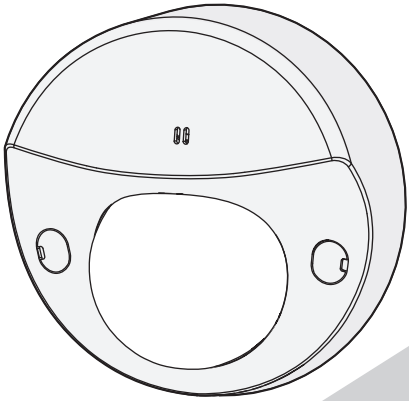
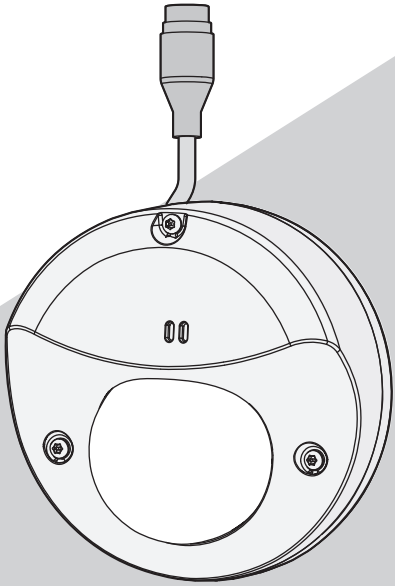
Important Information

Network Camera

Model No. WV-S3531L, WV-S3511L
WV-S3131L, WV-S3111L
WV-S3532LM, WV-S3512LM



WV-S3131L



WV-S3531L

* For information about the installation tasks, refer to the provided Installation Guide. For information about how to perform the settings and how to operate the camera, refer to the Operating Instructions on the following our support website.
https://i-pro.com/global/en/surveillance/documentation_database

Before attempting to connect or operate this product,
please read these instructions carefully and save this manual for future use.

The model number is abbreviated in some descriptions in this manual.

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* microSDXC/microSDHC/microSD memory card is described as microSD memory card.

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(7) LOSS OF REGISTERED DATA CAUSED BY ANY FAILURE (INCLUDING INITIALIZATION OF THE PRODUCT DUE TO FORGOTTEN AUTHENTICATION INFORMATION SUCH AS A USER NAME AND PASSWORD).

Preface

This product is a dome-type monitoring camera with a 10BASE-T/100BASE-TX network port for network connection.
By connecting to a network (LAN) or the Internet, images and audio from the camera can be monitored on a PC via a network.

Note:

- It is necessary to configure the network settings of the PC and its network environment to monitor images from the camera on the PC. It is also necessary to install a web browser on the PC.

About notations

The following notations are used when describing the functions limited for specified models.
The functions without the notations are supported by all models.

S3531 The functions with this notation are available when using the model WV-S3531L.
S3511 The functions with this notation are available when using the model WV-S3511L.
S3131 The functions with this notation are available when using the model WV-S3131L.
S3111 The functions with this notation are available when using the model WV-S3111L.
S3532 The functions with this notation are available when using the model WV-S3532LM.
S3512 The functions with this notation are available when using the model WV-S3512LM.

XXXXX :Outdoor model
XXXXX :Indoor model

Main functions

Compact body for installing in tight places.
The compact body and equipped IR LED makes it possible to view images when it is dark.

Delivers high image quality streaming at low bit rates thanks to a H.265 engine equipped with our own Smart Facial Coding technology[*1].
This allows H.265 compression in addition to conventional H.264 compression technology, and when combined with Smart Facial Coding, reduces data load compared to our previous models.

Our own intelligent auto (iA) feature provides increased discernibility even in environments with poor visibility.

Improvements to the Super Dynamic (SD) feature and shutter speed optimization provides clear discernibility of silhouette of people moving.
Also, face recognition under the condition where brightness of the background changes is enabled by a function of recognizing face position and adjusting the brightness automatically.

Equipped with microSD slot.

It is possible to save H.265 / H.264 videos and JPEG images on the microSD memory card manually when an alarm occurs, during the period of the schedule, or on a Web browser. (Downloading is possible.) It is also possible to save JPEG images if a network failure occurs.

Encryption and alteration detection functions enhanced the security.

Extension software*2 support.

Installing extension software makes it possible to add functions that use image data.

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The camera conforms to the IP66*3 and Type 4X (UL50)*4, is compliant with NEMA 4X*5 ratings, and provides high dust resistance and waterproof performance.

Waterproofing treatment is not required for the camera body.

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Achieves high-level shock resistance with IK10*6 (IEC 62262) conformity.

The camera has a strong shock resistance body which is needed in outdoor installations.

*1 This technology allows the camera to learn the location of faces and moving objects, and transmit only the face portion of the image in high definition, thereby greatly reducing the bandwidth required.
*2 For further information about extension software refer to our website (https://i-pro.com/global/en/surveillance/training_support/support/technical_information <Control No.: C0103>).
Refer to page 6 about "<Control No.: C****>".
*3 IP66: The applicable product has “Dust tight (6)” protection against foreign solids and has “Powerful water jets (6)” protection against water (IEC60529).
*4 Type 4X (UL50): 4X indicates the rank in the UL waterproof standard.
*5 NEMA: Dust resistance and waterproof performance standards set by National Electrical Manufacturers Association (United States).
*6 IK10: is a standard in regards to shock resistance that represents the level of impact protection, and is regulated by the International Electrotechnical Commission (IEC).

About the user manuals

Product documentation is composed of the following documents.

- **Important Information (this document):** Provides basic information about the product such as Precautions for installation, Parts and functions, etc..
- **Installation Guide:** Explains installation, mounting, cable connection, and adjusting the field of view.
- **Operating Instructions (on our support website):** Explains how to perform the settings and how to operate this camera.

Note:

- The external appearance and other parts shown in this manual may differ from the actual product within the scope that will not interfere with normal use due to improvement of the product.
- "<Control No.: C****>" used in this document should be used to search for information on our support website and will guide you to the right information.

System requirements for a PC

CPU:	Intel® Core™ i5-6500 or faster, or Intel® Core™ i7-6700 or faster recommended
Memory:	A minimum of 1 GB or more (for 32-bit OSs), 2 GB or more (for 64-bit OSs) memory is required. 4 GB (2 GB x 2, Dual Channel) or more recommended.
Network interface:	10BASE-T/100BASE-TX 1 port
Audio interface:	Sound card (when using the audio function)
Monitor:	Image capture size: 1024 x 768 pixels or more Color: 24-bit True color or better
OS:	Microsoft Windows 10 Microsoft Windows 8.1 Microsoft Windows 7
Web browser:	Internet Explorer 11 (32-bit) Microsoft Edge Firefox Google Chrome™
Others:	CD-ROM drive (It is necessary to read the several kind of operating instructions and use the software on the provided CD-ROM.) Adobe® Reader® or Acrobat® Reader® (It is necessary to view the PDF file.)

IMPORTANT:

- For information on the operation verification of the supported operating systems and web browsers, refer to our website at https://i-pro.com/global/en/surveillance/training_support/support/technical_information <Control No.: C0104, C0122>.
- When using a PC that does not meet the above requirements, displaying of images may become slower or the web browser may become inoperable.
- Audio may not be heard if a sound card is not installed on a PC. Audio may be interrupted depending on the network environment.
- Microsoft Windows RT and Microsoft Windows 7 Starter are not supported.
- When using Microsoft Windows 8.1, use it in the desktop. The software cannot be used in the Modern UI design.

Note:

- For further information about PC system requirements and precautions for when using Microsoft Windows or Internet Explorer, click “Manual” - “Open” from the supplied CD-ROM and refer to “Notes on Windows / Internet Explorer versions”.

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- iPad and iPhone are trademarks of Apple Inc., registered in the U.S. and other countries.
- Android and Google Chrome are trademarks of Google LLC.
- Firefox is a trademark of the Mozilla Foundation in the US and other countries.
- The word “QR Code” is a registered trademark of DENSO WAVE INCORPORATED in Japan and other countries.
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- This product contains open source software licensed under GPL (GNU General Public License), LGPL (GNU Lesser General Public License), etc.
- Customers can duplicate, distribute and modify the source code of the software under license of GPL and/or LGPL.
- Refer to the “readme.txt” file on the provided CD-ROM for further information about open source software licenses and the source code.
- Please note that we shall not respond to any inquiries regarding the contents of the source code.

Copyright

Except for open source software licensed under GPL/LGPL and so on, distributing, copying, disassembling, reverse compiling and reverse engineering of the software provided with this product are all expressly prohibited. In addition, exporting any software provided with this product violating export laws is prohibited.

Network security

As you will use this unit connected to a network, your attention is called to the following security risks.

① Leakage or theft of information through this unit
② Use of this unit for illegal operations by persons with malicious intent
③ Interference with or stoppage of this unit by persons with malicious intent

It is your responsibility to take precautions such as those described below to protect yourself against the above network security risks.

- Use this unit in a network secured by a firewall, etc.
- If this unit is connected to a network that includes PCs, make sure that the system is not infected by computer viruses or other malicious entities (using a regularly updated anti-virus program, anti-spyware program, etc.).
- To prevent unauthorized access, use user-authentication, set user names and passwords, and limit which users can log in.
- Apply measures such as user authentication to protect your network against leakage or theft of information, including image data, authentication information (user names and passwords), alarm mail information, FTP server information and DDNS server information.
- After the unit is accessed by the administrator, make sure to close the browser.
- Change the administrator password periodically. Additionally, save user authentication information (user names and passwords) in such a way that it is kept out of the hands of third parties.
- Do not install the camera in locations where the camera or the cables can be destroyed or damaged by persons with malicious intent.

Precautions

Do not insert any foreign objects.
Fire or electrical shock may be caused if water or any foreign objects, such as metal objects, enter inside the unit.
Turn the power off immediately and contact qualified service personnel for service.

Do not use this product in an inflammable atmosphere.
Failure to observe this may cause an explosion resulting in injury.

Avoid installing this product in the locations where salt damage occurs or corrosive gas is produced.
Otherwise, the mounting portions will deteriorate and accidents such as a fall of the product may occur.

Do not strike or give a strong shock to this product.
Failure to observe this may cause fire or injury.

Keep microSD memory cards away from infants and children.
Otherwise, they may swallow the cards by mistake.
In this case, consult a doctor immediately.

Do not hang down from this product or use this product as a pedestal.
Failure to observe this may cause a drop resulting in accidents.

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Do not sprinkle more water, exceeding the performance limit of waterproof with a high pressure cleaning machine, etc.
Fire or electrical shock may be caused by immersion.

Do not attempt to disassemble or modify this product.
Failure to observe this may cause fire or electric shock.
Consult the dealer for the repair or inspections.

Do not install or clean the camera, and touch this product or the connected cable during thunder storms.
Failure to observe this may cause electric shock.

Refer installation work to the dealer.
Installation work requires technique and experience. Failure to observe this may cause fire, electric shock, injury, or damage to the product. Be sure to consult the dealer.

Stop the operation immediately when something is wrong with this product.
When smoke goes up from the product, the smell of smoke comes from the product, or the exterior of the product has deteriorated, continued use will cause a fire or fall of the product resulting in injury, or damage to the product.
In this case, turn the power off immediately and contact qualified service personnel for service.

Select an installation area that can support the total weight.
Selecting an inappropriate installation surface may cause this product to fall down or topple over, resulting in injury or accidents.
Installation work shall be started after sufficient reinforcement.

Periodic inspections shall be conducted.
Rust on the metal parts or screws may cause a fall of the product resulting in injury or accidents. Consult the dealer for the inspections.

The screws and bolts must be tightened to the specified torque.
Failure to observe this may cause a drop resulting in injury or accidents.

Turn the power off when do wiring of this product.
Failure to observe this may cause electric shock. In addition, short circuit or wrong wiring may cause fire.

Install this product in a location high enough to avoid people and objects from bumping the product.
Failure to observe this may cause injury.

Do not install this product in locations subject to vibration.
Loosening of mounting screws or bolts may cause a fall of the product resulting in injury or accidents.

Correctly perform all wiring
Short circuits in the wiring or incorrect wiring may cause fire or electrical shock.

Install the product securely on a wall or a ceiling in accordance with the installation instructions.
Failure to observe this may cause injury or accidents.

Turn the power off when cleaning this product.
Failure to observe this may cause injury.

Do not touch the metal part of the bottom side of the product.
The metal part of the bottom side may become hot while the product is in use. Direct skin contact with high-temperature parts of the product may cause burns.

[Precautions for use]

When the product is accessible from the Internet

To prevent unauthorized access, note the following.

- Leave user authentication turned on.
- Periodically change passwords that are used to access the product.
  Refer to the Operating Instructions on our support website for information about how to change passwords.

To keep on using with stable performance
Do not use this product in hot and humid conditions for a long time. Failure to observe this causes component degradation resulting in life shortening of this product. Do not expose this product to direct heat sources such as a heater.

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This product is designed to be used indoors.This product is not operable outdoors.

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Make sure that the product does not become wet.
Keep this camera away from water and moisture.

This product has no power switch.
When turning off the power, disconnect the Ethernet cable from the PoE device or turn off the power of the PoE device.

Handle this product with care.
Do not drop this product, nor apply shock or vibration to the product. Failure to observe this may cause trouble.

About the battery
A battery is installed inside the camera. Do not leave the battery exposed in environments of excessive heat as a result of sunlight or fire.

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Do not subject dome cover to strong impact.
Doing so may cause damage or immersion.

Do not touch the dome cover with your bare hands.
A dirty dome cover causes deterioration of picture quality.

When an error is detected, this product will restart automatically.
This product will be inoperable for around 2 minutes after the restart just as when the power is turned on.

About the automatic status detection function

When this product malfunctions due to exogenous noise, etc. for 30 seconds or more, the product will automatically reset and will return to normal state. When the product is reset, initialization will be carried out as when the power of the product is turned on. When the product repeatedly resets, exogenous noise level around the product may be high and that may cause malfunction. Contact your dealer for instructions.

Periodically images on the screen appear to be distorted

When the camera is installed in a location where it is subject to small vibrations (for example, when it is installed near devices that vibrate), images may appear distorted and stretched lengthways. This phenomenon is a characteristic of image pickup devices that use CMOS sensors and is caused by the relationship between the periodic movements of the camera and the timing that the image sensor reads images. This is not a problem with the camera. To reduce the possibility of this phenomenon occurring, install the camera in a secure location.

We shall not be liable for content compensation, losses of recorded or edited content and any direct or indirect consequent damages caused by failure to record or edit due to faults with this unit or the microSD memory card. In addition, the same provisions apply after unit is reparied.

About the CMOS image sensor

- When continuously shooting a bright light source such as a spotlight, the color filter of the CMOS image sensor may become deteriorated and this may cause discoloration. Even when changing the fixed shooting direction after continuously shooting a spotlight for a certain period, the discoloration may remain.
- When shooting fast-moving subjects or objects crossing the shooting area may look to be bending askew.

About the built-in microphone

- If moisture attach to the peristome of builtin microphone, the volume may decrease. Please leave it to air dry sufficiently before use.
- When cleaning the peristome of built-in microphone, do not use any sharp-ended object to stab it. Doing so may result in failure or submerging.

Cleaning this product body

Be sure to turn off the power before cleaning. Failure to observe this may cause injury. Do not use benzine, thinner, alcohol, or any other types of solvents or detergents. Otherwise, it may cause discoloration. When using a chemical cloth for cleaning, read the caution provided with the chemical cloth product.
Do not loozen or remove screws unless instructed to do so in the product documentation.

Cleaning the lens

Use a lens cleaning paper (used to clean camera lenses or lenses of spectacles). When using solvent, use an alcohols solvent and do not use a thinner or a glass cleaner.

Cleaning the outside of the dome cover

Use lens cleaning paper (used to clean camera or spectacles lenses) to remove any dirt on the dome cover.

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If dust or the like is adhered at this time, the dome cover may get scratched.
We recommend rinsing for stubborn stains.

Cleaning the inside of the dome cover

The mark of light-shielding parts left inside the dome or dirt on the dome cover may influence the reflection of infrared rays. Therefore, likewise remove those marks and dirt using cleaning paper.

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SEE HTTP://WWW.MPEGLA.COM

Equipment classification and power source indication label

Refer to the indication label on the bottom side of this unit for the equipment classification, power source, and other information.

Product disposal/transfer

Data saved on this product or a storage device used with this product may lead to personal information leakage. When it is necessary to dispose or give this product to someone, even when for repair, make sure that there is no data on this product.
When abandoning the memory media, it is recommended to destroy it physically after deleting data by PC.

Flickering

Due to the influence of lighting, flickering may sometimes happen. In this case, select "Indoor scene" for "Light control mode". Select "Indoor scene(50Hz)" or "Indoor scene(60Hz)" in accordance with the power supply frequency in your locality. Refer to the Operating Instructions on our support website for further information about the setting.
Under extremely strong lighting, flickering may happen even when "Indoor scene" is selected for "Light control mode".

When the brightness (illuminance) level on the screen is set to a relatively low level with the [Brightness] buttons, flickering may frequently happen. In such cases, either of the following can reduce flickering.

- Moderate the illumination intensities of objects by changing the camera direction.
- Set the brightness (illuminance) level on the screen to a brighter level with the [Brightness] buttons.
- Turn off the super dynamic setting. Please read "Operating Instructions: Operation and Settings" on our support website for settings.

White-out on images caused by the effect of light control mode

When "Indoor scene" is selected for "Light control mode", the tone of the brighter parts on the screen may be deteriorated than the case when "ELC" is selected.

Color blurring on detailed drawing patterns

When there are detailed drawing patterns on images, color blurring may happen over these parts.

Meaning of symbols

: Direct current symbol

Precautions for installation

i-PRO Co., Ltd. assumes no responsibility for injuries or property damage resulting from failures arising out of improper installation or operation inconsistent with this documentation.
For information about the installation tasks, refer to the provided Installation Guide.

In order to prevent injury, the product must be securely mounted to a wall or ceiling according to Installation Guide.

Power supply
This product has no power switch.
When performing electrical work, make sure the camera can be turned on and off. When an Ethernet cable is connected, the power is turned on.
When cleaning the product, remove the Ethernet cable from this product or turn off the system power supply.

Installation area for this product
Select an appropriate place for the installation area (such as a strong wall or ceiling) in your particular environment.

- Make sure that the installation area is strong enough to hold this product, such as a concrete ceiling.
- Install the camera in the foundation area of the architecture or where sufficient strength is assured.
- Do not mount the product on a plaster board or a wooden section because they are too weak. If the product is unavoidably mounted on such a section, the section shall be sufficiently reinforced.

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This camera is designed to be used indoors.
This product is not operable outdoors.
Do not expose this camera to direct sunlight for hours and do not install the product near a heater or an air conditioner. Otherwise, it may cause deformation, discoloration and malfunction.
Keep this camera away from water and moisture.

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Install the product in areas that do not receive direct sunlight.

Do not place this product in the following places:

- Locations where a chemical agent is used such as a swimming pool
- Locations subject to moisture or oil smoke such as a kitchen
- Locations that have a specific environment that is subject to an inflammable atmosphere or solvents
- Locations where a radiation, an X-ray, a strong radio wave or a strong magnetic field is generated
- Locations near coasts directly subjected to sea breezes, or locations subject to corrosive gases such as from hot springs, volcanic regions, etc.
- Locations where the temperature is not within the specified range (☞ page 25)

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- Locations subject to vibrations that exceed the railway specifications (EN50155)

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- Locations subject to vibrations, such as on vehicles, marine vessels, or above product lines (This product is not designed for on-vehicle use.)

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- Locations subject to sudden changes in temperature such as near outdoor units of air conditioners (In case of installing the product in such locations,the dome cover may become foggy or condensation may be caused on the cover.)

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- Locations where it may get wet from rain or water splash (including under the eaves, etc.)

- Locations subject to moisture or dust
- Locations subject to sudden changes in temperature such as near air discharge vents of air conditioners or air circulation inlet doors (In case of installing the product in such locations,the dome cover may become foggy or condensation may be caused on the cover.)

Sulfurization caused by rubber products
Do not place the product near rubber products (packing, rubber feet, etc.) that contain sulfur. There is a risk that sulfur components in rubber products may cause electrical parts and terminals, etc. to become sulfurized and corrode.

Screw tightening
- The screws and bolts must be tightened with an appropriate tightening torque according to the material and strength of the installation area.
- Do not use an impact driver. Use of an impact driver may damage the screws or cause tightening excessively.
- When a screw is tightened, make the screw at a right angle to the surface. After tightening the screws or bolts, perform checks to ensure that the tightening is sufficient enough so that there is no movement or looseness.

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Effects on images and image quality
Under the following conditions, image quality may deteriorate or images may become difficult to see.
- When there are raindrops on the dome cover due to wind during rainfall.
- When there is snow on the dome cover due to wind during snowfall. (varies depending on the amount and quality of snowfall).
- When the dome cover is dirty due to dust in the air or vehicle exhaust.

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Effects on images and image quality
Depending on the installation location, the dome cover or lens may become dirty, causing image quality to deteriorate or images may become difficult to see.

About reflection of light from outside or IR light
Depending on the incident angle of high intensity light source such as sunlight or lighting, images of non-existing objects (reflected light) or reflections of surroundings on the camera lens (ghost) may sometimes appear on the screen. Especially in the case of LED light, these phenomena may be seen remarkably. In the case of using the IR light, installation of a camera near a wall may cause reflection of infrared rays resulting in a part of the screen or the entire screen turning whitish. Therefore, consider the installation place carefully.

*** Refer to our website (https://i-pro.com/global/en/surveillance/training_support/support/technical_information <Control No.: C0109>) for image examples and measures to take.**

Protection from lightning
When cables are used outdoors, there is a chance that they may be affected by lightning. In such a case, install a lightning arrestor close to the camera, and make the length of the network cable between the camera and lightning arrestor as short as possible to prevent the camera from being damaged by lightning.

Take notice of humidity
Install this product when the humidity is low. If installation is performed when it is raining or in very humid conditions, the inside may be affected by humidity, causing mist-over inside the dome cover

When noise disturbance may happen
Conduct the power distribution work to keep a distance of 1 m {3.28 feet} or more from the 120 V (for U.S. and Canada) or 220 V – 240 V (for Europe and other countries) power line.

Radio disturbance
Noise may appear in video or audio near a strong electric field from a TV or radio antenna, motors and transformers, or a strong electric field/magnetic field from a power line (lamp line) of AC100 V or more.

PoE (Power over Ethernet)
Use a PoE hub/device that is compliant with IEEE802.3af standard.

Router
When connecting this product to the Internet, use a broadband router with the port forwarding function (NAT, IP masquerade).
Refer to the Operating Instructions on our support website for further information about the port forwarding function.

Time & date setting
It is necessary to set the time & date before putting this product into operation. Refer to the Operating Instructions on our support website for descriptions of how to perform the settings.

Make sure to remove this product if it will no longer be used.

Parts and functions

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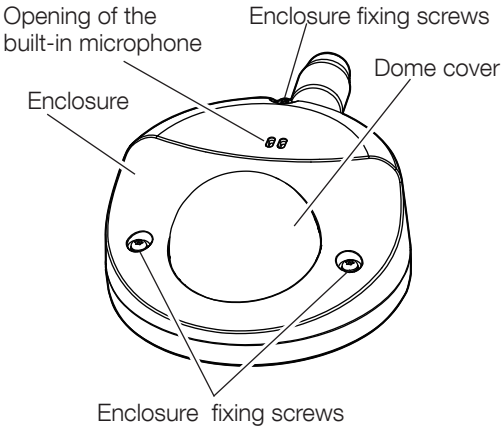
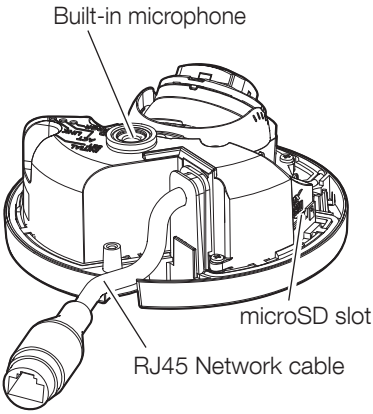
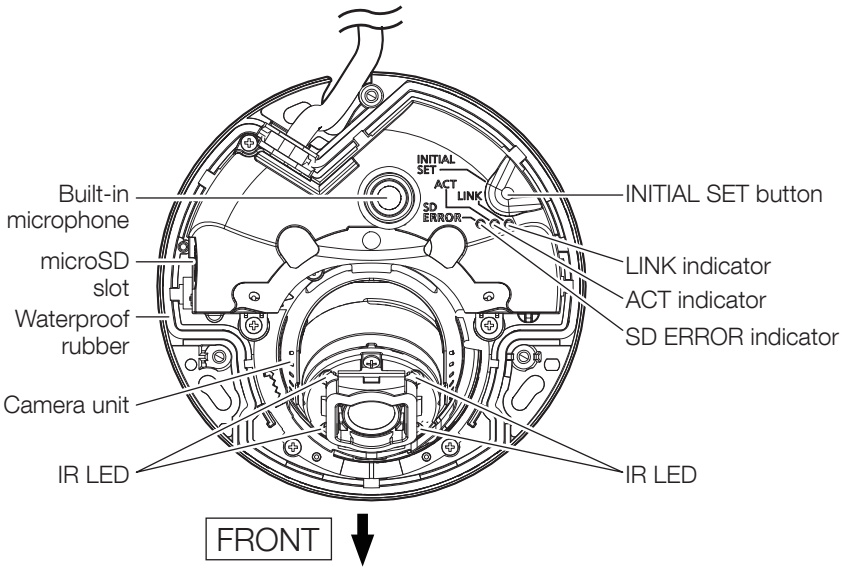
【Whole unit】

*This illustration represents WV-S3531L.





【Camera body】



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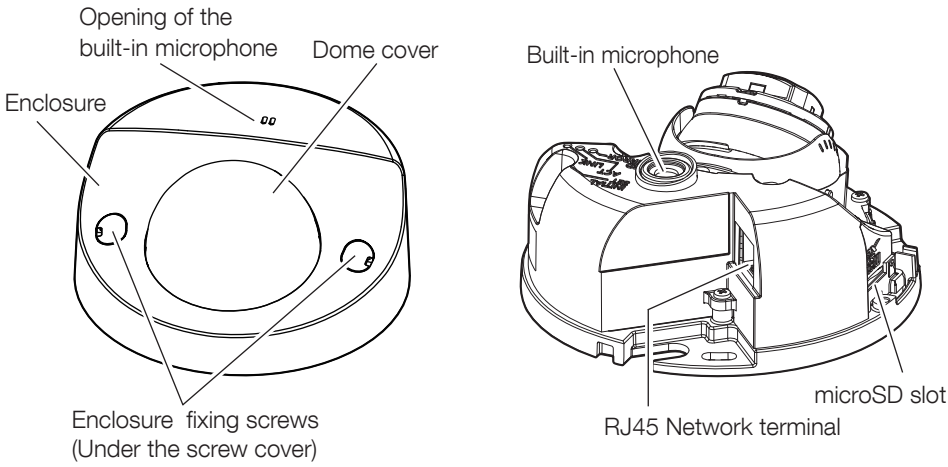
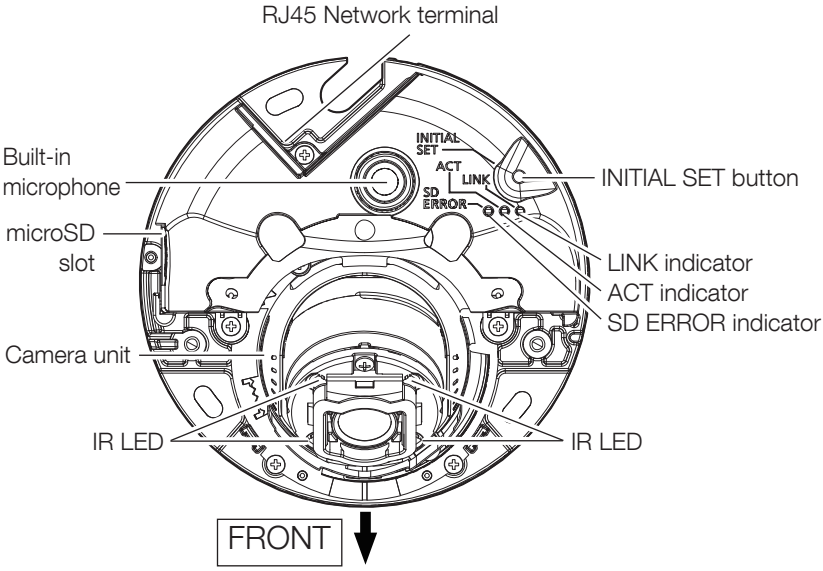
【Whole unit】

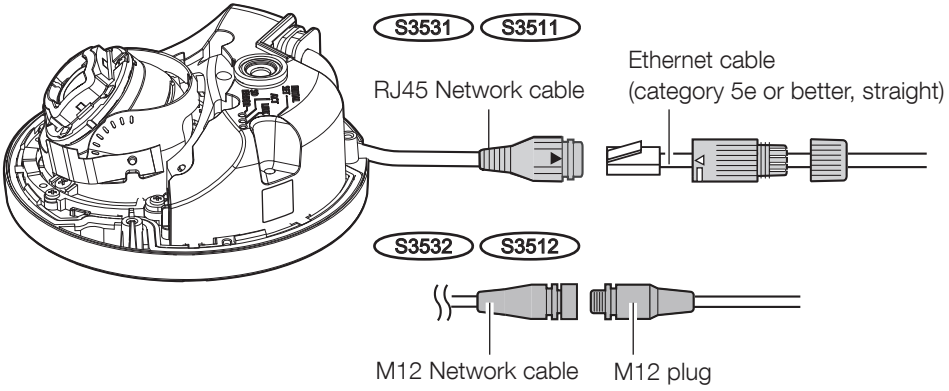


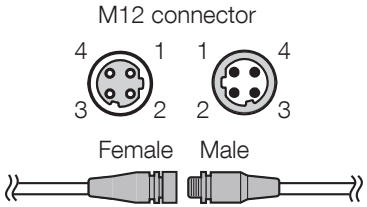
【Camera body】



■ Cables

*This illustration represents WV-S3531L.





Pin No.	Signal Name
1	TXD+
2	RXD+
3	TXD-
4	RXD-

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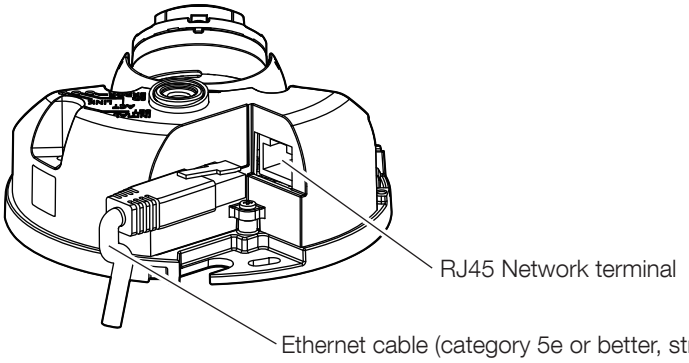


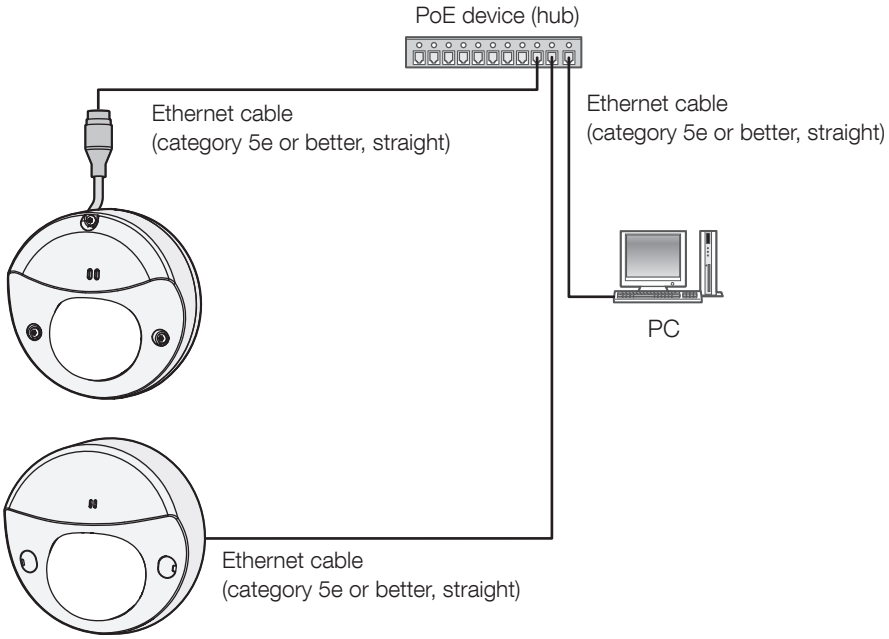
Connect an Ethernet cable (category 5e or better, straight) to the RJ45 Network cable or RJ45 Network terminal.

IMPORTANT:

- Use all 4 pairs (8 pins) of the Ethernet cable. S3531 S3511 S3131 S3111
- The maximum cable length is 100 m {328 feet}.
- Make sure that the PoE device in use is compliant with IEEE802.3af standard.
- When the Ethernet cable is disconnected once, reconnect the cable after around 2 seconds. When the cable is quickly reconnected, the power may not be supplied from the PoE device.

When connecting to a network using a PoE hub

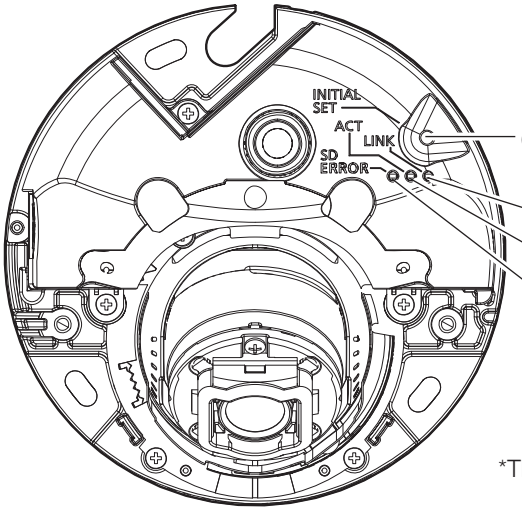
Before starting the installation, check the entire system configuration. The following illustration gives a wiring example of how to connect the camera to the network via a PoE device (hub).



IMPORTANT:

- Use a switching hub or a router which is compliant with 10BASE-T/100BASE-TX.

■ Indicators and buttons



①INITIAL SET button (Initializing button)

②LINK indicator

③ACT indicator

④SD ERROR indicator

*This illustration represents WV-S3131L.

①INITIAL SET button (Initializing button)

Follow the steps below to initialize the network camera.

(1)Turn off the power of the camera.
Disconnect the Ethernet cable from the camera.

(2)Turn on the power of the camera while pressing the INITIAL SET button, and make sure to release the button after approximately 15 seconds. In about 2 minutes later, the camera will start up and the settings including the network settings will be initialized. Retry if the camera does not start up normally.

IMPORTANT:

- When the camera is initialized, the settings including the network settings will be initialized. Before initializing the settings, it is recommended to write down the settings in advance.
- Do not turn off the power of the camera during the process of initialization. Otherwise, it may fail to initialize and may cause malfunction.

②LINK indicator

• When the camera is able to communicate with the connected device	Lights orange

③ACT indicator

• When data is being sent via the network camera	Blinks green (accessing)

④SD ERROR indicator

• When the set is being started	Lights red
• When an microSD memory card is recognized normally	Lights red → Lights off
• When the microSD slot is not used or an abnormality is detected in microSD memory card after the camera has started	Lights red → Stays red

Note:

- Lighting/blinking LED can be turned off with the software settings at any time. (The initial state is lighting or blinking.) Set the LED to be solid off if necessary, depending on the installation conditions. (☞ Operating instructions on our support website)

Insert / remove a microSD memory card

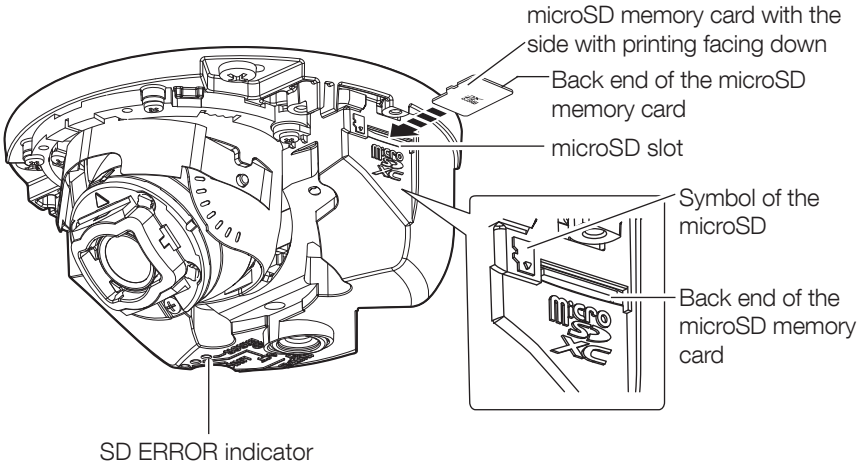
Note:

- Refer to the Operating Instructions on our support website for further information about the microSD memory card settings.
- For information about compatible microSD memory cards, refer to our support website (https://i-pro.com/global/en/surveillance/training_support/support/technical_information <Control No.: C0107>).

■ Insert a microSD memory card

【1】 Remove the enclosure from the camera, insert a microSD memory card fully into the microSD slot until a click is heard.

- •Insert the microSD memory card with the side with printing facing down.
- •Insert the microSD memory card into the end of the microSD slot until it makes a clicking sound.
- •After confirming a clicking sound is made, take your fingers off the microSD memory card and ensure that its back end does not protrude over the surface of the microSD slot (the same surface as the microSD symbol).
- •After the microSD memory card has been inserted, make sure the SD ERROR indicator is continually lights off.



*This illustration represents WV-S3131L.

【2】 Attach the enclosure to the camera.

■ Remove a microSD memory card

When removing a microSD memory card, reverse the procedure.

- When removing the microSD memory card from the microSD slot, remove the enclosure, and push the card until a click is heard. After the microSD memory card is removed,attach the enclosure to the camera again.

IMPORTANT:

- When removing a microSD memory card, make sure to set "SD memory card" to "Not use" on the [SD memory card] tab of the setup menu before removing the microSD memory card. After removing the memory card, set back the “SD memory card” to “Use”.
  For information about the setup menu, refer to the Operating Instructions on our support website.
  *On the software screens, microSD memory card is referred to as SD memory card.
- When removing a microSD memory card, hold the card with a finger to prevent it from popping out.

Note:

- When using a microSD memory card, format it using this product. Recorded data on the microSD memory card will be deleted when formatted. If an unformatted microSD memory card or a microSD memory card formatted with other devices is used, this product may not work properly or performance deterioration may be caused. Refer to the Operating Instructions on our support website for how to format a microSD memory card.
- When some microSD memory cards are used with this product, the product may not work properly or performance deterioration may be caused. Use the compatible microSD memory cards. (☞ page 29)

Troubleshooting

Before asking for repairs, check the symptoms with the following table.
Contact your dealer if a problem cannot be solved even after checking and trying the solution in the table or a problem is not described below.

Symptom	Cause/solution	Reference pages
Power is not turned on.	• Are the PoE device and the network connector connected using an Ethernet cable (category 5e or better, straight)? Check whether the connection is appropriately established. • Depending on the PoE device, the power supply will stop when the demanded power exceeds its total power limit for all PoE ports. Refer to the operating instructions of the PoE device in use.	Installation Guide
The LINK indicator does not light in orange even when the Ethernet cable is connected to the camera.	• Is the Ethernet cable connected appropriately? Connect the Ethernet cable appropriately. • Is the hub or router connected to the camera operating appropriately? Check if the hub or router in use is operating appropriately. • Isn't the Ethernet cable connected to the camera broken? Replace the cable with another one.	Installation Guide
SD ERROR indicator lights red	**This indicator lights up red when data cannot be saved on the microSD memory card.** • Hasn't the inserted microSD memory card been formatted on a PC? Use a microSD memory card formatted on the camera. Or install the software to format the SD memory card on the PC. Refer to our website (https://i-pro.com/global/en/surveillance/training_support/support/technical_information <Control No.: C0105>) for further information about the supported software. • Isn't the inserted microSD memory card faulty? Replace the card with a normal one.	22
Audio input contains noise.	• Check the following. • Grounding of the camera, a switching hub or peripheral devices are not done. • The camera is used near an electrical power line. • The camera is used near a device which produces strong magnetic field or radio waves (such as near a TV/radio antenna, a motor of an air conditioning system, a transformer, etc.)	14

Specifications

• Basic

	WV-S3531L, WV-S3511L WV-S3532LM, WV-S3512LM	WV-S3131L, WV-S3111L
Power source *1:	S3531 S3511 S3131 S3111 PoE (IEEE802.3af compliant) S3532 S3512 PoE (IEEE802.3af compliant) (Alternative A)	
Power consumption *1:	PoE DC 48 V : 80 mA/Approx. 3.8 W (Class 2 device)	
Operating environment Ambient operating temperature:	S3531 S3511 –30 °C to +50 °C {–22 °F to +122 °F} (Power On range: –20 °C to +50 °C {–4 °F to +122 °F}) S3532 S3512 –40 °C to +60 °C {–40 °F to +140 °F} *2 (Power On range: –20 °C to +60 °C {–4 °F to +140 °F})	0 °C to 40 °C {32 °F to 104 °F}
Ambient operating humidity:	10 % to 100 % (no condensation)	10 % to 90 % (no condensation)
Storage environment Storage temperature: Storage humidity:	–30 °C to +60 °C {–22 °F to +140 °F} 10 % to 95 % (no condensation)	
Built-in microphone:	Nondirectional electret condenser microphone	
Waterproof *3:	IP66 (IEC60529), Type 4X (UL50), NEMA 4X compliant	None
Shock resistance:	IK10 (IEC62262)	None
Dimensions:	ø109 mm × 53 mm (H) {ø4-9/32 inches × 2-3/32 inches (H)} Dome radius 27 mm {1-1/16 inches}	ø104 mm × 51 mm (H) {ø4-3/32 inches × 2 inches (H)} Dome radius 27 mm {1-1/16 inches}
Mass:	Approx. 410 g {0.91 lbs}	Approx. 255 g {0.56 lbs}
Finish:	**Main body**: Aluminum die cast, Light gray **Dome cover**: Polycarbonate resin, Clear	**Main body**: ABS resin, Sail white **Dome cover**: Polycarbonate resin, Clear
Others:	Tamper-resistant enclosure*4, EN50155(Railroad standard), IEC62236-3-2(EMC-Railway applications),ECE-R10 (E approval),EN50498 (EMC - Product family standard for aftermarket electronic equipment in vehicles).	None

*1 Refer to our website (https://i-pro.com/global/en/surveillance/training_support/support/technical_information <Control No.: C0106>) for further information about Power source and Power consumption information.

*2 In the environment where IR LED is always turned on or choose 60 fps mode , make sure that the ambient operating temperature is between –40 °C and +50 °C {–40 °F to +122 °F}.

*3 Only when installation work is properly performed according to the Installation Guide and appropriate waterproof treatment is performed.

*4 Use a component that has a structure with which screws that are accessible after installation cannot be screwed or unscrewed using an ordinary screwdriver.

• Camera

Image sensor:	Approx. 1/3 type CMOS image sensor
Effective pixels:	S3531 S3131 S3532 Approx. 2.4 megapixels S3511 S3111 S3512 Approx. 1.3 megapixels
Scanning area:	S3531 S3131 S3532 5.28 mm (H) × 2.97 mm (V) {7/32 inches (H) × 1/8 inches (V)} S3511 S3111 S3512 4.80 mm (H) × 3.60 mm (V) {3/16 inches (H) × 5/32 inches (V)}
Scanning system:	Progressive
Minimum illumination:	S3531 S3131 S3532 Color: 0.03 lx {0.00279 footcandle} (F2.3, Maximum shutter: Off (1/30 s), AGC: 11) 0.0019 lx {0.00018 footcandle} (F2.3, Maximum shutter: max. 16/30 s, AGC: 11)* BW : 0 lx {0 footcandle} (F2.3, Maximum shutter: Off (1/30 s), AGC: 11, when the IR LED is lit) 0.015 lx {0.00139 footcandle} (F2.3, Maximum shutter: Off (1/30 s), AGC: 11) 0.0009 lx {0.00008 footcandle} (F2.3, Maximum shutter: max. 16/30 s, AGC: 11)* S3511 S3111 S3512 Color: 0.02 lx {0.00186 footcandle} (F2.3, Maximum shutter: Off (1/30 s), AGC: 11) 0.0013 lx {0.00012 footcandle} (F2.3, Maximum shutter: max. 16/30 s, AGC: 11)* BW : 0 lx {0 footcandle} (F2.3, Maximum shutter: Off (1/30 s), AGC: 11, when the IR LED is lit) 0.01 lx {0.00093 footcandle} (F2.3, Maximum shutter: Off (1/30 s), AGC: 11) 0.0007 lx {0.00007 footcandle} (F2.3, Maximum shutter: max. 16/30 s, AGC: 11)* * Converted value
Intelligent auto:	On, Off
Super Dynamic:	On, Off The level can be set in the range of 0 to 31. * When 60 fps is selected, the Super Dynamic function is automatically set to off.
Dynamic range:	S3531 S3131 S3532 144 dB typ.(Super Dynamic: On) S3511 S3111 S3512 134 dB typ.(Super Dynamic: On)
Maximum gain:	The level can be set in the range of 0 to 11.
Adaptive black stretch:	The level can be set in the range of 0 to 255.
Back light compensation (BLC) /High light compensation (HLC):	BLC, HLC, Off The level can be set in the range of 0 to 31. (only when Super Dynamic/ Intelligent auto: Off)

Fog compensation:	On, Off The level can be set in the range of 0 to 8. (only when Intelligent auto / auto contrast adjust: Off)
Light control mode setting:	ELC, Indoor scene (50 Hz), Indoor scene (60 Hz)
Maximum shutter:	Max. 1/10000 s, Max. 1/4000 s, Max. 1/2000 s, Max. 1/1000 s, Max. 1/500 s, Max. 1/250 s, Max. 1/120 s, Max. 1/100 s, Max. 2/120 s, Max. 2/100 s, Max. 3/120 s, Max. 3/100 s, Max. 1/30 s, Max. 2/30 s, Max. 4/30 s, Max. 6/30 s, Max. 10/30 s, Max. 16/30 s
Color/BW:	Off, On(IR Light Off), On(IR Light On), Auto1(IR Light Off),Auto2(IR Light On), Auto3(SCC)
IR LED Light:	High, Middle, Low, Off Maximum irradiation distance: 15 m {Approx. 49 ft}
White balance:	ATW1, ATW2, AWC
Digital noise reduction:	The level can be set in the range of 0 to 255.
Privacy zone:	On, Off (up to 8 zones available)
VIQS	On, Off (up to 8 zones available)
Camera title on screen:	On, Off Up to 20 characters (alphanumeric characters, marks)
Video Motion Detection (VMD):	On, Off 4 areas available
Image rotation *1	0°(Off), 90°, 180°(Upside-down), 270°
Mirror	On, Off

*1 Settings of [90°] and [270°] are only available for the [16:9 mode].

• Lens

Zoom ratio:	1x Optical zoom S3531 **S3131** S3532 3x Extra zoom is available (when resolution is 640x360) S3511 **S3111** S3512 2x Extra zoom is available (when resolution is 640x360)
Digital (electronic) zoom:	Choose from 3 levels of x1, x2, x4
Focal length:	2.8 mm {1/8 inches}
Maximum aperture ratio:	1:2.3
Focus range:	0.5 m {19-11/16 inches} – ∞
Angular field of view:	S3531 **S3131** S3532 **[16:9 mode]** Horizontal: 108° Vertical: 60° **[4:3 mode]** Horizontal: 89° Vertical: 66° S3511 **S3111** S3512 **[16:9 mode]** Horizontal: 97° Vertical: 54° **[4:3 mode]** Horizontal: 97° Vertical: 72°
Adjusting angle:	Horizontal (PAN) angle: ±45° Vertical (TILT) angle : 0° to +90° Azimuth (YAW) angle : ±90°

• **Network**

Network:	S3531 S3511 S3131 S3111 10BASE-T/100BASE-TX, RJ45 connector S3532 S3512 10BASE-T/100BASE-TX, M12 connector
Resolution *1: H.265/ H.264 JPEG (MJPEG)	S3531 S3131 S3532 **2 mega pixel [16:9] (30 fps mode)/** **2 mega pixel [16:9] (60 fps mode)** 1920x1080, 1280x720, 640x360, 320x180 **3 mega pixel [4:3] (30 fps mode)** 2048x1536*2, 1280x960, 800x600, VGA, 400x300, QVGA S3511 S3111 S3512 **1.3 mega pixel [16:9] (30 fps mode)/** **1.3 mega pixel [16:9] (60 fps mode)** 1280×720, 640×360, 320×180 **1.3 mega pixel [4:3] (30 fps mode)** 1280×960, 800×600, VGA, 400×300, QVGA
Image compression method *3: H.265/ H.264	**Transmission priority:** Constant bit rate, VBR, Frame rate, Best effort **Frame rate:** 1 fps, 3 fps, 5 fps*, 7.5 fps*, 10 fps*, 12 fps*, 15 fps*, 20 fps*, 30 fps*, 60 fps* * The frame rate is limited to “bit rate”. When a value with an asterisk (*) is selected, the actual frame rate may be lower that the value selected. **Bit rate per client:** 64 kbps, 128 kbps*, 256 kbps*, 384 kbps*, 512 kbps*, 768 kbps*, 1024 kbps*, 1536 kbps*, 2048 kbps*, 3072 kbps*, 4096 kbps*, 6144 kbps*, 8192 kbps*, 10240 kbps*, 12288 kbps*, 14336 kbps*, 16384 kbps*, 20480 kbps*, 24576 kbps*, --FREE ENTRY-- * The available range of the bit rate varies depending on the setting selected for “image capture size”. **Image quality:** • For "Constant bit rate", "Frame rate", and "Best effort": Motion priority, Normal, Quality priority • For "VBR": 0 Super fine, 1 Fine, 2, 3, 4, 5 Normal, 6, 7, 8, 9 Low **Transmission type:** Unicast, Multicast
JPEG (MJPEG)	**Image quality:** 0 SUPER FINE, 1 FINE, 2, 3, 4, 5 NORMAL, 6, 7, 8, 9 LOW (10 steps: 0-9) **Transmission type:** Pull, Push **Refresh interval:** 0.1 fps, 0.2 fps, 0.33 fps, 0.5 fps, 1 fps, 2 fps, 3 fps, 5 fps, 6 fps, 10 fps, 12 fps, 15 fps, 30 fps (JPEG frame rates are limited when using JPEG and H.265/H.264 simultaneously)

Smart coding:	**GOP(Group of pictures) control** **[When H.264 is selected]** Off, On(Low), On(Mid) **[When H.265 is selected]** Off, On(Low), On(Mid), On(Advanced), On(Frame rate control) **Smart Facial Coding*** Off, On(AUTO VIQS), On(Smart Facial Coding) * Smart Facial Coding is only available with Stream(1).
Audio compression method:	G.726 (ADPCM) : 16 kbps, 32 kbps G.711 : 64 kbps AAC-LC *4 : 64 kbps, 96 kbps, 128 kbps
Bandwidth control:	Unlimited, 64 kbps, 128 kbps, 256 kbps, 384 kbps, 512 kbps, 768 kbps, 1024 kbps, 2048 kbps, 4096 kbps, 6144 kbps, 8192 kbps, 10240 kbps, 15360 kbps, 20480 kbps, 25600 kbps, 30720 kbps, 35840 kbps, 40960 kbps, 51200 kbps
Protocol:	IPv6: TCP/IP, UDP/IP, HTTP, HTTPS, FTP, SMTP, DNS, NTP, SNMP, DHCPv6, RTP, MLD, ICMP, ARP, IEEE 802.1X, DiffServ IPv4: TCP/IP, UDP/IP, HTTP, HTTPS, RTSP, RTP, RTP/RTCP, FTP, SMTP, DHCP, DNS, DDNS, NTP, SNMP, UPnP, IGMP, ICMP, ARP, IEEE 802.1X, DiffServ
Security:	User authentication, Host authentication, HTTPS*, Alteration detection of video file* * The certification is pre-installed.
OS *5:	Microsoft Windows 10 Microsoft Windows 8.1 Microsoft Windows 7
Browser *5, *6:	Internet Explorer 11 (32-bit) Microsoft Edge Firefox Google Chrome
Maximum concurrent access number:	14 (Number of sessions that can connect to cameras at the same time) * Depends on network conditions
FTP client:	Alarm image transmission, FTP periodic transmission (When the FTP transmission is failed, backup on an optional microSD memory card is available.)
Multi-screen:	Up to 16 camera images can be displayed simultaneously on a multi-screen. (Including the camera itself)
Compatible microSD memory card *7, *8 , *9, *10	It is recommended to use an microSDXC/microSDHC/microSD memory card for i-PRO devices. (microSD speed class 6 or higher) microSDXC memory card : 64 GB microSDHC memory card : 4 GB, 8 GB, 32 GB microSD memory card : 2 GB
Cellular phone compatibility:	JPEG image
Mobile terminal compatibility: (As of October, 2018) *11	iPad / iPhone (iOS 4.2.1 or later), Android™ mobile terminals

*1 H.265/H.264 can be selected for each stream.
*2 Used by super resolution techniques.
*3 Transmission for 4 streams can be individually set.
*4 When recording audio on a microSD memory card, only use AAC-LC (Advanced Audio Coding - Low Complexity).
*5 For further information about PC system requirements and precautions for when using Microsoft Windows or Internet Explorer, click “Manual” - “Open” from the supplied CD-ROM and refer to “Notes on Windows / Internet Explorer versions”.
*6 Refer to our website (https://i-pro.com/global/en/surveillance/training_support/support/technical_information <Control No.: C0122>) for latest information about the browser.
*7 For possible number of images and duration (an indication) that can be saved on the microSD memory card, refer to our website below.
https://i-pro.com/global/en/surveillance/training_support/support/technical_information
Possible number of JPEG images that can be saved: <Control No.: C0306>
Possible duration of stream images (H.265 or H.264) that can be saved: <Control No.: C0307>
*8 Refer to our website (https://i-pro.com/global/en/surveillance/training_support/support/technical_information <Control No.: C0107>) for latest information about the compatible microSD memory cards.
*9 When repeatedly recording images on a microSD memory card using the auto overwrite function, make sure to use a microSD memory card with high reliability and durability.
*10 The replacement cycle (target) of a microSD memory card differs from that of a standard size SD memory card. For details, check the content of our Support website (https://i-pro.com/global/en/surveillance/training_support/support/technical_information (Control No.: C0117>).
*11 For further information about compatible devices, refer to our website (https://i-pro.com/global/en/surveillance/training_support/support/technical_information <Control No.: C0108>).

Optional accessories

Dome Cover (Smoke type): WV-CW6SA*1

*1 To attach the dome cover to the camera, refer to the descriptions in the installation guide of the dome cover indicated by the following marks.

S3531 S3511 S3532 S3512

Refer to the content listed for the SW150 series.

S3131 S3111

Refer to the content listed for the SF130 series.

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