“i-PRO SmartHD solutions”
Smart investment with more than just video surveillance.....

Better identification with more evidence

Smart investments lower your TCO

More than just video surveillance

Distinctive and versatile industry product solutions

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http://security.panasonic.com
http://www.facebook.com/PanasonicNetworkCamera
Printed in Japan (8/2014)
### What are the current problems?

<table>
<thead>
<tr>
<th>Goods-related</th>
<th>Accidents and problems</th>
<th>System management</th>
<th>Others</th>
<th>Existing analog equipment</th>
</tr>
</thead>
</table>
| » Loss of goods (goods not where they should be)  
» Damage to goods (stacked goods collapsing, falling, colliding with forklifts, etc.)  
» Goods placed in prohibited areas such as passages or emergency exits | » Collisions between forklifts and other forklifts, people or goods  
» Damage to equipment  
» Problems and stops in logistics sorting line | » Management of each distribution site is handled separately and not centralized  
» High-resolution data is stored, enlarging data size and shortening data retention period  
» Takes time to find video of problems that occurred | » Cannot monitor warehouse or detect changes when lights are turned off at night  
» Difficult to balance monitoring/management of employees and suppliers while considering their privacy  
» Cannot assign a person to constantly monitor video  
» Even if a problem occurs, it takes a long time to be discovered | » Poor camera quality, meaning the situation cannot be accurately determined  
» Narrow angle of view, and many blind spots even when a large number of cameras are installed  
» Information other than images cannot be obtained  
» Problems cannot be detected unless the video is constantly watched  
» Takes time to find video at the time of trouble |

### Solutions

Panasonic systems solve all of these problems and provide you with solutions to suit your needs:

» High resolution data to perform detailed checks for detecting problems  
» Monitor without blind spots and record problems that occur  
» Manage people entering and exiting warehouse by video (in addition to entry and exit system that uses cards)  
» Monitor in low-light environments such as when lights are turned off at night  
» Multi-site monitoring with a network  
» Product lineup for both indoor and outdoor installation  
» Camera recognizes occurrence of problems and notifies the administrator  
» One-stop solutions including cameras, recorders, and management software  
» Provide people/forklifts flow line and heat map information to assist in making efficient placement decisions
De-warping

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

This is the Panasonic difference!

Providing Smooth Images with High Image Quality Exceeding 4K

Panasonic network cameras use the newly developed LSI platform and highly sensitive MOS sensors to provide video with high image quality and smooth and natural color tones. Clear and easy-to-view images of the location you want to monitor can be provided in various locations, both indoors and outdoors. The maximum resolution is 4,096 x 3,072 pixels (WV-SFV711L / WV-SFV311L). The Maximum Frame rate of 60 fps at 2,048 x 1,536 pixels can be captured to support locations where fast cars and trains pass by. JPEG/H.264 multi-streaming transmission is also supported.

Clearly Capturing Images in Locations with a Large Difference in Illumination

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

Strong Low Light Performance in Color

Even in dark locations, color images with low noise can be reproduced to clearly view the movement of people. This is effective for not only parts of the warehouse that are constantly dim, but also normal locations after the lights are turned off.

Day / Night Automatic Mode Switching

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

0 lux Pitch Dark Locations

Cameras with an 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 detect intruders. The IR LED can illuminate a wide area so that monitoring is not limited to a specific point in the image. The built-in IR LED can capture subjects up to 30 meters away. The lens design also has a wide angle of view to allow monitoring over a wide area.

VIQS (Variable Image Quality on Specified Area)

Moving areas that must be monitored are captured at high resolution, and areas where the video remains unchanged are captured at low resolution for reducing the total amount of image data. Up to eight locations can be specified as high-resolution monitoring areas.

Mobile Monitoring

Locations such as loading sites and sorting lines can be checked in real time even when moving to the warehouse from the office by using a tablet PC or smartphone. Also, you can check video data stored on the recorder or an SD memory card installed in the camera. If problems occur, you can look at the video and check on the situation even when away from the actual location.

Monitoring a Wide Area and Playing Back Audio for a Specific Area

With a combination of a 360-degree Network Microphone and a 360-degree Network Camera, the audio of a specific location in the video can be heard by itself. For example, a single 360-degree Network Microphone with 360-degree Network Camera can be installed on the ceiling, enabling the separate conversations at each area to be heard in detail. This enables the cause to be immediately identified when a problem occurs.

Supported functions and specifications differ according to the model. See the specifications for each model.
Rain Wash Coating

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

Fog and Smoke Reduction

Video can be corrected to provide clearer images by removing elements that obstruct the camera’s field of vision, such as fog or sandstorms.

High Resolution/Wide Range 4K Camera

A single 4K camera can capture video of a wide area such as a parking lot. A part of the image can be zoomed in as necessary to check an area in detail. A 4K camera has 27 times the resolution of an analog (VGA) camera, 9 times that of an HD (1,280 x 720) camera, and 4 times that of a Full HD (1,920 x 1,080) camera.

PTZ Camera for Wide Range Monitoring and a High Zoom Ratio

Normal fixed lens cameras can only monitor a certain direction, but the less 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 30x. Since the cameras can be infinitely rotated at a high speed of 300 degrees/sec, you will not miss the subjects you want to monitor.

Wide Ambient Temperature Operation

Installation in various places is possible since a wide ambient temperature is supported. The integrated structure of the camera includes a sun shield and a heater for cold weather regions, allowing it to be used in a variety of locations where the ambient temperature ranges from -40 °C to 55 °C. Stable camera operation is possible even in extreme environments.

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.

High Light Compensation

If a bright light source such as car headlights points in the direction of a camera, the area around the light source becomes white and cannot be seen. Panasonic cameras correct for strong lights and their surroundings to provide clear images of areas that could not be seen with other cameras.

PoE (Power over Ethernet)

The power is supplied through the Ethernet cable, so the network camera can be used in places that would ordinarily be difficult to install it in, like on the ceiling where there is no power outlet.

Features

- Cameras supporting PoE can be supplied with both power and network access up to 500 meters away, using only a coaxial cable.
- Cameras can be connected up to 2 km away if a power supply is not required.

Waterproof and Dustproof

Waterproofing and dustproofing function compliant with IP66. Can be installed outside in an area that receives direct wind and rain without special housing. Compliant with IP66 (IEC60529).

PTZ Camera Cropping Function

Specific areas can be selected from the entire image to cut out. This enables monitoring to be focused on a specific area such as the entrance or corridor of a parking lot, while viewing the entire image.

Cropping function

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

Preset Sequences

If a bright light source such as a car headlight points in the direction of a camera, the area around the light source becomes white and cannot be seen. Panasonic cameras correct for strong lights and their surroundings to provide clear images of areas that could not be seen with other cameras.

PoE (Power over Ethernet)

Waterproof and dustproofing function compliant with IP66. Can be installed outside in an area that receives direct wind and rain without special housing. Compliant with IP66 (IEC60529).
**Intelligent function**

**Heat-map**

This provides visualization of the traffic patterns by people and how long they stay in one place. For example, you can analyze the movements of employees and forklifts and consider repositioning objects and passages to make it easier to perform work.

**Smart Coding**

GoP (Group of Pictures) control

H.264 codec is comprised of I-Frame, which records all video information, and other frames that depict the difference. Although information encoded at regular intervals with I-Frame is necessary, collecting all the data will increase the size of the data file. While maintaining smooth, high-quality video, Smart Coding reduces the size of the file by cropping the motionless I-frame scenes. Reducing the size of the data file extends the recording duration and reduces the load on the network.

**Noise Reduction**

FDF (Frequency Divided Filter)

Removing fine noise generated under low illumination to achieve a low bit rate.

3D-MNR (3D-Multi-process Noise Reduction)

Removing grain noise generated under low illumination to achieve a low bit rate.

**Privacy Protection for the Employees**

The MOR (Moving Object Removal) function masks moving objects, and lets you block out areas that you definitely want to conceal. In contrast, you can remove the MOR function for areas you want to monitor with high precision. In addition, you can protect privacy in scenes that you want to monitor, allowing the monitored area to be captured while protecting the privacy of employees.

**Intelligent Video Motion Detection (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.

**Intruder Detection**

- Objects 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

**Direction Detection**

- Objects moving in a specified direction
- Detects the 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

**Cross Line Detection**

- A person who crosses the virtual line to the specified direction
- Detects when people or objects cross the imaginary lines.

**Actions When an Alarm is Detected**

**Monitoring**

Notification sent to the monitoring screen

Search lights or patrol lights connected to the external output of the camera are lit.

**Unique alarm notification**

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

**Alarm notification sent to the recorder and WV-ASM200 management software**

Alarm notification is sent when an alarm is detected.

**Data saved to FTP server**

Data saved to the FTP server.

**Email notification of alarm**

Email notification of the alarm sent to the administrator.
Usage Examples

- **Entrances/exits**
  - Closely monitor vehicles and people entering/leaving
  - WV-SPR531L

- **Central monitoring room (office)**
  - Monitor various areas inside the warehouse, and those at other sites
  - Management Software, Recorder

- **Goods loading area**
  - Monitor the loading status of goods
  - WV-SPR531L

- **Parking lot**
  - Monitor the status of the parking lot
  - WV-SPR531L

- **Warehouse entrance/exit**
  - Closely monitor people entering/leaving
  - WV-SPR531L

- **Area surrounding warehouse**
  - Monitor the area surrounding the warehouse to detect and follow intruders
  - WV-SPR531L

- **Goods sorting line**
  - Monitor the loading status of goods
  - WV-SPN531A

  - Monitor the status of the parking lot
  - WV-SPF531L

  - Monitor the goods sorting line in all directions from the ceiling
  - WV-SFN480

  - Closely monitor the status of the goods sorting line
  - WV-SPN631

  - Closely monitor people entering/exiting
  - WV-SPN311A

- **Goods sorting line**
  - Monitor various areas inside the warehouse, and those at other sites
  - Management Software, Recorder

  - Monitor the area surrounding the warehouse to detect and follow intruders
  - WV-SPW598A

- **Site-A**
  - WV-SPW598A

- **Site-B**
  - WV-SPW598A

- **Site-C**
  - WV-SPW598A
Lineup

Network Cameras

For warehouse ceilings
Omnidirectional 9 megapixel camera captures a detailed wide range without blind spots
360-degree Indoor Dome 9 Megapixel Network Camera
WV-SFN480  WV-SFV481

For warehouse entrances/exits
Clearly captures the faces and clothing of people entering and exiting
Super Dynamic Full HD Network Camera
WV-SPN311A

For checking the status of sorting lines
Clearly captures the movement of workers and goods on the line
Super Dynamic Full HD Network Camera
WV-SPN631

For loading sites
Captures goods being loaded onto the beds of trucks
Super Dynamic Full HD Network Camera
WV-SPN531A

For shooting at night or in dim areas
High resolution Full HD dome camera with IR LED
Super Dynamic Full HD Dome Network Camera
WV-SFN631L

For passages/hallways of warehouses/offices
Compact size Full HD wide range dome camera
Super Dynamic Full HD Dome Network Camera
WV-SFN130

For gates/passages that trucks/people enter and exit
Full HD resolution camera for outdoor installation with IR LED
Super Dynamic Full HD Network Camera
WV-SFV6531L

For parking lots
High-quality 4K camera covers a wide range
4K Fixed Dome Network Camera
4K Vandal Resistant Weatherproof Network Camera
WV-SFV781L  WV-SPV781L

For monitoring outer periphery
Full HD PTZ camera can be installed outdoors such as at the outer periphery of a site, and 30x zoom enables shooting in detail from a distance
Super Dynamic Weather Resistant Full HD PTZ Dome Network Camera
WV-SW598A

Table of supported functions

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</table>

*1 ICR : Infrared cut filter equipped
*2 With PoE Injector (60W)
*3 Except for the direction detection

Onvif
All the above models support Onvif.

* The above models are only part of the lineup. See the following URL for the entire lineup.
http://security.panasonic.com
**Lineup**

**Network Disk Recorder**
Recorder that can be expanded to 6TB from simple configurations

- **WJ-NV300**
- **WJ-ND400**

**High performance network disk recorder for i-PRO network cameras with 9 serial ATA HDD slots**

**Coaxial-LAN Converter**
Receiver side unit

- **WJ-PR201 (1ch)**
- **WJ-PR204 (4ch)**

Camera side unit

- **WJ-PC200**

* With PoE function: 300 m (1,040 ft 5 inches), No PoE function: 330 m (1,080 ft 3 inches) / Without PoE function: 2 km (6,550 ft 8 inches)

* Launches in December 2015

**Software**
Panasonic can provide a one-stop solution that includes management software in addition to cameras and recorders.

**i-PRO Management Software**

**WV-ASM200**

**Extension Software**

- **WV-ASE201 / ASE202 / ASE203**
- **WV-ASE204 / ASE205 / ASE221**
- **WV-ASE210**

(for Face Recognition System)

**Optional Accessory**

**WV-ASE201 with WV-ASE210** (System Controller WV-CU950 and monitor displays are optional)

- Supports 1080p streams and 1080i HD monitor. Displays 10 and 4.5 videos from IP cameras on the same screen.
- WC-202 recording data in the SD/SDHC/SDXC memory card can be downloaded.
- Convert the format from the proprietary format to BMP.
- Up to 100 cameras, 84 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-ASM200 (the number of the cameras depends on the recorder and encoder).

**WV-ASE201**

- Add Live view 5 windows in addition to the Operation window (3 monitors)
- Control using the Ethernet System Controller WV-CU950
- Expand the maximum numbers of scanners to 30
- 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 scanners to 64
- Up to 6 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, 84 and 256 respectively.
- Up to 4 licences for the WV-ASE203 can be added.

**Case Study**

**Tosu Center, Kyusyu Branch, Nittsu Panasonic Logistics Co., Ltd.**

**Delivery of whole warehouse facility**

Deliver whole warehouse facility including i-PRO, entry/exit management system, hand-held terminals, wireless access points, speakers and everything.

**System outline/features**

Delivered whole warehouse facility including i-PRO, entry/exit management system, hand-held terminals, wireless access points, speakers and everything to Tosu Center of Kyusyu Branch, Nittsu Panasonic Logistics Co., Ltd.

While Kyusyu Branch of Nittsu Panasonic Logistics Co., Ltd. is being operated as the center of delivery and storage management of Panasonic products in whole Kyusyu area, Tosu Center is established in Tosu City of Saga Prefecture in February 2012 on integration of their bases.

Panasonic System Solutions Japan has delivered logistics management system (LMS), surveillance cameras and hand-held terminals to the main bases in Japan including both east and west Global Center (Okayama, Amagasaki) of Nittsu Panasonic Logistics Co., Ltd., and suggested to utilize their know-how to Tosu Center.

For this introduction, the group who is in charge of system for logistics industry took charge of IT infrastructure system including surveillance camera, hand-held terminal, wireless access point and so on.

In addition, another group who has full knowledge about domestic security standard took charge of entry/exit management system, speakers and earthquake early warning terminal.

Normally, groups in charge of system construction, construction design and construction management are different depending on product, but they work together in order to reduce the entire construction cost by integrating plumbing, wiring and installation of devices and that also made possible to deliver visually integrated warehouse facility.

Since different groups work together also for construction and maintenance service, the “Delivery of whole warehouse facility” became possible.

As for surveillance camera, a total of 69 cameras are installed in the warehouse and the office. IC card readers are installed in 4 places of the warehouse, office, entrance and server room.

As for broadcasting facility, 111 speakers are introduced in the large premises and also 150 hand-held terminals are newly equipped.

**Introduced year and month**

February, 2013

**Major delivered equipment**

<table>
<thead>
<tr>
<th>Model</th>
<th>qty</th>
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<tbody>
<tr>
<td>i-PRO camera</td>
<td>69 pcs</td>
</tr>
<tr>
<td>Network disk recorder</td>
<td>2 pcs</td>
</tr>
</tbody>
</table>

* The above models are only part of the lineup. See the following URL for the entire lineup.
  http://security.panasonic.com