Panasonic

BUSINESS

i-PRO
EXTREME

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Panasonic

http://security.panasonic.com
f http://www.facebook.com/PanasonicNetworkCamera

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

EXTREME Visibility

Enables automatic capture of evidence at the highest quality under dynamic and challenging surveillance environments.
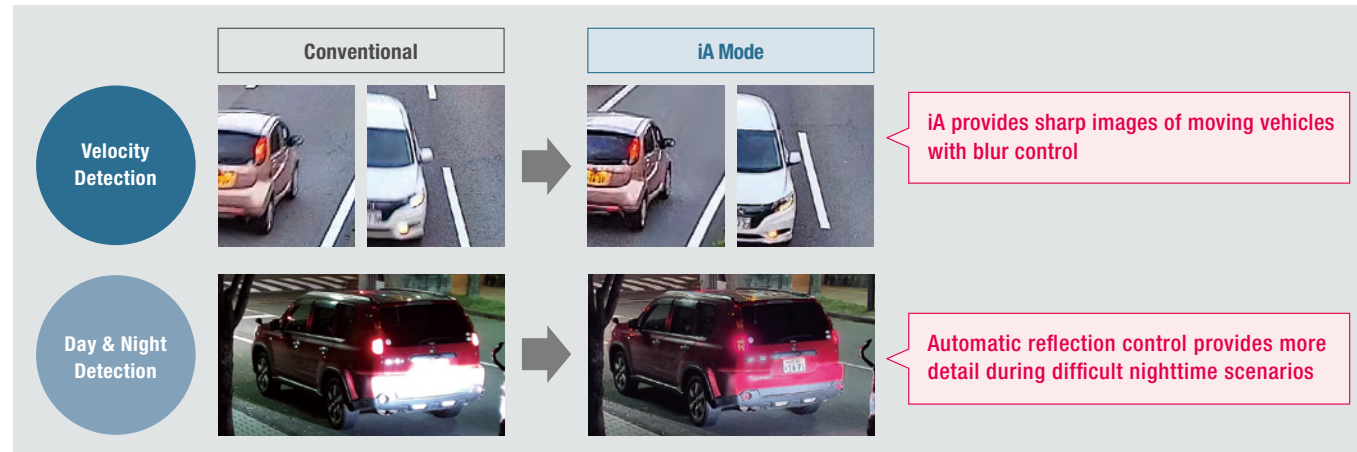
Intelligent Auto Mode (iA)

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.

Applications: City safety, traffic, transportation

Auto Scene Detection

+

Parameter Settings

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
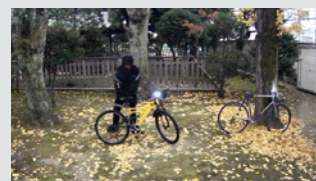
Color Night Vision

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
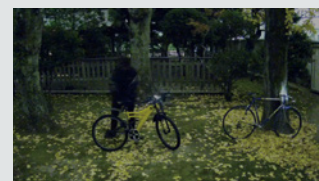
Ordinary Camera 0.6 lx   EXTREME Camera 0.6 lx

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
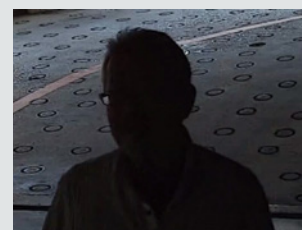
Super Dynamic: OFF   Super Dynamic: 144dB

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
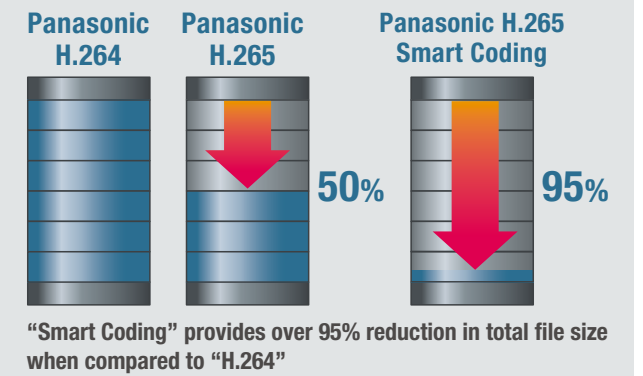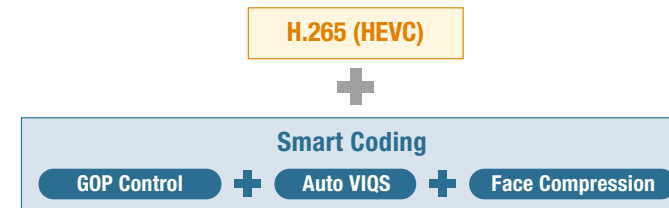

EXTREME Compression

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. 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%**

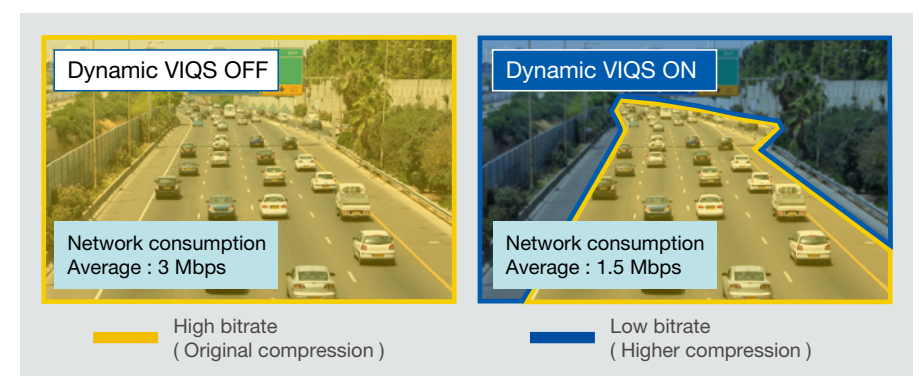"Smart Coding" provides over 95% reduction in total file size when compared to "H.264"

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
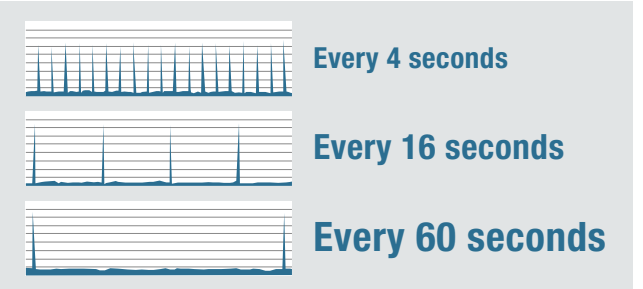
Auto VIQS

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   Dynamic VIQS ON

Network consumption Average : 3 Mbps

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
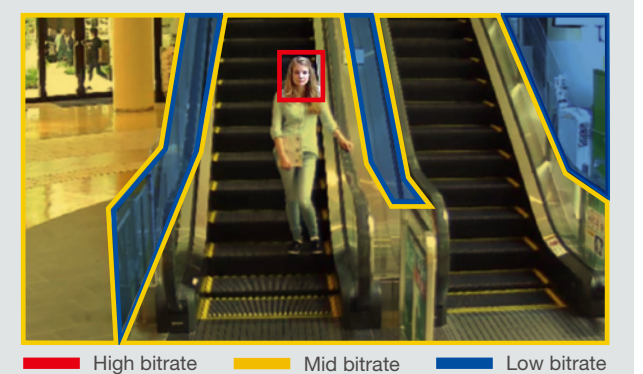
EXTREME Data Security

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

Communication encryption (SSL/TLS)

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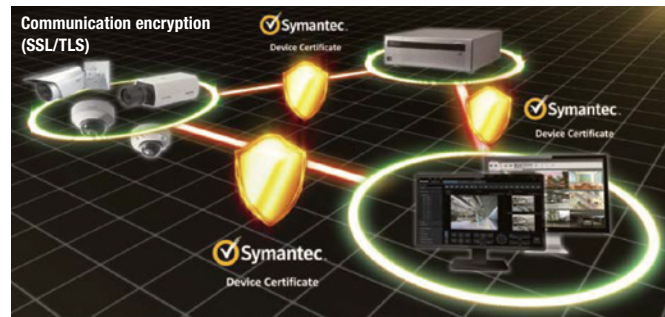- Communication encryption
- Video tampering detection

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

*Evaluated by WV-TW370P

EXTREME Reliability

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

HDD Dynamic Power Control `Feature Update`

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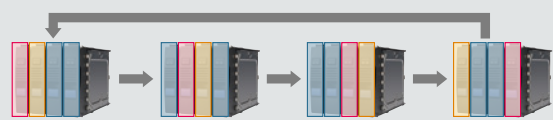
Individually-managed HDD
WJ-NX400 manages the status of each HDD, using the following three states:
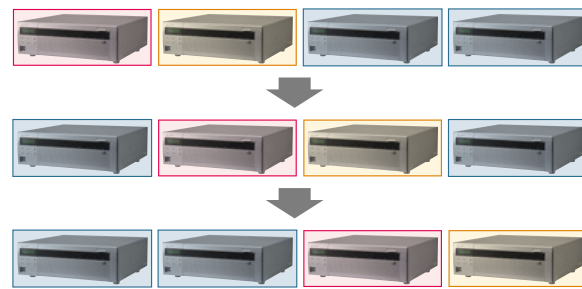1 **Active state:** Currently being accessed by the WJ-NX400.
2 **Idle state:** Ready to be accessed
3 **Stand-by state:** Halted motor

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

Note: In the case of a RAID configuration, each HDD is operated independently.

Auto Failover Recording `Feature Update`

In the case of a NVR failure, the stand-by NVR will begin recording automatically.

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.

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.

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.
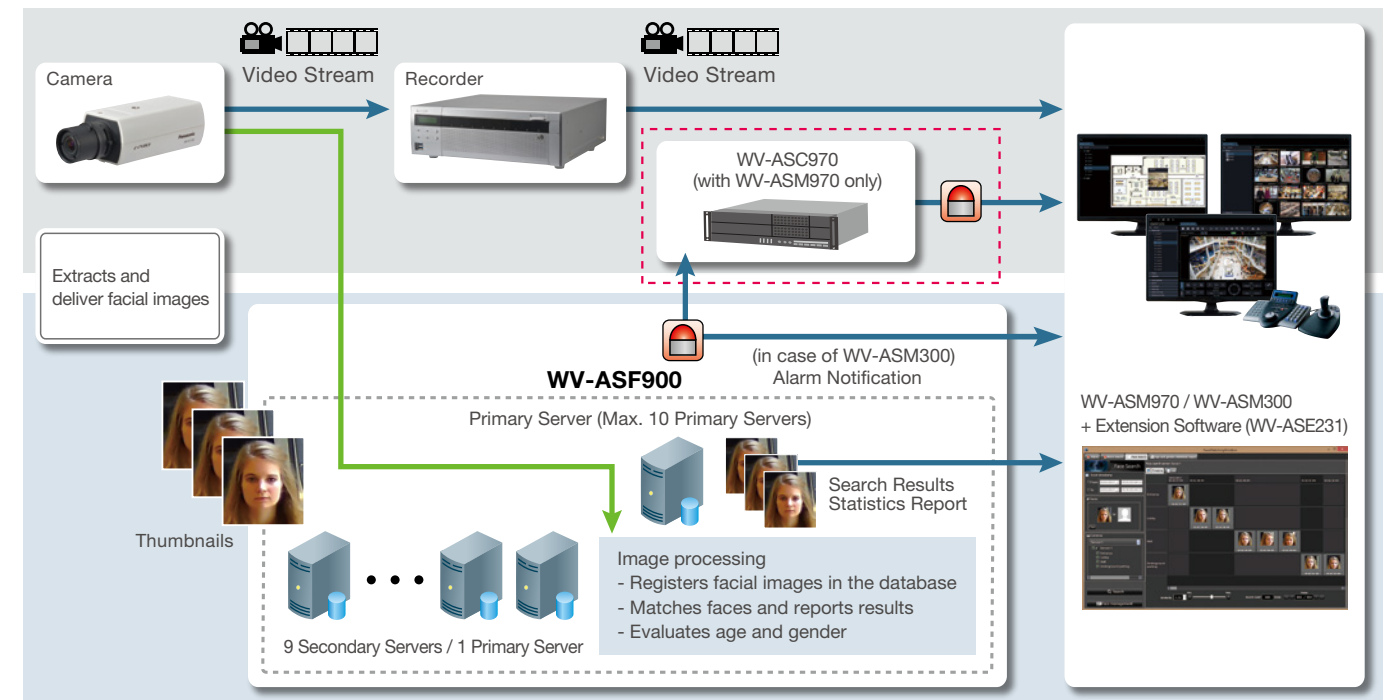
Face Recognition System

The Face Detection function detects the position of a person's face, and the Face Best-Shot function transmits the thumbnail image to the Facial Recognition System.
The Facial Recognition System uses the thumbnail image and matches it against a database of registered faces to notify and alert users of any matches.
Highly efficient facial recognition is achieved through this utilization of thumbnail images of the face.

Example of a Basic Connection System

Camera / Video Stream / Recorder / Video Stream
WV-ASC970 (with WV-ASM970 only)
Extracts and deliver facial images
WV-ASF900
(in case of WV-ASM300) Alarm Notification
WV-ASM970 / WV-ASM300 + Extension Software (WV-ASE231)
Primary Server (Max. 10 Primary Servers)
Search Results Statistics Report
Thumbnails
Image processing
- Registers facial images in the database
- Matches faces and reports results
- Evaluates age and gender
9 Secondary Servers / 1 Primary Server

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.

Roadside | **Monitoring & Control Center** | **Road Facilities & On-site Services**

Video Management System
Traffic Management System

BEWARE! WRONG-WAY DRIVING VEHICLE AHEAD

Wrong-way Driving & Stopped Vehicles | **Notification & Mapping Situational Awareness** | **Quick & Appropriate Response**
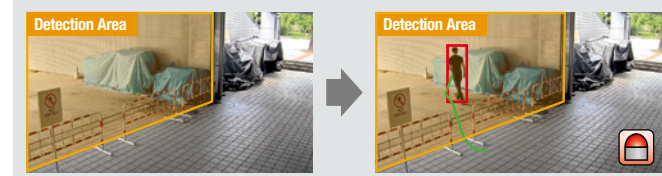
Intelligent VMD i-VMD

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 Detection

Crossing over the fence

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

Loitering Detection

Objects staying longer than a specified time

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

Direction Detection

Objects moving in a specified direction

One-way traffic

Detects
- Objects moving in a specified direction. Up to 8 directions can be specified.

Scene Change Detection

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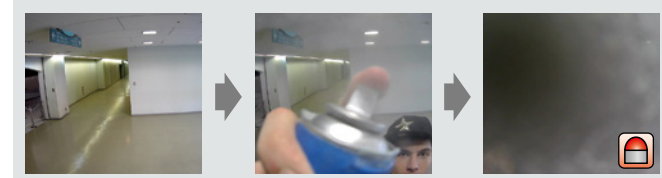
Detects
- Interference caused by tampering with the camera, such as a manual change in the camera direction or blockage of the lens with a cloth or spray paint.

Object Detection

Removed Object Detection   Abandoned Object Detection

Detects
- Alerts the operator when a left or removed object is detected.

Cross Line Detection

A person who crosses the virtual line to the specified direction

Detects
- Alerts the operator when people or objects cross the imaginary lines.

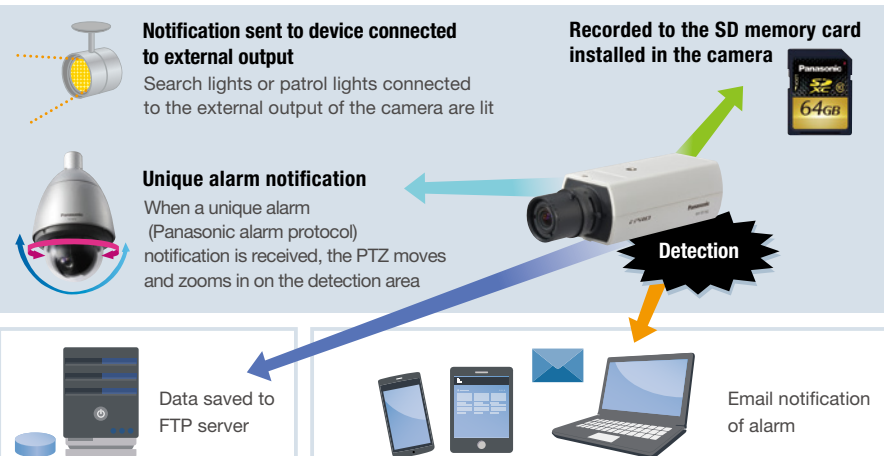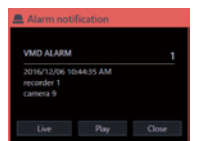## Actions When an Alarm is Detected

Monitoring

Notification sent to the monitoring screen

Alarm notification sent to the recorder and WV-ASM300 management software

Alarm display in WV-ASM300

Notification sent to device connected to external output
Search lights or patrol lights connected to the external output of the camera are lit

Unique alarm notification
When a unique alarm (Panasonic alarm protocol) notification is received, the PTZ moves and zooms in on the detection area

Recorded to the SD memory card installed in the camera

Detection

Data saved to FTP server

Email notification of alarm

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

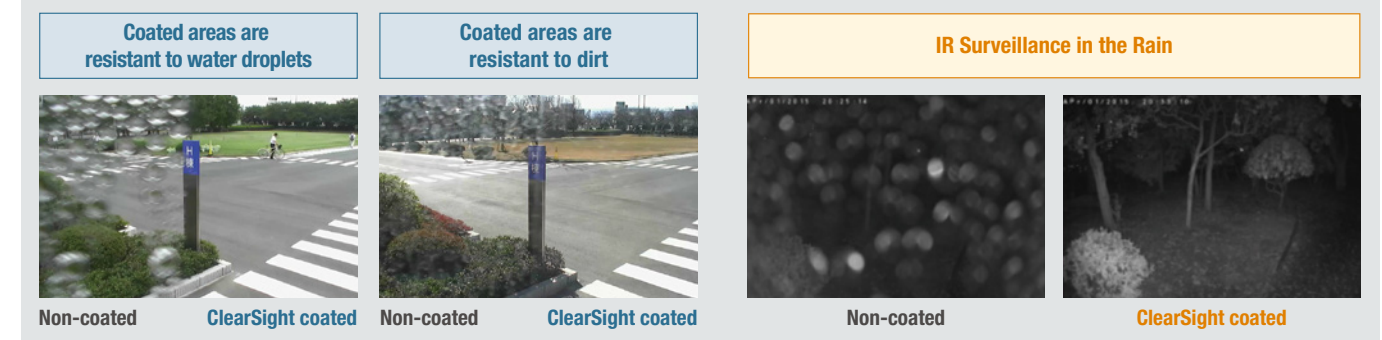# Other Features

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

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.
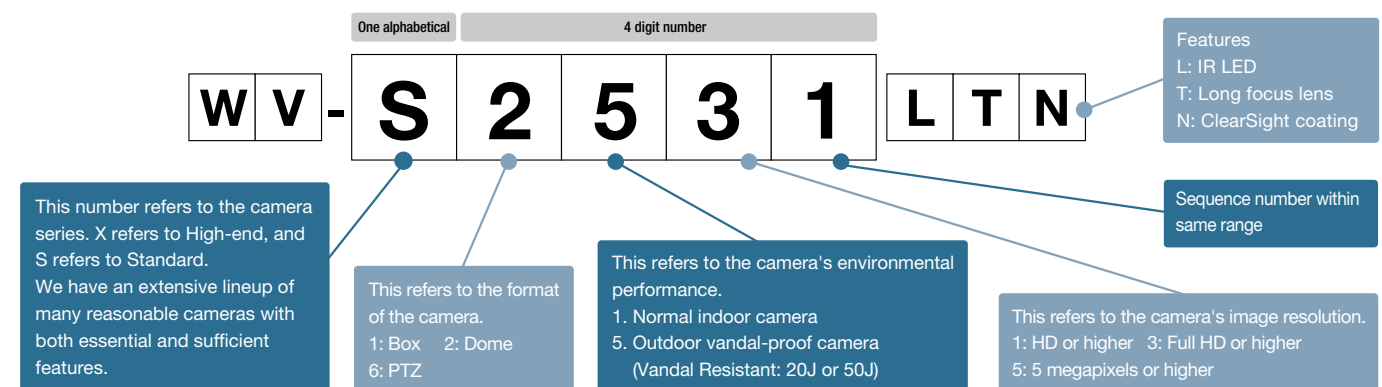This packaging helps reduce the time and effort it requires to install multiple cameras.
On outdoor models, the RJ45 Joint Connector removes the need of using waterproof tape and reduces the time it takes to install the camera.

Rubber (2 pcs)
RJ45 Joint Connector

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

New Part Number for the Camera   Applicable to Cameras after H.265

One alphabetical   4 digit number

WV- S 2 5 3 1 L T N

Features
L: IR LED
T: Long focus lens
N: ClearSight coating

This number refers to the camera series. X refers to High-end, and S refers to Standard.
We have an extensive lineup of many reasonable cameras with both essential and sufficient features.

This refers to the format of the camera.
1: Box   2: Dome
6: PTZ

This refers to the camera's environmental performance.
1. Normal indoor camera
5. Outdoor vandal-proof camera
   (Vandal Resistant: 20J or 50J)

This refers to the camera's image resolution.
1: HD or higher   3: Full HD or higher
5: 5 megapixels or higher

Sequence number within same range

Glossary of Camera Terminology (Product Specification Page)

Day/Night (ICR)	This feature switches the image between Color Mode and Black & White Mode according to the brightness. The IR cut filter is turned off during Black & White Mode to improve resolution, and is most suitable with IR projection.
Day/Night (Electrical)	This feature switches the image between Color Mode and Black & White Mode according to the brightness. During Black & White Mode, color information is not processed to eliminate unnecessary noise, and is not suitable with IR projection.
Image Stabilizer	The camera uses a pan (left and right) and tilt (up and down) motor to correct and stabilize significant camera shake. Additionally, the electronic image stabilizer works to maintain the image during minute oscillations.
Corridor Format	Corridor format enables the capture of a more vertically-oriented area than the normal format would allow.
VIQS	Moving areas that must be monitored are captured at high resolution, and areas where the image remains unchanged are captured at low resolution in order to reduce the total image data size. Users can select up to eight locations as high-resolution monitoring areas.
Dehumidification device	The outdoor network camera models have a built-in dehumidifier to lower internal humidity and to prevent the lenses from getting cloudy due to condensation. This prevents the video images from becoming blurry even if the camera dome cover is installed in locations with high humidity or the temperature changes drastically over the course of the day.

Network Camera Comparison chart — PTZ

		Outdoor	
Indoor / Outdoor		Outdoor	
Model Name		WV-X6531N	WV-X6511N
Appearance		NEW — ONVIF S G	NEW — ONVIF S G
Sensor		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 multi stream	4	4
	JPEG multi stream	3 (Variable)	3 (Variable)
	H.265 / H.264 : VBR / AVBR (Advanced VBR)	VBR	VBR
	Smart Coding	Yes	Yes
Max. Resolution	16 : 9	1920 x 1080	1280 x 720
	4 : 3	2048 x 1536 (*1)	1280 x 960
Max. FPS @Max. Resolution	H.265 / H.264	60fps (1080p)	60fps (720p)
	JPEG	30fps (3 MP)	30fps (1.3 MP)
Super Dynamic / WDR / BLC		Enhanced SD	Enhanced SD
Day/Night		Yes (ICR)	Yes (ICR)
ABF (Auto Back Focus) / Focus Assist		Auto Focus	Auto Focus
Min. Illumination	Color	0.015 lx @F1.6	0.011 lx @F1.6
	Color (Sens up)	0.001 lx (16x)	0.0007 lx (16x)
	B/W	0.006 lx @F1.6	0.005 lx @F1.6
	B/W (Sens up)	0.0004 lx (16x)	0.0003 lx (16x)
Lens		f = 4.25 to 170 mm, F1.6 Motorized	f = 4.25 to 170 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.
	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.
Pan	Range	Endless	Endless
	Speed	120 deg/sec	120 deg/sec
Tilt	Range	-15 to +195 deg	-15 to +195 deg
	Speed	120 deg/sec	120 deg/sec
360 Pan-Flip		—	—
Number of Preset Positions		256	256
Patrol		Yes	Yes
Auto Tracking		Yes (advanced)	Yes (advanced)
Optical Zoom		40x	40x
Digital Zoom		16x	16x
Image Stabilizer		Yes	Yes
Corridor Format		—	—
iA (Intelligent Auto)		Yes	Yes
VMD (Video Motion Detection)		Yes (4-areas)	Yes (4-areas)
i-VMD (Intelligent VMD) (w/optional extension software)		Yes (Type4)	Yes (Type4)
VIQS		Yes (8-areas)	Yes (8-areas)
Max. Connection		14	14
Audio	In (Line) / Out	Yes / Yes	Yes / Yes
	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		Yes (3) (*3)	Yes (3) (*3)
Monitor Out		—	—
Vandal Resistant		IK10	IK10
Water and Dust Resistance		IP66 / NEMA 4X	IP66 / NEMA 4X
Temperature		−50 to +60 deg. (24 V / 60 W PoE) (*4) −30 to +60 deg. (PoE+)	−50 to +60 deg. (24 V / 60 W PoE) (*4) −30 to +60 deg. (PoE+)
Power Source		AC 24 V / PoE+ / PoE injector	AC 24 V / PoE+ / PoE injector
Dehumidification device		Yes	Yes
Other Functions		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(Day/Night In, Auto time adjustment), Alarm In 2(Alarm Out), Alarm In 3(AUX Out) (x1 for each)　(*4) : Tested PoE injector

10　★ Products that can be purchased is vary according to the locality.

Network Camera Comparison chart — Fixed Dome

		Outdoor			Indoor	
Indoor / Outdoor		Outdoor			Indoor	
Model Name		WV-S2531LTN	WV-S2531LN	WV-S2511LN	WV-S2231L	WV-S2211L
Appearance		ONVIF S G	ONVIF S G	ONVIF S G	ONVIF S G	ONVIF S G
Sensor		1/3 MOS	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 / JPEG
	H.265 / H.264 multi stream	4	4	4	4	4
	JPEG multi stream	3 (Variable)	3 (Variable)	3 (Variable)	3 (Variable)	3 (Variable)
	H.265 / H.264 : VBR / AVBR (Advanced VBR)	VBR	VBR	VBR	VBR	VBR
	Smart Coding	Yes	Yes	Yes	Yes	Yes
Max. Resolution	16 : 9	1920 x 1080	1920 x 1080	1280 x 720	1920 x 1080	1280 x 720
	4 : 3	2048 x 1536 (*1)	2048 x 1536 (*1)	1280 x 960	2048 x 1536 (*1)	1280 x 960
Max. FPS @Max. Resolution	H.265 / H.264	60fps (1080p)	60fps (1080p)	60fps (720p)	60fps (1080p)	60fps (720p)
	JPEG	30fps (3 MP)	30fps (3 MP)	30fps (1.3 MP)	30fps (3 MP)	30fps (1.3 MP)
Super Dynamic / WDR / BLC		Enhanced SD	Enhanced SD	Enhanced SD	Enhanced SD	Enhanced SD
Day/Night		Yes (ICR)	Yes (ICR)	Yes (ICR)	Yes (ICR)	Yes (ICR)
ABF (Auto Back Focus) / Focus Assist		ABF	ABF	ABF	ABF	ABF
Min. Illumination	Color	0.015 lx @F1.7	0.012 lx @F1.6	0.008 lx @F1.6	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)	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)	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	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.	H : 30 to 109 deg. V : 17 to 58 deg.	H : 30 to 109 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.	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.	-240 to +120 deg.	-240 to +120 deg.
	Tilt	-30 to +85 deg.	-30 to +85 deg.	-30 to +85 deg.	-30 to +85 deg.	-30 to +85 deg.
Optical Zoom		2.3x	3.6x	3.6x	3.6x	3.6x
Digital Zoom		4x	4x	4x	4x	4x
Image Stabilizer		Yes	Yes	Yes	Yes	Yes
Corridor Format		Yes	Yes	Yes	Yes	Yes
iA (Intelligent Auto)		Yes	Yes	Yes	Yes	Yes
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		—	—	—	—	—
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)	—	—	—	—	—
	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)	G.711 / G.726 / AAC (*2)
	Audio Detection Alarm	Yes	Yes	Yes	Yes	Yes
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) (*3)	Yes (3) (*3)	Yes (3) (*3)
Monitor Out		Yes (mini jack)	Yes (mini jack)	Yes (mini jack)	Yes (mini jack)	Yes (mini jack)
Vandal Resistant		50J, IK10	50J, IK10	50J, 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)	-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	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 Packaging, Built-in heater, ClearSight coating, 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(Day/Night In, Auto time adjustment), 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.　11

Network Camera Comparison chart — Fixed Dome

		WV-S2131L	WV-S2131	WV-S2130	WV-S2111L	WV-S2110
Indoor / Outdoor		Indoor				
Model Name		WV-S2131L	WV-S2131	WV-S2130	WV-S2111L	WV-S2110
Appearance		ONVIF	ONVIF	ONVIF	ONVIF	ONVIF
Sensor		1/3 MOS	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 / JPEG
	H.265 / H.264 multi stream	4	4	4	4	4
	JPEG multi stream	3 (Variable)	3 (Variable)	3 (Variable)	3 (Variable)	3 (Variable)
	H.265 / H.264 : VBR / AVBR (Advanced VBR)	VBR	VBR	VBR	VBR	VBR
	Smart Coding	Yes	Yes	Yes	Yes	Yes
Max. Resolution	16 : 9	1920 x 1080	1920 x 1080	1920 x 1080	1280 x 720	1280 x 720
	4 : 3	2048 x 1536 (*1)	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 (1080p)	60fps (720p)	60fps (720p)
	JPEG	30fps (3 MP)	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	Enhanced SD
Day/Night		Yes (ICR)	Yes (ICR)	Yes (Electrical)	Yes (ICR)	Yes (Electrical)
ABF (Auto Back Focus) / Focus Assist		ABF	ABF	ABF	ABF	ABF
Min. Illumination	Color	0.012 lx @F1.6	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)	0.0008 lx (16x)	0.0005 lx (16x)	0.0005 lx (16x)
	B/W	0.0 lx @F1.6 (w/IR)	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 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.	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.	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.	-240 to +120 deg.
	Tilt	-30 to +85 deg.	-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	3.6x
Digital Zoom		4x	4x	4x	4x	4x
Image Stabilizer		Yes	Yes	Yes	Yes	Yes
Corridor Format		Yes	Yes	Yes	Yes	Yes
iA (Intelligent Auto)		Yes	Yes	Yes	Yes	Yes
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		—	—	—	—	—
Max. Connection		14	14	14	14	14
Audio	In (Line) / Out	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)	G.711 / G.726 / AAC (*2)
	Audio Detection Alarm	Yes	Yes	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)	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.
Power Source		12 V DC / PoE	12 V DC / PoE	PoE	12 V DC / PoE	PoE
Dehumidification device		—	—	—	—	—
Other Functions		Easy setup package, Built-in IR LED	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(Day/Night In, Auto time adjustment), Alarm In 2(Alarm Out), Alarm In 3(AUX Out) (x1 for each)

Network Camera Comparison chart — Box

		WV-S1531LTN	WV-S1531LN	WV-S1511LN	WV-S1132 / WV-S1131	WV-S1112 / WV-S1111
Indoor / Outdoor		Outdoor			Indoor	
Model Name		WV-S1531LTN	WV-S1531LN	WV-S1511LN	WV-S1132 / WV-S1131	WV-S1112 / WV-S1111
Appearance		ONVIF	ONVIF	ONVIF	Lens not included ONVIF	Lens not included ONVIF
Sensor		1/3 MOS	1/3 MOS	1/3 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 / JPEG
	H.265 / H.264 multi stream	4	4	4	4	4
	JPEG multi stream	3 (Variable)	3 (Variable)	3 (Variable)	3 (Variable)	3 (Variable)
	H.265 / H.264 : VBR / AVBR (Advanced VBR)	VBR	VBR	VBR	VBR	VBR
	Smart Coding	Yes	Yes	Yes	Yes	Yes
Max. Resolution	16 : 9	1920 x 1080	1920 x 1080	1280 x 720	1920 x 1080	1280 x 720
	4 : 3	2048 x 1536 (*1)	2048 x 1536 (*1)	1280 x 960	2048 x 1536 (*1)	1280 x 960
Max. FPS @Max. Resolution	H.265 / H.264	60fps (1080p)	60fps (1080p)	60fps (720p)	60fps (1080p)	60fps (720p)
	JPEG	30fps (3 MP)	30fps (3 MP)	30fps (1.3 MP)	30fps (3 MP)	30fps (1.3 MP)
Super Dynamic / WDR / BLC		Enhanced SD	Enhanced SD	Enhanced SD	Enhanced SD	Enhanced SD
Day/Night		Yes (ICR)	Yes (ICR)	Yes (ICR)	Yes (ICR)	Yes (ICR)
ABF (Auto Back Focus) / Focus Assist		ABF	ABF	ABF	ABF	ABF
Min. Illumination	Color	0.015 lx @F1.7	0.012 lx @F1.6	0.008 lx @F1.6	0.01 lx @F1.4	0.007 lx @F1.4
	Color (Sens up)	0.001 lx (16x)	0.0008 lx (16x)	0.0005 lx (16x)	0.0007 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)	0.004 lx @F1.4	0.003 lx @F1.4
	B/W (Sens up)	—	—	—	0.0003 lx (16x)	0.0002 lx (16x)
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	CS Mount	CS Mount
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	-100 to +100 deg.	-100 to +100 deg.	-100 to +100 deg.	—	—
	Tilt	-100 to +100 deg.	-100 to +100 deg.	-100 to +100 deg.	—	—
Optical Zoom		2.3x	3.6x	3.6x	—	—
Digital Zoom		4x	4x	4x	4x	4x
Image Stabilizer		Yes	Yes	Yes	Yes	Yes
Corridor Format		Yes	Yes	Yes	Yes	Yes
iA (Intelligent Auto)		Yes	Yes	Yes	Yes	Yes
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		—	—	—	—	—
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)	—	—	—	—	—
	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)	G.711 / G.726 / AAC (*2)
	Audio Detection Alarm	Yes	Yes	Yes	Yes	Yes
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) (*3)	Yes (3) (*3)	Yes (3) (*3)
Monitor Out		Yes (RCA)	Yes (RCA)	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)	-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	Yes	—	—
Other Functions		Easy Setup Packaging, Built-in heater, ClearSight coating, Built-in IR LED	Easy Setup Packaging, Built-in heater, ClearSight coating, Built-in IR LED	Easy Setup Packaging, Built-in heater, ClearSight coating, Built-in IR LED	Easy Setup Packaging, RS485 serial part (WV-S1132)	Easy Setup Packaging, RS485 serial part (WV-S1112)

(*1) : w/Super resolution   (*2) : Only for SD REC   (*3) : Alarm In1(Day/Night In, Auto time adjustment), 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.

Optional Accessories Compatibility with Network Cameras

	Bracket				Dome Cover		Other
	Wall Mount Bracket	Ceiling Mount Bracket			Embedded Ceiling Mount Bracket	Smoke	Clear	
WV-X6531N	WV-Q122A	WV-Q121B						
WV-X6511N								
WV-S2531LTN	WV-Q122A (*1)	WV-Q124	WV-Q121B (*1)	WV-Q105A (*2)	WV-Q169A	WV-CW7S WV-CW7SN (ClearSight coating)		WV-Q7118 Sun Shade
WV-S2531LN								
WV-S2511LN								
WV-S2231L		WV-Q105A				WV-CR1S		
WV-S2211L								
WV-S2131L					WV-Q174B			
WV-S2131								
WV-S2130						WV-CF5SA		
WV-S2111L								
WV-S2110								

(*1) : Used in combination with WV-Q124.   (*2) : For Indoor installation only

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Network Products — Network Video Recorder

Turbo-RAID Network Disk Recorder
WJ-NX400
(120 V AC: NTSC, 220-240 V AC: PAL)

H.265 H.264 JPEG   Onvif® | S

- Supports H.265 / H.264 and Motion JPEG recording
- Up to 128 network cameras can be connected and recorded (Video and Audio) *additional camera kit required.
- Up to 54 HDD slots with 9 HDD slots in the main unit and five WJ-HXE400 optional Extension Units each with 9 HDD slots
- Turbo-RAID recording keeps high throughput performance, no needed an additional unit.
- High-reliable HDD management reducing TCO
- Easy setting with WV-ASM300 and Easy operation
- Secure communication

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 400 mm (D) (16-15/16" (W) x 5-3/16" (H) x 15-12/16" (D)) (excluding rubber feet and projections)
Weight	11 kg (24.3 lbs.) (When no HDD exist) 29.5 kg (43 lbs.) (When 9 HDDs are installed)

Network Products — Plug-in Software

NEW 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
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.

i-VMD

Photos are images used to describe the functions.

Network Products — Management Software

i-PRO Central Management Software
WV-ASM300

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

WV-ASM300

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

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

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
- 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 (WV-SFV481 / WV-SFN480 / WV-SF438 / WV-SF448 / WV-SW458)
- 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

Network Products — Face Server

Face Recognition System
WV-ASF900 Series

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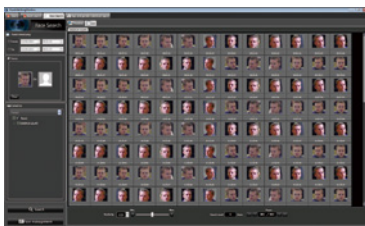## 1ch: WV-ASFE901 / 4ch: WV-ASFE904

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
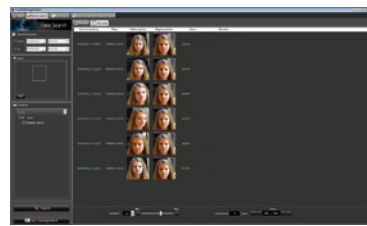- Can be connected up to 20 cameras on a server.

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.

Extension software
WV-ASE231 for WV-ASM300

- To use the WV-ASF900, WV-ASM300 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-ASM300 screen
- i-VMD (Intelligent Video Motion Detection) tracking path display on WV-ASM300 screen

Photos are images used to describe the functions.