching function: Add the face matching function by simply adding the necessary devices and the software
- Up to 20 cameras can be connected to each server

FACE SEARCH

- Face images that the camera detects are stored and can be searched later
- By searching the face database, you can display the results of each camera in chronological order and find movement and location of persons
- Specify camera or date in detected face images and display the result in the list in similar order

FACE MATCHING

- When faces are matched with registered people, alarm of face matching is output in real time, and an alarm history is displayed in the list
- Double clicking on facial alarm notification can play back video segment on the control monitor

PEOPLE COUNTING, AGE AND GENDER STATISTICS

- Count people with detected faces and evaluate their age and gender
- Display the result on the screen with statistical graph
- The statistical data can be saved as a CSV file for analytical use

FACEPRO® SYSTEM COMPONENTS

WV-ASF900W
FacePro Server and Recording Software
(up to 4 simultaneous cameras)

WV-ASE201W
FacePro Server Analytics Expansion

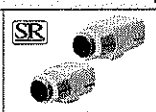
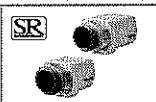
WV-ASF904W
FacePro Pair of Facial Expression Licenses

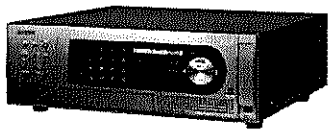
CAMERA TYPE		PTZ	
Indoor / Outdoor		OUTDOOR	INDOOR
Appearance		SR WV-CW594A	SR WV-CS584
Sensor		1/4 type interline transfer CCD	1/4 type interline transfer CCD
Resolution	Horizontal	650 TV Lines	650 TV Lines
Super Dynamic / WDR / BLC		Super-D	Super-D
Day/Night		Yes (ICR)	Yes (ICR)
Focus Adjustment		Auto Focus	Auto Focus
Built-in IR LED		–	–
Min. Illumination	Color	0.5 lx	0.5 lx
	Color (Sens up)	0.014 lx	0.016 lx
	B/W	0.04 lx	0.04 lx
	B/W (Sens up)	0.0013 lx	0.0013 lx
Lens		f= 3.3 to 119 mm, F1.4	f= 3.3 to 119 mm, F1.4
Angular field of view		H: 1.7° (Tele) to 60.2° (Wide) V: 1.3° (Tele) to 46.0° (Wide)	H: 1.7° (Tele) to 60.2° (Wide) V: 1.3° (Tele) to 46.0° (Wide)
Adjusting Angle	Pan	360° endless	360° endless
	Tilt	–5° to 185° (horizontal - vertical - horizontal)	–5° to 185° (horizontal - vertical - horizontal)
	Optical Zoom	36x	36x
	Digital Zoom	20x	20x
VMD (Video Motion Detection)		Yes	Yes
i-VMD (Intelligent VMD)		Scene Change	Scene Change
Camera title (OSD)		Yes	Yes
External I/O		4 inputs (ALARM IN 1 - ALARM IN 4) 2 outputs (ALARM / AUX), (BW / AUX2)	4 inputs (ALARM IN 1 - ALARM IN 4) 2 outputs (ALARM / AUX), (BW / AUX2)
Vandal Resistant		–	–
Water and Dust Resistance		IP66	–
Dehumidification device		–	–
Temperature		-58°F to +122°F	+14°F to +122°F
Power Source		24 V AC	24 V AC
Other Functions		WV-CW594A : Rain wash coating	–
Options	Smoke Dome Cover	–	Smoke Dome Cover WV-CS65A
	Bracket	Wall Mount Bracket WV-Q122A	Ceiling Mount Bracket WV-Q105A
			Embedded Ceiling Mount Bracket WV-Q126A
		Ceiling Mount Bracket WV-Q121B	Pendant Mount Bracket WV-Q117A
			Wall Mount Bracket WV-Q119B
	Heater Unit	–	–
Mounting Options		See page 50	See pages 48, 49

CAMERA TYPE		DOME		
Indoor / Outdoor		OUTDOOR	INDOOR	
Appearance		NEW SR WV-CW634S, WV-CW634F	SR WV-CF624	SR WV-CF634
Sensor		1/3 type interline transfer CCD	1/3 type interline transfer CCD	1/3 type interline transfer CCD
Resolution	Horizontal	700 TV Lines or more	650 TV Lines	650 TV Lines
Super Dynamic / WDR / BLC		Super-D	Super-D	Super-D
Day/Night		Yes (ICR)	Yes (ICR)	Yes (ICR)
Focus Adjustment		ABF	Manual	ABF
Built-in IR LED		–	–	–
Min. Illumination	Color	0.08 lx	0.08 lx	0.08 lx
	Color (Sens up)	0.00024 lx	0.0025 lx	0.0025 lx
	B/W	0.008 lx	0.008 lx	0.008 lx
	B/W (Sens up)	0.00024 lx	0.0003 lx	0.0003 lx
Lens		f= 3.8 to 8.0 mm, F1.4	f= 2.8 to 10 mm, F1.4	f= 2.8 to 10 mm, F1.4
Angular field of view		H: 33.6° (Tele) to 74.9° (Wide) V: 25.2° (Tele) to 55.7° (Wide)	H: 27.6° (Tele) to 100.8° (Wide) V: 20.7° (Tele) to 73.8° (Wide)	H: 27.6° (Tele) to 100.8° (Wide) V: 20.7° (Tele) to 73.8° (Wide)
Adjusting Angle	Pan	±170°	180° to –170°	180° to –170°
	Tilt	±75°	±90°	±98°
	Optical Zoom	2.1x	3.6x	3.6x
	Digital Zoom	2x	2x	2x
VMD (Video Motion Detection)		Yes	Yes	Yes
i-VMD (Intelligent VMD)		Scene Change	Scene Change	Scene Change
Camera title (OSD)		Yes	Yes	Yes
External I/O		–	–	–
Vandal Resistant		IEC 60068-2-75 test Eh, 50J	–	–
Water and Dust Resistance		IP66	–	–
Dehumidification device		–	–	–
Temperature		+14°F to +140°F –30°C to 60°C (With optional heater)	+14°F to +122°F	+14°F to +122°F
Power Source		24 V AC or 12 V DC	24 V AC or 12 V DC	24 V AC or 12 V DC
Other Functions		–	–	–
Options	Smoke Dome Cover	Smoke Dome Cover WV-CW45A	–	–
	Bracket	Mount Bracket (for WV-CW634F) WV-Q115A	Embedded Ceiling Mount Bracket (Soil white) WV-Q174B	Embedded Ceiling Mount Bracket (Soil white) WV-Q174B
		Embedded Ceiling Mount Bracket WV-Q169A		
	Heater Unit	Heater Unit WV-CW5HA	–	–
Mounting Options		See pages 46, 47	See pages 46, 47	See pages 46, 47

Panasonic

CAMERA TYPE		DOME			BOX
Indoor / Outdoor		INDOOR			OUTDOOR
Appearance		WV-CF344	WV-CF354	WV-CF314L	WV-CW314L
Sensor		1/3 type interline transfer CCD	1/3 type interline transfer CCD	1/3 type interline transfer CCD	1/3 type interline transfer CCD
Resolution	Horizontal	650 TV lines	650 TV lines	650 TV lines	650 TV lines
Super Dynamic / WDR / BLC		BLC	BLC	BLC	BLC
Day/Night		Yes (Electrical)	Yes (Electrical)	Yes (ICR)	Yes (ICR)
Focus Adjustment		Focus Assist	ABF	ABF	ABF
Built-in IR LED		—	—	Yes (20 m)	Yes (50 m)
Min. Illumination	Color	0.08 lx	0.08 lx	0.08 lx	0.08 lx
	Color (Sens up)	0.0025 lx	0.0025 lx	0.0025 lx	0.0025 lx
	B/W	0.05 lx	0.05 lx	0 lx (with IR LED)	0 lx (with IR LED)
	B/W (Sens up)	0.0016 lx	0.0016 lx	—	—
Lens		f= 2.8 to 10 mm, F1.4	f= 2.8 to 10 mm, F1.4	f= 2.8 to 10 mm, F1.3	f= 2.8 to 10 mm, F1.3
Angular field of view		H: 27.6° (Tele) to 100.3° (Wide) V: 20.7° (Tele) to 73.5° (Wide)	H: 27.8° (Tele) to 100.3° (Wide) V: 20.9° (Tele) to 73.4° (Wide)	H: 27.65° (Tele) to 100.8° (Wide) V: 20.75° (Tele) to 73.65° (Wide)	H: 27.65° (Tele) to 100.8° (Wide) V: 20.75° (Tele) to 73.65° (Wide)
Adjusting Angle	Pan	180° to −170°	180° to −170°	180° to −178°	—
	Tilt	±90°	±90°	0 to 75°	—
	Optical Zoom	3.6x	3.6x	3.6x	3.6x
	Digital Zoom	2x	2x	2x	2x
VMD (Video Motion Detection)		Yes	Yes	Yes	Yes
i-VMD (Intelligent VMD)		Scene Change	Scene Change	Scene Change	Scene Change
Camera title (OSD)		Yes	Yes	Yes	Yes
External I/O		—	—	—	—
Vandal Resistant		—	—	—	—
Water and Dust Resistance		—	—	—	IP66
Dehumidification device		—	—	—	—
Temperature		+14°F to +122°F	+14°F to +122°F	+14°F to +122°F	+14°F to +122°F
Power Source		24 V AC or 12 V DC	24 V AC or 12 V DC	24 V AC or 12 V DC	24 V AC or 12 V DC
Other Functions		—	—	—	—
Options	Smoke Dome Cover	—	—	—	—
	Bracket	Embedded Ceiling Mount Bracket (Soil white) WV-Q174B	Embedded Ceiling Mount Bracket (Soil white) WV-Q174B	—	—
	Heater Unit	—	—	—	—
Mounting Options		See pages 46, 47	See pages 46, 47	See pages 46, 47	See page 51

CAMERA TYPE		BOX			
Indoor / Outdoor		INDOOR			
Appearance		WV-CP630/WV-CP634	 WV-CP620/WV-CP624	 WV-CP300/WV-CP304	WV-CP310/WV-CP314
Sensor		1/3 type interline transfer CCD	1/3 type interline transfer CCD	1/3 type interline transfer CCD	1/3 type interline transfer CCD
Resolution	Horizontal	700 TV lines	650 TV lines	650 TV lines	650 TV lines
Super Dynamic / WDR / BLC		Super-D	Super-D	BLC	BLC
Day/Night		Yes (ICR)	Yes (ICR)	Yes (Electrical)	Yes (ICR)
Focus Adjustment		ABF	Focus Assist	Focus Assist	Focus Assist
Built-in IR LED		—	—	—	—
Min. Illumination	Color	0.08 lx	0.08 lx	0.08 lx	0.08 lx
	Color (Sens up)	0.003 lx	0.00025 lx	0.0025 lx	0.00025 lx
	B/W	0.008 lx	0.008 lx	0.05 lx	0.008 lx
	B/W (Sens up)	0.0003 lx	0.00025 lx	0.0016 lx	0.00025 lx
Lens		optional	optional	optional	optional
Angular field of view		—	—	—	—
Adjusting Angle	Pan	—	—	—	—
	Tilt	—	—	—	—
	Optical Zoom	—	—	—	—
	Digital Zoom	2x	2x	2x	2x
VMD (Video Motion Detection)		Yes	Yes	Yes	Yes
i-VMD (Intelligent VMD)		Scene Change	Scene Change	Scene Change	Scene Change
Camera title (OSD)		Yes	Yes	Yes	Yes
External I/O		ALARM IN : 1 (OFF / ALARM / VMD PERMIT / BW) ALARM OUT : 1 (OFF / ALARM / BW)	Alarm IN 1pc, Alarm OUT 1pc	—	—
Vandal Resistant		—	—	—	—
Water and Dust Resistance		—	—	—	—
Dehumidification device		—	—	—	—
Temperature		+14°F to +122°F	+14°F to +122°F	+14°F to +122°F	+14°F to +122°F
Power Source		WV-CP630: 120 V AC WV-CP634: 12 V DC or 24 V AC	WV-CP620: 120 V AC WV-CP624: 12 V DC or 24 V AC	WV-CP300: 120 V AC WV-CP304: 12 V DC or 24 V AC	WV-CP310: 120 V AC WV-CP314: 12 V DC or 24 V AC
Other Functions		—	—	—	—
Options	Smoke Dome Cover	—	—	—	—
	Bracket	—	—	—	—
	Heater Unit	—	—	—	—
Mounting Options		See page 51	See page 51	See page 51	See page 51



WJ-HD716

SD5 Link SuperDynamic

HDMI HIGH-DEFINITION MULTIMEDIA INTERFACE

UniPhier®

WJ-HD716 (120V AC: NTSC)

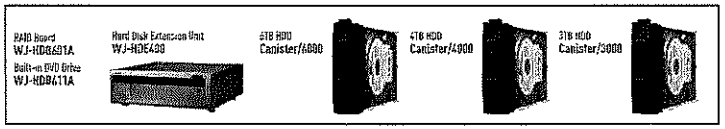
16 CH REAL-TIME H.264 DIGITAL DISK RECORDER

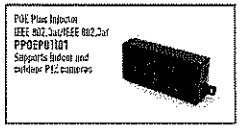
WJ-HD616 (120V AC: NTSC)

16 CH H.264 DIGITAL DISK RECORDER

- Dual HDMI Full HD 1080i (1920 x 1080) display
- H.264 (high-profile) codec reduces bandwidth by up to 40% compared with MPEG-4
- SD5 Link (Super Dynamic 5 Link) with intelligent-Video Motion Detection (i-VMD) alarm
- Real-time recording (WJ-HD716) and 16CH 2x monitors real-time live
- Up to 31 HDD slots with four HDD slots in the main unit and three WJ-HDE400 optional extension units, each with nine HDD slots

OPTIONAL ACCESSORIES





Panasonic

WV-CU950

ETHERNET SYSTEM CONTROLLER WITH 3D-JOYSTICK AND JOG/SHUTTLE

- For smooth operation of Ethernet/PS data interfaced devices, WV-ASM200W/WV-ASC970 and System650EX/System650/System150 (WJ-SX150A version 2.0 or higher)
- Integrated system control: camera, recorder and switcher
- User-level management and user-assignable buttons
- Universal design for right- or left-handed users

WV-CU650

RS-485 SYSTEM CONTROLLER WITH 3D-JOYSTICK AND JOG/SHUTTLE

- For smooth operation of PS data interfaced devices and System650/System150 (WJ-SX150A version 2.0 or higher)
- Integrated system control: camera, recorder and switcher
- User-level management and user-assignable buttons
- Universal design for right- or left-handed users

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CAMERA ACCESSORIES

MODEL	DESCRIPTION/TYPE	COMPATIBILITY	IMAGE
WV-CF55A	Smoke Dome	WV-SFN631L/611L, WV-SFN310A/311A, WV-SFN531	
WV-CS4S	Smoke Dome	WV-CS584	
WV-CS5C	Clear Dome	WV-SC588A, WV-SC387A	
WV-CS5S	Smoke Dome	WV-SC588A, WV-SC387A	
WV-CR15	Smoke Dome	WV-SFR631L/611L, WV-SFR310A/311A, WV-SFR531	
WV-CW4C	Clear Dome	WV-NW502S, WV-CW604S, WV-CW364S/334S	
WV-CW4SA	Smoke Dome	WV-NW502S, WV-CW634S, WV-CW364S/334S	
WV-CW7S	Smoke Dome	WV-SFV631L/631LT/611L, WV-SFV310A/311A, WV-SFV531	
WV-CW6SA	Smoke Dome	WV-SW158/155/155MA/152/152M, WV-SF138/135/132	
WV-Q7118	Extended Shade Cover	WV-SFV631L/631LT/611L, WV-SW3XX, WV-SW5XX, WV-SFV310/311, WV-SFV531	
WV-CW5HA	Optional Heater	WV-CW634S/WV-CW364S/334S	

HOUSING AND MOUNTING BRACKETS FOR DOME CAMERAS

			CAMERA TYPE					
			OUTDOOR VANDAL			INDOOR DOME		
MODEL NO.	PICTURE	DESCRIPTION/TYPE	WV-SFV631L/631LT/611L, WV-SFV311A/310A, WV-SFV531	WV-SW458, WV-SFV481	WV-CW634S/A64F WV-CW364S/334S	WV-SFV781L	WV-SFN631L/611L, WV-SFR631L/611L, WV-SFN311A/310A, WV-SFR311A/310A, WV-SFN531, WV-SFR531	WV-CF480 SERIES WV-CF300 SERIES
WV-Q169A		Indoor Embedded Ceiling Mount Bracket	Yes		Yes			
WV-Q174B		Indoor Embedded Ceiling Mount Bracket					Yes	Yes (Except WV-CF314L)
PRCM1		Indoor Embedded Ceiling Mount Bracket	Yes		Yes		Yes	Yes
PPM51		Indoor Indoor Pendant Mount Housing, Black					Yes (Except WV-SFR631L/611L)	Yes
PPM51B		Indoor Indoor Pendant Mount Housing, Beige					Yes (Except WV-SFR631L/611L)	Yes
PS484S		Outdoor Vandal-resistant Shroud	Yes	Yes	Yes			
PPM484S		Outdoor Vandal-resistant Pole Mount	Yes	Yes	Yes			
PCM484S		Outdoor Vandal-resistant Corner Mount	Yes	Yes	Yes			
PHM484S		Outdoor Vandal-resistant Hanging Mount	Yes	Yes	Yes			
PWM484S		Outdoor Vandal-resistant Wall Mount	Yes	Yes	Yes			
WV-Q7118		Outdoor Extended Sun Shade	Yes		Yes			
WV-Q124		Outdoor Shroud Bracket requires WV-Q122A	Yes	Yes	Yes			
PWM781		Outdoor Wall Mount & Shroud				Yes		

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HOUSING AND MOUNTING BRACKETS FOR INDOOR PTZ CAMERAS

			CAMERA TYPE		
			PTZ		
MODEL NO.	PICTURE	DESCRIPTION/TYPE	WV-SC588A/WV-SC387A	WV-SC384/WV-SC385	WV-CS584
WV-Q117		Indoor/Pendant Supended Ceiling Mount			Yes
WV-Q118B		Indoor/Wall Wall Mount Bracket, Silver			Yes
WV-Q119		Indoor/Wall Wall Mount Bracket, White	Yes		
WV-Q126 WV-Q126A		Indoor/Ceiling Embedded Ceiling Mount Bracket	Yes (WV-Q126A)		Yes
WV-Q154C		Indoor/Wall Wall Mount Bracket—Clear Dome		Yes	
WV-Q154S		Indoor/Wall Wall Mount Bracket—Smoke Dome		Yes	
WV-Q155C		Indoor/Ceiling Embedded Ceiling Mount Bracket—Clear Dome		Yes	
WV-Q155S		Indoor/Ceiling Embedded Ceiling Mount Bracket—Smoke Dome		Yes	
WV-Q156C		Indoor/Ceiling Ceiling Mount Bracket—Clear Dome		Yes	
WV-Q156S		Indoor/Ceiling Ceiling Mount Bracket—Smoke Dome		Yes	
WV-Q157		Inner Dome Cover		Yes	
PISM5V		Indoor/Pendant/Clear 5" Indoor Vandalresistant Housing		Yes	
PIDV7CN		Indoor/Ceiling/Vandal 7" Indoor Recessed Ceiling Housing with Clear Dome	Yes	Yes	Yes

HOUSING AND MOUNTING BRACKETS FOR INDOOR PTZ CAMERAS (CONT.)

			CAMERA TYPE		
			PTZ		
MODEL NO.	PICTURE	DESCRIPTION/TYPE	WV-SC588A/WV-SC387A	WV-SC384/WV-SC385	WV-CS584
PIDV7SN		Indoor/Ceiling/Vandal 7" Indoor Recessed Ceiling Housing with Smoke Dome	Yes	Yes	Yes
PDM9		Indoor/Ceiling 9" Indoor Recessed Ceiling Housing (Dome not included)			Yes
PID9		Indoor/Ceiling 9" Indoor Recessed Ceiling Housing (Dome not included)	Yes	Yes	Yes
POSM5V		Outdoor/Ceiling – 5" Outdoor Vandalresistant Housing 24V AC to 12V DC Converter		Yes	
PODV9CPTA		Outdoor/Pendant – 9" Outdoor Vandalresistant Dome Housing with Pendant Mount – Clear/H&B	Yes	Yes	Yes
PODV9CWTA		Outdoor/Wall – 9" Outdoor Vandalresistant Dome Housing with Wall Mount – Clear/H&B	Yes	Yes	Yes
POD9CA		Outdoor/Pendant – 9" Outdoor Dome Housing with Pendant Mount, Silver – Clear/H&B	Yes	Yes	Yes
POD9CWA		Outdoor/Wall – 9" Outdoor Dome Housing with Wall Mount, Silver – Clear/H&B	Yes	Yes	Yes
POD9CTA		Outdoor/Pendant – 9" Outdoor Dome Housing with Pendant Mount, White – Clear/H&B	Yes	Yes	Yes
POD9CWTA		Outdoor/Wall – 9" Outdoor Dome Housing with Wall Mount, White – Clear/H&B	Yes	Yes	Yes
PPFD9C		Outdoor/Pendant – 9" Outdoor Pressurized Dome Housing for Analog Camera – Clear/H&B			Yes
PPFD9CN		Outdoor/Pendant – 9" Outdoor Pressurized Dome Housing for Network Camera – Clear/H&B	Yes	Yes	

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HOUSING AND MOUNTING BRACKETS FOR OUTDOOR PTZ CAMERAS

			CAMERA TYPE		
			PTZ		
MODEL NO.	PICTURE	DESCRIPTION/TYPE	WV-SW598A/ WV-SW397B	WV-SW395A	WV-CW594A
PPRM30G		Outdoor Parapet Mount Short, Black	Yes	Yes	Yes
PPRM30GB		Outdoor Parapet Mount Short, Beige	Yes	Yes	Yes
PWM30G		Outdoor Parapet Mount Long, Black	Yes	Yes	Yes
PWM30GB		Outdoor Parapet Mount Long, Beige	Yes	Yes	Yes
PWM20G		Outdoor Gooseneck Wall Mount, Black	Yes	Yes	Yes
PWM20GB		Outdoor Gooseneck Wall Mount, Beige	Yes	Yes	Yes
PWM20GS		Outdoor Gooseneck Wall Mount, Silver	Yes	Yes	Yes
PSRCW2000B		Outdoor Parapet Rooftop Mount, Black	Yes	Yes	Yes
WV-Q122A		Outdoor Wall Mount Bracket	Yes	Yes	Yes
WV-Q121		Outdoor Ceiling Mount Bracket	Yes	Yes	Yes

HOUSING AND MOUNTING BRACKETS FOR OUTDOOR PTZ CAMERAS (CONT.)

			CAMERA TYPE			
			PTZ			
MODEL NO.	PICTURE	DESCRIPTION/TYPE	WV-SW598A/ WV-SW397B	WV-SW395A	WV-CW594A	WV-SUD638
PB24B		Outdoor Heavy Duty Junction Box	Compatible with PWM20G series, PWM63B	Compatible with PWM20G series, PWM63B	Compatible with PWM20G series, PWM63B	Compatible with PWM20G series, PWM63B
PACA4 PACA4B		Outdoor Corner Mount Adaptor PACA4-Black, PACA4B-Beige	Compatible with PWM20G series, WV-Q122A, WV-SPWxxx series, PWM63B	Compatible with PWM20G series, WV-Q122A, WV-SPWxxx series, PWM63B	Compatible with PWM20G series, WV-Q122A, WV-SPWxxx series, PWM63B	Compatible with PWM20G series, WV-Q122A, WV-SPWxxx series, PWM63B
PAPM4 PAPM4B		Outdoor Pole Mount Adaptor PAPM4-Black, PAPM4B-Beige	Compatible with PWM20G series, WV-Q122A, WV-SPWxxx series, PWM63B	Compatible with PWM20G series, WV-Q122A, WV-SPWxxx series, PWM63B	Compatible with PWM20G series, WV-Q122A, WV-SPWxxx series, PWM63B	Compatible with PWM20G series, WV-Q122A, WV-SPWxxx series, PWM63B
PAPM6		Outdoor Wall/Pole Mount Adaptor	Compatible with PWM20G series, PWM63B	Compatible with PWM20G series, PWM63B	Compatible with PWM20G series, PWM63B	Compatible with PWM20G series, PWM63B
PPMF12D		Outdoor Pendant Mount	Yes	Yes	Yes	No
PWM63B		Outdoor Wall Mount Bracket	No	No	No	Yes

Panasonic

HOUSING AND MOUNTING BRACKETS FOR FIXED CAMERAS

			CAMERA TYPE			
			FIXED			
MODEL NO.	PICTURE	DESCRIPTION/TYPE	WV-SFV781L WV-SPW631LT/SPW531/ WV-SPW611L/SPW611 WV-SPW311AL/531AL	WV-SPN310A/311A WV-SPN531 WV-SPN631/611	WV-SP105/102	WV-CP500 SERIES WV-CP600/CP300 SERIES
WV-Q120A		Outdoor Adapter Box	Included (Except WV-SP-W311AL/531AL)			
PUM8		Indoor/Wall Universal Camera Mount (Max. Weight 3 lbs.)		Yes	Yes	Yes
POD8CF		Outdoor/Pendant 8" Outdoor Dome Housing for Fixed Camera with Pendant Mount – Clear/H&B		Yes	Yes	Yes
POD8CWF		Outdoor/Wall 8" Outdoor Dome Housing for Fixed Camera with Wall Mount – Clear/H&B		Yes	Yes	Yes
POH1100		Outdoor/Wall 10" Outdoor Housing Wall Mount Included				Yes
POH1100HB		Outdoor/Wall 10" Outdoor Housing with Heater and Blowers Wall Mount Included – H&B				Yes
POH1100NWME		Outdoor/Wall 10" Outdoor Housing with Heater and Blowers with PoE Plus Wall Mount Included – H&B		Yes	Yes	
POH1100NWM		Outdoor/Wall – 10" Outdoor Housing with Heater and Blowers with PoE Plus with Midspan Wall Mount Included – H&B		Yes	Yes	
PACA4 PACA4B		Outdoor Pole Mount Adaptor PAPM4-Black, PAPM4B-Beige	Yes			
PAPM4 PAPM4B		Outdoor Pole Mount Adaptor PAPM4-Black, PAPM4B-Beige	Yes			
NEW PEHV1000		Indoor/Corner Elevator Housing Brushless Steel/Tempered Glass Vandal				
NEW PEHV1000SFN130		Indoor/Corner Elevator Housing Brushless Steel/Tempered Glass Vandal Includes WV-SFN130 camera				

VARIFOCAL LENSES FOR HD CAMERAS

SIZE	MODEL NO.	PICTURE	COMPANY	FOCAL LENGTH (MM)	APERTURE RATIO @ WIDE	AUTO IRIS	 WV-SFN631/611 SP509/SP508	 WV-SFN310/311 WV-SFN531
1/3"	PLAMP2206		Fujinon	2.2~6.0	F1.3	Yes	Yes	Yes
1/3"	PLAMP2406		Tamron	2.4~6.0	F1.2	Yes	Yes	Yes
1/3"	PLAMP2808		Fujinon	2.8~8.0	F1.2	Yes	Yes	Yes
1/3"	PLAMP2812		Fujinon	2.8~12.0	F1.4	Yes	Yes	Yes
1/2"	PLAMP0722		Ricoh	7.0~22.0	F1.4	Yes	Yes	Yes
1/3"	PLAMP0550		Tamron	5.0~50.0	F1.4	Yes	Yes	Yes
1/3"	PLZ15/33		Fujinon	15.0~50.0	F1.5	Yes	Yes	Yes

M12 LENSES FOR HD CAMERAS

SIZE	MODEL NO.	PICTURE	COMPANY	FOCAL LENGTH (MM)	APERTURE RATIO @ WIDE	AUTO IRIS	 WV-SW158/ SF138	 WV-SW155/ SF135	 WV-SFN110/ SFN130, WV-SFV110/ SFV130	 WV-SW115
1/3"	PLM12MP028/1		Evetar	2.8	F2.0	No	Yes	Yes	Included	Yes
1/3"	PLM12MP060/1		Evetar	6.0	F1.8	No	Yes	Yes	Yes	Yes
1/3"	PLM12MP120/1		Evetar	12.0	F1.8	No	Yes	Yes	Yes	Yes
	PLM12MP019/1		Sunny	1.95	F2.2	No	Included	Included	Yes	Included

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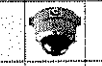
VARIFOCAL LENSES FOR SD CAMERAS

SIZE	MODEL NO.	PICTURE	COMPANY	FOCAL LENGTH (MM)	APERTURE RATIO @ WIDE	AUTO IRIS	WV-CW634 SERIES	WV-CP500 SERIES WV-CP600 SERIES WV-CP300 SERIES
1/2"	PLAHS1770		Fujinon	7.0~70.0	F1.8	Yes		
1/3"	WV-LZA61/2S		Panasonic	3.8~8.0	F1.4	Yes		Yes
1/3"	WV-LZ62/8S		Panasonic	5.0~40.0	F1.6	Yes		Yes
1/3"	PLA22T3DN		Tamron	2.2	F1.2	Yes	Yes	Yes
1/3"	PLZ27/5DN		Fujinon	2.7~13.5	F1.3	Yes		Yes
1/3"	PLZ29/27		Fujinon	2.9~8.0	F0.95	Yes	Yes	Yes
1/3"	PLZ5/10		Fujinon	5.0~50.0	F1.6	Yes		Yes
1/3"	PLZ15/33		Fujinon	15.0~58.0	F1.5	Yes	Yes	Yes
1/3"	PLZ20/5		Tamron	20.0~100.0	F1.6	Yes		Yes

READY-TO-GO PACKAGES

	CAMERA	LENS	HOUSING
	Camera	Lens	Housing
WV-CW634F	WV-CW634F	Factory 3.8-8mm	Factory Flush Mount
WV-CW634F/09	WV-CW634F	PLAMP0722 7-22mm	Factory Flush Mount
WV-CW634F/15	WV-CW634F	PLZ15/33 15-50mm	Factory Flush Mount
WV-CW634F/22	WV-CW634F	PLAMP2206 2.2-6mm	Factory Flush Mount
WV-CW634S 	WV-CW634S	Factory 3.8-8mm	Factory Surface Mount
WV-CW634S/09	WV-CW634S	PLAMP0722 7-22mm	Factory Surface Mount
WV-CW634S/15	WV-CW634S	PLZ15/33 15-50mm	Factory Surface Mount
WV-CW634S/22	WV-CW634	PLAMP2206 2.2-6mm	Factory Surface Mount

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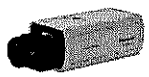
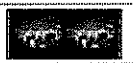
READY-TO-GO PACKAGES (CONT.)

		CAMERA	LENS	HOUSING
				
		Camera	Lens	Housing
POC314L2		WV-CP314	PLAMP2812 2.8-12mm	POH1800HB
POC314L5		WV-CP314	PLZ25/10 5.0-50mm	POH1800BH
POC634L2		WV-CP634	PLAMP2812 2.8-12mm	POH1800HB
POC634L5		WV-CP634	PLZ5/10 5.0-50mm	POH1800BH
POCSPN311L2		WV-SPN311A	PLAMP2812 2.8-12mm	POH1000HB
POCSPN311L5		WV-SPN311A	PLAMP0550 5.0-50mm	POH1000BH
POCSPN531LMP05		WV-SPN531	PLAMP0550 5.0-50mm	POH1000HB
POCSPN531LMP24		WV-SPN531	PLAMP2406 2.4-6.0mm	POH1000HB

MONITORS

MODEL	TYPE	INFO	IMAGE	DESCRIPTION	COMPATIBLE WITH
PLCD9C	Monitors	LCD Monitors		9" LCD monitor, 800 x 600	
PLCD9C/2	Monitors	LCD Monitors		2-9" LCD monitor, 800 x 600 with rack mount	
PLCD15V	Monitors	LCD Monitors		15" LCD monitor, 1024 x 768, 4:3 aspect ratio, two built-in speakers, 2x BNC input, S-Video in/output, RGB input	
PLCD19P	Monitors	LCD Monitors		19" LCD, 1280 x 1024, 5:4 aspect ratio, two built-in speakers, 2x BNC input, S-Video in/output, RGB input, DVI input, HDMI input	
PLCD24HDA	Monitors	LCD Monitors		24" Full HD LCD, 1920 x 1080, 16:9 aspect ratio, two built-in speakers, 2x BNC input, S-Video in/output, RGB input, DVI input, HDMI input	
PLCD27HDA	Monitors	LCD Monitors		27" Full HD LED, 1920 x 1080, 16:9 Aspect Ratio, two built-in speakers, 2x BNC input, S-Video in/output, DVI input, HDMI input	
PLCD42HDA	Monitors	LCD Monitors		42" Full HD LED, 1920 x 1080, 16:9 aspect ratio, two built-in speakers, 2x BNC input, S-Video in/output, DVI input, HDMI input, pedestal stand	
PRMK08	Monitors	Accessories	Image Not Available	Rack mount kit for PLCD15V, PLCD20P monitors	PLCD15V PLCD19P

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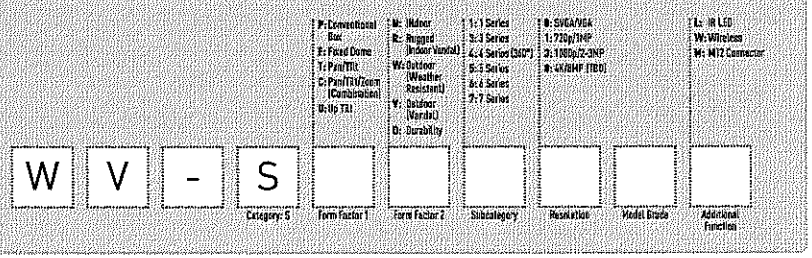
NEW NETWORK CAMERA MODEL NUMBER FORMAT



VIDEO INSIGHT LICENSE BUNDLED WITH PANASONIC CAMERAS MANUFACTURED AFTER OCTOBER 2014

Panasonic is bundling a Video Insight software license with the purchase of Panasonic cameras manufactured after October 2014 to save security professionals valuable time and money.

ELIGIBLE PANASONIC CAMERAS

PTZ Dome
SW598, SW598A, SW397A/SW397B, SW396/SW396A, SW395/SF95A, SC588/SC588A, SC587/SC587A, SC586, SC585, SC484

Outdoor Vandal Fixed Dome
SF781L, SF481/481L, SF441L, SF431, SW669, SW668, NW502S, SF441L, SF440, SW355, SW352, SW150, SW155, SW139/A, SW162/162A, SW116, SF410/A, SF430/A

Indoor Vandal Fixed Dome
SF483L, SF481L, SF458, SF449, SF439, SF411, SF410, SF346, SF342

Indoor Fixed Dome
SF431L, SF421L, SF331, SF319, SF316, SF314L, SF311L, SF481L, SF456, SF435, SF432, SF336, SF335, SF332, SF310, SF310

Outdoor Box
SF781L, SF481/481L, SF441L, SF431, SW814L, SW814, SW816, SF481L, SF441L

Indoor Box
SF483L, SF481L, SF481L, SF458, SF456, SF342, SF311L, SF410, SF306, SF305, SF304W, SF402, SF405, SF402

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WV-CW6SA Smoke Dome Cover ...46

WV-CW7S Smoke Dome Cover ...46

How to tell if your Panasonic camera was manufactured after October 2014:

1. Find the serial number on your camera and/or carton box.
2. The first letter of the serial number code indicates the year of production, where M=2013, N=2014, O=2015.
3. The second letter indicates the month of production, where A=January, B=February, C=March, etc.

For example, October 2014 will be NJ******.

For more information, visit:
us.panasonic.com/products-videosurveillance-videoinsight

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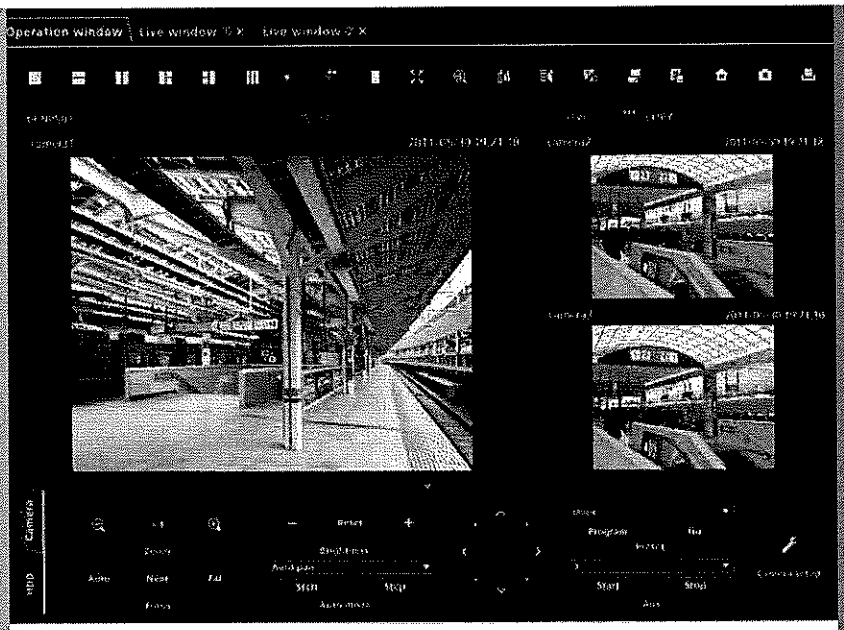

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Your Full-service Partner in Surveillance

Transforming surveillance system solutions from concept to completion requires the utmost attention to detail throughout every phase of the process. You can trust Panasonic to be your single-source provider for all your facility's needs, from system design to installation to post-implementation support. Offering seamless integration, superior cost efficiency and increased ROI, we will configure your surveillance system to best fit your requirements and budget, while offering a fully integrated solution with the best third-party partners in the business. Plus, Panasonic's product warranty and service network ensure your system will continually perform to its highest expectations for years to follow.

Panasonic Security Services

Design and Build

- Needs assessment
- System design
- Third-party integration
- Hardware and software
- Customer training

Installation Support with Trusted Partners

- On-site / remote technical support

System Implementation with SI Partners

Post-implementation Support

- Extended warranties are available

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VI Monitor Plus

Key Features

Panasonic

Recorded Video Management:

- Intuitive access to recorded video from any camera in system regardless of location.
- Frame-by-Frame or variable playback speeds up to 32X.
- View single camera or drag and drop up for Full Layout Synchronized Playback.
- View groups of cameras via drag and drop.
- Slider bar provides quick access to events.
- Digital zoom on Live and recorded video.
- Synchronized video and audio playback.
- Instant replay of last 30 seconds of recorded video (Via Rule)
- Create a clip with use of guides marking time interval
- Save clip to local client or server.
- Continuous, motion activated, scheduled, event or Trigger based recording.
- Record up to 30 FPS or as little as 1 image per second, hour or day.
- Record always at low FPS and transition to higher FPS on motion events or alarm.
- Pre- and Post-motion recording.
- Support for camera and server side motion detection.
- Create sensitivity zones in Windows client or camera configuration.
- Motion Event logs provide quick review of video associated with motion or alarm events.
- Access recorded video from other non-local servers added to the server list.
- Graphical timeline highlights motion events.
- Progressive download speeds for slow-speed connection.
- Automatically manages files and disk space.
- Specify maximum Storage retention by camera.
- Enhanced Timeline with Motion vs Fulltime Indications.
- Most complete Panoramic/360° De-warped support of any VMS manufacturer.

Video Exporting:

- Intuitive Viewing Clients require little to no End-user training.
- Clips can include Optional 128bit encrypted watermark, server based date/time stamp, and camera name.
- Recorded video is saved in cameras native compression format and placed in AVI or EXE container for easy universal playback.
- Improved Video Exporter: with central options.
- Exported clips include audio.
- Multiplex video export of up to 9 video streams in single AVI file.

Live Video:

- Full-featured Windows, Web, and Mobile Clients included for free.
- iPhone and iPad Vi Mobile app available for free through Apple App store.
- Android Vi Mobile app available for free through the Google Play.
- Mobile App support, live and recorded video streaming, Maps, and Control
- functionality, and PTZ camera control. Browser agnostic Web Client works with many popular browsers, and has full support for Chrome and IE.
- VI MonitorPlus: Workspace Home Screen with Custom Quick Launch options.
- Workspaces : Tabs which allow for easy multi-tasking.
- Dynamic aspect ratio control for complete camera layout from 16:9 or 4:3.
- High Speed Video Viewing via Active X for IE only.
- VI Monitor for MAC
- Quickly navigate between cameras from any server using Windows Explorer tree structure
- Unlimited user seats for viewing clients
- Create customized layouts and layout groups (MOVE)
- Create custom layout by dragging and dropping cameras.
- Predefined layouts stored in the database can pull cameras from multiple servers, restricted by security level
- Camera touring or Layout sequencing
- 180° stitched layouts for supported cameras.
- Single, Quad and Panorama views for fisheye 360° cameras
- Advanced camera features from Panasonic, Axis, Sony, Sentry360, Pelco and ImmerVision.
- Easy PTZ control options included on-screen overlay Via collapsible right menu bar.
- Cycle PTZ presets, pausing for specified interval
- PTZ control with USB Joysticks
- Option to lock down non-admin users from PTZ controls
- PTZ Prioritization – Users can be ranked to determine who has PTZ operations at a specific time.
- Search box allows quick access to any camera or server - search by partial name or IP address. (WEB CLIENT only)
- Push live video pop-up windows to other logged in users.
- 2Way audio allows operators to interact with video.
- • Create Covert cameras by removing from navigation.
- High Performance option renders video in real time.
- Run in Full Screen mode with limited menus.
- Multi monitor support Via Free floating Workspaces.
- Video Wall app supports up to 64 monitors.
- Operators can push single camera or layout to a Video Wall.
- Motion alerts displayed for each camera.
- Option to play sound on motion alarm.
- Launch clients in full screen mode to predefined layouts.
- Public View App displays live images directly from camera without connecting to a server.
- Lane Viewer App displays live images along with card holder picture and information to verify identity.

Facility Maps:

- Easy Map creation. Setup requires a JPEG, BMP or GIF images of layout, which can be populated by drag and drop Icons of doors, camera, and panels available on server.
- Create Multilevel mapping provides quick access to multi-level layouts.
- Live icons provide system info such as door states or live views with a click of a mouse.
- Zoom into maps or navigate between multiple layers.
- Quick access to recorded video from facility maps.
- Launch specified facility map on startup.
- View maps from Windows, Mobile, or Web Clients.
- Mouse over Layout icons to switch live displays to groups of cameras in the area.
- Access Control dynamic menu through Facility Maps, provide detailed information through one central location.

Notifications & Automation:

- Pop-up live windows of alarmed cameras.
- Red outline in camera layout on alarm conditions.
- Play audio file on alarm to alert operator customizable per user.
- Pop-up window with detailed instructions for operator.
- E-mail or send Custom Messages text Flashback Images, Interval snapshots, or Video Clips.
- Alerts can be directed to specific users or groups.
- Powerful Rules Wizard allows easy configuration to take actions after an event.
- Motion alerts displayed for each camera.
- Option to play a sound on motion alarm.

- Send JPEG snapshots on an interval or on motion.
- Alter operators of camera side Analytic events.
- Using Camera Analytic, such as Tripwire, count people.
- Video Bookmarking, for tracking events on timeline with notations attached.
- entering and exiting facility to keep running total and alert if threshold exceeded.

Enterprise Functionality

- Support for unlimited cameras and recording servers.
- Developed from open technologies based around Microsoft .Net and SQL platforms, allowing easy integration with 3rd party application via the well-defined SQL tables.
- Distributed login to any server prevents single point of failure
- Optimized for Centralization: Includes centralization of Servers,
- User database, cameras, layouts, and full system management
- Support for both centralized and distributed architectures
- Use existing SQL Server infrastructures or included SQL Express
- Centralized Management for all camera configurations &all servers are done from one easy-to-use setup screen.
- Clients can connect to a single IP address to access the entire system.
- Assign individual camera permissions to users or groups.
- All system and user settings are stored in SQL database.
- Automatic Failover.
- Health Monitor – comprehensive monitoring and alerting of system status.
- Audit Trail: User logins & configuration changes tagged in a SQL.
- Custom application Plugins: IE Point of Sales, GPS Location, and More.
- Automatic upgrade of client applications.
- Complete system performance statistics including – Storage, Bandwidth, resolution, format and frame Rate.
- Hidden Views: Users only see assigned views regardless of number of servers.
- Export camera and server information in Excel format.
- Camera Maintenance logging and tracking .Net-based.
- Software Development Kit.
- Multi Languages Available.
- Camera Setup Template Support.
- Review recorded events across Multiple cameras quickly Via smart
- Thumbnails search for precise investigation. (7.1)
- Customizable Server and Cameras Groups.
- Customizable Facility Maps and View Groups.
- Deep integration for over 4,100 camera models from 154+ manufacturers.
- Universal camera driver provides support for almost all other
- cameras via ONVIF, RTSP or HTTP
- Multi-streaming
- Camera auto discovery
- Send live video to Axis Decoders
- Rules and events can Trigger Digital Inputs and Outputs along with .exe applications or batch files.
- Robust scalable design, with a pure 64-bit Server and Client application that allows server & client software to efficiently take advantage of full machine memory.
- Email support for SSL and alternate ports, supporting Gmail and Hotmail.
- VI includes MonitorCast : a fully integrated, enterprise level, Mercury based, access control platform at no cost.
- VI has full support for Virtualization: Includes VMware, Hyper-V, XenServer.
- Action Center for all: recorded video logs, notifications, and system alerts.

Security:

- Video Tampering & Validation built within the Software.
- Privacy Zones for sensitive areas for any camera in layout.
- SSL certification needed to secure web client transmissions
- Multi-level security including restriction of setup, management, live and recorded viewing, PTZ operation, access to layouts, facility maps, rules and clip creation.
- Enterprise-wide user management tool for local users.
- Authenticate users with a Video Insight user database or with integration of users and groups imported from Active Directory, & LDAP. Assign individual camera permissions to users or groups.
- Comprehensive log of all changes to system
- Option to restrict users from logging in from multiple locations
- Limit users to a single login per username.
- Server Software runs as a Windows Service, for easy log retention.
- IP Server connects to all cameras; viewing clients in turn are connected to the IP Server to prevent direct camera connection
- Option to restrict users from accessing system from multiple locations.

Storage:

- Flexible Open storage design with no limits on support for internal or external storage arrays such as NAS, SAN, and ISCSI drives.
- Support for Pivot3 Cloudbank failover architecture and Dell EqualLogic solutions.
- Option to move recorded video from either cameras or servers, on a set schedule, for long term storage or Archiving needs.

Performance

- Full Support for GPU transcoding, and Hardware acceleration for greater stability, expandability, and higher video quality.
- 4Gbs bandwidth throughput per OS, for unprecedented system scalability and performance.
- System resource load balancing for optimized performance.
- Support for multiple 4k camera loadout and 30 FPS playback.
- System Support for 40 Megapixel IP cameras at 30FPS playback.
- No limitations on software for number of viewing client connections.

Easy Licensing

- Simple Per camera licensing structure, available in single camera increments.
- No extra licensing costs for client applications, or annual maintenance fees.
- No base or server license fees when using genuine Video Insight servers.
- Individual camera's MAC address not required for easy servicing and replacements.
- Multi-stream connections from one camera only require one license.
- Only 1 license needed for most 180° and 360° multi-sensor cameras.
- Panasonic i-Pro and Advidia cameras require no camera licensing.

Support

- Lifetime U.S Based technical support included: Monday- Saturday for trouble shooting, configuration support, and remote assistance.
- Unlimited Live Web-Based training included with Video Insight.
- Unlimited software updates included for version.

Access Control Integration:

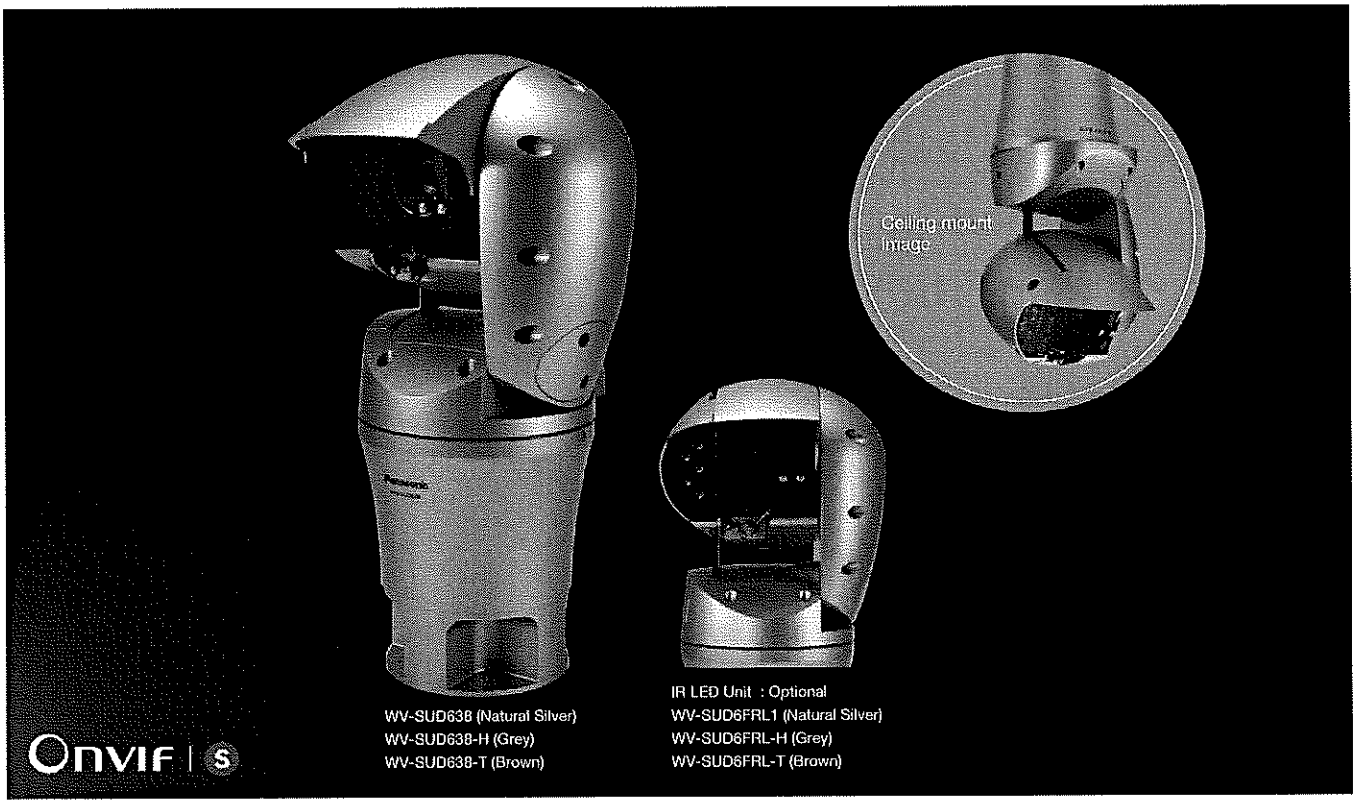
- Maxxess
- MonitorCast4.X
- Badge Pass
- Wren Solutions
- Paxton
- Sureview
- IMRON
- RBH Axiom V(AX5)
- Gallagher
- Open Options
- Infinias
- Lenel
- Secure
- Continental
- Isonas
- AMAG
- DSX
- RS2
- S2
- Blackboard
- Software House

Panasonic
BUSINESS

Anti-severe weather
PTZ network camera

WV-SUD638

AeroPTZ



High durability under arctic -to- desert weather conditions and salty gust winds for tough operations

Key Feature

- Full HD (1080p) 60 fps, x30 zoom lens
- **Built-in wiper and Auto defroster**
- Wind load durability **60 m/s (135 mph)** (operation)
  80 m/s (180 mph) (non-destructive)
- **Video SAS (Stability Augment System)** for high-class image stabilization
- "Sphere vision" provides **360° 3D viewing** (Pan : 360° endless, tilt : 90° to -90°)
- Temperature **-50 °C to +60 °C (-58 °F to +140 °F)***
- **IP67**, IP66, IK10 certified
- **Optional IR LED light** (up to **150 m/500 feet**, zoom interlocking)
- **Anti-salt air corrosion protection** ideal for seaside operations
- **Smart coding mode** for additional compression

* Natural Silver model only. Not available IR LED Unit when the temperature is over 55 °C. Grey & Brown model : up to +55 °C.

Design Concept Camera Aerodynamics

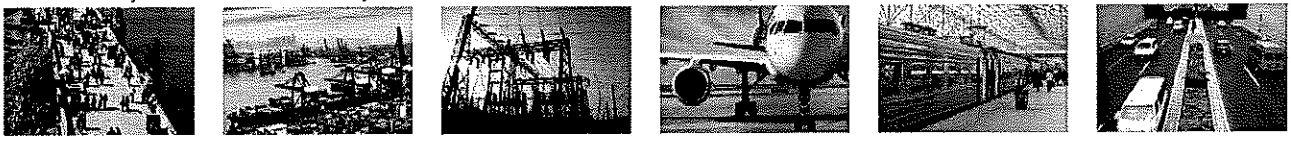
1 **Aerodynamic Spheroid** ····· "360 deg. aerodynamic spherical design" minimizing interference drag for more visual stability.

2 **Intelligent Radius** ····· Unique radius bodyline keeps snow and dirt off.

3 **Glass fiber body** ····· Deliver excellent strength, and anti-corrosion

Industry examples

Safe city | Port facility | Critical Infrastructure | Airport | Railway | Traffic



Specifications

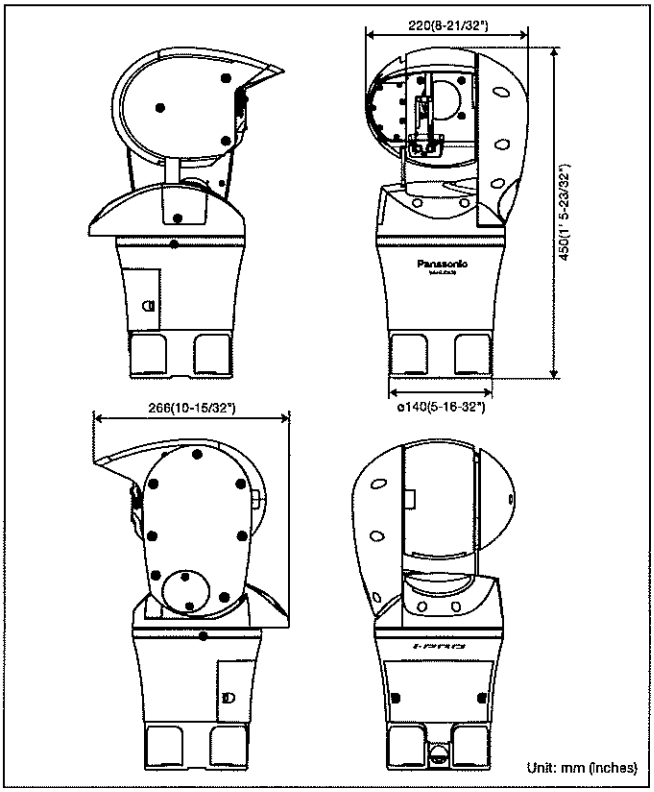
Camera	Image sensor	Approx. 1/3 type MOS image sensor
	Minimum illumination	Color : 0.06 lx (F1.6, Maximum shutter : Off(1/30 s), AGC : High) 0.004 lx (F1.6, Maximum shutter : max. 16/30 s, AGC : High)* BW : 0.02 lx (F1.6, Maximum shutter : Off(1/30 s), AGC : High) 0.001 lx (F1.6, Maximum shutter : max. 16/30 s, AGC : High)* 0 lx (F1.6, Maximum shutter : Off(1/30 s), AGC : High, when the IR LED (Optional) is lit) * Converted value
	Super Dynamic*1	Dynamic Range 105 dB typ.
	Image settings	Gain (AGC), White balance
	Image compensation	Adaptive black stretch, Back light compensation (BLC), Fog compensation, High light compensation (HLC), Digital noise reduction
	Shutter speed	[2 mega pixel [16 : 9] (60 fps mode)] Off(1/60) to 1/10000 Other than [2 mega pixel [16 : 9](60 fps mode)] Off(1/30) to 1/10000
	Day/Night (ICR)	Off / On / Auto1(Normal) / Auto2(IR Light) / Auto3(SCC)
	IR LED Light (Optional)	Off / Auto (High / Mid / Low) Irradiation distance : 150 m (500 feet)
	Image stabilization	On / Off *Hybrid image stabilizer
	Privacy zone	Gray / Mosaic / Off (up to 32 zones available)
	Camera title on screen	Up to 20 characters (alphanumeric characters, marks)
	Video Motion Detection (VMD)	On / Off, 4 areas available
Lens	Zoom Ratio	30x / 45x with HD extra optical zoom (at 1280 x 720) (Motorized zoom / Auto Focus)
	Digital (electronic) zoom	x1, x2, x4
	Focal length	4.3 mm - 129 mm (3/16 inches - 5-3/32 inches)
	Maximum Ratio Aperture	1 : 1.6 (WIDE) - 1 : 4.7 (TELE)
	Focus range	2.0 m - ∞
	Aperture range	F1.6 (WIDE) - Close
	Angular field of view	[16 : 9 mode] Horizontal : 2.3° (TELE) – 64° (WIDE) Vertical : 1.3° (TELE) – 38° (WIDE) [4 : 3 mode] Horizontal : 1.8° (TELE) – 50° (WIDE) Vertical : 1.3° (TELE) – 38° (WIDE)
Pan/tilt unit	Panning Range	360° endless
	Panning Speed	Manual : approx. 0.065°/s to 100°/s Preset : up to approx. 200°/s (Except when IR LED Unit is equipped, forward tilt mount, frozen.)
	Tilting Range	Upright : –45° to +90° Forward tilt : –90° to +90° Hanging : –90° to +30°
	Tilting Speed	Manual : approx. 0.065°/s to 100°/s Preset : up to approx. 200°/s (Except when IR LED Unit is equipped, forward tilt mount, frozen.)
	Preset Positions	256 positions
	Auto Mode	Auto track / Auto pan / Preset sequence / 360 map-shot / Preset map-shot / Patrol
	Self Return	10 s to 60 min
	Tilt flip	On / Off
	Map Shot	360° map shot / preset map shot
Network	Network IF	10Base-T / 100Base-TX, RJ45 connector
	Image Resolution H.264 JPEG (MJPEG)	**•2 mega pixel [16 : 9] (60 fps mode / 30 fps mode)** H.264 : Minimum 1,920 x 1080 JPEG : Minimum 1,920 x 1080 **•1.3 mega pixel [4 : 3] (30 fps mode)** H.264 : Minimum 1,280 x 960 JPEG : Minimum 1,280 x 960
	Image compression method	H.264 Transmission Mode : Constant bit rate / Variable bit rate / Frame rate priority / Best effort / Advanced VBR Transmission type : Unicast / Multicast JPEG Image Quality : 10 steps Multiple streams individually configurable
	Intelligent compression	Smart coding, VIQS (ROI)
	Audio compression	G.726 (ADPCM) 32 kbps / 16 kbps G.711 64 kbps AAC-LC*2 64 kbps, AAC-LC(High quality)*2 64 kbps / 96 kbps / 128 kbps
	Protocol	IPv6 : TCP/IP, UDP/IP, HTTP, HTTPS, FTP, SMTP, DNS, NTP, SNMP, DHCPv6, RTP, MLD, ICMP, ARP IPv4 : TCP/IP, UDP/IP, HTTP, HTTPS, RTSP, RTP, RTP/RTCP, FTP, SMTP, DHCP, DNS, DDNS, NTP, SNMP, UPnP, IGMP, ICMP, ARP
	Maximum concurrent access number	Up to 14 users (Depends on network conditions)
	Mobile terminal compatibility (As of September, 2016)	iPad, iPhone, iPod touch (iOS 4.2.1 or later) Android™ mobile terminals

Environment	Water and Dust Resistance *3	Main body : IP66, IP67, IEC60529 measuring standard compatible, Type 4X(UL50), NEMA 4X compliant Waterproof RJ45 connector, Waterproof power connector, Waterproof I/O connector
	Shock resistance	Compliant with IK10 (IEC 62262)
	Salt damage resistance	ISO14993 compliant
	Resistance to wind	60 m (135 mph) (Operation) / 80 m (180 mph) (Installation limit)
General	Power source	AC100 to 240 V, 50 Hz / 60 Hz Tested PoE Injector* (60 W) *with limitations
	Operating environment	Ambient operating temperature : –50 °C to +60 °C (–58 °F to 140 °F)* (When using AC100 to 240 V) –30 °C to +60 °C (–22 °F to 140 °F)* (When using tested PoE Injector) {Power on range : -30°C to +55 °C(-22 °F to 158 °F)} *Natural Silver model only. Not available IR LED Unit when the temperature is over 55 °C. Grey & Brown model : up to +55 °C. Ambient operating humidity : 10 % to 100 %
	External I/O terminals	ALARM IN 1(DAY/NIGHT IN, Auto time adjustment), ALARM IN 2(ALARM OUT), ALARM IN 3(AUX OUT), Relay connection (x1 for each)
	line input	ø3.5 mm monaural mini jack Input impedance : Approx. 2 kΩ (unbalanced)
	For line input	Input level : Approx. –10 dBV
	Audio output	ø3.5 mm stereo mini jack (monaural output) Output impedance : Approx. 600 Ω (unbalanced) Using Amplifier built-in external speaker Output level : –20 dBV
	Dimensions	220 mm (W) x 450 mm (H) x 266 mm (D) (8-21/32 inches (W) x 1ft 5-23/32 inches (H) x 10-15/32 inches (D))
	Mass (approx.)	Approx. 8 kg (17.64 lbs)
	Finish	Main body : High-strength resin of salt damage resistance WV-SUD638 : Natural Silver WV-SUD638-H : Gray (N7) WV-SUD638-T : Brown (Environmental color) Front glass : Glass, Clear

*1 Super Dynamic function is automatically set off on 60 fps mode.
*2 When "AAC-LC (HIGH QUALITY)" is selected, there are limitations about the following function.
- HTTPS is not available.
- The maximum concurrent access number is limited to 5

*3 Only when installation work specified in Installation Guide is properly performed and appropriate waterproof treatment is performed.

Appearance



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Important
– Panasonic cannot be responsible for the performance of the network and/or other manufacturers' products used on the network.

• Design and specifications are subject to change without notice.
• Masses and dimensions are approximate.

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(2A-167EL)

Stone, Andrea

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Sent: Tuesday, December 12, 2017 4:54 PM
To: jbarbieri@springfieldpolice.net
Subject: Panasonic Security Solutions for the Springfield Police Department
Attachments: WHY ADVIDIA.pdf; 2017 Panasonic Video Surveillance Catalog.pdf; VI7 Key Features 2017.pdf; PANASONIC PTZ PDF NEW FOLDER 08-1PTZ Facial Recognition.pdf

Importance: High

Commissioner Barbier,

Panasonic Company leading IP video surveillance management software powered by Video Insight is used by over 25,000 customers in the financial, government, retail, and transportation sectors with a very strong presence in the education market consisting of 5,000 K-12 school/college customer. Video Insight is the easiest and most cost-effective enterprise VMS with support for over 3,000 camera models and integration with the top access control solutions in the market. Panasonic can upgrade your existing video surveillance system or design a new one altogether. We can work with you directly or through your systems integrator, as we have excellent working relationships with technology professionals nationwide.We would love for you to consider the Panasonic Security Solution for any current or upcoming projects.

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Welcome to Panasonic Security System support site. Find solutions and help for your Panasonic Security System products from our online information. Download manual ...

Video Insight software provides a sophisticated, yet, easy-to-manage system that allows you to record and monitor live video from a centralized location, the internet, or even from a Smartphone or device (iPhone/iPad, Blackberry, Droid). Because Video Insight is designed for multi-facility use, it is perfect for governmental entities which can often have dozens of buildings, sometimes in different cities and states.

Operating on your existing network infrastructure, Video Insight makes efficient use of bandwidth, and is typically less taxing on your system than our competitors, freeing up much-needed space for other computer network functions. In the aftermath of an incident – a theft, confidentiality breach, vandalism employee conflict situation – exporting recorded video to burn on a cd or email to law

enforcement/security is so simple that virtually no training is required for employees to be up and running on the system shortly after installation.

We offer a U.S.-based technical support staff which operates on a one-hour call back guarantee so your organization will never be without the dedicated customer service you deserve.

http://security.us.panasonic.com/

Video Management Software and Surveillance System ...

security.us.panasonic.com

Panasonic provides IP video management software and surveillance system.

* – Learn why Video Insight is the premier VMS provider for across the US
* – Review the full catalog of cameras provided by Advidia; No license fees if used in conjunction with Video Insight Management software
* – See what some of our largest customers have to say about VI
* – Download and install our VMS software completely free of charge for 60 days with use for up to 99 cameras
* – Play around with a live stream of cameras from our office
* - A basic introduction to our software's features and functionality.

If you have any questions, please don't hesitate to contact me directly at (713) 581-9248.

We have many vendors in the local market area that I would be more than happy to get you in contact with. Please let me know if you have any questions.

Request your free pilot here!
(Download our IPhone or Android mobile app and instantly connect to our demo server!)

KreTonia Morgan

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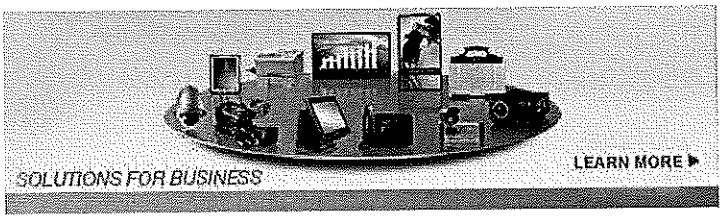
Panasonic


SOLUTIONS FOR BUSINESS
LEARN MORE ▶

IP cameras for all application needs

Why Advidia?

The Advidia line of IP network video surveillance products provides a wide range of affordable IP camera models and encoders that are perfect for video surveillance projects of any size. **Each network camera and encoder includes a free enterprise Video Management Software (VMS) license, a 3-year warranty, and FREE software updates for the life of the product.**

Since its introduction to the market in 2006, Advidia has been deployed by a large number of campuses across North America looking for a complete video surveillance solution that's cost effective, reliable, and easy to use. Advidia's world-class, U.S. based technical support, advance replacement, and robust features like health monitoring, automated Failover, and video wall add yet another layer of value to its already rich product offering.

• Wide Range of Professional Camera Models with Free Video Insight VMS Software License

Advidia cameras are preconfigured with a free license of Video Insight enterprise VMS software, 3 years of advance replacement warranty, and free SUP for the life of the camera.

• Powerful Enterprise VMS Software Included

Each Advidia camera includes a free license of Video Insight VMS software. A powerful enterprise VMS solution that supports over 2,400 camera models from more than 100 manufacturers and integrates with most popular access control models.

ONVIF • ONVIF

The Advidia cameras are ONVIF Compliant, which ensures interoperability between IP-based physical security products – regardless of brand. This allows system integrators and end users to easily design and build network video systems with devices from different vendors.

• Pricing – Lower Total Cost of Ownership (TCO)

Advidia offers the most cost-effective solution for any video surveillance project.

• A Warranty Like No Other

The Advidia line of IP video surveillance cameras is backed by a 3-year warranty with advance replacement. Your replacement product ships as soon as you contact support.

• World-Class U.S.-Based Tech Support

Advidia products are backed by a world-class, U.S.-based technical support team that operates on a One-Hour Callback Guarantee.

Panasonic

i-PRO EXTREME

EXTREME PERFORMANCE UNDER EXTREME CONDITIONS

2017 VIDEO SURVEILLANCE CATALOG

WHY PANASONIC?

From the company that brought you the first security camera in 1957 and invented over a dozen industry standards, Panasonic provides industry-leading solutions to capture, record, manage and analyze surveillance video. Panasonic provides a comprehensive lineup of video surveillance products and solutions that offer the industry's highest picture quality, mission-critical reliability and the industry's lowest total cost of ownership. When it counts, you can count on Panasonic video surveillance products and systems to deliver.

SURVEILLANCE AND MONITORING SYSTEMS LINEUP

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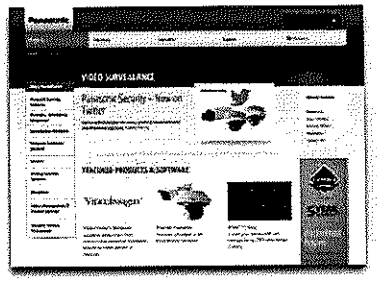


Visit www.panasonic.com/security for the most up-to-date news on Panasonic video surveillance products.

Panasonic

i-PRO PREFERRED

Sign up today and enjoy the free benefits

Panasonic's new i-PRO Preferred Program provides added value to your i-PRO video surveillance camera purchase without adding cost. i-PRO Preferred strengthens your warranty, expedites service response, and includes a bundled Video Insight camera license. New and current owners of select i-PRO camera models* are eligible upon registration for a free upgrade to this preferred service status.

Enjoy these benefits:

5YEAR WARRANTY — Add a two-year extended warranty to your existing three-year factory warranty upon registration.

VIDEOINSIGHT UNLIMITED LICENSE — While competitive manufacturers charge an annual camera license fee for each camera connected to their VMS, you'll enjoy a bundled Video Insight camera license with each eligible i-PRO camera.

PRIORITY ADVANCE EXCHANGE — Receive replacement units shipped the same day with overnight delivery.

Sign up today at www.us.panasonic.com/ipropreferred.

*U.S. purchasers only. Select Panasonic i-PRO cameras with a manufacturing date after October 2014 for both the VI VMS license and the additional two-year warranty extension are eligible.

NEW H.265

i-PRO EXTREME

Panasonic Introduces a completely new line up of Extreme Performance i-PRO Cameras, Recorders and Management Software Delivering **EXTREME PERFORMANCE UNDER EXTREME CONDITIONS**

New i-PRO platform cameras deliver Extreme Visibility with outstanding low-light performance from their 1/3" sensors that rival many 1/2" sensor cameras and feature an industry leading 144dB of Extreme Dynamic Range delivering balanced exposure and accurate color in even the most challenging lighting environments. Auto-Intelligence features like automatic scene-detection continuously monitor the field of view and instantly adjust the cameras parameters to optimize for best image capture based on scene dynamics, compensating for motion and constantly changing lighting. i-PRO's Extreme Compression begins with industry standard H.265 encoding generating up to a 50% reduction in bandwidth compared to H.264 and Panasonic's Advanced Smart Coding and Intelligent Face Coding features push that figure up to an 80% reduction. Extreme Reliability is enabled by technologies like HDD Dynamic Power Control for the new WJ-NX400 class recorder that reduces the frequency of HDD failures and greatly extends their working life and Automatic-Failover which allows two recorders to run in tandem for seamless redundancy in mission critical applications. Panasonic's i-PRO Preferred Program stands behind i-PRO's Extreme Reliability by adding 2 years of factory warranty to the standard 3 year warranty on cameras. i-PRO's Extreme Data Security means the new i-PRO Extreme surveillance platform employs PC-level IP-Data Security standards via Panasonic's Secure Communications Suite and robust authentication using Symantec Device Certificates delivering comprehensive end-to-end data protection on all new i-PRO Extreme-based cameras, recorders and video management software.

i-PRO EXTREME

EXTREME VISIBILITY

ENABLES CAPTURE OF THE HIGHEST QUALITY IMAGES AUTOMATICALLY EVEN IN VERY DYNAMIC AND CHALLENGING LIGHTING ENVIRONMENTS

iA | SD 144dB | Color Night Vision

INTELLIGENT AUTO Continuously monitors scene dynamics and automatically adjusts key camera settings in real-time to optimize captured images

EXTREME SUPER DYNAMIC RANGE Extends Dynamic range to an industry leading 144dB enabling balanced scene exposure even in the most difficult lighting conditions

COLOR NIGHT VISION Delivers outstanding low-light performance with accurate color rendition from a 1/3" sensor, rivaling performance from more costly ½" sensor cameras

EXTREME COMPRESSION

INDUSTRY STANDARD H.265 AND PANASONIC'S SMART CODING TECHNOLOGIES DELIVER THE HIGHEST QUALITY IMAGES AT THE LOWEST BITRATES

H.265 | Smart Coding | Intelligent Face Coding

H.265 COMPRESSION Industry standard H.265 compression delivers high quality images while reducing streaming and storage requirements by approximately 50% over H.264

SMART CODING Working on top of H.265, Smart Coding technologies like GOP Control and Auto-VIQs reduce bandwidth requirements even further for up to an 80% efficiency over H.264

SMART FACIAL CODING Automatically detects faces and self-learns motion-areas of a scene to ensure the highest quality recording of detected faces and regions of interest

EXTREME RELIABILITY

NEW TECHNOLOGIES DELIVER LOW FAILURE RATES AND THE 5 YEAR i-PRO PREFERRED WARRANTY STANDS BEHIND PANASONIC'S HIGH RELIABILITY

HDD Dynamic Power Control | NX400 Auto-Failover | 5 YEAR

HDD POWER CONTROL HDD Dynamic Power Control technology intelligently powers down HDD's without risking recording loss, extending HDD life up to 7 years*

AUTO-FAILOVER New WJ-NX400 recorders can be connected in tandem to enable seamless recording redundancy for mission critical applications

5 YEAR WARRANTY Panasonic's i-PRO Preferred program adds an additional 2 years to the factory 3 year warranty on i-PRO cameras for a total of 5 years which includes Advanced Exchange**

EXTREME DATA SECURITY

PANASONIC'S SECURE COMMUNICATION SUITE AND SYMANTEC'S DEVICE CERTIFICATION ENSURES ROBUST END-TO-END IP SECURITY

SECURE Communication | Symantec Device Certificate | FIPS

SECURE COMMUNICATION A PC-level security suite embedded in all new i-PRO Extreme Cameras, Recorders and Management Software enabling data and communications encryption

SYMANTEC AUTHENTICATION Panasonic's has partnered with Symantec, the global leader in cybersecurity, to deploy their reliable Device Certificate technology on all i-PRO Extreme devices

FIPS CERTIFIED i-PRO Extreme products meet the Federal Information Processing Standard (FIPS) 140-2 Level 1, as required for FBI and Public Safety use

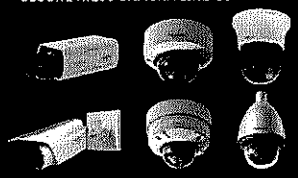
*Optional purchase required. Internet connection required.
**Advanced Exchange service for eligible products requires registration.

i-PRO EXTREME

Panasonic

NEW CAMERAS H.265 | Full HD | HD

SECURE H.265 CAMERA LINE-UP



NEW H.265 i-PRO HD & Full HD 60fps camera line-up featuring Extreme Visibility, Extreme Compression, Extreme Reliability and Extreme Data Security performance

EXTREME VISIBILITY
- Ultra High Sensitivity 0.008 lx (HD), 0.012 lx (FHD)
- Color Night Vision – Full Color in low light
- Extreme Super Dynamic Range 144dB
- Auto Scene-detection and Optimization

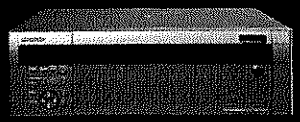
EXTREME COMPRESSION
- H.265 Compression – Fully H.264 Compatible
- Smart Coding – Long GOP Mode, Auto VIQS
- Smart Facial Coding

EXTREME RELIABILITY
- Easy-Install ClearSight™ Dome
- Integrated Image Stabilization on PTZ's
- Reliable night time image capture via built-in IR*

EXTREME DATA SECURITY
- Secure Communication Suite
- Symantec Device Certificates

WJ-NX400 H.265

SECURE H.265 SYSTEM RECORDER



NEW H.265/H.264 high-throughput and scalable recorder featuring integrated GUI and robust embedded IP security enabling a secure end-to-end PC-Less surveillance solution

SECURE HIGH BANDWIDTH RECORDING
- 64 Channels – 128 Max (H.265/264)
- 384Mbps recording bandwidth
- Secure Communication and Symantec Device Certificates

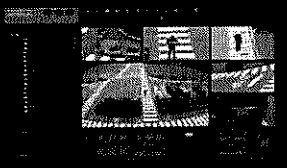
PC-LESS SURVEILLANCE SOLUTION
- Built-in GUI and Dual HDMI Outputs
- Automatic camera configuration
- 2nd Stream Recording for mobile playback

SCALABLE STORAGE
- (9) Integrated Drive-bays RAID5/6
- External storage expansion up to 270TB

HIGH RELIABILITY AND REDUNDANCY
- Dynamic HDD Power Management increases HDD life
- Redundant fail-over using 2nd Recorder

WV-ASM300 H.265

SECURE H.265 VIDEO MANAGEMENT



NEW Powerful Windows® application enables a secure, scalable H.265 ready, multi-camera, multi-recorder surveillance management environment

FULLY INTEGRATED & SECURE
- Camera control, viewing and recorder management
- Integrates i-PRO Extreme H.265 & i-PRO H.264 equipment
- Secure Communication and Symantec Device Certificates

POWERFUL USER INTERFACE
- *NEW* UI design & 4K native GUI enhances usability
- Automatic camera configuration wizard
- Now include multi-monitor and WJ-CU950 support

SCALABLE AND EXTENDABLE
- Base: 100 recorders, 64 encoders and 256 cameras
- Expandable to thousands of cameras, recorders and encoders

EASY TRIAL OPTIONS
- *NEW* FREE limited version supports 16 Cameras/1 Recorder
- No annual license fees

i-PRO EXTREME H.265 SERIES LINE-UP

CAMERA													
Indoor Box	Full HD	WV-S1131	Oct-16	(ICS Mount)	–	–	Yes	–	Yes	Yes	In/Out	Yes	–	–
	HD	WV-S1111	Oct-16	(ICS Mount)	–	–	Yes	–	Yes	Yes	In/Out	Yes	–	–
Outdoor Box	Full HD	WV-S1531LTN	Mar-17	Yes	Yes	Yes	Yes	Yes	Yes	Yes	In/Out	Yes	Yes	Yes
		WV-S1511LN	Dec-16	Yes	–	Yes	Yes	Yes	Yes	Yes	In/Out	Yes	Yes	Yes
	HD	WV-S1511LN	Dec-16	Yes	–	–	Yes	Yes	Yes	Yes	In/Out	Yes	Yes	Yes
Indoor Dome	Full HD	WV-S2136L	Dec-16	Yes	–	Yes	Yes	Yes	Yes	Yes	In/Out	Yes	–	–
	HD	WV-S2114L	Dec-16	Yes	–	–	Yes	Yes	Yes	Yes	In/Out	Yes	–	–
		WV-S2110	Dec-16	Yes	–	–	Yes	–	(I-DN)	No	Mic	–	–	–
Indoor Vandal Dome	Full HD	WV-S2131L	Dec-16	Yes	–	Yes	Yes	Yes	Yes	Yes	In/Out	Yes	Yes	–
	HD	WV-S2111L	Dec-16	Yes	–	–	Yes	Yes	Yes	Yes	In/Out	Yes	Yes	–
Outdoor Vandal Dome	Full HD	WV-S2531LTN	Mar-17	Yes	Yes	Yes	Yes	Yes	Yes	Yes	In/Out	Yes	Yes	Yes
		WV-S2531LN	Dec-16	Yes	–	Yes	Yes	Yes	Yes	Yes	In/Out	Yes	Yes	Yes
	HD	WV-S2511LN	Dec-16	Yes	–	–	Yes	Yes	Yes	Yes	In/Out	Yes	Yes	Yes

RECORDER			
64-Channel H.265 NVR	WJ-NX400	Dec-16	i-Pro Extreme H.265 Network Video Recorder
Expansion Unit	WJ-HDE400	Dec-16	HDD Expansion Unit for WJ-NX400
Extension Software	WJ-NXE400N	Dec-16	32 Channel Extension Software for WJ-NX400

SOFTWARE			
Video Management Application	WV-ASM300	Dec-16	i-PRO Extreme H.265 Video Management Software. Supports 16 Cameras and 1 NVR free without activation
	WV-ASM300UG	Oct-16	Upgrade License from ASM200 to ASM300
	WV-ASM300CL	FY17 Q1	Concurrent Access Version for ASM300

*Optional purchase required.

NEW

PANASONIC UNVEILS AERO PTZ CAMERA FOR EXTREME ENVIRONMENTS

Panasonic has introduced the Aero PTZ, a new, environmentally rugged pan/tilt/zoom (PTZ) camera built to deliver high-performance surveillance in extreme weather conditions. Lightweight at approx. 17.64 pounds, the Aero PTZ is designed to operate in mission-critical applications including vital infrastructure in cities, ports, airports, traffic, highways, railways and more.

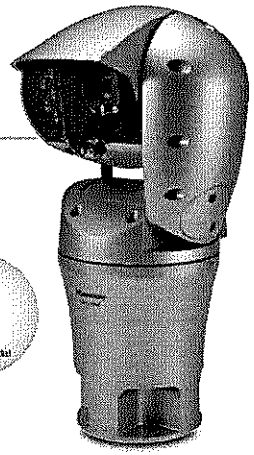
AeroPTZ

FULL HD RESOLUTION WITH 360-DEGREE VIEWING

- The Aero PTZ delivers Full HD resolution of 1080p at 60 fps with a 30X optical zoom lens
- Hybrid image stabilization suppresses vibrations between 1 to 30 HZ, to keep images stable
- 360-degree Sphere Vision 3D viewing provides 360-degree continuous panning and +/- 90-degree tilt range
- IR Illuminator is integrated with a zoom interlocking lens, which provides up to an additional 500 feet of visibility in complete darkness (Optional)
- Integrated with Smart Coding technology that reduces bandwidth up to 80% without sacrificing image quality
- Super Dynamic Light Range Compensation ensures and a wider dynamic range compared to conventional cameras

HIGHLY RUGGED, SLEEK BODY DESIGNED FOR EXTREME CONDITIONS

- High strength, sleek fiber glass body and borosilicate glass provides salt and air corrosion protection, making it highly durable in even the toughest weather conditions from salty wind gusts, to harsh sunshine to the severe artic cold.
- Unique intelligent-radius bodyline minimizes wind drag for more stability and prevents snow and dirt accumulation
- Fully water and dust proof conforming to IP67, NEMA-4X compliant and IK10 environmental specifications
- Operates in the hottest and coldest conditions from -58°F to +140°F
- Wind load durability at 135mph (operational)
- Built-in wiper and defroster



AERO PTZ CAMERA ACCESSORIES

Panasonic

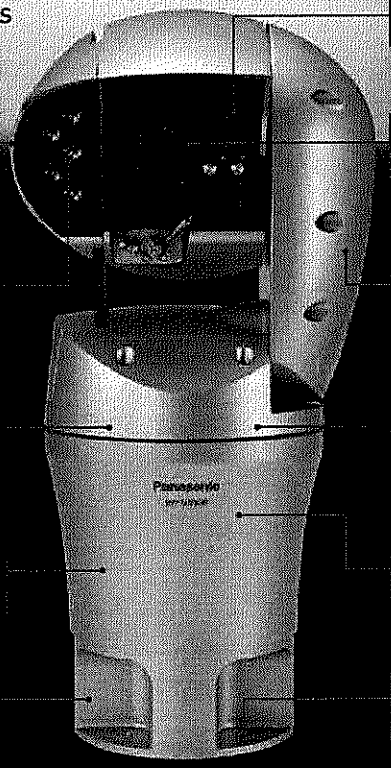
EXTREME PERFORMANCE UNDER EXTREME CONDITIONS

WV-SUD638

RUGGED PTZ CAMERA FOR EXTREME ENVIRONMENTS

1080p 60fps

30x Optical Zoom



Shown with optional IR LED

INTEGRATED WIPER & DEFROSTER
Maintains clear visibility in wet and ice conditions

360° Spherical profile withstands hurricane force winds up to 135mph

INTEGRATED WITH SMART CODING
Advanced compression technology that reduces bandwidth up to 80% without sacrificing video quality

Provides up to 500 feet of visibility in complete darkness (Optional)

Gyro-driven technology suppresses vibrations between 1 to 30 Hz to keep images stable

360° continuous panning, up to 200° per second and +/- 90-degree tilt range

Delivers high performance in extreme hot or cold environments -58 °F to +140 °F

Light-weight body (approx. 17 lbs) resists salt air corrosion, conforms to ISO14993 and is IK10 compliant

Conforms to IP66, IP67, NEMA-4X compliant

Operates from 100 to 240 volts AC or PoE (60W)

Pre-engineered pole mount, wall mount, and corner mounts are available

AeroPTZ

UPDATED

PANASONIC INTRODUCES SMART CODING TECHNOLOGY – REDUCE BANDWIDTH WITHOUT SACRIFICING VIDEO QUALITY

Introducing Panasonic Smart Coding, an in-camera surveillance technology that reduces bandwidth usage up to 80% without sacrificing video quality. It delivers the resolution and frame rates you demand, while substantially lowering storage and networking costs.

UP TO **80%*** BANDWIDTH REDUCTION

Smart Coding is available on all standard new 1, 3, 5, 6 & True 4K Series cameras.

And Smart Coding is available on all new i-PRO Extreme (H.265) cameras.

HOW DOES SMART CODING WORK?

Smart Coding combines 2 Encoding Load Reduction technologies & 2 Noise Reduction technologies together to provide a bit rate reduction of up to 80%, in the video without losing image quality.

NOISE REDUCTION

3D-MNR reduces grainy noise generated in low-illuminance environments.

FDF reduces fine noise that is generated at slightly low illuminance.

ENCODING LOAD REDUCTION

GOP Control reduces encoding data by using p-frame in place of i-frame when no motion is detected.

Auto-VIQS can automatically determine areas with and without motion and reduce the data volume of those without motion.

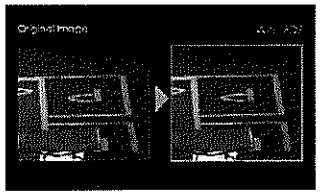
*3D-MNR & FDF are not available in Panasonic True 4K cameras.

Panasonic

NOISE REDUCTION

FREQUENCY DIVIDED FILTER (FDF)

To remove fine noise from low-light footage, FDF separates camera output by frequency, removes noise and then recomposes the data, resulting in crisper, cleaner video.



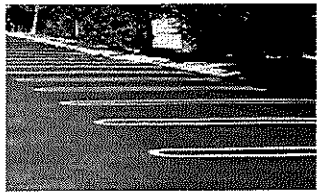
3D-MULTI-PROCESS NOISE REDUCTION (3D-MNR)

3D-MNR reduces bit rates by reducing video noise and grain.
The result: cleaner final images that stream at significantly lower bit rates.

ENCODING LOAD REDUCTION

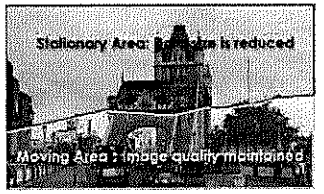
GROUP OF PICTURE (GOP) CONTROL

GOP Control strips out data related to motionless elements in the scene, lowering bit rates. When moving objects enter the frame, the bitrate increases to capture the action.



AUTO-VARIABLE IMAGE QUALITY ON SPECIFIED AREA (VIQS)

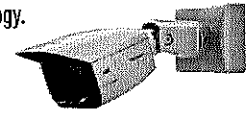
Auto-VIQS finds moving areas automatically and reduces image quality of less motion area to save bandwidth.



FOR MORE INFORMATION, VISIT: info.panasonic.com/smart-coding

ULTRA-HIGH 4K PICTURE QUALITY FOR DETAILED, WIDE-AREA MONITORING WITH A SINGLE CAMERA

Now Featuring H.264 Smart Coding GOP Technology.
Up to 80% lower bandwidth with the same image quality.



4K ULTRA HD

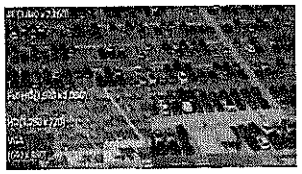
TRUE 4K

WV-SPV781L	WV-SFV781L
4K Vandal Resistant Weatherproof Network Camera	4K Vandal Resistant Weatherproof Dome Network Camera

ULTRA HIGH-DEFINITION, 4K PICTURE QUALITY

Ultra HD 4K cameras offer 27 times the resolution of conventional analog cameras (VGA), nine times that of standard HD (1,280 x 720) and four times that of Full HD (1,920 x 1,080). This means that the finer details of images remain clear even when you need to magnify only a part of the image.

The high performance lens used by Panasonic's 4K cameras provides uniformly high-resolution images from the center out to the edges.



CROPPING FUNCTION

A given area within a single image can be selected, cropped and displayed. For example, areas with high monitoring priority, such as a parking garage entrance or a hallway, can be selected and displayed for easy viewing. You can still keep an eye on the overall image while also focusing on specific areas. With PTZ cameras, when the lens is pointed in a single direction, other areas go out of view during that time, but with a 4K camera you can monitor the entire area while also watching specific areas requiring more focused monitoring.

4K (3,840 x 2,160) HD (1,280 x 720) x 4

WIDE-AREA MONITORING

A single 4K camera can effectively monitor a wider area, which allows you to reduce the total number of cameras while also eliminating blind spots. Monitoring can be performed not only at vertical and horizontal angles, but for deeper depths as well.

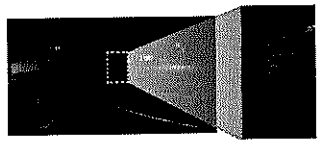
And, even when monitoring within the same area, 4K's increased range means that the number of units required is reduced substantially compared to that of conventional cameras. This translates into reduced costs for the cameras themselves, less installation time and labor, and lower maintenance costs.

4K-ready monitors can also reduce the number of monitors needed in the control room.

Panasonic

LOW LIGHT READY

The camera's ultra-high 4K resolution allows it to capture color images in dim, low-light conditions. In even darker conditions, the camera can use its monochrome inversion function to switch to black-and-white images, and in zero-light conditions it can accurately display what is happening in front of it using infrared LED vision.



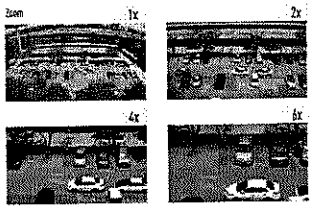
Light near subject : 1 lx

HIGH-POWER 6X ZOOM LENS WITH AN ULTRA-WIDE ANGLE OF 100°

An optical 6x zoom lens comes standard. The viewing angle range and zoom power can be set in line with conditions where the camera is installed.

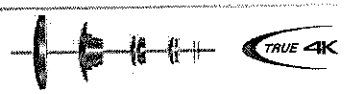
Using a proprietary 3-drive lens system, Panasonic has developed a high-power 6x zoom lens with an ultra-wide viewing angle of 100°, a type of lens that is extremely difficult to produce using conventional optical design methods.

The lens is capable of capturing an extremely wide area, allowing effective 4K coverage of outdoor areas.



- Ultra-wide-angle 100°: Wide-angle monitoring of parking lots, stadiums etc. utilizing 4K resolution
- Telephoto 17°: Monitoring of individuals or crowds from a distance

PANASONIC'S TRUE 4K TECHNOLOGY



Panasonic's Propriety 3-Drive Lens System

The i-PRO TRUE 4K NW Camera is equipped with Panasonic's proprietary 3-drive lens system, which simultaneously drives two zoom lenses and one focus lens. Having three lenses all driven independently allows them to be smaller and their drive areas reduced, and has thus enabled us to make the camera compact enough to fit in a standard camera body while providing a high-power 6x zoom with high 4K picture quality viewed from an ultra-wide-angle of 100°.

Refined Resolution and Superior Contrast for a Higher Level of Video Imaging

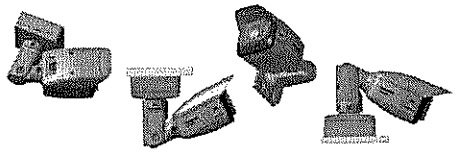
In order to create a sharp, clear texture, 12 lenses in four groups are used to provide the ultra-high resolution expected of 4K in every part of the image, from center to edge. Both a higher level of representational precision and a more compact lens system are achieved. Plus, all lenses are glass, while aspheric lenses are also used extensively to reduce aberrations to the ultimate degree. The clear depiction, sharp resolution and beautiful color reproduction necessary for true 4K monitoring have all been successfully achieved.

EASY INSTALLATION

Various design features have been added to shorten installation times. The camera has also been designed to be capable of pointing in the preferred direction at the preferred location.

Dome Type WV-SFV781L

When attached to the mounting plate, the camera's direction can be easily changed at intervals of 90°. Rotating the viewing area around the lens further allows the lens to be pointed in the desired direction. The combination of a 6x optical zoom and autofocus also shortens the amount of time required for fine tuning the installation.



Box Type WV-SPV781L

A total of three adjustment points on the camera base and arms enables its position to be fine tuned to allow accurate pointing.

VIDEO INSIGHT v6 – VIDEO MANAGEMENT SOFTWARE NOW BUNDLED WITH MONITORCAST (ACCESS CONTROL)

Now Supporting i-PRO Extreme H.265 Cameras
Including Bundled VI Software License on all Panasonic and Advidia Cameras.

Panasonic acquired Video Insight, a leading developer of video management software, to expand its surveillance recording and monitoring capabilities and fulfill the company's ongoing strategy of delivering choice and flexibility to end users.

Video Insight is a member of the Panasonic Group and a leading IP video surveillance management software used by over 25,000 customers in the financial, government, retail, and transportation sectors with a very strong presence in the education market consisting of 5,000 K-12 school/college customers. Video Insight is the easiest and most cost-effective Enterprise VMS with support for over 3,000 camera models and integration with the top access control solutions in the market.

Panasonic is including a bundled camera license with all recent-model i-PRO and Advidia cameras in combination with Video Insight software. For a list of Panasonic camera models bundled with a unlimited camera license, visit us.panasonic.com/VideoInsight.

MONITORCAST

MonitorCast is an enterprise access control product that comes bundled with VI Monitor 6. MonitorCast v3.5 features compliment most facilities, allowing them to access to the most used features in the access control industry. In addition, MonitorCast is designed to support Mercury access control boards.

MonitorCast

VI TV

VI TV is a security camera video management app on Apple TV that allows users access to live and recorded video from any camera on any Video Insight server.

PRE-CONFIGURED SERVERS

Video Insight Servers come pre-loaded, activated, and tested with the full Video Insight Software Suite. The "plug and play" servers are ready immediately out-of-the box for a quick start to record and view your cameras. We have a wide variety of NVR configurations available based on the number of IP cameras, the amount of storage, and the processing capacity. Both towers and rack mounts are available. For a full list of pre-configured servers, please visit business.panasonic.com/products-videosurveillance-servers.

Panasonic

ADVIDIA

The Advidia brand is a solid performing yet cost effective product set that when coupled with the Video Insight Recording Solution, offers a perfect complement to the Panasonic brand of highly featured products and solutions. Advidia cameras come in many different form factors (bullet, dome & PTZ) to meet your needs. Visit business.panasonic.com/advidia for more information.

advidia

YOUR SYSTEM SCALES WITHOUT LIMITATIONS

Video Insight's 64-bit VMS supports an industry-leading number of cameras per server, unlimited scalability, client workstations, users with simple integration to legacy systems, centralized administration of the system and more.

LOWER TOTAL COST OF OWNERSHIP (TCO) THAN ANY OTHER ENTERPRISE VMS

Affordability, flexibility and a simple licensing model are what sets Video Insight apart. VI provides the most cost-effective enterprise-class VMS solution on the market. With Video Insight, end users receive a perpetual license that includes a wide range of enterprise features—and no hidden fees.

EASY INTEGRATION WITH EXISTING SYSTEMS

Video Insight easily integrates with your existing systems, including access control and building management. Our robust SDK and API make it easy to integrate video or alarms into a centralized console.

MAXIMIZE UPTIME AND PROTECTION

Maximize protection with redundant recording to multiple Network Video Recorders (NVRs). Health Monitor, automated failover, and easy-to-use load balancing allow migration of cameras between servers. All of these features can provide high system availability for both live and recorded video at all times. User access privileges and security features ensure tamper-free protection of all your video, data and audio.

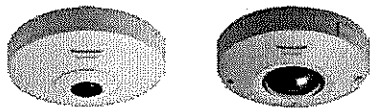
VI MOBILE—SURVEILLANCE ANYWHERE

VI Mobile is a video management system app that allows authorized "on the go" users to access live and recorded video from any camera on any server. Users can view and control PTZ cameras, and view images in full resolution and high frame rates with H.264. The app imports all settings from a single address, providing users access to individual cameras or groups of cameras in predefined layouts. Users can save or email snapshots, view recorded images by alarm or specific times and view thumbnail images on facility maps. Users can also trigger events to display customized actions on Monitor Station/VI Monitor directly from mobile devices.

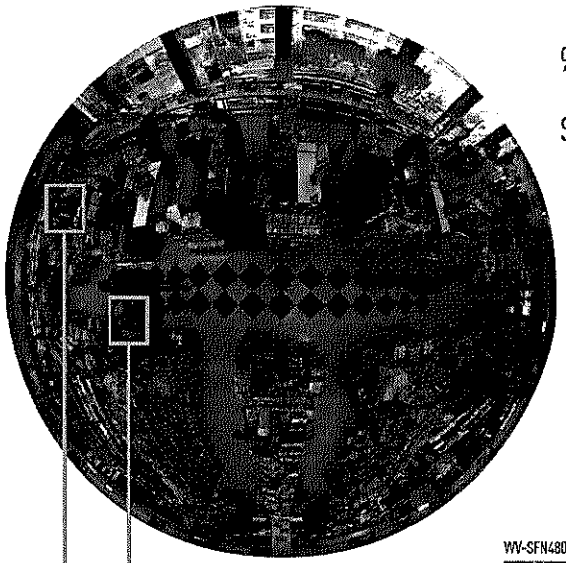
DELIVERING SHARPER IMAGES WITH HIGHER SENSITIVITY

Presenting a 9 Megapixel 360-degree Network Camera with Built-In Analytics.

ULTRA 360 4K



WV-SFN480	WV-SF438
360-degree Indoor Dome 9 Megapixel Network Camera	360-degree Vandal Resistant Outdoor Dome 9 Megapixel Network Camera



9M (3K × 3K) HIGH-RESOLUTION H.264 PERFORMANCE ENABLES SHARP RENDERING OF OBJECTS AND PEOPLE'S FACES AT THE EDGE SECTIONS OF THE FISHEYE

NOW WITH SMART CODING

UP TO 80% BANDWIDTH REDUCTION

WV-SFN480

WV-SF438

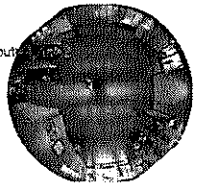
Panasonic

COMPLETE WITH POWERFUL ANALYTICS BUILT-IN

HEAT MAP*

This provides visualization of the traffic patterns by people and how long they stay in one place. For example, you can place products based on how people tend to flow within the store and arrange objects so that they do not interfere with the movement of people.

Requires WV-ASM300/ASM200 client.



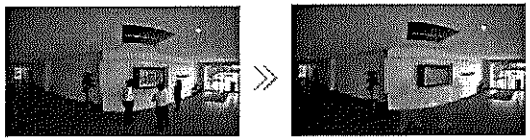
PEOPLE COUNTING

This counts the number of people passing through a selected preset location. The People Counting function can provide statistics on the number of people entering and leaving a specific zone and other useful data.

MOVING OBJECT REMOVAL (MOR)

Enables monitoring of changes only to the surrounding environment by removing people and other moving objects from the video. This function can be used with camera images for confirming how products placed in a salesroom are selling while also respecting the privacy of customers in store surveillance.

*To enable analytics, please add the optional WV-SAE200 software.



The ULTRA 360-degree lineup features the "Three Ultras" for establishing a new standard for video monitoring.

ULTRA HIGH RESOLUTION

Includes a 12-megapixel high-sensitivity sensor capable of 4K image output for producing high-resolution images up to 9M (3K × 3K) in Fisheye mode. Detailed monitoring in all directions using the wide range of distribution modes and Multi-stream. (Fisheye mode, Panorama mode, Double Panorama mode, Quad PTZ mode, Single PTZ mode, 4 Stream mode).

ULTRA HIGH SENSITIVITY

Provides natural-looking, crystal-clear images even in dim locations. Includes a new powerful image sensor and new lens. Automatic switching between day/night shooting modes and the linked Auto Back Focus enables monitoring even in dim environments.

ULTRA INTELLIGENT

Heat-map / People Counting (Cross line) / MOR (Moving Object Remover). Focuses on the movement of people for providing a video-based intelligent solution for use in marketing.

STANDARD H.264 LINE-UP FEATURES HIGH PERFORMANCE & NEW SMART CODING TECHNOLOGY

UniPhier®

The next-generation UniPhier® Camera Platform is the heart of Panasonic's top-of-the-line 6 Series, midrange 5 Series, 3 Series and now entry-level 1 Series camera lines. Featuring a newly developed high-sensitivity MOS Sensor and Shadow H.264 Compression Engine, the powerful UniPhier® Platform delivers sharp and natural color images with exceptional low-light performance capability (down to .01 lux). The new Codec Engine attains the best video compression performance to provide superb image quality while providing savings on bandwidth and the recording system.

The UniPhier® Platform—developed exclusively by Panasonic for use in its 6, 5, 3 and 1 Series cameras—offers innovative functions like Enhanced Super Dynamic Range (133dB) video dynamic range and 60-frames-per-second performance in 1080p and 720p, delivering outstanding performance even in the most dynamic and challenging lighting conditions. The cameras have the ability to encode up to four H.264 streams to ensure simultaneous real-time monitoring, high-resolution recording and mobile access.

NEW 1 SERIES MODELS *NOW AVAILABLE*

WV-SFV110/M | WV-SFN110 | WV-SFV130/M | WV-SFN130

ENHANCED SUPER DYNAMIC LIGHT RANGE COMPENSATION

Featuring industry-leading 133db (1 Series up to 122dB) Enhanced Super Dynamic and Adaptive Black Stretch (ABS) technologies, the new 1/3/5/6 Series cameras allow you to see images that you couldn't see before.

Enhanced Super Dynamic: 133dB Wide Dynamic Range | Conventional Super Dynamic Range

EXCEPTIONAL IMAGE QUALITY

The 3/5/6 Series cameras' ultrafast frame rate of 60 fps combines with their high-resolution video quality to ensure crisp, smooth motion for applications in casinos, airports, stadiums and much more.

60 fps Simulated | 30 fps Simulated

Panasonic

SMART CODING REDUCES BIT RATES UP TO 80% WITHOUT SACRIFICING IMAGE QUALITY

UP TO 80% BANDWIDTH REDUCTION

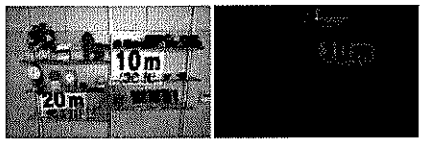
Smart Coding is the only in-camera surveillance technology that reduces bandwidth usage up to 80% without sacrificing video quality. This more efficient, fully compliant H.264 implementation delivers the same high quality resolution and frame rates topreserve forensic detail, while substantially lowering your storage and network costs.

Panasonic combines three advanced signal processing technologies – Group of Picture Control, 3D-Multi-Process Noise Reduction and Frequency Divided Filter – which together provide a bit rate reduction of up to 80%, in the video without losing image quality.

This breakthrough innovation comes standard on all new 1, 3, 5 and 6 Series cameras, or as a free upgrade for these models.

HIGH SENSITIVITY WITH MULTIPROCESSING NOISE REDUCTION

With a combination of 3D noise reduction and multiprocess noise reduction (MNR), both the bright area and the dark area of an image are faithfully reproduced with minimum noise in high-sensitivity image recording.



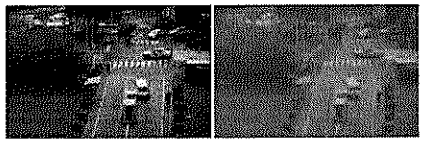
WV-SFV631 at 0.57 Lux | Conventional Camera at 0.57 Lux

EASE OF INSTALLATION

The 1/3/5/6 Series cameras are easy to install, with six patterns of holes for various gang boxes, a 4-point locking mechanism to simplify the mounting direction, a non-screw lock PTY mechanism to enable quicker angle adjustment and a flat-bottom body to enable installation without a surface mounting unit.

WEATHER COMPENSATION

To help improve the captured image in poor weather conditions, such as smog, fog or smoke, the visibility of the 1/3/5/6 Series cameras can be enhanced in any weather condition.



Fog Compensation ON | Fog Compensation OFF

SMART DOF (DEPTH OF FIELD)—6 SERIES ONLY

With this new feature, a 6 Series camera controls both the iris and the shutter to deliver a deeper depth of field. The depth of field (DOF) is automatically optimized to enhance focus for both near and far objects within the camera's view.

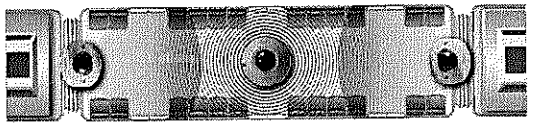
6 Series | Conventional Fixed Dome Camera

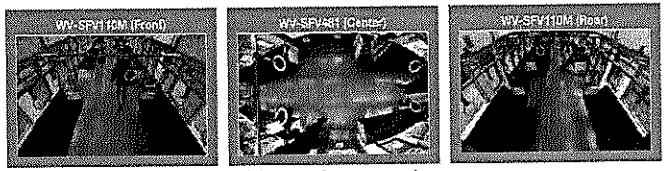
FOR MORE INFORMATION ON 6 Series, 5 Series, 3 Series NEW, AND 1 Series NEW, VISIT www.us.panasonic.com/uniphier

TRANSIT SURVEILLANCE SOLUTIONS

Our NEW i-PRO Transit solution equips transit agencies with the tools to provide a safer environment for bus passengers and drivers while protecting the vehicles from theft and vandalism and reducing expensive manpower requirements to manually upload video data. The system provides complete video surveillance of the inside and outside of the bus—improving response times to incidents as well as increasing the chances of arrest and conviction should a crime occur, helping reduce time spent in litigation.

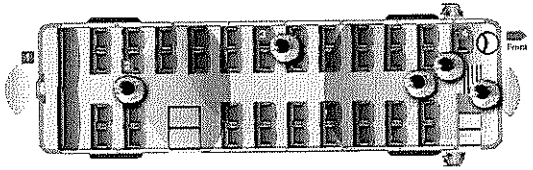
IN TRAINS

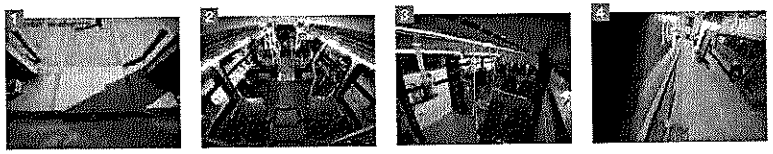




180-degree Panorama mode

IN BUSES





Wide Coverage without Blind Spots
The application of rain-wash coating to the dome cover provides clearer visibility, allowing good security to be maintained even when the camera is installed in an environment subject to rain or water splashing. In addition, the coating resists attachment of dirt to the dome cover, and also allows dirt to be washed off easily during rainfall or other exposure to water.

Compatible with EN50155 "Railway applications" and EN45545 "Fire safety on rolling stock"
EN50155 "Railway applications": Electronic equipment used on rolling stock
EN45545 "Fire safety on rolling stock": Preventive fire protection in railway vehicles - Fire behavior and fire side effects of materials and parts.

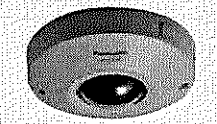
Panasonic

TRANSIT SOLUTION RELATED PRODUCTS

360-degree Dome Network Cameras

4K ULTRA HD ENGINE

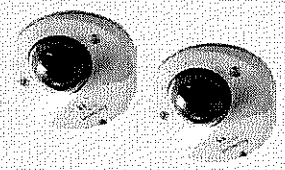
WV-SFV481
- 360° monitoring with a wide variety of transmission modes: Panorama, Double Panorama, Quad PTZ, Single PTZ, and Quad streams (H.264)
- 9 mega (2,992x2,992) pixel images up to 15 fps by new 4K ULTRA HD engine
- Compatible with EN50155 "Railway applications" and EN45545 "Fire safety on rolling stock"
- Low profile design for discrete installation
- Vandal resistant mechanism for high reliability
- IP66 rated water and dust resistant. Compatible with IEC60529 measurement standard, Type 4X (UL50), NEMA 4X compliant



WV-SW458MA
- 360° monitoring with a wide variety of transmission modes: Panorama, Double Panorama, Quad PTZ, Single PTZ, and Quad streams (H.264/VGA)
- 1080p Full HD images up to 30 fps
- Compatible with EN50155 "Railway applications" and DIN 5510-2 "Fire safety on rolling stock"
- Low profile design for discrete installation
- Vandal resistant mechanism for high reliability
- IP66 rated water and dust resistant. Compatible with IEC60529 measurement standard, Type 4X (UL50), NEMA 4X compliant

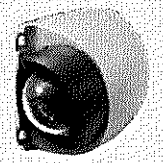
Compact Size Dome Network Camera

WV-SFV130M/110M
- 1080p Full HD images (WV-SFV130M), 720p HD images (WV-SFV110M) up to 30 fps
- High sensitivity with Day/Night (Electrical) function: 0.04 lx (Color), 0.03 lx (B/W) at F2.3 (WV-SFV110M)
- Compatible with EN50155 "Railway applications" and EN45545 "Fire safety on rolling stock".
- Low profile design for discrete installation
- Vandal resistant mechanism for high reliability
- IP66 rated water and dust resistant. Compatible with IEC60529 measurement standard, Type 4X (UL50), NEMA 4X compliant



Rugged Mobile Network Camera

WV-SBV131M / WV-SBV111M
- 1080p Full HD images (WV-SBV131M), 720p HD images (WV-SBV111M) up to 30 fps
- High sensitivity with Day/Night (Electrical) function: 0.04 lx (Color), 0.03 lx (B/W) at F2.2 (WV-SBV111M)
- The camera conforms to the IP66, Type 4X (UL50) and IP6K9K, is compliant with NEMA 4X ratings, and provides high dust resistance and waterproof performance.
- Achieves high-level vibration resistance with EN50155 and MIL-STD-810G compliance
- Adoption of a scratch resistant dome cover with a compact and sleek design is optimal for cameras installed on the outside of a vehicle.
- Vandal resistant mechanism for high reliability

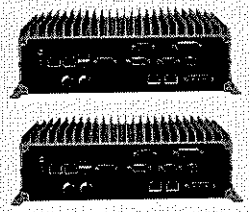


Transit Recorders

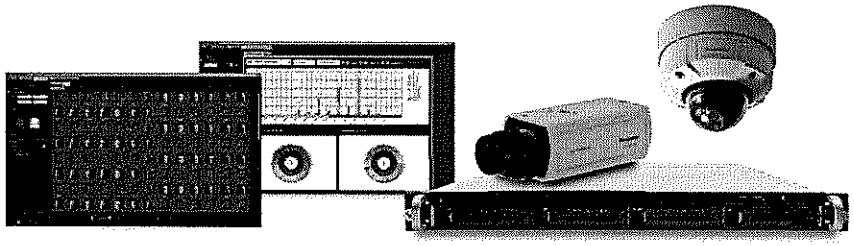
i-PRO TRANSIT NETWORK VIDEO RECORDER
- Powered by the Intel® Core™ i7 Processor for high-speed performance
- Runs Windows® OS for optimal software compatibility
- Supports two M12 Ethernet connections

RECOMMENDED MOBILE RECORDER FOR BUS (VTC7110)*
Bring unrivaled computing power and exceptional video graphics handling onto the bus with this rugged, mobile-ready recorder. With its ability to record and wirelessly transmit HD video from up to four IP cameras (up to 16 with an optional expansion switch), transit control rooms can be given complete situational awareness of the vehicle in real time.

*This is a product from NEXCOM International Co., Ltd. Contact a sales representative to purchase it.



WV-ASF900W—FacePro™



Windows® server-based face recognition and analytics platform featuring high-speed face searching and matching.

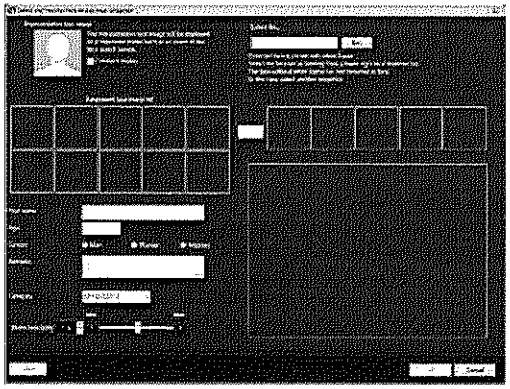
The WV-ASF900W FacePro™ Facial Recognition is a software solution and software engine that automatically performs verification of a person's face using live video streams or digital images from Panasonic i-PRO cameras to match against a database of enrolled faces and perform notification and alerting of face matches. Boasting a real-time processing capacity of up to 20 cameras per server, FacePro can execute high-speed searches of up to 1,000 registered reference faces on both live and recorded video, and each server can store up to 10 million detected face images depending on configuration.

For flexibility, reference face images can be registered from source video or imported via BMP, JPG and PNG files and can be searched for a match in a matter of seconds. FacePro also provides advanced age and gender analytics reporting and the ability to set flexible alarm triggers on matched faces using live cameras. The platform can support multiple simultaneous client sessions with Panasonic's WV-ASM200W and WV-ASM970W software applications.

In addition to live-camera face matching, FacePro features the ability to perform searches and display face matches from a database of historical captured faces. Face match results are displayed for each camera in the system and in chronological order, enabling you to quickly track a person of interest moving through your facility. More refined face searching can be performed by specific camera or date.

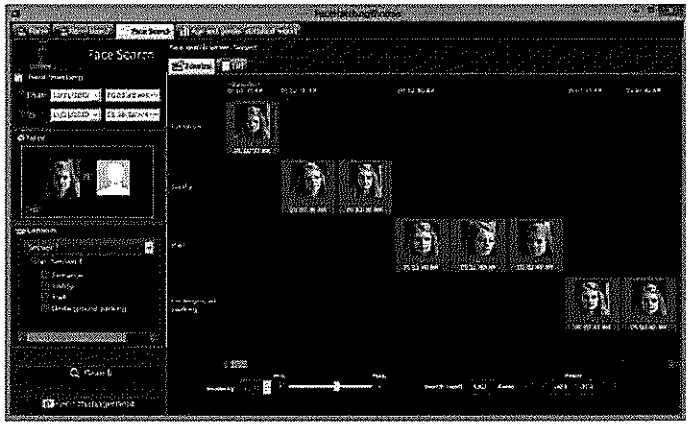
How Do I Benefit from FacePro Facial Recognition?

It reduces costs by eliminating personnel to monitor entrances. It provides instant notification, and lowers your risk by reducing and preventing violent confrontations during capture, as well as by instantly alerting you of unwanted persons entering your facility. It's simple and easy to use and does not require physical contact, and it's the only feasible solution to use with large crowds in your facility. In addition, it improves your service and sales potential by recognizing customers.



Panasonic

Its analysis capabilities permit you to count the number of detected faces and evaluate their age and gender, displaying the results on the screen as a statistical graph. This graphical view of a visitor's age and gender can be provided with a 15-minute, 30-minute, hourly, daily, weekly and monthly view for retail and marketing applications. This statistical data can be saved as a CSV file for analytical use.



- Fast multicamera face matching on both live and previously captured video
- Real-time processing capacity of up to 20 cameras* per server with a 10 million-face database capacity
- Enrollment of 1,000 "Known Faces" into "Watch Lists" for Instant Match Alerts
- High-speed search of video recordings based on reference faces (5 million captured faces searched in about 3 seconds)
- Utilizes Face Best-Shot option (SAE-ASF), available for Panasonic i-PRO cameras (WV-SP306, WV-SP305 and WV-SC385 models and WV-SPN631, WV-SPN611, WV-SPN531, WV-SPN311 models and WV-SFV631LT model)
- Flexible alarm triggers on matched faces using live cameras
- Requires ASM300/ASM200/ASM970 client software
- Ideal for Panasonic customers who have either WJ-ND400 or WJ-NV200/300 NVR

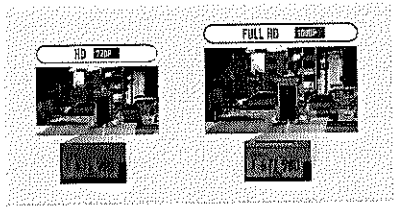
*12 Cameras or more require dual-cpu FacePro server model.

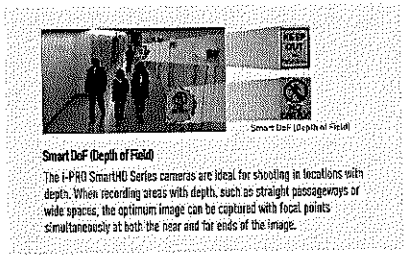
HIGH PICTURE QUALITY, HIGH SENSITIVITY

Providing natural looking, sharp video optimized for a wide range of installation environments and conditions.

HIGH RESOLUTION

The Panasonic i-PRO SmartHD Series of network cameras are high definition (HD) cameras capable of shooting video at Full HD (1,920x1,080) and HD (1280x720). These cameras can record up to 60 images per second (60 fps), even at Full HD resolutions for the capture of exceptionally clear images of moving objects. The resolution, frame rate, and other parameters can be adjusted for the installation location and subject for obtaining the optimum settings for your specific environment.



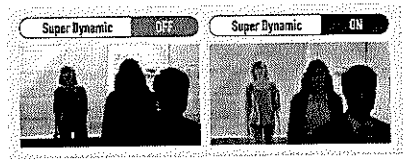


Smart DoF (Depth of Field)

The i-PRO SmartHD Series cameras are ideal for shooting in locations with depth. When recording areas with depth, such as straight passageways or wide spaces, the optimum image can be captured with focal points simultaneously at both the near and far ends of the image.

ENHANCED SUPER DYNAMIC

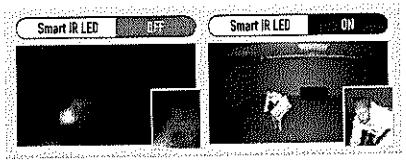
In installation environments with differences in brightness, the Super Dynamic (SD) function brightens dim areas with low visibility and reduces the brightness of areas where blown-out highlights can occur due to over-brightness, providing a natural image that is easy to view.
In building entrances and similar locations, this enables the capturing of sharp images of people's faces as they enter from the outside when exposed to direct sunlight.
With the Super Dynamic (SD) function, the camera can be installed without worrying about lighting conditions that vary based on the time of day and season.



0 LUX PITCH DARK LOCATIONS

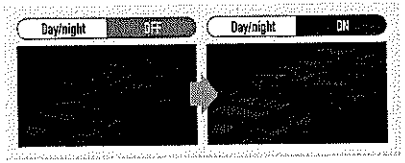
Cameras with a **Smart IR LED** can be used to monitor environments that are completely dark. This enables areas without the level of illumination required to be monitored to prevent graffiti, illegal dumping, and property destruction.

Smart IR LED can illuminate a wide area so that monitoring is not limited to a specific part of the image. The built-in IR LED of the 6 Series can capture subjects up to 30 meters away. Light levels are automatically adjusted for blown out highlights and screen whitening when the IR LED shines on a subject close-by, making the right areas highly visible.
The IR LED is covered to make it difficult to detect from the outside or to know which way the lens is pointing.



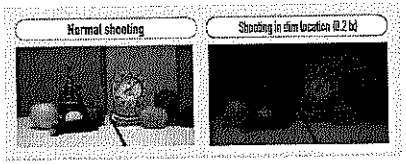
DAY/NIGHT AUTOMATIC MODE SWITCHING

In stores, warehouses, and other locations where it is bright during the day but dark at night, the camera can automatically determine the brightness of the area and record video under the optimum conditions. During nighttime hours, the camera automatically switches to black-and-white video for providing footage with high visibility.



STRONG LOW LIGHT PERFORMANCE IN COLOR

Monitoring is possible even in dim locations.
Panasonic's proprietary technology enables high-sensitivity shooting that enables distinguishing of color hues even in dimly-lit locations.

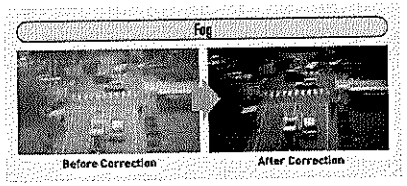


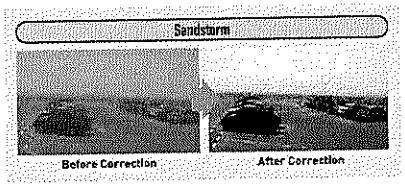
*Supported functions and specifications differ according to the models. See the specifications for each model.

IMAGE COMPENSATION

FOG / SANDSTORM COMPENSATION

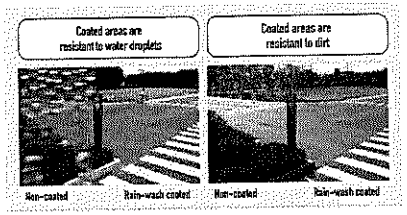
A full array of features are provided for optimum shooting in fog, sandstorms, and other hazy environments.
Haziness due to fog or a sandstorm is automatically removed by this function providing clear, sharp video footage.





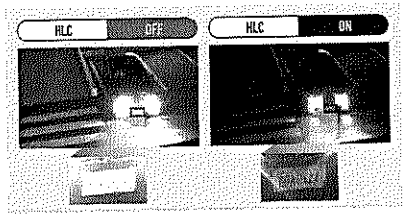
VISIBILITY ENHANCEMENT COATING

Water droplets from rain can adhere to the dome cover of the camera and hinder the shooting of clear images.
In our Rain-wash coated models, a special coating is applied so that water droplets are repelled allowing clear images to be recorded even during rainfall. This coating is also effective at repelling dirt so that cleaning of the dome cover is required less frequently.



HIGH LIGHT COMPENSATION

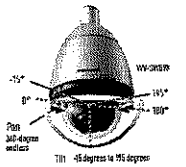
For cameras installed at locations along roads or at entrances and exits to parking lots, the glare of headlights and other strong light sources shining into the camera lens can prevent the reading of license plates and surrounding areas.
Enabling the HLC (High Light Compensation) function reduces the brightness of strong light sources and enhances the surrounding areas for optimum video recording.



*Supported functions and specifications differ according to the models. See the specifications for each model.

MONITORING WITHOUT BLIND SPOTS

PTZ (Pan-Tilt-Zoom) cameras and omnidirectional cameras enable wide-area monitoring. Multiple cameras can be combined for more efficient monitoring and to eliminate blind spots.

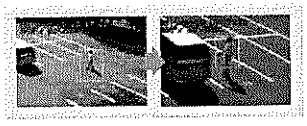


PTZ CAMERA FOR WIDE RANGE MONITORING AND A HIGH ZOOM RATIO

Normal fixed lens cameras can only monitor in a certain direction, but the lens of a PTZ camera can be operated remotely to switch to the direction you want to view.
Detailed areas can also be zoomed in to a maximum of 90x. Since the cameras can be infinitely rotated 360 degrees at a high speed of 300 degrees/sec, you will not miss the subjects you want to monitor.

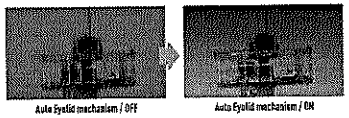
Preset Position / Preset Sequences
If the locations you want to monitor are fixed, you can register them in advance and move to them with a single touch or automatically patrol the registered locations. Data can be saved to a recorder when automatically patrolling the registered locations, without intervention by an operator. Ranges that cannot be covered with a single fixed lens camera can be covered by patrolling.

Advanced Auto Tracking
The pan, tilt, and zoom functions can be combined for automatically tracking the movement of a subject.
If the tracked subject moves out of the camera's shootable range, notification is sent to other cameras so that the tracking process can be carried on without interruption.



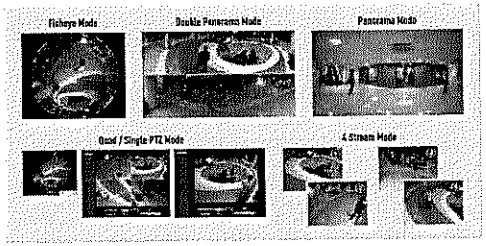
AUTO EYELID MECHANISM (AEM)

When the direction of the camera lens is tilted upward from the horizontal plane, the video image can appear doubled due to the distorting effect of the dome cover and other causes.
The Panasonic WV-SW598A uses an AEM function to reduce this double-image effect and enables shooting of images up to 15° upward from the horizontal plane. This allows the use of auto tracking and other functions over a wider movement range of the subject.



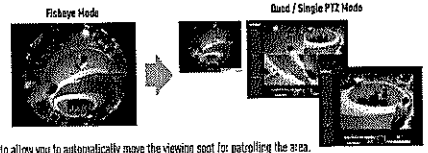
360-DEGREE MONITORING

The 360-degree Network Camera can capture images around the camera lens in all directions.
Available modes include Fisheye, Double Panorama, Panorama, Quad PTZ, and 4 Stream, and the camera can output video images based on the selected video mode for reduced loads on the viewing system.



DE-WARPING

The 360-degree Network Camera can generate and output video images for each mode within the camera unit. Also, the Network Disk Recorder (WJ-NV300) or i-PRO Management Software (WV-ASM200) can be used on 360° omnidirectional images captured by Fisheye Mode to convert to a format that is easier to view, such as Quad PTZ. Because the 360°omnidirectional video image is stored in the recorder, nothing is missed within the viewing area.



In addition, the area that you want to view can be selected using a controller or mouse to allow you to automatically move the viewing spot for patrolling the area. Even during patrolling, areas not visible on the screen are all stored in the recorder in Fisheye Mode so that nothing is left unseen. The Pan-Tilt of the 360-degree Network Camera does not use mechanical components, and so provides a smooth movement without the mechanized wear that could adversely affect camera longevity.

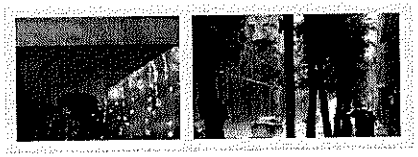
*Supported functions and specifications differ according to the models. See the specifications for each model.

SUPPORT FOR VARIOUS INSTALLATION ENVIRONMENTS

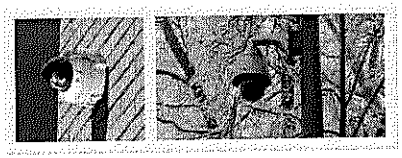
Panasonic network cameras are available in a full lineup of products custom-tailored for a wide range of installation environments. Their specialized design also helps to reduce the work required for installation.

SELECT THE SPECIALIZED MODEL FOR YOUR INSTALLATION ENVIRONMENT

Rainwater protection for outdoor installations
The outdoor models have a waterproof and dustproof structure that is rated IP66 for outdoor installation without requiring insertion in a special housing or other weatherproofing protection.



Temperature protection for outdoor installations
Models can be selected to match your specific installation conditions and can be installed in environments with temperatures ranging from +55°C to -50°C.
*The supported temperature range varies depending on the specific model.



DEHUMIDIFICATION DEVICE

The network camera outdoor models have a built-in dehumidifier device to lower the internal humidity for preventing cloudiness due to condensation. This eliminates blurry video images caused by clouding of the camera dome cover when installed in locations with high humidity or extreme temperature changes over the course of the day.

Vandal Resistant
When installed in locations that are prone to vandalism and tampering, measures are required for preventing damage to the camera.
Models featuring the Vandal Resistant mechanism are ideal for installation in these types of locations.

VANDAL RESISTANT MECHANISM

Models featuring the Vandal Resistant mechanism include a shock absorber around the internal lens.
Even if the dome cover is subjected to a potentially damaging impact, the shock absorber will absorb this impact to protect the internal structure from damage.

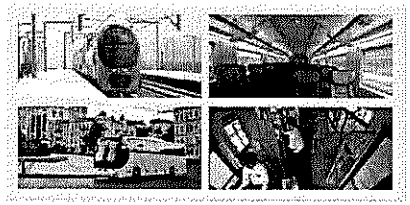
*Supported functions and specifications differ according to the models. See the specifications for each model.

SUPPORT FOR VARIOUS INSTALLATION ENVIRONMENTS (continued)

Panasonic network cameras are available in a full lineup of products custom-tailored for a wide range of installation environments. Their specialized design also helps to reduce the work required for installation.

Onboard Model

A lineup of network cameras is also available with anti-vibration and other specific features for installation in cars, buses, and other vehicles.
The WV-SBV131M, WV-SBV111M, WV-SW155MA, WV-SW158, WV-SW458MA, and WV-SFV481 are compliant with the EN50155 European railway standards.

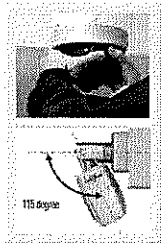


Mount on the Outside of the Vehicle

The rugged mobile network camera WV-SBV131M, WV-SBV111M meets the United States Department of Defense Military Standards MIL-STD-810G to withstand even the harshest of environments.
Also meeting the highest International Protection Standards IP66/IK, the camera is dust tight and waterproof.
Meeting such standards allows the camera to be mounted on the outside of busses and trains, which are constantly shaking and rained on.
The lenses' hard coated surface allows the vehicle to be put through a carwash.
Capable of withstanding temperatures ranging from -40 °C and up to +60°C [-40 °F and up to 140°F] the camera is highly versatile.

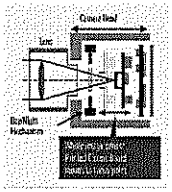
Reduced Installation Time

The i-PRO SmartHD Series cameras include a number of features for reducing the time required for installation.
If you want to change the camera direction after installation, the camera direction can be changed in 90° steps without removing the base (SFV, SFR, SFN models).
The dome cover can also be easily removed to change the direction of the lens.
For Outdoor Box type cameras (SPW models), the stay can be bent to one of two levels to allow installation with a high degree of freedom.



ABF (Auto back Focus)

The ABF feature automatically adjusts the image sensor position when changing from color to B/W mode, optimize the back focus required for clear, sharp images. In addition, the one-push Auto Back Focus feature sharply reduces the time required to focus cameras during installation, allowing focus to be set using the optional system controller.
The ABF function can also automatically sense and adjust to slight focal length changes due to parts warping caused by temperature changes in the area where the camera is installed.



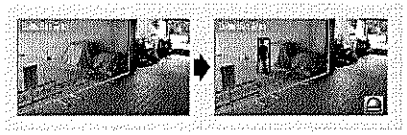
Please find the Transit camera specifications on page 25.

*Supported functions and specifications differ according to the models. See the specifications for each model.

INTELLIGENT VIDEO MOTION DETECTION

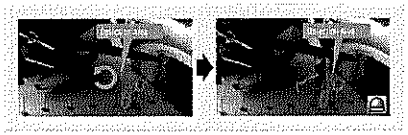
The camera itself features intelligent functionality for notifying the administrator about changes to situations or dangers using a variety of methods. This eliminates the need to constantly watch the screen in the control room for reducing the TCO.

INTRUDER DETECTION
Crossing over the fence



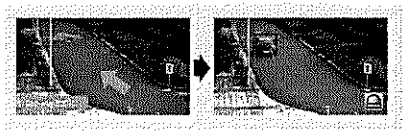
Detects
- the motion of objects in the viewing or detection area. Frames and tracks are displayed around the detected moving object in the live image. Up to 8 objects can be detected simultaneously.

LOITERING DETECTION
Objects staying longer than a specified time



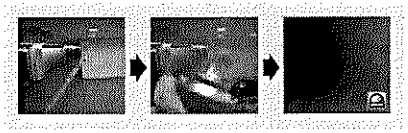
Detects
- objects loitering for longer than a specified time, from 10 sec to 5 min.

DIRECTION DETECTION *1
Objects moving in a specified direction



Detects
- objects moving in a specified direction. Up to 8 directions can be specified.
*1 Type 1, Type 2, Type 3 network cameras (Refer to the specification pages P.17 - 27 except for WV-SFN481 and WV-SFN480)

SCENE CHANGE DETECTION
Interference such as blockage of the lens with a cloth or spray paint

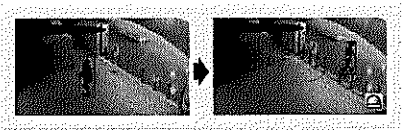


Detects
- interference caused by tampering with the camera, such as a manual change in the camera direction or blockage of the lens with a cloth or spray paint.

OBJECT DETECTION *2
Removed Object Detection **Abandoned Object Detection**

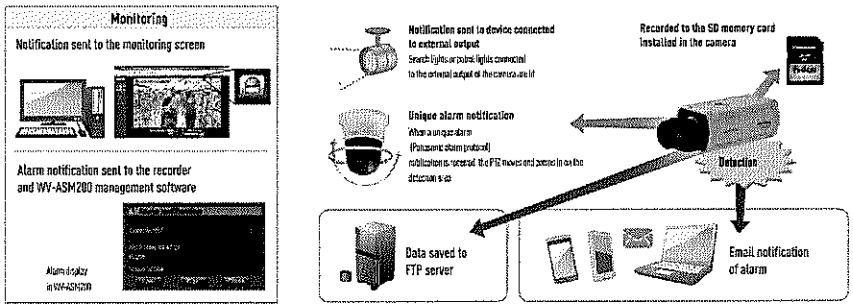
Detects
- alerts the operator when a left or removed object is detected.
*2 Type 2, Type 3 network cameras (Refer to the specification pages P.12 - 27 only)

CROSS LINE DETECTION *2
A person who crosses the virtual line to the specified direction



Detects
- alerts the operator when people or objects cross the imaginary lines.
*2 Type 2, Type 3 network cameras (Refer to the specification pages P.12 - 27 only)

ACTIONS WHEN AN ALARM IS DETECTED



*Supported functions and specifications differ according to the models. See the specifications for each model. To enable i-VMD, please add the optional WV-SAE200 software.

Panasonic

CAMERA TYPE		PAN TILT ZOOM		
Appearance		NEW Available September 2016 ONVIF WV-SUD638 FD1080P	ONVIF WV-SW598A HD1080P	ONVIF WV-SW397B HD720P
Sensor		1/3 MOS	1/3 MOS	1/3 MOS
Codec and Transmission	Video Codec	H.264 / JPEG	H.264 / JPEG	H.264 / JPEG
	H.264 multi stream	4	2	2
	JPEG multi stream	6 (Variable)	6	6
	Smart Coding	—	—	—
Max. Resolution	16 : 9	1920 x 1080	1920 x 1080	1280 x 720
	4 : 3	1280 x 960	1280 x 960	1280 x 960
Max. FPS @Max. Resolution	H.264	60 fps (1080p)	30 fps (1080p)	30 fps (2.4 MP)
	JPEG	30 fps (1080p)	30 fps (1080p)	30 fps (2.4 MP)
Super Dynamic / WDR / BLC		Super-D	Super-D	Super-D
Day/Night		Yes (ICR)	Yes (ICR)	Yes (ICR)
ABF (Auto Back Focus) / Focus Assist		Auto Focus	Auto Focus	Auto Focus
Min. Illumination	Color	0.04 lx @F1.6	0.15 lx @F1.6	0.3 lx @F1.6
	Color (Sens up)	0.004 lx (16x)	0.009 lx (16x)	0.019 lx (16x)
	B/W	0.0 lx @F1.6 (w/IR)	0.018 lx @F1.6	0.04 lx @F1.6
	B/W (Sens up)	—	0.001 lx (16x)	0.003 lx (16x)
Lens		f= 4.3 to 129 mm, F1.6	f= 4.3 to 129 mm, F1.6	f= 4.3 to 129 mm, F1.6
Angular field of view	16 : 9	H: 2.3 to 64 deg. / V: 1.3 to 36 deg.	H: 2.6 to 64.6 deg. / V: 1.6 to 36.2 deg.	H: 2.6 to 64.6 deg. / V: 1.6 to 38.2 deg.
	4 : 3	H: 1.8 to 50 deg. / V: 1.3 to 36 deg.	H: 1.4 to 44.4 deg. / V: 1.1 to 33.8 deg.	H: 1.4 to 44.4 deg. / V: 1.1 to 33.8 deg.
Pan	Range	Endless	Endless	Endless
	Speed	200 deg/sec	300 deg/sec	300 deg/sec
Tilt	Range	Upright: -50 to +90 deg. / Forward tilt: -90 to +90 deg. / Hanging: +30 to -90 deg.	-15 to +195 deg.	-15 to +195 deg.
	Speed	200 deg/sec	300 deg/sec	300 deg/sec
360 Pan-Flip		—	—	—
Number of Preset Positions		256	256	256
Patrol		Yes	Yes	Yes
Auto Tracking		Yes	Yes (advanced)	Yes (advanced)
Optical Zoom		30x	30x	30x (45x with Extra Zoom at HD)
Digital Zoom		12x	12x	12x
VMD (Video Motion Detection)		Yes (4-areas)	Yes (4-areas)	Yes (4-areas)
i-VMD (Intelligent VMD) (w/extension software)		—	—	—
VIQS		Yes (8-areas)	Yes (2-areas)	Yes (2-areas)
Max. Connection		14	14	14
Audio	In (Line)	Yes	Yes	Yes
	In (Built-in MIC)	—	—	—
	Out	Yes	Yes	Yes
	Codec	G.711 / G.726 / AAC	G.711 / G.726 / AAC (*2)	G.711 / G.726 / AAC (*2)
	Audio Detection Alarm	Yes	Yes	Yes
SD memory Card	Slot	—	Yes (SDXC)	Yes (SDXC)
	Password & Alter Detection	—	—	—
	Audio REC	—	Yes	Yes
External I/O		Yes (3) (*4)	Yes (3) (*3)	Yes (3) (*3)
Monitor Out		—	Yes (Composite)	Yes (Composite)
Vandal Resistant		IK3, IK10	IK3, IK10	IK3, IK10
Water and Dust Resistance		IP67 / IP66 / NEMA 4X	IP66 / NEMA 4	IP66
Temperature		-58°F to +140°F	-58°F to +131°F (24 V) / -40°F to +131°F (PoE+) (*4) / -22°F to +131°F (PoE+)	-58°F to +131°F (24 V) / -22°F to +131°F (PoE+)
Power Source		AC100 to 240V / 60W injector	24 V AC / PoE+	24 V AC / PoE+
Dehumidification device		Yes	Yes	Yes
Other Functions		Built-in wiper, DeHaster	Built-in heater, Rain wash coating, Auto Eyelid Mechanism	Built-in heater, Auto Eyelid Mechanism, Rain wash coating (WV-SW397A)
Mounting Options		See page 50	See page 50	See page 50

(*2): Only for SD REC (*3): Alarm In1(Day/Night In), Alarm In2(Alarm Out), Alarm In3(AUX Out) (1x each) (*4): Terma: PoE Injector

CAMERA TYPE		PAN TILT ZOOM		
Appearance		ONVIF WV-SW395A HD720P	ONVIF WV-SC588A HD1080P	ONVIF WV-SC387A HD720P
Sensor		1/3 MOS	1/3 MOS	1/3 MOS
Codec and Transmission	Video Codec	H.264 / MPEG-4 / JPEG	H.264 / JPEG	H.264 / JPEG
	H.264 multi stream	2	2	2
	JPEG multi stream	6	6	6
	Smart Coding	—	—	—
Max. Resolution	16 : 9	1280 x 720	1920 x 1080	1280 x 720
	4 : 3	1280 x 960	1280 x 960	1280 x 960
Max. FPS @Max. Resolution	H.264	30 fps (1.3 MP)	30 fps (1080p)	30 fps (2.4 MP)
	JPEG	30 fps (1.3 MP)	30 fps (1080p)	30 fps (2.4 MP)
Super Dynamic / WDR / BLC		Super-D	Super-D	Super-D
Day/Night		Yes (ICR)	Yes (ICR)	Yes (ICR)
ABF (Auto Back Focus) / Focus Assist		Auto Focus	Auto Focus	Auto Focus
Min. Illumination	Color	0.5 lx @F1.6	0.5 lx @F1.6	0.3 lx @F1.6
	Color (Sens up)	0.03 lx (16x)	0.03 lx (16x)	0.019 lx (16x)
	B/W	0.06 lx @F1.6	0.06 lx@F1.6	0.04 lx @F1.6
	B/W (Sens up)	0.004 lx (16x)	0.004 lx (16x)	0.003 lx (16x)
Lens		f= 4.7 to 84.6 mm, F1.6	f= 4.3 to 129 mm, F1.6	f= 4.3 to 129 mm, F1.6
Angular field of view	16 : 9	H: 3.2 to 55.2 deg. / V: 1.9 to 31.9 deg.	H: 2.34 to 65.1 deg. / V: 1.36 to 38.4 deg.	H: 2.34 to 65.1 deg. / V: 1.36 to 38.4 deg.
	4 : 3	H: 3.2 to 55.2 deg. / V: 2.4 to 42.1 deg.	H: 1.6 to 45.2 deg. / V: 1.2 to 34.3 deg.	H: 1.6 to 45.2 deg. / V: 1.2 to 34.3 deg.
Pan	Range	0 to +350 deg.	Endless	Endless
	Speed	300 deg/sec	300 deg/sec	300 deg/sec
Tilt	Range	-30 to +90 deg.	-25 to +205 deg.	-25 to +205 deg.
	Speed	180 deg/sec	300 deg/sec	300 deg/sec
360 Pan-Flip		Yes	—	—
Number of Preset Positions		64	256	256
Patrol		—	Yes	Yes
Auto Tracking		Yes	Yes (advanced)	Yes (advanced)
Optical Zoom		18x	30x	30x (45x with Extra Zoom at HD)
Digital Zoom		12x	12x	12x
VMD (Video Motion Detection)		Yes (4-areas)	Yes (4-areas)	Yes (4-areas)
i-VMD (Intelligent VMD) (w/extension software)		—	—	—
VIQS		—	Yes (2-areas)	Yes (2-areas)
Max. Connection		14	14	14
Audio	In (Line)	Yes	Yes	Yes
	In (Built-in MIC)	—	—	—
	Out	Yes	Yes	Yes
	Codec	G.711 / G.726	G.711 / G.726 / AAC (*1)	G.711 / G.726 / AAC (*1)
	Audio Detection Alarm	—	Yes	Yes
SD memory Card	Slot	Yes (SDHC)	Yes (SDXC)	Yes (SDXC)
	Password & Alter Detection	—	—	—
	Audio REC	—	Yes	Yes
External I/O		Yes (3) (*3)	Yes (3) (*2)	Yes (3) (*2)
Monitor Out		Yes (Composite)	Yes (Mini-jack)	Yes (Mini-jack)
Vandal Resistant		IK10	—	—
Water and Dust Resistance		IP65	—	—
Temperature		-40°F to +122°F (24 V) / -22°F to +122°F (PoE+)	+14°F to +131°F	+14°F to +131°F
Power Source		24 V AC / PoE+	12 V DC / PoE	12 V DC / PoE
Dehumidification device		Yes	—	—
Other Functions		Built-in heater, Rain wash coating (WV-SW395A)	Dome less	Dome less
Mounting Options		See page 50	See pages 48, 49	See pages 48, 49

(*1): Only for SD REC (*2): Alarm In1(Day/Night In), Alarm In2(Alarm Out), Alarm In3(AUX Out) (1x each)

Panasonic

CAMERA TYPE		PAN/TILT/ZOOM	
Appearance		ONVIF S WV-SC385 HD720P	ONVIF S WV-SC384 HD720P
Sensor		1/3 MOS	1/3 MOS
Codec and Transmission	Video Codec	H.264 / MPEG-4 / JPEG	H.264 / MPEG-4 / JPEG
	H.264 multi stream	2	2
	JPEG multi stream	4	4
	Smart Coding	—	—
Max. Resolution	16 : 9	1280 x 720	1280 x 720
	4 : 3	1280 x 960	1280 x 960
Max. FPS @Max. Resolution	H.264	30 fps (1.3 MP)	30 fps (1.3 MP)
	JPEG	30 fps (1.3 MP)	30 fps (1.3 MP)
Super Dynamic / WDR / BLC		Super-D	WDR
Day/Night		Yes (ICR)	Yes (Electrical)
ABF (Auto Back Focus) / Focus Assist		Auto Focus	Auto Focus
Min. Illumination	Color	0.5 lx @F1.6	0.6 lx @F1.6
	Color (Sens up)	0.03 lx (16x)	0.038 lx (16x)
	B/W	0.06 lx @F1.6	0.5 lx @F1.6
	B/W (Sens up)	0.004 lx (16x)	0.03 lx (16x)
Lens		f= 4.7 to 84.5 mm, F1.6	f= 4.7 to 94.6 mm, F1.6
Angular field of view	16 : 9	H: 3.2 to 55.2 deg. / V: 1.9 to 31.9 deg.	H: 3.2 to 55.2 deg. / V: 1.9 to 31.9 deg.
	4 : 3	H: 3.2 to 55.2 deg. / V: 2.4 to 42.1 deg.	H: 3.2 to 55.2 deg. / V: 2.4 to 42.1 deg.
Pan	Range	0 to +359 deg.	0 to +359 deg.
	Speed	300 deg/sec	300 deg/sec
Tilt	Range	-30 to +90 deg.	-30 to +90 deg.
	Speed	100 deg/sec	100 deg/sec
360 Pan-Flip		Yes	Yes
Number of Preset Positions		64	64
Patrol		—	—
Auto Tracking		Yes	—
Optical Zoom		18x	18x
Digital Zoom		12x	8x
VMD (Video Motion Detection)		Yes (4-areas)	Yes (4-areas)
i-VMD (Intelligent VMD) (w/extension software)		—	—
VIQS		—	—
Max. Connection		14	14
Audio	In (Line)	Yes	Yes
	In (Built-in MIC)	—	—
	Out	Yes	Yes
	Codec	G.711 / G.726	G.711 / G.726
	Audio Detection Alarm	—	—
SD memory Card	Slot	Yes (SDHC)	Yes (SDHC)
	Password & Alter Detection	—	—
	Audio REC	—	—
External I/O		Yes (3/1)	Yes (3/1)
Monitor Out		Yes (Mini-jack)	Yes (Mini-jack)
Vandal Resistant		—	—
Water and Dust Resistance		—	—
Temperature		+14°F to +122°F	-14°F to +122°F
Power Source		12 V DC / PoE	12 V DC / PoE
Dehumidification device		—	—
Other Functions		—	—
Mounting Options		See pages 48, 49	See pages 48, 49

[*1]: Only for SD REC [*2]: Alarm In1(Day/Night In), Alarm In2(Alarm Out), Alarm In3(AUX Out) (1 for each)

CAMERA TYPE		FIXED TYPE				
Appearance		ONVIF S WV-SFV781L 4K Engine	ONVIF S WV-SFV631LT HD1080P	ONVIF S WV-SFV631L HD1080P	ONVIF S WV-SFV611L HD720P	ONVIF S WV-SFV531 HD1080P
Sensor		1/1.7 MOS	1/3 MOS	1/3 MOS	1/3 MOS	1/3 MOS
Codec and Transmission	Video Codec	H.264 / JPEG	H.264 / JPEG	H.264 / JPEG	H.264 / JPEG	H.264 / JPEG
	H.264 multi stream	4	4	4	4	4
	JPEG multi stream	2	6 (Variable)	6 (Variable)	6 (Variable)	6 (Variable)
	Smart Coding	Yes (GOP Only)	Yes	Yes	Yes	Yes
Max. Resolution	16 : 9	3840 x 2160	1920 x 1080	1920 x 1080	1280 x 720	1920 x 1080
	4 : 3	4000 x 3000	2048 x 1536 [*1]	2048 x 1536 [*1]	1280 x 960	2048 x 1536 [*1]
Max. FPS @Max. Resolution	H.264	30fps (4K)	60fps (1080p)	60fps (1080p)	60fps (720p)	60fps (1080p)
	JPEG	15fps (12 MP)	30fps (3 MP)	30fps (3 MP)	30fps (1.3 MP)	30fps (3 MP)
Super Dynamic / WDR / BLC		WDR	Enhanced SD	Enhanced SD	Enhanced SD	Enhanced SD
Day/Night		Yes (ICR)	Yes (ICR)	Yes (ICR)	Yes (ICR)	Yes (ICR)
ABF (Auto Back Focus) / Focus Assist		ABF	ABF	ABF	ABF	ABF
Min. Illumination	Color	0.3 lx @F1.6	0.06 lx @F1.6	0.04 lx @F1.3	0.01 lx@F1.3	0.02 lx @F1.6
	Color (Sens up)	0.02 lx (16x)	0.0045 lx (16x)	0.003 lx (16x)	0.0007 lx (16x)	0.005 lx (16x)
	B/W	0.0 lx @F1.6 (w/IR)	0.0 lx @F1.6 (w/IR)	0.0 lx @F1.3 (w/IR)	0.0 lx @F1.3 (w/IR)	0.01 lx @F1.6
	B/W (Sens up)	—	—	—	—	0.0007 lx (16x)
Lens		f=4.2 to 25.2 mm, F1.6 Motorized	f= 9 to 22 mm, F1.6 Motorized	f= 2.8 to 10 mm, F1.3 Motorized	f= 2.8 to 10 mm, F1.3 Motorized	f=2.8 to 9.5 mm, F1.6
Angular field of view	16 : 9	H: 17 to 96 deg. V: 9.3 to 54 deg.	H: 13.8 to 33.0 deg. V: 7.7 to 17.8 deg.	H: 28.8 to 102.6 deg. V: 16.8 to 56.8 deg.	H: 26.4 to 93.7 deg. V: 14.8 to 51.6 deg.	H: 31 to 109 deg. V: 18 to 59 deg.
	4 : 3	H: 17 to 108 deg. V: 13 to 75 deg.	H: 11.5 to 27.0 deg. V: 8.6 to 19.9 deg.	H: 23.7 to 84.3 deg. V: 17.8 to 62.4 deg.	H: 26.4 to 93.7 deg. V: 20 to 69.3 deg.	H: 26 to 89 deg. V: 20 to 66 deg.
Adjusting Angle	Pan	-180 to +180 deg.	-180 to +180 deg.	-180 to +180 deg.	-180 to +180 deg.	-180 to +180 deg.
	Tilt	0 to +85 deg.	0 to +85 deg.	0 to +85 deg.	0 to +85 deg.	-85 to +85 deg.
Optical Zoom		4x	2.4x	3.6x	3.6x	3.3x
Digital Zoom		4x	4x	4x	4x	4x
VMD (Video Motion Detection)		Yes (4-areas)	Yes (4-areas)	Yes (4-areas)	Yes (4-areas)	Yes (4-areas)
i-VMD (Intelligent VMD) (w/extension software)		—	Yes (Type2)	Yes (Type2)	Yes (Type2)	Yes (Type2)
VIQS		Yes (8-areas)	Yes (8-areas)	Yes (8-areas)	Yes (8-areas)	Yes (8-areas)
Max. Connection		14	14	14	14	14
Audio	In (Line)	Yes	Yes	Yes	Yes	Yes
	In (Built-in MIC)	—	—	—	—	—
	Out	Yes	Yes	Yes	Yes	Yes
	Codec	G.711 / G.726 / AAC [*2]	G.711 / G.726 / AAC	G.711 / G.726 / AAC	G.711 / G.726 / AAC	G.711 / G.726 / AAC
	Audio Detection Alarm	—	Yes	Yes	Yes	Yes
SD memory Card	Slot	Yes (SDXC)	Yes (SDXC x 2)	Yes (SDXC x 2)	Yes (SDXC x 2)	Yes (SDXC)
	Password & Alter Detection	—	Yes (V1.52)	Yes (V1.52)	Yes (V1.52)	Yes
	Audio REC	Yes	Yes	Yes	Yes	Yes
External I/O		Yes (3) [*3]	Yes (3) [*4]	Yes (3) [*4]	Yes (3) [*4]	Yes (3) [*4]
Monitor Out		Yes (RCA)	Yes (mini jack)	Yes (mini jack)	Yes (mini jack)	Yes (mini jack)
Vandal Resistant		20J, IK10	50J, IK10	50J, IK10	50J, IK10	50J, IK10
Water and Dust Resistance		IP66 / NEMA 4X	IP66 / NEMA 4X	IP66 / NEMA 4X	IP66 / NEMA 4X	IP66 / NEMA 4X
Temperature		-49°F to +122°F	-49°F to +122°F	-49°F to +122°F	-49°F to +122°F	-49°F to +122°F
Power Source		12 V DC / PoE	12 V DC / PoE	12 V DC / PoE	12 V DC / PoE	12 V DC / PoE
Dehumidification device		Yes	Yes	Yes	Yes	Yes
Other Functions		Smart-DeF, Built-in heater, Rain wash coating, Built-in IR LED	Smart-DeF, Built-in heater, Built-in IR LED	Smart-DeF, Built-in heater, Built-in IR LED	Smart-DeF, Built-in heater, Built-in IR LED	Built-in heater
Mounting Options		See pages 46, 47	See pages 46, 47	See pages 46, 47	See pages 46, 47	See pages 46, 47

[*1]: i-PRO SuperResolution [*2]: Only for SD REC [*3]: Alarm In1(Day/Night In), Alarm In2(Alarm Out), Alarm In3(AUX Out), Day/Night Out(1in1 for each) [*4]: Alarm In1(Day/Night In), Alarm In2(Alarm Out), Alarm In3(IR Out)(1in1 for each)

Panasonic

CAMERA TYPE		FIXED DOME			
Appearance					
		ONVIF WV-SFV311A BD720P	ONVIF WV-SFV310A BD720P	NEW ONVIF WV-SFV130/WV-SFV130M (*5) HD1080P	NEW ONVIF WV-SFV110/WV-SFV110M(*5) BD720P
Sensor		1/3 MOS	1/3 MOS	1/3 MOS	1/3 MOS
Codec and Transmission	Video Codec	H.264 / JPEG	H.264 / JPEG	H.264 / JPEG	H.264 / JPEG
	H.264 multi stream	4	4	4	4
	JPEG multi stream	6 (Variable)	6 (Variable)	6 (Variable)	6 (Variable)
	Smart Coding	Yes	Yes	Yes	Yes
Max. Resolution	16 : 9	1920 x 1080 (*1) / 1280 x 720	1920 x 1080 (*1) / 1280 x 720	1920 x 1080	1280 x 720
	4 : 3	1280 x 960	1280 x 960	2048x1536	1280 x 960
Max. FPS @Max. Resolution	H.264	60fps (720p)	60fps (720p)	30fps (3MP)	30fps (1.3MP)
	JPEG	30fps (1.3 MP)	30fps (1.3 MP)	30fps (3MP)	30fps (1.3MP)
Super Dynamic / WDR / BLC		Enhanced SD	Enhanced SD	Super Dynamic	Super Dynamic
Day/Night		Yes (ICR)	Yes (Electrical)	Yes (Electrical)	Yes (Electrical)
ASF (Auto Back Focus) / Focus Assist		ASF	Focus Assist	—	—
Min. Illumination	Color	0.01 lx @F1.6	0.01 lx @F1.6	0.1 lx @F2.3	0.04 lx @F2.3
	Color (Sens up)	0.0007 lx (16x)	0.0007 lx (16x)	0.007 lx (16x)	0.003 lx (16x)
	B/W	0.003 lx @F1.6	0.003 lx @F1.6	0.00 lx @F2.3	0.03 lx @F2.3
	B/W (Sens up)	0.0002 lx (16x)	0.0005 lx (16x)	0.005 lx (16x)	0.002 lx (16x)
Lens		f= 2.8 to 10 mm, F1.6	f= 2.8 to 10 mm, F1.6	f= 2.8mm, F2.3	f= 2.8mm, F2.3
Angular field of view	16 : 9	H: 28 to 99 deg. V: 16 to 54 deg.	H: 28 to 99 deg. V: 16 to 54 deg.	H: 108 deg. V: 60 deg.	H: 100 deg. V: 55 deg.
	4 : 3	H: 28 to 97 deg. V: 21 to 72 deg.	H: 28 to 99 deg. V: 21 to 72 deg.	H: 89 deg. V: 66 deg.	H: 100 deg. V: 73 deg.
Adjusting Angle	Pan	-180 to +180 deg.	-180 to +180 deg.	-20 to +20 deg.	-20 to +20 deg.
	Tilt	-85 to +85 deg.	-85 to +85 deg.	-20 to +90 deg.	-20 to +90 deg.
Optical Zoom		3.6x	3.6x	—	—
Digital Zoom		4x	4x	4x	4x
VMD (Video Motion Detection)		Yes (4-areas)	Yes (4-areas)	Yes (4-areas)	Yes (4-areas)
i-VMD (Intelligent VMD) (w/extension software)		Yes	Yes	Yes (Type2)	Yes (Type2)
VIQS		Yes (8-areas)	Yes (8-areas)	Yes (8-areas)	Yes (8-areas)
Max. Connection		14	14	14	14
Audio	In (Line)	Yes	—	—	—
	In (Built-in MIC)	—	—	Yes	Yes
	Out	Yes	—	—	—
	Codec	G.711 / G.726 / AAC	—	G.711 / G.726 / AAC	G.711 / G.726 / AAC
	Audio Detection Alarm	Yes	—	Yes	Yes
SD memory Card	Slot	Yes (SDXC)	Yes (SDXC)	Yes (SDXC)	Yes (SDXC)
	Password & Alter Detection	Yes	Yes	Yes	Yes
	Audio REC	Yes	—	Yes	Yes
External I/O		Yes (3) (*3)	Yes (3) (*4)	—	—
Monitor Out		Yes (mini jack)	Yes (mini jack)	—	—
Vandal Resistant		50J, IK10	50J, IK10	IK10	IK10
Water and Dust Resistance		IP66 / NEMA 4X	IP66 / NEMA 4X	IP66 / NEMA 4X	IP66 / NEMA 4X
Temperature		-49°F to +122°F (in operation)	-49°F to +122°F (in operation)	-49°F to +140°F	-49°F to +140°F
Power Source		12 V DC / PoE	12 V DC / PoE	PoE	PoE
Dehumidification device		Yes	Yes	—	—
Other Functions		Built-in heater	Built-in heater	Railway Application (EN50155-T3, EN50121, EN45545, EN50498 and ECE-R10 (SFV130M))	Railway Application (EN50155-T3, EN50121, EN45545, EN50498 and ECE-R10 (SFV110M))
Mounting Options		See pages 46, 47	See pages 46, 47	TBA	TBA

(*1): with Simple Full-HD mode (Enlarge me name) (*2): Alarm In (Day/Night In), Alarm In (Alarm Out), Alarm In (AUX Out) (x1 for each) (*3): Alarm In1 (Day/Night In), Auto tone w/pattern), Alarm In 2 (Alarm Out), Alarm In 3 (AUX Out) (x1 for each)

(*4): Alarm In1 (Auto tone adjustment), Alarm In 2 (Alarm Out), Alarm In 3 (AUX Out) (x1 for each) (*5): CF3V110V/120: 10BASE-T/100BASE-TX, RJ45 connector, SF3V110M/130M: 10BASE-T/100BASE-TX, M12 connector

CAMERA TYPE		FIXED DOME				
Appearance						
		NEW ONVIF WV-SBV131M (*4) HD1080P	NEW ONVIF WV-SBV111M (*4) BD720P	ONVIF WV-SW115 BD720P	ONVIF WV-SFR631L HD1080P	ONVIF WV-SFR611L BD720P
Sensor		1/3 MOS	1/3 MOS	1/3 MOS	1/3 MOS	1/3 MOS
Codec and Transmission	Video Codec	H.264 / JPEG	H.264 / JPEG	H.264 / JPEG	H.264 / JPEG	H.264 / JPEG
	H.264 multi stream	4	4	2	4	4
	JPEG multi stream	6 (Variable)	6 (Variable)	6	6 (Variable)	6 (Variable)
	Smart Coding	—	—	—	Yes	Yes
Max. Resolution	16 : 9	1920 x 1080	1280 x 720	1280 x 720	1920 x 1080	1280 x 720
	4 : 3	2048 x 1536 (*2)	1280 x 960	1280 x 960	2048 x 1536 (*1)	1280 x 960
Max. FPS @Max. Resolution	H.264	30fps (1080p)	30fps (720p)	30fps (1.3 MP)	60fps (1080p)	60fps (720p)
	JPEG	30fps (3 MP)	30fps (1.3 MP)	30fps (1.3 MP)	30fps (3 MP) (*1)	30fps (1.3 MP)
Super Dynamic / WDR / BLC		WDR	WDR	Super-D	Enhanced SD	Enhanced SD
Day/Night		Yes (Electrical)	Yes (Electrical)	Yes (Electrical)	Yes (ICR)	Yes (ICR)
ASF (Auto Back Focus) / Focus Assist		—	—	—	ABF	ABF
Min. Illumination	Color	0.1 lx @F2.2	0.04 lx @F2.2	0.8 lx @F2.2	0.04 lx @F1.3	0.01 lx @F1.3
	Color (Sens up)	0.007 lx (16x)	0.003 lx (16x)	0.05 lx (16x)	0.003 lx (16x)	0.0007 lx (16x)
	B/W	0.05 lx @F2.2	0.03 lx @F2.2	0.6 lx @F2.2	0.0 lx @F1.3(w/IR)	0.0 lx @F1.3(w/IR)
	B/W (Sens up)	0.004 lx (16x)	0.002 lx (16x)	0.04 lx (16x)	—	—
Lens		f= 1.95 mm, F2.2	f= 1.95 mm, F2.2	f= 1.95 mm, F2.2	f= 2.8 to 10 mm, F1.3 Motorized	f= 2.8 to 10 mm, F1.3 Motorized
Angular field of view	16 : 9	H: 109 deg. V: 73 deg.	H: 104 deg. V: 69 deg.	H: 104 deg. V: 69 deg.	H: 28.8 to 102.9 deg. V: 16.0 to 56.2 deg.	H: 28.4 to 94.0 deg. V: 14.7 to 51.8 deg.
	4 : 3	H: 97 deg. V: 79 deg.	H: 104 deg. V: 85 deg.	H: 104 deg. V: 85 deg.	H: 23.8 to 84.6 deg. V: 17.8 to 62.6 deg.	H: 28.4 to 94.0 deg. V: 19.8 to 69.5 deg.
Adjusting Angle	Pan	-170 to +170 deg.	-170 to +170 deg.	-30 to +30 deg.	-180 to +180 deg.	-180 to +180 deg.
	Tilt	-90 to +90 deg.	-90 to +90 deg.	-30 to +30 deg.	0 to +65 deg.	0 to +65 deg.
Optical Zoom		—	—	—	3.6x	3.6x
Digital Zoom		3x	3x	4x	4x	4x
VMD (Video Motion Detection)		Yes (4-areas)	Yes (4-areas)	Yes	Yes (4-areas)	Yes (4-areas)
i-VMD (Intelligent VMD) (w/extension software)		—	—	—	Yes (Type2)	Yes (Type2)
VIQS		Yes (8-areas)	Yes (8-areas)	Yes (1-area)	Yes (8-areas)	Yes (8-areas)
Max. Connection		14	14	14	14	14
Audio	In (Line)	Yes	Yes	—	Yes	Yes
	In (Built-in MIC)	—	—	—	—	—
	Out	Yes	Yes	—	Yes	Yes
	Codec	G.726(ADPCM)	G.726(ADPCM)	—	G.711 / G.726 / AAC	G.711 / G.726 / AAC
	Audio Detection Alarm	—	—	—	Yes	Yes
SD memory Card	Slot	Yes (SDXC)	Yes (SDXC)	Yes (SDHC)	Yes (SDXC x 2)	Yes (SDXC x 2)
	Password & Alter Detection	—	—	—	Yes (V1.52)	Yes (V1.52)
	Audio REC	—	—	—	Yes	Yes
External I/O		—	—	—	Yes (3) (*2)	Yes (3) (*2)
Monitor Out		—	—	—	Yes (mini jack)	Yes (mini jack)
Vandal Resistant		IK10	IK10	20J, IK10	20J, IK10	20J, IK10
Water and Dust Resistance		IP69K / IP66 / NEMA 4X	IP69K / IP66 / NEMA 4X	IP66 / NEMA 4X	—	—
Temperature		-49°F to +140°F	-49°F to +140°F	-22°F to +122°F	+14°F to +122°F	+14°F to +122°F
Power Source		PoE	PoE	PoE	12 V DC / PoE	12 V DC / PoE
Dehumidification device		—	—	—	—	—
Other Functions		MIL-STD-810G EN50155-T3, EN50121, EN45545, EN50498, ECE-R10	MIL-STD-810G EN50155-T3, EN50121, EN45545, EN50498, ECE-R10	EN50155, EN50121	Smart-DeF, Built-in IR LED	Smart-DeF, Built-in IR LED
Mounting Options		TBA	TBA		See pages 46, 47	See pages 46, 47

(*1): w/Super resolution (*2): Alarm In (Day/Night In), Alarm In (Alarm Out), Alarm In (AUX Out) (x1 for each) (*3): Alarm In1, Alarm In2 (Alarm Out), Alarm In3 (AUX Out) (x1 for each)

(*4): SBV131M/121M, 10BASE-T/100BASE-TX, M12 connector

Panasonic

CAMERA TYPE		FIXED DOME			
Appearance		ONVIF WV-SFR531 HD1080P	ONVIF WV-SFR311A HD720P	ONVIF WV-SFR310A HD720P	ONVIF WV-SFN631L HD1080P
Sensor		1/3 MOS	1/3 MOS	1/3 MOS	1/3 MOS
Codec and Transmission	Video Codec	H.264 / JPEG	H.264 / JPEG	H.264 / JPEG	H.264 / JPEG
	H.264 multi stream	4	4	4	4
	JPEG multi stream	6 (Variable)	6 (Variable)	6 (Variable)	6 (Variable)
	Smart Coding	Yes	Yes	Yes	Yes
Max. Resolution	16 : 9	1920 x 1080	1920 x 1080 (*1) / 1280 x 720	1920 x 1080 (*1) / 1280 x 720	1920 x 1080
	4 : 3	2048 x 1536 (*1)	1280 x 960	1280 x 960	2048 x 1536 (*2)
Max. FPS @Max. Resolution	H.264	60fps (1080p)	60fps (720p)	60fps (720p)	60fps (1080p)
	JPEG	30fps (3 MP) (*1)	30fps (1.3 MP)	30fps (1.3 MP)	30fps (3 MP) (*2)
Super Dynamic / WDR / BLC		Enhanced SD	Enhanced SD	Enhanced SD	Enhanced SD
Day/Night		Yes (ICR)	Yes (ICR)	Yes (Electrical)	Yes (ICR)
ABF (Auto Back Focus) / Focus Assist		ABF	ABF	Focus Assist	ABF
Min. Illumination	Color	0.07 lx @F1.6	0.01 lx @F1.6	0.01 lx @F1.6	0.04 lx @F1.3
	Color (Sens up)	0.005 lx (16x)	0.0007 lx (16x)	0.0007 lx (16x)	0.003 lx (16x)
	B/W	0.01 lx @F1.6	0.003 lx @F1.6	0.008 lx @F1.6	0.0 lx @F1.3 (w/IR)
	B/W (Sens up)	0.0007 lx (16x)	0.0002 lx (16x)	0.0005 lx (16x)	—
Lens		f=2.8 to 9.5 mm, F1.6	f= 2.8 to 10 mm, F1.6	f= 2.8 to 10 mm, F1.6	f= 2.8 to 10 mm, F1.3 Motorized
Angular field of view	16 : 9	H: 31 to 109 deg. V: 18 to 59 deg.	H: 28 to 99 deg. V: 16 to 54 deg.	H: 28 to 99 deg. V: 16 to 54 deg.	H: 29.3 to 104.1 deg. V: 16.2 to 56.8 deg.
	4 : 3	H: 26 to 89 deg. V: 20 to 66 deg.	H: 28 to 99 deg. V: 21 to 72 deg.	H: 28 to 99 deg. V: 21 to 72 deg.	H: 24.0 to 85.5 deg. V: 18.8 to 63.3 deg.
Adjusting Angle	Pan	+120(right) to -240(left) deg.	+128 to -248 deg.	+128 to -248 deg.	-188 to +188 deg.
	Tilt	-85 to +85 deg.	-85 to +85 deg.	-85 to +85 deg.	0 to +85 deg.
Optical Zoom		3.3x	3.6x	3.6x	3.6x
Digital Zoom		4x	4x	4x	4x
VMD (Video Motion Detection)		Yes (4-areas)	Yes (4-areas)	Yes (4-areas)	Yes (4-areas)
i-VMD (Intelligent VMD) (w/extension software)		Yes (Type2)	Yes	Yes	Yes (Type2)
VIQS		Yes (8-areas)	Yes (8-areas)	Yes (8-areas)	Yes (8-areas)
Max. Connection		14	14	14	14
Audio	In (Line)	Yes	Yes	—	Yes
	In (Built-in MIC)	—	—	—	—
	Out	Yes	Yes	—	Yes
	Codec	G.711 / G.726 / AAC	G.711 / G.726 / AAC	—	G.711 / G.726 / AAC
	Audio Detection Alarm	Yes	Yes	—	Yes
SD memory Card	Slot	Yes (SDXC)	Yes (SDXC)	Yes (SDXC)	Yes (SDXC x 2)
	Password & Alter Detection	Yes	Yes	Yes	Yes (V1.52)
	Audio REC	Yes	Yes	—	Yes
External I/O		Yes (3) (*3)	Yes (3) (*3)	Yes (3) (*4)	Yes (3) (*5)
Monitor Out		Yes (mini jack)	Yes (mini jack)	Yes (mini jack)	Yes (mini jack)
Vandal Resistant		IK08, IK10	IK08, IK10	IK08, IK10	—
Water and Dust Resistance		—	—	—	—
Temperature		+14°F to +122°F	+14°F to +122°F	+14°F to +122°F	+14°F to +122°F
Power Source		12 V DC / PoE	12 V DC / PoE	12 V DC / PoE	12 V DC / PoE
Dehumidification device		—	—	—	—
Other Functions		—	—	—	Smart-DeF, Built-in IR LED
Mounting Options		See pages 46, 47	See pages 46, 47	See pages 46, 47	See pages 46, 47

(*1): with Simple Full-HD mode (resolution name) (*2): w/Super resolution (*3): Alarm In1 (Day/Night In, Auto time adjustment), Alarm In 2 (Alarm Out), Alarm In 3 (AUX Out) (x1 for each)
(*4): Alarm In1 (Auto time adjustment), Alarm In 2 (Alarm Out), Alarm In 3 (AUX Out) (x1 for each) (*5): Alarm In1 (Day/Night In), Alarm In2 (Alarm Out), Alarm In3 (AUX Out) (x1 for each) (*6): Alarm In1, Alarm In2 (Alarm Out), Alarm In3 (AUX Out) (x1 for each)

CAMERA TYPE		FIXED DOME		
Appearance		ONVIF WV-SFN611L HD720P	ONVIF WV-SFN531 HD1080P	ONVIF WV-SFN311A HD720P
Sensor		1/3 MOS	1/3 MOS	1/3 MOS
Codec and Transmission	Video Codec	H.264 / JPEG	H.264 / JPEG	H.264 / JPEG
	H.264 multi stream	4	4	4
	JPEG multi stream	6 (Variable)	6 (Variable)	6 (Variable)
	Smart Coding	Yes	Yes	Yes
Max. Resolution	16 : 9	1280 x 720	1920 x 1080	1920 x 1080 (*1) / 1280 x 720
	4 : 3	1280 x 960	2048 x 1536 (*1)	1280 x 960
Max. FPS @Max. Resolution	H.264	60fps (720p)	60fps (1080p)	60fps (720p)
	JPEG	30fps (1.3 MP)	30fps (3 MP) (*1)	30fps (1.3 MP)
Super Dynamic / WDR / BLC		Enhanced SD	Enhanced SD	Enhanced SD
Day/Night		Yes (ICR)	Yes (ICR)	Yes (ICR)
ABF (Auto Back Focus) / Focus Assist		ABF	ABF	ABF
Min. Illumination	Color	0.01 lx @F1.3	0.07 lx @F1.6	0.01 lx @F1.6
	Color (Sens up)	0.0007 lx (16x)	0.005 lx (16x)	0.0007 lx (16x)
	B/W	0.0 lx @F1.3 (w/IR)	0.01 lx @F1.6	0.003 lx @F1.6
	B/W (Sens up)	—	0.0007 lx (16x)	0.0002 lx (16x)
Lens		f= 2.8 to 10 mm, F1.3 Motorized	f=2.8 to 9.5 mm, F1.6	f= 2.8 to 10 mm, F1.6
Angular field of view	16 : 9	H: 26.6 to 95.1 deg. V: 14.9 to 52.3 deg.	H: 32 to 110 deg. V: 18 to 60 deg.	H: 28 to 100 deg. V: 16 to 54 deg.
	4 : 3	H: 26.7 to 95.1 deg. V: 20.0 to 70.2 deg.	H: 27 to 93 deg. V: 20 to 66 deg.	H: 28 to 100 deg. V: 21 to 73 deg.
Adjusting Angle	Pan	-180 to +180 deg.	-120(right) to -240(left) deg.	+120 to -240 deg.
	Tilt	0 to +85 deg.	-85 to +85 deg.	-85 to +85 deg.
Optical Zoom		3.6x	3.3x	3.6x
Digital Zoom		4x	4x	4x
VMD (Video Motion Detection)		Yes (4-areas)	Yes (4-areas)	Yes (4-areas)
i-VMD (Intelligent VMD) (w/extension software)		Yes (Type2)	Yes (Type2)	Yes
VIQS		Yes (8-areas)	Yes (8-areas)	Yes (8-areas)
Max. Connection		14	14	14
Audio	In (Line)	Yes	Yes	Yes
	In (Built-in MIC)	—	—	—
	Out	Yes	Yes	Yes
	Codec	G.711 / G.726 / AAC	G.711 / G.726 / AAC	G.711 / G.726 / AAC
	Audio Detection Alarm	Yes	Yes	Yes
SD memory Card	Slot	Yes (SDXC x 2)	Yes (SDXC)	Yes (SDXC)
	Password & Alter Detection	Yes (V1.52)	Yes	Yes
	Audio REC	Yes	Yes	Yes
External I/O		Yes (3) (*6)	Yes (3) (*2)	Yes (3) (*2)
Monitor Out		Yes (mini jack)	Yes (mini jack)	Yes (mini jack)
Vandal Resistant		—	—	—
Water and Dust Resistance		—	—	—
Temperature		+14°F to +122°F	+14°F to +122°F	+14°F to +122°F
Power Source		12 V DC / PoE	12 V DC / PoE	12 V DC / PoE
Dehumidification device		—	—	—
Other Functions		Smart-DeF, Built-in IR LED	—	—
Mounting Options		See pages 46, 47	See pages 46, 47	See pages 46, 47

(*1): with Simple Full-HD mode (resolution name) (*2): Alarm In1 (Day/Night In, Auto time adjustment), Alarm In 2 (Alarm Out), Alarm In 3 (AUX Out) (x1 for each)
(*6): Alarm In1 (Auto time adjustment), Alarm In 2 (Alarm Out), Alarm In 3 (AUX Out) (x1 for each)

Panasonic

CAMERA TYPE		FIXED DOME		
Appearance			NEW	NEW
		ONVIF S WV-SFN310A HD720P	ONVIF S G WV-SFN130 HD1080P	ONVIF S WV-SFN110 HD720P
Sensor		1/3 MOS	1/3 MOS	1/3 MOS
Codec and Transmission	Video Codec	H.264 / JPEG	H.264 / JPEG	H.264 / JPEG
	H.264 multi stream	4	4	4
	JPEG multi stream	6 (Variable)	6 (Variable)	6 (Variable)
	Smart Coding	Yes	Yes	Yes
Max. Resolution	16 : 9	1920 x 1080(*1) / 1280 x 720	1920 x 1080	1280 x 720
	4 : 3	1280 x 960	2048 x 1536	1280 x 960
Max. FPS @Max. Resolution	H.264	60fps (720p)	30fps (3MP)	30fps (1.3MP)
	JPEG	30fps (1.3 MP)	30fps (3MP)	30fps (1.3MP)
Super Dynamic / WDR / BLC		Enhanced SD	Super Dynamic	Super Dynamic
Day/Night		Yes (Electrical)	Yes (Electrical)	Yes (Electrical)
ABF (Auto Back Focus) / Focus Assist		Focus Assist	—	—
Min. Illumination	Color	0.01 lx @F1.6	0.1 lx @F2.3	0.04 lx @F2.3
	Color (Sens up)	0.0007 lx (16x)	0.007 lx (16x)	0.003 lx (16x)
	B/W	0.008 lx @F1.6	0.08 lx @F2.3	0.03 lx @F2.3
	B/W (Sens up)	0.0005 lx (16x)	0.005 lx (16x)	0.002 lx (16x)
Lens		f= 2.8 to 10 mm, F1.6	f= 2.8mm, F2.3	f= 2.8mm, F2.3
Angular field of view	16 : 9	H: 28 to 100 deg. V: 16 to 54 deg.	H: 100 deg. V: 60 deg.	H: 100 deg. V: 55 deg.
	4 : 3	H: 28 to 108 deg. V: 21 to 73 deg.	H: 99 deg. V: 66 deg.	H: 100 deg. V: 73 deg.
Adjusting Angle	Pan	+120 to -240 deg.	-20 to +20 deg.	-20 to +20 deg.
	Tilt	-85 to +85 deg.	-20 to +90 deg.	-20 to +90 deg.
Optical Zoom		3.6x	—	—
Digital Zoom		4x	4x	4x
VMD (Video Motion Detection)		Yes (4-area)	Yes (4-areas)	Yes (4-areas)
i-VMD (Intelligent VMD) (w/extension software)		Yes	Yes (Type2)	Yes (Type2)
VIDS		Yes (8-areas)	Yes (8-areas)	Yes (8-areas)
Max. Connection		14	14	14
Audio	In (Line)	—	—	—
	In (Built-in MIC)	Yes	Yes	Yes
	Out	—	—	—
	Codec	G.711 / G.726 / AAC	G.711 / G.726 / AAC	G.711 / G.726 / AAC
	Audio Detection Alarm	Yes	Yes	Yes
SD memory Card	Slot	Yes (SDXC)	Yes (SDXC)	Yes (SDXC)
	Password & Alter Detection	Yes	Yes	Yes
	Audio REC	Yes	Yes	Yes
External I/O		Yes (3) (*3)	—	—
Monitor Out		Yes (mini jack)	—	—
Vandal Resistant		—	—	—
Water and Dust Resistance		—	—	—
Temperature		+14°F to +122°F	+32°F to +104°F	+32°F to +104°F
Power Source		12 V DC / PoE	PoE	PoE
Dehumidification device		—	—	—
Other Functions		—	—	—
Mounting Options		See pages 46, 47	TBA	TBA

(*1). with Simple Full-HD mode (Iteration zoom) (*2): Alarm In1 (Day/Night In, Auto time adjustment), Alarm In 2 (Alarm Out), Alarm In 3 (MOV Out)(1 for each)
(*3): Alarm In1 (Auto time adjustment), Alarm In 2 (Alarm Out), Alarm In 3 (APF Out)(1 for each)

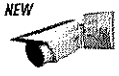
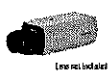
CAMERA TYPE		360° DEWE DOME				
Appearance						
		ONVIF S G WV-SFV481 4K Engine	ONVIF S WV-SW458/SW458MA(*1) HD1080P	ONVIF S G WV-SFN480 4K Engine	ONVIF S WV-SF448 HD1080P	ONVIF S WV-SF438 HD1080P
Sensor		1/2 MOS	1/3 MOS	1/2 MOS	1/3 MOS	1/3 MOS
Codec and Transmission	Video Codec	H.264 / JPEG	H.264 / JPEG	H.264 / JPEG	H.264 / JPEG	H.264 / JPEG
	H.264 multi stream	2	2	2	2	2
	JPEG multi stream	2	6	2	6	6
	Smart Coding	Yes (GOP Only)	—	Yes (GOP Only)	—	—
Max. Resolution	16 : 9	2560 x 1440	1920 x 1080	2560 x 1440	1920 x 1080	1920 x 1080
	4 : 3	2560 x 1920 2992 x 2992 (1:1)	H.264: 1280 x 960 JPEG : 2048 x 1536	2560 x 1920 2992 x 2992 (1:1)	H.264: 1280 x 960 JPEG : 2048 x 1536	H.264: 1280 x 960 JPEG : 2048 x 1536
Max. FPS @Max. Resolution	H.264	30fps (4 M)	30fps (1080p)	30fps (4 M)	30fps (1080p)	30fps (1080p)
	JPEG	30fps (4 M)	15fps (3 MP) / 30fps (1080p)	30fps (4 M)	15fps (3 MP) / 30fps (1080p)	15fps (3 MP) / 30fps (1080p)
Super Dynamic / WDR / BLC		WDR	Super-D	WDR	Super-D	Super-D
Day/Night		Yes (ICR)	Yes (Electrical)	Yes (Electrical)	Yes (Electrical)	Yes (Electrical)
ABF (Auto Back Focus) / Focus Assist		ABF	—	ABF	—	—
Min. Illumination	Color	0.3 lx @F1.9	1.5 lx @F2.4	0.3 lx @F1.9	1.5 lx @F2.4	1.5 lx @F2.4
	Color (Sens up)	0.02 lx (16x)	0.1 lx (16x)	0.02 lx (16x)	0.1 lx (16x)	0.1 lx (16x)
	B/W	0.04 lx @F1.9	1.2 lx @F2.4	0.2 lx @F1.9	1.2 lx @F2.4	1.2 lx @F2.4
	B/W (Sens up)	0.003 lx (16x)	0.08 lx (16x)	0.01 lx (16x)	0.08 lx (16x)	0.08 lx (16x)
Lens		f= 1.38 mm, F1.9	f= 0.837 mm, F2.4	f= 1.38 mm, F1.9	f= 0.837 mm, F2.4	f= 0.837 mm, F2.4
Angular field of view	1 : 1	H: 180 deg. V: 180 deg.	H: 182 deg. V: 176 deg.	H: 180 deg. V: 180 deg.	H: 182 deg. V: 176 deg.	H: 180 deg. V: 181 deg.
Adjusting Angle	Pan	±45 deg.	—	±45 deg.	—	—
	Tilt	±45 deg.	—	±45 deg.	—	—
Optical Zoom		—	—	—	—	—
Digital Zoom		4x	4x	4x	4x	4x
VMD (Video Motion Detection)		Yes (4-areas)	Yes (4-areas)	Yes (4-areas)	Yes (4-areas)	Yes (4-areas)
i-VMD (Intelligent VMD) (w/extension software)		Yes (Type3)	—	Yes (Type3)	—	—
VIDS		Yes (8-areas)	Yes (2-areas)	Yes (8-areas)	Yes (2-areas)	Yes (2-areas)
Max. Connection		14	14	14	14	14
Audio	In (Line)	Yes	Yes	Yes	Yes	Yes
	In (Built-in MIC)	—	—	Yes	Yes	Yes
	Out	Yes	Yes	Yes	Yes	Yes
	Codec	G.711 / G.726 / AAC	G.711 / G.726	G.711 / G.726 / AAC	G.711 / G.726	G.711 / G.726
	Audio Detection Alarm	—	—	—	—	—
SD memory Card	Slot	Yes (SDXC)	Yes (SDXC)	Yes (SDXC)	Yes (SDXC)	Yes (SDXC)
	Password & Alter Detection	—	—	—	—	—
	Audio REC	Yes (ACC)	—	Yes (ACC)	—	—
External I/O		Yes (3) (*2)	Yes (3) (*3)	Yes (3) (*3)	Yes (3) (*4)	Yes (3) (*3)
Monitor Out		Yes (BNC)	—	Yes(BNC)	—	—
Vandal Resistant		50J, IK10	50J, IK10	—	20J, IK10	—
Water and Dust Resistance		IP66 / NEMA 4X	IP66 / NEMA 4X	—	—	—
Temperature		-40°F to +122°F	-40°F to +122°F	Ceiling / Wall / Mount bracket: +14°F to +122°F Desktop / Tripod: +14°F to +104°F	+14°F to +122°F	+14°F to +122°F
Power Source		12 V DC / PoE	12 V DC / PoE	12 V DC / PoE	12 V DC / PoE	12 V DC / PoE
Dehumidification device		Yes	Yes	—	—	—
Other Functions		360° monitoring, EN50155-T3, EN50121, DIN5510, ECE-R10	360° monitoring, EN50155-T3, EN50121, DIN5510, ECE-R10(WV-SW458MA)	360° monitoring	360° monitoring, Mechanical shutter	360° monitoring
Mounting Options		See pages 46, 47	See pages 46, 47			

(*1). SW458: 10BASE-T/100BASE-TX, RJ45 connector, SW458MA: 10BASE-T/100BASE-TX, M12 connector (*2): Alarm In1(Day/Night In), Alarm In2(Alarm Out), Alarm In3(AUX Out) (3 for each)
(*3): Alarm In1, Alarm In2(Alarm Out), Alarm In3(AUX Out)(1 for each) (*4): Alarm In1(Privacy setting In), Alarm In2(Alarm Out), Alarm In3(AUX Out)(1 for each)

Panasonic

CAMERA TYPE		BOX			
Appearance					
		ONVIF WV-SPV781L 4K Engine	ONVIF WV-SPW631LT HD1080P	ONVIF WV-SPW631L HD1080P	ONVIF WV-SPW611L HD720P
Sensor		1/1.7 MOS	1/3 MOS	1/3 MOS	1/3 MOS
Codec and Transmission	Video Codec	H.264 / JPEG	H.264 / JPEG	H.264 / JPEG	H.264 / JPEG
	H.264 multi stream	4	4	4	4
	JPEG multi stream	2	6 (Variable)	6 (Variable)	6 (Variable)
	Smart Coding	Yes (GOP Only)	Yes	Yes	Yes
Max. Resolution	16 : 9	3840 x 2160	1920 x 1080	1920 x 1080	1280 x 720
	4 : 3	4000 x 3000	2048 x 1536 (*1)	2048 x 1536 (*1)	1280 x 960
Max. FPS @Max. Resolution	H.264	30fps (4K)	60fps (1080p)	60fps (1080p)	60fps (720p)
	JPEG	15fps (12 MP)	30fps (3 MP)	30fps (3 MP)	30fps (1.3 MP)
Super Dynamic / WDR / BLC		WDR	Enhanced SD	Enhanced SD	Enhanced SD
Day/Night		Yes (ICR)	Yes (ICR)	Yes (ICR)	Yes (ICR)
ABF (Auto Back Focus) / Focus Assist		ABF	ABF	ABF	ABF
Min. Illumination	Color	0.3 lx @F1.4	0.06 lx @F1.6	0.04 lx @F1.3	0.01 lx @F1.3
	Color (Sens up)	0.02 lx (16x)	0.004 lx (16x)	0.003 lx (16x)	0.0007 lx (16x)
	B/W	0.0 lx @F1.4 (w/IR)	0.0 lx @F1.6(w/IR)	0.0 lx @F1.3(w/IR)	0.0 lx @F1.3(w/IR)
	B/W (Sens up)	—	—	—	—
Lens		f=4.2 to 25.2 mm, F1.6 Motorized	f= 9 to 22 mm, F1.6 Motorized	f= 2.8 to 10 mm, F1.3 Motorized	f= 2.8 to 10 mm, F1.3 Motorized
Angular field of view	16 : 9	H: 17 to 97 deg. V: 9.4 to 55 deg.	H: 13.8 to 33.5 deg. V: 7.7 to 18.1 deg.	H: 30.9 to 105.4 deg. V: 17.4 to 57.3 deg.	H: 28.4 to 96.2 deg. V: 16.1 to 52.8 deg.
	4 : 3	H: 18 to 101 deg. V: 13 to 76 deg.	H: 11.5 to 27.4 deg. V: 8.6 to 20.1 deg.	H: 25.8 to 86.4 deg. V: 19.3 to 63.9 deg.	H: 28.4 to 96.2 deg. V: 21.4 to 71.0 deg.
Adjusting Angle	Pan	—	—	—	—
	Tilt	—	—	—	—
Optical Zoom		4x	2.4x	3.6x	3.6x
Digital Zoom		4x	4x	4x	4x
VMD (Video Motion Detection)		Yes (4-areas)	Yes (4-areas)	Yes (4-areas)	Yes (4-areas)
i-VMD (Intelligent VMD) (w/extension software)		—	Yes (Type2)	Yes (Type2)	Yes (Type2)
VIDS		Yes (8-areas)	Yes (8-areas)	Yes (8-areas)	Yes (8-areas)
Max. Connection		14	14	14	14
Audio	In (Line)	Yes	Yes	Yes	Yes
	In (Built-in MIC)	—	—	—	—
	Out	Yes	Yes	Yes	Yes
	Codec	G.711 / G.726 / AAC (*2)	G.711 / G.726 / AAC	G.711 / G.726 / AAC	G.711 / G.726 / AAC
	Audio Detection Alarm	—	Yes	Yes	Yes
SD memory Card	Slot	Yes (SDXC)	Yes (SDXC x 2)	Yes (SDXC x 2)	Yes (SDXC x 2)
	Password & Alter Detection	—	Yes	Yes	Yes
	Audio REC	Yes	Yes (AAC)	Yes (AAC)	Yes (AAC)
External I/O		Yes (3) (*3)	Yes (3) (*4)	Yes (3) (*4)	Yes (3) (*4)
Monitor Out		Yes (RCA)	Yes (RCA)	Yes (RCA)	Yes (RCA)
Vandal Resistant		IK10	—	—	—
Water and Dust Resistance		IP66 / NEMA 4X	IP66 / NEMA 4X	IP66 / NEMA 4X	IP66 / NEMA 4X
Temperature		-67°F to +122°F	-40°F to +122°F	-40°F to +122°F	-40°F to +122°F
Power Source		12 V DC / PoE	12 V DC / PoE	12 V DC / PoE	12 V DC / PoE
Dehumidification device		Yes	Yes	Yes	Yes
Other Functions		Built-in heater, Rain wash coating, Built-in IR LED	Built-in heater, Built-in IR LED	Built-in heater, Built-in IR LED	Built-in heater, Built-in IR LED
Mounting Options		See page 51	See page 51	See page 51	See page 51

(*1): w/Super resolution (*2): Only for SD REC (*3): Alarm In1(Day/Night In), Alarm In2(Alarm Out), Alarm In3(AUX Out, Day/Night Out) 1ch for each (*4): Alarm In1(Day/Night In), Alarm In2(Alarm Out), Alarm In3(AUX Out) 1ch for each

CAMERA TYPE		BOX				
Appearance			NEW 	NEW	Lens not included 	Lens not included
		ONVIF WV-SPW611 HD720P	ONVIF WV-SPW531AL HD1080P	ONVIF WV-SPW311AL HD720P	ONVIF WV-SPN631 HD1080P	ONVIF WV-SPN611 HD720P
Sensor		1/3 MOS	1/3 MOS	1/3 MOS	1/3 MOS	1/3 MOS
Codec and Transmission	Video Codec	H.264 / JPEG	H.264 / JPEG	H.264 / JPEG	H.264 / JPEG	H.264 / JPEG
	H.264 multi stream	4	4	4	4	4
	JPEG multi stream	6 (Variable)	6 (Variable)	6 (Variable)	6 (Variable)	6 (Variable)
	Smart Coding	Yes	Yes	Yes	Yes	Yes
Max. Resolution	16 : 9	1280 x 720	1920 x 1080	1920 x 1080 (*1) / 1280 x 720	1920 x 1080	1280 x 720
	4 : 3	1280 x 960	2048 x 1536	1920 x 1080 (*1)	2048 x 1536 (*1)	1280 x 960
Max. FPS @Max. Resolution	H.264	60fps (720p)	60fps (1080p)	60fps (720p)	60fps (1080p)	60fps (720p)
	JPEG	30fps (1.3 MP)	30fps (3 MP)	30fps (1.3 MP)	30fps (3 MP) (*1)	30fps (1.3 MP)
Super Dynamic / WDR / BLC		Enhanced SD	Enhanced SD	Enhanced SD	Enhanced SD	Enhanced SD
Day/Night		Yes (ICR)	Yes (ICR)	Yes (ICR)	Yes (ICR)	Yes (ICR)
ABF (Auto Back Focus) / Focus Assist		ABF	ABF	ABF	ABF	ABF
Min. Illumination	Color	0.01 lx @F1.3	0.07 lx @F1.6	0.02 lx @F1.6	0.04 lx @F1.4	0.01 lx @F1.4
	Color (Sens up)	0.0007 lx (16x)	0.005 lx (16x)	0.005 lx (16x)	0.003 lx (16x)	0.0007 lx (16x)
	B/W	0.003 lx @F1.3	0.0 lx @F1.6(w/IR)	0.0 lx @F1.6(w/IR)	0.01 lx @F1.4	0.003 lx @F1.4
	B/W (Sens up)	0.0002 lx (16x)	—	—	0.0007 lx (16x)	0.0002 lx (16x)
Lens		f= 2.8 to 10 mm, F1.3 Motorized	f= 2.8 to 10 mm, F1.6	f= 2.8 to 10 mm, F1.6	CS Mount	CS Mount
Angular field of view	16 : 9	H: 28.4 to 96.2 deg. V: 16.1 to 52.8 deg.	H: 31 to 112 deg. V: 17 to 60 deg.	H: 28 to 102 deg. V: 16 to 55 deg.	—	—
	4 : 3	H: 28.4 to 96.2 deg. V: 21.4 to 71.0 deg.	H: 26 to 91 deg. V: 19 to 67 deg.	H: 28 to 102 deg. V: 21 to 74 deg.	—	—
Adjusting Angle	Pan	—	-180 to +180 deg.	-180 to +180 deg.	—	—
	Tilt	—	0 to +90 deg.	0 to +90 deg.	—	—
Optical Zoom		3.6x	3.6x	3.6x	—	—
Digital Zoom		4x	4x	4x	4x	4x
VMD (Video Motion Detection)		Yes (4-areas)	Yes (4-areas)	Yes (4-areas)	Yes (4-areas)	Yes (4-areas)
i-VMD (Intelligent VMD) (w/extension software)		Yes (Type2)	Yes (Type2)	Yes (Type2)	Yes (Type2)	Yes (Type2)
VIDS		Yes (8-areas)	Yes (8-areas)	Yes (8-areas)	Yes (8-areas)	Yes (8-areas)
Max. Connection		14	14	14	14	14
Audio	In (Line)	Yes	Yes	Yes	Yes	Yes
	In (Built-in MIC)	—	—	—	—	—
	Out	Yes	Yes	Yes	Yes	Yes
	Codec	G.711 / G.726 / AAC	G.711 / G.726 / AAC	G.711 / G.726 / AAC	G.711 / G.726 / AAC	G.711 / G.726 / AAC
	Audio Detection Alarm	Yes	Yes	Yes	Yes	Yes
SD memory Card	Slot	Yes (SDXC x 2)	Yes (SDXC)	Yes (SDXC)	Yes (SDXC x 2)	Yes (SDXC x 2)
	Password & Alter Detection	Yes	Yes	Yes	Yes	Yes
	Audio REC	Yes (AAC)	Yes (AAC)	Yes (AAC)	Yes (AAC)	Yes (AAC)
External I/O		Yes (3) (*4)	Yes (3) (*2)	Yes (3) (*2)	Yes (3) (*2)	Yes (3) (*2)
Monitor Out		Yes (RCA)	Yes (RCA)	Yes (RCA)	Yes (RCA)	Yes (RCA)
Vandal Resistant		—	—	—	—	—
Water and Dust Resistance		IP66 / NEMA 4X	IP66 / NEMA 4X	IP66 / NEMA 4X	—	—
Temperature		-40°F to +122°F	-40°F to +122°F	-40°F to +122°F	+14°F to +122°F	+14°F to +122°F
Power Source		12 V DC / PoE	12 V DC / PoE	12 V DC / PoE	12 V DC / PoE	12 V DC / PoE
Dehumidification device		Yes	Yes	Yes	—	—
Other Functions		Built-in heater	Built-in IR LED	Built-in IR LED	Optional Extension Unit	Optional Extension Unit
Mounting Options		See page 51	See page 51	See page 51	See page 51	See page 51

(*1): w/o Simple Full-HD mode (resolution name) (*2): Alarm In1 (Day/Night In, Auto Iris adjustment), Alarm In 2 (Alarm Out), Alarm In 3 (AUX Out) 1ch for each

Panasonic

CAMERA TYPE		BOX CAMERA			
Appearance		Lens not included ONVIF WV-SPN531A FD1080P	Lens not included ONVIF WV-SPN311A HD720P	Lens not included ONVIF WV-SPN310A HD720P	ONVIF WV-SP105 HD720P
Sensor		1/3 MOS	1/3 MOS	1/3 MOS	1/3 MOS
Codec and Transmission	Video Codec	H.264 / JPEG	H.264 / JPEG	H.264 / JPEG	H.264 / JPEG
	H.264 multi stream	4	4	4	2
	JPEG multi stream	6 (Variable)	6 (Variable)	6 (Variable)	6
	Smart Coding	Yes	Yes	Yes	—
Max. Resolution	16 : 9	1920 x 1080	1920 x 1080 [*1] / 1280 x 720	1920 x 1080 [*1] / 1280 x 720	1280 x 720
	4 : 3	2048 x 1536	1280 x 960	1280 x 960	1280 x 960
Max. FPS @Max. Resolution	H.264	60fps (1080p)	60fps (720p)	60fps (720p)	30fps (1.3 MP)
	JPEG	30fps (3 MP)	30fps (1.3 MP)	30fps (1.3 MP)	30fps (1.3 MP)
Super Dynamic / WDR / BLC		Enhanced SD	Enhanced SD	Enhanced SD	BLC
Day/Night		Yes (ICR)	Yes (ICR)	Yes (Electrical)	Yes (Electrical)
ABF (Auto Back Focus) / Focus Assist		ABF	ABF	Focus Assist	—
Min. Illumination	Color	0.84 lx @F1.4	0.01 lx @F1.4	0.01 lx @F1.4	0.8 lx @F2.2
	Color (Sens up)	0.083 lx (16x)	0.0007 lx (16x)	0.0007 lx (16x)	0.05 lx (16x)
	B/W	0.01 lx @F1.4	0.003 lx @F1.4	0.008 lx @F1.4	0.4 lx @F2.2
	B/W (Sens up)	0.0687 lx (16x)	0.0002 lx (16x)	0.0005 lx (16x)	0.03 lx (16x)
Lens		CS Mount	CS Mount	CS Mount	f= 3.54 mm, F2.2
Angular field of view	16 : 9	—	—	—	H: 70.3 deg. V: 42.6 deg.
	4 : 3	—	—	—	H: 70.3 deg. V: 55.4 deg.
Adjusting Angle	Pan	—	—	—	—
	Tilt	—	—	—	—
Optical Zoom		—	—	—	—
Digital Zoom		4x	4x	4x	4x
VMD (Video Motion Detection)		Yes (4-areas)	Yes (4-areas)	Yes (4-areas)	Yes (4-areas)
i-VMD (Intelligent VMD) (w/extension software)		Yes (Type2)	Yes (Type2)	Yes (Type2)	—
VIQS		Yes (8-areas)	Yes (8-areas)	Yes (8-areas)	Yes (1-area)
Max. Connection		14	14	14	14
Audio	In (Line)	Yes	Yes	—	—
	In (Built-in MIC)	—	—	Yes	—
	Out	Yes	Yes	—	—
	Codec	G.711 / G.726 / AAC	G.711 / G.726 / AAC	G.711 / G.726 / AAC	—
	Audio Detection Alarm	Yes	Yes	Yes	—
SD memory Card	Slot	Yes (SDXC)	Yes (SDXC)	Yes (SDXC)	—
	Password & After Detection	Yes	Yes	Yes	—
	Audio REC	Yes (AAC)	Yes (AAC)	Yes (AAC)	—
External I/O		Yes (3) [*3]	Yes (3) [*2]	Yes (3) [*3]	—
Monitor Out		Yes (RCA)	Yes (RCA)	Yes (RCA)	—
Vandal Resistant		—	—	—	—
Water and Dust Resistance		—	—	—	—
Temperature		+14°F to +122°F	+14°F to +122°F	+14°F to +122°F	-32°F to +104°F
Power Source		12 V DC / PoE	12 V DC / PoE	12 V DC / PoE	12 V DC / PoE
Dehumidification device		—	—	—	—
Other Functions		—	—	—	—
Mounting Options		See page 51	See page 51	See page 51	See page 51

[*1]: With Simple Full-HD mode (Real-time quality control) [*2]: Alarm In1 (Day/Night in, Auto tone adjustment), Alarm In 2 (Alarm Out), Alarm In 3 (AUX Out) (1ch for each)
[*3]: Alarm In1 (Auto tone adjustment), Alarm In 2 (Alarm Out), Alarm In 3 (AUX Out) (1ch for each)

CAMERA TYPE		PAN / TILT				
Appearance		ONVIF WV-SW175 HD720P	ONVIF WV-SW174W HD720P	ONVIF WV-SW172 VGA	ONVIF WV-ST165 HD720P	ONVIF WV-ST162 VGA
Sensor		1/4 MOS	1/4 MOS	1/4 MOS	1/4 MOS	1/4 MOS
Codec and Transmission	Video Codec	H.264 / JPEG	H.264 / JPEG	H.264 / JPEG	H.264 / JPEG	H.264 / JPEG
	H.264 multi stream	2	2	2	2	2
	JPEG multi stream	6	6	6	6	6
	Smart Coding	—	—	—	—	—
Max. Resolution	16 : 9	1280 x 720	1280 x 720	640 x 360	1280 x 720	640 x 360
	4 : 3	1280 x 960	1280 x 960	896 x 600	1280 x 960	896 x 600
Max. FPS @Max. Resolution	H.264	30fps (1.3 MP)	30fps (1.3 MP)	30fps (SVGA)	30fps (1.3 MP)	30fps (SVGA)
	JPEG	30fps (1.3 MP)	30fps (1.3 MP)	30fps (SVGA)	30fps (1.3 MP)	30fps (SVGA)
Super Dynamic / WDR / BLC		BLC	BLC	BLC	BLC	BLC
Day/Night		Yes (Electrical)	Yes (Electrical)	Yes (Electrical)	Yes (Electrical)	Yes (Electrical)
ABF (Auto Back Focus) / Focus Assist		—	—	—	—	—
Min. Illumination	Color	0.6 lx @F2.2	0.6 lx @F2.2	0.6 lx @F2.2	0.6 lx @F2.2	0.6 lx @F2.2
	Color (Sens up)	0.038 lx (16x)	0.038 lx (16x)	0.038 lx (16x)	0.038 lx (16x)	0.038 lx (16x)
	B/W	0.5 lx @F2.2	0.5 lx @F2.2	0.5 lx @F2.2	0.5 lx @F2.2	0.5 lx @F2.2
	B/W (Sens up)	0.03 lx (16x)	0.03 lx (16x)	0.03 lx (16x)	0.03 lx (16x)	0.03 lx (16x)
Lens		f= 1.95 mm, F2.2	f= 1.95 mm, F2.2	f= 1.95 mm, F2.2	f= 1.95 mm, F2.2	f= 1.95 mm, F2.2
Angular field of view	16 : 9	H: 85 deg. V: 53 deg.	H: 85 deg. V: 53 deg.	H: 85 deg. V: 53 deg.	H: 85 deg. V: 53 deg.	H: 85 deg. V: 53 deg.
	4 : 3	H: 85 deg. V: 68 deg.	H: 85 deg. V: 68 deg.	H: 85 deg. V: 68 deg.	H: 85 deg. V: 68 deg.	H: 85 deg. V: 68 deg.
Pan	Range	-47.5 to +47.5 deg.	-47.5 to +47.5 deg.	-47.5 to +47.5 deg.	-47.5 to +47.5 deg.	-47.5 to +47.5 deg.
	Speed	90 deg/sec	90 deg/sec	90 deg/sec	90 deg/sec	90 deg/sec
Tilt	Range	-45 to +10 deg.	-45 to +10 deg.	-45 to +10 deg.	-45 to +10 deg.	-45 to +10 deg.
	Speed	90 deg/sec	90 deg/sec	90 deg/sec	90 deg/sec	90 deg/sec
360 Pan-Flip		—	—	—	—	—
Number of Preset Positions		64	64	64	64	64
Patrol		—	—	—	—	—
Auto Tracking		—	—	—	—	—
Optical Zoom		—	—	—	—	—
Digital Zoom		16x	16x	16x	16x	16x
VMD (Video Motion Detection)		Yes	Yes	Yes	Yes	Yes
i-VMD (Intelligent VMD) (w/extension software)		—	—	—	—	—
VIQS		—	—	—	—	—
Max. Connection		14	14	14	14	14
Audio	In (Line)	Yes	Yes	Yes	Yes	Yes
	In (Built-in MIC)	Yes	Yes	Yes	Yes	Yes
	Out	Yes	Yes	Yes	Yes	Yes
	Codec	G.711 / G.726	G.711 / G.726	G.711 / G.726	G.711 / G.726	G.711 / G.726
	Audio Detection Alarm	—	—	—	—	—
SD memory Card	Slot	Yes	—	Yes	Yes	Yes
	Password & After Detection	—	—	—	—	—
	Audio REC	—	—	—	—	—
External I/O		Yes (3) [*1]	Yes (3) [*1]	Yes (3) [*1]	Yes (3) [*1]	Yes (3) [*1]
Monitor Out		Yes	Yes	Yes	Yes	Yes
Vandal Resistant		—	—	—	—	—
Water and Dust Resistance		IP55	IP55	IP55	—	—
Temperature		-4°F to +122°F	-4°F to +122°F	-4°F to +122°F	+32°F to +104°F	+32°F to +104°F
Power Source		12 V DC / PoE	12 V DC	12 V DC / PoE	12 V DC / PoE	12 V DC / PoE
Dehumidification device		—	—	—	—	—
Other Functions		—	Wireless (11 a/b/g)	—	—	—
Mounting Options						

[*1]: Alarm In1, Alarm In2(Alarm Out), Alarm In3(AUX Out) (1ch for each)

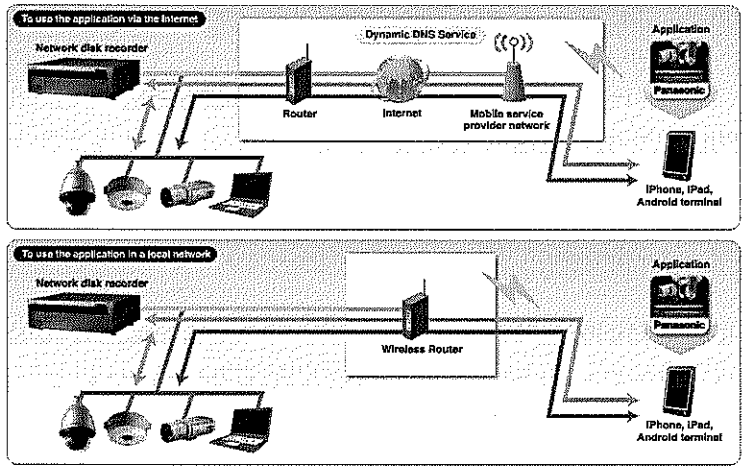
Panasonic Security Viewer App VERSION 2.1

Panasonic Security Viewer is an application that can view the images from i-PRO SmartHD Series Network Cameras and Network Disk Recorders (WJ-NV200/WJ-NV300/WJ-ND400/WJ-HD716/WJ-HD616).

By connecting a terminal to a 3G/4G or wireless LAN (Wi-Fi), it is possible to view live images from cameras and recorded images stored on recorders.

Preface

To use the Panasonic Security Viewer via the Internet, it is recommended to register in the Dynamic DNS (DDNS) service.

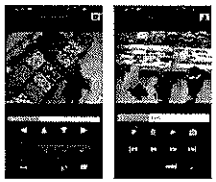


A PC is required to register a Dynamic DNS Service and configure the settings of the router.

- Download the Panasonic Security Viewer application on the Google Play™ store, Apple App Store.

Direct Camera connection • Live monitoring ⟷ Via recorder • Live monitoring • Playback

Features of the application



Network disk recorder

- Live image: Live images from the network cameras connected to the recorder
- Playing back recorded images: To play back the images stored on the recorder
  * Re-encoding playback images for smartphones or tablet PC screen size/ frame rate
- Time and date search: To search the images to play back based on the time and date

Network camera

- Network camera control*
  (Resolution switchover, focus, panning/tilting, zoom, preset position switchover)
  * Depends on the network camera functions.

Android™

Outline of the application

Application name	Panasonic Security Viewer version 2.1
OS	Android™ OS 4.0 is recommended.
How to get the application	Download from the Google Play™ store.
Date to start the service	End of June
Operation check terminals	Panasonic Toughpad FZ-A1, JT-B1, Galaxy S2, Galaxy S3, Galaxy S4

- Download the application from here.

Android™ http://security.panasonic.com/pas/security/psv/android/index.html

iPhone®/iPad®

Outline of the application

Application name	Panasonic Security Viewer version 2.1
OS	iOS 5.1 or later
How to get the application	Download from the App Store.
Date to start the service	End of June
Operation check terminals	iPhone4s, iPhone5, iPhone5S, iPad2, iPod touch (5th)

- Download the application from here.

iPhone®/iPad® http://security.panasonic.com/pas/security/psv/ios/index.html

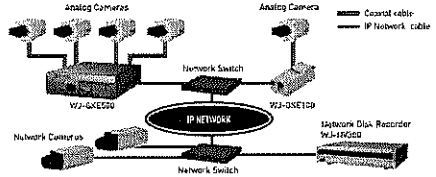
Easily migrate to an advanced IP system while still using the existing assets of your analog system

Effective utilization of analog cameras

ENCODER

- Analog cameras can be connected to the IP network simply by connecting them to the encoder.
- A maximum of four analog cameras can be connected to the WV-GXE500, and one analog camera can be connected to the WV-GXE100.
- Video captured by analog cameras can be saved to a recorder installed on the IP network in the same way as network cameras.

Basic System Connection Example



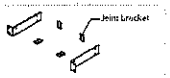
4 CH H.264 Video Encoder

WJ-GXE500

(12 V DC or PoE)

Optional Accessory

EIA 48.26 cm (19 inch) Rack Mount Bracket
WV-Q204/2S
(For mounting three WJ-GXE500)

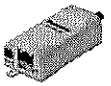


1 CH H.264 Video Encoder

WJ-GXE100

(12 V DC or PoE)

ONVIF

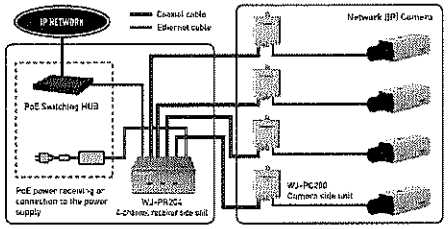


Effective utilization of cabling

COAXIAL LAN CONVERTER

- The coaxial cables of existing analog cameras can be used for expanding the reach of the IP network.

Basic System Connection Example



*With PoE function: 500 m (1,640 feet 5 inches)/Without PoE function: 2 km (6,561 feet 8 inches)

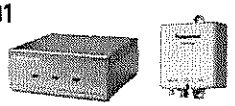
Coaxial LAN cables can be used up to distances of 2 km.
Power can also be supplied to PoE cameras for distances of up to 500 m. PoE+ cameras for distances of up to 300 m.

Coaxial - LAN Converter with PoE function

4-channel receiver side unit
WJ-PR204

Camera side unit
WJ-PC200

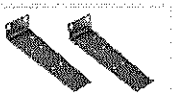
1-channel receiver side unit
WJ-PR201
(Indoor use only)



NEW Receiver side unit — Camera side unit

Optional Accessory

Rack Mount Connector Fitting
BY-HCA10A
(For mounting three or four Receiver side unit)

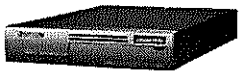


Network Video Decoder

Multi Channel High Definition Video Decoder

WJ-GXD400

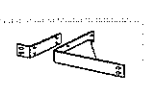
(12 V DC, 100 V - 240 V AC adaptor attached)



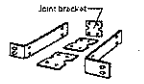
- Up to 256 cameras, including cameras connected to the i-Pro Network Video Encoder (WJ-GXE500), can be registered
- HDMI interface supporting 1,920 x 1,080 display size
- 1x 4VGA image with 2x VGA images or 6x VGA images can be displayed in multiscreen mode
- Each of VGA images can be displayed at 25 frames/s.
- Superior reliability and installation flexibility with an embedded OS
- Up to 64 camera groups can be registered and called up in response to power on, group sequence and schedule programs.

Optional Accessories

EIA 48.26 cm (19 inch) Rack Mount Bracket
WV-Q204/1S
(For mounting one WJ-GXD400)



EIA 48.26 cm (19 inch) Rack Mount Bracket
WV-Q204/2S
(For mounting two WJ-GXD400)



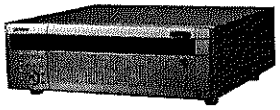
*Only 3 pieces of joint brackets are necessary. One piece of joint bracket will be unnecessary.

Panasonic

Network Disk Recorder

WJ-ND400

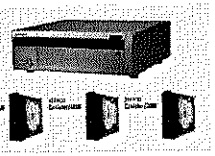
(120 V AC, NTSC, 220-240 V AC, PAL)



- H.264,MPEG-4 and JPEG multi format
- Up to 64 network cameras can be connected and recorded (Video and Audio)
- Various Recording Mode: Manual, Schedule including Event (Pre/Post), Emergency
- VMD search (works with i-PRO cameras or WJ-NT314)
- Up to 64 HDD slots with 9 HDD slots in the main unit and five WJ-HDE400 optional Extension Units each with 9 HDD slots
- RAID5/6, Embedded OS, Data encryption for reliability
- Optional HDD: 6TB HDD Canister/6000; 4TB HDD Canister/4000; 3TB HDD Canister/3000; 2TB HDD Canister/2000

Optional Accessory

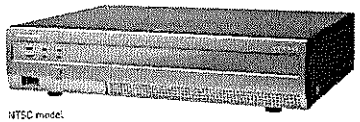
Hard Disk Extension Unit
WJ-HDE400



Network Disk Recorder

WJ-NV300

(120 V AC, NTSC, 220 V-240 V AC, PAL)



NTSC model

- H.264 and JPEG multi format
- 16(NTSC) / 9(PAL) network cameras can be connected and recorded as default. Up to 32*1 network cameras can be connected and recorded.
- Quick setup by automatic camera detection and simple setup wizard without the use of PC
- Simple mouse operation by new GUI without the use of PC
- Supports the Full HD output (HDMI)
- HDD capacity is expandable up to 26 HDD slots (2 HDD slots in the main unit and 2 optional WJ-HDE400 Hard Disk Extension Units each with 9 HDD slots).
- Supports 360-degree network microphone (WV-SMR10)

*1 Two Additional Camera Kits WJ-NVE30 are necessary (NTSC) Three Additional Camera Kits WJ-NVE30 are necessary (PAL)

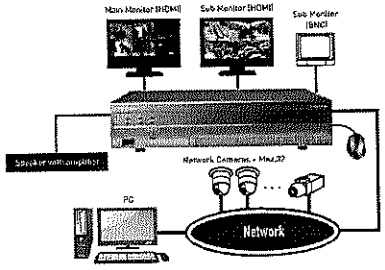
Additional Camera kit : WJ-NVE30

Optional Accessory

Hard Disk Extension Unit
WJ-HDE400

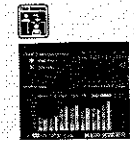
Power Source	220 - 240 V AC, 50 Hz (PAL) 120 V AC, 60 Hz (NTSC)
Power Consumption	Approx. 120 W
Dimensions	430 mm (W) x 130 mm (H) x 486 mm (D) (16-15/16" (W) x 5-3/16" (H) x 19-12/16" (D)) (excluding rubber feet and projections)
Weight*1	13.5 kg (29.8 lbs) (When no HDD exist) 20 kg (44.15 lbs.) (When 9 HDDs are installed)

Easy Operation and Setup without PC



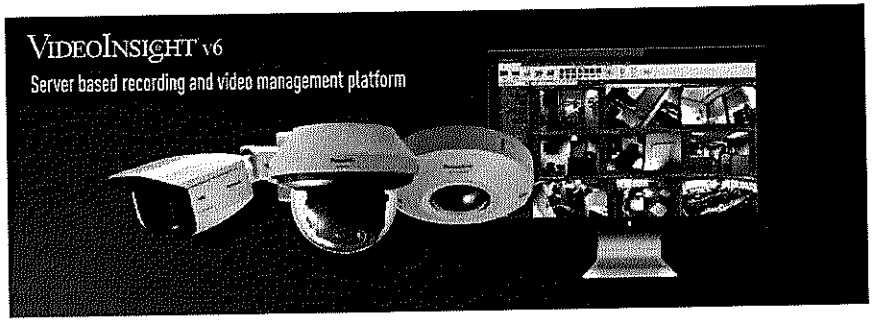
Additional Business Intelligence Kit WJ-NVF30

Additional Business Intelligence Kit NVF20 is a license kit intended to improve the usefulness of Network Disk Recorder WJ-NV300 / WJ-NV200.



- **New statistical processing functions such as "People counting" and "Face matching / Age & Gender judgment"**
- The number of detected human faces can be displayed on a statistical chart separated by age & gender for a single day or a specified time period.
- Age distribution groups are displayed by separate colors.
- The statistical data can be saved as a CSV file on a SDHC/SD memory card or on a PC connected over a network.
- CSV file: A file that can be edited using a spreadsheet software such as Microsoft® Office Excel®

* To use this product, it is necessary to register the license (Registration Key) for "Additional Business Intelligence Kit" into the WJ-NV300/WJ-NV200 in use.



Scalable enterprise VMS solution that captures, manages and stores video surveillance across a network - on a single or multiple locations - and supports the broadest range of IP and analog camera models. Video Insight is the perfect solution for multi-facility configurations including schools, universities, hospitals, healthcare providers, law enforcement and SMBs.

NO LICENSE REQUIRED FOR SELECT PANASONIC CAMERAS

Unlimited Video Insight software license is available with the purchase of select Panasonic cameras manufactured after October 2014.

SURVEILLANCE FROM ANYWHERE

Monitor Station, Web Client and Mobile App share powerful features that allow you to access live and recorded video no matter where you are.

SUPPORT FOR 3,000 CAMERAS FROM 100+ MANUFACTURERS

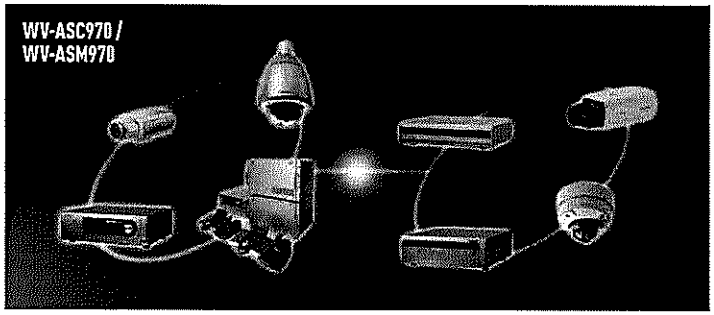
WIDE ACCESS CONTROL INTEGRATION

Video Insight supports single and bi-directional integration of access control alarms from the leading vendors.

SUPPORT FOR OVER 130 ENCODERS

Integration to over 130 encoders so that our customers can affordably convert analog-to-IP and maximize the use of existing resources by turning their analog video system into a network video system.

Panasonic


WV-ASC970 /
WV-ASM970

PMPU3000 VERSION 17

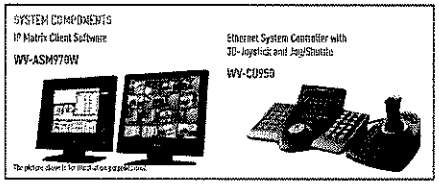
IP MATRIX APPLIANCE

- Easy and smooth integration from analog to IP system
- Flexible system design: analog, IP and hybrid analog/IP
- Up to 64 recorders, 1,024 monitors and 2,048 cameras (in case with encoder) can be registered
- Camera/sequence/monitor selection, camera control and recorder control can be made with the optional system controller WV-CU950
- Supported recorders: WJ-ND400 series, WJ-ND300 series, WJ-ND200 series, WJ-NV200 series, WJ-HD300 series, WJ-RT416 series, WJ-HD616/716 series
- Redundant function supported (redundant function can consist of two WV-ASC970 servers as main server and standby server)
- Up to 64 ND400 recorders can be registered as standby recorder for backup purpose of serious problems on main recorders

WV-ASM970W VERSION 17

IP MATRIX CLIENT SOFTWARE

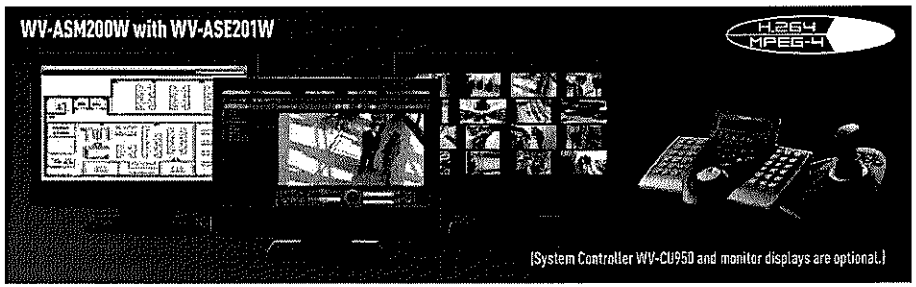
- Multimonitor option enables simultaneous use of operation screen and monitor screen (1 / 4 / 7 / 9 / 10 / 13 / 16 split) on a dedicated monitor; two-monitor operation is also available
- Up to 30 ips/camera can be displayed in 16 split screens in MPEG-4 2 Mbps mode (depending on the camera, camera setup and PC performance)
- Up to 30 ips/camera can be displayed in 16 split screens in H.264 1.5 Mbps mode with VGA (depending on the camera, camera setup and PC performance)
- Image resolution dynamically changes depending on the screen mode: VGA for quad screen, QVGA for 16 split screens, enabling optimum network usage (depending on the camera mode)
- Decoder mode supported (WV-ASM970W can be used as PC-based decoder instead of WJ-GXD400)
- WV-ASE902W: Max. 16 screen x 4 monitor support



WV-ASM200W

I-PRO MANAGEMENT SOFTWARE

- Supports 16:9 video stream and 16:9 HD monitor; displays 16:9 and 4:3 videos from IP cameras on the same screen
- H.264 recording data in the SD/SDHC memory card can be downloaded
- Convert file format from n3r (proprietary format) to MP4 and WMV
- Up to 100 recorders, 64 encoders and 256 directly connected cameras can be registered
- Up to 6,400 cameras registered in the recorders and 256 cameras registered in the encoders are automatically registered in the WV-ASM200W (the number of cameras depends on the recorder and encoder)
- Up to 16x 30 ips/camera images can be displayed in H.264 1.5 Mbps mode
- Fisheye image correction/de-warp
- Software License Products
  –WV-SAE100W: Face Detection XML
  –WV-SAE200W: iVMD


WV-ASM200W with WV-ASE201W

(System Controller WV-CU950 and monitor displays are optional.)

WV-ASE201W / ASE202W / ASE203W / ASE204W / ASE205W / ASE231W

EXTENSION SOFTWARE

- WV-ASE201W: Three monitors, system controller (WV-CU950) support
- WV-ASE202W: Max. 64 screen support
- WV-ASE203W: Increases number of recorder registration
- WV-ASE204W: Supports WJ-GXD400
- WV-ASE205W: Image compensation (Fog/Snow)
- WV-ASE231W: Client for WV-ASF900W

FACEPRO – WV-ASF900W

FACIAL RECOGNITION ANALYTICS PLATFORM

FACIAL RECOGNITION ANALYTICS PLATFORM RUNNING IN THE VIDEO SURVEILLANCE SYSTEM

- Add-on face matching function: Add the face matching function by simply adding the necessary devices and the software
- Up to 20 cameras can be connected to each server

FACE SEARCH

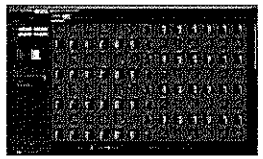
- Face images that the camera detects are stored and can be searched later
- By searching the face database, you can display the results of each camera in chronological order and find movement and location of persons
- Specify camera or date in detected face images and display the result in the list in similar order

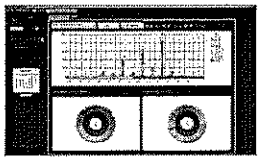
FACE MATCHING

- When faces are matched with registered people, alarm of face matching is output in real time, and an alarm history is displayed in the list
- Double clicking on facial alarm notification can play back video segment on the control monitor

PEOPLE COUNTING, AGE AND GENDER STATISTICS

- Count people with detected faces and evaluate their age and gender
- Display the result on the screen with statistical graph
- The statistical data can be saved as a CSV file for analytical use





FACEPRO® SYSTEM COMPONENTS

ASF9001R32G1TB40 FacePro Single Channel Expansion Licence	WV-ASFE901W FacePro Single Channel Expansion Licence	WV-ASFE904W FacePro Four Channel Expansion Licence

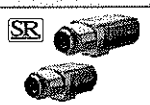
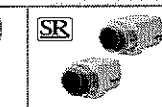
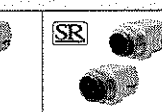
Panasonic

CAMERA TYPE		FIX	
Indoor / Outdoor		OUTDOOR	INDOOR
Appearance		SR WV-CW594A	SR WV-CS584
Sensor		1/4 type interline transfer CCD	1/4 type interline transfer CCD
Resolution	Horizontal	650 TV lines	650 TV lines
Super Dynamic / WDR / BLC		Super-D	Super-D
Day/Night		Yes (ICR)	Yes (ICR)
Focus Adjustment		Auto Focus	Auto Focus
Built-in IR LED		–	–
Min. Illumination	Color	0.5 lx	0.5 lx
	Color (Sens up)	0.016 lx	0.016 lx
	B/W	0.04 lx	0.04 lx
	B/W (Sens up)	0.0013 lx	0.0013 lx
Lens		f= 3.3 to 119 mm, F1.4	f= 3.3 to 119 mm, F1.4
Angular field of view		H: 1.7° (Tele) to 60.2° (Wide) V: 1.3° (Tele) to 46.0° (Wide)	H: 1.7° (Tele) to 60.2° (Wide) V: 1.3° (Tele) to 46.8° (Wide)
Adjusting Angle	Pan	360° endless	360° endless
	Tilt	–5° to 185° (horizontal - vertical - horizontal)	–6° to 185° (horizontal - vertical - horizontal)
	Optical Zoom	36x	36x
	Digital Zoom	20x	20x
VMD (Video Motion Detection)		Yes	Yes
i-VMD (Intelligent VMD)		Scene Change	Scene Change
Camera title (OSD)		Yes	Yes
External I/O		4 inputs (ALARM IN 1 - ALARM IN 4) 2 outputs (ALARM / AUX1, B/W / AUX2)	4 inputs (ALARM IN 1 - ALARM IN 4) 2 outputs (ALARM / AUX1, B/W / AUX2)
Vandal Resistant		–	–
Water and Dust Resistance		IP66	–
Dehumidification device		–	–
Temperature		-58°F to +122°F	+14°F to +122°F
Power Source		24 V AC	24 V AC
Other Functions		WV-CW594A : Rain wash coating	–
Options	Smoke Dome Cover	–	Smoke Dome Cover WV-CS45A
	Bracket	Wall Mount Bracket WV-Q122A	Ceiling Mount Bracket WV-Q105A
			Embedded Ceiling Mount Bracket WV-Q126A
		Ceiling Mount Bracket WV-Q121B	Pendant Mount Bracket WV-Q117A
			Wall Mount Bracket WV-Q116B
	Heater Unit	–	–
Mounting Options		See page 50	See pages 48, 49

CAMERA TYPE		DOME		
Indoor / Outdoor		OUTDOOR	INDOOR	
Appearance		NEW SR WV-CW634S, WV-CW634F	SR WV-CF624	SR WV-CF634
Sensor		1/3 type interline transfer CCD	1/3 type interline transfer CCD	1/3 type interline transfer CCD
Resolution	Horizontal	700 TV lines or more	650 TV lines	450 TV lines
Super Dynamic / WDR / BLC		Super-D	Super-D	Super-D
Day/Night		Yes (ICR)	Yes (ICR)	Yes (ICR)
Focus Adjustment		ABF	Manual	ABF
Built-in IR LED		–	–	–
Min. Illumination	Color	0.08 lx	0.08 lx	0.08 lx
	Color (Sens up)	0.0024 lx	0.0025 lx	0.0025 lx
	B/W	0.008 lx	0.008 lx	0.008 lx
	B/W (Sens up)	0.00074 lx	0.0003 lx	0.0003 lx
Lens		f= 3.8 to 8.0 mm, F1.4	f= 2.8 to 10 mm, F1.4	f= 2.8 to 10 mm, F1.4
Angular field of view		H: 33.6° (Tele) to 74.9° (Wide) V: 25.2° (Tele) to 55.7° (Wide)	H: 27.6° (Tele) to 100.8° (Wide) V: 20.7° (Tele) to 73.8° (Wide)	H: 27.6° (Tele) to 100.8° (Wide) V: 20.7° (Tele) to 73.8° (Wide)
Adjusting Angle	Pan	±170°	160° to –170°	160° to –170°
	Tilt	±75°	±90°	±90°
	Optical Zoom	2.1x	3.6x	3.6x
	Digital Zoom	2x	2x	2x
VMD (Video Motion Detection)		Yes	Yes	Yes
i-VMD (Intelligent VMD)		Scene Change	Scene Change	Scene Change
Camera title (OSD)		Yes	Yes	Yes
External I/O		–	–	–
Vandal Resistant		IEC 60068-2-75 test Eh, 50J	–	–
Water and Dust Resistance		IP66	–	–
Dehumidification device		–	–	–
Temperature		+14°F to +140°F –30°C to 60°C (With optional heater)	+14°F to +122°F	+14°F to +122°F
Power Source		24 V AC or 12 V DC	24 V AC or 12 V DC	24 V AC or 12 V DC
Other Functions		–	–	–
Options	Smoke Dome Cover	Smoke Dome Cover WV-CW45A	–	–
	Bracket	Mount Bracket (for WV-CW634F) WV-Q115A	Embedded Ceiling Mount Bracket (Soft white) WV-Q174B	Embedded Ceiling Mount Bracket (Soft white) WV-Q174B
		Embedded Ceiling Mount Bracket WV-Q169A		
	Heater Unit	Heater Unit WV-CW6HA	–	–
Mounting Options		See pages 46, 47	See pages 46, 47	See pages 46, 47

Panasonic

CAMERA TYPE		DOME			BOX
Indoor / Outdoor		INDOOR			OUTDOOR
Appearance		WV-CF344	WV-CF354	WV-CF314L	WV-CW314L
Sensor		1/3 type interline transfer CCD	1/3 type interline transfer CCD	1/3 type interline transfer CCD	1/3 type interline transfer CCD
Resolution	Horizontal	650 TV lines	650 TV lines	650 TV lines	650 TV lines
Super Dynamic / WDR / BLC		BLC	BLC	BLC	BLC
Day/Night		Yes (Electrical)	Yes (Electrical)	Yes (ICR)	Yes (ICR)
Focus Adjustment		Focus Assist	ABF	ABF	ABF
Built-in IR LED		—	—	Yes (20 m)	Yes (50 m)
Min. Illumination	Color	0.08 lx	0.08 lx	0.08 lx	0.08 lx
	Color (Sens up)	0.0025 lx	0.0025 lx	0.0075 lx	0.0025 lx
	B/W	0.05 lx	0.05 lx	0 lx (with IR LED)	0 lx (with IR LED)
	B/W (Sens up)	0.0016 lx	0.0016 lx	—	—
Lens		f= 2.8 to 10 mm, F1.4	f= 2.8 to 10 mm, F1.4	f= 2.8 to 10 mm, F1.3	f= 2.8 to 10 mm, F1.3
Angular field of view		H: 27.6° (Tele) to 100.3° (Wide) V: 20.7° (Tele) to 73.5° (Wide)	H: 27.6° (Tele) to 100.3° (Wide) V: 20.7° (Tele) to 73.4° (Wide)	H: 27.65° (Tele) to 100.6° (Wide) V: 20.75° (Tele) to 73.85° (Wide)	H: 27.65° (Tele) to 100.8° (Wide) V: 20.75° (Tele) to 73.85° (Wide)
Adjusting Angle	Pan	180° to −170°	180° to −170°	180° to −176°	—
	Tilt	±90°	±90°	0 to 75°	—
	Optical Zoom	3.6x	3.6x	3.6x	3.6x
	Digital Zoom	2x	2x	2x	2x
VMD (Video Motion Detection)		Yes	Yes	Yes	Yes
i-VMD (Intelligent VMD)		Scene Change	Scene Change	Scene Change	Scene Change
Camera title (OSD)		Yes	Yes	Yes	Yes
External I/O		—	—	—	—
Vandal Resistant		—	—	—	—
Water and Dust Resistance		—	—	—	IP66
Dehumidification device		—	—	—	—
Temperature		+14°F to +122°F	+14°F to +122°F	+14°F to +122°F	+14°F to +122°F
Power Source		24 V AC or 12 V DC	24 V AC or 12 V DC	24 V AC or 12 V DC	24 V AC or 12 V DC
Other Functions		—	—	—	—
Options	Smoke Dome Cover	—	—	—	—
	Bracket	Embedded Ceiling Mount Bracket (Soil white) WV-Q174B	Embedded Ceiling Mount Bracket (Soil white) WV-Q174B	—	—
	Heater Unit	—	—	—	—
Mounting Options		See pages 46, 47	See pages 46, 47	See pages 46, 47	See page 51

CAMERA TYPE		BOX			
Indoor / Outdoor		INDOOR			
Appearance		 WV-CP630/WV-CP634	WV-CP620/WV-CP624	 WV-CP300/WV-CP304	 WV-CP310/WV-CP314
Sensor		1/3 type interline transfer CCD	1/3 type interline transfer CCD	1/3 type interline transfer CCD	1/3 type interline transfer CCD
Resolution	Horizontal	700 TV lines	650 TV lines	650 TV lines	650 TV lines
Super Dynamic / WDR / BLC		Super-D	Super-D	BLC	BLC
Day/Night		Yes (ICR)	Yes (ICR)	Yes (Electrical)	Yes (ICR)
Focus Adjustment		ABF	Focus Assist	Focus Assist	Focus Assist
Built-in IR LED		—	—	—	—
Min. Illumination	Color	0.08 lx	0.08 lx	0.08 lx	0.08 lx
	Color (Sens up)	0.003 lx	0.0025 lx	0.0025 lx	0.0025 lx
	B/W	0.008 lx	0.008 lx	0.05 lx	0.008 lx
	B/W (Sens up)	0.0003 lx	0.00025 lx	0.0016 lx	0.00025 lx
Lens		optional	optional	optional	optional
Angular field of view		—	—	—	—
Adjusting Angle	Pan	—	—	—	—
	Tilt	—	—	—	—
	Optical Zoom	—	—	—	—
	Digital Zoom	2x	2x	2x	2x
VMD (Video Motion Detection)		Yes	Yes	Yes	Yes
i-VMD (Intelligent VMD)		Scene Change	Scene Change	Scene Change	Scene Change
Camera title (OSD)		Yes	Yes	Yes	Yes
External I/O		ALARM IN : 1 (OFF / ALARM / VMD PERMIT / BW) ALARM OUT : 1 (OFF / ALARM / BW)	Alarm IN 1pc, Alarm OUT 1pc	—	—
Vandal Resistant		—	—	—	—
Water and Dust Resistance		—	—	—	—
Dehumidification device		—	—	—	—
Temperature		+14°F to +122°F	+14°F to +122°F	+14°F to +122°F	+14°F to +122°F
Power Source		WV-CP630: 120 V AC WV-CP634: 12 V DC or 24 V AC	WV-CP620: 120 V AC WV-CP624: 12 V DC or 24 V AC	WV-CP300: 120 V AC WV-CP304: 12 V DC or 24 V AC	WV-CP310: 120 V AC WV-CP314: 12 V DC or 24 V AC
Other Functions		—	—	—	—
Options	Smoke Dome Cover	—	—	—	—
	Bracket	—	—	—	—
	Heater Unit	—	—	—	—
Mounting Options		See page 51	See page 51	See page 51	See page 51

WJ-HD716

SD5 Link SuperDynamic

HDMI HIGH-DEFINITION MULTIMEDIA INTERFACE

UniPhier®

WJ-HD716 (120V AC: NTSC)

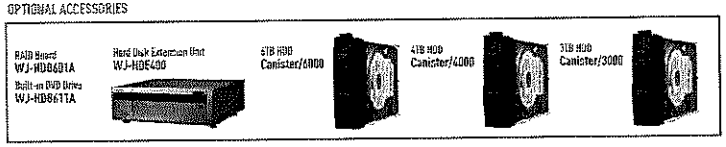
16 CH REAL-TIME H.264 DIGITAL DISK RECORDER

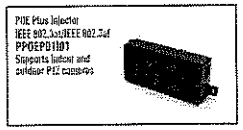
WJ-HD616 (120V AC: NTSC)

16 CH H.264 DIGITAL DISK RECORDER

- Dual HDMI Full HD 1080i (1920 x 1080) display
- H.264 (high-profile) codec reduces bandwidth by up to 40% compared with MPEG-4
- SD5 Link (Super Dynamic 5 Link) with Intelligent-Video Motion Detection (i-VMD) alarm
- Real-time recording (WJ-HD716) and 16CH 2x monitors real-time live
- Up to 31 HDD slots with four HDD slots in the main unit and three WJ-HDE400 optional extension units, each with nine HDD slots

OPTIONAL ACCESSORIES





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WV-CU950

ETHERNET SYSTEM CONTROLLER WITH 3D-JOYSTICK AND JOG/SHUTTLE

- For smooth operation of Ethernet/PS data interfaced devices, WV-ASM200W/WV-ASC970 and System650EX/System650/System150 (WJ-SX150A version 2.0 or higher)
- Integrated system control: camera, recorder and switcher
- User-level management and user-assignable buttons
- Universal design for right- or left-handed users

WV-CU650

RS-485 SYSTEM CONTROLLER WITH 3D-JOYSTICK AND JOG/SHUTTLE

- For smooth operation of PS data interfaced devices and System650/System150 (WJ-SX150A version 2.0 or higher)
- Integrated system control: camera, recorder and switcher
- User-level management and user-assignable buttons
- Universal design for right- or left-handed users

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CAMERA ACCESSORIES

MODEL	DESCRIPTION/TYPE	COMPATIBILITY	IMAGE
WV-CF55A	Smoke Dome	WV-SFN631L/611L, WV-SFN310A/311A, WV-SFN531	
WV-CS45	Smoke Dome	WV-CS584	
WV-CS5C	Clear Dome	WV-SC588A, WV-SC387A	
WV-CS5S	Smoke Dome	WV-SC588A, WV-SC387A	
WV-CR1S	Smoke Dome	WV-SFR631L/611L, WV-SFR310A/311A, WV-SFR531	
WV-CW4C	Clear Dome	WV-NW502S, WV-CW584S, WV-CW364S/334S	
WV-CW4SA	Smoke Dome	WV-NW502S, WV-CW634S, WV-CW364S/334S	
WV-CW7S	Smoke Dome	WV-SFV631L/631LT/611L, WV-SFV310A/311A, WV-SFV531	
WV-CW6SA	Smoke Dome	WV-SW158/155/155MA/152/152M, WV-SF138/135/132	
WV-Q7118	Extended Shade Cover	WV-SFV631L/631LT/611L, WV-SW3XX, WV-SW5XX, WV-SFV310/311, WV-SFV531	
WV-CW5HA	Optional Heater	WV-CW634S/WV-CW364S/334S	

HOUSING AND MOUNTING BRACKETS FOR DOME CAMERAS

			CAMERA TYPE					
			OUTDOOR VANDAL			INDOOR DOME		
MODEL NO.	PICTURE	DESCRIPTION/TYPE	WV-SFV631L/631LT/611L, WV-SFV311A/310A, WV-SFV531	WV-SW458, WV-SF481	WV-CW634S/634F WV-CW364S/334S	WV-SFV781L	WV-SFN631L/611L, WV-SFR631L/611L, WV-SFN311A/310A, WV-SFR311A/310A, WV-SFN531, WV-SFR531	WV-CF600 SERIES WV-CF300 SERIES
WV-Q169A		Indoor Embedded Ceiling Mount Bracket	Yes		Yes			
WV-Q174B		Indoor Embedded Ceiling Mount Bracket					Yes	Yes (Except WV-CF314L)
PRCM1		Indoor Embedded Ceiling Mount Bracket	Yes		Yes		Yes	Yes
PPMS1		Indoor Indoor Pendant Mount Housing, Black					Yes (Except WV-SFR631L/611L)	Yes
PPMS1B		Indoor Indoor Pendant Mount Housing, Beige					Yes (Except WV-SFR631L/611L)	Yes
PS484S		Outdoor Vandal-resistant Shroud	Yes	Yes	Yes			
PPM484S		Outdoor Vandal-resistant Pole Mount	Yes	Yes	Yes			
PCM484S		Outdoor Vandal-resistant Corner Mount	Yes	Yes	Yes			
PHM484S		Outdoor Vandal-resistant Hanging Mount	Yes	Yes	Yes			
PWM484S		Outdoor Vandal-resistant Wall Mount	Yes	Yes	Yes			
WV-Q7118		Outdoor Extended Sun Shade	Yes		Yes			
WV-Q124		Outdoor Shroud Bracket requires WV-Q122A	Yes	Yes	Yes			
PWM781		Outdoor Wall Mount & Shroud				Yes		

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HOUSING AND MOUNTING BRACKETS FOR INDOOR PTZ CAMERAS

			CAMERA TYPE		
			PTZ		
MODEL NO.	PICTURE	DESCRIPTION/TYPE	WV-SC588A/WV-SC387A	WV-SC384/WV-SC385	WV-CS584
WV-Q117		Indoor/Pendant Supended Ceiling Mount			Yes
WV-Q118B		Indoor/Wall Wall Mount Bracket, Silver			Yes
WV-Q119		Indoor/Wall Wall Mount Bracket, White	Yes		
WV-Q126 WV-Q126A		Indoor/Ceiling Embedded Ceiling Mount Bracket	Yes (WV-Q126A)		Yes
WV-Q154C		Indoor/Wall Wall Mount Bracket—Clear Dome		Yes	
WV-Q154S		Indoor/Wall Wall Mount Bracket—Smoke Dome		Yes	
WV-Q155C		Indoor/Ceiling Embedded Ceiling Mount Bracket—Clear Dome		Yes	
WV-Q155S		Indoor/Ceiling Embedded Ceiling Mount Bracket—Smoke Dome		Yes	
WV-Q156C		Indoor/Ceiling Ceiling Mount Bracket—Clear Dome		Yes	
WV-Q156S		Indoor/Ceiling Ceiling Mount Bracket—Smoke Dome		Yes	
WV-Q157		Inner Dome Cover		Yes	
PISM5V		Indoor/Pendant/Clear 5" Indoor Vandalresistant Housing		Yes	
PIDV7CN		Indoor/Ceiling/Vandal 7" Indoor Recessed Ceiling Housing with Clear Dome	Yes	Yes	Yes

HOUSING AND MOUNTING BRACKETS FOR INDOOR PTZ CAMERAS (CONT.)

			CAMERA TYPE		
			PTZ		
MODEL NO.	PICTURE	DESCRIPTION/TYPE	WV-SC588A/WV-SC387A	WV-SC384/WV-SC385	WV-CS584
PIDV7SN		Indoor/Ceiling/Vandal 7" Indoor Recessed Ceiling Housing with Smoke Dome	Yes	Yes	Yes
PDM9		Indoor/Ceiling 9" Indoor Recessed Ceiling Housing (Dome not included)			Yes
PID9		Indoor/Ceiling 9" Indoor Recessed Ceiling Housing (Dome not included)	Yes	Yes	Yes
POSM5V		Outdoor/Ceiling – 5" Outdoor Vandalresistant Housing 24V AC to 12V DC Converter		Yes	
PODV9CPTA		Outdoor/Pendant – 9" Outdoor Vandalresistant Dome Housing with Pendant Mount – Clear/H&B	Yes	Yes	Yes
PODV9CWTA		Outdoor/Wall – 9" Outdoor Vandalresistant Dome Housing with Wall Mount – Clear/H&B	Yes	Yes	Yes
POD9CA		Outdoor/Pendant – 9" Outdoor Dome Housing with Pendant Mount, Silver – Clear/H&B	Yes	Yes	Yes
POD9CWA		Outdoor/Wall – 9" Outdoor Dome Housing with Wall Mount, Silver – Clear/H&B	Yes	Yes	Yes
POD9CTA		Outdoor/Pendant – 9" Outdoor Dome Housing with Pendant Mount, White – Clear/H&B	Yes	Yes	Yes
POD9CWTA		Outdoor/Wall – 9" Outdoor Dome Housing with Wall Mount, White – Clear/H&B	Yes	Yes	Yes
PPFD9C		Outdoor/Pendant – 9" Outdoor Pressurized Dome Housing for Analog Camera – Clear/H&B			Yes
PPFD9CN		Outdoor/Pendant – 9" Outdoor Pressurized Dome Housing for Network Camera – Clear/H&B	Yes	Yes	

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HOUSING AND MOUNTING BRACKETS FOR OUTDOOR PTZ CAMERAS

			CAMERA TYPE		
			PTZ		
MODEL NO.	PICTURE	DESCRIPTION/TYPE	WV-SW598A/ WV-SW397B	WV-SW395A	WV-CW594A
PPRM30G		Outdoor Parapet Mount Short, Black	Yes	Yes	Yes
PPRM30GB		Outdoor Parapet Mount Short, Beige	Yes	Yes	Yes
PWM30G		Outdoor Parapet Mount Long, Black	Yes	Yes	Yes
PWM30GB		Outdoor Parapet Mount Long, Beige	Yes	Yes	Yes
PWM20G		Outdoor Gooseneck Wall Mount, Black	Yes	Yes	Yes
PWM20GB		Outdoor Gooseneck Wall Mount, Beige	Yes	Yes	Yes
PWM20GS		Outdoor Gooseneck Wall Mount, Silver	Yes	Yes	Yes
PSRCW2000B		Outdoor Parapet Rooftop Mount, Black	Yes	Yes	Yes
WV-Q122A		Outdoor Wall Mount Bracket	Yes	Yes	Yes
WV-Q121		Outdoor Ceiling Mount Bracket	Yes	Yes	Yes

HOUSING AND MOUNTING BRACKETS FOR OUTDOOR PTZ CAMERAS (CONT.)

			CAMERA TYPE			
			PTZ			
MODEL NO.	PICTURE	DESCRIPTION/TYPE	WV-SW598A/ WV-SW397B	WV-SW395A	WV-CW594A	WV-SUD638
PB24B		Outdoor Heavy Duty Junction Box	Compatible with PWM20G series, PWM638	Compatible with PWM20G series, PWM638	Compatible with PWM20G series, PWM638	Compatible with PWM20G series, PWM638
PACA4 PACA4B		Outdoor Corner Mount Adaptor PACA4-Black, PACA4B-Beige	Compatible with PWM20G series, WV-Q122A, WV-SPWxxx series, PWM638	Compatible with PWM20G series, WV-Q122A, WV-SPWxxx series, PWM638	Compatible with PWM20G series, WV-Q122A, WV-SPWxxx series, PWM638	Compatible with PWM20G series, WV-Q122A, WV-SPWxxx series, PWM638
PAPM4 PAPM4B		Outdoor Pole Mount Adaptor PAPM4-Black, PAPM4B-Beige	Compatible with PWM20G series, WV-Q122A, WV-SPWxxx series, PWM638	Compatible with PWM20G series, WV-Q122A, WV-SPWxxx series, PWM638	Compatible with PWM20G series, WV-Q122A, WV-SPWxxx series, PWM638	Compatible with PWM20G series, WV-Q122A, WV-SPWxxx series, PWM638
PAPM6		Outdoor Wall/Pole Mount Adaptor	Compatible with PWM20G series, PWM638	Compatible with PWM20G series, PWM638	Compatible with PWM20G series, PWM638	Compatible with PWM20G series, PWM638
PPMF12D		Outdoor Pendant Mount	Yes	Yes	Yes	No
PWM638		Outdoor Wall Mount Bracket	No	No	No	Yes

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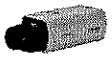
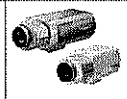
HOUSING AND MOUNTING BRACKETS FOR FIXED CAMERAS

			CAMERA TYPE			
			FIXED			
MODEL NO.	PICTURE	DESCRIPTION/TYPE	WV-SPV781L WV-SPW631LT/SPW631/ WV-SPW611L/SPW611 WV-SPW311AL/531AL	 WV-SPN310A/311A WV-SPN531 WV-SPN631/611	WV-SP105/102	 WV-CP560 SERIES WV-CP498/CP398 SERIES
WV-Q120A		Outdoor Adapter Box	Included (Except WV-SP-W311AL/531AL)			
PUM8		Indoor/Wall Universal Camera Mount (Max. Weight 3 lbs.)		Yes	Yes	Yes
POD8CF		Outdoor/Pendant 8" Outdoor Dome Housing for Fixed Camera with Pendant Mount – Clear/H&B		Yes	Yes	Yes
POD8CWF		Outdoor/Wall 8" Outdoor Dome Housing for Fixed Camera with Wall Mount – Clear/H&B		Yes	Yes	Yes
POH1100		Outdoor/Wall 10" Outdoor Housing Wall Mount Included				Yes
POH1100HB		Outdoor/Wall 10" Outdoor Housing with Heater and Blowers Wall Mount Included – H&B				Yes
POH1100NWME		Outdoor/Wall 10" Outdoor Housing with Heater and Blowers with PoE Plus Wall Mount Included – H&B		Yes	Yes	
POH1100NWH		Outdoor/Wall – 10" Outdoor Housing with Heater and Blowers with PoE Plus with Midspan Wall Mount Included – H&B		Yes	Yes	
PACA4 PACA4B		Outdoor Pole Mount Adaptor PAPM4-Black, PAPM4B-Beige	Yes			
PAPM4 PAPM4B		Outdoor Pole Mount Adaptor PAPM4-Black, PAPM4B-Beige	Yes			
NEW PEHV1000		Indoor/Corner Elevator Housing Brushless Steel/Tempered Glass Vandal				
NEW PEHV1000SFN130		Indoor/Corner Elevator Housing Brushless Steel/Tempered Glass Vandal Includes WV-SFN130 camera				

VARIFOCAL LENSES FOR HD CAMERAS

SIZE	MODEL NO.	PICTURE	COMPANY	FOCAL LENGTH (MM)	APERTURE RATIO @ WIDE	AUTO IRIS	WV-SPN631/611 SP509/SP508	WV-SPN310/311 WV-SPN531
1/3"	PLAMP2206		Fujinon	2.2–6.0	F1.3	Yes	Yes	Yes
1/3"	PLAMP2406		Tamron	2.4–6.0	F1.2	Yes	Yes	Yes
1/3"	PLAMP2808		Fujinon	2.8–8.0	F1.2	Yes	Yes	Yes
1/3"	PLAMP2812		Fujinon	2.8–12.0	F1.4	Yes	Yes	Yes
1/2"	PLAMP0722		Ricon	7.0–22.0	F1.4	Yes	Yes	Yes
1/3"	PLAMP0550		Tamron	5.0–50.0	F1.4	Yes	Yes	Yes
1/3"	PLZ15/33		Fujinon	15.0–50.0	F1.5	Yes	Yes	Yes

M12 LENSES FOR HD CAMERAS

SIZE	MODEL NO.	PICTURE	COMPANY	FOCAL LENGTH (MM)	APERTURE RATIO @ WIDE	AUTO IRIS	WV-SW158/ SF138	WV-SW155/ SF135	WV-SFN110/ SFN130, WV-SFV110/ SFV130	WV-SW115
1/3"	PLM12MP028/1		Evetar	2.8	F2.0	No	Yes	Yes	Included	Yes
1/3"	PLM12MP060/1		Evetar	6.0	F1.8	No	Yes	Yes	Yes	Yes
1/3"	PLM12MP120/1		Evetar	12.0	F1.8	No	Yes	Yes	Yes	Yes
	PLM12MP019/1		Sunny	1.95	F2.2	No	Included	Included	Yes	Included

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VARIFOCAL LENSES FOR SD CAMERAS

SIZE	MODEL NO.	PICTURE	COMPANY	FOCAL LENGTH (MM)	APERTURE RATIO @ WIDE	AUTO IRIS	WV-CW634 SERIES	WV-CP500 SERIES WV-CP600 SERIES WV-CP300 SERIES
1/2"	PLAHS1770		Fujinon	7.0-70.0	F1.8	Yes		
1/3"	WV-LZA61/2S		Panasonic	3.8-8.0	F1.4	Yes		Yes
1/3"	WV-LZ62/8S		Panasonic	5.0-40.0	F1.6	Yes		Yes
1/3"	PLA22T3DN		Tamron	2.2	F1.2	Yes	Yes	Yes
1/3"	PLZ27/5DN		Fujinon	2.7-13.5	F1.3	Yes		Yes
1/3"	PLZ29/27		Fujinon	2.9-8.0	F0.95	Yes	Yes	Yes
1/3"	PLZ5/10		Fujinon	5.0-50.0	F1.6	Yes		Yes
1/3"	PLZ15/33		Fujinon	15.0-50.0	F1.5	Yes	Yes	Yes
1/3"	PLZ20/5		Tamron	20.0-100.0	F1.6	Yes		Yes

READY-TO-GO PACKAGES

		CAMERA	LENS	HOUSING
		Camera	Lens	Housing
WV-CW634F		WV-CW634F	Factory 3.8-8mm	Factory Flush Mount
WV-CW634F/09		WV-CW634F	PLAMP0722 7-22mm	Factory Flush Mount
WV-CW634F/15		WV-CW634F	PLZ15/33 15-50mm	Factory Flush Mount
WV-CW634F/22		WV-CW634F	PLAMP2206 2.2-6mm	Factory Flush Mount
WV-CW634S		WV-CW634S	Factory 3.8-8mm	Factory Surface Mount
WV-CW634S/09		WV-CW634S	PLAMP0722 7-22mm	Factory Surface Mount
WV-CW634S/15		WV-CW634S	PLZ15/33 15-50mm	Factory Surface Mount
WV-CW634S/22		WV-CW634	PLAMP2206 2.2-6mm	Factory Surface Mount

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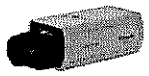
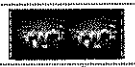
READY-TO-GO PACKAGES (CONT.)

		CAMERA	LENS	HOUSING
				
		Camera	Lens	Housing
POC314L2		WV-CP314	PLAMP2812 2.8-12mm	POH1000HB
POC314L5		WV-CP314	PLZ25/10 5.0-50mm	POH1000BH
POC634L2		WV-CP634	PLAMP2812 2.8-12mm	POH1000HB
POC634L5		WV-CP634	PLZ5/10 5.0-50mm	POH1000BH
POCSPN311L2		WV-SPN311A	PLAMP2812 2.8-12mm	POH1000HB
POCSPN311L5		WV-SPN311A	PLAMP0550 5.0-50mm	POH1000BH
POCSPN531LMP05		WV-SPN531	PLAMP0550 5.0-50mm	POH1000HB
POCSPN531LMP24		WV-SPN531	PLAMP2406 2.4-6.0mm	POH1000HB

MONITORS

MODEL	TYPE	INFO	IMAGE	DESCRIPTION	COMPATIBLE WITH
PLCD9C	Monitors	LCD Monitors		9" LCD monitor, 800 x 600	
PLCD9C/2	Monitors	LCD Monitors		2-9" LCD monitor, 800 x 600 with rack mount	
PLCD15V	Monitors	LCD Monitors		15" LCD monitor, 1024 x 768, 4:3 aspect ratio, two built-in speakers, 2x BNC input, S-Video in/output, RGB input	
PLCD19P	Monitors	LCD Monitors		19" LCD, 1280 x 1024, 5:4 aspect ratio, two built-in speakers, 2x BNC input, S-Video in/output, RGB input, DVI input, HDMI input	
PLCD24HDA	Monitors	LCD Monitors		24" Full HD LCD, 1920 x 1080, 16:9 aspect ratio, two built-in speakers, 2x BNC input, S-Video in/output, RGB input, DVI input, HDMI input	
PLCD27HDA	Monitors	LCD Monitors		27" Full HD LED, 1920 x 1080, 16:9 Aspect Ratio, two built-in speakers, 2x BNC input, S-Video in/output, DVI input, HDMI input	
PLCD42HDA	Monitors	LCD Monitors		42" Full HD LED, 1920 x 1080, 16:9 aspect ratio, two built-in speakers, 2x BNC input, S-Video in/output, DVI input, HDMI input, pedestal stand	
PRMK08	Monitors	Accessories	Image Not Available	Rack mount kit for PLCD15V, PLCD20P monitors	PLCD15V PLCD19P

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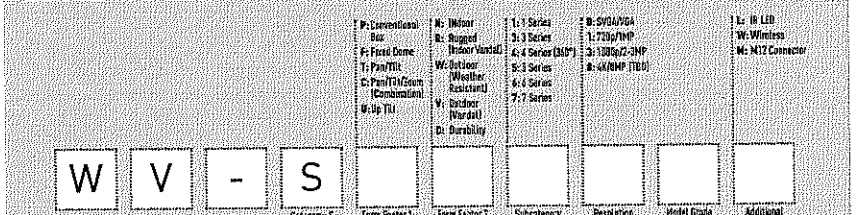
NEW NETWORK CAMERA MODEL NUMBER FORMAT



VIDEO INSIGHT LICENSE BUNDLED WITH PANASONIC CAMERAS MANUFACTURED AFTER OCTOBER 2014

Panasonic is bundling a Video Insight software license with the purchase of Panasonic cameras manufactured after October 2014 to save security professionals valuable time and money.

ELIGIBLE PANASONIC CAMERAS

PTZ Dome
SW598/SW598A, SW377/SW377E, SW395/395A, SW895/895A, SC588/SC588A, SC397/SC397A, SC384, SC385, SC424

Outdoor Vandal Fixed Dome
SFV781L, SFV311/311T, SFV11L, SFV661, SW569, SW568, WV6126, SW471, SW410, SW355, SW352, SW155, SW155M, SW155MA, SW152/152M, SW115, SW110M, SW100M

Indoor Vandal Fixed Dome
SF561L, SF561, SF564, SF540, SF541, SF611, SF610, SF424, SF342

Indoor Fixed Dome
SFN561L, SFN611L, SFN631, SF431, SF430, SF421L, SFN411L, SFN410, SF336, SF335, SF333, SF330, SF160, SF142, SFN110, SFN100

Outdoor Box
SPV781L, SPV631/631L, SPV611L, SPW611, SW416L, SW416, SW414, SPW531AL, SPW511AL

Indoor Box
SPN631, SPN611, SPN531, SP509, SP508, SPN511, SP410, SP306, SP305, SP304W, SP302, SP105, SP102

360° Dome
SP424, SP420, SW458, SW458M, SF448, SF438

PT Camera
SW775, SW774W, SC172, SF148, SF172, BL-VT164W, BL-VT164, BL-VP104W, BL-VP104, BL-VP101

Encoder
GXE500, GXE100

How to tell if your Panasonic camera was manufactured after October 2014:

1. Find the serial number on your camera and/or carton box.
2. The first letter of the serial number code indicates the year of production, where H=2014, J=2015, K=2016
3. The second letter indicates the month of production, where A=January, B=February, C=March, etc.

For example, October 2014 would be H*******

For more information, visit:
us.panasonic.com/products-videosurveillance-videoinsight

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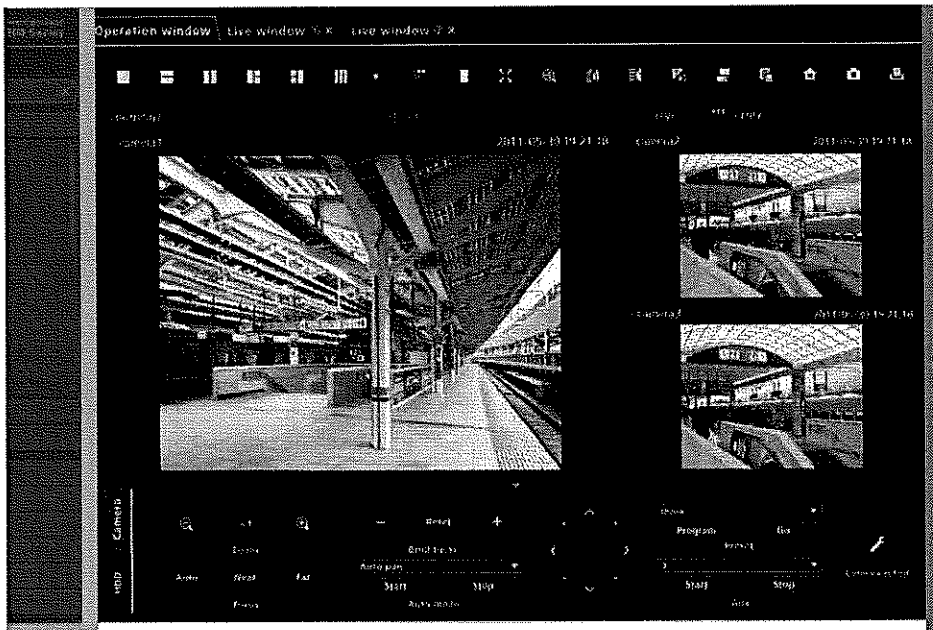

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Transforming surveillance system solutions from concept to completion requires the utmost attention to detail throughout every phase of the process. You can trust Panasonic to be your single-source provider for all your facility's needs, from system design to installation to post-implementation support. Offering seamless integration, superior cost efficiency and increased ROI, we will configure your surveillance system to best fit your requirements and budget, while offering a fully integrated solution with the best third-party partners in the business. Plus, Panasonic's product warranty and service network ensure your system will continually perform to its highest expectations for years to follow.

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VI Monitor Plus

Key Features

Panasonic

Recorded Video Management:

- Intuitive access to recorded video from any camera in system regardless of location.
- Frame-by-Frame or variable playback speeds up to 32X.
- View single camera or drag and drop up for Full Layout Synchronized Playback.
- View groups of cameras via drag and drop.
- Slider bar provides quick access to events.
- Digital zoom on Live and recorded video.
- Synchronized video and audio playback.
- Instant replay of last 30 seconds of recorded video (Via Rule)
- Create a clip with use of guides marking time interval
- Save clip to local client or server.
- Continuous, motion activated, scheduled, event or Trigger based recording.
- Record up to 30 FPS or as little as 1 image per second, hour or day.
- Record always at low FPS and transition to higher FPS on motion events or alarm.
- Pre- and Post-motion recording.
- Support for camera and server side motion detection.
- Create sensitivity zones in Windows client or camera configuration.
- Motion Event logs provide quick review of video associated with motion or alarm events.
- Access recorded video from other non-local servers added to the server list.
- Graphical timeline highlights motion events.
- Progressive download speeds for slow-speed connection.
- Automatically manages files and disk space.
- Specify maximum Storage retention by camera.
- Enhanced Timeline with Motion vs Fulltime Indications.
- Most complete Panoramic/360° De-warped support of any VMS manufacturer.

Video Exporting:

- Intuitive Viewing Clients require little to no End-user training.
- Clips can include Optional 128bit encrypted watermark, server based date/time stamp, and camera name.
- Recorded video is saved in cameras native compression format and placed in AVI or EXE container for easy universal playback.
- Improved Video Exporter: with central options.
- Exported clips include audio.
- Multiplex video export of up to 9 video streams in single AVI file.

Live Video:

- Full-featured Windows, Web, and Mobile Clients included for free.
- iPhone and iPad Vi Mobile app available for free through Apple App store.
- Android Vi Mobile app available for free through the Google Play.
- Mobile App support, live and recorded video streaming, Maps, and Control
- functionality, and PTZ camera control. Browser agnostic Web Client works with many popular browsers, and has full support for Chrome and IE.
- VI MonitorPlus: Workspace Home Screen with Custom Quick Launch options.
- Workspaces : Tabs which allow for easy multi-tasking.
- Dynamic aspect ratio control for complete camera layout from 16:9 or 4:3.
- High Speed Video Viewing via Active X for IE only.
- VI Monitor for MAC
- Quickly navigate between cameras from any server using Windows Explorer tree structure
- Unlimited user seats for viewing clients
- Create customized layouts and layout groups (MOVE)
- Create custom layout by dragging and dropping cameras.
- Predefined layouts stored in the database can pull cameras from multiple servers, restricted by security level
- Camera touring or Layout sequencing
- 180° stitched layouts for supported cameras.
- Single, Quad and Panorama views for fisheye 360° cameras
- Advanced camera features from Panasonic, Axis, Sony, Sentry360, Pelco and ImmerVision.
- Easy PTZ control options included on-screen overlay Via collapsible right menu bar.
- Cycle PTZ presets, pausing for specified interval
- PTZ control with USB Joysticks
- Option to lock down non-admin users from PTZ controls
- PTZ Prioritization – Users can be ranked to determine who has PTZ operations at a specific time.
- Search box allows quick access to any camera or server - search by partial name or IP address. (WEB CLIENT only)
- Push live video pop-up windows to other logged in users.
- 2Way audio allows operators to interact with video.
- • Create Covert cameras by removing from navigation.
- High Performance option renders video in real time.
- Run in Full Screen mode with limited menus.
- Multi monitor support Via Free floating Workspaces.
- Video Wall app supports up to 64 monitors.
- Operators can push single camera or layout to a Video Wall.
- Motion alerts displayed for each camera.
- Option to play sound on motion alarm.
- Launch clients in full screen mode to predefined layouts.
- Public View App displays live images directly from camera without connecting to a server.
- Lane Viewer App displays live images along with card holder picture and information to verify identity.

Facility Maps:

- Easy Map creation. Setup requires a JPEG, BMP or GIF images of layout, which can be populated by drag and drop Icons of doors, camera, and panels available on server.
- Create Multilevel mapping provides quick access to multi-level layouts.
- Live icons provide system info such as door states or live views with a click of a mouse.
- Zoom into maps or navigate between multiple layers.
- Quick access to recorded video from facility maps.
- Launch specified facility map on startup.
- View maps from Windows, Mobile, or Web Clients.
- Mouse over Layout icons to switch live displays to groups of cameras in the area.
- Access Control dynamic menu through Facility Maps, provide detailed information through one central location.

Notifications & Automation:

- Pop-up live windows of alarmed cameras.
- Red outline in camera layout on alarm conditions.
- Play audio file on alarm to alert operator customizable per user.
- Pop-up window with detailed instructions for operator.
- E-mail or send Custom Messages text Flashback Images, Interval snapshots, or Video Clips.
- Alerts can be directed to specific users or groups.
- Powerful Rules Wizard allows easy configuration to take actions after an event.
- Motion alerts displayed for each camera.
- Option to play a sound on motion alarm.

- Send JPEG snapshots on an interval or on motion.
- Alter operators of camera side Analytic events.
- Using Camera Analytic, such as Tripwire, count people.
- Video Bookmarking, for tracking events on timeline with notations attached.
- entering and exiting facility to keep running total and alert if threshold exceeded.

Enterprise Functionality

- Support for unlimited cameras and recording servers.
- Developed from open technologies based around Microsoft .Net and SQL platforms, allowing easy integration with 3rd party application via the well-defined SQL tables.
- Distributed login to any server prevents single point of failure
- Optimized for Centralization: Includes centralization of Servers,
- User database, cameras, layouts, and full system management
- Support for both centralized and distributed architectures
- Use existing SQL Server infrastructures or included SQL Express
- Centralized Management for all camera configurations &all servers are done from one easy-to-use setup screen.
- Clients can connect to a single IP address to access the entire system.
- Assign individual camera permissions to users or groups.
- All system and user settings are stored in SQL database.
- Automatic Failover.
- Health Monitor – comprehensive monitoring and alerting of system status.
- Audit Trail: User logins & configuration changes tagged in a SQL.
- Custom application Plugins: IE Point of Sales, GPS Location, and More.
- Automatic upgrade of client applications.
- Complete system performance statistics including – Storage, Bandwidth, resolution, format and frame Rate.
- Hidden Views: Users only see assigned views regardless of number of servers.
- Export camera and server information in Excel format.
- Camera Maintenance logging and tracking .Net-based.
- Software Development Kit.
- Multi Languages Available.
- Camera Setup Template Support.
- Review recorded events across Multiple cameras quickly Via smart
- Thumbnails search for precise investigation. (7.1)
- Customizable Server and Cameras Groups.
- Customizable Facility Maps and View Groups.
- Deep integration for over 4,100 camera models from 154+ manufacturers.
- Universal camera driver provides support for almost all other
- cameras via ONVIF, RTSP or HTTP
- Multi-streaming
- Camera auto discovery
- Send live video to Axis Decoders
- Rules and events can Trigger Digital Inputs and Outputs along with .exe applications or batch files.
- Robust scalable design, with a pure 64-bit Server and Client application that allows server & client software to efficiently take advantage of full machine memory.
- Email support for SSL and alternate ports, supporting Gmail and Hotmail.
- VI includes MonitorCast : a fully integrated, enterprise level, Mercury based, access control platform at no cost.
- VI has full support for Virtualization: Includes VMware, Hyper-V, XenServer.
- Action Center for all: recorded video logs, notifications, and system alerts.

Security:

- Video Tampering & Validation built within the Software.
- Privacy Zones for sensitive areas for any camera in layout.
- SSL certification needed to secure web client transmissions
- Multi-level security including restriction of setup, management, live and recorded viewing, PTZ operation, access to layouts, facility maps, rules and clip creation.
- Enterprise-wide user management tool for local users.
- Authenticate users with a Video Insight user database or with integration of users and groups imported from Active Directory, & LDAP. Assign individual camera permissions to users or groups.
- Comprehensive log of all changes to system
- Option to restrict users from logging in from multiple locations
- Limit users to a single login per username.
- Server Software runs as a Windows Service, for easy log retention.
- IP Server connects to all cameras; viewing clients in turn are connected to the IP Server to prevent direct camera connection
- Option to restrict users from accessing system from multiple locations.

Storage:

- Flexible Open storage design with no limits on support for internal or external storage arrays such as NAS, SAN, and ISCSI drives.
- Support for Pivot3 Cloudbank failover architecture and Dell EqualLogic solutions.
- Option to move recorded video from either cameras or servers, on a set schedule, for long term storage or Archiving needs.

Performance

- Full Support for GPU transcoding, and Hardware acceleration for greater stability, expandability, and higher video quality.
- 4Gbs bandwidth throughput per OS, for unprecedented system scalability and performance.
- System resource load balancing for optimized performance.
- Support for multiple 4k camera loadout and 30 FPS playback.
- System Support for 40 Megapixel IP cameras at 30FPS playback.
- No limitations on software for number of viewing client connections.

Easy Licensing

- Simple Per camera licensing structure, available in single camera increments.
- No extra licensing costs for client applications, or annual maintenance fees.
- No base or server license fees when using genuine Video Insight servers.
- Individual camera's MAC address not required for easy servicing and replacements.
- Multi-stream connections from one camera only require one license.
- Only 1 license needed for most 180° and 360° multi-sensor cameras.
- Panasonic i-Pro and Advidia cameras require no camera licensing.

Support

- Lifetime U.S Based technical support included: Monday- Saturday for trouble shooting, configuration support, and remote assistance.
- Unlimited Live Web-Based training included with Video Insight.
- Unlimited software updates included for version.

Access Control Integration:

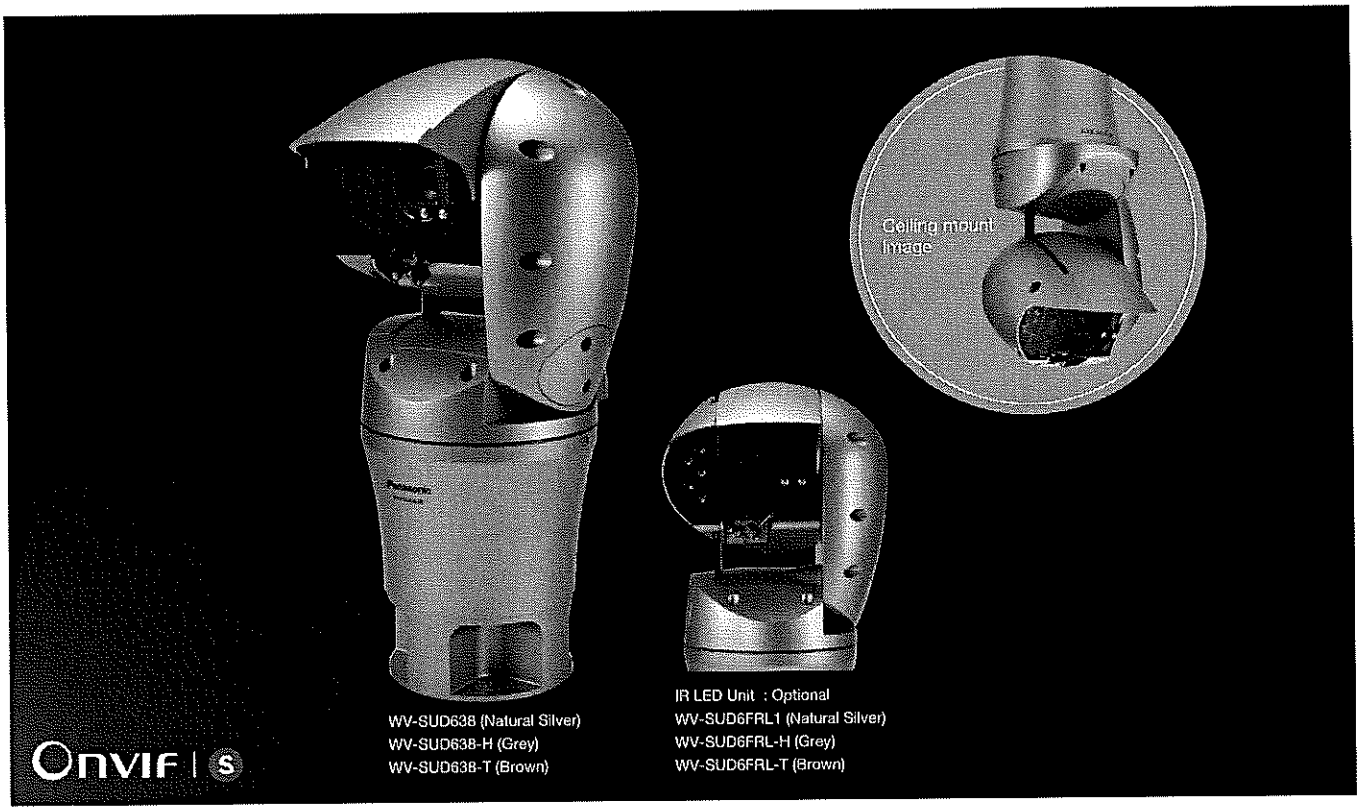
- Maxxess
- MonitorCast4.X
- Badge Pass
- Wren Solutions
- Paxton
- Sureview
- IMRON
- RBH Axiom V(AX5)
- Gallagher
- Open Options
- Infinias
- Lenel
- Secure
- Continental
- Isonas
- AMAG
- DSX
- RS2
- S2
- Blackboard
- Software House

Panasonic
BUSINESS

Anti-severe weather
PTZ network camera

WV-SUD638

AeroPTZ



High durability under arctic -to- desert weather conditions and salty gust winds for tough operations

Key Feature

- Full HD (1080p) 60 fps, x30 zoom lens
- **Built-in wiper and Auto defroster**
- Wind load durability **60 m/s (135 mph)** (operation)
  80 m/s (180 mph) (non-destructive)
- **Video SAS (Stability Augment System)** for high-class image stabilization
- "Sphere vision" provides **360° 3D viewing** (Pan : 360° endless, tilt : 90° to -90°)
- Temperature **-50 °C to +60 °C (-58 °F to +140 °F)***
- **IP67**, IP66, IK10 certified
- **Optional IR LED light** (up to **150 m/500 feet**, zoom interlocking)
- **Anti-salt air corrosion protection** ideal for seaside operations
- **Smart coding mode** for additional compression

* Natural Silver model only. Not available IR LED Unit when the temperature is over 55 °C.
Grey & Brown model : up to +55 °C.

Design Concept — Camera Aerodynamics

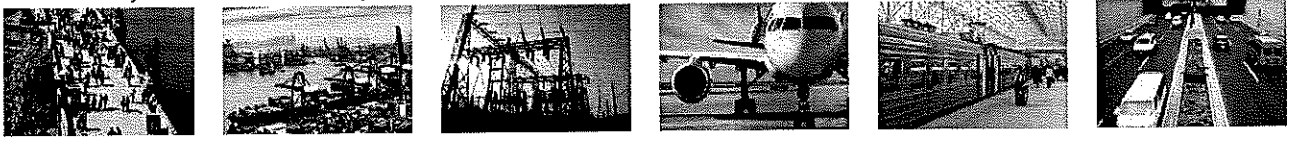
1 **Aerodynamic Spheroid** ····· "360 deg. aerodynamic spherical design" minimizing interference drag for more visual stability.

2 **Intelligent Radius** ····· Unique radius bodyline keeps snow and dirt off.

3 **Glass fiber body** ····· Deliver excellent strength, and anti-corrosion

Industry examples

Safe city | Port facility | Critical Infrastructure | Airport | Railway | Traffic



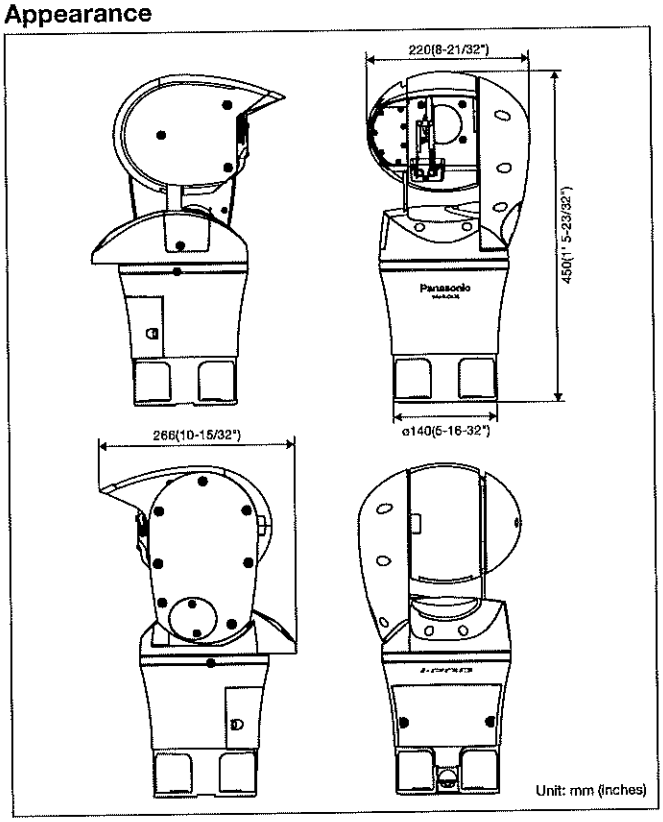
Specifications

Camera	Image sensor	Approx. 1/3 type MOS image sensor
	Minimum illumination	Color : 0.06 lx (F1.6, Maximum shutter : Off(1/30 s), AGC : High) 0.004 lx (F1.6, Maximum shutter : max. 16/30 s, AGC : High)* BW : 0.02 lx (F1.6, Maximum shutter : Off(1/30 s), AGC : High) 0.001 lx (F1.6, Maximum shutter : max. 16/30 s, AGC : High)* 0 lx (F1.6, Maximum shutter : Off(1/30 s), AGC : High, when the IR LED (Optional) is lit) * Converted value
	Super Dynamic*1	Dynamic Range 105 dB typ.
	Image settings	Gain (AGC), White balance
	Image compensation	Adaptive black stretch, Back light compensation (BLC), Fog compensation, High light compensation (HLC), Digital noise reduction
	Shutter speed	[2 mega pixel [16 : 9] (60 fps mode)] Off(1/60) to 1/10000 Other than [2 mega pixel [16 : 9](60 fps mode)] Off(1/30) to 1/10000
	Day/Night (ICR)	Off / On / Auto1(Normal) / Auto2(IR Light) / Auto3(SCC)
	IR LED Light (Optional)	Off / Auto (High / Mid / Low) Irradiation distance : 150 m (500 feet)
	Image stabilization	On / Off *Hybrid image stabilizer
	Privacy zone	Gray / Mosaic / Off (up to 32 zones available)
	Camera title on screen	Up to 20 characters (alphanumeric characters, marks)
	Video Motion Detection (VMD)	On / Off, 4 areas available
Lens	Zoom Ratio	30x / 45x with HD extra optical zoom (at 1280 x 720) (Motorized zoom / Auto Focus)
	Digital (electronic) zoom	x1, x2, x4
	Focal length	4.3 mm – 129 mm (3/16 inches - 5-3/32 inches)
	Maximum Ratio Aperture	1 : 1.6 (WIDE) - 1 : 4.7 (TELE)
	Focus range	2.0 m – ∞
	Aperture range	F1.6 (WIDE) - Close
	Angular field of view	[16 : 9 mode] Horizontal : 2.3° (TELE) – 64° (WIDE) Vertical : 1.3° (TELE) – 38° (WIDE) [4 : 3 mode] Horizontal : 1.8° (TELE) – 50° (WIDE) Vertical : 1.3° (TELE) – 38° (WIDE)
Pan/tilt unit	Panning Range	360° endless
	Panning Speed	Manual : approx. 0.065°/s to 100°/s Preset : up to approx. 200°/s (Except when IR LED Unit is equipped, forward tilt mount, frozen.)
	Tilting Range	Upright : –45° to +90° Forward tilt : –90° to +90° Hanging : –90° to +30°
	Tilting Speed	Manual : approx. 0.065°/s to 100°/s Preset : up to approx. 200°/s (Except when IR LED Unit is equipped, forward tilt mount, frozen.)
	Preset Positions	256 positions
	Auto Mode	Auto track / Auto pan / Preset sequence / 360 map-shot / Preset map-shot / Patrol
	Self Return	10 s to 60 min
	Tilt flip	On / Off
	Map Shot	360° map shot / preset map shot
Network	Network IF	10Base-T / 100Base-TX, RJ45 connector
	Image Resolution H.264 JPEG (MJPEG)	•2 mega pixel [16 : 9] (60 fps mode / 30 fps mode) H.264 : Minimum 1,920 x 1080 JPEG : Minimum 1,920 x 1080 •1.3 mega pixel [4 : 3] (30 fps mode) H.264 : Minimum 1,280 x 960 JPEG : Minimum 1,280 x 960
	Image compression method	H.264 Transmission Mode : Constant bit rate / Variable bit rate / Frame rate priority / Best effort / Advanced VBR Transmission type : Unicast / Multicast JPEG Image Quality : 10 steps Multiple streams individually configurable
	Intelligent compression	Smart coding, VIQS (ROI)
	Audio compression	G.726 (ADPCM) 32 kbps / 16 kbps G.711 64 kbps AAC-LC*2 64 kbps, AAC-LC(High quality)*2 64 kbps / 96 kbps / 128 kbps
	Protocol	IPv6 : TCP/IP, UDP/IP, HTTP, HTTPS, FTP, SMTP, DNS, NTP, SNMP, DHCPv6, RTP, MLD, ICMP, ARP IPv4 : TCP/IP, UDP/IP, HTTP, HTTPS, RTSP, RTP, RTP/RTCP, FTP, SMTP, DHCP, DNS, DDNS, NTP, SNMP, UPnP, IGMP, ICMP, ARP
	Maximum concurrent access number	Up to 14 users (Depends on network conditions)
	Mobile terminal compatibility (As of September, 2016)	iPad, iPhone, iPod touch (iOS 4.2.1 or later) Android™ mobile terminals
Environment	Water and Dust Resistance *3	Main body : IP66, IP67, IEC60529 measuring standard compatible, Type 4X(UL50), NEMA 4X compliant Waterproof RJ45 connector, Waterproof power connector, Waterproof I/O connector
	Shock resistance	Compliant with IK10 (IEC 62262)
	Salt damage resistance	ISO14993 compliant
	Resistance to wind	60 m (135 mph) (Operation) / 80 m (180 mph) (Installation limit)
General	Power source	AC100 to 240 V, 50 Hz / 60 Hz Tested PoE Injector* (60 W) *with limitations
	Operating environment	Ambient operating temperature : –50 °C to +60 °C (–58 °F to 140 °F)* (When using AC100 to 240 V) –30 °C to +60 °C (–22 °F to 140 °F)* (When using tested PoE Injector) (Power on range : -30°C to +55 °C(–22 °F to 158 °F)) *Natural Silver model only. Not available IR LED Unit when the temperature is over 55 °C. Grey & Brown model : up to +55 °C. Ambient operating humidity : 10 % to 100 %
	External I/O terminals	ALARM IN 1(DAY/NIGHT IN, Auto time adjustment), ALARM IN 2(ALARM OUT), ALARM IN 3(AUX OUT), Relay connection (x1 for each)
	line input	ø3.5 mm monaural mini jack Input impedance : Approx. 2 kΩ (unbalanced)
	For line input	Input level : Approx. –10 dBV
	Audio output	ø3.5 mm stereo mini jack (monaural output) Output impedance : Approx. 600 Ω (unbalanced) Using Amplifier built-in external speaker Output level : –20 dBV
	Dimensions	220 mm (W) x 450 mm (H) x 266 mm (D) (8-21/32 inches (W) x 1ft 5-23/32 inches (H) x 10-15/32 inches (D))
	Mass (approx.)	Approx. 8 kg (17.64 lbs)
	Finish	Main body : High-strength resin of salt damage resistance WV-SUD638 : Natural Silver WV-SUD638-H : Gray (N7) WV-SUD638-T : Brown (Environmental color) Front glass : Glass, Clear

*1 Super Dynamic function is automatically set off on 60 fps mode.
*2 When "AAC-LC (HIGH QUALITY)" is selected, there are limitations about the following function.
- HTTPS is not available.
- The maximum concurrent access number is limited to 5

*3 Only when installation work specified in Installation Guide is properly performed and appropriate waterproof treatment is performed.

Appearance



Unit: mm (inches)

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• Design and specifications are subject to change without notice.
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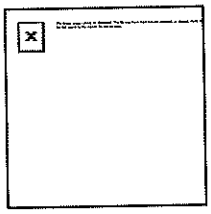

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4. FirstNet user advocacy team staffs up in advance of meetings
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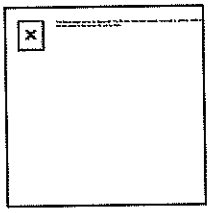

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Today's Top News

1. UN plans special meeting on technology and counter-terrorism

By Molly Bernhart Walker Comment | Forward | Twitter | Facebook | LinkedIn

A counter-terrorism committee established by the United Nations Security Council in the wake of the Sept. 11 attacks will hold a special meeting on preventing and combating abuse of Internet and communications technology for terrorist purposes.

The meeting and technical sessions will be held Dec. 16 and 17 in New York City, according to an announcement from the UN.

The Islamic State and other terrorist groups and their supporters use the Internet as a means to broadcast their radical ideology and as an effective recruitment tool, said a concept note (pdf) about the meeting.

"It is expected that participants in the special meeting will recommend a set of strategies to guide states and the private sector in their efforts to prevent terrorists from exploiting the Internet and social media to recruit terrorists and incite terrorist acts, while respecting human rights and fundamental freedoms," said the concept note.

During the event, speakers will map the landscape of current threats and challenges of terrorist use of ICT, as well as related privacy and freedom of expressions concerns, international cooperation and lessons learned from member states.

Among the sessions planned for the event (pdf), the committee intends to explore current efforts of the private sector to block services when used for terrorist purposes and to provide platforms for alternative voices and positive narratives.

"Good practices in formulating and disseminating effective counter-messaging from the private sector's perspective will also be addressed," said the agenda.

A complementary technical session (pdf) will cover how technology companies handle the "right to be free from arbitrary or unlawful interference of privacy and to freedom of expression in the context of counter-terrorism and ICT."

For more:
- read the announcement
- download the concept note (.pdf)

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2. Senators send ransomware inquiry to DOJ, DHS

By Molly Bernhart Walker Comment | Forward | Twitter | Facebook | LinkedIn

In letters to Justice and Homeland Security department leadership last week, Sens. Tom Carper (D-Del.) and Ron Johnson (R-Wis.) sought information on how government is combating the growing threat from ransomware.

Ransomware, a type of malware that forces targets to make online payments in order to regain access to their systems, is an increasingly popular cyberthreat especially targeting government at the state and local level, according to a Dec. 3 announcement from the senators.

"While much attention is paid to what must be done to bolster the cyber defenses at federal agencies and large businesses, all of us [are] vulnerable to online scams and emerging dangers like the malicious computer virus known as 'ransomware," said Senate Homeland Security and Governmental Affairs Committee Ranking Member Carper and Chairman Johnson in a joint statement.

Perhaps the most notable ransomware was "CryptoLocker," which infected more than 250,000 computers globally and targeted both businesses and consumers. The virus enabled the extortion of approximately $27 million from infected users in just two months, according to the senators.

In 2014, FBI and other authorities working with private sector partners in 10 different countries were able to take down CryptoLocker. However, Evgeniy Mikhailovich Bogachev, who is believed to have developed the ransomware is still at large and wanted by the FBI. The agency is offering a reward of up to $3 million for information leading to the arrest or conviction of Bogachev.

In letters to Attorney General Loretta Lynch and Homeland Security Secretary Jeh Johnson, the senators noted that, although CryptoLocker was successfully disrupted, just weeks later the FBI's Internet Crime Complaint Center identified a copycat virus named "CryptoWall."

"Between April 2014 and June 2015, the IC3 received 992 CryptoWall-related complaints, with victims reporting losses totaling over $18 million," said the letters.

Carper and Johnson want information on what DOJ and DHS are doing to address the growing threat of ransomware. The senators are seeking information on how many victims have reported ransomware-related crimes in the past 10 years, and an estimate of total losses associated with the cyberattacks.

DOJ and DHS are also asked to identify the active ransomware viruses currently being tracked by the departments, as well as how the two departments share threat information and coordinate with the Federal Trade Commission. The senators also want an update on

the challenges DOJ faces in capturing Bogachev.

Given DHS's governmentwide IT security monitoring role, the senators also wanted to know how many instances of ransomware DHS has been made aware of in federal agencies' computers in the past year, and which agencies and systems were involved. They also asked how DHS's EINSTEIN, ALBERT and Enhanced Cybersecurity Services intrusion detection and prevention systems are used to prevent ransomware.

For more:
- read the press release (includes full text of letters to Lynch and Johnson)

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3. First recommendations from NIST Joplin tornado study adopted

By Molly Bernhart Walker Comment | Forward | Twitter | Facebook | LinkedIn

The first policy changes have been adopted based on recommendations made in a technical investigation of the devastating tornado that struck Joplin, Missouri, in May 2011, according to the National Institute of Standards and Technology.

In March 2014, NIST published an in-depth report (pdf) on the wind pressure and debris that damaged buildings, the performance of emergency communications, the effect of public response to tornado hazards and shelter area performance on survival and injury, and building and emergency communications codes.

Sixteen recommendations came out of the Joplin study that would improve how buildings and shelters are designed, constructed and maintained in tornado-prone regions, as well as emergency communications and warning systems.

Marking a major milestone for disaster preparedness and response to the investigation, the International Code Council recently approved building code changes to the nation's most tornado-prone regions, according to a Dec. 7 press release from NIST.

The updated codes apply to an area stretching from northern Texas to central Minnesota and from western Oklahoma to western Pennsylvania. They require enhanced protection for new school

buildings and additions to buildings on school campuses as well as assembly areas, like gymnasiums. Storm shelters will also now be required to protect all occupants from storms with wind speeds of 250 miles per hour.

The improved storm shelter requirements that correspond to NIST recommendations will be published in ICC's 2018 International Building Code and 2018 International Existing Building Code, which are enforced by U.S. state and local governments, said NIST.

"Solid progress is being made working with code developers, state and local officials, U.S. agencies such as the Federal Emergency Management Agency and others toward realizing all of the proposed improvements for tornado protection and resilience in our study," said Marc Levitan, NIST's lead for the Joplin investigation, in a statement.

For example, Levitan's team recently helped FEMA improve guidance on public sheltering strategies and practices in a technical publication that came out in March.

Levitan said the code adoption is an important first step in the implementation of NIST recommendations from the report.

Recommendations that have yet to be implemented include recommendations to the National Oceanic and Atmospheric Administration for weather radar improvements, National Weather Service for publicly available tornado data and the National Fire Protection Association and federal partners for national codes and standards and uniform guidance for "clear, consistent, recognizable and accurate emergency communications and encompassing alerts and warnings, to enable safe, effective and timely responses."

For more:
- read the NIST press release
- download the report, "Technical Investigation of the May 22, 2011, Tornado in Joplin, Missouri" (.pdf)

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4. FirstNet user advocacy team staffs up in advance of meetings

By Molly Bernhart Walker Comment | Forward | Twitter | Facebook | LinkedIn

The group tasked with standing up a nationwide public safety

broadband network has made strides in rounding out its consultation team roster — an important factor in executing its ambitious outreach and engagement strategy for the coming year.

The First Responder Network Authority, or FirstNet, recently welcomed six new team members as regional, area and federal coordinators and a federal consultation liaison, according to a Dec. 7 announcement.

Three of the six hires come from the federal government — two from Immigration and Customs Enforcement and one from the Justice Department — and two from state government.

The hires came in advance of meetings this week in Houston, said a meeting announcement posted Nov. 30 in the *Federal Register*.

Today the group will hold a joint meeting of FirstNet's Governance and Personnel, Finance, Technology, and Consultation and Outreach committees, which will be followed by closed sessions through the afternoon.

During a session run by FirstNet's Public Safety Advisory Committee, the committee is expected to address issues related to priority access and preemption, according to *The National Law Review*.

The event is being live streamed for the public.

For more:
- read the press release
- read the meeting announcement
- go to the meeting page (includes live stream and transcript)

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5. DHS to announce terror alert system changes

By Molly Bernhart Walker Comment | Forward | Twitter | Facebook | LinkedIn

The Homeland Security Department will announce "in the coming days" changes to its terrorist threat level warning system, said DHS Secretary Jeh Johnson during *Defense One*'s Leadership Briefing in Washington, D.C., Dec. 7.

"We've replaced the color codes, the color bars with a system called

NTAS, the National Threat Advisory System, which we have never used, because it depends upon a specific credible threat to the homeland," Johnson told event attendees.

"I believe that in this environment, we need to get beyond that and go to a new system that has an intermediate level to it," he added.

Johnson said he would announce a new system soon that better "reflects the current environment and the current realities."

Johnson said the new system will more clearly reflect what the government is seeing, what it is doing about it and what the public should do.

"The NTAS system is intended to do that, but it has this trigger that's a pretty high bar, which is why we've never used it," he said.

Johnson told the *Defense One* event that this will eliminate "some of the mystery about the global terrorist threat."

For more:
- watch an archived video of the *Defense One* event

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Terror threat level high as it's ever been, says House Homeland Security Committee report
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6. Feds offer cities a transportation golden ticket

By Chris Nehls Comment | Forward | Twitter | Facebook | LinkedIn

The U.S. Department of Transportation is preparing to help small- and medium-sized cities that think big about the future of their transportation infrastructure.

The department announced Monday that it will award $50 million to the city between 200,000 and 850,000 people that devised the best plan to use cutting-edge technologies to improve local transportation for decades to come. Dubbed the Smart City Challenge, the prize competition was announced by Transportation Secretary Anthony Foxx in an exclusive story in *Wired*.

The competition is also a public-private partnership: Microsoft executive Paul Allen's Vulcan charity will contribute $10 million of the ultimate payout specifically to support infrastructure for electric vehicles.

To qualify for the prize, cities must not be part of a larger metropolitan region and must have a public transportation system. Participants are not required to work with nearby cities and towns.

Howard Jennings, managing director of the Virginia-based Mobility Lab, told *Wired*, "I think it's an amazingly good idea." While $50 million "can get eaten up in a heartbeat" by a construction project, this level of funding can support a robust slate of technologies.

Other than those baseline requirements, the Smart Cities Challenge offers few specific guidelines for cities to follow. Entrants must allow operations by "sharing economy" firms like rideshare services and commit to open data principles. They also should reflect the goals identified in Beyond Traffic 2045 (pdf), the DOT's broad policy framework to use connected technologies, data analytics and alternative fuels to address the challenges of future population growth and climate change.

While the DOT's announcement mentioned technologies like Intelligent Transportation Systems and automated vehicles, Secretary Foxx said the competition is designed to encourage cities to think broadly about bringing systemic change to their local transportation systems in the near future.

"We needed to do something that would basically jumpstart an entirely new, forward-looking conversation about what communities can do to build for the future," Foxx told *Wired*.

The hundred or so cities that qualify for the competition will have to hurry: proposals must be submitted by February 4, 2016. The department will select five finalists in March, which will each receive $100,000 to develop their plans further. The final winner will be announced in June.

For more:
- download competition guidelines
- read the *Wired* story
- read a Seattle Public Radio story

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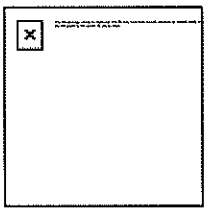

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Today's Top News

1. 'E-Neva Convention' needed to set international standards for cyberwarfare, say lawmakers

By Robert Bartley Comment | Forward | Twitter | Facebook | LinkedIn

Members of the House Intelligence Committee's National Security Agency and cybersecurity subcommittee sent an open letter to Secretary of State John Kerry and National Security Advisor Susan Rice last week urging the Obama administration to work to create clearer international laws and regulations for cyberwarfare and attacks.

The letter, which asked for a cyber version of the Geneva Conventions — the E-Neva Convention — was signed by ranking member of the subcommittee Congressman Jim Himes, chairman Lynn Westmoreland and other subcommittee members.

Defending against cyber incursions has become standard for the digital countries of the world, whether that be against independent cyber vandals or orchestrated nation-states. However, the members of the subcommittee warned about the possibility of a catastrophic

cyber event that could surprise the nation if standards aren't agreed upon.

"Today, at least 29 countries currently dedicate full military and intelligence units to cyber warfare," read the letter. "Intelligence and technology analysts have warned repeatedly about the potential devastation of a 'Cyber Pearl Harbor' — an attack on national infrastructure that could cause massive economic damage and leave millions of citizens exposed."

The letter also said that recent work, like the cyber agreements President Obama made with Chinese President Xi Jinping, are a step in the right direction. Further, efforts in the United Nations have led to a nonbinding affirmation that international law does extend to cyberspace.

The subcommittee members said a cyber agreement akin to the Geneva Conventions wouldn't necessarily prevent all cyberwarfare and bad behavior, though it "is in the best interest of all nations, however, to establish comprehensive, official norms for cyberspace."

For more:
- read the letter from the subcommittee members

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2. Privileged access to federal IT systems remains a problem, survey finds

By Molly Bernhart Walker Comment | Forward | Twitter | Facebook | LinkedIn

Federal workers may have more access to IT systems and

applications than they need, and those working in agencies' more sensitive systems often go unmonitored, a recent survey found.

Ninety-two percent of the 150 federal IT professionals surveyed said employees within their organization had access to more information than necessary to do their job. Only 47 percent said they log or monitor all administrative or privileged access, while 45 percent said they log some, according to a report published by Dell Nov. 9.

Identifying privileged users and doubling down on personal identity verification, or PIV, cards were a major focus of a "cybersecurity sprint" the Office of Management and Budget launched over the summer in response to recent breaches. Even if actual access management has improved as a result, keeping tabs on what is accessed once users are cleared for entry has not, said Paul Christman, vice president of Federal for Dell Software.

"We are getting better at knowing you are who you say you are, but we're not getting better at controlling what you do, once you've established who you are," said Christman.

Eighty-nine percent of federal respondents said better control of administrative or privileged accounts would reduce the risk of a security breach, while only 76 percent of non-U.S. federal respondents in a broader global survey agreed.

Only 19 percent of respondents change administrative and privileged passwords on mission critical systems and devices every 30 days, finds the report.

While the survey was conducted just prior to the cybersecurity sprint, it is unlikely better results would be reported today, said Christman. Agencies' recent work around PIV and multifactor authentication is a very meaningful step, he said, but it only protects against a very specific threat.

"I'm concerned that people are going to claim victory on the whole strong authentication and multifactor authentication. And we're just going to say 'mission accomplished,'" said Christman.

He added that those improvements really lay the groundwork for privileged session management and monitoring. Now that agencies have pushed hard on authentication, they're beginning to explore what more needs to be done to reduce risk from "the disgruntled insider," he said.

For more:
- download the report, which includes U.S. federal and global enterprise findings (registration required)

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3. IG finds security oversight of IRS data-sharing channels lacking

By Molly Bernhart Walker Comment | Forward | Twitter | Facebook | LinkedIn

The Internal Revenue Service shares information with federal, state, local, private sector and contractor partners through a system of interconnections, but not all of those channels for sharing sensitive data are secure, finds a new report.

"Many interconnections in use at the IRS do not have proper authorization or security agreements," finds a recently released report from the Treasury Inspector General for Tax Administration.

While the agency has designated an office to oversee that security controls are applied to such interconnections, the office only monitors and manages some — not all — agreements, says the report (pdf), which is dated Sept. 14.

"These system interconnections are critical and must be properly designed and managed to meet security requirements," said J. Russell George, Treasury Inspector General for Tax Administration, in a statement. "If not, failures could compromise the connected systems and the sensitive data that they store, process or transmit."

Several active interconnections lack proper security approvals and assurances, according to the audit. Report authors say an enterprise-level approach would better ensure that all external interconnections are monitored.

In a written response to a draft of the report, IRS Chief Technology Officer Terry Milholland agreed with all six recommendations issued in the audit.

Milholland said the IRS will identify external interconnections, establish a system for identifying external interconnections, stand up policies and procedures so that the interconnections inventory remains updated, establish a process to resolve agreement renewal issues, ensure that interconnection agreements are compliant and timely, and streamline interconnection agreement practices, according to the report.

For more:
- download the report (.pdf)

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4. Despite damning checkpoint review, watchdog optimistic about direction of TSA

By Molly Bernhart Walker Comment | Forward | Twitter | Facebook | LinkedIn

The latest round of covert tests of the Transportation Security Administration's airport screening operations unveiled serious problems, but the Homeland Security Department Inspector General said the agency is moving in the right direction.

The review, conducted in September, tested checkpoint operations as a whole in real world conditions, said DHS Inspector General John Roth during a Nov. 3 hearing before the House Oversight and Government Reform Committee.

"The failures included failures in the technology, failures in TSA procedures and human error. We found layers of security simply missing," Roth said in his prepared testimony (pdf).

"It would be misleading to minimize the rigor of our testing, or to imply that our testing was not an accurate reflection of the effectiveness of the totality of aviation security," he said.

TSA Administrator Peter Neffenger is just four months on the job, but he told lawmakers he's made it his "immediate priority" to pursue solutions to the inspector general's recent covert testing findings.

During his testimony, Roth said the department and TSA leadership is undergoing "critical self-evaluation" to address the issues in the latest report — which were not detailed during the hearing due to their classified nature.

"The department's response to our most recent findings has been swift," said Roth.

"Within 24 hours of the release of preliminary results of OIG testing, the secretary summoned senior TSA leadership and directed that an immediate plan of action be created to correct deficiencies uncovered by our testing. TSA has put forward a plan, consistent with our recommendations, to improve checkpoint quality in three

areas: technology, personnel and procedures," he said.

For more:
- go to the hearing page (includes archived webcast and prepared testimony)

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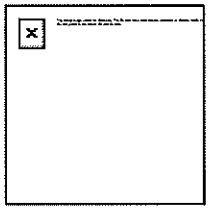

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2. Budget agreement could boost federal spectrum sharing, says NTIA official
3. Survey: Federal IT concerned about remote-, branch-office security
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Today's Top News

1. DoD moving $3.5B in IT systems to vacate spectrum, says Wheeler

By Molly Bernhart Walker Comment | Forward | Twitter | Facebook | LinkedIn

To support the federal government's recent spectrum auction to the private sector, the Defense Department is shifting its technology to operate in new radio frequency bands.

"I'm moving my systems," said Maj. Gen. Robert Wheeler, DoD's deputy chief information officer for command, control, communications and computers and information infrastructure capabilities.

"I'm moving approximately $3.5 billion worth of systems — whether that be on aircraft, ships, if you will, telemetry-type systems," he said during a Nov. 5 address at the Center for Strategic and International Studies in Washington, D.C.

At the same time DoD is transitioning its systems away from recently sold spectrum, it's also preparing for the possibility of yet another auction, said Wheeler.

As the department works with federal partners to determine the best opportunities to offload spectrum, owners of spectrum used for mission-critical purposes find themselves reminding stakeholders that usage alone is not a good indicator of spectrum that can be

sold.

"We always say, 'well, you don't use that spectrum very often. You only use that 5 percent of the time,'" said Wheeler during the event.

"Well, thank God," Wheeler said, joking that the band of spectrum in question might be used for a system that intercepts inbound missiles.

"You can't put someone commercially on that because if you do and I don't get it the day I [I need it], that's just a bad day for America," said Wheeler. "Once you walk through that, people realize it shouldn't be used 24/7 and you don't want that to happen."

During the event, Wheeler called the balance of licensed, unlicensed and government spectrum demands a "contested environment," especially in terms of DoD's use of spectrum-dependent technologies outside of the United States.

"Sometimes our bands don't match the other ones in the rest of the world. Our telecom band, for many cases, in different parts of the world, does not in any manner, shape or form represent the exact band in other countries," he said.

In a combat scenario, that means technology that works in a test environment at home might work differently abroad. Just turning on the technology could mean that a commercial incumbent or "a bad guy" could jam the signal, said Wheeler.

It's both an international regulatory challenge and a technological challenge, he said.

"We're moving out into new areas that we haven't had before, and there's going to be some rough edges," said Wheeler.

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- go to the event page
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2. Budget agreement could boost federal spectrum sharing, says NTIA official

By Molly Bernhart Walker Comment | Forward | Twitter | Facebook | LinkedIn

A two-year budget agreement signed by President Obama Nov. 2 will allow federal spectrum holders greater access to funds, which could boost spectrum sharing efforts, according to one National Telecommunications and Information Administration official.

Sec. 1005 of the Bipartisan Budget Act of 2015, Public Law 114-74, relaxed the definition of eligible federal entity, explained Peter Tenhula, deputy associate administrator for spectrum management at NTIA.

When federal incumbents are shifted out of their bands to free up spectrum for auction, they have to go somewhere. Usually that requires more fed-to-fed spectrum sharing, said Tenhula during a Nov. 5 panel discussion hosted by the Center for Strategic and International Studies in Washington, D.C.

Under the new law, agencies that sit in the third or fourth "domino bands" of spectrum — or those non-auctioned frequencies that are indirectly impacted — and incur costs as a result of having to share with other agencies or systems can tap into the Spectrum Relocation Fund.

Making sure that costs are covered both before and after the auction promotes information sharing, said Tenhula. "That's a big development," he said.

Tenhula noted that balancing spectrum access needs among agencies within the federal government is actually more difficult than negotiating in the commercial space.

"It's all about collaboration, and that's what we're working on," said Tenhula.

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3. Survey: Federal IT concerned about remote-, branch-office security

By Molly Bernhart Walker Comment | Forward | Twitter | Facebook | LinkedIn

New research reveals that nearly nine in 10 federal IT executives are concerned about data insecurity at remote or branch offices.

Thirty-one percent of the 108 respondents said their organization had experienced a remote office breach within the last 12 months, according to a new survey from Riverbed Technology, a San Francisco–based company specializing in application performance, and conducted by i360Gov.com.

"Branch offices are simply not equipped to protect sensitive government data in today's cyber security environment," said Davis Johnson, vice president of public sector at Riverbed Technology, in a Nov. 4 press release from the company.

Federal IT respondents viewed staff and data outside of headquarters as the biggest security risks. Thirty-three percent said that staff at branch offices are unable to effectively respond to security incidents and 24 percent said data stored at offsite locations raises risks.

More broadly, IT performance issues at remote and branch offices are a problem, with 44 percent reporting an outage or issue over the past year. Fifty-five percent of respondents cited networks as a root performance problem and 48 percent said it was services or hardware.

Thirteen percent said it often takes more than a day to resolve an outage.

Despite these issues, 65 percent said they would not consider moving branch IT from offsite locations.

"This contradicts popular 'best practice' thinking, which centers on

the need to centralize all IT operations and virtualize as much as possible to gain better control, management and security," said the report.

For more:
- read the press release
- download the report (registration required)

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4. Federal Reserve is in cross-hairs of cyberattackers, warns Fed official

By Fred Donovan Comment | Forward | Twitter | Facebook | LinkedIn

BOSTON – Cyberattackers are increasingly targeting the Federal Reserve System, which processes $4.5 trillion in electronic financial transactions every day, according to Don Anderson, senior vice president and chief information officer at the Federal Reserve Bank of Boston.

Anderson, who spoke at the Advanced Cyber Security Center's annual conference held here on Wednesday, identified four major cybersecurity risks for the Fed: Disruption of critical operations, compromise of the financial system, loss of sensitive information and diminished public confidence.

Anderson estimated that a few minute disruptions of the Federal Reserve's IT infrastructure could cost the U.S. economy millions, if not billions, of dollars.

A weak link in the Fed's cybersecurity defense is the small bank, which often doesn't have the resources or knowledge to institute strong cybersecurity practices and policies. Yet, small banks connect to the Fed's computer system just like the big banks, and therefore pose a potential cyber risk, Anderson said.

"If you are small bank with two or three branches, there are some cases where the person running the IT security is also a branch manager and responsible for providing the president with a new laptop," Anderson related.

"We saw this as a weakness in our overall supply chain because these banks have connectivity to the Federal Reserve. If those

banks are compromised, it could impact us or it could have a ripple effect on others," he added.

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5. State Department looks to enhance biometric identity assurance technology

By Molly Bernhart Walker Comment | Forward | Twitter | Facebook | LinkedIn

The State Department is considering updates to an identity assurance system that collects and matches fingerprint, iris and face data. The system, called Tactical High-Threat Operational Response, or THOR, needs additional work because the Defense Department halted in December 2014 a program with similar capabilities that was used by the State Department.

The State Department is seeking more information on how THOR can be better integrated, enhanced and how information retrieval capabilities can be improved upon, according to an Oct. 19 request for information posted to FedBizOpps.gov.

The THOR system, which is comprised of both hardware and software, has two main components that together "form an enterprise-ready, network-enabled collection, enrollment, submission, response aggregating, archiving and Identity Assurance architecture to support Diplomatic Security, High Threat Post operations worldwide."

The two parts are:

- The THOR Enrollment Collection Station subsystem, which can operate on a Windows 7 desktop and some laptops, tablets and Android devices.
- The DS THOR Broker, which is a full Client-Server-Database n-Tier architecture operating across a local area network or wireless area network.

Information gathered in response to the notice may inform a future contract. That contract would deliver technical and analytic support to the chief technology officer in the ongoing operations, maintenance, support and further development of additional components of the identity assurance system, says the solicitation.

For more:
- read the RFI on FedBizOpps.gov

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6. Encryption prevents the FBI from using its legitimate authority, says general counsel

By Fred Donovan Comment | Forward | Twitter | Facebook | LinkedIn

BOSTON – The Federal Bureau of Investigation and other law enforcement agencies are not able to use the existing legal mechanisms in place today, such as search warrants, to conduct investigations because of technical obstacles, James Baker, general counsel at the FBI, told an audience at the Advanced Cyber Security Center annual conference held here in Wednesday.

"We can get a Fourth Amendment warrant, we can meet the legal requirements, we show up with the order and we can't get the fruits of the surveillance for a variety of technical reasons, increasingly because of encryption," Baker said.

The FBI and other law enforcement officials have been locked in a battle with high-tech companies such as Apple and Google over the use of encryption to secure devices and communications to protect users' privacy.

Susan Landau, professor of cybersecurity policy at Worcester Polytechnic Institute, told the conference that she has seen a lot of distrust and anger among U.S. high-tech companies about U.S. government surveillance.

Because of the revelations by Edward Snowden and the FBI's efforts to gain access to encrypted information, "Silicon Valley really distrusts the U.S. government," Landau said. "Having spent some time at Google a couple of years ago, I saw just how high that level of tension was," she said.

At the same time, Silicon Valley wants to help law enforcement get access to information when it has a legitimate reason to do so, she added.

Eric Wenger, director of cybersecurity and privacy for global government affairs at Cisco Systems, stressed that encryption has

been beneficial to the U.S. economy, particularly in terms of protecting intellectual property and customer data.

Wenger said he understands that encryption increases the difficulties and complexity for law enforcement in conducting investigations.

"I sympathize with the frustration that law enforcement has when they go and try to execute the [court] order after jumping through all the hoops that are required and they are not getting back information in the form they are accustomed to receiving ... [Unlike in the past] there is no one place you can go to with the order and get the plaintext that would be familiar to law enforcement to advance their investigations," he concluded.

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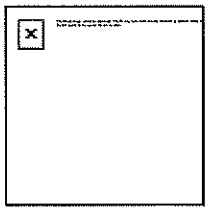

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Today's Top News

1. GAO doesn't fully endorse FITARA scorecard conclusions

By Molly Bernhart Walker Comment | Forward | Twitter | Facebook | LinkedIn

Yesterday morning, the House Oversight and Government Reform Committee released a scorecard grading agencies on their implementation of the Federal Information Technology Acquisition Reform Act, or FITARA — but during a hearing later that afternoon, a Government Accountability Office official said he did not fully concur with the conclusions the committee drew from agencies' self-reported data.

In the report, no agency received an "A" for its overall FITARA implementation grade and three agencies received an "F." Fifty-eight percent received a "D" for their performance implementing the legislation.

David Powner, GAO's director of IT management issues, faulted the scorecard for failing to offer accurate agency-to-agency comparisons — particularly in the area of data center consolidation. While the Treasury and Transportation departments received "F"s for missing goals, "we feel better about their Fs because they have high goals," said Powner during a Nov. 4 hearing of the House Oversight and Government Reform subcommittees on information technology and government operations.

"Some agencies that have 'A's and 'B's with low goals have achieved more than their goals. We don't feel so good about those," he added.

Powner said the Commerce, Defense, Homeland Security, Transportation and Treasury departments have been the most

successful in data center consolidation efforts; however, according to the FITARA scorecard for the data center consolidation category, only Commerce and DHS received "A"s. The other three received "F" grades.

Powner said the issue is important because data center consolidation presents a real opportunity to save money.

"This is the big dollar savings areas. FITARA requires annual publicly reported updates on savings. Our ongoing review for this committee highlights the importance of this section of the law," Powner told the committee.

Among other things, the legislation gives chief information officers a greater role in IT program governance, personnel processes and improves the transparency into IT investments. This summer, the Office of Management and Budget issued implementation guidance in the form of a memorandum on the "Management and Oversight of Federal Information Technology" (pdf).

OMB's FITARA implementation guidance uses a common baseline approach that outlines the roles and responsibilities of CIOs and other leaders, said Federal Chief Information Officer Tony Scott.

Scott noted that while agencies had submitted self-assessments on how current operations map to the common baseline, they aren't scheduled to submit an implementation plan to show how they will implement the common baseline requirements until the end of the year.

Key themes are already emerging from initial feedback, he said, including agencies' challenges with budget formulation, budget execution and IT acquisition.

"We're working actively with each agency to address these issues for their final plan," said Scott.

He said the real measure of agency performance will be seen in coming months and beyond.

"If we can really make progress in the next year or two, I think that's the real test," said Scott. "Hopefully, the scorecard can reflect real-time progress as we go down the road."

For more:
- go to the hearing page (includes archived webcast and prepared testimony)

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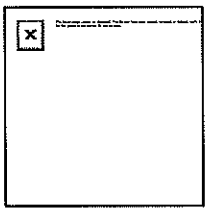

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2. DHS Secretary remains focused on E3A, CDM programs

By Molly Bernhart Walker Comment | Forward | Twitter | Facebook | LinkedIn

Homeland Security Department Secretary Jeh Johnson said he is determined to make "tangible improvements to cybersecurity" in the final months of the Obama administration through the department's EINSTEIN 3 Accelerated and Continuous Diagnostics and Mitigation, or CDM, programs.

"My goal, for the remainder of this administration is for the entire civilian government to be covered by a common baseline of security provided through E3A and CDM, and to maximize the number of companies benefiting from cybersecurity information sharing with the Department of Homeland Security," said Johnson during an event Nov. 4 hosted by the Council on Foreign Relations.

Under a cybersecurity plan unveiled by the White House Oct. 30, DHS is directed to make E3A protections available to agencies not currently shielded by E3A providers before the end of the calendar year.

Johnson said DHS now protects 47 percent of the federal government with E3A, and to date the intrusion prevention portion of the EINSTEIN program has blocked over 700,000 actions potentially aimed at stealing government data.

He said he has directed the agency to speed up E3A deployment with the intention of making at least one E3A security measure available to all federal agencies by the end of 2015. Johnson said DHS reached a major milestone Oct. 31, when its system to send and receive cyber threat information in near-real time became operational.

"We are working with multiple agencies and private sector partners to expand the number of those sharing and receiving information through the automated system," said Johnson.

DHS also recently made the first phase of its CDM program available to 97 percent of the federal civilian .gov network.

"We met this milestone weeks ahead of schedule," said Johnson. "Agencies are now working diligently to deploy CDM. Once fully implemented, CDM will monitor agency networks internally for vulnerabilities that could be exploited by bad actors and have reached the perimeter."

For more:
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3. NIST instructs agencies to use application control programs in new guidance

By Molly Bernhart Walker Comment | Forward | Twitter | Facebook | LinkedIn

The National Institute of Standards and Technology has published comprehensive resources on application whitelisting, as well as a step-by-step guide to implementing the technique to prevent malware intrusion.

Published last month, NIST Special Publication 800-167 (pdf) instructs federal agencies to use modern whitelisting programs, or application control programs, to stop cyber threats rather than slower, manual methods of whitelisting.

NIST also says whitelisting is an ideal solution for federal agencies and departments. While antivirus software blocks only known bad activity, whitelisting permits only known good activity, NIST Senior Information Technology Policy Advisor Adam Sedgewick said in a Nov. 5 press release, making it perfect for large entities with managed enterprise environments.

Report authors say agencies should take a phased approach with deployment, with risk assessment as the first step. Not only does the document provide guidance on evaluating application whitelisting technology, it covers important considerations for the

deployment of such solutions in different operational environments.

SP 800-167 also covers the use of application whitelisting on mobile platforms, with Appendix B dedicated to the subject. According to NIST, "typical standalone application whitelisting technologies are generally not available for mobile devices as of this writing."

NIST says mobile device management, mobile application management and enterprise app store technologies can help agencies achieve the same effect of whitelisting, however.

The new guidance incorporates feedback on the draft version of the publication, which published Aug. 22. The comment period closed Sept. 26.

For more:
- download NIST SP 800-167, Guide to Application Whitelisting (.pdf)
- read the press release

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4. White House launches senior leadership development program

By Chris Nehls Comment | Forward | Twitter | Facebook | LinkedIn

The White House Tuesday announced its inaugural cohort of a development program aiming to boost the skills of senior federal workers.

The first 16 fellows of the White House Leadership Development Program spend a year on rotational assignments working on cross-agency projects. They also will participate in exercises to encourage collaborative practices and discussions with practice area experts. And because it is Washington, D.C., fellows will have plenty of networking opportunities across government departments as well.

Fellows also will work on the implementation of the administration's 15 Cross-Agency Priority Goals for 2015 as determined by the Office of Management and Budget. These goals include mission-oriented challenges like climate change, cybersecurity and veterans' mental health, as well as management challenges like more effective IT product delivery and open data practices.

The program is open to federal employees at the rank of General Schedule-15.

President Obama announced the program last December as part of a broader administrative push to bring greater effectiveness and efficiency to the federal workforce.

"We want the next generation of leaders to have the experience of solving problems and building relationships across the government," Obama said at the time. "Because one thing that we have to acknowledge is that our government often statutorily was organized for the needs of the 1930s or '40s or '60s, and too often, we get stove-piped at a time when we need people with different skillsets and different agencies to be working together."

The fellows have received approval for promotion to the Senior Executive Service by completing agency candidate development programs, are enrolled in such a program, or have received high marks in annual department rankings.

For more:
- read this White House blog entry
- read this *Government Executive* story

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5. Proposed legislation would extend NCCIC to state, local government

By Molly Bernhart Walker Comment | Forward | Twitter | Facebook | LinkedIn

Legislation proposed Nov. 2 by Rep. Will Hurd (R-Texas) would allow state and local governments access to some cybersecurity resources previously only available to a select few in the federal government and private sector.

The State and Local Cyber Protection Act of 2015 [H.R. 3869] would direct the Homeland Security Department's National Cybersecurity and Communications Integration Center, or NCCIC, to help interested state and local governments.

It would also require the NCCIC to "seek feedback from state and local governments in order to report on the effectiveness of their

efforts," said Hurd's press release.

The NCCIC can help partners detect system vulnerabilities and identify solutions. It also provides technical, implementation and privacy training for cybersecurity analysts, noted the announcement.

It was recently elevated within DHS's department structure with the addition of an incident reporting line directly to DHS Secretary Jeh Johnson. It serves as a cyber information sharing hub, primarily serving federal agencies and private sector partners that compose the nation's critical infrastructure.

"This is common-sense legislation that strengthens our nation's cyber posture at every level of government," said Hurd in a statement.

For more:
- go to the Congress.gov page for H.R. 3869
- read the press release

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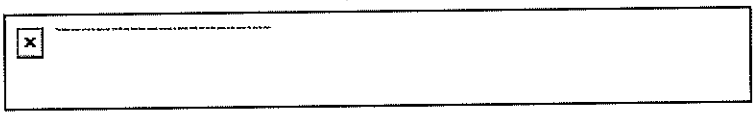

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Today's Top News

1. No winners and 3 failing grades in FITARA Implementation Scorecard

By Molly Bernhart Walker Comment | Forward | Twitter | Facebook | LinkedIn

The House Oversight and Government Reform Committee today issued the first version of its FITARA Implementation Scorecard. The assessment uses self-reported data to assign each of the 24 Executive Branch agencies a letter grade for their success or failure executing the Federal Information Technology Acquisition Reform Act, or FITARA.

No agency received an "A" for its overall FITARA implementation grade and three agencies received an "F," according to the scorecard (pdf).

A whopping 58 percent, or 14 agencies, received a "D" for their performance implementing the legislation, which gives CIOs a greater role in IT program governance, personnel processes and improves the transparency into IT investments, among other things. The committee doled out only two "B" grades, as well as five "C" grades.

"FITARA provides a set of tools and guidelines, that when implemented properly, allows agencies to better manage and secure IT systems and acquisitions. Legislation is only as good as its implementation. Congress will continue to oversee this process until quality IT systems are in place," said the legislation's five co-authors in a Nov. 4 statement from the House Oversight and Government Reform Committee.

This summer, the Office of Management and Budget issued implementation guidance in the form of a memorandum on the "Management and Oversight of Information Technology Resources" (pdf).

As part of the plan, OMB asked agencies to map any gaps between FITARA requirements and current IT operations and oversight by Aug. 15. OMB said self-assessments would be publicly released later with OMB approval.

FITARA Implementation Scorecard
November 2015

Agency	Data Center Consolidation[1]	IT Portfolio Review Savings	Incremental Development[2]	Risk Assessment Transparency	Overall Grade
USDA			D	B	D
DOC	A	B	C	A	B
DOD				C	D
Ed				D	
DOE				D	
HHS			B	C	D
DHS	A	C		B	C
HUD				A	D
DOI		B		A	C
DOJ	F			D	D
DOL			D	C	D
State	C				D
DOT				C	D
Treasury		B	D	D	D
VA			A	C	C
EPA			A	A	C
GSA	D	C	A	B	B
NASA		D			
NRC			A	A	C
NSF	A				D
OPM				B	D
SBA				B	D
SSA				D	D
USAID		C			D

[1] Three agencies—HUD, SBA, and USAID—did not report any planned data center consolidation cost savings goals; therefore, no grade has been determined for these agencies.
[2] This area measures agencies 'major' investments – defined as those that are spending at least 50% of their planned spending in development (per the Office of Management and Budget, *Fiscal Year 2016 Budget of the U.S. Government*). NASA, NSF, and USAID did not have any projects that met this definition.

Image: House Oversight and Government Reform Committee

The committee graded agency implementation in four areas: data center consolidation, IT portfolio review savings, incremental development and risk assessment transparency.

Agencies performed best in the area of risk assessment transparency — earning five "A"s and only four "F"s. The category relates to a requirement in FITARA that CIOs assess the risk associated with each major IT investment meeting its goals. Consistently high-risk investments face closer review, according to a document outlining the scorecard process and methodology (pdf).

The report card shows that agencies struggle most with IT portfolio review savings. That review category yielded 16 "F" grades and only one "A."

"FITARA requires the Office of Management and Budget to develop and most agencies to implement a process to review agency IT investment portfolios in order to, among other things, increase efficiency and effectiveness, and identify potential waste and duplication," says the methodology document.

For more:
- read the press release
- download the scorecard results (.pdf)
- download the scorecard backgrounder (.pdf)

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2. Triplett to serve as OPM cybersecurity advisor

By Molly Bernhart Walker Comment | Forward | Twitter | Facebook | LinkedIn

The Office of Personnel Management appointed Clifton Triplett as senior cyber and information technology advisor this morning, according to a statement emailed to reporters.

The former management consultant brings "IT organizational transformation experience" to the agency, which is recovering from two major breaches that led to the theft of some 21.5 million individuals' personal information and rocked federal IT.

With Triplett's appointment, the agency took an important step in the implementation of OPM's Cybersecurity Action Report. In addition to adding the cybersecurity leadership post and working more closely with its inspector general, the plan called for security upgrades such as requiring continuous monitoring and multifactor authentication across the OPM enterprise.

"Today's announcement of hiring Clif builds on the growing capacity here at the Office of Personnel Management and underscores our relentless dedication to protecting this agency's valuable IT systems and information," said OPM Acting Director Beth Cobert, who called Triplett's experience building IT infrastructure "top-rated."

In the new position, Triplett will work in parallel with OPM's chief information officer and report directly to Cobert, according to the press release.

"Triplett will serve as a key advocate for advancing the state of enterprise architecture and cybersecurity, including information technology investments, capabilities and services," said the agency in the statement.

On June 4, federal officials said the personally identifiable information of about 4 million current and former federal employees was compromised, but further investigation revealed the extent of a second breach of background investigation files a month later, bringing that total number of people who had their sensitive information, including Social Security numbers, stolen to 21.5 million.

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3. Census puts $5.2B in savings at risk with slow decision-making, says GAO

By Robert Bartley Comment | Forward | Twitter | Facebook | LinkedIn

The Census Bureau is "running out of time" to make key IT decisions that could save the agency as much as $5.2 billion in operational expenses, according to the Government Accountability Office.

Those billions in savings are part of a wider effort to redesign the Census Bureau's back-end and field processes for efficiency. However, Carol Cha, GAO's director of IT acquisition management issues, said the agency is falling behind in making expedient choices to prepare for the 2020 census. Cha testified Nov. 3 before the House Oversight and Government Reform subcommittees on government operations and information technology.

"With less than two years remaining until the bureau plans to have all systems and processes for the 2020 census developed and ready for end-to-end testing, it faces challenges that pose significant risk to the 2020 Census program," Cha said. "These include the magnitude of the planned changes to the design of the census, the bureau's prior track record in executing large-scale IT projects, and the current lack of a permanent Chief Information Officer, among others."

Additionally, Cha said the bureau hasn't yet fully decided how to deliver certain IT systems needed to support its redesign, lacks adequate IT workforce management, and has already surpassed some redesign deadlines and pushed them to sometime between 2016 and 2018. Further, she said 49 of the 115 security actions GAO recommended in 2013 to protect census data remained

open, with at least 30 requiring additional action.

According to GAO, the Census Bureau's proposed efforts in comparison to costs if the census was carried out as it was in 2010 could save $900 million in reengineering address canvassing, $400 million in optimizing self-response options, $1.4 billion in using administrative records to cut down on follow up attempts and other redundancies, and $2.5 billion in reengineering field operations.

Besides redesigning processes for external operations, the Census Bureau is simultaneously undertaking a Census Enterprise Data Collection and Processing, or CEDCAP, initiative to build out systems to allow more flexibility on the back end and in the field.

For example, the bureau is investigating nearly every kind of popular enterprise mobile solution to deploy for data collection during, from Device-as-a-Service to BYOD applications on iOS and Android tablets and smartphones for BYOD use, according to Department of Commerce CIO Steven Cooper, who also testified Tuesday.

However, Cha said a similar project for the 2010 census that, due to problems in testing, budget overruns and schedule failures, ended up seeing the bureau revert to traditional, paper-based processes, costing the agency up to $3 billion.

The Census Bureau is in a transition from "planning to execution" for the 2020 Census, Cooper said.

"Based on my observations, the Census Bureau is well positioned as compared with prior decades to take advantage of early planning, testing and operational designs. The 2020 Census program is also well positioned to leverage enterprise initiatives to realize significant efficiencies," such as cloud and mobile solutions, Cooper said.

He pointed to the agency's 2020 Census Operational Plan, which it issued last month, as being released three years earlier than one from the 2010 census and an indication of the organization's preparedness. Further, he said the bureau has enlisted the services of the General Service Administration's 18F team for expertise on filling workforce gaps in high-demand tech areas like cloud computing and security.

For more:
- go to the hearing page (includes archived webcast and prepared testimony)

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4. Alexander: Nation unprepared for cyberattacks that may be triggered by current climate

By Molly Bernhart Walker Comment | Forward | Twitter | Facebook | LinkedIn

Cyber offensive capabilities are increasingly employed by nation state militaries — especially by those involved in today's most sensitive geopolitical spheres. The U.S.-Iran nuclear deal, Russia's involvement in Syria, and unrest in Ukraine and North Korea all present areas of risk that could trigger cyber action, said Retired Gen. Keith Alexander, the former director of the National Security Agency and head of U.S. Cyber Command.

"Those nations who disagree with us are looking at ways to come at us using the full spectrum of power — diplomatic, political, economic, military — and within military, the easiest form for at least Russia and Iran has been cyber," said Alexander during a Nov. 3 hearing before the Senate Armed Services Committee.

"I expect these countries to come back at us with cyberattacks and they can say, 'not our guys,'" Alexander told the committee. "It's an asymmetric way of hitting our country that can cause tremendous damage. And our nation is not ready for these kinds of attacks, across the board."

The United States faces several challenges in terms of building cyberdefenses and deterring cyber conflict, said Peter Singer, strategist and senior fellow at the New America Foundation.

Singer said many of the Defense Department's cyber exercises have focused on validating existing concepts or "making allies feel better about themselves." It also leans too heavily on budget inflexibility as an excuse for inaction in advancing cyber capabilities, when the core problem is often "culture of implementation," he said.

Singer warned that DoD is building new capabilities but "putting some of them into old boxes."

"So, we've built up Cyber Command but we still have a system where the Pentagon's own weapons test found, in their words, significant vulnerabilities in every single major weapons system," said Singer.

Singer said the department should instead look at alternative approaches, such as the model of the Estonian Cyber Defense League.

While Estonia was one of the first examples of a victim of a nation-state cyber attack, from Russia in 2007, it has gone on to have one of the strongest cyber defense programs. Sen. John McCain (R-Ariz.), chairman of the committee, said many in the private sector are resistant to the Estonia model as its information sharing models do not afford industry adequate privacy protections.

Alexander noted that pooling private and public sector resources is a critical part of the solution.

"The commercial industry spends billions if not trillions of dollars each year in cybersecurity alone ... If we have government and industry work together in a way that was meaningful, so that when they applied those resources to help give a more reflective surface in cyber that would tell the government when the

government has to act, you could focus government resources where it's really needed," said Alexander.

For more:
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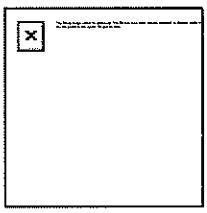

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Today's Top News

1. DISA's changed cloud broker role 1 year later

By Molly Bernhart Walker Comment | Forward | Twitter | Facebook | LinkedIn

Nearly one year ago, Defense Department Chief Information Officer Terry Halvorsen signed a memorandum (pdf) that allowed the military services to handle their own acquisition of commercial cloud computing technology rather than requiring the Defense Information Systems Agency to serve as middleman.

In empowering the services, the approach effectively reversed a June 2012 memo from former DoD CIO Teri Takai that required DISA to negotiate relationships between cloud providers and consumers, and manage the use, performance and delivery of cloud services.

"Our role has changed in a number of ways," said Jason Martin, deputy program executive officer for enterprise services at DISA, during a Nov. 2 media roundtable at DISA's Forecast to Industry in Washington, D.C.

In its broker role, DISA is working with mission partners and industry to identify requirements for the second iteration of milCloud — DISA's on-premise cloud solution that leverages the DoD network, which launched as version 1.0 in March 2014.

"Traditionally we've looked at things from a network perspective. We're starting to look at them from a database [perspective]," said Martin. "Given the type of data, some people may be more comfortable with an on-premise, off-premise, commercial facility, defense data center."

Under Halvorsen's December 2014 memo, DISA technically remains

DoD's cloud broker, in that it reviews and approves the security of commercial cloud vendors used by the department.

"We're leveraging more and more commercial capabilities within the department," acknowledged John Hale, chief of enterprise applications at DISA.

The General Services Administration–led Federal Risk and Authorization Management, or FedRAMP, program is the first step commercial cloud services must take in getting a provisional authorization from the Department of Defense through DISA's Cybersecurity Risk Management Executive John Hickey. However, milCloud is not required to have FedRAMP authority to operate as a baseline security requirement.

"We've gotten some pushback from our commercial providers because milCloud 1.0 didn't have to meet the same requirements that they have to meet. And as we shift forward, if more and more work goes to commercial cloud providers, I think you'll see that line come down to a much closer point," said Hale.

Jack Wilmer, DISA's infrastructure development executive, said last year's memo also highlighted the importance of cloud access points, which provide a place for commercial cloud applications to "talk back to DoD networks and get information."

"DISA isn't the only provider of cloud access points. There is no mandate that you have to use DISA, but that is one function that was in that memo in terms of designation that DISA will provide cloud access points to be able to connect department networks to the commercial cloud," he said.

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2. Federal government trails state, local and city in IoT adoption, says IDC

By Molly Bernhart Walker Comment | Forward | Twitter | Facebook | LinkedIn

State, local and city governments are more mature adopters of Internet of Things technology than the federal government, according to a new report from market research firm IDC Government Insights.

"The IoT is one of the few areas where local government spending leads," write report authors Ruthbea Yesner Clarke and Shawn McCarthy. "In other areas (say general software or hardware consumption), federal civilian and DoD spending tend to be significantly higher than local."

Many IoT use cases, such as traffic lights and toll plazas, have a local element, they say. But even though it's not as far along, the expected trajectory of IoT technology is significant, especially for the Defense Department.

Federal civilian and DoD IoT spending is expected to see a compound annual growth rate of 17.1 percent from 2013 to 2018, predicts IDC. For fiscal 2016, IDC expects federal civilian agencies and departments to spend $3.5 million and the DoD to spend $5.4 million on IoT technology hardware, software, IT services and connectivity.

From a growth rate perspective, connectivity spending will lead, driven in part by the proliferation of security- and energy-related sensors in and around government buildings, finds the report.

A Washington, D.C.–based think tank recently said DoD is "falling behind" in its deployment of IoT technologies. In a September report, the Center for Strategic and International Studies found gaps in the department's current and planned use of IoT systems.

The current approach is focused on combat applications, specifically the millions of sensors across a range of platforms that provide situational awareness, but IoT has many noncombat applications as well, such as for tracking shipments and managing inventories, said report authors.

For more:
- download "Perspective: Internet of Things Forecast by Level of Government – Substantial Growth Through 2018" (purchase required)

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3. Excess unobligated program balances were helpful during the 2013 shutdown, says GAO

By Molly Bernhart Walker Comment | Forward | Twitter | Facebook | LinkedIn

While auditors may typically frown on agencies' unobligated funds exceeding balances, the practice is sometimes justifiable, and it was particularly helpful during the 2013 government shutdown, says an Oct. 30 Government Accountability Office report.

In a report that examined how agencies managed and used unobligated balances from fiscal 2012 through 2014 — a period that included sequestration and a 16-day federal government shutdown in 2013 — GAO found select agencies generally ensured the effective use of program resources.

Officials overseeing eight accounts from NASA and the Commerce, Energy and State departments had a process for managing unobligated balances year round, tracked the appropriation year for those accounts with multiyear budget authority and, where appropriate, justified the need to retain unobligated balances to sustain agency operations and manage financial risk.

GAO also found that by exceeding their balance target, some agencies also dulled the pain of sequestration and shutdown.

Half of the accounts reviewed used unobligated balances to mitigate the effects of the 2013 sequestration, said the report. In six of the eight accounts, agencies used unobligated balances to fund operations during the October 2013 shutdown.

"Given the significant events during the last two years — sequestration and the government shutdown — and the potential for budget uncertainties in the future, effective management of unobligated balances is critical for agencies to ensure the most efficient use of resources and to effectively respond to budget uncertainties," wrote report authors.

"Understanding the justification for or impact of unobligated balances requires a close look at individual accounts and agencies, and how they manage unobligated balances," they add.

While GAO generally supported select agencies management of unobligated funds, two accounts had room for improvement.

In fiscal 2014, the balance for one category of an Energy Department Western Area Power Administration account exceeded its target by approximately $40 million. In the same year, a State Department Diplomatic and Consular Programs account blew past its goal to carryover about 25 percent of projected program expenditures to the next year by approximately $440 million.

Both departments concurred with GAO recommendations that they finalize and implement strategies to better manage unobligated balances.

For more:
- download the report, GAO-16-26 (.pdf)

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4. Army app streamlines DoD research lab information

By Molly Bernhart Walker Comment | Forward | Twitter | Facebook | LinkedIn

A new mobile application built by the U.S. Army Armament Research, Development and Engineering Center brings together previously disconnected information from the Defense Department's research laboratories.

The app, which is available for iOS and Android for anyone to download contains facts about each lab and syndicates an RSS news feed from all labs, according to an Oct. 27 press release. Previously the news articles were only disseminated through a downloadable PDF or print.

Through a web application that complements the public-facing mobile app, information is far easier for labs to update, said Dr. Bernard Reger, associate for business planning and development for the Armament Software Engineering Center.

"Giving out information that's five years old can be dangerous in some cases and just not useful," said Reger.

"As a lab grows into new research area, that information will be available. The labs control the information and is cleared for public release," said Reger in the press release.

The information shared through the app will likely help academic and other federal researchers learn from and connect with DoD resources.

The application has the added benefit of providing a template for future apps with a similar function, rather than being a "one-time shot," said Reger.

"This is a platform we've developed. If another organization wants to have an electronic Smartbook of their capabilities, their facilities or their projects — we'll be able to use that platform to create something for them," said Reger.

For more:
- read the Army press release

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SPOTLIGHT ON... HHS seeks an entrepreneur in residence to lead disease surveillance system

The Health and Human Services Department is looking for someone with experience "building scalable infrastructure for data storage, exchange and analysis" to overhaul its disease surveillance system. According to an Oct. 26 post on the HHS Idea Lab blog, local, state

and federal agencies are sharing disease information through legacy systems, and an entrepreneur-in-residence will develop a more robust data collection and exchange platform. Read more about the program and the job opening, here.

> Obama signs two-year budget deal. Article (*USA Today*)
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Survey | Cloud Computing in the Federal Government: Perceptions, Obstacles, Opportunities

Cloud computing outreach and education have improved and FedRAMP is in full swing, but findings show that agencies still haven't totally embraced cloud computing. In this report, *FierceGovernmentIT* shares recent cloud computing survey results and federal IT experts decipher the findings. **Download today!**

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2. DISA zeroing in on virtualization
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4. FAA names Amazon, Walmart and others for drone registration task force
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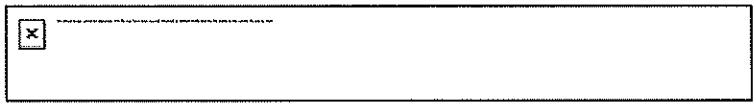

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Today's Top News

1. New OMB cybersecurity plan plots quick deadlines for agencies

By Molly Bernhart Walker Comment | Forward | Twitter | Facebook | LinkedIn

The Office of Management and Budget dropped several new cybersecurity mandates for federal agencies and departments as part of guidance issued late Friday.

With a focus on identifying and protecting sensitive information, rapid response to intrusions, improved recovery, and workforce and acquisition policies that support cybersecurity, chief information officers will have to move quickly to meet OMB deadlines.

The memorandum (pdf), issued by OMB Director Shaun Donovan Oct. 30, comes more than 100 days after the conclusion of a governmentwide "cybersecurity sprint" launched in response to serious data breaches at the Office of Personnel Management.

The first deadline under the new Cybersecurity Strategy and Implementation Plan, or CSIP, comes in less than two weeks. By Nov. 13 agencies are required to identify and report all high-value assets housed in IT systems, and by Dec. 31 they are required to report all cyber-related positions to OPM.

Also, by the end of the calendar year, the Federal CIO Council will establish a subcommittee on the rapid deployment of emerging technology, and the Homeland Security Department will make EINSTEIN 3A protections available to agencies not currently shielded by E3A providers. EINSTEIN is something of a cyber traffic

monitoring system run by DHS to protect the entire .gov domain.

In addition to EINSTEIN's protection of all government networks, the plan requires that OMB release a plan for implementing cybersecurity shared services by Jan. 31, 2016.

The next flight of deadlines under the plan don't come until Spring 2016.

By the end of March, OMB will issue an updated to M-07-16 (pdf), a 2007 mandate that directed agencies to protect personally identifiable information. Then in April, the plan requires the General Services Administration to deliver an incident response contract vehicle and for the CIO Council to conclude a federal cyber workforce study.

The final deadline under the plan comes at the end of fiscal 2016, with a requirement that DHS deliver Continuous Diagnostics and Monitoring Phase 2 capabilities to participating agencies.

Even prior to the release of this guidance, the federal government had been making headway in bolstering its IT security.

As part of actions required by the sprint, agencies increased their use of strong authentication to 80 percent — an almost 40 percent increase just this year, said Federal CIO Tony Scott in an Oct. 30 White House blog post.

"As cyber threats become increasingly sophisticated and persistent, so must our actions to tackle them," said Scott.

"CSIP directs a series of actions to improve capabilities for identifying and detecting vulnerabilities and threats, enhance protections of government assets and information, and further develop robust response and recovery capabilities to ensure readiness and resilience when incidents inevitably occur," he said.

For more:
- download the guidance, M-16-03 (.pdf)
- read the White House blog post

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2. DISA zeroing in on virtualization

By Molly Bernhart Walker Comment | Forward | Twitter | Facebook | LinkedIn

Lt. Gen. Alan Lynn was only sworn in as director of the Defense Information Systems Agency one month ago, but he has already made his priorities clear. Virtualization will be a major focus for the agency moving forward, said Alfred Rivera, director of DISA's development and business center.

DISA is trying to help the Defense Department move away from the workstations that are in place right now, said Rivera Nov. 2, during the agency's Forecast to Industry event in Washington, D.C.

The vision aligns with the agency's strategic planning guidance over the last couple of years, which has focused on moving DoD toward a mobile environment and away from desktop-bound applications, including the collaboration and cyber tools currently running in DISA's environment, said Rivera.

One of the acquisition opportunities highlighted by Rivera is the Virtual Solution Joint Enterprise License Agreement. A request for quotation for a single-award, full and open contract will be issued in the second quarter of fiscal 2016 with an award planned for the third quarter of fiscal 2016. The contract winner will be tasked with maintaining existing a DoD-wide virtual platform and expanding virtualization environments.

"We're looking at extending our virtualization platform. As more and more of our partners move toward virtualized architectures and virtualized solutions, we see the benefit of trying to capitalize and get economies of scale on a virtual platform basis," said Rivera.

"Right now, we're assessing [what the services'] baselines for virtualization look like and where they're going to go," he said.

In a press availability following his public remarks, Rivera said DISA is working to more rapidly stand up virtual private networks. By standing up a "data center virtualization environment," DISA will

allow services to quickly turn on communities of interest as needed when the combatant commands demand it.

Right now DISA is working with European Command and Central Command to build the requirements to implement such a capability.

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3. In connecting public safety, FirstNet also innovates on LTE - and eyes 5G

By Nicole Blanchard Comment | Forward | Twitter | Facebook | LinkedIn

As FirstNet works to release its final Request for Proposals by the end of this year, attention will soon turn to how FirstNet plans to roll out its LTE network for U.S. public-safety workers, and how it will keep that network up to date with changing standards and devices.

According to CTO Jeff Bratcher, FirstNet's network will be on-board with the latest LTE innovations from the outset, accommodating present standards and anticipating future innovations from the nation's commercial carriers. Keeping pace will be necessary as FirstNet -- created to solve the communication interoperability problems among public-safety officials first uncovered during the Sept. 11, 2001, terrorist attacks -- tries to ensure a fast, reliable network for emergency services.

"Commercial [wireless carriers] are using Release 9 and 10" of the 3GPP's LTE standard, said Bratcher, which means that FirstNet will probably use the same standards when it launches its network. However, he said that specifics won't be available until FirstNet chooses a commercial carrier partner sometime in 2016.

By using the same 3GPP Release 9 and 10 LTE standards as commercial carriers like AT&T, Verizon and Sprint and T-Mobile, FirstNet will be able to cash in on the same equipment that has already been developed for commercial wireless LTE networks. Further, FirstNet is expected to partner with a commercial wireless carrier to monetize and build out its network, and analysts are pointing to Verizon as FirstNet's most likely partner, thanks to Verizon's national reach and its vast 700 MHz spectrum holdings.

In the meantime, Bratcher said, FirstNet is doing everything it can to stay abreast of fluctuating standards, especially as LTE continues

to evolve. FirstNet is keeping tabs on the 3GPP and has a standards team working closely with the standards body to make sure FirstNet is "plugged in" and that the 3GPP is aware of FirstNet's needs and requirements.

Once FirstNet releases its RFP, contractors will then be able to submit proposals to build the organization's nationwide, $7 billion, 700 MHz LTE network that police, firefighters and other first responders will be able to use to communicate with each other and others. The result will hopefully be a state-of-the-art nationwide wireless network that will support text, voice and video communications among all emergency responders.

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4. FAA names Amazon, Walmart and others for drone registration task force

By Alyssa Huntley Comment | Forward | Twitter | Facebook | LinkedIn

The Federal Aviation Administration announced Thursday the members of the Unmanned Aircraft Systems Registration Task Force, which will deliver recommendations to the FAA for a drone operator registration process due by Nov. 20.

While members must be invited and serve on a volunteer basis, there's no doubt almost every member has something to contribute to those in charge of drone regulation.

The task force will work with the FAA and Department of Transportation to decide which aircrafts are a low enough safety risk to exempt them from registration, an earlier announcement explained. They'll also work on a streamlined registration system to make the process less burdensome for commercial drone operators and will make safety recommendations as they deem appropriate.

"Registering unmanned aircraft will help build a culture of accountability and responsibility, especially with new users who have no experience operating in the U.S. aviation system," said U.S. Transportation Secretary Anthony Foxx, in a statement. "It will help protect public safety in the air and on the ground."

You can find the full list of task force members in the FAA announcement.

Among the members are Sean Cassidy of Amazon Prime Air and Thomas Head of Walmart. These two picks make perfect sense. Among retailers in the U.S., these two are the ones pushing hardest to get drone rules implemented so they can begin drone delivery

services. Amazon's FAA exemption saga has only just come to an end, while Walmart's is just the beginning, and it makes perfect sense why folks from Amazon and Walmart would volunteer their time in the drone space.

From a consumer standpoint, there are representatives from Amazon Retail, Best Buy and the Consumer Electronics Association. Hobbyist's drone use is a big part of the market, so it will be important to them that these smaller drones remain exempt from a harsh registration process. After all, the harder it is to actually use something you've purchased, the less likely you are to buy it in the first place.

From the drone manufacturing community, a few other names that stick out are Brendan Schulman of DJI and Tyler Collins of PrecisionHawk. Drone regulations will have a huge impact on these folks. They'll also prove a huge asset to the task force, considering their deep understanding of the risks that come along with the drones they build.

Of course, the task force comes with its fair share of folks who may be hoping for the strictest regulations possible. Chuck Hogeman and Randy Kenagy of the Air Line Pilots Association and Mike Fergus of the International Association of Chiefs of Police could be looking to have drones well regulated, which would mean strict registration requirements.

Given the number of times drones have proven themselves a risk not only to airplanes, but also to those with two feet on the ground, it wouldn't be surprising to hear these folks fighting for strong registration requirements. After all, having drones registered would make easier work of finding those responsible for flying in no-fly zones and holding them responsible for any problems they may have caused.

Still, they'll be going up against the likes of Brian Wynne of the Association of Unmanned Vehicle Systems International, Gregory McNeal of the Small UAV Coalition and Brandon Declet of Measure (which happens to currently run the largest fleet of drones in the United States).

For more:
- read the full FAA announcement

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5. Organization, culture and resources: Making it work for records management

By Chris Nehls Comment | Forward | Twitter | Facebook | LinkedIn

Federal departments and agencies are transforming how they gather and archive records for the digital age. By storing records in a permanent electronic format, they are more accessible to federal workers and the general public alike. Accordingly, electronic records are a key part of the Obama administration's open government directive, which the president issued on his first day in office.

But the road to true electronic record management has been bumpy. It's placed new burdens on federal personnel and caused confusion over archiving procedures.

Successful implementation of the Obama administration's 2012 records management directive will require not only technological solutions, but deft managerial skill and the willingness of federal employees to adopt new procedures.

REMAINING TARGETS FOR ELECTRONIC RECORD MANAGEMENT

In August 2012, then–Office of Management and Budget Acting Director Jeffrey Zients and Archivist of the United States David Ferriero announced (pdf) that all federal agencies should be working toward two key record management goals:

- Managing all of their permanent electronic records in an electronic format by the end of 2019 for eventual transfer to the National Archives and Records Administration, or NARA.
- Managing both temporary and permanent email records in an electronic format by the end of 2016.

While three-quarters of surveyed federal government records and information managers thought "modern, high-quality records and information management" would come out of the process, nearly half expressed doubt that directive target deadlines were realistic and obtainable.

The task of meeting those targets has fallen to Senior Agency Officials, or SAOs — the senior-level executives designated to oversee reviews of records management programs. Over the last several years, these officers have identified permanent records that should be transferred to NARA, developed management training programs and scheduled records transfers when possible.

With this managerial structure in place, federal agencies now have to pick up the pace of bringing their records management strategies into operation.

AUTOMATION: A SOLUTION BUT NOT A PANACEA

Because of the sheer volume of documents that agencies produce — especially in the age of email — the accuracy and speed of records management suffers the more employees have to open, categorize and file individual items. To ensure agencies meet their implementation goals, the 2012 White House directive urged NARA to assist agencies and stakeholders in automating their records management. In a September 2014 automation plan (pdf), NARA noted three positives for doing so:

1. The capture and management of records is more consistent, ensuring documents are preserved.
2. Management processes can be scaled to handle varying volumes of information.
3. Staff members are freed up to pursue the agency's mission.

Some agencies already have implemented automated records management systems. For example, the Government Accountability Office gathers and stores permanent e-records in its DM/ERMS system through automated retention rules and routines. Its system even pulls a copy of the email for storage as it arrives in an executive committee member's inbox.

But, as the NARA plan cautions, automation alone is not enough. Even approaches that use the most capable records management applications "will only succeed in situations where records management principles themselves are well-defined and understood and clear records schedules are in place."

Even if an agency uses software to manage document delivery to the National Archives, "the tasks of capture and categorization often remain the responsibility of the end user." Mistakes by humans in setting up automated tasks can reverberate for decades.

All types of automated record management systems carry some risk. Depending on their methods and settings, they may fail to capture permanent records or clutter databases by capturing too many low-value records. In its September 2014 management plan (pdf), NARA provides guidance for agencies in choosing an automated system and explores five different approaches to automation, including their unique risks.

AUTOMATION ON A SHOESTRING

In an era of extremely tight budgets, many federal agencies may not have the resources to invest in entirely new records management applications.

Budgetary pressure was overwhelmingly the most reported challenge facing SAOs in NARA's most recent survey of their

performance.

In a separate survey (pdf) conducted around the same time, 51 percent of records managers said dedicated funding would be the biggest help to achieving directive deadlines. Just 37 percent said they had adequate budgetary resources to meet the directive's goals.

NARA suggests that records managers consult the vendors of existing agency computing platforms to make sure that all automation features are installed, up-to-date and fully operational.

THE CAPSTONE APPROACH TO AUTOMATION

Records of emails, instant messages and similar electronic communications are the most appealing targets for records management automation. Most federal agencies, however, struggle to automate its archiving and deletion.

A survey by Cohasset Associates of federal managers in 2014 revealed that only 39 percent of agencies had fully or partially automated the deletion of nonessential emails and instant messages. "In view of the maturity of email management tools, this low level of automation is surprising, identifying another opportunity for modernization," the report said.

In August 2013, NARA offered agencies one possible approach to email record management, which it called the "Capstone" approach. Capstone allows offices to categorize emails as permanent based on the position or work of the account owner. The agency can schedule delivery for emails from such accounts with NARA without any additional categorization work. Remaining emails can be captured and labeled as temporary records and be preserved by the agency as it needs them.

Even approaches that use the most capable records management applications "will only succeed in situations where records management principles themselves are well-defined and clear records schedules are in place," the National Archives and Records Administration said.

NARA has created a resource page, including a checklist of technical requirements, for the approach.

THE IMPORTANCE OF INTERNAL CONTROLS

But training and policy manuals are not enough. Agency executives also have to establish internal controls or ways of reasonably assuring that employees are achieving objectives and maintaining management standards. Internal controls can help prevent

employees from prematurely deleting emails or cataloging documents incorrectly.

Agencies should run regular audits of their records management to ensure compliance with federal regulations and internal procedures. Three-quarters of agencies reported performing routine evaluations, inspections or audits in NARA's 2013 survey of SAOs.

Auditing email management remains a blind spot, however, as only about a third of agencies reported performing one. NARA found that less than 70 percent of staff and contractors received training on mail management standards, and that training was often not mandatory.

Cohasset Associates suggests that agencies make records management audits part of a broader culture of compliance with other good-governance requirements like ethics, risk management and privacy.

"Information Governance (IG) is the fulcrum on which all of these disciplines tilt," Cohasset Associates wrote in its 2014 information governance benchmarking survey. Its authors urge records managers to "gain knowledge of key compliance and risk management operations, and then tighten the integration across all information governance disciplines."

Alarmingly, Cohasset's survey of records managers found that only 6 percent of agencies had developed mature metrics to guide program assessment and reveal avenues for improvement. Without proper metrics, agencies will struggle to know whether they are on target to hit directive goals on time.

Managers should develop measurements for direct actions like the number of users trained and the amount of information retained. They should also create derived measures like cost savings and employee awareness of proper procedures. These measurements should be taken repeatedly throughout the implementation of electronic records management.

COORDINATE AND COLLABORATE

Although the 2012 White House directive put the lion's share of management responsibility in the hands of SAOs, achieving its target goals will require the input and participation of employees at all personnel levels within agencies.

Training all staff on records management procedures is the first step in that process. Unfortunately, SAOs reported that less 70 percent of senior staff received records management training in 2013. Only a quarter of all employees, meanwhile, completed training every two years, according to the Cohasset survey.

When surveyed in 2013, 44 percent of records managers said that better guidance on employee training would provide the most help

in meeting directive goals. Agencies should redouble efforts to design and implement regular training to make managers' lives easier. This training should reinforce the principle that electronic records management practices ultimately support the agency's mission by making information more organized and accessible to all employees.

Records managers should also explore greater collaboration with other stakeholders inside their agencies. It's especially important that IT staff be actively involved in records management planning.

Just 55 percent of records managers reported that IT staffs were actively engaged in supporting their work in the Cohasset survey. Without IT having a voice at the table, "new content will be created and managed without information lifecycle controls," report authors warn, "increasing the mass of unattended information in the future."

Records managers also need to consider reaching out to their peers in other agencies for guidance and advice. This type of networking is necessary in part because NARA has struggled in its guidance and training efforts. Only 42 percent of records managers polled by MeriTalk said they thought the direction and support they receive from the agency was adequate.

Records managers have created a collaboration platform of their own. The Federal Records Officer Network, or FRON, meets monthly at different federal agencies to discuss hot topics among records managers. It also has a website that includes discussion boards, a repository for policies and tools, and document templates for sharing.

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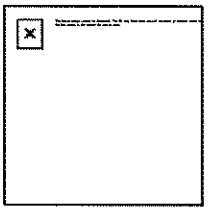

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Today's Top News

1. Marine Corps willing to trade capacity for cyber capability, says Walsh

By Molly Bernhart Walker Comment | Forward | Twitter | Facebook | LinkedIn

The Marine Corps will review its force structure over the next few months with an eye toward overarching investment areas rather than traditional stovepipes, said Lt. Gen. Robert Walsh, deputy commandant for combat development and integration and commanding general of the Marine Corps Combat Development Command.

Walsh said the service will likely consider taking a "risk in capacity" so that it can grow capability in emerging areas, such as cyber operations.

"An infantry battalion may look a little bit smaller in some ways but you may add more cyber information warfare capabilities," said Walsh during an Oct. 28 event hosted by the Center for Strategic and International Studies in Washington, D.C.

When the Marine Corps considers how the force of the future will operate, "it's not all about small little company-level landing teams being able to distribute, it's much larger than how's the battle force going to operate and make sure our C2 systems that the Marines have are communicating with the ships we have out there, which is a real challenge for us," he said.

Information warfare, cyber operations, emerging space capabilities and ambiguous warfare will be a major focus for the Marine Corps

as it assesses its future priorities, said Walsh.

Unmanned aerial systems are part of that environment. But, as with all emerging technology, it's important to balance the priorities of moving quickly to adopt and integrating the technology with the broader network, he told attendees.

The service is looking for all new technology to be "platforms and payloads ... that's what we're looking for: open architecture, plug and play being able to be digitally interconnected with everything that we have," said Walsh.

For more:
- watch an archived webcast of the event

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2. NTIA unveils Internet usage data hub

By Molly Bernhart Walker Comment | Forward | Twitter | Facebook | LinkedIn

The National Telecommunications and Information Administration has launched an online source for locating statistics and charting trends in computer and Internet use.

The new platform, called Data Central, is part of a larger revamp of the agency's Computer and Internet Use Supplement to the Current Population Survey, said John Morris, associate administrator of

NTIA's office of policy analysis and development.

That survey, which is administered to more than 1.3 million people in partnership with the Census Bureau, has charted the explosion of Internet use and computing technology over the last 20 years.

"We are significantly simplifying the task of gathering specific statistics of interest with our new Data Explorer tool," wrote Morris in an Oct. 28 blog post.

The Data Explorer tool produces data visualizations based on the data presented in the repository. Calculations made on the data sets are also available in an Analyze Table spreadsheet that NTIA published as part of the update to its survey and data.

In addition to just-released results from the July 2013 data collect, Data Central also includes raw data sets that date back to 1994 that are now available in updated formats.

The latest data from the survey show an increase in mobile online usage and decrease in desktop online usage. From July 2011 to July 2013 online mobile usage increased by 18 percentage points, but desktop Internet usage declined slightly — dipping 5 percentage points — over the same period.

For more:
- read the blog post
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3. GSA highlights role of challenges in driving innovation, launches mentor program

By Molly Bernhart Walker Comment | Forward | Twitter | Facebook | LinkedIn

Agencies should interpret an innovation strategy issued by the White House last week as a continued endorsement of the use of federal competitions, said Kelly Olson, senior innovation advisor and director of Challenge.gov.

The strategy, which the White House unveiled Oct. 21, emphasizes the importance of federal incentive prize and challenge competitions, said Olson in an Oct. 29 post to the General Services

Administration's DigitalGov Blog.

"Prizes allow agencies to increase cost-effectiveness to maximize the return on taxpayer dollars, with competitor investments often exceeding the prize purse by an order of magnitude," said the White House strategy document (pdf).

Because challenges allow agencies to only pay for success and tap a broader pool of partners, open innovation and public participation have grown in popularity. More than 450 challenges are now listed on Challenge.gov, and more than $150 million has been awarded in prizes.

Olson said GSA wants to encourage the use of challenges even further through mentorship.

The agency announced Oct. 22 a mentorship program for challenges and prizes.

"A stable of 20 experts are making themselves available to anyone seeking advice on planning and executing open competitions," wrote Olson.

"The mentorship program will help make challenges and prizes a reality across the federal government, no matter the size of the agency or extent of the problem it seeks to solve," she added.

There's also a new, online toolkit that will guide agencies through the process of running a challenge.

For more:
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4. Halvorsen says 'Cyber Pearl Harbor' probable

By Molly Bernhart Walker Comment | Forward | Twitter | Facebook | LinkedIn

The idea of a catastrophic IT security event has captured cyber policy wonks' imaginations through the term "Cyber Pearl Harbor." And while some have railed against the term's use as fear mongering, the Defense Department's IT lead thinks such an event is not only plausible, but probable.

"Is there the potential for a Cyber Pearl Harbor? Probably," said DoD Chief Information Officer Terry Halvorsen during an Oct. 29 breakfast discussion in Washington, D.C., hosted by *Christian Science Monitor*.

"I think it depends on what scale of engagement you're talking about," he said.

While not quite as spectacular, Halvorsen said the normal, everyday state of cyber is also alarming.

"Phase zero, I think, there will be persistent cyber probing. They'll be persistent testing of cyber threat technology. I think that is something we're going to live with," he said during the event.

Completely secure networks are possible, said Halvorsen; however, they would require the department to unplug everything and disconnect in a way that would make getting work done impossible. In that way, cybersecurity is really risk management.

"This is a balance, you know. It always is a balance and it's a balance across time, money, mission, threat, and it's getting that right," he said.

Much of DoD's work relies on industry, and the department has benefited from private sector investment in cybersecurity. Halvorsen added that American industry has a history of responding well to DoD's needs.

"We have industry with us on the forward edge," said Halvorsen.

For more:
- watch video excerpts from his remarks here, here and here

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5. Cyber Support to Corps and Below to join upcoming training rotation

By Molly Bernhart Walker Comment | Forward | Twitter | Facebook | LinkedIn

An Army pilot program called the Cyber Support to Corps and Below will take an important step forward in demonstrating cyber effects at corps and echelons below. The vision of now-retired Army Chief of Staff Gen. Ray Odierno was to use cyber techniques to

accomplish missions through unit training at combat training centers.

Army's cyber forces will join tactical units at the Joint Readiness Training Center on Fort Polk, Louisiana, to participate in an upcoming training rotation for the 1st Brigade Combat Team, 82nd Airborne Division, according to an announcement from the service.

"Cyber capabilities should also extend and be executed at the tactical edge," said Lt. Gen. Edward Cardon, commanding general of the U.S. Army Cyber Command and Second Army, in recent congressional testimony.

Through major exercises and training center rotations, the Army will be better quipped to protect and defend against cyber attacks, and operate in a degrade cyber space environment, said Cardon.

For the upcoming rotation — the second CSCB has participated in — soldiers from Fort Gordon, Georgia's Cyber Protection Brigade will support the 1-82nd's "organic cyber defense force," said the Army release.

The CSCB plans to also pilot combat training center–based programs that focus on Network Integration Evaluation and Army Warfighter Assessment, said the announcement.

"In training, repetition leads to confidence and confidence leads to true mastery," said Maj. Gen. Charlie Flynn, commanding general of the 25th Infantry Division. "At the tactical level, we must get more repetitions and develop our confidence in the cyber domain by applying these unique capabilities."

For more:
- read the press release

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SPOTLIGHT ON... VA awards $5M precision medicine grant

Precision medicine is a major priority for the Obama administration, but until now much of the research into how genetics and behavior can better guide clinicians to more effective treatments has been executed by Health and Human Services Department agencies.

Through a new $5 million grant, the Veterans Affairs Department is joining the effort. According to an Indiana University press release, the school will partner with the Regenstrief Institute for the multisite Precision Monitoring program. Called PRIS-M, the program will "use existing VA electronic health data to implement actionable, personalized, timely monitoring to generate data to transform care quality and outcomes," says IU.

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Today's Top News

1. From agile learning to challenges, OFPP's new IT acquisition cadre could have outsized impact

By Molly Bernhart Walker Comment | Forward | Twitter | Facebook | LinkedIn

Last week, 30 acquisition professionals kicked off a six-month journey to learn how to better buy IT products and services. And while the goal of the Digital Service Contracting Professional Training and Development Program sounds simple, the transformation the Office of Federal Procurement Policy hopes to drive with it represents a major cultural shift.

The call to improve IT procurement has been a steady drumbeat from the Obama administration, which sees it as an area ripe for improved service delivery and cost savings. And while the desire to transform is stronger than ever, IT program managers and contracting officers find actual implementation to be a challenge.

The core problem is that traditional government acquisition isn't well suited to the rapid pace of technological innovation, said Timothy Cooke, president and chief executive of Arlington, Virginia-based ASI Government.

"So, you have CIOs saying 'agile, agile, agile' and a procurement team that may not know how to translate that into a procurement," he said.

ASI Government, partnering with Fairfax, Virginia-based ICF International, is delivering the innovative training program.

Just how "out of the box" is their approach? Well, Cooke said they don't even have a curriculum yet.

Not only will the program teach participants about agile, it actually

employs agile methods to develop learning paths that adapt in near real-time to what people are experiencing in class, said Cooke. The class will also bring their own, real-world acquisition challenges to the learning environment, he said.

"There's a portal and a feedback process that is really central to the curriculum. We're not actually sure where it's going to go yet, but we have an approach that we think will tailor it to the needs of those 30 folks," he said.

Once the program has concluded, OFPP expects graduates to drive change at their home agencies and evangelize new techniques and processes for IT acquisition.

Cooke said ASI and ICF developed a creative program because it was born from a creative acquisition process.

"The process is what's most impressive about this, how the government went about this," said Cooke.

In May, OFPP launched a $360,000 challenge for the program. From there, three finalists received funds to expand their initial responses, deliver oral presentations to judges and instruct a one-hour classroom session.

"It's a very creative program by design and the challenge was structured in a way that allowed us to really show our creativity and [differentiate ourselves]," said Cooke.

Challenges are an ideal tool for government to encourage innovation, he said. It's very difficult to show creativity in a traditional request for proposal environment, he said.

"The process itself was a really powerful experience for us," said Cooke.

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2. Role of IPO questioned in DoD-VA EHR interoperability hearing

By Molly Bernhart Walker Comment | Forward | Twitter | Facebook | LinkedIn

An Interagency Program Office, which was established by the Defense and Veterans Affairs departments under a provision in the National Defense Authorization Act of 2008, was designed to be "a single point of accountability" for the department's health record interoperability efforts, but given the current state of the program lawmakers are right to question its very existence, said a Government Accountability Office official.

"It is reasonable that one would question its current responsibilities and whether it should exist," said Valerie Melvin, director of information management and technology resources issues at GAO.

"The position of the office has not been specific to, or as connected to, the overall function for which it was assigned. We have seen it having a limited role in the department's current efforts over time," said Melvin during an Oct. 27 joint hearing of the House Oversight and Government Reform subcommittee on information technology and House Veterans Affairs Committee.

Under the National Defense Authorization Act of 2014, DoD and VA are required to deploy modernized electronic health records that employ full, standards-based interoperability by Dec. 31, 2016. In reality, the two departments likely won't reach that goal until after 2018, according to GAO.

The two departments dropped plans to develop a joint, or "integrated," EHR that would seamlessly service members and veterans in 2013. Instead, VA set out to "evolve" its Veterans Health Information Systems and Technology Architecture, known as VistA, and DoD decided it would acquire a commercial EHR solution. In late July the Defense Health Agency awarded a $4.3 billion contract that will likely incur a lifecycle cost of upwards of $9 billion, to a team led by Leidos and Cerner for the Defense Healthcare Management System Modernization initiative.

The IPO's primary responsibility is to develop or identify national standards that the two departments can adhere to. The 2014 NDAA also required that all VistA data was to be in a compliant format established by the Office of the National Coordinator for Health IT.

"At this point we have not certified to the 2014 requirement — the Oct. 1, 2014 requirement," said Brian Burns, deputy director of the

DoD/VA IPO during the hearing.

Burns said the IPO has identified 25 domains for its data mapping efforts. The first seven — the most frequently used or high-volume — have most of the data mapping complete.

"At this point we have data maps for most of the sets, we have partial overlapping for most of the sets at this point," said Burns.

Christopher Miller, program executive officer of the Defense Healthcare Management Systems, said the IPO now has a full time representative from DoD.

"We do have a dedicated IPO, Dr. Lauren Thompson. She reported aboard in May," said Miller. "For some time I was wearing two hats but I'm no longer wearing two hats. I think that's reflective of our commitment to the IPO and the work that they do."

The IPO is critical for providing technical leadership to make sure that the ONC standards apply and identifying where refined standards and improvements may be needed, said Miller.

While both departments clearly have their own culture and are pursuing different solutions, Melvin reiterated that there is a "lack of joint strategic planning on the part of the two departments."

For more:
- go to the hearing page (includes an archived webcast and prepared testimony)

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3. GAO finds DoD's IT component supply chain strategy lacking

By Molly Bernhart Walker Comment | Forward | Twitter | Facebook | LinkedIn

Bringing mission-critical and cutting-edge technology to the warfighter is dependent in part on the Defense Department's ability to use microelectronics, but the Government Accountability Office says the DoD needs to plan for the possibility that access to trusted microelectronics may be limited in the future.

A decade ago, the Defense Science Board said that DoD lacked an overall vision and strategy for obtaining microelectronics in the

future, and not much has changed since, according to Marie Mak, GAO's director of acquisition and sourcing management.

Increased specialization and industry consolidation has made the production of leading-edge technologies more expensive, said Mak in prepared testimony (pdf) delivered Oct. 28 before the House Armed Services subcommittee on oversight and investigations.

In addition to cost concerns, DoD has fewer domestic sources to pick from, and has little influence on the commercial market because "DoD's needs for microelectronics are low-volume, unique, and, in some cases, for technologies for which there is no commercial demand," said Mak.

The DoD stood up its trusted supplier program — initially called the Trusted Foundry Program — in 2004 where contracts with IBM Corporation allowed components to be produced without foreign sources in the IT supply chain. IBM created a pool of "trusted suppliers," said Mak.

"However, none, other than IBM, offered leading-edge technologies that met DOD's needs," she said.

One year ago, IBM, which had been DoD's sole-source of leading-edge technologies for over a decade, transferred microelectronic fabrication to a foreign-owned entity.

"By not addressing alternative options when the Defense Science Board first raised them as urgent issues and by relying on a sole source supplier for leading-edge microelectronics, DOD now faces some difficult decisions with potentially significant cost and schedule impacts to programs that rely on these technologies, as well as national security implications," wrote Mak.

For more:
- download the prepared testimony (.pdf)
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4. SIGAR questions USAID health facilities data

By Stephanie Kanowitz Comment | Forward | Twitter | Facebook | LinkedIn

Information on a seven-year health program the U.S. Agency for International Development conducted in Afghanistan is inaccurate,

according to the Office of the Special Inspector General for Afghanistan Reconstruction, or SIGAR.

SIGAR's site inspections to verify the accuracy of USAID location data and operating conditions at 23 public health facilities in Herat Province, Afghanistan, that were part of USAID's $259.6 million Partnership Contracts for Health, or PCH, program revealed "substantial inaccuracies in the geospatial coordinates" for the facilities and "inadequate or sporadic access to electricity, water and needed pharmaceuticals," according to an Oct. 20 letter (pdf) to USAID officials from John Sopko, special inspector general.

The reason this is a problem is that a major part of PCH was using Global Positioning System coordinates to ensure that the 600 health facilities in 13 Afghan provinces it funded "were in the appropriate locations and providing the local population with needed health services," Sopko wrote.

SIGAR's inspections found that geospatial coordinates for seven of the 23 facilities were more than 3.1 miles away from the ones USAID had, the letter states.

"As SIGAR has stressed previously, robust program oversight requires specific knowledge of the location where the service is provided," Sopko wrote. "Moreover, accurate location-specific information is critical to ensure that the local population is receiving the intended services."

He referred to the early October bombing of a Doctors Without Borders hospital in Afghanistan as further evidence of the importance of having accurate location data. The attack killed 30 people.

"The recent destruction of the Doctors Without Borders hospital in a battle with the Taliban in Kunduz dramatizes the importance of having accurate GPS coordinates for healthcare facilities," he wrote. "SIGAR encourages USAID to confirm and update the coordinates it maintains for the 23 clinics."

Other holes in USAID's reporting that SIGAR found include:

- Insufficient photographic evidence of 21 out of 40 facilities.
- Photos provided lacked embedded geospatial data.
- Insufficient information on site visit reports.

Additionally, in his letter Sopko noted problems with the operational condition of some facilities, such as improper disposal of medical waste and unreliable power and water supplies even though PCH provided funding for basic utilities.

"The absence or inconsistency of electricity to refrigerate these basic stocks raises questions about whether the allocated funding is indeed reaching these facilities," he wrote.

Although PCH ended in June, USAID continues to support the

facilities through the World Bank's System Enhancement for Health Action in Transition program.

Sopko has long suspected problems with the data. For example, he testified to Congress last year about potential vulnerabilities in USAID's funding to the health facilities, and he has written other letters to USAID on the topic.

For more:
- read the letter

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5. Army official: Personnel must be diligent about user roles

By Molly Bernhart WalkerComment | Forward | Twitter | Facebook | LinkedIn

As Army personnel navigate the networks and devices needed to conduct business daily, their roles — and access privileges — may change. Colonel Greg Conti, director of the Army Cyber Institute, said personnel can take an active role in network defense by providing feedback on what they can or cannot access.

The idea that if access to something isn't blocked, then it must be okay to access is a "dangerous mindset" in the IT world, "predicated by insufficient information security awareness and lack of perceived individual responsibility for network and data security," wrote Conti in an Oct. 28 blog post.

There isn't enough emphasis on incident reporting, he added, which could reinforce security policies and encourage personal responsibility for computing safely.

Everyday users are called to resolve discrepancies in user roles and leaders are called to "educate, train and inspire our soldiers to act responsibly and understand that their actions on and off the network can have strategic Army and national effects," said Conti.

Information security is not a battle reserved for those at Fort Meade, but one all Army personnel should be engaged in, he said.

"Through the vigilant protection and maintenances of our Army's networks, we can do our part to ensure we are always ready to

protect the nation," wrote Conti.

For more:
- read the Army CIO/G-6 blog post

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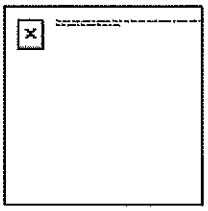

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Today's Top News

1. OMB expected to 'substantially change' identity management performance metrics

By Molly Bernhart Walker Comment | Forward | Twitter | Facebook | LinkedIn

WILLIAMSBURG, Va. – Identity, credential and access management is getting more senior-level attention across the federal government due in large part to a "cybersecurity sprint" the Office of Management and Budget launched in response to recent breaches.

Privileged users and personal identity verification, or PIV, cards were a major focus of the sprint, but OMB is planning to issue ICAM guidance that no longer emphasizes PIV deployment as the sole indicator of security compliance, said Jim Sheire, director of identity management at the General Services Administration's office of governmentwide policy.

"With FISMA metrics, ICAM has always been 'How many PIV cards did you issue?' And that's it," said Sheire, during an Oct. 26 panel discussion at ACT-IAC's Executive Leadership Conference.

"They are going to be looking at far more elements of how ICAM works," he said.

Sheire said a draft of the revised ICAM metrics has been circulated among the Federal Chief Information Officers Council. He suggested CIOs make sure their performance teams and ICAM personnel are well aligned to respond to data calls that could soon be required of agencies.

Performance metrics could change even further in fiscal 2017. OMB is looking at ways to shift compliance-based metrics to an outcomes

approach, in terms of how ICAM systems are implemented, said Sheire.

Implementation of the Federal Information Technology Acquisition Reform Act, or FITARA, should only further enable CIOs to get a better handle on what components are doing, and deploy identity management solutions and policies enterprisewide, he said.

The increased focus on ICAM shouldn't come as a surprise. Appendix III of the draft update to OMB Circular A-130, which was issued last week, includes a key sentence that likely caught the attention of identity management experts.

The guidance directs agencies to "implement access control policies for information resources that ensure individuals have appropriate authorization and need, and that the appropriate level of identity proofing and/or background investigation is conducted prior to granting access."

Requiring "authorization" versus the standard "authentication" when granting access to a federal system indicates a shift in focus from OMB, explained Sheire.

"PIV and HSPD-12 have always been about authentication. And with this text, authorization is finally getting at this notion of, what do we know about these people? [It's] this Gartner-esque concept of knowing the right people have the right access to the right resource for the right reasons," he said.

Agencies are also experimenting with the use of derived credentials, which can enable a credential based on an original PIV card to be configured to a mobile phone. Sheire said the CIO Council is bringing the people leading these pilots together to identify common approaches. This could result in additional guidance to agencies that will help them adopt approaches that tie into ICAM systems, said Sheire.

For more:
- read and comment on the proposed OMB A-130

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2. GSA's new shared services lead hopes to uncover agency savings with a holistic approach

By Molly Bernhart Walker Comment | Forward | Twitter | Facebook | LinkedIn

WILLIAMSBURG, Va. – What happens before and after an agency moves to a shared service provider is just as important as the actual transition, according to Beth Angerman, the new lead at the General Services Administration's Unified Shared Services Management Office.

Angerman, who is on detail to GSA from her role as executive director of the Treasury Department's office of financial innovation and transformation, plans to help agencies improve budget planning and actually capture savings post-implementation in order to capitalize on a shift to shared services. The new office is part of GSA's broader vision to implement a governmentwide shared services management and oversight operating model, which it unveiled last week.

During a panel discussion at ACT-IAC's Executive Leadership Conference on Oct. 26, Angerman outlined her priorities for the office, which included policy clarification, common service level agreements, transparent pricing and performance standards, among others.

Angerman said agencies can expect her office to issue a "playbook" that will offer guidance on choosing a shared service provider and preparing to make an investment to move to the new service.

Better aligning shared services plans with budget is critical, she said.

"When agencies are planning to move to shared services ... obviously it's an initial investment. It's a re-implementation of a system on to a new platform. And so there is a large budget request that's required in the beginning," said Angerman.

Given that budget requests are made roughly two years in advance,

agencies need to be sure they're requesting the right amount and that planning is a collaborative effort between the agency and their provider, she said.

Not only must agencies carefully plan their investment, they have to anticipate how they will capture savings.

"Just the other day, one of the providers told me that their customer is complaining about their cost, but post-implementation the customer did absolutely nothing about all of the resources that they had. They just double-check all of the work that the provider does," said Angerman.

Angerman said part of her office's job will be to ask agencies what their operation looks like once it's shifted to a shared service.

"Agencies need to come forward with plans, in partnership with their provider of choice and demonstrate that they've thought about essentially how their organization will operate and what that new operating model is after implementing shared services," she said.

Some efficiencies aren't quantitative — such as cutting full-time employees — but qualitative — such as shifting a team from transaction-based work to more analytical and strategic work, she said.

But a major part of the plan will be "us actually holding them accountable for that ... Not only planning for it, but making the decisions and the choices that actually get them there is a really important part of this new process," said Angerman.

While her office was only officially stood up this week, Angerman said she has no shortage of input from agency executives and organizations like the Professional Services Council, ACT-IAC and the Association of Government Accountants.

"If feedback is a gift, every day is my birthday," Angerman joked during the conference.

"I often hear that this started as a pilot. Well, I can certainly tell you that this hasn't felt like a pilot," she said.

"Now, I think it's time that it becomes something that's institutionalized in the government, and hence, the need for this new office and new cross agency board that will help to set a vision for shared services."

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3. 2-year federal budget deal expected to pass

By Molly Bernhart Walker Comment | Forward | Twitter | Facebook | LinkedIn

The House of Representatives could pass a budget deal as early as today that lays out a plan to fund the federal government, which is currently operating under a continuing resolution set to expire Dec. 11.

Republican and Democratic lawmakers expect the proposal to be supported by Congress and become law by Nov. 3 — the goal set by Treasury Secretary Jack Lew to avert potential federal default, reports *The Hill*.

Because the proposal is merely a plan and not an appropriations bill, Congress will have to produce additional legislation to avoid a government shutdown, most likely with an omnibus spending bill.

The legislation, which is being circulated as a discussion draft (pdf), would increase discretionary spending by $112 billion over fiscal 2016 and 2017 and exceeds across-the-board spending caps, known as sequestration, established in the 2011 Budget Control Act. However, the bill continues sequestration overall – extending the 10-year budget cap from a 2023 end-date until 2025.

"Today's budget agreement includes $80 billion in sequester cap relief over the next two years, plus $31 billion in additional funding. The agreement is front-loaded, with $50 billion of that sequester cap relief and roughly $16 billion of additional funding coming this fiscal year, constituting nearly 90 percent of the discretionary sequester relief for 2016 proposed in the President's Budget," wrote Jason Furman, chairman of the Council of Economic Advisors, in an Oct. 27 White House blog post.

Politico reports that Rep. Paul Ryan (R-Wisc.), who is expected to be elected as the next speaker of the House in a closed election Wednesday morning, will support the deal, despite prior criticism of the process through which it came together.

"I think every Democrat will vote for it and there will be enough Republicans in the conference that ultimately the deal will be passed. That doesn't mean I agree with it," Rep. Matt Salmon (R-Ariz.), told *The Hill*.

In a statement emailed from the Bipartisan Policy Center, the group commended the White House and Congress for working together to reach an agreement that does not jeopardize the nation's borrowing power, lifts sequestration and keeps the government open and running.

The National Defense Industrial Association also issued an email statement saying the legislation "provides a real opportunity for the Department of Defense to move forward with much needed investments in modernization, readiness and technology."

Although some programs saw cuts as part of the deal, the proposal contains no provisions that would cut federal workers' pay or benefits.

"While the legislation includes spending cuts, or offsets, in exchange for increasing sequester spending levels, those offsets do not directly affect federal pay or benefits," said the National Treasury Employees Union in a statement emailed to reporters.

For more:
- download the discussion draft of the budget agreement (.pdf)
- read the article from *The Hill*
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4. Operational confusion led to more than 400 critical- to high-risk vulnerabilities persisting on systems at BIS

By Robert Bartley Comment | Forward | Twitter | Facebook | LinkedIn

Failures in communication and a lack of remediation for known cybersecurity flaws pointed to the Bureau of Industry and Security's continuous monitoring program as being 'deficient,' according to a report.

The U.S. Commerce Department Office of the Inspector General said in a report made publicly available last week that the BIS's faulty scanning practices — which relied on outdated technology — increased compromise risk. The OIG further found that BIS did not follow protocol for remediating identified security weaknesses, including failing to fix more than 400 known critical- to high-risk security flaws.

"The findings presented in this report raise our concerns about BIS' commitment to follow fundamental security practices required for implementing an effective continuous monitoring program," read the OIG report. "Until BIS leadership gives serious attention to effectively implementing fundamental security practices, its continuous monitoring program will not provide adequate

information for BIS authorizing officials to make risk-based decisions."

BIS is an arm of the Commerce Department that focuses on advancing U.S. foreign policy, economic goals and national security in part through public and private sector partnerships. The "paramount concern" of the agency is the security of the United States, including cybersecurity.

The report, titled "Lack of Basic Security Practices Hindered BIS' Continuous Monitoring Program and Placed Critical Systems at Risk," pointed to several components that made up each of the agency's shortcomings.

For remediating identified vulnerabilities, BIS failed to correctly identify the employees in charge of patching security systems, which led to the security monitoring and assessment systems containing 70 percent of the more than 400 critical- and high-risk vulnerabilities found on the systems. OIG also found flaws that it had previously identified in an audit in 2009.

It seems like confusion at the operational level led to some of the vulnerabilities persisting. According to the report, when OIG pressed teams on the lack of updates, it found that the operations group and security staff both thought the other team was in charge of updating security systems.

BIS further failed to follow its own plan of action and milestone, or POA&M, system it had set up following the 2009 OIG audit. BIS was also slow to correct actions they knew to undermine its security posture.

When it came to faulty scanning practices, BIS used a scanning tool that was outdated by 15 months. The lapse in updates made the agency vulnerable to any new threats identified during that time. The OIG immediately notified BIS of that finding, and the tool was updated.

Further, the scans BIS did undertake were not comprehensive due to insufficient credentials; the scanning tool produced reports every month, but officials did not review some of them for over a year; and a lack of an improper IT system inventory made it impossible to determine what components supported the high-impact systems, which are most critical to the function of the agency and most important for vulnerability scans.

OIG offered five recommendations for the agency, including keeping an accurate inventory of IT hardware; creating an effective vulnerability scanning protocol; making the vulnerability process clear; fully utilizing the previously implemented POA&M system and establishing procedures that give that system greater accountability.

In a letter to the OIG dated Oct. 1, BIS concurred with all of the inspector's recommendations. BIS is working with the Commerce

Department to bolster its cybersecurity efforts.

For more:
- download the full report at the OIG website (.pdf)

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SPOTLIGHT ON... CISA passes Senate, next come negotiations

The Cybersecurity Information Sharing Act passed in the Senate with a 74-21 vote on Tuesday. *Politico* reports that a conference committee in the House will likely try to reconcile its version with the Senate iteration, as well as with two cybersecurity measures that passed in April. A compromise is not likely to be reached before January, says the publication.

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Today's Top News

1. Reservists, rotations and a call to end 'hacks' of the federal hiring process

By Molly Bernhart Walker Comment | Forward | Twitter | Facebook | LinkedIn

WILLIAMSBURG, Va. – As government looks to foster innovation, it's also looking to its workforce — bringing new talent to government while also awakening career personnel that have let their roles stagnate.

But David Bray, chief information officer of the Federal Communications Commission, said if government really wants to nurture innovation, it should disrupt workforce recruitment and retention by rethinking those very terms. Two new "r" words could prove transformative: reservists and rotations.

"Let's apply the reservist model to get the work of government done," said Bray during an Oct. 26 session at the ACT-IAC Executive Leadership Conference.

The U.S. military allows people to serve while still having a full-time job. The concept has been applied to the civilian, IT innovation space by the government of Taiwan, as well.

"Taiwan is a country of actually 24 million that has 90,000 volunteers on weekends and nights write open source code to make government websites and apps better — on their own, pro bono. And then the government looks at the open source code and decides whether to accept or reject," said Bray.

Rotations could also revolutionize the federal hiring system. Job applicants could apply for a specific project, said Bray. Of course, agencies will still need the institutional knowledge of "people who can go deep and know an area very well." But rotations could be

ideal for more innovative roles, he said.

"You were hired by the federal government as a whole, you just happen to have a skill with Agriculture or a skill with Interior and these projects could show up as maybe internal challenges on the inside, as opposed to the outside," said Bray.

Phil Harding, public entrepreneur with the General Services Administration's 18F and Office of Citizen Services and Innovative Technology, agreed that the federal hiring and placement process needs an overhaul.

"I see a lot of hacks that we're doing across government," he said.

Harding was a Presidential Management Fellow before his appointment at GSA, which allowed him to join government in six weeks versus six months, but even that took too long, he said.

"These fellows programs are great. I love it. I love the idea of being able to come in, do something really meaningful and then maybe get back out. Or, as we've seen with a lot of the Presidential Innovation Fellows, a lot of people stay in," he said.

"These kind of hacks seem cool and creative, but can we fix these things? Do we have to do hacks?" he asked event attendees. "Can we fundamentally change these things?"

**Correction: Oct. 27, 2015 10:30 am - An earlier version of this story stated that Harding was a Presidential Innovation Fellow.*

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2. Legacy technology makes government less secure, less innovative, say federal IT leaders

By Molly Bernhart Walker Comment | Forward | Twitter | Facebook | LinkedIn

WILLIAMSBURG, Va. – Legacy systems impair the government's ability to secure its information technology, said Federal Chief Information Officer Tony Scott.

"Most of the technology that the government has invested in and the private sector has produced — most of it had its design point 10, 15, 20 years ago when we didn't face the kinds of threats that we face today," said Scott during a panel discussion at the ACT-IAC Executive Leadership Conference Oct. 27.

"It's just inconceivable to me that you can build the kind of security that you want with components that weren't designed for the challenge," he said.

Scott called on agencies to focus on "security by design" for the technology it acquires, but also to scale that concept to processes and human capital strategies.

"We [need to] get the building blocks that are more secure-by-design oriented than what we have today, which is sort of bubble wrap an airbag around old stuff," said Scott.

Not only does legacy IT pose a security issue, it hinders innovation, said Federal Communications Commission CIO David Bray.

Entrepreneurs and startups don't have the burden of legacy machines or legacy code — both in terms of software code and policy, he said during the panel discussion. Because of that, they're able to more easily innovate, said Bray.

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3. GSA platform will 'cut through the noise,' empower contracting officers

By Molly Bernhart Walker Comment | Forward | Twitter | Facebook | LinkedIn

WILLIAMSBURG, Va. – The General Services Administration's recently launched governmentwide acquisition hub not only better organizes goods and services around categories, it is leading to a better organized government acquisition workforce, said GSA Administrator Denise Turner Roth.

GSA's Acquisition Gateway provides a central location for the government's 61,000 procurement professionals to learn, connect and act upon acquisition information, said Roth during a discussion at the ACT-IAC Executive Leadership Conference Oct. 27.

The platform and use of category management has elicited "an immediate response" from the contracting community and encouraged GSA to reorganize its workforce in a way that takes advantage of strong expertise in specific categories, said Roth.

"We have such a high demand on our contracting officers. Not only do they have to execute on something from an engineering contract to a janitorial contract in the same day, they have to do it within minutes," said Roth.

Because they don't have time to become experts, the Acquisition Gateway provides a place for contracting officers to quickly access information, such as terms and conditions, that may have already been developed elsewhere in government, she said.

By bringing that information and expertise to one place, GSA can "cut through the noise" and enable faster, smarter procurement by leveraging the information government already has, said Roth.

"Something that happens when you bring a group of experts together — they become more innovative. They understand where the opportunities [are] and bring those resources together to really create a next-level opportunity," said Roth.

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4. Digital engagement on the rise, survey finds

By Stephanie Kanowitz Comment | Forward | Twitter | Facebook | LinkedIn

Government efforts to increase citizen engagement digitally seem to be paying off, according to a new survey.

Adobe's Digital Government Survey found that 95 percent of respondents said they interact with the government online more

than or as much as they did last year, infographics on this blog post show. Maybe that's just because 78 percent of respondents said it's frustrating to interact with government in person or on the phone; 90 percent said interacting with government online saves time and energy.

In the national online survey, Adobe asked about federal, state and local governments. It got more than 1,000 respondents. The initial findings were released Oct. 21 with more on the way in coming weeks.

Other statistics to come out of the survey show that citizens support government investment in digital tools. For instance, 84 percent said they support more of the federal budget going to improving online tools, and 62 percent said they would feel more positive toward the government as a result of such investments.

Additionally, more than half of respondents said they'd rather sit in traffic than call the Internal Revenue Service, further indicating a preference for digital interactions.

At the federal level, the government's commitment to increasing digital engagement is reflected in the establishment of agencies such as DigitalGov, which exists to "help agencies build a 21st century digital government," according to its website. There's also the U.S. Digital Service, which launched within the Executive Office of the President last year to help improve government websites. Engagement is also part of the Digital Government Strategy, which President Obama issued in May 2012.

States are also working to improve engagement. For example, a report (pdf) released last week suggests that the state of California should follow the lead of USDS and 18F, a consultancy for agencies on digital efforts.

For more:
- read Adobe's blog post

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5. Gender gap for cybersecurity careers is growing, survey finds

By Fred Donovan Comment | Forward | Twitter | Facebook | LinkedIn

The gap between young men and women in the U.S. who would

consider a cybersecurity career is five times what it was just a year ago, according to a new Zogby Analytics survey carried out on behalf of Raytheon and the National Cyber Security Alliance.

For the U.S. results, Zogby polled 1,005 young men and women between the ages of 18 and 26. Globally, Zogby surveyed a total of 3,871 young adults in Australia, Estonia, France, Germany, Japan, Poland, Qatar, Republic of Korea, Saudi Arabia, U.K., United Arab Emirates and the U.S.

The 2015 survey found that 38 percent of U.S. young men were interested in a cybersecurity career, while only 23 percent of U.S. young women were interested. This compares with the 2014 survey where 31 percent of young men were interested in a cybersecurity career, and 27 percent of young women were.

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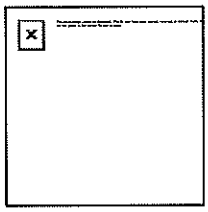

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Today's Top News

1. Reservists, rotations and a call to end 'hacks' of the federal hiring process

By Molly Bernhart Walker Comment | Forward | Twitter | Facebook | LinkedIn

WILLIAMSBURG, Va. – As government looks to foster innovation, it's also looking to its workforce — bringing new talent to government while also awakening career personnel that have let their roles stagnate.

But David Bray, chief information officer of the Federal Communications Commission, said if government really wants to nurture innovation, it should disrupt workforce recruitment and retention by rethinking those very terms. Two new "r" words could prove transformative: reservists and rotations.

"Let's apply the reservist model to get the work of government done," said Bray during an Oct. 26 session at the ACT-IAC Executive Leadership Conference.

The U.S. military allows people to serve while still having a full-time job. The concept has been applied to the civilian, IT innovation space by the government of Taiwan, as well.

"Taiwan is a country of actually 24 million that has 90,000 volunteers on weekends and nights write open source code to make government websites and apps better — on their own, pro bono. And then the government looks at the open source code and decides whether to accept or reject," said Bray.

Rotations could also revolutionize the federal hiring system. Job applicants could apply for a specific project, said Bray. Of course, agencies will still need the institutional knowledge of "people who can go deep and know an area very well." But rotations could be

ideal for more innovative roles, he said.

"You were hired by the federal government as a whole, you just happen to have a skill with Agriculture or a skill with Interior and these projects could show up as maybe internal challenges on the inside, as opposed to the outside," said Bray.

Phil Harding, public entrepreneur with the General Services Administration's 18F and Office of Citizen Services and Innovative Technology, agreed that the federal hiring and placement process needs an overhaul.

"I see a lot of hacks that we're doing across government," he said.

Harding was a Presidential Management Fellow before his appointment at GSA, which allowed him to join government in six weeks versus six months, but even that took too long, he said.

"These fellows programs are great. I love it. I love the idea of being able to come in, do something really meaningful and then maybe get back out. Or, as we've seen with a lot of the Presidential Innovation Fellows, a lot of people stay in," he said.

"These kind of hacks seem cool and creative, but can we fix these things? Do we have to do hacks?" he asked event attendees. "Can we fundamentally change these things?"

**Correction: Oct. 27, 2015 10:30 am - An earlier version of this story stated that Harding was a Presidential Innovation Fellow.*

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2. Legacy technology makes government less secure, less innovative, say federal IT leaders

By Molly Bernhart Walker Comment | Forward | Twitter | Facebook | LinkedIn

WILLIAMSBURG, Va. – Legacy systems impair the government's ability to secure its information technology, said Federal Chief Information Officer Tony Scott.

"Most of the technology that the government has invested in and the private sector has produced — most of it had its design point 10, 15, 20 years ago when we didn't face the kinds of threats that we face today," said Scott during a panel discussion at the ACT-IAC Executive Leadership Conference Oct. 27.

"It's just inconceivable to me that you can build the kind of security that you want with components that weren't designed for the challenge," he said.

Scott called on agencies to focus on "security by design" for the technology it acquires, but also to scale that concept to processes and human capital strategies.

"We [need to] get the building blocks that are more secure-by-design oriented than what we have today, which is sort of bubble wrap an airbag around old stuff," said Scott.

Not only does legacy IT pose a security issue, it hinders innovation, said Federal Communications Commission CIO David Bray.

Entrepreneurs and startups don't have the burden of legacy machines or legacy code — both in terms of software code and policy, he said during the panel discussion. Because of that, they're able to more easily innovate, said Bray.

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3. GSA platform will 'cut through the noise,' empower contracting officers

By Molly Bernhart Walker Comment | Forward | Twitter | Facebook | LinkedIn

WILLIAMSBURG, Va. – The General Services Administration's recently launched governmentwide acquisition hub not only better organizes goods and services around categories, it is leading to a better organized government acquisition workforce, said GSA Administrator Denise Turner Roth.

GSA's Acquisition Gateway provides a central location for the government's 61,000 procurement professionals to learn, connect and act upon acquisition information, said Roth during a discussion at the ACT-IAC Executive Leadership Conference Oct. 27.

The platform and use of category management has elicited "an immediate response" from the contracting community and encouraged GSA to reorganize its workforce in a way that takes advantage of strong expertise in specific categories, said Roth.

"We have such a high demand on our contracting officers. Not only do they have to execute on something from an engineering contract to a janitorial contract in the same day, they have to do it within minutes," said Roth.

Because they don't have time to become experts, the Acquisition Gateway provides a place for contracting officers to quickly access information, such as terms and conditions, that may have already been developed elsewhere in government, she said.

By bringing that information and expertise to one place, GSA can "cut through the noise" and enable faster, smarter procurement by leveraging the information government already has, said Roth.

"Something that happens when you bring a group of experts together — they become more innovative. They understand where the opportunities [are] and bring those resources together to really create a next-level opportunity," said Roth.

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4. Digital engagement on the rise, survey finds

By Stephanie Kanowitz Comment | Forward | Twitter | Facebook | LinkedIn

Government efforts to increase citizen engagement digitally seem to be paying off, according to a new survey.

Adobe's Digital Government Survey found that 95 percent of respondents said they interact with the government online more

than or as much as they did last year, infographics on this blog post show. Maybe that's just because 78 percent of respondents said it's frustrating to interact with government in person or on the phone; 90 percent said interacting with government online saves time and energy.

In the national online survey, Adobe asked about federal, state and local governments. It got more than 1,000 respondents. The initial findings were released Oct. 21 with more on the way in coming weeks.

Other statistics to come out of the survey show that citizens support government investment in digital tools. For instance, 84 percent said they support more of the federal budget going to improving online tools, and 62 percent said they would feel more positive toward the government as a result of such investments.

Additionally, more than half of respondents said they'd rather sit in traffic than call the Internal Revenue Service, further indicating a preference for digital interactions.

At the federal level, the government's commitment to increasing digital engagement is reflected in the establishment of agencies such as DigitalGov, which exists to "help agencies build a 21st century digital government," according to its website. There's also the U.S. Digital Service, which launched within the Executive Office of the President last year to help improve government websites. Engagement is also part of the Digital Government Strategy, which President Obama issued in May 2012.

States are also working to improve engagement. For example, a report (pdf) released last week suggests that the state of California should follow the lead of USDS and 18F, a consultancy for agencies on digital efforts.

For more:
- read Adobe's blog post

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5. Gender gap for cybersecurity careers is growing, survey finds

By Fred Donovan Comment | Forward | Twitter | Facebook | LinkedIn

The gap between young men and women in the U.S. who would

consider a cybersecurity career is five times what it was just a year ago, according to a new Zogby Analytics survey carried out on behalf of Raytheon and the National Cyber Security Alliance.

For the U.S. results, Zogby polled 1,005 young men and women between the ages of 18 and 26. Globally, Zogby surveyed a total of 3,871 young adults in Australia, Estonia, France, Germany, Japan, Poland, Qatar, Republic of Korea, Saudi Arabia, U.K., United Arab Emirates and the U.S.

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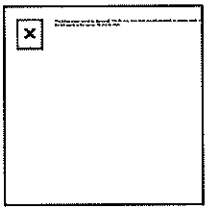

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