Panasonic
BUSINESS

i-PRO EXTREME

EXTREME
Compression

EXTREME
Visibility

EXTREME
Data Security

EXTREME
Reliability

i-PRO EXTREME

EXTREME
Analytics

Extreme performance under Extreme conditions

ACTIVE SENSING
Capture data with
strong sensing devices

ACTIVE ANALYTICS
Transform DATA
into INFORMATION

Public safety

Transportation

Logistics

Retail

Factory

Bank

Function Introduction

EXTREME Concept
Function Introduction
New Products
Network Camera Comparison Chart
PTZ
Fixed Dome
360-degree Dome
Box
Pan/Tilt
Network products
Other

EXTREME Visibility

Enables automatic capture of evidence at the highest quality under dynamic and challenging surveillance environments.

Intelligent Auto Mode (iA)

iA

Advanced image stabilization is used to prevent capturing blurry images, and intelligent sensitivity automatically is used to adjust the camera's gain and shutter speed according to brightness levels and movement of the object.

Auto Scene Detection **+** Parameter Settings

Applications: City safety, traffic, transportation

Conventional	iA Mode

Velocity Detection

iA provides sharp images of moving vehicles with blur control

Day & Night Detection

Automatic reflection control provides more detail during difficult nighttime scenarios

Color Night Vision

Color Night Vision technology transforms a standard 1/3 inch sensor camera into an effective, low-light capable camera, enabling it to produce an extremely high-quality image even in the most challenging lighting conditions.

Applications: City safety, ports, perimeter security
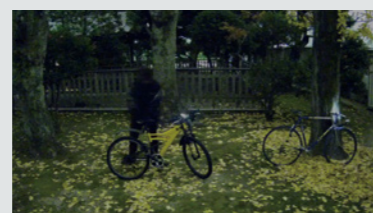
Ordinary Camera 0.6 lx   Color Night Vision 0.6 lx

0 lux Pitch Dark Locations

IR LED

Cameras with a 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.
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 outdoor model can capture subjects up to 40 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.

IR LED : OFF   IR LED : ON

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EXTREME Visibility

144dB EXTREME Super Dynamic

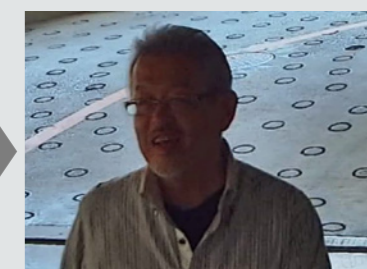**SD EXTREME Super Dynamic 144dB**

Combined with the new 144dB enhanced SD capabilities, this high-performance face detection technology can clearly and automatically identify an individual's face.
It offers optimal facial recognition and can capture evidence even in dynamic scenes or heavily backlit conditions.

Applications: Entrances of shopping malls and buildings

Super Dynamic : OFF   Super Dynamic : 144dB

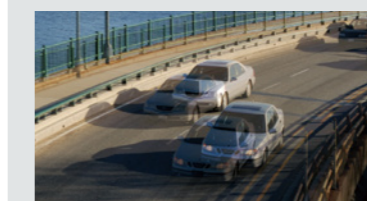### Intelligent Zoom Stabilization

Intelligent Zoom Stabilization

High-power, 40x optical zoom lens allows for higher resolution images of objects at a distance.
The advanced image stabilization function can stabilize high-power zoom images by absorbing vibrations.

Intelligent Zoom Stabilization : OFF   Intelligent Zoom Stabilization : ON

Visibility Enhancement Technology (OP Software)

Fog sand Compensation

i-PRO Management Software is not only used for removing fog but also snow, rain, and other natural conditions that can harm video quality.
Besides real-time image processing during monitoring, post- processing is also possible after the images are saved to the recorder.

Before Correction   After Correction

ClearSight coating

COATING

Water drops stick to the dome cover on conventional cameras and hinder the shooting of clear images.
Our ClearSight coating models are coated to repel water drops in order that the camera captures clear images when it is raining.
This coating is also effective at repelling dirt, which reduces the frequency of needing to clean the dome cover.
The hydrophilic coating can also be touched without special equipment and improves the ease of maintaining the equipment.

Coated areas are resistant to water droplets	Coated areas are resistant to dirt	IR Surveillance in the Rain

Non-coated   ClearSight coated   Non-coated   ClearSight coated   Non-coated   ClearSight coated

EXTREME Concept

Function Introduction

New Products

Network Camera Comparison Chart

PTZ

Fixed Dome

360-degree Dome

Box

Pan/Tilt

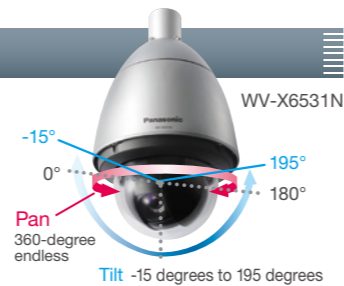Network products

Other

Function Introduction

EXTREME Visibility

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 40x.
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.

WV-X6531N

-15°
0°
195°
180°
Pan
360-degree endless
Tilt -15 degrees to 195 degrees

Advanced Auto Tracking

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.

2011/09/05 15:17:01 046°∕ 21°∕X002

2011/09/05 15:17:06 034°∕ 18°∕X004

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.

Fisheye Mode   Double Panorama Mode   Panorama Mode

Quad / Single PTZ Mode   4 Stream Mode

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-NX400*/WJ-NX300*/WJ-NX200*/WJ-NV300) or i-PRO Management Software (WV-ASM300*/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.
*Feature update

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.

Fisheye Mode   Quad / Single PTZ Mode

Function Introduction
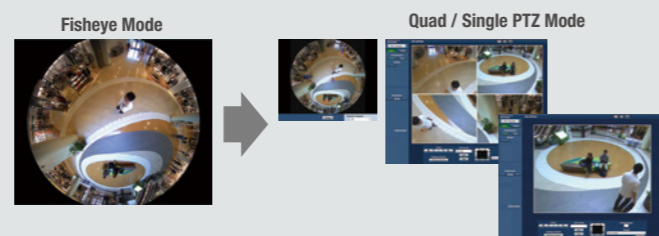
EXTREME Compression

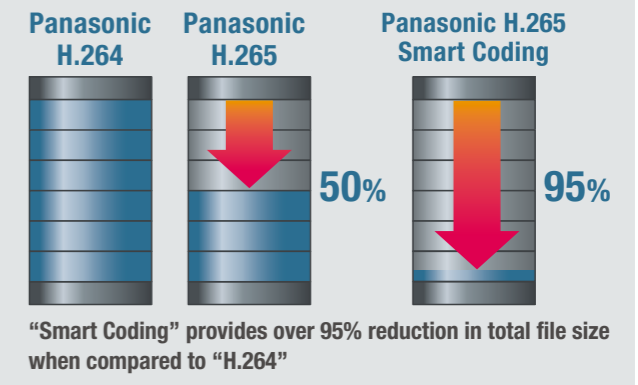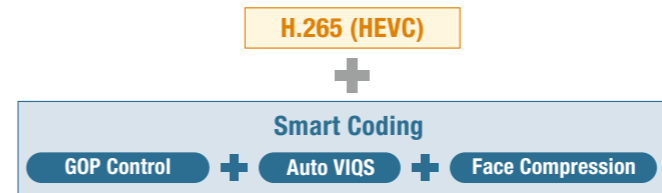**Compression of high-resolution image data is used to reduce network bandwidth, data storage, and server load costs, while maintaining high quality.**

H.265 Compression + Smart Coding Technology

Combining H.265 Compression with Panasonic Smart Coding Technology reduces bandwidth by maximum 95%* of conventional H.264 Compression.
This security system maintains the quality of moving images while reducing bandwidth and storage costs.
*Value in Advanced mode with Smart Facial Coding. It depends on the scene.

H.265 (HEVC)
+
Smart Coding
GOP Control + Auto VIQS + Face Compression

Panasonic H.264   Panasonic H.265   Panasonic H.265 Smart Coding
50%   95%

"Smart Coding" provides over 95% reduction in total file size when compared to "H.264"
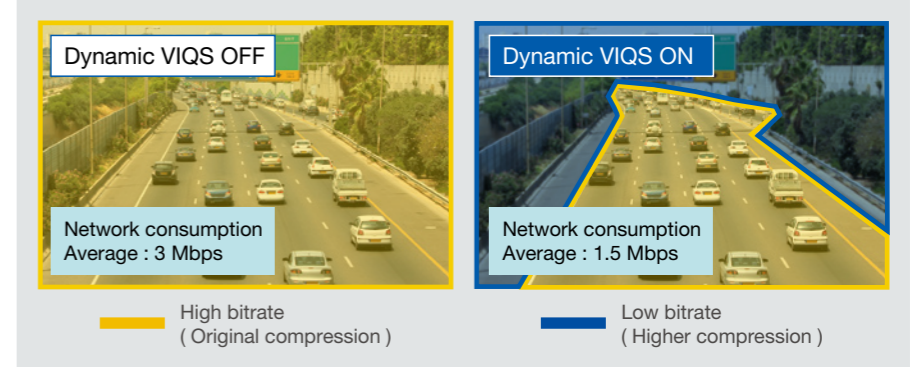
GOP Control

The GOP (group of pictures) control can reduce the total transmitted data of images with little motion by controlling the transmission interval of I-Frame, which is heavy in data.
If the motion is significantly low, the transmission interval can be set to 60 seconds to drastically reduce the total data transmitted.

Every 4 seconds
Every 16 seconds
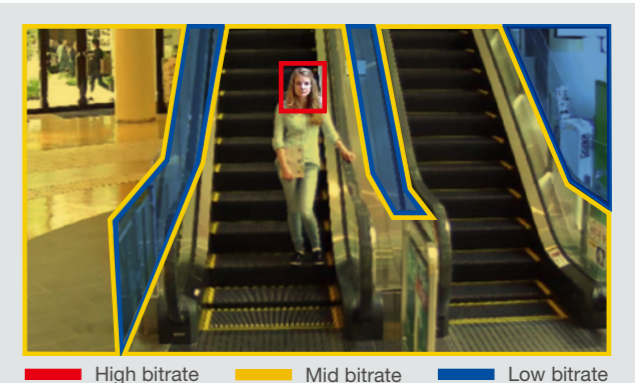**Every 60 seconds**
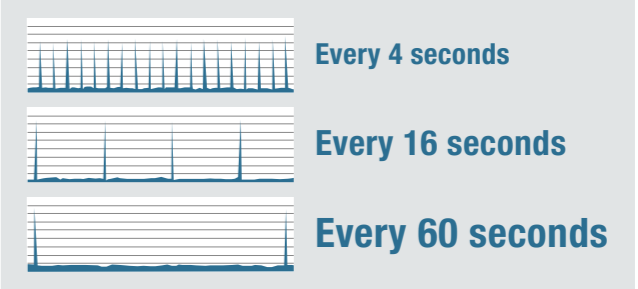
Auto VIQS

Auto VIQS detects movement within the image and compresses areas with little motion to reduce transmitted data while maintaining the quality of the image.

Dynamic VIQS OFF
Network consumption Average : 3 Mbps

Dynamic VIQS ON
Network consumption Average : 1.5 Mbps

High bitrate (Original compression)   Low bitrate (Higher compression)

Face Compression

The camera automatically distinguishes the sections of the images that are important such as moving objects and people's faces.
The quality of unimportant areas is reduced without compromising the quality of important sections, therefore optimizing the data size of the footage.
On top of integrating Smart Coding into the conventional GOP Controls, the improved compression efficiency through Auto VIQS and Long-Term Compression combined with Smart Facial Coding, which detects faces and maintains the quality of only faces, can compress the file drastically to reduce the data size.

High bitrate   Mid bitrate   Low bitrate

6   Supported functions and specifications differ according to the models. See the specifications for each model. Photos are images used to describe the functions.

Supported functions and specifications differ according to the models. See the specifications for each model. Photos are images used to describe the functions.   7

EXTREME Data Security

In addition to Data encryption and communication encryption, provide secure network access between trusted devices through device certification then prepare for the threat of advanced cyber attacks.

End-to-End Data Protection Solution
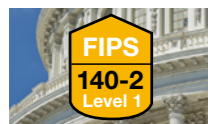
End-to-End Secured System

End-to-End Data Encryption
- Support encryption communication
- Camera-encrypted recording at the edge

Pre-installed Symantec Device Certification
- Communication encryption
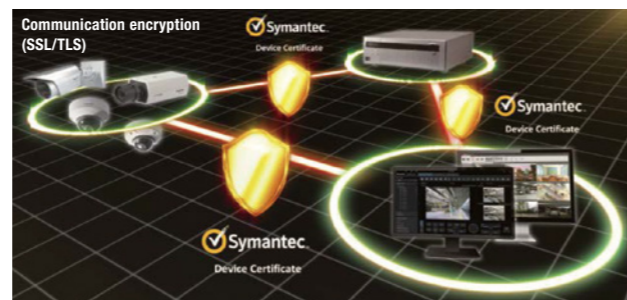- Video tampering detection

FIPS140-2 Level 1 CAVP* compliant
(Federal Information Processing Standardization)
- For federal/public safety usage
*Evaluated by WV-TW370P

Communication encryption (SSL/TLS)

Data encryption

The data encryption function encrypts data to prevent information leakage due to unauthorized access to the camera and theft of the SD card.
If you confirm streams with data encryption set to "On" on the "Live" page,
password entry for decryption is displayed.
If you correctly enter the "Encryption password" that was set,
you will be able to view images.
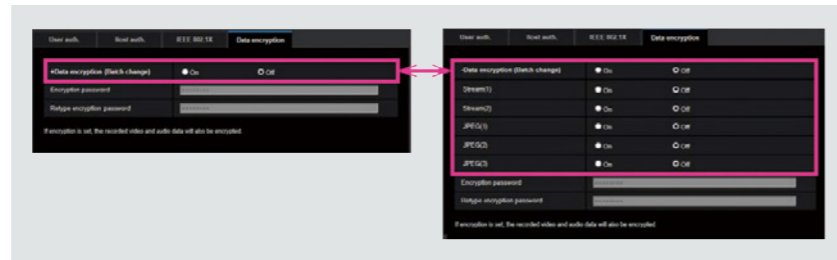
SD Memory Card Recording

Without using a network, footage can be saved directly to the camera by inserting a SD memory card (SD, SDHC, or SDXC) in the camera.
The WV-SFV631L and other models are equipped with two SD memory card slots for longer recordings.
Settings can be adjusted to only record images to the SD memory card when the alarm is triggered.
Inserting SD memory cards also works as a backup system when there is an issue with the network.
Images will be saved onto the memory cards while the network is down and will be transmitted to the recorder when the network reconnects.

Detect Alterations to the SD Memory Card

Turn on the Alteration Detection and record images to the SD memory card to be able to verify whether or not the recorded images have been altered.
Playback the images recorded onto the SD memory card with a computer and utilize the Integrity Verifier Tool to analyze the raw data and confirm that the recorded images have not been altered.
Download the Integrity Verifier Tool for free from our "Useful Tool" download page.
https://security.panasonic.com/download/tools/#iv
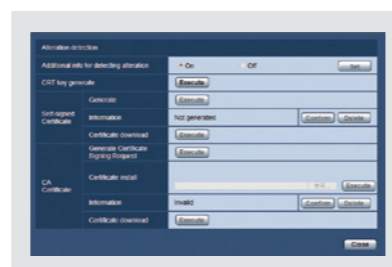
EXTREME Reliability

Achieves high endurance and long life in storing information even under harsh environments.

HDD Dynamic Power Control

Long life and high reliability is achieved through technology that individually controls access to the HDD.
If a recorder needs to recover crashed data, it can do so in a short amount of time.

Individually-managed HDD
WJ-NX400 manages the status of each HDD, using the following three states:
1 Active state: Currently being accessed by the WJ-NX400. **2 Idle state:** Ready to be accessed **3 Stand-by state:** Halted motor

Active	: Motor – On; Head – Read/Write
Idle	: Motor – On; Head – Home Position (ready for next access to a HDD)
Stand-by	: Motor – Off; Head – Home Position
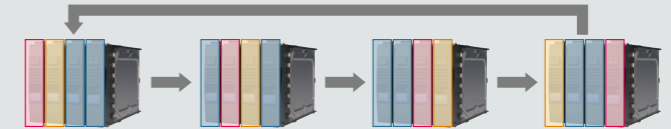
Auto Failover Recording

NVR has an Auto Failover Recording function to reduce the loss of recorded data due to NVR failure.
In the case of an NVR failure, the stand-by NVR will begin recording automatically.
The standby NVR will record instead of the failed NVR, without the need for management software.

Recording NVRs (Max. 5)   Stand-by NVR
❶ keep-alive
❷ keep-alive
❸ fail detect
❹ recording start
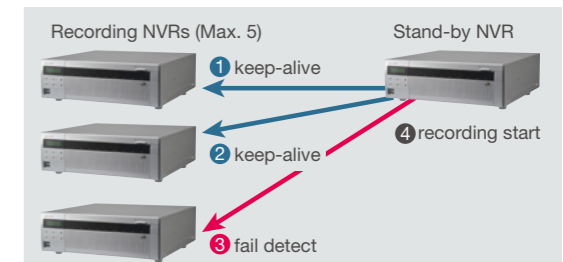
High Performance and Flexibility with TURBO-RAID

WJ-NX400 RAID is a specialized hardware RAID (TURBO-RAID).
WJ-NX400 RAID, equipped with TURBO-RAID, maintains the throughput performance of a non RAID configuration.
TURBO-RAID can provide guaranteed reliability of data and high-performance throughput.
The recorder can recover data quickly in the event of a crash.
*To use TURBO-RAID with WJ-NX300, Additional RAID Kit is required.

Heavy Salt Damage Resistance, Compliant with ISO14993

Heavy salt damage resistance, with film thickness of 100 micrometers or more, provides protection from salty wind corrosion.
The use of screws with an anti-salt surface treatment prevents trouble occurring from corroded screws in the product.

Rainwater Protection

IP66 standard The outdoor models have waterproof and dustproof structures that are rated IP66 for exterior installations, eliminating the need for special housing and/or waterproof protection.
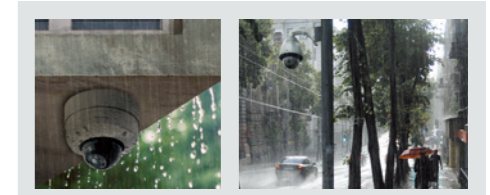
Vandal Resistant

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.
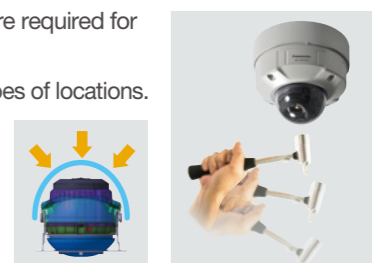
EXTREME Analytics

Identifies and acquires important information, improves accuracy and efficiency of the entire system, reduces system load, and lowers costs and hurdles. Anyone can take advantage of Analytics.

Face Recognition System

When the camera detects a face, it sends only the facial image data to the server.
This greatly reduces the load on the system's main server and enables one system to accommodate up to 20 cameras.
The accommodation of so many cameras makes it possible to have multiple-camera coverage extending across a wide area, thereby enabling people-flow paths to be determined and easily tracked in real time.

Face search and face matching functions

The Facial Recognition System takes the camera-captured facial images and compares them with registered faces, sounding a real-time alarm and displaying comparison results on a screen when a match is found.
By using the comparison results to do a facial-image search, it is possible to display the results from each camera as a time series to identify and track a person's movement.
In addition, it is possible to filter recorded images using camera name and date/time, and then determine a subject person's movement by using the alarm history list to replay recorded images linked to an alarm.

People counting and age and gender statistics functions

In order to acquire age and gender data on visitors to a store or other facility, the Facial Recognition System uses camera-captured facial images to evaluate age and gender and calculate counts.
This data can be displayed on statistical graphs and saved as a CSV file.
*CSV file: A file that can be edited using a spreadsheet software such as Microsoft® Office Excel®

Example of a Basic Connection System

Vehicle Incident Detection

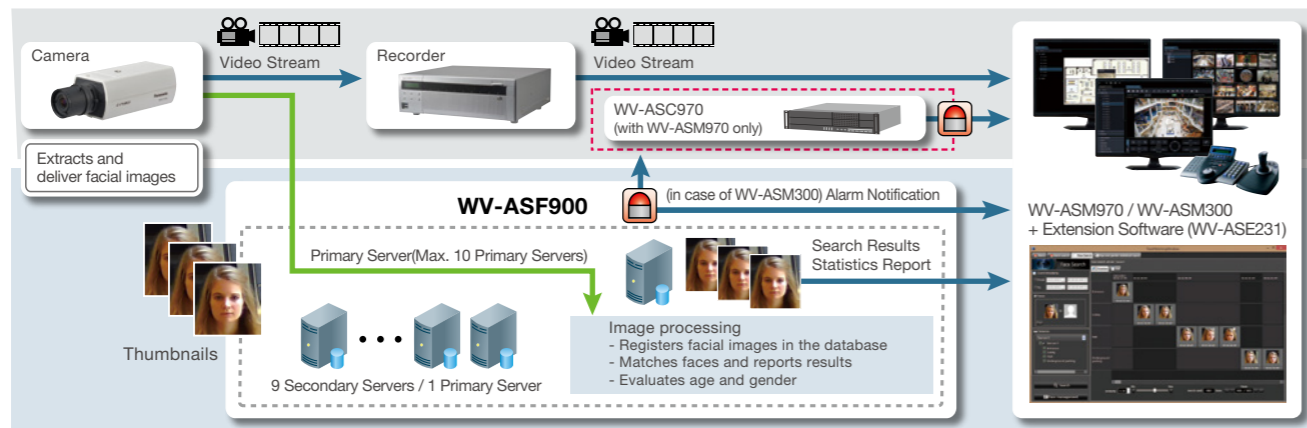The Vehicle Incident Detection function detects incidents such as wrong-way driving and stopped vehicles, and then alerts the Traffic Management System.
While it is difficult for a single human operator to physically detect vehicle accidents on multiple camera monitors, such monitoring is made possible with the Vehicle Incident Detection system.
*Extension software WV-XAE100W is required.

Roadside	Monitoring & Control Center	Road Facilities & On-site Services
Wrong-way Driving & Stopped Vehicles	Notification & Mapping Situational Awareness	Quick & Appropriate Response

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Intelligent VMD *i-VMD*
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. *Extension software WV-SAE200 is required.

Intruder
Type1 / Type2 / Type3 / Type4 / Type5

It is possible to issue an alarm when a moving object enters the area.
Up to 8 objects, or 32 objects (Type3 / Type5 only) can be detected simultaneously per channel.

Loitering
Type1 / Type2 / Type3 / Type4 / Type5

It is possible to issue an alarm when a moving object enters the area and stays for the specified period.
Up to 8 objects, or 32 objects (Type3 / Type5 only) can be detected simultaneously per channel.

Direction
Type1 / Type2 / Type4

It is possible to issue an alarm when a moving object enters the area and moves to the specified direction.
Up to 8 objects, or 32 objects can be detected simultaneously per channel.
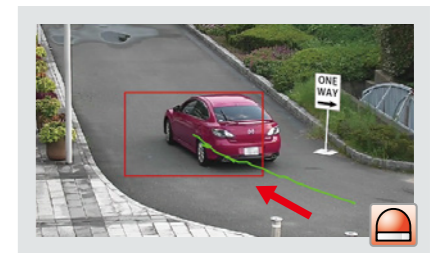
Cross line
Type2 / Type3 / Type4 / Type5

It is possible to issue an alarm when an object moving to the specified direction crossed the line.
Up to 8 objects, or 32 objects (Type3 / Type5 only) can be detected simultaneously per channel.
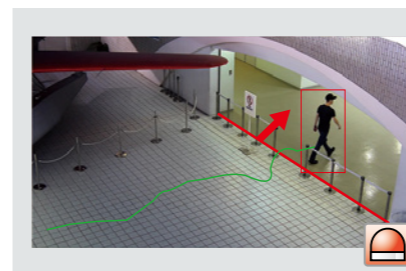
Object
Type2 / Type3 / Type4 / Type5

It is possible to issue an alarm if an object (suspicious object, etc.) is left behind in the area or taken away from the area.
Up to 8 objects, or 24 objects (Type3 / Type5 only) can be detected simultaneously per channel.

▼ left behind in area
▲ taken away from area
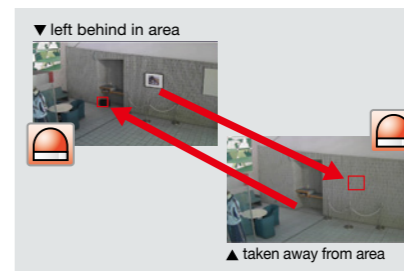
Scene change
Type1 / Type2 / Type3 / Type4 / Type5

It is possible to issue an alarm when a camera is covered with something or the camera direction is changed to shoot a different subject.
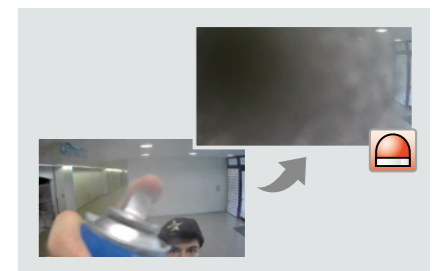
People Counting
Type3 / Type5

It provides function of counting the number of people who crossed the line in a certain direction which is set with "Line".
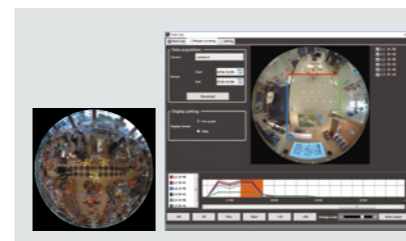
Heat-map
Type3 / Type5

Heat-map provides statistical information of traffic lines.
Counts up both passing and loitering in the shooting area.

▼ Passing   ▼ Loitering
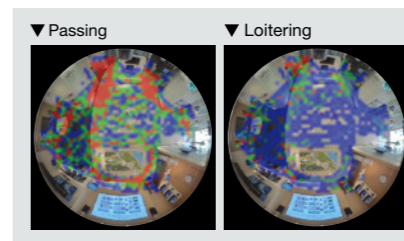
MOR (Moving Object Remover)
Type3 / Type5

MOR is a privacy-conscious function which removes people from the image and only send the background image.
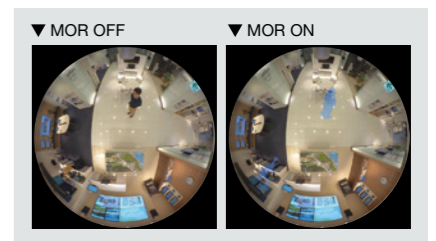
▼ MOR OFF   ▼ MOR ON

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

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 +60°C to -50°C.

*The supported temperature range varies depending on the specific model.
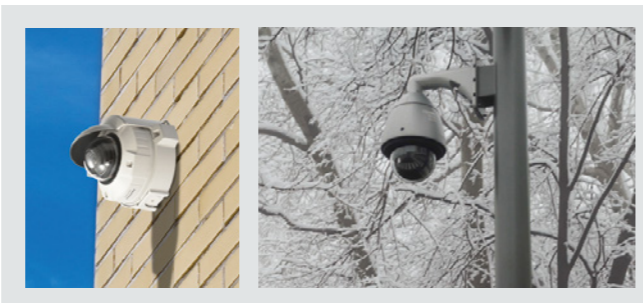
Dehumidification Device

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.

Dehumidifier
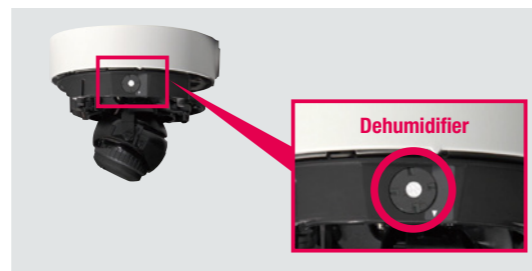
Easy Installation

The Easy Kitting Package makes setting up the camera easy.
Users do not even need to remove the camera from the box to setup the camera.
This packaging helps reduce the time and effort it requires to install multiple cameras.
On outdoor models, the RJ45 Joint Connector removes the need of using waterproof tape and reduces the time it takes to install the camera.

Rubber (2 pcs)

RJ45 Joint Connector
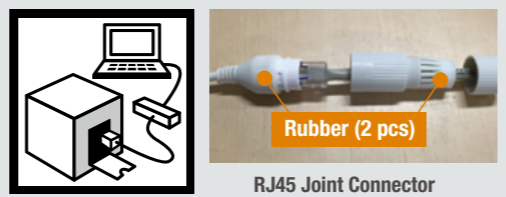
Onboard Model

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-SFV130(M), WV-SFV110(M), WV-SW158, WV-SW155MA, WV-X4571L(M), WV-S4550L(M), WV-SW458MA, and WV-SFV481 are compliant with the EN50155 European railway standards.
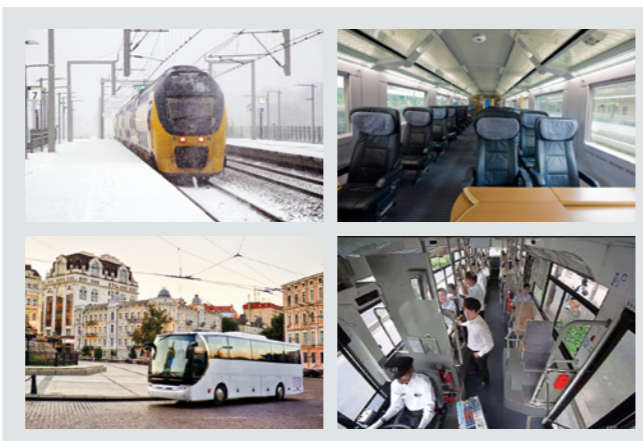
Support for Various Installation Environments

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 ℃ and up to +60 ℃ (-40 ℉ and up to 140 ℉) the camera is highly versatile.

WV-SBV131M / WV-SBV111M

Reduced Installation Time

The i-PRO 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 (EXTREME models).
The dome cover can also be easily removed to change the direction of the lens.
For Outdoor Box type cameras (EXTREME models), the stay can be bent to one of two levels to allow installation with a high degree of freedom.

115 degree

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.

Camera Head
Lens
Day/Night Mechanism
Whole image sensor Printed Circuit Board moves to focus point
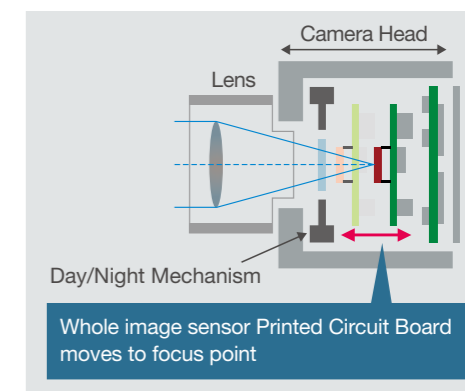
Special Screws for Added Security

Specially-shaped screws are used to secure the cover to prevent tampering with the camera or theft of the SD memory card.
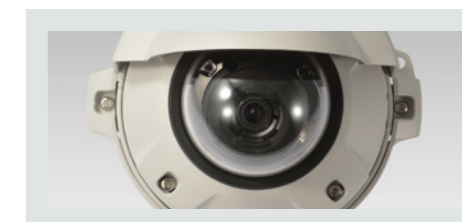
Delivering sharper images with higher sensitivity. Featuring a more intelligent solution. Introducing the 360-degree Network Camera!

i-PRO EXTREME

360-degree Vandal Resistant Outdoor Dome
9 Megapixel Network Camera

WV-X4571L
WV-X4571LM

360-degree Indoor Dome
9 Megapixel Network Camera

WV-X4171
WV-X4170

WV-X4171   WV-X4170

9 m   **5 m**

*Sample screen from 9M Fisheye mode

◉ Extreme image quality for evidence capturing under challenging conditions

For human faces and objects at the edge of fisheye images, the 360-degree Network Camera can produce clear, low-distortion video. In addition, in installation environments with large brightness differences, such as building entrances where an arriving person moves from an exterior bathed in direct sunlight to an interior that is dark, the camera increases the brightness of dark areas and reduces the brightness of bright areas in order to produce natural-looking images with clear, easy-to-see faces.
With the 9MP model, ABF feature optimize the back focus required for clear, sharp images.
With the outdoor model, clear black and white images are generated so you can acquire the necessary information even in dark 0 lux environments.
These cameras feature high durability in severe environments (vibration/shocks, temperature fluctuations, high humidity, etc.), and they meet railway standard EN50155, water-resistance standard IP66, and shock-resistance grade IK10.

H.265 H.264 JPEG Electrical Auto Back Focus
WV-X4171
WV-X4170

WV-X4571L / WV-X4571LM only

ICR Vandal Resistant IR LED IP66 standard

◉ Extreme H.265 compression with new Smart Coding*

While maintaining video quality, the 360-degree Network Camera can greatly reduce data volume by supporting H.265 compression and by doing data compression tailored to the amount of movement in the video.
Even in cases where a network video recorder records video data from multiple cameras, the burden on the network can be reduced and the data can be saved for longer periods by not wasting recorder storage capacity.
*Face Compression not included.

◉ Complete with powerful intelligent functions

Heat-map*

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.
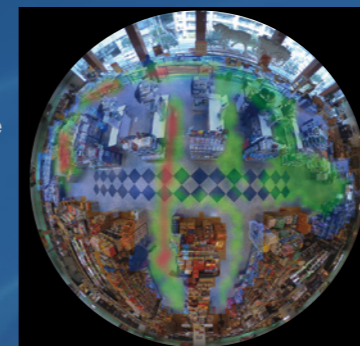
*Extension software WV-SAE200 is required.

People Counting*
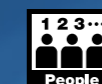
People Counting

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.
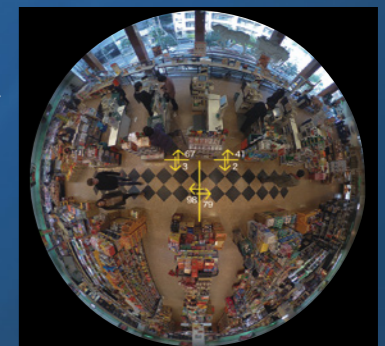
*Extension software WV-SAE200 is required.

MOR (Moving Object Remover)*
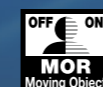
OFF ON
MOR
Moving Object Remover

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.

*Extension software WV-SAE200 is required.

New Aerodynamic PTZ with EXTREME PERFORMANCE - under - EXTREME CONDITIONS

AeroPTZ

Suitable for mission critical tough operations under arctic-to-desert weather, salty gust winds, and heavy vibrations

⬤ Vibration Resistant Construct

In order to capture stable images, Hybrid image stabilizer (Video SAS technology) reduces vibrations when large vehicles pass and swaying on top of bridges.

⬤ Wind Resistant

The camera continues to function even during hurricanes and typhoons of wind speeds up to 216 km/h (135 mph)* (operation).
* Upright position
The camera will not be damaged by winds up to 288 km/h (180 mph) (non-destructive).

⬤ Sustains Harsh Environments

The camera continues to function in extremely cold (-50 °C) and extremely hot (+60 °C)* environments. (Defroster & Dehumidification Device)

*Natural Silver model only.
Gray & Brown model up to +55 °C.

NO HUMIDIFICATION

⬤ Salt air resistant

The Glass Fiber Body will not be corroded by salt in the ocean breeze. ISO14993 Compliant.

⬤ Waterproof IP66 & IP67 Standard

The camera can be installed in locations that are frequently wet with heavy rainfall, flood occasionally, or are sprayed with strong spurts of water.

IP66 standard
IP67 standard

⬤ Vandal Resistant

Meets IK10 Standards and is impact resistant.

Vandal Resistant

Wiper & Washer

The Wiper & Washer removes water and dirt that may blur images. Always monitor crisp and clear images.

Easily Adjust the Direction of the Camera

Use the 360°endless pan and tilt functions to easily adjust the direction of the lens, automatically survey a preset area, or combine the camera with an external sensor to automatically adjust the direction of the lens towards a detected abnormality. Even monitor directly under the camera.
(Front Tilt 45° to Monitor Directly Under the Camera)

45°

Capture High-Resolution, Smooth & Natural Images

FULL HD
Full High Definition
1080/60p

Full HD (1920 × 1080), 60fps
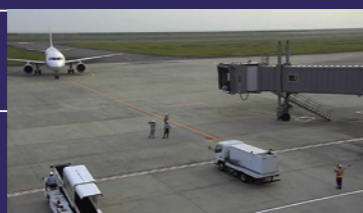
Anti-severe weather PTZ network camera
WV-SUD638
(Natural silver)
-H(Gray), -T(Brown)

Panasonic
WV-SUD638

With optional IR LED Unit

IR LED Unit
WV-SUD6FRL1(Natural silver)
WV-SUD6FRL-H(Gray), **-T**(Brown)

Add the IR LED Unit to monitor extremely dark, 0 lux environments. The IR LED Unit can be attached without altering the external appearance of the camera.
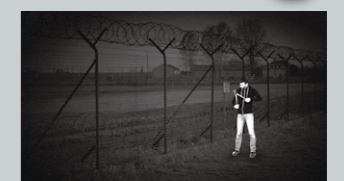
Ultra-high 4K picture quality for detailed, wide-area monitoring with a single camera. Fewer cameras also means a substantially lower total cost of ownership.

4K ULTRA HD

4K Vandal Resistant
Weatherproof Dome Network Camera
WV-SFV781L

4K Vandal Resistant
Weatherproof Network Camera
WV-SPV781L

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.

4K (3,840 x 2,160)
Full HD (1,920 x 1,080)
HD (1,280 x 720)
VGA (640 x 480)

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.

Cropped image1
Cropped image2
Cropped image3
Cropped image4

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.

HD 4K Monitoring range of HD, 4K cameras
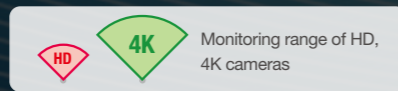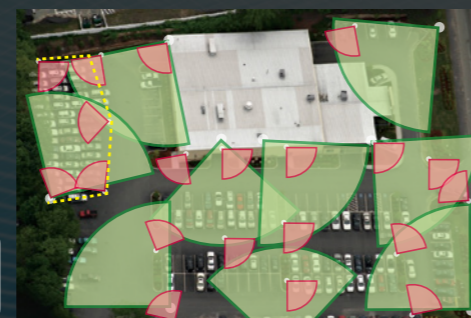
Low Light Ready

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.
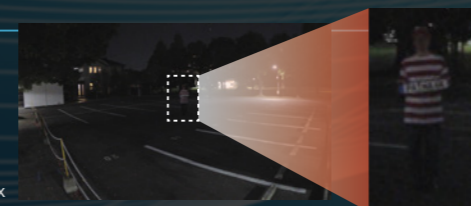
Light near subject : 1 lux

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.

Zoom 1 x 2 x 4 x 6 x

- 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.

This is the Panasonic difference!

Panasonic's "True 4K Technology"

TRUE 4K

- **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°.
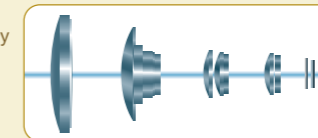
- **Refined Resolution and Superior Contrast for a Higher Level of Video Imaging**

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.

EXTREME Concept · Function Introduction · New Products · Network Camera Comparison Chart · PTZ · Fixed Dome · 360-degree Dome · Box · Pan/Tilt · Network products · Other

Network Camera Comparison chart — PTZ

Indoor / Outdoor		Outdoor		
Model Name		WV-X6531N / WV-X6531NS	WV-X6511N	WV-S6530N
Appearance		NEW Heavy Salt damage resistance		NEW
Sensor		1/2.8 MOS	1/2.8 MOS	1/2.9 MOS
Codec and Transmission	Video Codec	H.265 / H.264 / JPEG	H.265 / H.264 / JPEG	H.265 / H.264 / JPEG
	H.265 / H.264 multi stream	4	4	4
	JPEG multi stream	3 (Variable)	3 (Variable)	3 (Variable)
	H.265 / H.264 : VBR / AVBR (Advanced VBR)	VBR	VBR	VBR
	Smart Coding	Yes	Yes	Yes
Max. Resolution	16 : 9	1920 x 1080	1280 x 720	1920 x 1080
	4 : 3	2048 x 1536 (*1)	1280 x 960	2048 x 1536 (*1)
Max. FPS @Max. Resolution	H.265 / H.264	60fps (1080p)	60fps (720p)	60fps (1080p)
	JPEG	30fps (3 MP)	30fps (1.3 MP)	30fps (3 MP)
Super Dynamic / WDR / BLC		Enhanced SD	Enhanced SD	Enhanced SD
Color/BW		Yes (ICR)	Yes (ICR)	Yes (ICR)
ABF (Auto Back Focus) / Auto Focus / Focus Assist		Auto Focus	Auto Focus	Auto Focus
Min. Illumination	Color	0.015 lx @F1.6	0.011 lx @F1.6	0.015 lx @F1.6
	Color (Sens up)	0.001 lx (16x)	0.0007 lx (16x)	0.001 lx (16x)
	B/W	0.006 lx @F1.6	0.005 lx @F1.6	0.006 lx @F1.6
	B/W (Sens up)	0.0004 lx (16x)	0.0003 lx (16x)	0.0004 lx (16x)
Lens		f = 4.25 to 170 mm, F1.6 Motorized	f = 4.25 to 170 mm, F1.6 Motorized	f = 4.0 to 84.6 mm, F1.6 Motorized
Angular field of view	16 : 9	H : 2.1 to 65 deg. V : 1.2 to 39 deg.	H : 2.1 to 65 deg. V : 1.2 to 39 deg.	H : 3.4 to 73 deg. V : 2.0 to 42 deg.
	4 : 3	H : 1.6 to 51 deg. V : 1.2 to 39 deg.	H : 1.6 to 51 deg. V : 1.2 to 39 deg.	H : 2.9 to 61 deg. V : 2.2 to 46 deg.
Pan	Range	Endless	Endless	0 to +350 deg.
	Speed	300 deg/sec.	300 deg/sec.	300 deg/sec.
Tilt	Range	-15 to +195 deg.	-15 to +195 deg.	-30 to +90 deg.
	Speed	300 deg/sec.	300 deg/sec.	100 deg/sec.
360 Pan-Flip		—	—	Yes
Number of Preset Positions		256	256	256
Patrol		Yes	Yes	Yes
Auto Tracking		Yes (advanced)	Yes (advanced)	Yes (advanced)
Optical Zoom		40x	40x	21x
Digital Zoom		16x	16x	16x
Image Stabilizer		Yes	Yes	Yes
Corridor Mode		—	—	—
iA (Intelligent Auto)		Yes	Yes	Yes
VMD (Video Motion Detection)		Yes (4-areas)	Yes (4-areas)	Yes (4-areas)
i-VMD (Intelligent VMD) (w/optional extension software)		Yes (Type4)	Yes (Type4)	Yes (Type4)
VIQS		Yes (8-areas)	Yes (8-areas)	Yes (8-areas)
Max. Connection		14	14	14
Audio	In (Line) / Out	Yes / Yes	Yes / Yes	Yes / Yes
	In (Built-in MIC)	—	—	—
	Codec	G.711 / G.726 / AAC (*2)	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)	Yes (SDXC)
	Password & Alter Detection	Yes	Yes	Yes
	Audio REC	Yes	Yes	Yes
External I/O		Yes (3) (*3)	Yes (3) (*3)	Yes (3) (*3)
Monitor Out		—	—	Yes (mini-jack) (*4)
Vandal Resistant		IK10	IK10	IK10
Water and Dust Resistance		IP66 / NEMA 4X	IP66 / NEMA 4X	IP66 / NEMA 4
Temperature		−50 to +60 deg. (24 V / 60 W PoE) (*5) −30 to +60 deg. (PoE+)	−50 to +60 deg. (24 V / 60 W PoE) (*5) −30 to +60 deg. (PoE+)	-40 to +60 deg.(24 V) -30 to +60 deg. (PoE+)
Power Source		24 V AC / PoE+ / PoE injector	24 V AC / PoE+ / PoE injector	24 V AC / PoE+
Dehumidification device		Yes	Yes	Yes
Other Functions		Easy setup package, Built-in heater, ClearSight coating, WV-X6531NS: ISO14993(Heavy Salt damage resistance)	Easy setup package, Built-in heater, ClearSight coating	Easy setup package, Built-in heater, ClearSight coating

(*1) : w/Super resolution   (*2) : Only for SD REC   (*3) : Alarm In1(Black & White input, Auto time adjustment input), Alarm In2(Alarm Out), Alarm In3(AUX Out) (x1 for each)   (*4) : For adjustment, the audio output can be switched to the monitor output.
(*5) : Tested PoE injector   ★ Products that can be purchased is vary according to the locality.

Network Camera Comparison chart — PTZ

Indoor / Outdoor		Indoor		
Model Name		WV-S6131	WV-S6111	WV-S6130
Appearance		NEW	NEW	NEW
Sensor		1/2.8 MOS	1/2.8 MOS	1/2.9 MOS
Codec and Transmission	Video Codec	H.265 / H.264 / JPEG	H.265 / H.264 / JPEG	H.265 / H.264 / JPEG
	H.265 / H.264 multi stream	4	4	4
	JPEG multi stream	3 (Variable)	3 (Variable)	3 (Variable)
	H.265 / H.264 : VBR / AVBR (Advanced VBR)	VBR	VBR	VBR
	Smart Coding	Yes	Yes	Yes
Max. Resolution	16 : 9	1920 x 1080	1280 x 720	1920 x 1080
	4 : 3	2048 x 1536 (*1)	1280 x 960	2048 x 1536 (*1)
Max. FPS @Max. Resolution	H.265 / H.264	60fps (1080p)	60fps (720p)	60fps (1080p)
	JPEG	30fps (3 MP)	30fps (1.3 MP)	30fps (3 MP)
Super Dynamic / WDR / BLC		Enhanced SD	Enhanced SD	Enhanced SD
Color/BW		Yes (ICR)	Yes (ICR)	Yes (ICR)
ABF (Auto Back Focus) / Auto Focus / Focus Assist		Auto Focus	Auto Focus	Auto Focus
Min. Illumination	Color	0.015 lx @F1.6	0.011 lx @F1.6	0.015 lx @F1.6
	Color (Sens up)	0.001 lx (16x)	0.0007 lx (16x)	0.001 lx (16x)
	B/W	0.006 lx @F1.6	0.005 lx @F1.6	0.006 lx @F1.6
	B/W (Sens up)	0.0004 lx (16x)	0.0003 lx (16x)	0.0004 lx (16x)
Lens		f = 4.25 to 170 mm, F1.6 Motorized	f = 4.25 to 170 mm, F1.6 Motorized	f = 4.0 to 84.6 mm, F1.6 Motorized
Angular field of view	16 : 9	H : 1.9 to 66 deg. V : 1.1 to 39 deg.	H : 1.9 to 66 deg. V : 1.1 to 39 deg.	H : 3.5 to 74 deg. V : 2.0 to 42 deg.
	4 : 3	H : 1.4 to 51 deg. V : 1.1 to 39 deg.	H : 1.4 to 51 deg. V : 1.1 to 39 deg.	H : 3.0 to 61 deg. V : 2.3 to 46 deg.
Pan	Range	Endless	Endless	0 to +350 deg.
	Speed	300 deg/sec.	300 deg/sec.	300 deg/sec.
Tilt	Range	-25 to +205 deg.	-25 to +205 deg.	-30 to +90 deg.
	Speed	300 deg/sec.	300 deg/sec.	100 deg/sec.
360 Pan-Flip		—	—	Yes
Number of Preset Positions		256	256	256
Patrol		Yes	Yes	Yes
Auto Tracking		Yes (advanced)	Yes (advanced)	Yes (advanced)
Optical Zoom		40x	40x	21x
Digital Zoom		16x	16x	16x
Image Stabilizer		Yes	Yes	Yes
Corridor Mode		—	—	—
iA (Intelligent Auto)		Yes	Yes	Yes
VMD (Video Motion Detection)		Yes (4-areas)	Yes (4-areas)	Yes (4-areas)
i-VMD (Intelligent VMD) (w/optional extension software)		Yes (Type4)	Yes (Type4)	Yes (Type4)
VIQS		Yes (8-areas)	Yes (8-areas)	Yes (8-areas)
Max. Connection		14	14	14
Audio	In (Line) / Out	Yes / Yes	Yes / Yes	Yes / Yes
	In (Built-in MIC)	—	—	—
	Codec	G.711 / G.726 / AAC (*2)	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)	Yes (SDXC)
	Password & Alter Detection	Yes	Yes	Yes
	Audio REC	Yes	Yes	Yes
External I/O		Yes (3) (*3)	Yes (3) (*3)	Yes (3) (*3)
Monitor Out		Yes (mini-jack) (*4)	Yes (mini-jack) (*4)	Yes (mini-jack)
Vandal Resistant		—	—	—
Water and Dust Resistance		—	—	—
Temperature		-10 to +50 deg.	-10 to +50 deg.	−10 to +50 deg. (Ceiling / Camera mount bracket) −10 to +40 deg. (Desktop / Tripod)
Power Source		12 V DC / PoE	12 V DC / PoE	12 V DC / PoE
Dehumidification device		—	—	—
Other Functions		Easy setup package, Dome less	Easy setup package, Dome less	Easy setup package

(*1) : w/Super resolution   (*2) : Only for SD REC   (*3) : Alarm In1(Black & White input, Auto time adjustment input), Alarm In2(Alarm Out), Alarm In3(AUX Out) (x1 for each)
(*4) : For adjustment, the audio output can be switched to the monitor output.

Network Camera Comparison chart — Fixed Dome

Indoor / Outdoor		Outdoor		
Model Name		WV-S2531LTN	WV-S2531LN	WV-S2511LN
Appearance		i-PRO EXTREME ONVIF*I S G	i-PRO EXTREME ONVIF*I S G	i-PRO EXTREME ONVIF*I S G
Sensor		1/3 MOS	1/3 MOS	1/3 MOS
Codec and Transmission	Video Codec	H.265 / H.264 / JPEG	H.265 / H.264 / JPEG	H.265 / H.264 / JPEG
	H.265 / H.264 multi stream	4	4	4
	JPEG multi stream	3 (Variable)	3 (Variable)	3 (Variable)
	H.265 / H.264 : VBR / AVBR (Advanced VBR)	VBR	VBR	VBR
	Smart Coding	Yes	Yes	Yes
Max. Resolution	16 : 9	1920 x 1080	1920 x 1080	1280 x 720
	4 : 3	2048 x 1536 (*1)	2048 x 1536 (*1)	1280 x 960
Max. FPS @Max. Resolution	H.265 / H.264	60fps (1080p)	60fps (1080p)	60fps (720p)
	JPEG	30fps (3 MP)	30fps (3 MP)	30fps (1.3 MP)
Super Dynamic / WDR / BLC		Enhanced SD	Enhanced SD	Enhanced SD
Color/BW		Yes (ICR)	Yes (ICR)	Yes (ICR)
ABF (Auto Back Focus) / Auto Focus / Focus Assist		ABF	ABF	ABF
Min. Illumination	Color	0.015 lx @F1.7	0.012 lx @F1.6	0.008 lx @F1.6
	Color (Sens up)	0.001 lx (16x)	0.0008 lx (16x)	0.0005 lx (16x)
	B/W	0.0 lx @F1.7 (w/IR)	0.0 lx @F1.6 (w/IR)	0.0 lx @F1.6 (w/IR)
	B/W (Sens up)	—	—	—
Lens		f = 9 to 21 mm, F1.7 Motorized	f = 2.8 to 10 mm, F1.6 Motorized	f = 2.8 to 10 mm, F1.6
Angular field of view	16 : 9	H : 14 to 34 deg. V : 8 to 19 deg.	H : 30 to 108 deg. V : 17 to 58 deg.	H : 30 to 108 deg. V : 17 to 58 deg.
	4 : 3	H : 12 to 28 deg. V : 9 to 21 deg.	H : 25 to 90 deg. V : 19 to 65 deg.	H : 25 to 90 deg. V : 19 to 65 deg.
Adjusting Angle	Pan	-180 to +180 deg.	-180 to +180 deg.	-180 to +180 deg.
	Tilt	-30 to +85 deg.	-30 to +85 deg.	-30 to +85 deg.
Optical Zoom		2.3x	3.6x	3.6x
Digital Zoom		4x	4x	4x
Image Stabilizer		Yes	Yes	Yes
Corridor Mode		Yes	Yes	Yes
iA (Intelligent Auto)		Yes	Yes	Yes
VMD (Video Motion Detection)		Yes (4-areas)	Yes (4-areas)	Yes (4-areas)
i-VMD (Intelligent VMD) (w/optional extension software)		Yes (Type4)	Yes (Type4)	Yes (Type4)
VIQS		—	—	—
Max. Connection		14	14	14
Audio	In (Line) / Out	Yes / Yes	Yes / Yes	Yes / Yes
	In (Built-in MIC)	—	—	—
	Codec	G.711 / G.726 / AAC (*2)	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)	Yes (SDXC)
	Password & Alter Detection	Yes	Yes	Yes
	Audio REC	Yes	Yes	Yes
External I/O		Yes (3) (*3)	Yes (3) (*3)	Yes (3) (*3)
Monitor Out		Yes (mini jack)	Yes (mini jack)	Yes (mini jack)
Vandal Resistant		50J, IK10	50J, IK10	50J, IK10
Water and Dust Resistance		IP66 / NEMA 4X	IP66 / NEMA 4X	IP66 / NEMA 4X
Temperature		-40 to +60 deg. (*4)	-40 to +60 deg. (*4)	-40 to +60 deg. (*4)
Power Source		12 V DC / PoE	12 V DC / PoE	12 V DC / PoE
Dehumidification device		Yes	Yes	Yes
Other Functions		Easy setup package, Built-in heater, ClearSight coating, Built-in IR LED	Easy setup package, Built-in heater, ClearSight coating, Built-in IR LED	Easy setup package, Built-in heater, ClearSight coating, Built-in IR LED

(*1) : w/Super resolution　(*2) : Only for SD REC　(*3) : Alarm In1(Black & White input, Auto time adjustment input), Alarm In2(Alarm Out), Alarm In3(AUX Out) (x1 for each)　(*4) : When the IR LED is ON, the maximum temperature is 50 deg.
★ Products that can be purchased is vary according to the locality.

Network Camera Comparison chart — Fixed Dome

Indoor / Outdoor		Indoor		
Model Name		WV-S2231L	WV-S2211L	WV-S2131L
Appearance		i-PRO EXTREME ONVIF*I S G	i-PRO EXTREME ONVIF*I S G	i-PRO EXTREME ONVIF*I S G
Sensor		1/3 MOS	1/3 MOS	1/3 MOS
Codec and Transmission	Video Codec	H.265 / H.264 / JPEG	H.265 / H.264 / JPEG	H.265 / H.264 / JPEG
	H.265 / H.264 multi stream	4	4	4
	JPEG multi stream	3 (Variable)	3 (Variable)	3 (Variable)
	H.265 / H.264 : VBR / AVBR (Advanced VBR)	VBR	VBR	VBR
	Smart Coding	Yes	Yes	Yes
Max. Resolution	16 : 9	1920 x 1080	1280 x 720	1920 x 1080
	4 : 3	2048 x 1536 (*1)	1280 x 960	2048 x 1536 (*1)
Max. FPS @Max. Resolution	H.265 / H.264	60fps (1080p)	60fps (720p)	60fps (1080p)
	JPEG	30fps (3 MP)	30fps (1.3 MP)	30fps (3 MP)
Super Dynamic / WDR / BLC		Enhanced SD	Enhanced SD	Enhanced SD
Color/BW		Yes (ICR)	Yes (ICR)	Yes (ICR)
ABF (Auto Back Focus) / Auto Focus / Focus Assist		ABF	ABF	ABF
Min. Illumination	Color	0.012 lx @F1.6	0.008 lx @F1.6	0.012 lx @F1.6
	Color (Sens up)	0.0008 lx (16x)	0.0005 lx (16x)	0.0008 lx (16x)
	B/W	0.0 lx @F1.6 (w/IR)	0.0 lx @F1.6 (w/IR)	0.0 lx @F1.6 (w/IR)
	B/W (Sens up)	—	—	—
Lens		f = 2.8 to 10 mm, F1.6 Motorized	f = 2.8 to 10 mm, F1.6	f = 2.8 to 10 mm, F1.6 Motorized
Angular field of view	16 : 9	H : 30 to 109 deg. V : 17 to 58 deg.	H : 30 to 109 deg. V : 17 to 58 deg.	H : 30 to 110 deg. V : 17 to 59 deg.
	4 : 3	H : 25 to 90 deg. V : 19 to 65 deg.	H : 25 to 90 deg. V : 19 to 65 deg.	H : 25 to 90 deg. V : 19 to 66 deg.
Adjusting Angle	Pan	-240 to +120 deg.	-240 to +120 deg.	-240 to +120 deg.
	Tilt	-30 to +85 deg.	-30 to +85 deg.	-30 to +85 deg.
Optical Zoom		3.6x	3.6x	3.6x
Digital Zoom		4x	4x	4x
Image Stabilizer		Yes	Yes	Yes
Corridor Mode		Yes	Yes	Yes
iA (Intelligent Auto)		Yes	Yes	Yes
VMD (Video Motion Detection)		Yes (4-areas)	Yes (4-areas)	Yes (4-areas)
i-VMD (Intelligent VMD) (w/optional extension software)		Yes (Type4)	Yes (Type4)	Yes (Type4)
VIQS		—	—	—
Max. Connection		14	14	14
Audio	In (Line) / Out	Yes / Yes	Yes / Yes	Yes / Yes
	In (Built-in MIC)	—	—	—
	Codec	G.711 / G.726 / AAC (*2)	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)	Yes (SDXC)
	Password & Alter Detection	Yes	Yes	Yes
	Audio REC	Yes	Yes	Yes
External I/O		Yes (3) (*3)	Yes (3) (*3)	Yes (3) (*3)
Monitor Out		Yes (mini jack)	Yes (mini jack)	Yes (mini jack)
Vandal Resistant		IK10	IK10	—
Water and Dust Resistance		—	—	—
Temperature		-10 to +50 deg.	-10 to +50 deg.	-10 to +50 deg.
Power Source		12 V DC / PoE	12 V DC / PoE	12 V DC / PoE
Dehumidification device		—	—	—
Other Functions		Easy setup package, Built-in IR LED	Easy setup package, Built-in IR LED	Easy setup package, Built-in IR LED

(*1) : w/Super resolution　(*2) : Only for SD REC　(*3) : Alarm In1(Black & White input,Auto time adjustment input), Alarm In2(Alarm Out), Alarm In3(AUX Out)(x1 for each)
★ Products that can be purchased is vary according to the locality.

Network Camera Comparison chart — Fixed Dome

Indoor / Outdoor		Indoor			
Model Name		WV-S2131	WV-S2130	WV-S2111L	WV-S2110
Appearance					
Sensor		1/3 MOS	1/3 MOS	1/3 MOS	1/3 MOS
Codec and Transmission	Video Codec	H.265 / H.264 / JPEG	H.265 / H.264 / JPEG	H.265 / H.264 / JPEG	H.265 / H.264 / JPEG
	H.265 / H.264 multi stream	4	4	4	4
	JPEG multi stream	3 (Variable)	3 (Variable)	3 (Variable)	3 (Variable)
	H.265 / H.264 : VBR / AVBR (Advanced VBR)	VBR	VBR	VBR	VBR
	Smart Coding	Yes	Yes	Yes	Yes
Max. Resolution	16 : 9	1920 x 1080	1920 x 1080	1280 x 720	1280 x 720
	4 : 3	2048 x 1536 (*1)	2048 x 1536 (*1)	1280 x 960	1280 x 960
Max. FPS @Max. Resolution	H.265 / H.264	60fps (1080p)	60fps (1080p)	60fps (720p)	60fps (720p)
	JPEG	30fps (3 MP)	30fps (3 MP)	30fps (1.3 MP)	30fps (1.3 MP)
Super Dynamic / WDR / BLC		Enhanced SD	Enhanced SD	Enhanced SD	Enhanced SD
Color/BW		Yes (ICR)	Day/Night (Electrical)	Yes (ICR)	Day/Night (Electrical)
ABF (Auto Back Focus) / Auto Focus / Focus Assist		ABF	ABF	ABF	ABF
Min. Illumination	Color	0.012 lx @F1.6	0.012 lx @F1.6	0.008 lx @F1.6	0.008 lx @F1.6
	Color (Sens up)	0.0008 lx (16x)	0.0008 lx (16x)	0.0005 lx (16x)	0.0005 lx (16x)
	B/W	0.006 lx @F1.6	0.01 lx @F1.6	0.0 lx @F1.6 (w/IR)	0.007 lx @F1.6
	B/W (Sens up)	0.0004 lx (16x)	0.0007 lx (16x)	—	0.00044 lx (16x)
Lens		f = 2.8 to 10 mm, F1.6 Motorized	f = 2.8 to 10 mm, F1.6	f = 2.8 to 10 mm, F1.6	f = 2.8 to 10 mm, F1.6
Angular field of view	16 : 9	H : 30 to 110 deg. V : 17 to 59 deg.	H : 30 to 110 deg. V : 17 to 59 deg.	H : 30 to 110 deg. V : 17 to 59 deg.	H : 30 to 110 deg. V : 17 to 59 deg.
	4 : 3	H : 25 to 90 deg. V : 19 to 66 deg.	H : 25 to 90 deg. V : 19 to 66 deg.	H : 25 to 90 deg. V : 19 to 66 deg.	H : 25 to 90 deg. V : 19 to 66 deg.
Adjusting Angle	Pan	-240 to +120 deg.	-240 to +120 deg.	-240 to +120 deg.	-240 to +120 deg.
	Tilt	-85 to +85 deg.	-85 to +85 deg.	-30 to +85 deg.	-85 to +85 deg.
Optical Zoom		3.6x	3.6x	3.6x	3.6x
Digital Zoom		4x	4x	4x	4x
Image Stabilizer		Yes	Yes	Yes	Yes
Corridor Mode		Yes	Yes	Yes	Yes
iA (Intelligent Auto)		Yes	Yes	Yes	Yes
VMD (Video Motion Detection)		Yes (4-areas)	Yes (4-areas)	Yes (4-areas)	Yes (4-areas)
i-VMD (Intelligent VMD) (w/optional extension software)		Yes (Type4)	Yes (Type4)	Yes (Type4)	Yes (Type4)
VIQS		—	—	—	—
Max. Connection		14	14	14	14
Audio	In (Line) / Out	Yes / Yes	— / —	Yes / Yes	— / —
	In (Built-in MIC)	Yes	Yes	Yes	Yes
	Codec	G.711 / G.726 / AAC (*2)	G.711 / G.726 / AAC (*2)	G.711 / G.726 / AAC (*2)	G.711 / G.726 / AAC (*2)
	Audio Detection Alarm	Yes	Yes	Yes	Yes
SD memory Card	Slot	Yes (SDXC)	—	Yes (SDXC)	—
	Password & Alter Detection	Yes	—	Yes	—
	Audio REC	Yes	—	Yes	—
External I/O		Yes (3) (*3)	—	Yes (3) (*3)	—
Monitor Out		Yes (mini jack)	Yes (mini jack)	Yes (mini jack)	Yes (mini jack)
Vandal Resistant		—	—	—	—
Water and Dust Resistance		—	—	—	—
Temperature		-10 to +50 deg.	-10 to +50 deg.	-10 to +50 deg.	-10 to +50 deg.
Power Source		12 V DC / PoE	PoE	12 V DC / PoE	PoE
Dehumidification device		—	—	—	—
Other Functions		Easy setup package	Easy setup package	Easy setup package, Built-in IR LED	Easy setup package

(*1) : w/Super resolution   (*2) : Only for SD REC   (*3) : Alarm In1(Black & White input,Auto time adjustment input),Alarm In2(Alarm Out),Alarm In3(AUX Out)(x1 for each)

Network Camera Comparison chart — 360-degree Dome

Indoor / Outdoor		Outdoor		Indoor		
Model Name		WV-X4571L / WV-X4571LM(*1)	WV-S4550L / WV-S4550LM(*1)	WV-X4171	WV-X4170	WV-S4150
Appearance		NEW	NEW	NEW	NEW	NEW
Sensor		1/2 MOS	1/3 MOS	1/2 MOS	1/2 MOS	1/3 MOS
Codec and Transmission	Video Codec	H.265 / H.264 / JPEG	H.265 / H.264 / JPEG	H.265 / H.264 / JPEG	H.265 / H.264 / JPEG	H.265 / H.264 / JPEG
	H.265 / H.264 multi stream	2	2	2	2	2
	JPEG multi stream	2	2	2	2	2
	H.265 / H.264 : VBR / AVBR (Advanced VBR)	VBR	VBR	VBR	VBR	VBR
	Smart Coding	Yes	Yes	Yes	Yes	Yes
Max. Resolution	16 : 9	2560 x 1440	1920 x 1080	2560 x 1440	2560 x 1440	1920 x 1080
	4 : 3	2560 x 1920 2992 x 2992 (1 : 1)	1600 x 1200 2192 x 2192 (1 : 1)	2560 x 1920 2992 x 2992 (1 : 1)	2560 x 1920 2992 x 2992 (1 : 1)	1600 x 1200 2192 x 2192 (1:1)
Max. FPS @Max. Resolution	H.265 / H.264	30fps (9 MP)	30fps (5 MP)	30fps (9 MP)	30fps (9 MP)	30fps (5 MP)
	JPEG	30fps (9 MP)	30fps (5 MP)	30fps (9 MP)	30fps (9 MP)	30fps (5 MP)
Super Dynamic / WDR / BLC		Super Dynamic	Super Dynamic	Super Dynamic	Super Dynamic	Super Dynamic
Color/BW		Yes (ICR)	Yes (ICR)	Day/Night (Electrical)	Day/Night (Electrical)	Day/Night (Electrical)
ABF (Auto Back Focus) / Auto Focus / Focus Assist		ABF	—	ABF	ABF	—
Min. Illumination	Color	0.3 lx @F1.9	0.3 lx @F2.4	0.3 lx @F1.9	0.3 lx @F1.9	0.3 lx @F2.4
	Color (Sens up)	0.02 lx (16x)	0.02 lx (16x)	0.02 lx (16x)	0.02 lx (16x)	0.02 lx (16x)
	B/W	0.0 lx @F1.9 (w/IR)	0.0 lx @F2.4 (w/IR)	0.04 lx @F1.9	0.04 lx @F1.9	0.2 lx @F2.4
	B/W (Sens up)	—	—	0.0025 lx (16x)	0.0025 lx (16x)	0.013 lx (16x)
Lens		f = 1.4 mm, F1.9	f = 0.84 mm, F2.4	f = 1.4 mm, F1.9	f = 1.4 mm, F1.9	f = 0.84 mm, F2.4
Angular field of view	1 : 1	H : 180 deg. V : 180 deg.	H : 186 deg. V : 186 deg.	H : 180 deg. V : 180 deg.	H : 180 deg. V : 180 deg.	H : 186 deg. V : 186 deg.
Adjusting Angle	Pan	-5°, 0°, +5°	-5°, 0°, +5°	-5°, 0°, +5°	-5°, 0°, +5°	-5°, 0°, +5°
	Tilt	—	—	—	—	—
Optical Zoom		—	—	—	—	—
Digital Zoom		Choose from x1, x2, x4	Choose from x1, x2, x4	Choose from x1, x2, x4	Choose from x1, x2, x4	Choose from x1, x2, x4
Image Stabilizer		—	—	—	—	—
Corridor Mode		—	—	—	—	—
iA (Intelligent Auto)		Yes	Yes	Yes	Yes	Yes
VMD (Video Motion Detection)		Yes (4-areas)	Yes (4-areas)	Yes (4-areas)	—	Yes (4-areas)
i-VMD (Intelligent VMD) (w/optional extension software)		Yes (Type5)	Yes (Type5)	Yes (Type5)	—	Yes (Type5)
VIQS		—	—	—	—	—
Max. Connection		14	14	14	14	14
Audio	In (Line) / Out	Yes / Yes	Yes / Yes	Yes / Yes	— / —	Yes / Yes
	In (Built-in MIC)	—	—	Yes	—	Yes
	Codec	G.711 / G.726 / AAC (*2)	G.711 / G.726 / AAC (*2)	G.711 / G.726 / AAC (*2)	—	G.711 / G.726 / AAC (*2)
	Audio Detection Alarm	—	—	—	—	—
SD memory Card	Slot	Yes (SDXC)	Yes (SDXC)	Yes (SDXC)	Yes (SDXC)	Yes (SDXC)
	Password & Alter Detection	Yes	Yes	Yes	Yes	Yes
	Audio REC	Yes	Yes	Yes	Yes	Yes
External I/O		Yes (3) (*3)	Yes (3) (*3)	Yes (3) (*4)	—	Yes (3) (*4)
Monitor Out		Yes(mini-jack) (*5)	Yes(mini-jack) (*5)	Yes(mini-jack) (*5)	—	Yes(mini-jack) (*5)
Vandal Resistant		50J, IK10	50J, IK10	—	—	—
Water and Dust Resistance		IP66 / NEMA 4X	IP66 / NEMA 4X	—	—	—
Temperature		-40 to +60 deg. (*6)	-40 to +60 deg. (*6)	−10 to +50 deg.	0 to +40 deg.	−10 to +50 deg.
Power Source		12 V DC / PoE	12 V DC / PoE	12 V DC / PoE	PoE	12 V DC / PoE
Dehumidification device		Yes	Yes	—	—	—
Other Functions		360° monitoring, EN50155 Built-in IR LED	360° monitoring, EN50155 Built-in IR LED	360° monitoring	360° monitoring	360° monitoring

(*1) : WV-X4571L/WV-S4550L : 10BASE-T/100BASE-TX, RJ45 connector, WV-X4571LM/WV-S4550LM : 10BASE-T/100BASE-TX, M12 connector   (*2) : Only for SD REC   (*3) : Alarm In1(Black & White input, Auto time adjustment input), Alarm In 2(Alarm Out), Alarm In 3(AUX Out) (x1 for each)
(*4) : Alarm In1(Auto time adjustment input), Alarm In 2(Alarm Out), Alarm In 3(AUX Out) (x1 for each)   (*5) : For adjustment, the audio output can be switched to the monitor output.   (*6) : When the IR LED is ON, the maximum temperature is 50 deg.

Network Camera Comparison chart — Box

Indoor / Outdoor	Outdoor		
Model Name	WV-S1531LTN	WV-S1531LN / WV-S1531LNS	WV-S1511LN
Appearance	i-PRO EXTREME	i-PRO EXTREME — NEW — Heavy Salt damage resistance	i-PRO EXTREME
Sensor	1/3 MOS	1/3 MOS	1/3 MOS
Codec and Transmission — Video Codec	H.265 / H.264 / JPEG	H.265 / H.264 / JPEG	H.265 / H.264 / JPEG
H.265 / H.264 multi stream	4	4	4
JPEG multi stream	3 (Variable)	3 (Variable)	3 (Variable)
H.265 / H.264 : VBR / AVBR (Advanced VBR)	VBR	VBR	VBR
Smart Coding	Yes	Yes	Yes
Max. Resolution — 16 : 9	1920 x 1080	1920 x 1080	1280 x 720
4 : 3	2048 x 1536 (*1)	2048 x 1536 (*1)	1280 x 960
Max. FPS @Max. Resolution — H.265 / H.264	60fps (1080p)	60fps (1080p)	60fps (720p)
JPEG	30fps (3 MP)	30fps (3 MP)	30fps (1.3 MP)
Super Dynamic / WDR / BLC	Enhanced SD	Enhanced SD	Enhanced SD
Color/BW	Yes (ICR)	Yes (ICR)	Yes (ICR)
ABF (Auto Back Focus) / Auto Focus / Focus Assist	ABF	ABF	ABF
Min. Illumination — Color	0.015 lx @F1.7	0.012 lx @F1.6	0.008 lx @F1.6
Color (Sens up)	0.001 lx (16x)	0.0008 lx (16x)	0.0005 lx (16x)
B/W	0.0 lx @F1.7 (w/IR)	0.0 lx @F1.6 (w/IR)	0.0 lx @F1.6 (w/IR)
B/W (Sens up)	—	—	—
Lens	f = 9 to 21 mm, F1.7 Motorized	f = 2.8 to 10 mm, F1.6 Motorized	f = 2.8 to 10 mm, F1.6
Angular field of view — 16 : 9	H : 14 to 34 deg. V : 8 to 19 deg.	H : 31 to 112 deg. V : 17 to 60 deg.	H : 31 to 112 deg. V : 17 to 60 deg.
4 : 3	H : 12 to 28 deg. V : 9 to 21 deg.	H : 26 to 91 deg. V : 19 to 67 deg.	H : 26 to 91 deg. V : 19 to 67 deg.
Adjusting Angle — Pan	-180 to +180 deg.	-180 to +180 deg.	-180 to +180 deg.
Tilt	0 to +100 deg.	0 to +100 deg.	0 to +100 deg.
Optical Zoom	2.3x	3.6x	3.6x
Digital Zoom	4x	4x	4x
Image Stabilizer	Yes	Yes	Yes
Corridor Mode	Yes	Yes	Yes
iA (Intelligent Auto)	Yes	Yes	Yes
VMD (Video Motion Detection)	Yes (4-areas)	Yes (4-areas)	Yes (4-areas)
i-VMD (Intelligent VMD) (w/optional extension software)	Yes (Type4)	Yes (Type4)	Yes (Type4)
VIQS	—	—	—
Max. Connection	14	14	14
Audio — In (Line) / Out	Yes / Yes	Yes / Yes	Yes / Yes
In (Built-in MIC)	—	—	—
Codec	G.711 / G.726 / AAC (*2)	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)	Yes (SDXC)
Password & Alter Detection	Yes	Yes	Yes
Audio REC	Yes	Yes	Yes
External I/O	Yes (3) (*3)	Yes (3) (*3)	Yes (3) (*3)
Monitor Out	Yes (RCA)	Yes (RCA)	Yes (RCA)
Vandal Resistant	IK10	IK10	IK10
Water and Dust Resistance	IP66 / NEMA 4X	IP66 / NEMA 4X	IP66 / NEMA 4X
Temperature	-40 to +60 deg. (*4)	-40 to +60 deg. (*4)	-40 to +60 deg. (*4)
Power Source	12 V DC / PoE	12 V DC / PoE	12 V DC / PoE
Dehumidification device	Yes	Yes	Yes
Other Functions	Easy setup package, Built-in heater, ClearSight coating, Built-in IR LED	Easy setup package, Built-in heater, ClearSight coating, Built-in IR LED WV-S1531LNS: ISO14993(Heavy Salt damage resistance)	Easy setup package, Built-in heater, ClearSight coating, Built-in IR LED

(*1) : w/Super resolution   (*2) : Only for SD REC   (*3) : Alarm In1(Black & white input, Auto time adjustment input), Alarm In 2(Alarm Out), Alarm In 3(AUX Out) (x1 for each)   (*4) : When the IR LED is ON, the maximum temperature is 50 deg.
★ Products that can be purchased is vary according to the locality.

Network Camera Comparison chart — Box

Indoor / Outdoor	Indoor			
Model Name	WV-S1132	WV-S1131	WV-S1112	WV-S1111
Appearance	i-PRO EXTREME Lens not included	i-PRO EXTREME Lens not included	i-PRO EXTREME Lens not included	i-PRO EXTREME Lens not included
Sensor	1/2.8 MOS	1/2.8 MOS	1/2.8 MOS	1/2.8 MOS
Codec and Transmission — Video Codec	H.265 / H.264 / JPEG	H.265 / H.264 / JPEG	H.265 / H.264 / JPEG	H.265 / H.264 / JPEG
H.265 / H.264 multi stream	4	4	4	4
JPEG multi stream	3 (Variable)	3 (Variable)	3 (Variable)	3 (Variable)
H.265 / H.264 : VBR / AVBR (Advanced VBR)	VBR	VBR	VBR	VBR
Smart Coding	Yes	Yes	Yes	Yes
Max. Resolution — 16 : 9	1920 x 1080	1920 x 1080	1280 x 720	1280 x 720
4 : 3	2048 x 1536 (*1)	2048 x 1536 (*1)	1280 x 960	1280 x 960
Max. FPS @Max. Resolution — H.265 / H.264	60fps (1080p)	60fps (1080p)	60fps (720p)	60fps (720p)
JPEG	30fps (3 MP)	30fps (3 MP)	30fps (1.3 MP)	30fps (1.3 MP)
Super Dynamic / WDR / BLC	Enhanced SD	Enhanced SD	Enhanced SD	Enhanced SD
Color/BW	Yes (ICR)	Yes (ICR)	Yes (ICR)	Yes (ICR)
ABF (Auto Back Focus) / Auto Focus / Focus Assist	ABF	ABF	ABF	ABF
Min. Illumination — Color	0.01 lx @F1.4	0.01 lx @F1.4	0.007 lx @F1.4	0.007 lx @F1.4
Color (Sens up)	0.0007 lx (16x)	0.0007 lx (16x)	0.0005 lx (16x)	0.0005 lx (16x)
B/W	0.004 lx @F1.4	0.004 lx @F1.4	0.003 lx @F1.4	0.003 lx @F1.4
B/W (Sens up)	0.0003 lx (16x)	0.0003 lx (16x)	0.0002 lx (16x)	0.0002 lx (16x)
Lens	CS Mount	CS Mount	CS Mount	CS Mount
Angular field of view — 16 : 9	—	—	—	—
4 : 3				
Adjusting Angle — Pan	—	—	—	—
Tilt	—	—	—	—
Optical Zoom	—	—	—	—
Digital Zoom	4x	4x	4x	4x
Image Stabilizer	Yes	Yes	Yes	Yes
Corridor Mode	Yes	Yes	Yes	Yes
iA (Intelligent Auto)	Yes	Yes	Yes	Yes
VMD (Video Motion Detection)	Yes (4-areas)	Yes (4-areas)	Yes (4-areas)	Yes (4-areas)
i-VMD (Intelligent VMD) (w/optional extension software)	Yes (Type4)	Yes (Type4)	Yes (Type4)	Yes (Type4)
VIQS	—	—	—	—
Max. Connection	14	14	14	14
Audio — In (Line) / Out	Yes / Yes	Yes / Yes	Yes / Yes	Yes / Yes
In (Built-in MIC)	—	—	—	—
Codec	G.711 / G.726 / AAC (*2)	G.711 / G.726 / AAC (*2)	G.711 / G.726 / AAC (*2)	G.711 / G.726 / AAC (*2)
Audio Detection Alarm	Yes	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	Yes
External I/O	Yes (3) (*3)	Yes (3) (*3)	Yes (3) (*3)	Yes (3) (*3)
Monitor Out	Yes (RCA)	Yes (RCA)	Yes (RCA)	Yes (RCA)
Vandal Resistant	—	—	—	—
Water and Dust Resistance	—	—	—	—
Temperature	-10 to +50 deg.	-10 to +50 deg.	-10 to +50 deg.	-10 to +50 deg.
Power Source	12 V DC / PoE	12 V DC / PoE	12 V DC / PoE	12 V DC / PoE
Dehumidification device	—	—	—	—
Other Functions	Easy setup package, RS485 serial port	Easy setup package	Easy setup package, RS485 serial port	Easy setup package

(*1) : w/Super resolution   (*2) : Only for SD REC   (*3) : Alarm In1(Black & white input, Auto time adjustment input), Alarm In 2(Alarm Out), Alarm In 3(AUX Out) (x1 for each)
★ Products that can be purchased is vary according to the locality.

Network Camera Comparison chart — PTZ

Indoor / Outdoor — Outdoor

Model Name	WV-SUD638(Natural silver), -H(Gray), -T(Brown)	WV-SW598A	WV-SW397B	WV-SW395 / WV-SW395A
Appearance	ONVIF·I S	ONVIF·I S G	ONVIF·I S G	ONVIF·I S
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 / MPEG-4 / JPEG
H.265 / H.264 multi stream	4	2	2	2
JPEG multi stream	3	6	6	6
H.265 / H.264 : VBR / AVBR (Advanced VBR)	VBR / AVBR	VBR / AVBR	VBR / AVBR	AVBR (V1.80)
Smart Coding	Yes	Yes	Yes	—
Max. Resolution — 16 : 9	1920 x 1080	1920 x 1080	1280 x 720	1280 x 720
Max. Resolution — 4 : 3	1280 x 960	1280 x 960	1280 x 960	1280 x 960
Max. FPS @Max. Resolution — H.265 / H.264	60fps (1080p)	30fps (1080p)	30fps (1.3 MP)	30fps (1.3 MP)
Max. FPS @Max. Resolution — JPEG	60fps (1080p)	30fps (1080p)	30fps (1.3 MP)	30fps (1.3 MP)
Super Dynamic / WDR / BLC	Super Dynamic	Super Dynamic	Super Dynamic	Super Dynamic
Color/BW	Yes (ICR)	Yes (ICR)	Yes (ICR)	Yes (ICR)
ABF (Auto Back Focus) / Auto Focus / Focus Assist	Auto Focus	Auto Focus	Auto Focus	Auto Focus
Min. Illumination — Color	0.06 lx @F1.6	0.15 lx @F1.6	0.1 lx @F1.6	0.5 lx @F1.6
Min. Illumination — Color (Sens up)	0.004 lx (16x)	0.009 lx (16x)	0.007 lx (16x)	0.03 lx (16x)
Min. Illumination — B/W	0.02 lx @F1.6	0.018 lx @F1.6	0.013 lx @F1.6	0.06 lx @F1.6
Min. Illumination — B/W (Sens up)	0.001 lx (16x)	0.001 lx (16x)	0.001 lx (16x)	0.004 lx (16x)
Lens	f = 4.3 to 129 mm, F1.6 Motorized	f = 4.3 to 129 mm, F1.6	f = 4.3 to 129 mm, F1.6	f = 4.7 to 84.6 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 63 deg. V : 1.5 to 37 deg.	H : 2.6 to 63 deg. V : 1.5 to 37 deg.	H : 3.2 to 55.2 deg. V : 1.9 to 31.9 deg.
Angular field of view — 4 : 3	H : 1.8 to 50 deg. V : 1.3 to 38 deg.	H : 1.9 to 46 deg. V : 1.5 to 37 deg.	H : 1.9 to 46 deg. V : 1.5 to 37 deg.	H : 3.2 to 55.2 deg. V : 2.4 to 42.1 deg.
Pan — Range	Endless	Endless	Endless	0 to +350 deg.
Pan — Speed	200 deg/sec	300 deg/sec	300 deg/sec	300 deg/sec
Tilt — Range	Upright : -45° to +90°, Forward tilt : -90° to +90° Hanging : +30° to -90°	-15 to +195 deg.	-15 to +195 deg.	-30 to +90 deg.
Tilt — Speed	200 deg/sec	300 deg/sec	300 deg/sec	100 deg/sec
360 Pan-Flip	—	—	—	Yes
Number of Preset Positions	256	256	256	64
Patrol	Yes	Yes	Yes	—
Auto Tracking	Yes (advanced)	Yes (advanced)	Yes (advanced)	Yes
Optical Zoom	30x (45x with Extra Zoom at HD)	30x (45x with Extra Zoom at HD)	30x (45x with Extra Zoom at HD)	18x
Digital Zoom	4x	12x	12x	12x
Image Stabilizer	Yes (Hybrid)	Yes	Yes	Yes
Corridor Mode				
iA (Intelligent Auto)	—	—	—	—
VMD (Video Motion Detection)	Yes (4-areas)	Yes (4-areas)	Yes (4-areas)	Yes (4-areas)
i-VMD (Intelligent VMD) (w/optional extension software)	—	—	—	—
VIQS	Yes (8-areas)	Yes (2-areas)	Yes (2-areas)	—
Max. Connection	14	14	14	14
Audio — In (Line) / Out	Yes / Yes	Yes / Yes	Yes / Yes	Yes / Yes
Audio — In (Built-in MIC)	—	—	—	—
Audio — Codec	G.711 / G.726 / AAC	G.711 / G.726 / AAC (*1)	G.711 / G.726 / AAC (*1)	G.711 / G.726
Audio — Audio Detection Alarm	—	Yes	Yes	—
SD memory Card — Slot	—	Yes (SDXC)	Yes (SDXC)	Yes (SDHC)
SD memory Card — Password & Alter Detection	—	—	—	—
SD memory Card — Audio REC	—	Yes	Yes	—
External I/O	Yes (3) (*2)	Yes (3) (*2)	Yes (3) (*2)	Yes (3) (*2)
Monitor Out	—	Yes (BNC)	Yes (BNC)	Yes (BNC)
Vandal Resistant	IK10	IK10	IK10	IK10
Water and Dust Resistance	IP66 / IP67 / NEMA 4X	IP66 / NEMA 4X	IP66	IP66
Temperature	-50 to +60 deg. (*3) (AC100 to 240 V) -30 to +60 deg. (*3) (PoE) (*4)	-50 to +55 deg. (24 V / 60 W PoE) (*4) -30 to +55 deg. (PoE+)	-50 to +55 deg. (24 V) -30 to +55 deg. (PoE+)	-40 to +50 deg. (24 V) -30 to +50 deg. (PoE+)
Power Source	100 to 240 V AC / PoE Injector	24 V AC / PoE+	24 V AC / PoE+	24 V AC / PoE+
Dehumidification device	Yes	Yes	Yes	Yes
Other Functions	Optional IR LED, Built-in wiper and defroster, ISO14993(Salt damage resistance)	Built-in heater, RainWash coating, Auto Eyelid Mechanism	Built-in heater, RainWash coating, Auto Eyelid Mechanism	Built-in heater, WV-SW395A: RainWash coating

(*1) : Only for SD REC   (*2) : Alarm In1(Black & White In), Alarm In2(Alarm Out), Alarm In3(AUX Out) (x1 for each)   (*3) : Natural Silver model only. Gray & Brown model up to +55deg.   (*4) : Tested PoE injector

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Network Camera Comparison chart — PTZ

Indoor / Outdoor — Indoor

Model Name	WV-SC588A	WV-SC387A	WV-SC385	WV-SC384
Appearance	ONVIF·I S G	ONVIF·I S G	ONVIF·I S	ONVIF·I S
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 / MPEG-4 / JPEG	H.264 / MPEG-4 / JPEG
H.265 / H.264 multi stream	2	2	2	2
JPEG multi stream	6	6	6	6
H.265 / H.264 : VBR / AVBR (Advanced VBR)	VBR / AVBR	VBR / AVBR	AVBR (V1.80)	AVBR (V1.80)
Smart Coding	Yes	Yes	—	—
Max. Resolution — 16 : 9	1920 x 1080	1280 x 720	1280 x 720	1280 x 720
Max. Resolution — 4 : 3	1280 x 960	1280 x 960	1280 x 960	1280 x 960
Max. FPS @Max. Resolution — H.265 / H.264	30fps (1080p)	30fps (1.3 MP)	30fps (1.3 MP)	30fps (1.3 MP)
Max. FPS @Max. Resolution — JPEG	30fps (1080p)	30fps (1.3 MP)	30fps (1.3 MP)	30fps (1.3 MP)
Super Dynamic / WDR / BLC	Super Dynamic	Super Dynamic	Super Dynamic	WDR
Color/BW	Yes (ICR)	Yes (ICR)	Yes (ICR)	Day/Night (Electrical)
ABF (Auto Back Focus) / Auto Focus / Focus Assist	Auto Focus	Auto Focus	Auto Focus	Auto Focus
Min. Illumination — Color	0.15 lx @F1.6	0.1 lx @F1.6	0.5 lx @F1.6	0.6 lx @F1.6
Min. Illumination — Color (Sens up)	0.009 lx (16x)	0.007 lx (16x)	0.03 lx (16x)	0.038 lx (16x)
Min. Illumination — B/W	0.018 lx @F1.6	0.013 lx @F1.6	0.06 lx @F1.6	0.5 lx @F1.6
Min. Illumination — B/W (Sens up)	0.001 lx (16x)	0.001 lx (16x)	0.004 lx (16x)	0.03 lx (16x)
Lens	f = 4.3 to 129 mm, F1.6	f = 4.3 to 129 mm, F1.6	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 : 2.3 to 64 deg. V : 1.3 to 38 deg.	H : 2.3 to 64 deg. V : 1.3 to 38 deg.	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.
Angular field of view — 4 : 3	H : 1.7 to 46 deg. V : 1.3 to 38 deg.	H : 1.7 to 46 deg. V : 1.3 to 38 deg.	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	Endless	Endless	0 to +350 deg.	0 to +350 deg.
Pan — Speed	300 deg/sec	300 deg/sec	300 deg/sec	300 deg/sec
Tilt — Range	-25 to +205 deg.	-25 to +205 deg.	-30 to +90 deg.	-30 to +90 deg.
Tilt — Speed	300 deg/sec	300 deg/sec	100 deg/sec	100 deg/sec
360 Pan-Flip	—	—	Yes	Yes
Number of Preset Positions	256	256	64	64
Patrol	Yes	Yes	—	—
Auto Tracking	Yes (advanced)	Yes (advanced)	Yes	—
Optical Zoom	30x (45x with Extra Zoom at HD)	30x (45x with Extra Zoom at HD)	18x	18x
Digital Zoom	12x	12x	12x	8x
Image Stabilizer	Yes	Yes	Yes	—
Corridor Mode	—	—	—	—
iA (Intelligent Auto)	—	—	—	—
VMD (Video Motion Detection)	Yes (4-areas)	Yes (4-areas)	Yes (4-areas)	Yes (4-areas)
i-VMD (Intelligent VMD) (w/optional extension software)	—	—	—	—
VIQS	Yes (2-areas)	Yes (2-areas)	—	—
Max. Connection	14	14	14	14
Audio — In (Line) / Out	Yes / Yes	Yes / Yes	Yes / Yes	Yes / Yes
Audio — In (Built-in MIC)	—	—	—	—
Audio — Codec	G.711 / G.726 / AAC (*1)	G.711 / G.726 / AAC (*1)	G.711 / G.726	G.711 / G.726
Audio — Audio Detection Alarm	Yes	Yes	—	—
SD memory Card — Slot	Yes (SDXC)	Yes (SDXC)	Yes (SDHC)	Yes (SDHC)
SD memory Card — Password & Alter Detection	—	—	—	—
SD memory Card — Audio REC	Yes	Yes	—	—
External I/O	Yes (3) (*2)	Yes (3) (*2)	Yes (3) (*2)	Yes (3) (*3)
Monitor Out	Yes (mini-jack)	Yes (mini-jack)	Yes (mini-jack)	Yes (mini-jack)
Vandal Resistant	—	—	—	—
Water and Dust Resistance	—	—	—	—
Temperature	-10 to +55 deg.	-10 to +55 deg.	-10 to +50 deg.	-10 to +50 deg.
Power Source	12 V DC / PoE	12 V DC / PoE	12 V DC / PoE	12 V DC / PoE
Dehumidification device	—	—	—	—
Other Functions	Dome less	Dome less	—	—

(*1) : Only for SD REC   (*2) : Alarm In1(Black & White 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)

Network Camera Comparison chart — Fixed Dome

Indoor / Outdoor		Outdoor			
Model Name		WV-SFV781L	WV-SFV631LT	WV-SFV631L	WV-SFV531
Appearance		ONVIF S G	ONVIF S G	ONVIF S G	ONVIF S G
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.265 / H.264 multi stream	4	4	4	4
	JPEG multi stream	2	6 (Variable)	6 (Variable)	6 (Variable)
	H.265 / H.264 : VBR / AVBR (Advanced VBR)	VBR / AVBR	VBR (V1.52) / AVBR	VBR (V1.52) / AVBR	VBR / AVBR
	Smart Coding	Yes	Yes	Yes	Yes
Max. Resolution	16 : 9	3840 x 2160	1920 x 1080	1920 x 1080	1920 x 1080
	4 : 3	4000 x 3000	2048 x 1536 (*1)	2048 x 1536 (*1)	2048 x 1536 (*1)
Max. FPS @Max. Resolution	H.265 / H.264	30fps (4K)	60fps (1080p)	60fps (1080p)	60fps (1080p)
	JPEG	15fps (12 MP)	30fps (3 MP)	30fps (3 MP)	30fps (3 MP)
Super Dynamic / WDR / BLC		WDR	Enhanced SD	Enhanced SD	Enhanced SD
Color/BW		Yes (ICR)	Yes (ICR)	Yes (ICR)	Yes (ICR)
ABF (Auto Back Focus) / Auto 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	0.07 lx @F1.6
	Color (Sens up)	0.02 lx (16x)	0.0045 lx (16x)	0.003 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)	0.01 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 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 : 16.0 to 56.0 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 27.0 deg. V : 8.6 to 19.9 deg.	H : 23.7 to 84.3 deg. V : 17.8 to 62.4 deg.	H : 26 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.
	Tilt	0 to +85 deg.	0 to +85 deg.	0 to +85 deg.	-85 to +85 deg.
Optical Zoom		6x	2.4x	3.6x	3.3x
Digital Zoom		4x	4x	4x	4x
Image Stabilizer		—	—	—	—
Corridor Mode		—	—	—	—
iA (Intelligent Auto)		—	—	—	—
VMD (Video Motion Detection)		Yes (4-areas)	Yes (4-areas)	Yes (4-areas)	Yes (4-areas)
i-VMD (Intelligent VMD) (w/optional extension software)		—	Yes (Type2)	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) / Out	Yes / Yes	Yes / Yes	Yes / Yes	Yes / Yes
	In (Built-in MIC)	—	—	—	—
	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)
	Password & Alter Detection	—	Yes (V1.52)	Yes (V1.52)	Yes
	Audio REC	Yes	Yes	Yes	Yes
External I/O		Yes (3) (*3)	Yes (3) (*4)	Yes (3) (*4)	Yes (3) (*4)
Monitor Out		Yes (RCA)	Yes (mini jack)	Yes (mini jack)	Yes (mini jack)
Vandal Resistant		IK10	50J, IK10	50J, IK10	50J, IK10
Water and Dust Resistance		IP66 / NEMA 4X	IP66 / NEMA 4X	IP66 / NEMA 4X	IP66 / NEMA 4X
Temperature		-45 to +50 deg.	-45 to +50 deg.	-45 to +50 deg.	-40 to +50 deg.
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, RainWash coating, 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

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

Network Camera Comparison chart — Fixed Dome

Indoor / Outdoor		Outdoor		
Model Name		WV-SFV611L	WV-SFV311A	WV-SFV310A
Appearance		ONVIF S G	ONVIF S	ONVIF S
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.265 / H.264 multi stream	4	4	4
	JPEG multi stream	6 (Variable)	6 (Variable)	6 (Variable)
	H.265 / H.264 : VBR / AVBR (Advanced VBR)	VBR (V1.52) / AVBR	VBR / AVBR	VBR / AVBR
	Smart Coding	Yes	Yes	Yes
Max. Resolution	16 : 9	1280 x 720	1920 x 1080 (*1) / 1280 x 720	1920 x 1080 (*1) / 1280 x 720
	4 : 3	1280 x 960	1280 x 960	1280 x 960
Max. FPS @Max. Resolution	H.265 / H.264	60fps (720p)	60fps (720p)	60fps (720p)
	JPEG	30fps (1.3 MP)	30fps (1.3 MP)	30fps (1.3 MP)
Super Dynamic / WDR / BLC		Enhanced SD	Enhanced SD	Enhanced SD
Color/BW		Yes (ICR)	Yes (ICR)	Day/Night (Electrical)
ABF (Auto Back Focus) / Auto Focus / Focus Assist		ABF	ABF	ABF
Min. Illumination	Color	0.01 lx @F1.3	0.01 lx @F1.6	0.01 lx @F1.6
	Color (Sens up)	0.0007 lx (16x)	0.0007 lx (16x)	0.0007 lx (16x)
	B/W	0.0 lx @F1.3 (w/IR)	0.003 lx @F1.6	0.008 lx @F1.6
	B/W (Sens up)	—	0.0002 lx (16x)	0.0005 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
Angular field of view	16 : 9	H : 26.4 to 93.7 deg. V : 14.8 to 51.6 deg.	H : 28 to 99 deg. V : 16 to 54 deg.	H : 28 to 99 deg. V : 16 to 54 deg.
	4 : 3	H : 26.4 to 93.7 deg. V : 20 to 69.3 deg.	H : 28 to 99 deg. V : 21 to 72 deg.	H : 28 to 99 deg. V : 21 to 72 deg.
Adjusting Angle	Pan	-180 to +180 deg.	-180 to +180 deg.	-180 to +180 deg.
	Tilt	0 to +85 deg.	-85 to +85 deg.	-85 to +85 deg.
Optical Zoom		3.6x	3.6x	3.6x
Digital Zoom		4x	4x	4x
Image Stabilizer		—	—	—
Corridor Mode		—	—	—
iA (Intelligent Auto)		—	—	—
VMD (Video Motion Detection)		Yes (4-areas)	Yes (4-areas)	Yes (4-areas)
i-VMD (Intelligent VMD) (w/optional extension software)		Yes (Type2)	Yes (Type2)	Yes (Type2)
VIQS		Yes (8-areas)	Yes (8-areas)	Yes (8-areas)
Max. Connection		14	14	14
Audio	In (Line) / Out	Yes / Yes	Yes / Yes	— / —
	In (Built-in MIC)	—	—	—
	Codec	G.711 / G.726 / AAC	G.711 / G.726 / AAC	—
	Audio Detection Alarm	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	—
External I/O		Yes (3) (*2)	Yes (3) (*3)	Yes (3) (*4)
Monitor Out		Yes (mini jack)	Yes (mini jack)	Yes (mini jack)
Vandal Resistant		50J, IK10	50J, IK10	50J, IK10
Water and Dust Resistance		IP66 / NEMA 4X	IP66 / NEMA 4X	IP66 / NEMA 4X
Temperature		-45 to +50 deg.	-40 to +50 deg. (in operation)	-40 to +50 deg. (in operation)
Power Source		12 V DC / PoE	12 V DC / PoE	12 V DC / PoE
Dehumidification device		Yes	Yes	Yes
Other Functions		Smart-DoF, Built-in heater, Built-in IR LED	Built-in heater	Built-in heater

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

Network Camera Comparison chart — Fixed Dome

Indoor / Outdoor		Outdoor			
Model Name		WV-SFV130 / WV-SFV130M	WV-SFV110 / WV-SFV110M	WV-SW158	WV-SW155 / WV-SW155MA(*1)
Appearance		ONVIF*I S G	ONVIF*I S G	ONVIF*I S G	ONVIF*I S
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.265 / H.264 multi stream	4	4	2	2
	JPEG multi stream	6 (Variable)	6 (Variable)	6	6
	H.265 / H.264 : VBR / AVBR (Advanced VBR)	VBR / AVBR	VBR / AVBR	VBR / AVBR (V1.90)	VBR / AVBR (V2.20)
	Smart Coding	Yes	Yes	—	—
Max. Resolution	16 : 9	1920 x 1080	1280 x 720	1920 x 1080	1280 x 720
	4 : 3	2048 x 1536 (*2)	1280 x 960	H.264 : 1280 x 960 JPEG : 2048 x 1536	1280 x 960
Max. FPS @Max. Resolution	H.265 / H.264	30fps (1080p)	30fps (720p)	30fps (1080p + 360p)	30fps (1.3 MP)
	JPEG	30fps (1080p)	30fps (720p)	30fps (1080p)	30fps (1.3 MP)
Super Dynamic / WDR / BLC		Super Dynamic	Super Dynamic	Super Dynamic	Super Dynamic
Color/BW		Day/Night (Electrical)	Day/Night (Electrical)	Day/Night (Electrical)	Day/Night (Electrical)
ABF (Auto Back Focus) / Auto Focus / Focus Assist		—	—	—	—
Min. Illumination	Color	0.1 lx @F2.3	0.04 lx @F2.3	1.2 lx @F2.2	0.8 lx @F2.2
	Color (Sens up)	0.007 lx (16x)	0.003 lx (16x)	0.075 lx (16x)	0.05 lx (16x)
	B/W	0.08 lx @F2.3	0.03 lx @F2.3	0.9 lx @F2.2	0.6 lx @F2.2
	B/W (Sens up)	0.005 lx (16x)	0.002 lx (16x)	0.056 lx (16x)	0.04 lx (16x)
Lens		f = 2.8 mm, F2.3	f = 2.8 mm, F2.3	f = 1.95 mm, F2.2	f = 1.95 mm, F2.2
Angular field of view	16 : 9	H : 108 deg. V : 60 deg.	H : 100 deg. V : 55 deg.	H : 95 deg. V : 62 deg.	H : 104 deg. V : 68 deg.
	4 : 3	H : 89 deg. V : 66 deg.	H : 100 deg. V : 73 deg.	H : 100 deg. V : 81 deg.	H : 104 deg. V : 85 deg.
Adjusting Angle	Pan	-20 to +20 deg.	-20 to +20 deg.	-20 to +20 deg.	-20 to +20 deg.
	Tilt	-20 to +90 deg.	-20 to +90 deg.	-20 to +90 deg.	-20 to +90 deg.
Optical Zoom		—	—	—	—
Digital Zoom		4x	4x	4x	4x
Image Stabilizer		—	—	—	—
Corridor Mode		—	—	—	—
iA (Intelligent Auto)		—	—	—	—
VMD (Video Motion Detection)		Yes (4-areas)	Yes (4-areas)	Yes (4-areas)	Yes
i-VMD (Intelligent VMD) (w/optional extension software)		Yes (Type2)	Yes (Type2)	Yes (Type1)	—
VIQS		Yes (8-areas)	Yes (8-areas)	Yes (2-areas)	Yes (1-area)
Max. Connection		14	14	14	14
Audio	In (Line) / Out	— / —	— / —	— / —	— / —
	In (Built-in MIC)	Yes	Yes	Yes	—
	Codec	G.711 / G.726 / AAC (*3)	G.711 / G.726 / AAC (*3)	G.711 / G.726 / AAC	—
	Audio Detection Alarm	—	—	Yes	—
SD memory Card	Slot	Yes (SDXC)	Yes (SDXC)	Yes (SDXC)	Yes (SDHC)
	Password & Alter Detection	Yes	Yes	—	—
	Audio REC	Yes	Yes	Yes	—
External I/O		—	—	—	—
Monitor Out		—	—	—	—
Vandal Resistant		50J, IK10	50J, IK10	50J, IK10	50J, IK10
Water and Dust Resistance		IP66 / NEMA 4X	IP66 / NEMA 4X	IP66 / NEMA 4X	IP66 / NEMA 4X
Temperature		-40 to +60 deg.	-40 to +60 deg.	-30 to +50 deg.	-30 to +50 deg.
Power Source		PoE	PoE	PoE	PoE
Dehumidification device		—	—	—	—
Other Functions		EN50155-T3, EN50121, EN45545, EN50498, ECE-R10(WV-SFV130M)	EN50155-T3, EN50121, EN45545, EN50498, ECE-R10(WV-SFV110M)	EN50155-T3, EN50121, EN45545, DIN5510	EN50155-T3, EN50121, EN45545, DIN5510 ECE-R10(WV-SW155MA)

(*1) : WV-SW155 : 10BASE-T/100BASE-TX, RJ45 connector / WV-SW155MA : 10BASE-T/100BASE-TX, M12 connector   (*2) : w/Super resolution   (*3) : Only for SD REC

Network Camera Comparison chart — Fixed Dome

Indoor / Outdoor		Outdoor		
Model Name		WV-SW115	WV-SBV131M	WV-SBV111M
Appearance		ONVIF*I S	ONVIF*I S G	ONVIF*I S G
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.265 / H.264 multi stream	2	4	4
	JPEG multi stream	6	6 (Variable)	6 (Variable)
	H.265 / H.264 : VBR / AVBR (Advanced VBR)	AVBR	VBR / AVBR	VBR / AVBR
	Smart Coding	—	Yes	Yes
Max. Resolution	16 : 9	1280 x 720	1920 x 1080	1280 x 720
	4 : 3	1280 x 960	2048 x 1536 (*1)	1280 x 960
Max. FPS @Max. Resolution	H.265 / H.264	30fps (1.3 MP)	30fps (1080p)	30fps (720p)
	JPEG	30fps (1.3 MP)	30fps (3 MP)	30fps (1.3 MP)
Super Dynamic / WDR / BLC		Super Dynamic	WDR	WDR
Color/BW		Day/Night (Electrical)	Day/Night (Electrical)	Day/Night (Electrical)
ABF (Auto Back Focus) / Auto Focus / Focus Assist		—	—	—
Min. Illumination	Color	0.8 lx @F2.2	0.1 lx @F2.2	0.04 lx @F2.2
	Color (Sens up)	0.05 lx (16x)	0.007 lx (16x)	0.003 lx (16x)
	B/W	0.6 lx @F2.2	0.06 lx @F2.2	0.03 lx @F2.2
	B/W (Sens up)	0.04 lx (16x)	0.004 lx (16x)	0.002 lx (16x)
Lens		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 : 104 deg. V : 68 deg.	H : 109 deg. V : 73 deg.	H : 104 deg. V : 69 deg.
	4 : 3	H : 104 deg. V : 85 deg.	H : 97 deg. V : 79 deg.	H : 104 deg. V : 85 deg.
Adjusting Angle	Pan	-30 to +30 deg.	-170 to +170 deg.	-170 to +170 deg.
	Tilt	-30 to +30 deg.	-90 to +90 deg.	-90 to +90 deg.
Optical Zoom		—	—	—
Digital Zoom		4x	4x	4x
Image Stabilizer		—	—	—
Corridor Mode		—	—	—
iA (Intelligent Auto)		—	—	—
VMD (Video Motion Detection)		Yes	Yes (4-areas)	Yes (4-areas)
i-VMD (Intelligent VMD) (w/optional extension software)		—	—	—
VIQS		Yes (1-area)	Yes (8-areas)	Yes (8-areas)
Max. Connection		14	14	14
Audio	In (Line) / Out	— / —	Yes / Yes	Yes / Yes
	In (Built-in MIC)	—	—	—
	Codec	—	G.726(ADPCM)	G.726(ADPCM)
	Audio Detection Alarm	—	—	—
SD memory Card	Slot	Yes (SDHC)	Yes (SDXC)	Yes (SDXC)
	Password & Alter Detection	—	—	—
	Audio REC	—	—	—
External I/O		—	—	—
Monitor Out		—	—	—
Vandal Resistant		IK10	IK10	IK10
Water and Dust Resistance		IP66 / NEMA 4X	IP6K9K / IP66 / NEMA 4X	IP6K9K / IP66 / NEMA 4X
Temperature		-30 to +50 deg.	-40 to +60 deg.	-40 to +60 deg.
Power Source		PoE	PoE	PoE
Dehumidification device		—	—	—
Other Functions		EN50155, EN50121	MIL-STD-810G EN50155-T3, EN50121, EN45545, EN50498, ECE-R10	MIL-STD-810G EN50155-T3, EN50121, EN45545, EN50498, ECE-R10

(*1) : with Simple Full-HD mode(tentative name)

Network Camera Comparison chart — Fixed Dome

Indoor

Indoor / Outdoor		WV-SFR631L	WV-SFR531	WV-SFR611L	WV-SFR311A	WV-SFR310A
Model Name		WV-SFR631L	WV-SFR531	WV-SFR611L	WV-SFR311A	WV-SFR310A
Appearance		ONVIF S G	ONVIF S G	ONVIF S G	ONVIF S	ONVIF S
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.265 / H.264 multi stream	4	4	4	4	4
	JPEG multi stream	6 (Variable)	6 (Variable)	6 (Variable)	6 (Variable)	6 (Variable)
	H.265 / H.264 : VBR / AVBR (Advanced VBR)	VBR (V1.52) / AVBR	VBR / AVBR	VBR (V1.52) / AVBR	VBR / AVBR	VBR / AVBR
	Smart Coding	Yes	Yes	Yes	Yes	Yes
Max. Resolution	16 : 9	1920 x 1080	1920 x 1080	1280 x 720	1920 x 1080 (*1) / 1280 x 720	1920 x 1080 (*1) / 1280 x 720
	4 : 3	2048 x 1536 (*1)	2048 x 1536 (*1)	1280 x 960	1280 x 960	1280 x 960
Max. FPS @Max. Resolution	H.265 / H.264	60fps (1080p)	60fps (1080p)	60fps (720p)	60fps (720p)	60fps (720p)
	JPEG	30fps (3 MP) (*1)	30fps (3 MP) (*1)	30fps (1.3 MP)	30fps (1.3 MP)	30fps (1.3 MP)
Super Dynamic / WDR / BLC		Enhanced SD	Enhanced SD	Enhanced SD	Enhanced SD	Enhanced SD
Color/BW		Yes (ICR)	Yes (ICR)	Yes (ICR)	Yes (ICR)	Day/Night (Electrical)
ABF (Auto Back Focus) / Auto Focus / Focus Assist		ABF	ABF	ABF	ABF	ABF
Min. Illumination	Color	0.04 lx @F1.3	0.07 lx @F1.6	0.01 lx @F1.3	0.01 lx @F1.6	0.01 lx @F1.6
	Color (Sens up)	0.003 lx (16x)	0.005 lx (16x)	0.0007 lx (16x)	0.0007 lx (16x)	0.0007 lx (16x)
	B/W	0.0 lx @F1.3 (w/IR)	0.01 lx @F1.6	0.0 lx @F1.3 (w/IR)	0.003 lx @F1.6	0.008 lx @F1.6
	B/W (Sens up)	—	0.0007 lx (16x)	—	0.0002 lx (16x)	0.0005 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, F1.3 Motorized	f = 2.8 to 10 mm, F1.6	f = 2.8 to 10 mm, F1.6
Angular field of view	16 : 9	H : 28.8 to 102.9 deg. V : 16.0 to 56.2 deg.	H : 31 to 109 deg. V : 18 to 59 deg.	H : 26.4 to 94.0 deg. V : 14.7 to 51.8 deg.	H : 28 to 99 deg. V : 16 to 54 deg.	H : 28 to 99 deg. V : 16 to 54 deg.
	4 : 3	H : 23.8 to 84.6 deg. V : 17.8 to 62.6 deg.	H : 26 to 89 deg. V : 20 to 66 deg.	H : 26.4 to 94.0 deg. V : 19.8 to 69.5 deg.	H : 28 to 99 deg. V : 21 to 72 deg.	H : 28 to 99 deg. V : 21 to 72 deg.
Adjusting Angle	Pan	-180 to +180 deg.	-240 to +120 deg.	-180 to +180 deg.	-240 to +120 deg.	-240 to +120 deg.
	Tilt	0 to +85 deg.	-85 to +85 deg.	0 to +85 deg.	-85 to +85 deg.	-85 to +85 deg.
Optical Zoom		3.6x	3.3x	3.6x	3.6x	3.6x
Digital Zoom		4x	4x	4x	4x	4x
Image Stabilizer		—	—	—	—	—
Corridor Mode		—	—	—	—	—
iA (Intelligent Auto)		—	—	—	—	—
VMD (Video Motion Detection)		Yes (4-areas)	Yes (4-areas)	Yes (4-areas)	Yes (4-areas)	Yes (4-areas)
i-VMD (Intelligent VMD) (w/optional extension software)		Yes (Type2)	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) / Out	Yes / Yes	Yes / Yes	Yes / Yes	Yes / Yes	—
	In (Built-in MIC)	—	—	—	—	—
	Codec	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 x 2)	Yes (SDXC)	Yes (SDXC x 2)	Yes (SDXC)	Yes (SDXC)
	Password & Alter Detection	Yes (V1.52)	Yes	Yes (V1.52)	Yes	Yes
	Audio REC	Yes	Yes	Yes	Yes	—
External I/O		Yes (3) (*2)	Yes (3) (*3)	Yes (3) (*2)	Yes (3) (*4)	Yes (3) (*5)
Monitor Out		Yes (mini jack)	Yes (mini jack)	Yes (mini jack)	Yes (mini jack)	Yes (mini jack)
Vandal Resistant		IK10	IK10	IK10	IK10	IK10
Water and Dust Resistance		—	—	—	—	—
Temperature		-10 to +50 deg.	-10 to +50 deg.	-10 to +50 deg.	-10 to +50 deg.	-10 to +50 deg.
Power Source		12 V DC / PoE	12 V DC / PoE	12 V DC / PoE	12 V DC / PoE	12 V DC / PoE
Dehumidification device		—	—	—	—	—
Other Functions		Smart-DoF, Built-in IR LED	—	Smart-DoF, Built-in IR LED	—	—

(*1) : w/Super resolution   (*2) : Alarm In1(Black & White 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(Black & White In, Auto time adjustment), Alarm In 2(Alarm Out), Alarm In 3(AUX Out) (x1 for each)   (*5) : Alarm In1(Auto time adjustment), Alarm In 2(Alarm Out), Alarm In 3(AUX Out) (x1 for each)

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Network Camera Comparison chart — Fixed Dome

Indoor

Indoor / Outdoor		WV-SFN631L	WV-SFN531	WV-SFN611L	WV-SFN311L	WV-SFN311A	WV-SFN310A
Model Name		WV-SFN631L	WV-SFN531	WV-SFN611L	WV-SFN311L	WV-SFN311A	WV-SFN310A
Appearance		ONVIF S G	ONVIF S G	ONVIF S G	*Only sold in certain areas ONVIF S	ONVIF S	ONVIF S
Sensor		1/3 MOS	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 / JPEG
	H.265 / H.264 multi stream	4	4	4	4	4	4
	JPEG multi stream	6 (Variable)	6 (Variable)	6 (Variable)	6 (Variable)	6 (Variable)	6 (Variable)
	H.265 / H.264 : VBR / AVBR (Advanced VBR)	VBR (V1.52) / AVBR	VBR / AVBR	VBR (V1.52) / AVBR	VBR / AVBR	VBR / AVBR	VBR / AVBR
	Smart Coding	Yes	Yes	Yes	Yes	Yes	Yes
Max. Resolution	16 : 9	1920 x 1080	1920 x 1080	1280 x 720	1280 x 720	1920 x 1080 (*1) / 1280 x 720	1920 x 1080 (*1) / 1280 x 720
	4 : 3	2048 x 1536 (*1)	2048 x 1536 (*1)	1280 x 960	1280 x 960	1280 x 960	1280 x 960
Max. FPS @Max. Resolution	H.265 / H.264	60fps (1080p)	60fps (1080p)	60fps (720p)	60fps (720p)	60fps (720p)	60fps (720p)
	JPEG	30fps (3 MP) (*1)	30fps (3 MP) (*1)	30fps (1.3 MP)	30fps (1.3 MP)	30fps (1.3 MP)	30fps (1.3 MP)
Super Dynamic / WDR / BLC		Enhanced SD	Enhanced SD	Enhanced SD	Enhanced SD	Enhanced SD	Enhanced SD
Color/BW		Yes (ICR)	Yes (ICR)	Yes (ICR)	Yes (ICR)	Yes (ICR)	Day/Night (Electrical)
ABF (Auto Back Focus) / Auto Focus / Focus Assist		ABF	ABF	ABF	ABF	ABF	ABF
Min. Illumination	Color	0.04 lx @F1.3	0.07 lx @F1.6	0.01 lx @F1.3	0.01 lx @F1.6	0.01 lx @F1.6	0.01 lx @F1.6
	Color (Sens up)	0.003 lx (16x)	0.005 lx (16x)	0.0007 lx (16x)	0.0007 lx (16x)	0.0007 lx (16x)	0.0007 lx (16x)
	B/W	0.0 lx @F1.3 (w/IR)	0.01 lx @F1.6	0.0 lx @F1.3 (w/IR)	0.0 lx @F1.6 (w/IR)	0.003 lx @F1.6	0.008 lx @F1.6
	B/W (Sens up)	—	0.0007 lx (16x)	—	—	0.0002 lx (16x)	0.0005 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, F1.3 Motorized	f = 2.8 to 10 mm, F1.6	f = 2.8 to 10 mm, F1.6	f = 2.8 to 10 mm, F1.6
Angular field of view	16 : 9	H : 29.3 to 104.1 deg. V : 16.2 to 56.8 deg.	H : 32 to 110 deg. V : 18 to 60 deg.	H : 26.6 to 95.1 deg. V : 14.9 to 52.3 deg.	H : 27.9 to 100.5 deg. V : 15.7 to 54.8 deg.	H : 28 to 100 deg. V : 16 to 54 deg.	H : 28 to 100 deg. V : 16 to 54 deg.
	4 : 3	H : 24.0 to 85.5 deg. V : 18.0 to 63.3 deg.	H : 27 to 91 deg. V : 20 to 66 deg.	H : 26.7 to 95.1 deg. V : 20.0 to 70.2 deg.	H : 27.9 to 100.0 deg. V : 21.0 to 73.9 deg.	H : 28 to 100 deg. V : 21 to 73 deg.	H : 28 to 100 deg. V : 21 to 73 deg.
Adjusting Angle	Pan	-180 to +180 deg.	-240 to +120 deg.	-180 to +180 deg.	-180 to +180 deg.	-240 to +120 deg.	-240 to +120 deg.
	Tilt	0 to +85 deg.	-85 to +85 deg.	0 to +85 deg.	0 to +85 deg.	-85 to +85 deg.	-85 to +85 deg.
Optical Zoom		3.6x	3.3x	3.6x	3.6x	3.6x	3.6x
Digital Zoom		4x	4x	4x	4x	4x	4x
Image Stabilizer		—	—	—	—	—	—
Corridor Mode		—	—	—	—	—	—
iA (Intelligent Auto)		—	—	—	—	—	—
VMD (Video Motion Detection)		Yes (4-areas)	Yes (4-areas)	Yes (4-areas)	Yes (4-areas)	Yes (4-areas)	Yes (4-areas)
i-VMD (Intelligent VMD) (w/optional extension software)		Yes (Type2)	Yes (Type2)	Yes (Type2)	Yes (Type2)	Yes (Type2)	Yes (Type2)
VIQS		Yes (8-areas)	Yes (8-areas)	Yes (8-areas)	Yes (8-areas)	Yes (8-areas)	Yes (8-areas)
Max. Connection		14	14	14	14	14	14
Audio	In (Line) / Out	Yes / Yes	Yes / Yes	Yes / Yes	Yes / Yes	Yes / Yes	— / —
	In (Built-in MIC)	—	—	—	—	—	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	G.711 / G.726 / AAC
	Audio Detection Alarm	Yes	Yes	Yes	Yes	Yes	Yes
SD memory Card	Slot	Yes (SDXC x 2)	Yes (SDXC)	Yes (SDXC x 2)	Yes (SDXC)	Yes (SDXC)	Yes (SDXC)
	Password & Alter Detection	Yes (V1.52)	Yes	Yes (V1.52)	Yes	Yes	Yes
	Audio REC	Yes	Yes	Yes	Yes	Yes	Yes
External I/O		Yes (3) (*2)	Yes (3) (*2)	Yes (3) (*3)	Yes (3) (*2)	Yes (3) (*4)	Yes (3) (*5)
Monitor Out		Yes (mini jack)	Yes (mini jack)	Yes (mini jack)	Yes (mini jack)	Yes (mini jack)	Yes (mini jack)
Vandal Resistant		—	—	—	—	—	—
Water and Dust Resistance		—	—	—	—	—	—
Temperature		-10 to +50 deg.	-10 to +50 deg.	-10 to +50 deg.	-10 to +50 deg.	-10 to +50 deg.	-10 to +50 deg.
Power Source		12 V DC / PoE	12 V DC / PoE	12 V DC / PoE	12 V DC / PoE	12 V DC / PoE	12 V DC / PoE
Dehumidification device		—	—	—	—	—	—
Other Functions		Smart-DoF, Built-in IR LED	—	Smart-DoF, Built-in IR LED	Built-in IR LED	—	—

(*1) : w/Super resolution   (*2) : Alarm In1(Black & White 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(Black & White In, Auto time adjustment), Alarm In 2(Alarm Out), Alarm In 3(AUX Out) (x1 for each)   (*5) : Alarm In1(Auto time adjustment), Alarm In 2(Alarm Out), Alarm In 3(AUX Out) (x1 for each)

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Network Camera Comparison chart — Fixed Dome

Indoor

		WV-SFN130	WV-SFN110	WV-SF132
Appearance		ONVIF* | S G	ONVIF* | S G	ONVIF* | S
Sensor		1/3 MOS	1/3 MOS	1/5 MOS
Codec and Transmission	Video Codec	H.264 / JPEG	H.264 / JPEG	H.264 / JPEG
	H.265 / H.264 multi stream	4	4	2
	JPEG multi stream	6 (Variable)	6 (Variable)	6
	H.265 / H.264 : VBR / AVBR (Advanced VBR)	VBR / AVBR	VBR / AVBR	AVBR (V1.80)
	Smart Coding	Yes	Yes	—
Max. Resolution	16 : 9	1920 x 1080	1280 x 720	640 x 360
	4 : 3	2048 x 1536 (*1)	1280 x 960	640 x 480
Max. FPS @Max. Resolution	H.265 / H.264	30fps (1080p)	30fps (720p)	30fps (VGA)
	JPEG	30fps (1080p)	30fps (720p)	30fps (VGA)
Super Dynamic / WDR / BLC		Super Dynamic	Super Dynamic	BLC
Color/BW		Day/Night (Electrical)	Day/Night (Electrical)	Day/Night (Electrical)
ABF (Auto Back Focus) / Auto Focus / Focus Assist		—	—	—
Min. Illumination	Color	0.1 lx @F2.3	0.04 lx @F2.3	2.0 lx @F2.9
	Color (Sens up)	0.007 lx (16x)	0.003 lx (16x)	0.3 lx (16x)
	B/W	0.08 lx @F2.3	0.03 lx @F2.3	1.3 lx @F2.9
	B/W (Sens up)	0.005 lx (16x)	0.002 lx (16x)	0.16 lx (16x)
Lens		f = 2.8 mm, F2.3	f = 2.8 mm, F2.3	f = 1.95 mm, F2.9
Angular field of view	16 : 9	H : 108 deg. V : 60 deg.	H : 100 deg. V : 55 deg.	H : 104 deg. V : 68 deg.
	4 : 3	H : 89 deg. V : 66 deg.	H : 100 deg. V : 73 deg.	H : 68 deg. V : 53 deg.
Adjusting Angle	Pan	-20 to +20 deg.	-20 to +20 deg.	-20 to +20 deg.
	Tilt	-20 to +90 deg.	-20 to +90 deg.	-20 to +90 deg.
Optical Zoom		—	—	—
Digital Zoom		4x	4x	4x
Image Stabilizer		—	—	—
Corridor Mode		—	—	—
iA (Intelligent Auto)		—	—	—
VMD (Video Motion Detection)		Yes (4-areas)	Yes (4-areas)	Yes
i-VMD (Intelligent VMD) (w/optional extension software)		Yes (Type2)	Yes (Type2)	—
VIQS		Yes (8-areas)	Yes (8-areas)	Yes (1-area)
Max. Connection		14	14	14
Audio	In (Line) / Out	— / —	— / —	— / —
	In (Built-in MIC)	Yes	Yes	—
	Codec	G.711 / G.726 / AAC (*2)	G.711 / G.726 / AAC (*2)	—
	Audio Detection Alarm	Yes	Yes	—
SD memory Card	Slot	Yes (SDXC)	Yes (SDXC)	—
	Password & Alter Detection	Yes	Yes	—
	Audio REC	Yes	Yes	—
External I/O		—	—	—
Monitor Out		—	—	—
Vandal Resistant		—	—	—
Water and Dust Resistance		—	—	—
Temperature		0 to +40 deg.	0 to +40 deg.	0 to +40 deg.
Power Source		PoE	PoE	PoE
Dehumidification device		—	—	—
Other Functions		—	—	—

(*1) : w/Super resolution   (*2) : Only for SD REC

Network Camera Comparison chart — 360-degree Dome

		Outdoor		Indoor		
		WV-SFV481	WV-SW458 / WV-SW458MA(*1)	WV-SFN480	WV-SF448	WV-SF438
Appearance		ONVIF* | S G	ONVIF* | S	ONVIF* | S G	ONVIF* | S	ONVIF* | S
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.265 / H.264 multi stream	2	2	2	2	2
	JPEG multi stream	2	6	2	6	6
	H.265 / H.264 : VBR / AVBR (Advanced VBR)	VBR / AVBR	AVBR (V1.40)	VBR / AVBR	AVBR (V1.40)	AVBR (V1.40)
	Smart Coding	Yes	—	Yes	—	—
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 2048 x 1536	2560 x 1920 2992 x 2992 (1 : 1)	H.264 : 1280 x 960 2048 x 1536	H.264 : 1280 x 960 2048 x 1536
Max. FPS @Max. Resolution	H.265 / 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 Dynamic	WDR	Super Dynamic	Super Dynamic
Color/BW		Yes (ICR)	Day/Night (Electrical)	Day/Night (Electrical)	Day/Night (Electrical)	Day/Night (Electrical)
ABF (Auto Back Focus) / Auto 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 : 188 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
Image Stabilizer		—	—	—	—	—
Corridor Mode		—	—	—	—	—
iA (Intelligent Auto)		—	—	—	—	—
VMD (Video Motion Detection)		Yes (4-areas)	Yes (4-areas)	Yes (4-areas)	Yes (4-areas)	Yes (4-areas)
i-VMD (Intelligent VMD) (w/optional extension software)		Yes (Type3)		Yes (Type3)		
VIQS		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) / Out	Yes / Yes	Yes / Yes	Yes / Yes	Yes / Yes	Yes / Yes
	In (Built-in MIC)	—	—	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	—	Yes	—	—
External I/O		Yes (3) (*2)	Yes (3) (*3)	Yes (3) (*3)	Yes (3) (*4)	Yes (3) (*3)
Monitor Out		Yes (RCA)	—	Yes (RCA)	—	—
Vandal Resistant		50J, IK10	50J, IK10	—	IK10	—
Water and Dust Resistance		IP66 / NEMA 4X	IP66 / NEMA 4X	—	—	—
Temperature		-40 to +50 deg.	-40 to +50 deg.	Ceiling / Wall /Mount bracket : -10 to +50 deg. Desktop / Tripod : -10 to +40 deg.	-10 to +50 deg.	-10 to +50 deg.
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

(*1) : WV-SW458 : 10BASE-T/100BASE-TX, RJ45 connector, WV-SW458MA : 10BASE-T/100BASE-TX, M12 connector   (*2) : Alarm In1(Black & White 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(Privacy action in), Alarm In2(Alarm Out), Alarm In3(AUX Out) (x1 for each)

Network Camera Comparison chart — Box

Indoor / Outdoor		Outdoor				
Model Name		WV-SPV781L	WV-SPW631LT	WV-SPW631L	WV-SPW531AL	WV-SPW532L
Appearance		ONVIF S	ONVIF S	ONVIF S	ONVIF S	*Only sold in certain areas ONVIF S
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.265 / H.264 multi stream	4	4	4	4	4
	JPEG multi stream	2	6 (Variable)	6 (Variable)	6 (Variable)	6 (Variable)
	H.265 / H.264 : VBR / AVBR (Advanced VBR)	VBR / AVBR	VBR / AVBR	VBR / AVBR	VBR / AVBR	VBR / AVBR
	Smart Coding	Yes	Yes	Yes	Yes	Yes
Max. Resolution	16 : 9	3840 x 2160	1920 x 1080	1920 x 1080	1920 x 1080	1920 x 1080
	4 : 3	4000 x 3000	2048 x 1536 (*1)	2048 x 1536 (*1)	2048 x 1536	2048 x 1536
Max. FPS @Max. Resolution	H.265 / H.264	30fps (4K)	60fps (1080p)	60fps (1080p)	60fps (1080p)	30fps (1080p)
	JPEG	15fps (12 MP)	30fps (3 MP)	30fps (3 MP)	30fps (3 MP)	30fps (3 MP)
Super Dynamic / WDR / BLC		WDR	Enhanced SD	Enhanced SD	Enhanced SD	WDR
Color/BW		Yes (ICR)	Yes (ICR)	Yes (ICR)	Yes (ICR)	Yes (ICR)
ABF (Auto Back Focus) / Auto 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	0.07 lx @F1.6	0.07 lx @F1.6
	Color (Sens up)	0.02 lx (16x)	0.004 lx (16x)	0.003 lx (16x)	0.005 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 @F1.6 (w/IR)	0.0 lx @F1.6 (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, F1.6	f = 2.8 to 10 mm, F1.6
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 : 31 to 112 deg. V : 17 to 60 deg.	H : 31 to 112 deg. V : 17 to 60 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 : 26 to 91 deg. V : 19 to 67 deg.	H : 26 to 91 deg. V : 19 to 67 deg.
Adjusting Angle	Pan	—	—	—	-180 to +180 deg.	-180 to +180 deg.
	Tilt	—	—	—	0 to +90 deg.	0 to +90 deg.
Optical Zoom		6x	2.4x	3.6x	3.6x	3.6x
Digital Zoom		4x	4x	4x	4x	4x
Image Stabilizer		—	—	—	—	—
Corridor Mode		—	—	—	—	—
iA (Intelligent Auto)		—	—	—	—	—
VMD (Video Motion Detection)		Yes (4-areas)	Yes (4-areas)	Yes (4-areas)	Yes (4-areas)	Yes (4-areas)
i-VMD (Intelligent VMD) (w/optional 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) / Out	Yes / Yes	Yes / Yes	Yes / Yes	Yes / Yes	— / —
	In (Built-in MIC)	—	—	—	—	—
	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)	Yes (SDXC)
	Password & Alter Detection	—	Yes	Yes	Yes	Yes
	Audio REC	Yes	Yes	Yes	Yes (AAC)	—
External I/O		Yes (3) (*3)	Yes (3) (*4)	Yes (3) (*4)	Yes (3) (*5)	—
Monitor Out		Yes (RCA)	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	IP66 / NEMA 4X
Temperature		-45 to +50 deg.	-40 to +50 deg.	-40 to +50 deg.	-40 to +50 deg.	-30 to +50 deg.
Power Source		12 V DC / PoE	12 V DC / PoE	12 V DC / PoE	12 V DC / PoE	PoE
Dehumidification device		Yes	Yes	Yes	Yes	—
Other Functions		Built-in heater, RainWash coating, 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, Built-in IR LED	Built-in heater, Built-in IR LED

(*1) : w/Super resolution　(*2) : Only for SD REC　(*3) : Alarm In1(Black & White In), Alarm In2(Alarm Out), Alarm In3(AUX Out, Black & White Out) (x1 for each)　(*4) : Alarm In1(Black & White In), Alarm In2(Alarm Out), Alarm In3(AUX Out) (x1 for each)
(*5) : Alarm In1(Black & White In, Auto time adjustment), Alarm In 2(Alarm Out), Alarm In 3(AUX Out) (x1 for each)

Network Camera Comparison chart — Box

Indoor / Outdoor		Outdoor			
Model Name		WV-SPW611L	WV-SPW611	WV-SPW311AL	WV-SPW312L
Appearance		ONVIF S	ONVIF S	ONVIF S	*Only sold in certain areas ONVIF S
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.265 / H.264 multi stream	4	4	4	4
	JPEG multi stream	6 (Variable)	6 (Variable)	6 (Variable)	6 (Variable)
	H.265 / H.264 : VBR / AVBR (Advanced VBR)	VBR / AVBR	VBR / AVBR	VBR / AVBR	VBR / AVBR
	Smart Coding	Yes	Yes	Yes	Yes
Max. Resolution	16 : 9	1280 x 720	1280 x 720	1920 x 1080 (*1) / 1280 x 720	1280 x 720
	4 : 3	1280 x 960	1280 x 960	1920 x 1080 (*1)	1920 x 1080 (*1)
Max. FPS @Max. Resolution	H.265 / H.264	60fps (720p)	60fps (720p)	60fps (720p)	30fps (720p)
	JPEG	30fps (1.3 MP)	30fps (1.3 MP)	30fps (1.3 MP)	30fps (1.3 MP)
Super Dynamic / WDR / BLC		Enhanced SD	Enhanced SD	Enhanced SD	WDR
Color/BW		Yes (ICR)	Yes (ICR)	Yes (ICR)	Yes (ICR)
ABF (Auto Back Focus) / Auto Focus / Focus Assist		ABF	ABF	ABF	ABF
Min. Illumination	Color	0.01 lx @F1.3	0.01 lx @F1.3	0.02 lx @F1.6	0.02 lx @F1.6
	Color (Sens up)	0.0007 lx (16x)	0.0007 lx (16x)	0.0013 lx (16x)	0.0013 lx (16x)
	B/W	0.0 lx @F1.3 (w/IR)	0.003 lx @F1.3	0.0 lx @F1.6 (w/IR)	0.0 lx @F1.6 (w/IR)
	B/W (Sens up)	—	0.0002 lx (16x)	—	—
Lens		f = 2.8 to 10 mm, F1.3 Motorized	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
Angular field of view	16 : 9	H : 28.4 to 96.2 deg. V : 16.1 to 52.8 deg.	H : 28.4 to 96.2 deg. V : 16.1 to 52.8 deg.	H : 28 to 102 deg. V : 16 to 55 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 : 28.4 to 96.2 deg. V : 21.4 to 71.0 deg.	H : 28 to 102 deg. V : 21 to 74 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	3.6x
Digital Zoom		4x	4x	4x	4x
Image Stabilizer		—	—	—	—
Corridor Mode		—	—	—	—
iA (Intelligent Auto)		—	—	—	—
VMD (Video Motion Detection)		Yes (4-areas)	Yes (4-areas)	Yes (4-areas)	Yes (4-areas)
i-VMD (Intelligent VMD) (w/optional extension software)		Yes (Type2)	Yes (Type2)	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) / Out	Yes / Yes	Yes / Yes	Yes / Yes	— / —
	In (Built-in MIC)	—	—	—	—
	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 x 2)	Yes (SDXC)	Yes (SDXC)
	Password & Alter Detection	Yes	Yes	Yes	Yes
	Audio REC	Yes	Yes	Yes (AAC)	—
External I/O		Yes (3) (*2)	Yes (3) (*2)	Yes (3) (*3)	—
Monitor Out		Yes (RCA)	Yes (RCA)	Yes (RCA)	Yes (RCA)
Vandal Resistant		—	—	—	—
Water and Dust Resistance		IP66 / NEMA 4X	IP66 / NEMA 4X	IP66 / NEMA 4X	IP66 / NEMA 4X
Temperature		-40 to +50 deg.	-40 to +50 deg.	-40 to +50 deg.	-30 to +50 deg.
Power Source		12 V DC / PoE	12 V DC / PoE	12 V DC / PoE	PoE
Dehumidification device		Yes	Yes	Yes	—
Other Functions		Smart DoF, Built-in heater, Built-in IR LED	Smart DoF, Built-in heater	Built-in heater, Built-in IR LED	Built-in heater, Built-in IR LED

(*1) : w/Super resolution　(*2) : Alarm In1(Black & white In), Alarm In2(Alarm Out), Alarm In3(AUX Out) (x1 for each)　(*3) : Alarm In1(Black & white In, Auto time adjustment), Alarm In 2(Alarm Out), Alarm In 3(AUX Out) (x1 for each)

Network Camera Comparison chart — Box

Indoor / Outdoor		Indoor		
Model Name		WV-SPN631	WV-SPN531A	WV-SPN611
Appearance		Lens not included	Lens not included	Lens not included
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.265 / H.264 multi stream	4	4	4
	JPEG multi stream	6 (Variable)	6 (Variable)	6 (Variable)
	H.265 / H.264 : VBR / AVBR (Advanced VBR)	VBR / AVBR	VBR / AVBR	VBR / AVBR
	Smart Coding	Yes	Yes	Yes
Max. Resolution	16 : 9	1920 x 1080	1920 x 1080	1280 x 720
	4 : 3	2048 x 1536 (*1)	2048 x 1536	1280 x 960
Max. FPS @Max. Resolution	H.265 / H.264	60fps (1080p)	60fps (1080p)	60fps (720p)
	JPEG	30fps (3 MP) (*1)	30fps (3 MP)	30fps (1.3 MP)
Super Dynamic / WDR / BLC		Enhanced SD	Enhanced SD	Enhanced SD
Color/BW		Yes (ICR)	Yes (ICR)	Yes (ICR)
ABF (Auto Back Focus) / Auto Focus / Focus Assist		ABF	ABF	ABF
Min. Illumination	Color	0.04 lx @F1.4	0.04 lx @F1.4	0.01 lx @F1.4
	Color (Sens up)	0.003 lx (16x)	0.003 lx (16x)	0.0007 lx (16x)
	B/W	0.01 lx @F1.4	0.01 lx @F1.4	0.003 lx @F1.4
	B/W (Sens up)	0.0007 lx (16x)	0.0007 lx (16x)	0.0002 lx (16x)
Lens		CS Mount	CS Mount	CS Mount
Angular field of view	16 : 9	—	—	—
	4 : 3			
Adjusting Angle	Pan	—	—	—
	Tilt	—	—	—
Optical Zoom		—	—	—
Digital Zoom		4x	4x	4x
Image Stabilizer		—	—	—
Corridor Mode		—	—	—
iA (Intelligent Auto)		—	—	—
VMD (Video Motion Detection)		Yes (4-areas)	Yes (4-areas)	Yes (4-areas)
i-VMD (Intelligent VMD) (w/optional extension software)		Yes (Type2)	Yes (Type2)	Yes (Type2)
VIQS		Yes (8-areas)	Yes (8-areas)	Yes (8-areas)
Max. Connection		14	14	14
Audio	In (Line) / Out	Yes / Yes	Yes / Yes	Yes / Yes
	In (Built-in MIC)	—	—	—
	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 x 2)
	Password & Alter Detection	Yes	Yes	Yes
	Audio REC	Yes	Yes	Yes
External I/O		Yes (3) (*2)	Yes (3) (*3)	Yes (3) (*2)
Monitor Out		Yes (RCA)	Yes (RCA)	Yes (RCA)
Vandal Resistant		—	—	—
Water and Dust Resistance		—	—	—
Temperature		-10 to +50 deg.	-10 to +50 deg.	-10 to +50 deg.
Power Source		12 V DC / PoE	12 V DC / PoE	12 V DC / PoE
Dehumidification device		—	—	—
Other Functions		Optional Extension Unit	—	Optional Extension Unit

(*1) : w/Super resolution   (*2) : Alarm In1(Black & white In), Alarm In2(Alarm Out), Alarm In3(AUX Out) (x1 for each)   (*3) : Alarm In1(Black & white In, Auto time adjustment), Alarm In 2(Alarm Out), Alarm In 3(AUX Out) (x1 for each)

Network Camera Comparison chart — Box / Cylinder

Indoor / Outdoor		Indoor			
Model Name		WV-SPN311A	WV-SPN310A	WV-SP105	WV-SP102
Appearance		Lens not included	Lens not included		
Sensor		1/3 MOS	1/3 MOS	1/3 MOS	1/5 MOS
Codec and Transmission	Video Codec	H.264 / JPEG	H.264 / JPEG	H.264 / JPEG	H.264 / JPEG
	H.265 / H.264 multi stream	4	4	2	2
	JPEG multi stream	6 (Variable)	6 (Variable)	6	6
	H.265 / H.264 : VBR / AVBR (Advanced VBR)	VBR / AVBR	VBR / AVBR	AVBR (V1.80)	AVBR (V1.80)
	Smart Coding	Yes	Yes	—	—
Max. Resolution	16 : 9	1920 x 1080 (*1) / 1280 x 720	1920 x 1080 (*1) / 1280 x 720	1280 x 720	640 x 360
	4 : 3	1280 x 960	1280 x 960	1280 x 960	640 x 480
Max. FPS @Max. Resolution	H.265 / H.264	60fps (720p)	60fps (720p)	30fps (1.3 MP)	30fps (VGA)
	JPEG	30fps (1.3 MP)	30fps (1.3 MP)	30fps (1.3 MP)	30fps (VGA)
Super Dynamic / WDR / BLC		Enhanced SD	Enhanced SD	BLC	BLC
Color/BW		Yes (ICR)	Day/Night (Electrical)	Day/Night (Electrical)	Day/Night (Electrical)
ABF (Auto Back Focus) / Auto Focus / Focus Assist		ABF	Focus Assist	—	—
Min. Illumination	Color	0.01 lx @F1.4	0.01 lx @F1.4	0.8 lx @F2.2	2.0 lx @F2.0
	Color (Sens up)	0.0007 lx (16x)	0.0007 lx (16x)	0.05 lx (16x)	0.3 lx (8x)
	B/W	0.003 lx @F1.4	0.008 lx @F1.4	0.4 lx @F2.2	1.3 lx @F2.0
	B/W (Sens up)	0.0002 lx (16x)	0.0005 lx (16x)	0.03 lx (16x)	0.16 lx (8x)
Lens		CS Mount	CS Mount	f = 3.54 mm, F2.2	f = 2 mm, F2.0
Angular field of view	16 : 9	—	—	H : 70.3 deg. V : 42.6 deg.	H : 66.9 deg. V : 39.2 deg.
	4 : 3			H : 70.3 deg. V : 55.4 deg.	H : 66.9 deg. V : 52.3 deg.
Adjusting Angle	Pan	—	—	—	—
	Tilt	—	—	—	—
Optical Zoom		—	—	—	—
Digital Zoom		4x	4x	4x	4x
Image Stabilizer		—	—	—	—
Corridor Mode		—	—	—	—
iA (Intelligent Auto)		—	—	—	—
VMD (Video Motion Detection)		Yes (4-areas)	Yes (4-areas)	Yes (4-areas)	Yes (4-areas)
i-VMD (Intelligent VMD) (w/optional extension software)		Yes (Type2)	Yes (Type2)	—	—
VIQS		Yes (8-areas)	Yes (8-areas)	Yes (1-area)	Yes (1-area)
Max. Connection		14	14	14	14
Audio	In (Line) / Out	Yes / Yes	— / —	— / —	— / —
	In (Built-in MIC)	—	Yes	—	—
	Codec	G.711 / G.726 / AAC	G.711 / G.726 / AAC	—	—
	Audio Detection Alarm	Yes	Yes	—	—
SD memory Card	Slot	Yes (SDXC)	Yes (SDXC)	—	—
	Password & Alter Detection	Yes	Yes	—	—
	Audio REC	Yes	Yes	—	—
External I/O		Yes (3) (*2)	Yes (3) (*3)	—	—
Monitor Out		Yes (RCA)	Yes (RCA)	—	—
Vandal Resistant		—	—	—	—
Water and Dust Resistance		—	—	—	—
Temperature		-10 to +50 deg.	-10 to +50 deg.	0 to +40 deg.	0 to +40 deg.
Power Source		12 V DC / PoE	12 V DC / PoE	12 V DC / PoE	12 V DC / PoE
Dehumidification device		—	—	—	—
Other Functions		—	—	—	—

(*1) : w/Super resolution   (*2) : Alarm In1 (Black & white 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)

EXTREME Concept

Function Introduction

New Products

Network Camera Comparison Chart

PTZ

Fixed Dome

360-degree Dome

Box

Pan/Tilt

Network products

Other

Network Camera Comparison chart — Pan / Tilt

Indoor / Outdoor		Outdoor		
Model Name		WV-SW175	WV-SW174W	WV-SW172
Appearance		ONVIF* I S	ONVIF* I S	ONVIF* I S
Sensor		1/4 MOS	1/4 MOS	1/4 MOS
Codec and Transmission	Video Codec	H.264 / JPEG	H.264 / JPEG	H.264 / JPEG
	H.265 / H.264 multi stream	2	2	2
	JPEG multi stream	6	6	6
	H.265 / H.264 : VBR / AVBR (Advanced VBR)	AVBR (V1.80)	AVBR (V1.80)	AVBR (V1.80)
	Smart Coding	—	—	—
Max. Resolution	16 : 9	1280 x 720	1280 x 720	640 x 360
	4 : 3	1280 x 960	1280 x 960	800 x 600
Max. FPS @Max. Resolution	H.265 / H.264	30fps (1.3 MP)	30fps (1.3 MP)	30fps (SVGA)
	JPEG	30fps (1.3 MP)	30fps (1.3 MP)	30fps (SVGA)
Super Dynamic / WDR / BLC		WDR	WDR	WDR
Color/BW		Day/Night (Electrical)	Day/Night (Electrical)	Day/Night (Electrical)
ABF (Auto Back Focus) / Auto Focus / Focus Assist		—	—	—
Min. Illumination	Color	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)
	B/W	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)
Lens		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.
	4 : 3	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.
	Speed	80 deg/sec	80 deg/sec	80 deg/sec
Tilt	Range	-45 to +10 deg.	-45 to +10 deg.	-45 to +10 deg.
	Speed	80 deg/sec	80 deg/sec	80 deg/sec
360 Pan-Flip		—	—	—
Number of Preset Positions		64	64	64
Patrol		—	—	—
Auto Tracking		—	—	—
Optical Zoom		—	—	—
Digital Zoom		8x	8x	8x
VMD (Video Motion Detection)		Yes	Yes	Yes
i-VMD (Intelligent VMD) (w/optional extension software)		—	—	—
VIQS		—	—	—
Max. Connection		14	14	14
Audio	In (Line) / Out	Yes / Yes	Yes / Yes	Yes / Yes
	In (Built-in MIC)	Yes	Yes	Yes
	Codec	G.711 / G.726	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)	Yes (3) (*1)
Monitor Out		Yes (mini jack)	Yes (mini jack)	Yes (mini jack)
Vandal Resistant		—	—	—
Water and Dust Resistance		IP55	IP55	IP55
Temperature		-20 to +50 deg.	-20 to +50 deg.	-20 to +50 deg.
Power Source		12 V DC / PoE	12 V DC	12 V DC / PoE
Dehumidification device		—	—	—
Other Functions		—	Wireless (11 n/b/g)	—

(*1) : Alarm In1, Alarm In2(Alarm Out), Alarm In3(AUX Out) (x1 for each)

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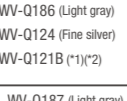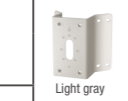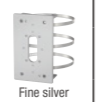
Network Camera Comparison chart — Pan / Tilt

Indoor / Outdoor		Indoor			
Model Name		WV-ST165	WV-ST162	BL-VT164W	BL-VT164
Appearance		ONVIF* I S	ONVIF* I S	ONVIF* I S	ONVIF* I S
Sensor		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.265 / H.264 multi stream	2	2	2	2
	JPEG multi stream	6	6	6	6
	H.265 / H.264 : VBR / AVBR (Advanced VBR)	AVBR (V1.80)	AVBR (V1.80)	AVBR (V1.80)	AVBR (V1.80)
	Smart Coding	—	—	—	—
Max. Resolution	16 : 9	1280 x 720	640 x 360	1280 x 720	1280 x 720
	4 : 3	1280 x 960	800 x 600	800 x 600	800 x 600
Max. FPS @Max. Resolution	H.265 / H.264	30fps (1.3 MP)	30fps (SVGA)	30fps (1 MP)	30fps (1 MP)
	JPEG	30fps (1.3 MP)	30fps (SVGA)	30fps (1 MP)	30fps (1 MP)
Super Dynamic / WDR / BLC		WDR	WDR	BLC	BLC
Color/BW		Day/Night (Electrical)	Day/Night (Electrical)	Day/Night (Electrical)	Day/Night (Electrical)
ABF (Auto Back Focus) / Auto Focus / Focus Assist		—	—	—	—
Min. Illumination	Color	0.6 lx @F2.2	0.6 lx @F2.2	0.9 lx @F2.8	0.9 lx @F2.8
	Color (Sens up)	0.038 lx (16x)	0.038 lx (16x)	0.06 lx (16x)	0.06 lx (16x)
	B/W	0.5 lx @F2.2	0.5 lx @F2.2	0.6 lx @F2.8	0.6 lx @F2.8
	B/W (Sens up)	0.03 lx (16x)	0.03 lx (16x)	0.04 lx (16x)	0.04 lx (16x)
Lens		f = 1.95 mm, F2.2	f = 1.95 mm, F2.2	f = 3.6 mm, F2.8	f = 3.6 mm, F2.8
Angular field of view	16 : 9	H : 85 deg. V : 53 deg.	H : 85 deg. V : 53 deg.	H : 57 deg. V : 34 deg.	H : 57 deg. V : 34 deg.
	4 : 3	H : 85 deg. V : 68 deg.	H : 85 deg. V : 68 deg.	H : 44 deg. V : 34 deg.	H : 44 deg. V : 34 deg.
Pan	Range	-47.5 to +47.5 deg.	-47.5 to +47.5 deg.	-41 to +41 deg.	-41 to +41 deg.
	Speed	80 deg/sec	80 deg/sec	50 deg/sec	0.5 to 50 deg/sec
Tilt	Range	-45 to +10 deg.	-45 to +10 deg.	-32 to +10 deg.	-32 to +10 deg.
	Speed	80 deg/sec	80 deg/sec	50 deg/sec	0.5 to 50 deg/sec
360 Pan-Flip		—	—	—	—
Number of Preset Positions		64	64	64	64
Patrol		—	—	—	—
Auto Tracking		—	—	—	—
Optical Zoom		—	—	—	—
Digital Zoom		8x	8x	8x	8x
VMD (Video Motion Detection)		Yes	Yes	Yes	Yes
i-VMD (Intelligent VMD) (w/optional extension software)		—	—	—	—
VIQS		—	—	—	—
Max. Connection		14	14	14	14
Audio	In (Line) / Out	Yes / Yes	Yes / Yes	— / Yes (*1)	— / Yes (*1)
	In (Built-in MIC)	Yes	Yes	Yes	Yes
	Codec	G.711 / G.726	G.711 / G.726	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) (*2)	Yes (3) (*2)	Yes (3) (*2)	Yes (3)(*2)
Monitor Out		Yes (mini jack)	Yes (mini jack)	—	—
Vandal Resistant		—	—	—	—
Water and Dust Resistance		—	—	—	—
Temperature		0 to +40 deg.	0 to +40 deg.	0 to +40 deg.	0 to +40 deg.
Power Source		12 V DC / PoE	12 V DC / PoE	9 V DC	9 V DC
Dehumidification device		—	—	—	—
Other Functions		—	—	Wireless (11 b/g) WPS, Body heat Sensor, AC Adapter	Body heat Sensor, AC Adapter
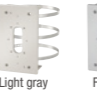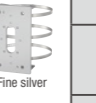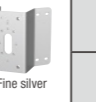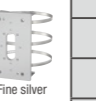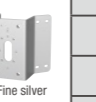
(*1) : Built-in speaker   (*2) : Alarm In1, Alarm In2(Alarm Out), Alarm In3(AUX Out) (x1 for each)

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Optional Accessories Compatibility with Network Cameras (p.44)

Camera	Wall Mount Bracket	Ceiling Mount Bracket	Other Mount Bracket	Embedded Ceiling Mount Bracket	Smoke	Clear	Other
WV-SUD638 (Natural silver), WV-SUD638-H (Gray), WV-SUD638-T (Brown)							IR LED unit WV-SUD6FRL1 (Natural silver), WV-SUD6FRL-H (Gray), WV-SUD6FRL-T (Brown) / Natural silver
WV-X6531NS	WV-Q122AS (Heavy salt damage resistance)	WV-Q121BS (Heavy salt damage resistance)					
WV-X6531N, WV-X6511N, WV-S6530N, WV-SW598A, WV-SW397B, WV-SW395(A)	WV-Q185 (Light gray) (*1), WV-Q122A (Fine silver) (*2) / Light gray / Fine silver	WV-Q121B	Pole Mount Bracket WV-Q182 (Light gray), WV-Q188 (Fine silver) / Light gray / Fine silver; Corner Mount Bracket WV-Q183 (Light gray), WV-Q189 (Fine silver) / Light gray / Fine silver				
WV-S6131, WV-S6111, WV-SC588A, WV-SC387A	WV-Q119	WV-Q105A		WV-Q126A	WV-CS5S	WV-CS5C	
WV-S6130	WV-Q158S (Smoke), WV-Q158C (Clear) / Smoke type	WV-Q105A		WV-Q159S (Smoke), WV-Q159C (Clear) / Smoke type; WV-Q160S (Smoke), WV-Q160C (Clear) / Smoke type			Inner Cover WV-Q161
WV-SC385, WV-SC384	WV-Q154S (Smoke), WV-Q154C (Clear) / Smoke type			WV-Q155S (Smoke), WV-Q155C (Clear) / Smoke type; WV-Q156S (Smoke), WV-Q156C (Clear) / Smoke type			Inner Cover WV-Q157
WV-S2531LTN, WV-S2531LN, WV-S2511LN, WV-SFV631LT, WV-SFV631L, WV-SFV531, WV-SFV611L, WV-SFV311A, WV-SFV310A	WV-Q185 (Light gray) (*1), WV-Q122A (Fine silver) (*2) / Light gray / Fine silver	WV-Q186 (Light gray), WV-Q124 (Fine silver) / Light gray / Fine silver; WV-Q121B (*1)(*2); WV-Q105A (*3)	Pole Mount Bracket WV-Q182 (Light gray), WV-Q188 (Fine silver) / Light gray / Fine silver; Corner Mount Bracket WV-Q183 (Light gray), WV-Q189 (Fine silver) / Light gray / Fine silver	WV-Q169A	WV-CW7S, WV-CW7SN (ClearSight coating)		Sun Shade WV-Q7118
WV-SFV781L		WV-Q186 (Light gray), WV-Q124 (Fine silver), WV-Q121B (*1)(*2); WV-Q187 (Light gray)					
WV-SFV130(M), WV-SFV110(M)							
WV-SW158					WV-CW6SA		
WV-SW155(MA)							
WV-S2231L, WV-S2211L		WV-Q105A		WV-Q174B	WV-CR1S		

(*1) : This bracket requires WV-Q186.   (*2) : This bracket requires WV-Q124.   (*3) : For Indoor installation only

Optional Accessories Compatibility with Network Cameras (p.45)

Camera	Wall Mount Bracket	Ceiling Mount Bracket	Other Mount Bracket	Embedded Ceiling Mount Bracket	Smoke	Other
WV-S2131L, WV-S2131, WV-S2130, WV-S2111L, WV-S2110					WV-CF5SA	
WV-SFR631L, WV-SFR531, WV-SFR611L, WV-SFR311A, WV-SFR310A		WV-Q105A		WV-Q174B	WV-CR1S	
WV-SFN631L, WV-SFN531, WV-SFN611L, WV-SFN311L, WV-SFN311A, WV-SFN310A					WV-CF5SA	
WV-SFN130, WV-SFN110					WV-CW6SA	
WV-SF132						
WV-X4571L(M), WV-S4550L(M), WV-SFV481, WV-SW458(MA)	WV-Q185 (Light gray) (*1), WV-Q122A (Fine silver) (*2) / Light gray / Fine silver	WV-Q186 (Light gray), WV-Q124 (Fine silver) / Light gray / Fine silver; WV-Q121B (*1)(*2)	Pole Mount Bracket WV-Q182 (Light gray), WV-Q188 (Fine silver) / Light gray / Fine silver; Corner Mount Bracket WV-Q183 (Light gray), WV-Q189 (Fine silver) / Light gray / Fine silver			
WV-X4171, WV-X4170, WV-S4150, WV-SFN480, WV-SF448, WV-SF438		WV-Q105A				
WV-S1531LTN, WV-S1531LN, WV-S1511LN, WV-SPV781L, WV-SPW631LT, WV-SPW631L, WV-SPW532L, WV-SPW611L, WV-SPW611, WV-SPW312L			Pole Mount Bracket WV-Q182 (Light gray), WV-Q188 (Fine silver) / Light gray / Fine silver; Corner Mount Bracket WV-Q183 (Light gray), WV-Q189 (Fine silver) / Light gray / Fine silver			
WV-SPW531AL, WV-SPW311AL						Adapter Box WV-Q120A
WV-SPN631						IR LED unit WV-SPN6FRL1; RS485 Output unit WV-SPN6R481
WV-SPN611						IR LED unit WV-SPN6FRL1; RS485 Output unit WV-SPN6R481

(*1) : This bracket requires WV-Q186.   (*2) : This bracket requires WV-Q124.

i-PRO EXTREME

TURBO-RAID Network Disk Recorder
WJ-NX400

H.265 H.264 JPEG Onvif*1 S

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

Additional Camera kits : WJ-NXE40, WJ-NXE40W

- **64 ch. expandable to 128 ch.** camera input. Support **H.265 / H.264** mixed recordings.
- **640 Mbps** total through put (including **384 Mbps** recording bandwidth)
- (9) integrated drive-bays **RAID 1 / 5 / 6**
- External storage expansion up to **324 TB**
- Redundant fail-over using 2nd recorder to enable mission-critical recording* *KMS registration is necessary for activation.
- NVR backup important data to NAS devices.* *KMS registration is necessary for activation.
- Symantec device certificates pre-installed *Secure Communication Kits are necessary.
- Built-in GUI and Dual HDMI (4K/FHD) outputs

Example of a Basic Connection System

Network Camera (Max. 128)
Management Software
Network
Monitor
WJ-HXE400 (Max. 5)
WJ-NX400
NAS device

Optional Accessory

Hard Disk Extension Unit
WJ-HXE400

Power Source
120 V AC, 60 Hz (NTSC)
220 - 240 V AC, 50 Hz (PAL)

Power Consumption approx. 85 W

Dimensions 430 mm (W) x 132 mm (H) x 413 mm(D)
(From Rack Mount Bracket 400 mm)
(16-15/16" (W) x 5-3/16" (H) x 16-1/4" (D))
(From Rack Mount Bracket 15-3/4")
(excluding rubber feet and projections)

Weight 11 kg (24.3 lbs.) (When no HDD exist)
19.5 kg (43 lbs.) (When 9 HDDs are installed)

i-PRO EXTREME

NEW
TURBO-RAID Network Disk Recorder
WJ-NX300

H.265 H.264 JPEG Onvif*1 S

[WJ-NX300K (120 V AC): NTSC] [WJ-NX300K/G (220 - 240 V AC): PAL]

Additional Camera Kits : WJ-NXE30, WJ-NXE30W
Additional RAID Kits : WJ-NXR30, WJ-NXR30W

- 16 ch. expandable to 32 ch. camera input.
  Support **H.265 / H.264** mixed recordings.
- 512 Mbps total through put (including 256 Mbps recording bandwidth)
- (4) integrated drive-bays **RAID 1 / 5 / 6**
- **TURBO-RAID** for quick RAID recovery without sacrificing recording bandwidth and performance
- Built-in GUI and Dual HDMI (4K / FHD) outputs

Optional Accessories

Hard Disk Extension Unit
WJ-HXE400

Power Source
120 V AC, 60 Hz (NTSC),
220 - 240 V AC, 50 Hz (PAL)

Power Consumption approx. 85 W

Dimensions 430 mm (W) x 132 mm (H) x 413 mm(D) (From Rack Mount Bracket 400 mm)
(16-15/16" (W) x 5-3/16" (H) x 16-1/4" (D)) (From Rack Mount Bracket 15-3/4")
(excluding rubber feet and projections)

Weight 11 kg (24.3 lbs.) (When no HDD exist), 19.5 kg (43 lbs.) (When 9 HDDs are installed)

Rack Mount Bracket
WV-Q202

Easy Operation and Setup without PC

Main Monitor (HDMI) Sub Monitor (HDMI) Sub Monitor (BNC)
Network Cameras × Max.32
Speaker with amplifier
Network

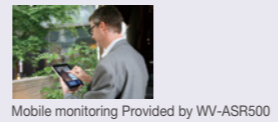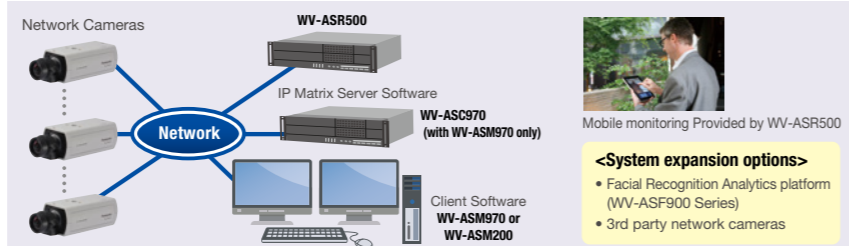## i-PRO EXTREME

NEW
Network Disk Recorder
WJ-NX200

H.265 H.264 JPEG Onvif*1 S

[WJ-NX200K (120 V AC): NTSC] [WJ-NX200K/G (220 - 240 V AC): PAL]

Additional Camera kits : WJ-NXE20, WJ-NXE20W

- Significant reduction of storage space usage through **H.265 and Smart Coding.**
- 9 ch. expandable to 16(WJ-NX200K) / 32(WJ-NX200K/G) ch. camera input. Supports **H.265 / H.264** mixed recordings.
- Quick setup by automatic camera detection and simple setup wizard without the use of PC
- **High-speed copy to USB storage**
- Built-in GUI and Dual HDMI (4K/FHD) outputs

Optional Accessory

Rack Mount Bracket
WV-Q202

Easy Operation and Setup without PC

Main Monitor (HDMI) Sub Monitor (HDMI) Sub Monitor (BNC)
Network Cameras × Max.24
HDMI
Speaker with amplifier
Network

Secure Communication Kits WJ-NXS01(W), WJ-NXS04(W), WJ-NXS16(W), WJ-NXS32(W)

The Secure Communication Kits are license kits to use the security function of the network disk recorder.
Each Secure Communication Kit allows the following number of cameras to be registered.

WJ-NXS01, WJ-NXS01W	WJ-NXS04, WJ-NXS04W	WJ-NXS16, WJ-NXS16W	WJ-NXS32, WJ-NXS32W
1 camera	4 cameras	16 cameras	32 cameras

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Network Disk Recorder
WJ-ND400

H.264 MPEG-4 JPEG

(120 V AC: NTSC, 220-240 V AC: PAL) Onvif*1 S

- 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)
- 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 Accessory

Hard Disk Extension Unit
WJ-HDE400

Power Source
120 V AC, 60 Hz (NTSC)
220 - 240 V AC, 50 Hz (PAL)

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)

Network Disk Recorder
WJ-NV300

H.264 JPEG Onvif*1 S

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

Additional Camera kit : WJ-NVE30

- 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
- 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).

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

NTSC model PAL model

Optional Accessories

Hard Disk Extension Unit
WJ-HDE400

Rack Mount Bracket
WV-Q202

Network Disk Recorder
WJ-NV200

H.264 MPEG-4 JPEG Onvif*1 S

FULL HD 1080/30p

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

- Up to 16 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

Optional Accessory

Rack Mount Bracket
WV-Q202

i-PRO EXTREME Additional Business Intelligence Kit

WJ-NXF02, WJ-NXF02W

Additional Business Intelligence Kits WJ-NXF02, WJ-NXF02W are license kits intended to improve the usefulness of Network Disk Recorder WJ-NX300 / WJ-NX200.

WJ-NX300 WJ-NX200

Additional Business Intelligence Kit
WJ-NVF30, WJ-NVF20

Additional Business Intelligence Kits WJ-NVF30, WJ-NVF20 are a license kits 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 USB*1 or SDHC/SD memory card*2, or on a PC connected over a network.

*1: WJ-NXF02, WJ-NXF02W *2: WJ-NVF30, WJ-NVF20
*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-NX300/WJ-NX200/WJ-NV300/WJ-NV200 in use.

Multi Channel High Definition Video Decoder
WJ-GXD400

H.264 MPEG-4 JPEG

(12 V DC, 100 V -240 V AC adapter 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.
- Up to 64 camera groups can be registered and called up in response to power on, group sequence and schedule program.

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)

Joint bracket

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

47

Network Products — Network Video Recorders

Server based recording and video management platform

WV-ASR500 Series

H.264 MPEG-4 JPEG | FULL HD 1080

- Open platform, Panasonic's and over 70 other venders network cameras support.
- Up to 128 network cameras can be connected and recorded.
- Up to 16 clients can monitor image and control WV-ASR500 simultaneously. (Depends on system structure, environment.)
- Various Recording Modes: Schedule, Event (Pre/Post)
- Graphical Timeline Search function (with WV-ASC970 System)
- Mobile monitoring applications for smart phone (iOS, Android)
- Cooperative with the Face Matching System (with WV-ASC970 System or WV-ASM200)
- Supports archiving function to realize long-term recording

Advanced configuration

Network Cameras

WV-ASR500

IP Matrix Server Software

WV-ASC970 (with WV-ASM970 only)

Network

Client Software WV-ASM970 or WV-ASM200

Mobile monitoring Provided by WV-ASR500

<System expansion options>
- Facial Recognition Analytics platform (WV-ASF900 Series)
- 3rd party network cameras

Recording Software (Channel License) per server: WV-ASRE501(1ch), WV-ASRE516(16ch), WV-ASRE532(32ch), WV-ASRE564(64ch)

Network Camera Recorder with Viewer Software **Limited quantity**

BB-HNP17 H.264 MPEG-4 JPEG

- Supports the recording and playback of H.264 cameras
- Supports resolutions of 2,048 × 1,536
- Remote Access Function
- Up to 64 cameras Register
- Event Detection Recording
- Flexible Layout
- Preset Sequence
- Timer recording with preset designation
- Pop-up display
- Time specified color night view

Network Products — Plug-in Software

Plug-in Software for Vehicle Incident Detection

WV-XAE100W

Camera detects vehicle incidents on the road with video analytics technology.

The camera detects incidents such as wrong-way-driving and stopped vehicles, and then notifies the Traffic Management System of such occurrences by alarm.
This enables prompt recognition of incidents without the need for round-the-clock monitoring of multiple camera images.

Plug-in Software for i-VMD **i-VMD**

WV-SAE200

WV-SAE200 is plug-in software for activating the i-VMD(Intelligent video motion detection) function and Face detection function.
Intelligent Video Motion Detection(i-VMD) is possible to detect objects in the specified area by advanced video analysis technology.

Network Products — 360-degree Network Microphone

WV-SMR10
(12V DC or PoE)

Vandal Resistant

- **360-degree audio monitoring**
  With microphone arrays, 360-degree audio monitoring from a specified direction is possible.
- **Specifying a desired direction on a camera image**
  While watching the 360-degree Network Camera image, audio from the desired location can be freely specified by clicking on that location.
- **Synchronizing with the Network Disk Recorder**
  After recording audio to a Network Disk Recorder*, the sound collecting direction can be specified while playing back the recorded image of the 360-degree Network Camera.
  *Models WJ-NX400, WJ-NX300, WJ-NX200, WJ-NV300 and WJ-ND400 are supported
- **Can be installed with a 360-degree Network Camera as one unit**
  The microphone can be neatly installed in one place by integrating it with a Panasonic 360-degree Network Camera.

360-degree Network Microphone WV-SMR10 with 360-degree Network Camera WV-SF438

WV-SMR10N3
* WV-SMR10N3 is only sold in certain areas. Please contact the sales company for details.

Optional Accessories

Ceiling mount bracket **WV-Q105A**

Ceiling pendant type mount bracket **WV-Q117A**

System Example

Management software WV-ASM300 / WV-ASM200
Real-time monitoring of audio and video Playback of recorded audio and video (Network Disk Recorder required)

Network microphone with 360-degree network camera

Network disk recorder WJ-NX300 / WJ-NV300
Real-time monitoring of audio and video Playback of recorded audio and video

Pick up clear sound of specified area in noisy or acoustically live environments.

10 m
10 m

Can be monitored the sound on specified area.

Network Products — Management Software

IP Matrix Server Software
WV-ASC970

IP Matrix Client Software
WV-ASM970

Extension Software
WV-ASE901*(Monitor the status of Fire Alarm System) / ASE902 / ASE903 / ASE904 / ASE905

Optional Accessory
Ethernet System Controller with 3D-Joystick & Jog/Shuttle
WV-CU950

(The pictures above are only for images.)

Easy and smooth integration from analog to IP system

WV-ASC970
- 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: WV-ASR500 Series, WJ-NX400 series, WJ-ND400 series, WJ-NV200 series, WJ-NV300 series, WJ-HD616/716 series
- Redundant function supported (Redundant function can consist of 2 WV-ASC970 servers as Main server and Standby server)

Extension Software WV-ASE901*
- Monitor the status of Fire Alarm System.
- Manually reset or acknowledge fire alarms and faults of Fire Alarm System.
- Search history of fire alarm, faults and interlocking of Fire Alarm System.

* WV-ASE901 is only sold in certain areas. Please contact the sales company for details.

WV-ASM970
- Multi-Monitor 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-screen 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-screen in H.264 1.5 Mbps mode with VGA (depending on the camera, camera setup and PC performance).

Extension Software WV-ASE902
- Up to 4 live monitor
- Multi monitor function up to 5 PC monitors
- To display the operation window and 4 live windows simultaneously

Extension Software WV-ASE903
- Visibility Enhancement Function
* Same as WV-ASE205 below.

Extension Software WV-ASE904
- Controlling Video Insight server

Extension Software WV-ASE905
- The cropping function of 4K video.

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i-PRO Central Management Software
WV-ASM300

Extension Software
WV-ASE202 / ASE203 / ASE204 / ASE205 / ASE306

Optional Accessory
Ethernet System Controller with 3D-Joystick & Jog/Shuttle
WV-CU950

WV-ASM300

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

Easy setting : New WV-ASM300 software enable a whole setting from camera configuration to recorder configuration.

- 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-ASM300 (the number of the cameras depends on the recorder and encoder).
- Encryption of SSL and data encryption support latest "AES-256bit key" strong encryption
- MP4 data direct download from WJ-NX400, WJ-NX200
- When used with WJ-NX400 series, VMD, thumbnail search can be operated.
- 1-screen/4-screen PTZ compensation function (hereinafter compensation function) from the fish-eye images of the Panasonic Fisheye network cameras
- Supports 360-degree Network Microphone (WV-SMR10)
- Selecting the camera icon in map window, a still image of the camera is overlaid.
- Live window, Map window in addition to the Operation window (3 monitors)
- Control using the Ethernet System Controller WV-CU950

* To use the multi-monitor function, it is necessary to install an additional video card on the PC in use.

WV-ASE202
- Expand the maximum numbers of screens to 64.
- Up to 4 live windows.
- Multi-monitor function using up to 6 PC monitors.
- To display the operation window, the map window and the 4 map windows simultaneously.

WV-ASE203
- Expand the maximum numbers of registered recorders, encoders and cameras to 100, 64 and 256 respectively.
- Up to 4 licenses for the WV-ASE203 can be added.

WV-ASE204
- Decoder registration: Up to 10 decoders

WV-ASE205
- Visibility Enhancement Function

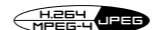| Spatial Tonal Correction | Snowfall and Rainfall Noise Reduction | Multi-frame Synthesis Noise Reduction |

Spatial Tonal Correction , Snowfall and Rainfall Noise Reduction

Extension Software WV-ASE306
- Controlling Video Insight server

Limited quantity
i-PRO Management Software
WV-ASM200

Extension Software
WV-ASE201

H.264 MPEG-4 JPEG

WV-ASM200 with WV-ASE201

Optional Accessory
Ethernet System Controller with 3D-Joystick & Jog/Shuttle
WV-CU950
(WV-ASE201 is necessary.)

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

Network Products | **Face Server**

Network Products | **Application for Smartphone / Tablet PC**

EXTREME Concept | Function Introduction | New Products | Network Camera Comparison Chart | PTZ | Fixed Dome | 360-degree Dome | Box | Pan/Tilt | Network products | Other

Face Recognition System
WV-ASF900 Series

Face Matching

Additional Camera Kit
1ch : WV-ASFE901 / 4ch : WV-ASFE904

Face Recognition System 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
• Can be connected up to 20 cameras on a server.

Face search

• Face images that camera detected are stored, and it can be searched later.
• By searching the face DB, you can display the result of each cameras in chronological order and find movement locus of persons.
• Specify camera or date in detected face images and display the result in the list in similarity order.

Face Matching

• When it is matched with registered people, alarm of face matching is output in real-time, and display an alarm history in the list.
• Specified screen image can be played back on control monitor with double-clicking on an alarm history.

People counting, Age and Gender Statistics

• Count people of detected face 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.

Basic System Connection Example

Camera → Video Stream → Recorder → Video Stream

WV-ASC970 (with WV-ASM970 only)

WV-ASF900 (in case of WV-ASM300/WV-ASM200) Alarm notification

WV-ASM970/ WV-ASM300WV-ASM200 +Extension Software(WV-ASE231)

Extract and delivery face images

Primary Server (Max. 10 Primary Servers)

Thumbnail

Search results Statistical report

Image processing part
- Register the face image in the database
- Face matching, report alarm
- Age and gender evaluation

9 Secondary Servers / 1 Primary Server

Extension software
WV-ASE231 for WV-ASM970 / WV-ASM300 / WV-ASM200

• To use the WV-ASF900, WV-ASM970, WV-ASM300 or WV-ASM200 with extension software WV-ASE231 is required.
• Extension Software for Facial Recognition Analytics Platform (WV-ASF900)
• Face Matching / Face Search / People counting results display on WV-ASM970 / WV-ASM300 / WV-ASM200 screen
• i-VMD (Intelligent Video Motion Detection) tracking path display on WV-ASM970 / WV-ASM300 / WV-ASM200 screen
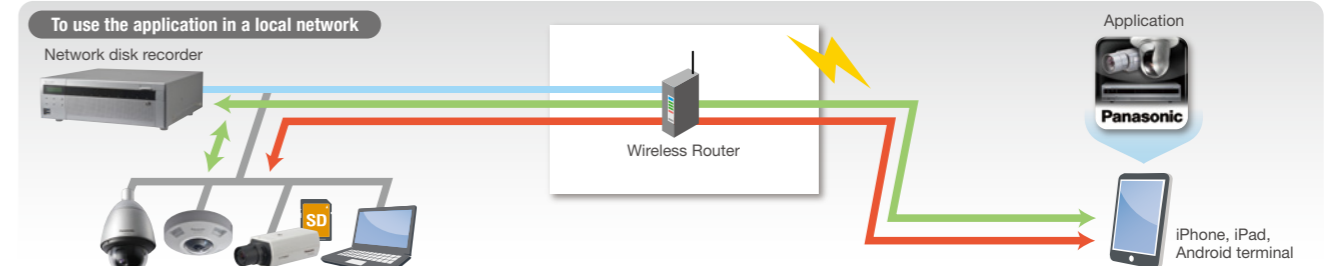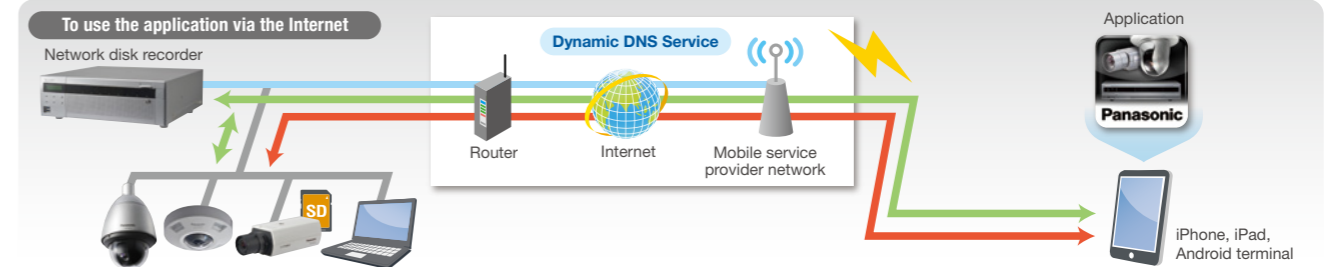

Panasonic Security Viewer
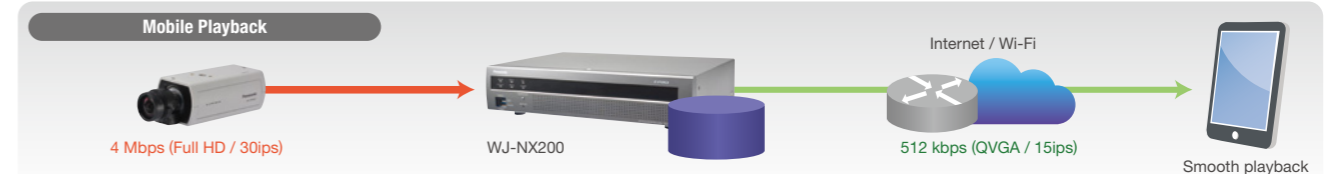
Introduction of the application

Panasonic Security Viewer is an application that can view the images from i-PRO Series Network Cameras, Network Disk Recorder. By connecting a terminal to a 3G/4G or wireless LAN (Wi-Fi), it is possible to view live images from cameras registered on the recorder 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.

To use the application via the Internet

Network disk recorder → Router → Internet → Mobile service provider network → Application → iPhone, iPad, Android terminal

Dynamic DNS Service

To use the application in a local network

Network disk recorder → Wireless Router → Application → iPhone, iPad, Android terminal

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

Direct Camera connection
• Live monitoring   • Playing back in SD memory card.
Via recorder
• Live monitoring   • Playback

Mobile Playback

4 Mbps (Full HD / 30ips) → WJ-NX200 → Internet / Wi-Fi → 512 kbps (QVGA / 15ips) → Smooth playback

WJ-NX400 / WJ-NX200 / WJ-NV300 can transcode image size/bit rate to fit the customers environment, and stream it. This mode can be used by WJ-NX400 / WJ-NX200 / WJ-NV300 only.

• Download the Panasonic Security Viewer application on the Google play™ store, Apple App Store.

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
• Mobile Playback feature (WJ-NX400 / WJ-NX200 / WJ-NV300)
• Time & date search: To search the images to play back based on the time & date

Network camera

• Network camera control* (Resolution switchover, focus, panning / tilting, zoom, preset position switchover)
• Playing back recorded image in the SD memory card*
  ∗ Depends on the network camera functions.
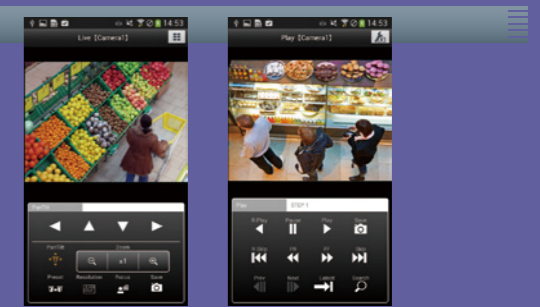
Android™

Outline of the application

Application name	Panasonic Security Viewer version 3.2
OS	Android™ OS 4.0 - 6.0
How to get the application	Download from the Google play™ store.
Date to start the service	June-2017
Operation check terminals	Galaxy S2, Galaxy S3, Galaxy S4, Xperia Z1, Xpeira Z5, Nexus5, Nexus5X, Nexus7, Nexus9, ASUS ZenPad

• Download the application from here.

Android™   https://security.panasonic.com/android/

iPhone / iPad

Outline of the application

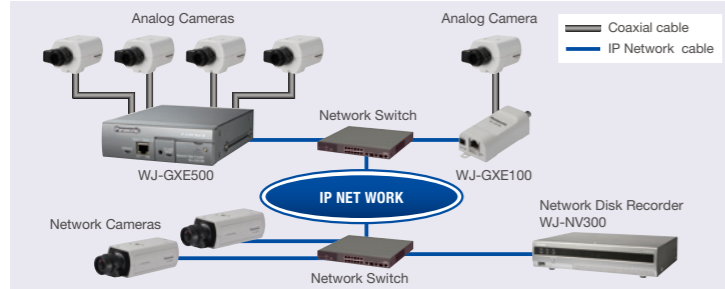| Application name	Panasonic Security Viewer version 3.2
OS	iOS 8 or later
How to get the application	Download from the App Store.
Date to start the service	June-2017
Operation check terminals	iPhone5, iPhone5S, iPhone6, iPhone6 Plus, iPhone6s, iPhone7, iPad Retina, iPad Air, iPad mini

• Download the application from here.

iPhone / iPad   https://security.panasonic.com/ios/

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

Analog Cameras   Analog Camera

—— Coaxial cable
—— IP Network cable

Network Switch

WJ-GXE500   WJ-GXE100

IP NET WORK

Network Cameras   Network Disk Recorder WJ-NV300

Network Switch

4 CH H.264 Video Encoder

WJ-GXE500

(12 V DC or PoE)

H.264 MPEG-4 JPEG

Optional Accessory

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

Joint bracket
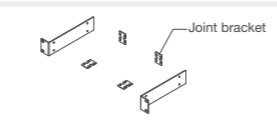
1 CH H.264 Video Encoder

WJ-GXE100

(12 V DC or PoE)

H.264 JPEG   Onvif° S

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

IP NET WORK

—— Coaxial cable
—— Ethernet cable

Network (IP) Camera

PoE Switching HUB

PoE power receiving or connection to the AC adapter

WJ-PR204
4-channel receiver side unit

WJ-PC200
Camera side unit
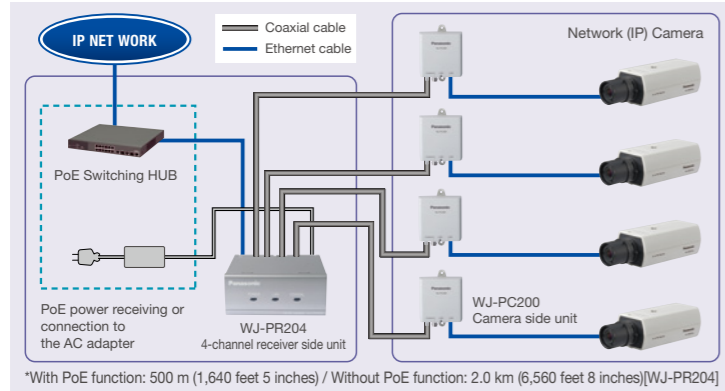
*With PoE function: 500 m (1,640 feet 5 inches) / Without PoE function: 2.0 km (6,560 feet 8 inches)[WJ-PR204]

Coaxial LAN cables can be used up to distances of 2.0 km.[WJ-PR201]
Power can also be supplied to PoE cameras for distances of up to 500 m, PoE+ cameras for distances of up to 300 m.
*Distance will vary depending on the power supply environment. Please refer to the spec sheet for details.

Coaxial-LAN Converter with PoE function

4-channel receiver side unit   Camera side unit

WJ-PR204   WJ-PC200

1-channel receiver side unit

WJ-PR201

(Indoor use only)

Receiver side unit   Camera side unit

Optional Accessory

Rack Mount Connecting Fitting
BY-HCA10A
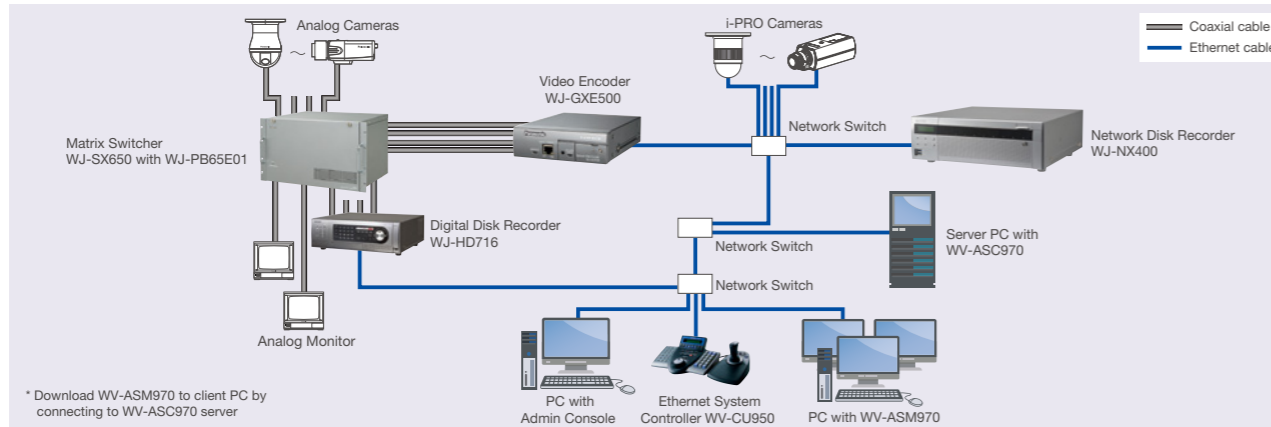(for mounting three or four Receiver side unit)

– For U.S. and Canada : BY-HCA10A
– For Europe and other countries : BY-HCA10CE

IP and analog integrated hybrid system

- The WV-ASC970/WV-ASM970 can be used to integrate management and operation of centralized systems that use both analog and IP system components.

Basic System Connection Example

Analog Cameras   i-PRO Cameras

—— Coaxial cable
—— Ethernet cable

Video Encoder WJ-GXE500

Network Switch

Network Disk Recorder WJ-NX400

Matrix Switcher WJ-SX650 with WJ-PB65E01

Digital Disk Recorder WJ-HD716

Network Switch

Network Switch

Server PC with WV-ASC970

Analog Monitor

Network Switch

* Download WV-ASM970 to client PC by connecting to WV-ASC970 server

PC with Admin Console   Ethernet System Controller WV-CU950   PC with WV-ASM970

This is the Panasonic difference!

With our proven track record of success in both analog and IP cameras, Panasonic can provide a one-stop equipment and system solution for successful migration from analog to IP.

Store   **Medium-sized Supermarket Chain**

01   Reasons for Implementing System

- Increasing numbers of shoplifting incidents were beginning to seriously affect store profitability.
- In particular, the impact of losses from habitual shoplifters was extremely high.
- When disagreements arose with customers over the amount of change received, no method of factual verification was available.
- There was a high risk of foreign object contamination of foods, and it was becoming increasingly difficult for this to be monitored by employees alone.

02   Implemented System

- Cameras were installed at the entrances and exits to the store. The faces of people coming in and out were recorded.
- The faces of habitual shoplifters were stored in the system from images of past shoplifting incidents.
- If a habitual shoplifter enters the store, the in-store music changes to a specific melody that warns all employees to be on alert.
- High-resolution Full HD cameras were installed on top of the cash registers for recording the exchange of money. If any problems arose, the types of bills used can be verified.
- Cameras were installed that overlook the shelves in each product aisle.

03   Implementation Results

- When a habitual shoplifter enters the store, all employees can immediately be made aware of and on alert for monitoring the potential scene of a crime.
- The facial images of shoplifters were also used to search for past images, allowing the collection of irrefutable evidence against repeat offenders.
- The face of the shoplifter was obtained from images of the shoplifting incident, and a search is conducted to monitor the actions of the shoplifter within the store. The data also provided confirmation of thefts made at other stores.
- When disagreements arise over the amount of change returned, the types of bills can be immediately verified using high-resolution video to allow any such problems to be resolved on the scene.
- Camera images were also shown on a large in-store display to ensure product and customer safety. This also led to fewer instances of shoplifting and other crimes, reducing the total amount of losses incurred.
- Both the near and far ends of products displayed on the shelves are shown in sharp detail for an even higher level of product safety than before.
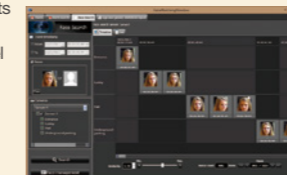
04   Future Expansion

- Because camera video enables the accurate capture of customer movement within the store, employees would like to use the security system to analyze the flow of customers on the store floor, along with customer gender, age, and other details to allow more efficient product arrangements and layouts.
- Management plans to implement identical systems throughout all stores in the supermarket chain and share information about habitual shoplifters to further reduce the amount of loss.

**Monitoring of Urban Areas**   **City Surveillance**

01   Reasons for Implementing System

- Purse-snatching and other crimes have increased on city streets, and there have been growing calls from residents for the installation of security cameras.
- Increased number of incidents of cars, motorcycles, and other vehicles entering vehicle-prohibited zones, driving in the opposite direction on one-way streets, and other problems.
- Damage, defacing, and stealing of road signs, street lights, and other public property has required tremendous expenditures of funds for restoration.
- Illegal entry into restricted areas.
- Stalls were being opened on streets without permission, hindering the passage of people, and resulting in numerous complaints.
- Groups of young people were taking over open spaces for skateboarding and other activities, exposing young children playing in the area to danger.
- Safe management of children walking to school along the road was required.
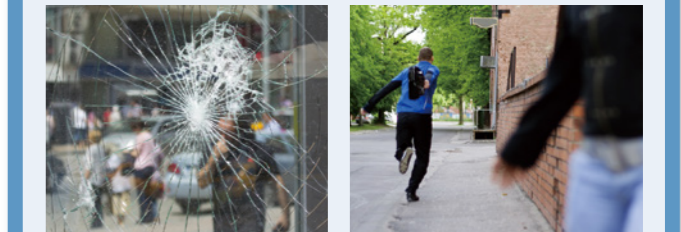
02   Implemented System

- PTZ cameras, 360-degree cameras, dome cameras, and box cameras were combined to build a surveillance environment without any blind spots.
- Rain-wash coated models were used for PTZ cameras that were directly exposed to rain and snow. This prevented any hindrance to monitoring during bad weather.
- Coaxial LAN converters were used for camera locations that were 100 meters or farther from a LAN port. Coaxial cables were connected to cameras at distances of up to 500 meters, and power was also supplied.
- Camera intelligent functions were used to automatically detect intrusion into restricted areas.
- If areas existed that were prohibited to be within the field of view of the security camera, privacy masks were applied to limit monitoring and recording to the specific areas allowed.
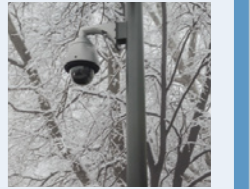
03   Implementation Results

- Enabled monitoring over a wide area and at high resolutions, and simplified the process of determining the causes of any problems.
- Installation of cameras on city streets had an effect on reducing crime, and the number of criminal incidents fell sharply.
- Camera intelligent functions are used to automatically issue an alarm whenever someone enters a restricted area, or tries to drive on a one-way street in the wrong direction. This enables the situation to be quickly assessed and proper corrective measures to be immediately taken.
- Allowed camera installations in locations where it was not possible before due to power supply or cable length problems.
- Use of weatherproof cameras enabled installation in all required locations without the worry of changing weather or seasons.
- This system enabled city residents to recognize the positive effects of security cameras that also take privacy into consideration.
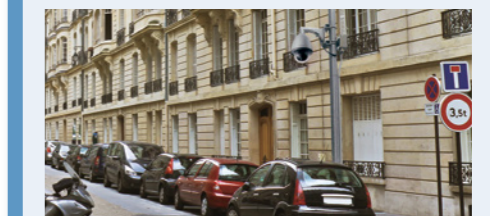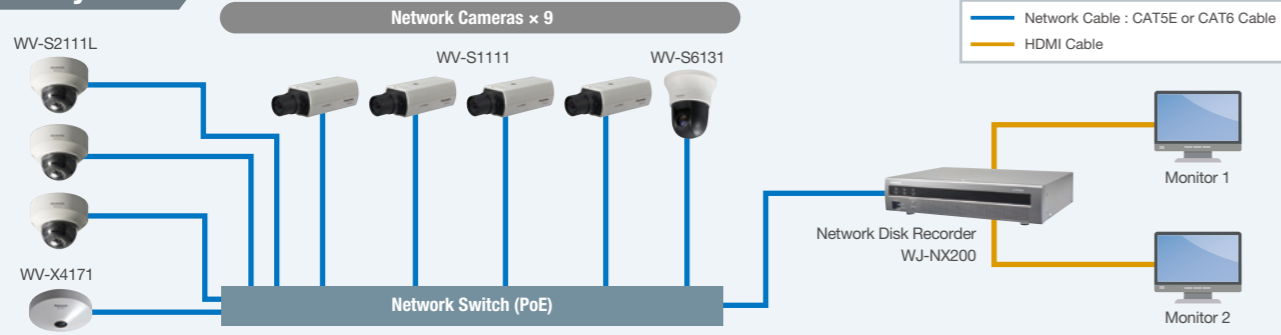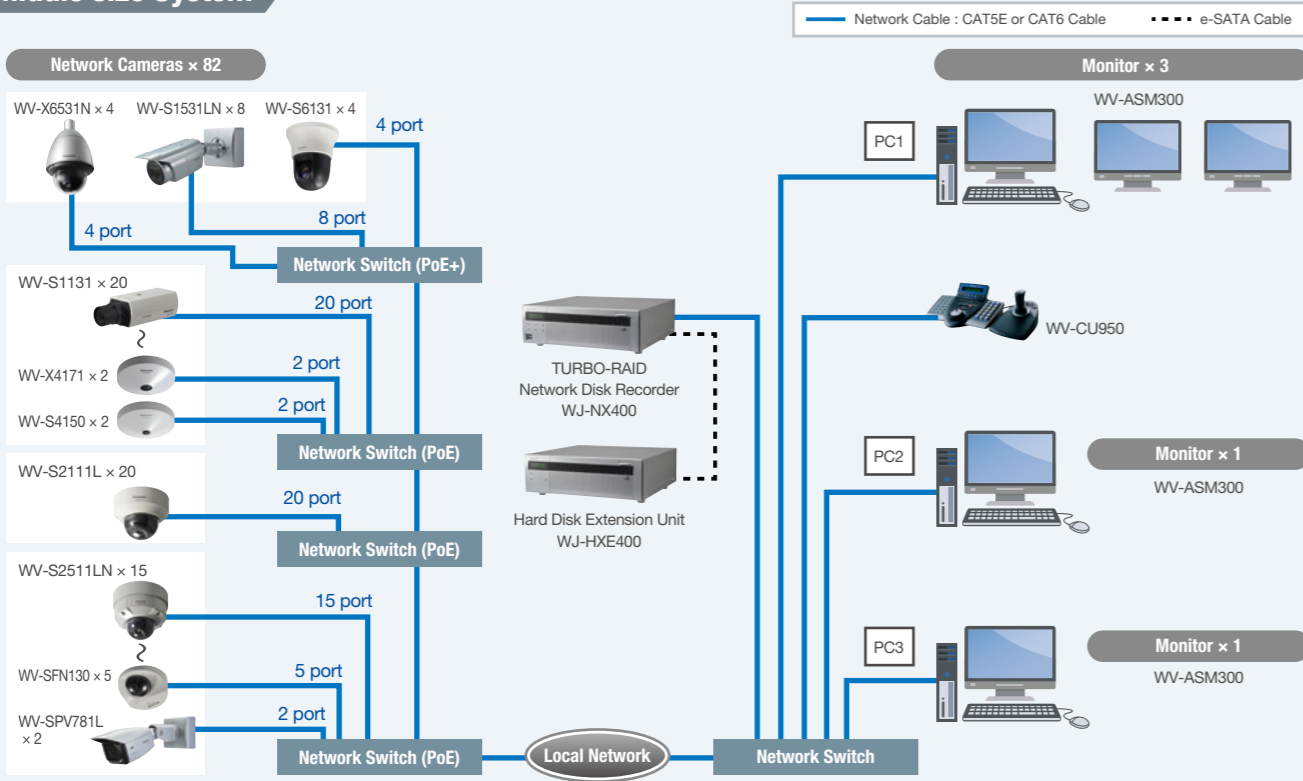
EXTREME Concept
Function Introduction
New Products
Network Camera Comparison Chart
PTZ
Fixed Dome
360-degree Dome
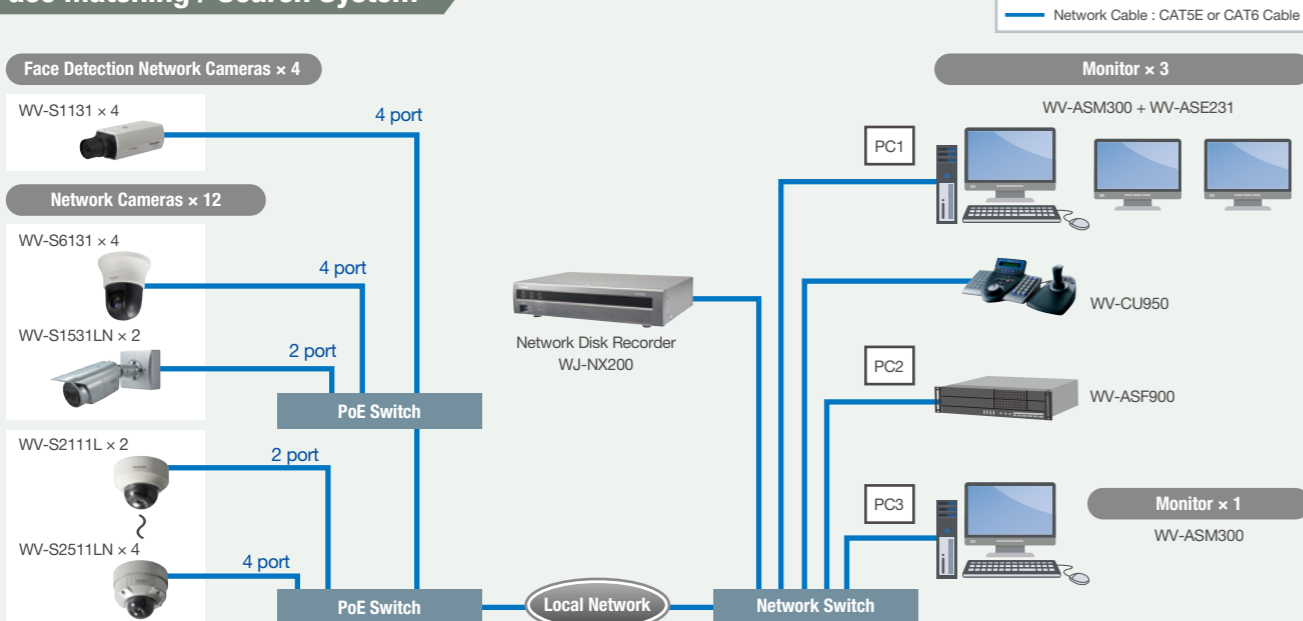Box
Pan/Tilt
Network products
Other

System Example

Small System

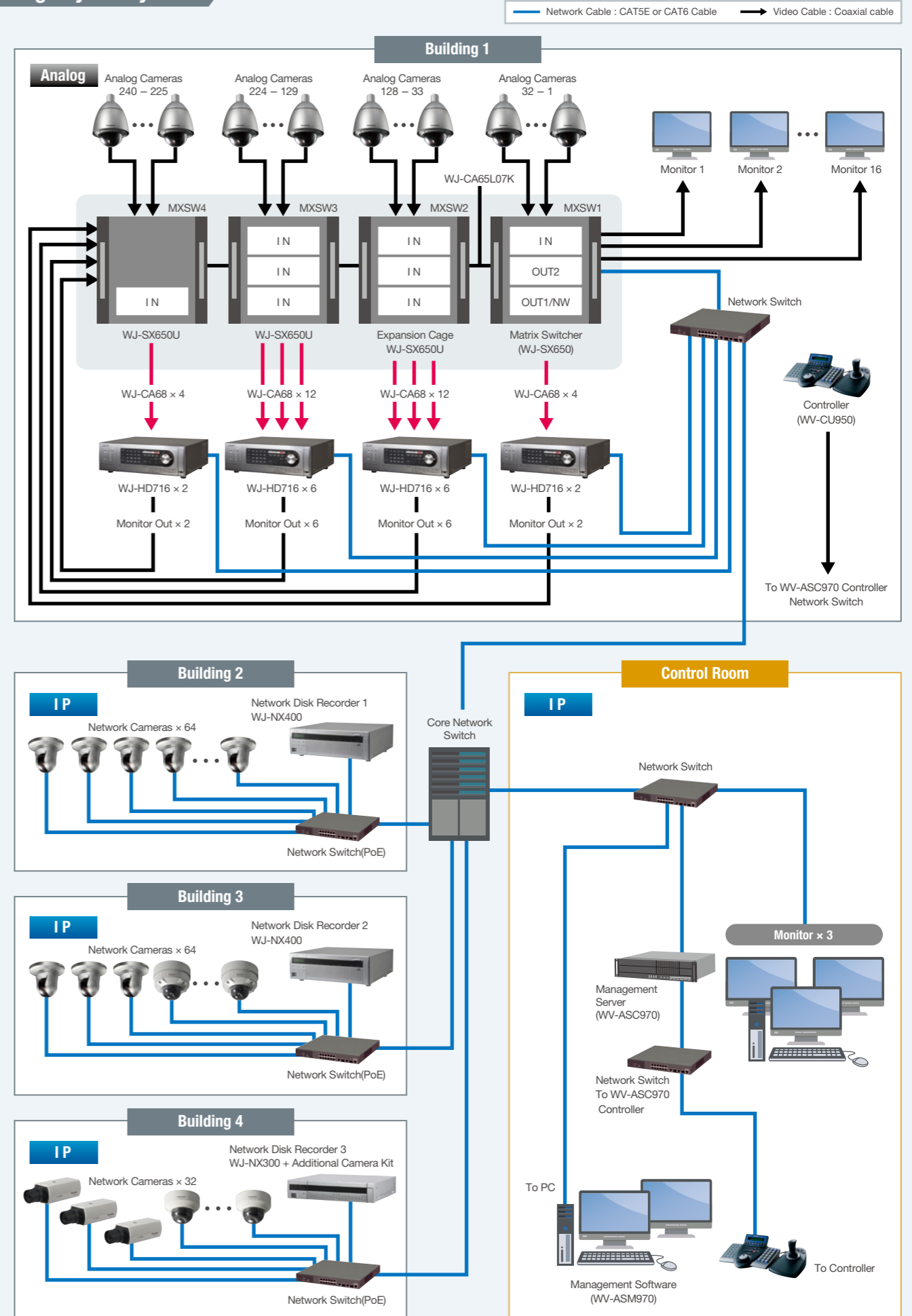**Network Cameras × 9**

WV-S2111L
WV-S1111   WV-S6131
WV-X4171

Network Switch (PoE)

— Network Cable : CAT5E or CAT6 Cable
— HDMI Cable

Monitor 1
Network Disk Recorder WJ-NX200
Monitor 2

Middle size System

Network Cameras × 82

WV-X6531N × 4   WV-S1531LN × 8   WV-S6131 × 4

4 port
4 port
8 port

WV-S1131 × 20
20 port
WV-X4171 × 2
2 port
WV-S4150 × 2
2 port

Network Switch (PoE+)
Network Switch (PoE)

WV-S2111L × 20
20 port

Network Switch (PoE)

WV-S2511LN × 15
15 port

WV-SFN130 × 5
5 port
WV-SPV781L × 2
2 port

Network Switch (PoE)

— Network Cable : CAT5E or CAT6 Cable
···· e-SATA Cable

TURBO-RAID Network Disk Recorder WJ-NX400

Hard Disk Extension Unit WJ-HXE400

Local Network
Network Switch

Monitor × 3
PC1
WV-ASM300

WV-CU950

PC2
Monitor × 1
WV-ASM300

PC3
Monitor × 1
WV-ASM300

Face Matching / Search System

Face Detection Network Cameras × 4
WV-S1131 × 4
4 port

Network Cameras × 12
WV-S6131 × 4
4 port
WV-S1531LN × 2
2 port

PoE Switch

WV-S2111L × 2
2 port

WV-S2511LN × 4
4 port

PoE Switch

Local Network

Network Disk Recorder WJ-NX200

— Network Cable : CAT5E or CAT6 Cable

Network Switch

Monitor × 3
PC1
WV-ASM300 + WV-ASE231

WV-CU950

PC2
WV-ASF900

PC3
Monitor × 1
WV-ASM300

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System Example

Large Hybrid System

— Network Cable : CAT5E or CAT6 Cable   → Video Cable : Coaxial cable

Building 1

Analog
Analog Cameras 240 − 225
Analog Cameras 224 − 129
Analog Cameras 128 − 33
Analog Cameras 32 − 1

WJ-CA65L07K

Monitor 1   Monitor 2   Monitor 16

MXSW4   MXSW3   MXSW2   MXSW1

IN   IN   IN
IN   IN   OUT2
IN   IN   IN   OUT1/NW
IN

WJ-SX650U   WJ-SX650U   Expansion Cage WJ-SX650U   Matrix Switcher (WJ-SX650)

WJ-CA68 × 4   WJ-CA68 × 12   WJ-CA68 × 12   WJ-CA68 × 4

WJ-HD716 × 2   WJ-HD716 × 6   WJ-HD716 × 6   WJ-HD716 × 2

Monitor Out × 2   Monitor Out × 6   Monitor Out × 6   Monitor Out × 2

Network Switch

Controller (WV-CU950)

To WV-ASC970 Controller Network Switch

Building 2

IP
Network Cameras × 64
Network Disk Recorder 1 WJ-NX400

Core Network Switch

Network Switch(PoE)

Building 3

IP
Network Cameras × 64
Network Disk Recorder 2 WJ-NX400

Network Switch(PoE)

Building 4

IP
Network Cameras × 32
Network Disk Recorder 3 WJ-NX300 + Additional Camera Kit

Network Switch(PoE)

Control Room

IP

Network Switch

Management Server (WV-ASC970)

Monitor × 3

Network Switch To WV-ASC970 Controller

To PC

Management Software (WV-ASM970)

To Controller

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