

5MP i-PRO Fixed Network Camera with AI Engine

WV-X2551LN (Outdoor Vandal Resistant Dome model)

WV-X2251L (Indoor Vandal Resistant Dome model)

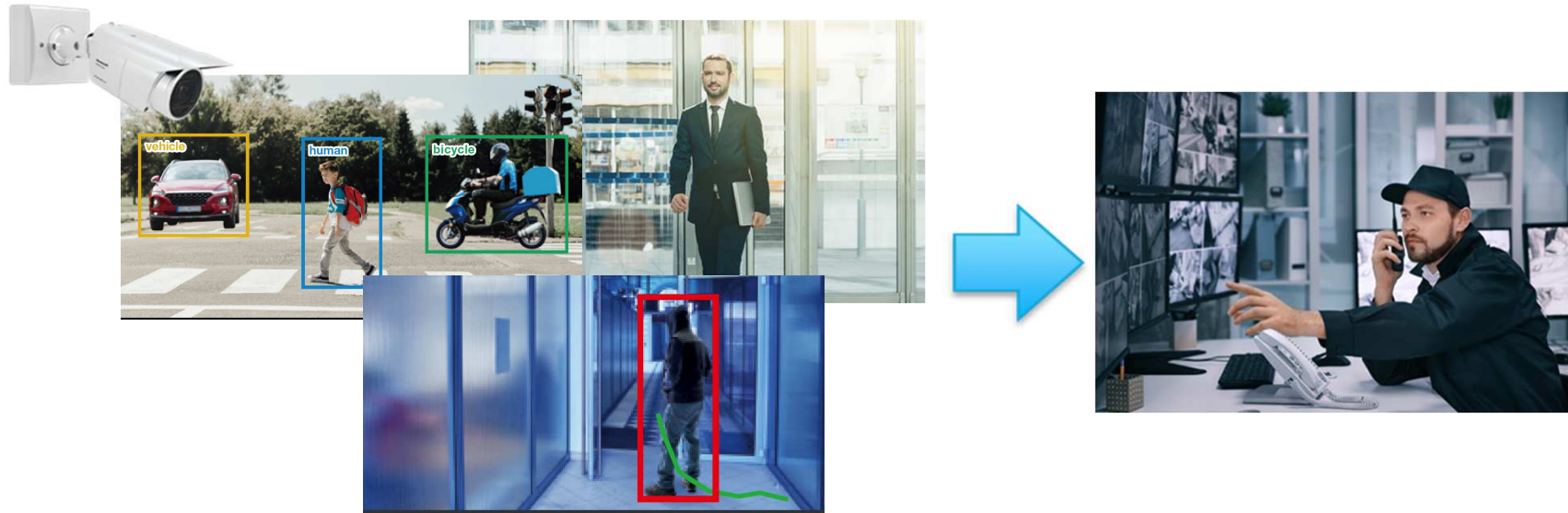
WV-X1551LN (Outdoor Bullet Vandal Resistant model)

Ver. 1.00

Panasonic i-PRO Sensing Solutions Co., Ltd.



AI-based high precision analysis helps surveillance operations and crime prevention operations more efficiently, that operations previously required manpower.



Concept & Main Features

PRO

New X-Series i-PRO camera has built-in AI engine
to enable analytical applications on network edge.

Three AI functions

- High precision detection & identification
- Optimizing image quality setting – AI intelligent Auto
- Optimizing video compression – AI smart coding

AI analytics applications

- AI-VMD (Video Motion Detection)
- AI Privacy Guard
- Be used up to three video analytics applications

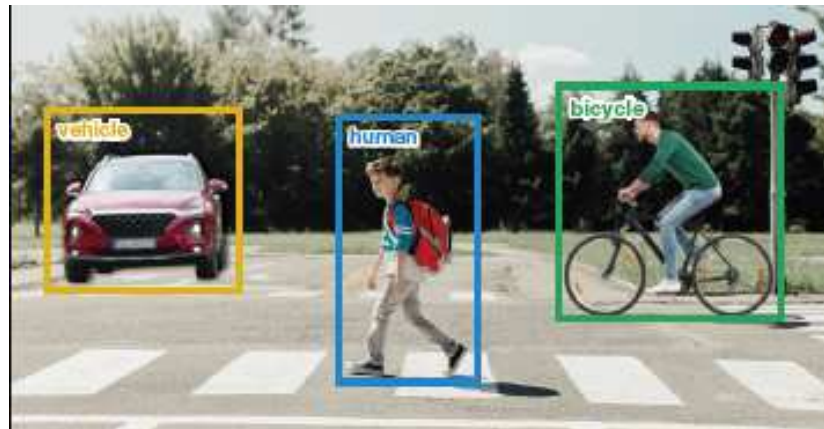
Usability

- Provided i-PRO camera application platform for developers and customers
- AI-VMD 2-steps installation procedure



■ High precision detection & identification

Built-in AI engine in a camera to detect and identify face, human, vehicles and two-wheel motorcycles / bicycles in high precision to upgrade to advanced video surveillance solutions.



Detect & identify objects in scene

Three AI functions

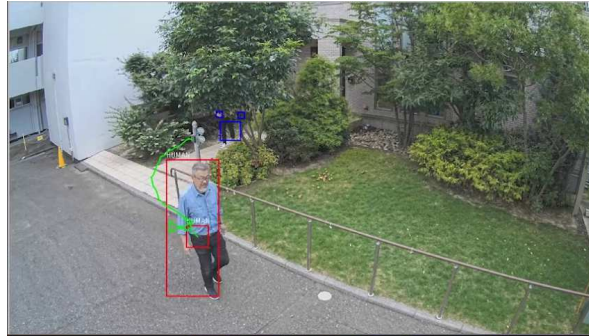


■ High precision detection & identification

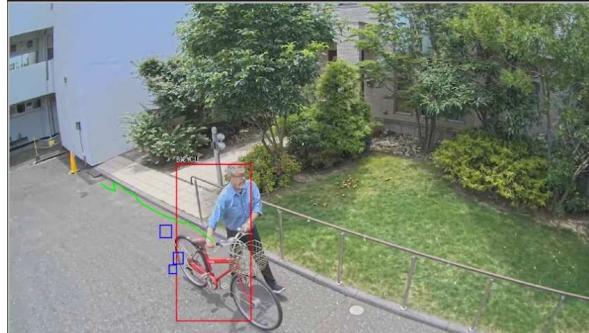
Enables to detect and identify important objects under various environments



Under the daytime environment



Under 0.3 lux Lighting environment

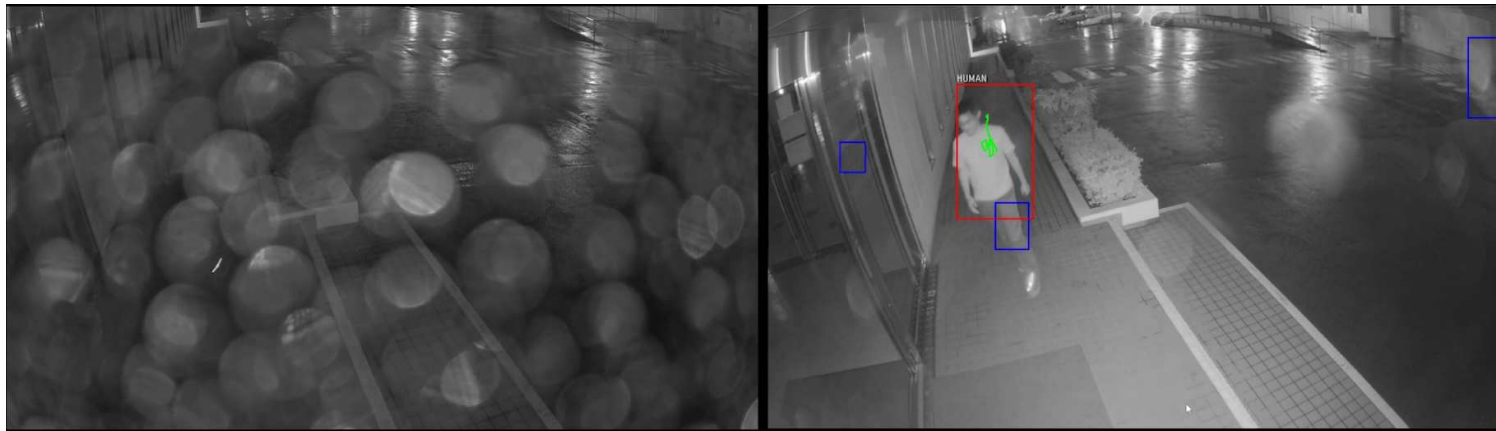


Under 0 lux Lighting environment

■ High precision detection & identification

Enables to detect and identify important objects under various environments

At raindrops



Other leading brand camera
without any special coating dome cover.

New i-PRO 5MP WV-X2551L
With ClearSight coating dome cover.

Under 0 lux Lighting environment with IR LED light

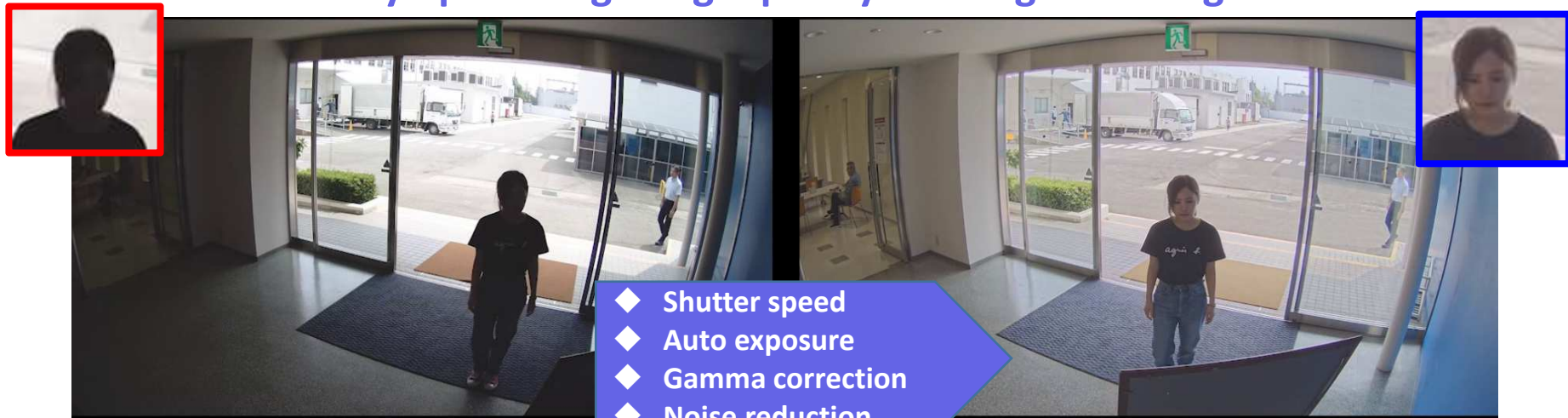
Three AI functions

PRO

■ Optimizing image quality setting – AI intelligent Auto

Improving visibility of monitoring objects

by optimizing image quality utilizing AI intelligent Auto feature.



Conventional i-PRO camera

Super Dynamic : OFF

intelligent Auto : OFF

New i-PRO 5MP WV-X2551L

Super Dynamic : ON

AI intelligent Auto : ON

Three AI functions

PRO

■ Optimizing image quality setting – AI intelligent Auto

Improving visibility of monitoring objects

by optimizing image quality utilizing AI intelligent Auto feature.

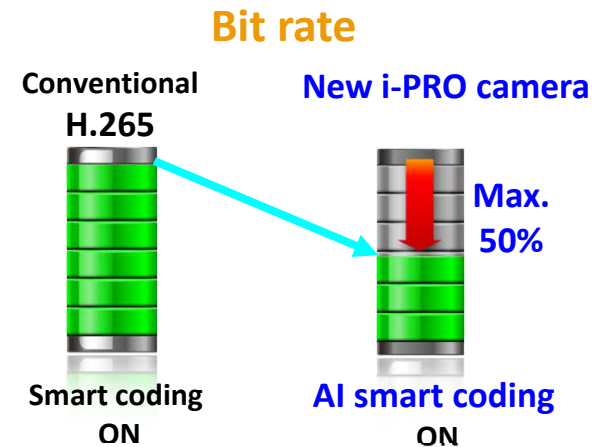


Other leading brand camera
Wide Dynamic Range : ON

New i-PRO 5MP WV-X2551L
Super Dynamic : ON
AI intelligent Auto : ON

■ Optimizing video compression – AI smart coding

Utilizing AI smart coding to optimize video compression to conserve network bandwidth and server storage capacities.



It reduces bit rate by controlling the image quality of still areas, moving areas, and faces with AI engine.

■ Optimizing video compression – AI smart coding

Utilizing AI smart coding to optimize video compression to conserve network bandwidth and server storage capacities.



Three AI functions



■ Optimizing video compression – AI smart coding

Utilizing AI smart coding to optimize video compression to conserve network bandwidth and server storage capacities.



■ AI-VMD (Video Motion Detection)

Improving video analysis accuracy by AI engine.

Reduce the occurrence rate of false detection in these scene cases.

Swaying trees and plants



Shadow and reflection



Light



Raindrops



i-PRO Camera
With
ClearSight coating

Conventional camera
Without
any special coating

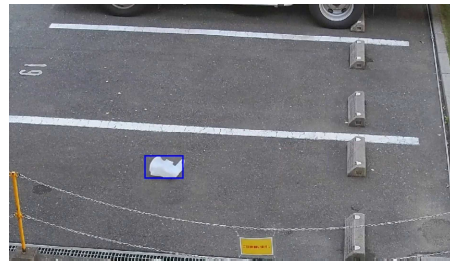
■ AI-VMD (Video Motion Detection)

Improving video analysis accuracy by AI engine.

Reduce the occurrence rate of false detection in these scene cases.



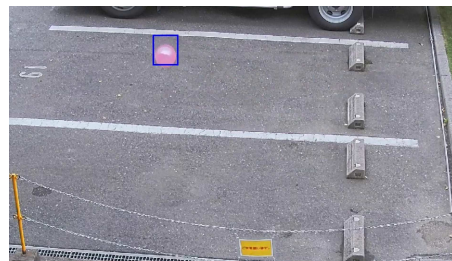
Bird



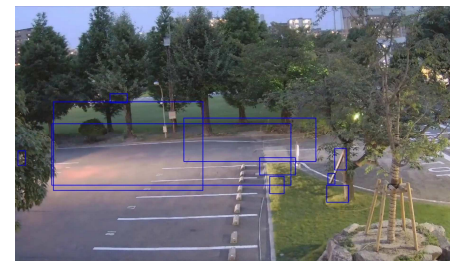
Garbage



Swaying plants



Ball



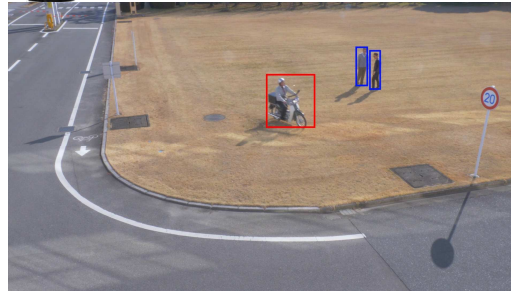
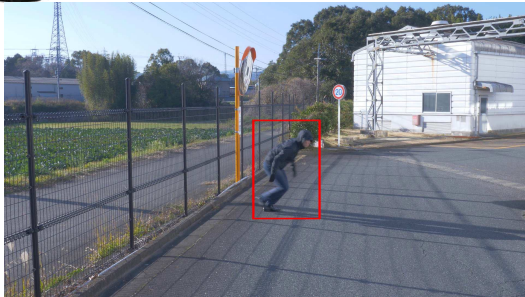
Light

■ AI-VMD (Video Motion Detection)

Optional extension software WV-XAE200W

Intruder Detection

Detect and issue an alarm when a moving object intrudes the specified area.



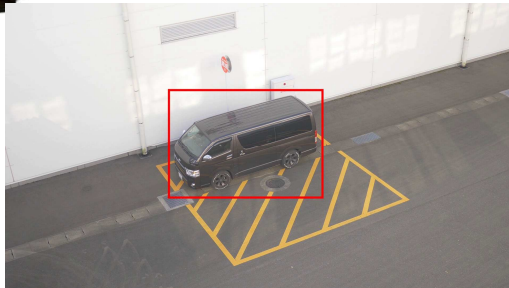
*This video clips just shows to imagine how the detection functions activate are.

■ AI-VMD (Video Motion Detection)

Optional extension software WV-XAE200W

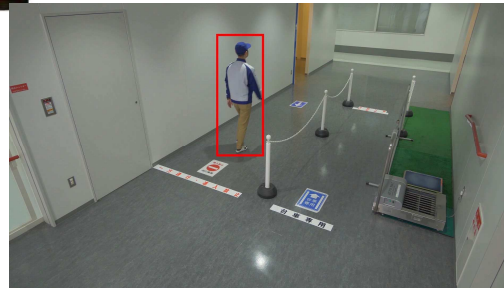
Loitering Detection

Detect and issue an alarm when a moving object loiters or stays in specified period at specified area.



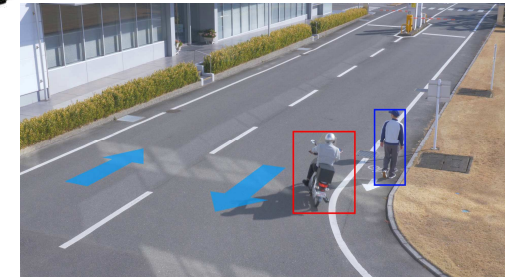
Cross Line Detection

Detect and issue an alarm when an object move to across a line in a specified direction.



Direction Detection

Detect and issue an alarm when an object move to specified direction at specified area.



*This video clips just shows to imagine how the detection functions activate are.

■ AI Privacy Guard

Optional extension software WV-XAE201W

To detect and recognize human figures in a scene and pixelate their figures or faces for protect privacy and portrait rights.

Utilizing AI engine enables....



To use with lighting fluctuations and outdoors in environments.



To activate privacy guard continuously even if human is moving or not.

■ AI Privacy Guard

Optional extension software WV-XAE201W

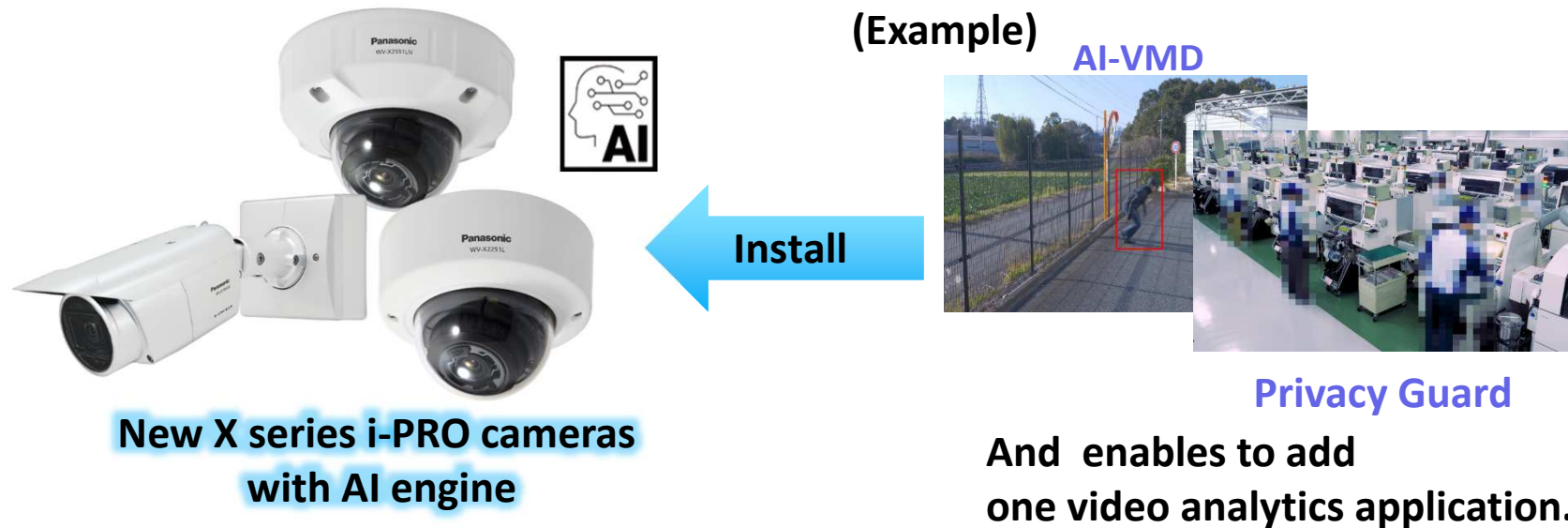


Factory

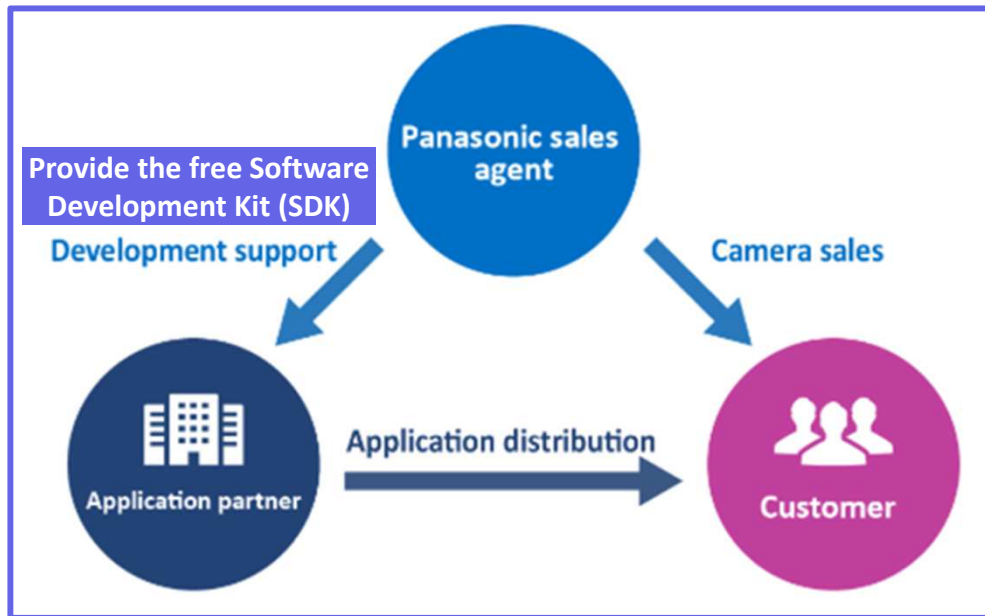


Outdoor in the office building

- Be used up to three video analytics applications
With AI engine to enable to install and activate
up to three video analytical applications.



■ Provided i-PRO camera application platform for developers and customers

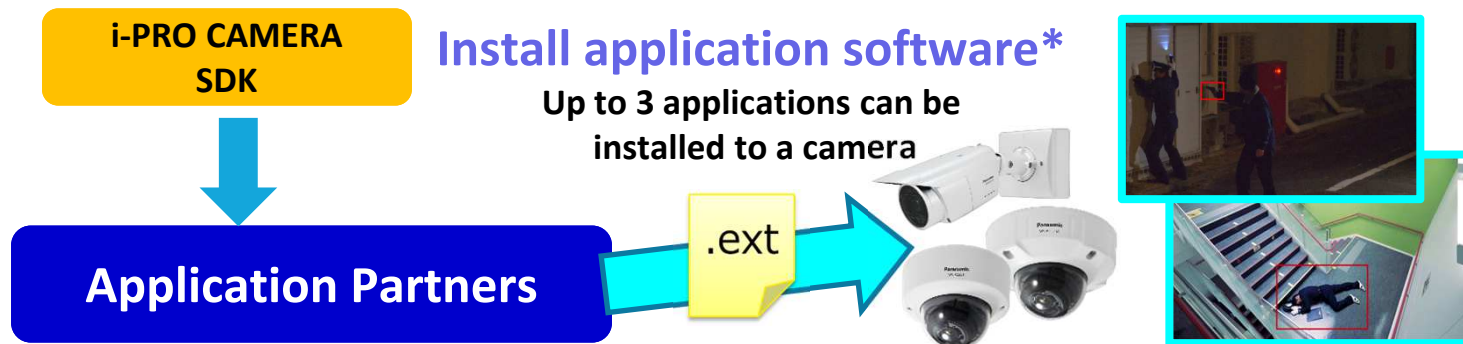


This is a program where Unique applications developed by application partners can be installed in i-PRO network cameras.

■ Provided i-PRO camera application platform for developers and customers

Provide the free Software Development Kit (SDK)

Enables to supply SDK to application partners to develop compatible their video analysis app. for meet customer requirement applications.



*Depending on the app.WV-XLE001W which is the license for cancelling external application may be required.

■ AI-VMD 2-steps installation procedure

Enables high-accuracy video analysis with easy setting with AI engine.

Installation procedure

Step-1

License installation

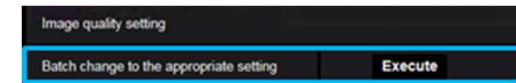
Intruder detection will be activated automatically when the license installation will be finished.



Step-2

Output setting

(Note) If the detection accuracy of AI-VMD is lower than expected in some environments, enable to simply click "Batch change to appropriate settings" to optimize image quality and improve accuracy.



Other key features – Extreme Reliability

PRO

Achieve high endurance and long life usage under extreme conditions

■ Dustproof Test



■ High-Temperature Test



■ Pressure Test



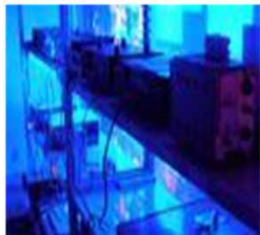
■ Earthquake Test



■ Waterproof Test



■ Lifetime Test



■ Thunder Test



■ Static Electricity Test



■ Drop Test



■ Box Shaking Test



Other key features – Extreme Reliability

PRO

Achieve high endurance and long life usage under extreme conditions

■ Vandal Resistant

- ✓ Highly impact resistant
- ✓ IEC 62262 IK10



■ Anti-corrosion screw

*Except WV-X2251L

Adoption of Anti-corrosion screws prevents corrosion and improves maintainability.

■ Water & Dust Resistant

- ✓ IP66 (IEC60529)
- ✓ Type 4X(UL50E)
- ✓ NEMA 4X compliant

*Except WV-X2251L

■ Wind Resistance

*Except WV-X2251L

Operates under up to 40 m/s
(approx. 89 mph) environment

Other key features – Extreme Data Security

PRO

Secure communication with DigiCert certification



Vulnerability Assessment

- 3rd party assessment and penetration tests made to achieve higher security standards



DigiCert Device Certification

- Pre-installed DigiCert Certification
- Video tampering detection

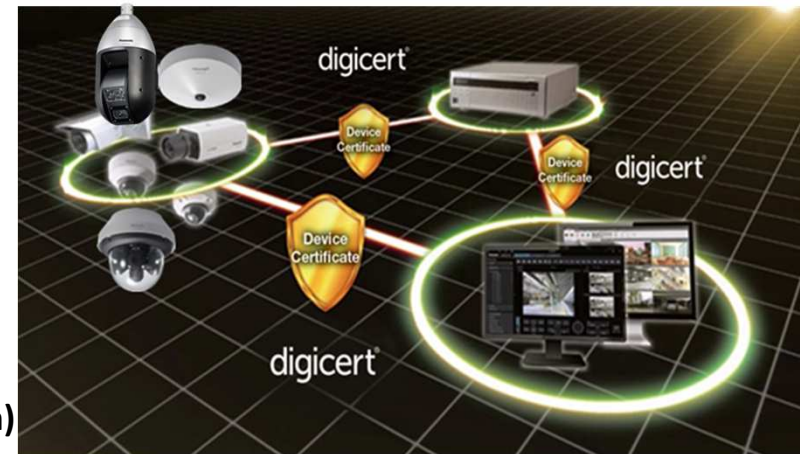


End-to-End Data Encryption

- Support full encryption communication
- Camera encryption recording on-the-edge






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



Specifications

i-PRO




	WV-X2251L 	WV-X2551LN 	WV-X1551LN 	
Image sensor	1 / 2.8 type CMOS			
Max. video resolution (pixel)	3072 x 1728			
Max. frame rate	30 fps * 15fps (Super Dynamic: On, Level: 30 or more)			
Minimum Illumination *Shutter speed 1/30s	Color	0.07lx @F1.3, 0.0044 lx @ shutter speed 16/30		
	B/W	0.04lx @F1.3, 0.003 lx @ shutter speed 16/30, 0 lx @ IR		
Angular Field of View *16:9 mode	Horizontal	33° (Tele) - 105° (Wide)	33° (Tele) - 103° (Wide)	34° (Tele) - 106° (Wide)
	Vertical	19° (Tele) - 56° (Wide)	19° (Tele) - 55° (Wide)	19° (Tele) - 57° (Wide)
Intelligent Auto / WDR / Smart coding	AI intelligent Auto / Super Dynamic (132dB) / AI Smart Coding			
IR LED /Max.irradiation distance	Yes, / 30 m {Approx 98 ft}	Yes / 40 m {Approx. 131 ft}		
Audio Interface / Compression	input (ø3.5 mm stereo mini jack x 1, Line x1), Output(ø3.5 mm stereo mini jack x 1) / G.726, G.711, AAC-LC			
SD memory card slot	1slot (SDXC/SDHC/SD)			
Secure communication	FIPS 140-2 Level 1 compliant			
External I/O Terminals	ALARM IN 1(Alarm input 1/ Black & white input/ Auto time adjustment input) (x1) ALARM IN 2 (Alarm input 2/ ALARM OUT) (x1) , ALARM IN 3 (Alarm input 3/ AUX OUT) (x1)			
Environmental	IK10	IP66, Type 4X(UL50), NEMA 4X compliant Compliant with 50J IEC60068-2-75, IK10	IP66, Type 4X(UL50), NEMA 4X compliant IK10	
Power Source / Ambient Operating Temperature	DC12V,PoE -10° C ~ +50° C (14° F ~ +122° F)	DC12V, PoE, -40° C to +60° C (-40° F to 140° F) / IR LED is off (Power On range : -30° C to +60° C {-22° F to +140° F})		
Dimension (mm)	ø129.5 mm x 103.5 mm (H)	ø164 mm x 139 mm (H) *When using base bracket	133 mm (W) x 133 mm (H) x 377 mm (L) *With adaptor box	

Specifications – DORI (Detect, Observe, Recognize, Identify)



It shows the maximum distance at which a camera's tele and wide can meet DORI. *1

*This value does not indicate the performance of the camera

 WV-X1551LN	Resolution 3072 × 1728 *2		Tele 34°		Wide 106°	
			Distance (m)	Distance (ft)	Distance (m)	Distance (ft)
	Detect	25ppm	200.96	659.32	46.3	151.90
	Observe	62.5ppm	80.38	263.73	18.52	60.76
	Recognize	125ppm	40.19	131.86	9.26	30.38
	Identify	250ppm	20.1	65.93	4.63	15.19
 WV-X2551LN	Resolution 3072 × 1728 *2		Tele 33°		Wide 103°	
			Distance (m)	Distance (ft)	Distance (m)	Distance (ft)
	Detect	25ppm	207.42	680.51	48.87	160.34
	Observe	62.5ppm	82.97	272.20	19.55	64.14
	Recognize	125ppm	41.48	136.10	9.77	32.07
	Identify	250ppm	20.74	68.05	4.89	16.03
 WV-X2251L	Resolution 3072 × 1728 *2		Tele 33°		Wide 105°	
			Distance (m)	Distance (ft)	Distance (m)	Distance (ft)
	Detect	25ppm	207.42	680.51	47.14	154.67
	Observe	62.5ppm	82.97	272.20	18.86	61.87
	Recognize	125ppm	41.48	136.10	9.43	30.93
	Identify	250ppm	20.74	68.05	4.71	15.47

*1 It is calculated with the camera installed horizontally.

*2 Super resolution mode

Optional Accessories - Optional dome cover and brackets



**Indoor
Vandal Resistant Dome
WV-X2251L**



**Dome Cover(Smoke type)
WV-CR1S**

		Ceiling				
		1	2	3	4	5
Combination		WV-Q105A 	WV-QEM100-W 	WV-QCL501-W 	WV-QCL100-W WV-QCL101-W (US only) 	WV-QAT500-W
				WV-QSR501-W 	3rd.parties pipe 	WV-QSR501-W
						3rd.parties pipe
		Wall		Pole	Corner	
		1	2	1	1	
Combination		WV-QWL501-W 	WV-QJB500-W 	WV-QPL500-W 	WV-QCN500-W 	
		WV-QSR501-W 	WV-QWL500-W 	WV-QJB500-W WV-QWL500-W 	WV-QJB500-W WV-QWL500-W 	

Optional Accessories - Optional dome covers and brackets



**Outdoor
Vandal Resistant Dome
WV-X2551LN**



**Dome Cover(Smoke type)
WV-CW7S
WV-CW7SN(ClearSight coating)**







		Ceiling							
		1	2	3	4				
Combination	Supplied	WV-QEM500-W	WV-QCL501-W	3rd parties pipe					
			WV-QSR501-W	WV-QSR501-W					
				WV-QAT500-W					
		Wall			Pole	Corner			
		1	2	3	1	1			
Combination	WV-QWL501-W	WV-QJB500-W	WV-QSR500-W	WV-QPL500-W	WV-QCN500-W				
	WV-QSR501-W	WV-QWL500-W	Supplied	WV-QJB500-W WV-OWL500-W	WV-QJB500-W WV-OWL500-W				

Optional Accessories - Optional brackets for bullet camera



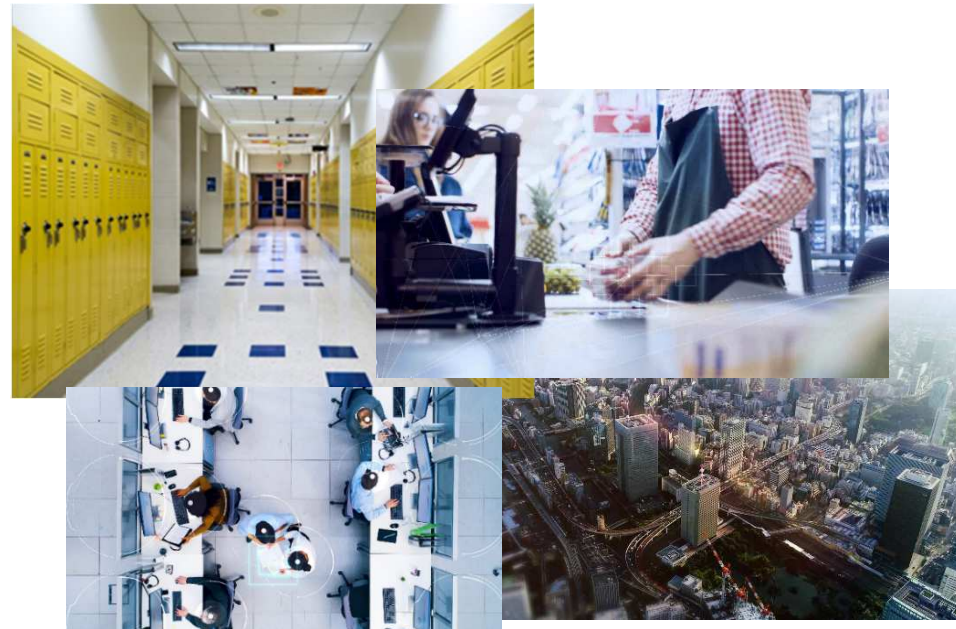
**Outdoor Bullet
WV-X1551LN**



	Ceiling	Wall	Pole	Corner
	1	1	1	1
Combination	Supplied 	Supplied 	WV-QPL500-W 	WV-QCN500-W 
			Supplied 	Supplied 

Those cameras are suitable under the extreme conditions

- ✓ **Retails**
 - ✓ **Education**
 - ✓ **Retail**
 - ✓ **Bank / Logistics / Hospital / Building**
 - ✓ **Public safety**
- and more.



The logo consists of a 3x3 grid of small white squares on the left, followed by a white lowercase 'i', a white dot, and the word 'PRO' in a bold, white, uppercase sans-serif font.