

NETWORK CAMERA

USER'S MANUAL



WARNING

**RISK OF ELECTRIC SHOCK
DO NOT OPEN**

WARNING: TO REDUCE THE RISK OF ELECTRIC SHOCK,
DO NOT REMOVE COVER (OR BACK).
NO USER-SERVICEABLE PARTS INSIDE.
REFER SERVICING TO QUALIFIED
SERVICE PERSONNEL.

COMPLIANCE NOTICE OF FCC:

THIS EQUIPMENT HAS BEEN TESTED AND FOUND TO COMPLY WITH THE LIMITS FOR A CLASS A DIGITAL DEVICE, PURSUANT TO PART 15 OF THE FCC RULES. THESE LIMITS ARE DESIGNED TO PROVIDE REASONABLE PROTECTION AGAINST HARMFUL INTERFERENCE WHEN THE EQUIPMENT IS OPERATED IN A COMMERCIAL ENVIRONMENT. THIS EQUIPMENT GENERATES, USES, AND CAN RADIATE RADIO FREQUENCY ENERGY AND IF NOT INSTALLED AND USED IN ACCORDANCE WITH THE INSTRUCTION MANUAL, MAY CAUSE HARMFUL INTERFERENCE TO RADIO COMMUNICATIONS. OPERATION OF THIS EQUIPMENT IN A RESIDENTIAL AREA IS LIKELY TO CAUSE HARMFUL INTERFERENCE, IN WHICH CASE USERS WILL BE REQUIRED TO CORRECT THE INTERFERENCE AT THEIR OWN EXPENSE.

WARNING: CHANGES OR MODIFICATIONS NOT EXPRESSLY APPROVED BY THE PARTY RESPONSIBLE FOR COMPLIANCE COULD VOID THE USER'S AUTHORITY TO OPERATE THE EQUIPMENT.

THIS CLASS OF DIGITAL APPARATUS MEETS ALL REQUIREMENTS OF THE CANADIAN INTERFERENCE-CAUSING EQUIPMENT REGULATIONS.

The information in this manual is believed to be accurate as of the date of publication. We are not responsible for any problems resulting from the use thereof. The information contained herein is subject to change without notice. Revisions or new editions to this publication may be issued to incorporate such changes.

The software included in this product contains some Open Sources. You may obtain the complete corresponding source code from us. See the Open Source Guide on the software CD (OpenSourceGuide\OpenSourceGuide.pdf) or as a printed document included along with the User's Manual.

WEEE (Waste Electrical & Electronic Equipment)**Correct Disposal of This Product**

(Applicable in the European Union and other European countries with separate collection systems)



This marking shown on the product or its literature, indicates that it should not be disposed with other household wastes at the end of its working life. To prevent possible harm to the environment or human health from uncontrolled waste disposal, please separate this from other types of wastes and recycle it responsibly to promote the sustainable reuse of material resources.

Household users should contact either the retailer where they purchased this product, or their local government office, for details of where and how they can take this item for environmentally safe recycling.

Business users should contact their supplier and check the terms and conditions of the purchase contract. This product should not be mixed with other commercial wastes for disposal.

Important Safeguards

1. Read Instructions

All the safety and operating instructions should be read before the appliance is operated.

2. Retain Instructions

The safety and operating instructions should be retained for future reference.

3. Cleaning

Unplug this equipment from the wall outlet before cleaning it. Do not use liquid aerosol cleaners. Use a damp soft cloth for cleaning.

4. Attachments

Never add any attachments and/or equipment without the approval of the manufacturer as such additions may result in the risk of fire, electric shock or other personal injury.

5. Water and/or Moisture

Do not use this equipment near water or in contact with water.

6. Placing and Accessories

Do not place this equipment on an wall or ceiling that is not strong enough to sustain the camera. The equipment may fall, causing serious injury to a child or adult, and serious damage to the equipment. Wall or shelf mounting should follow the manufacturer's instructions, and should use a mounting kit approved by the manufacturer.



This equipment and cart combination should be moved with care. Quick stops, excessive force, and uneven surfaces may cause the equipment and cart combination to overturn.

Do not place this equipment in an enclosed space. Sufficient ventilation is required to prevent an increase in ambient temperature which can cause malfunction or the risk of fire.

7. Power Sources

This equipment should be operated only from the type of power source indicated on the marking label. If you are not sure of the type of power, please consult your equipment dealer or local power company.

8. Power Cord

Operator or installer must remove power and TNT connections before handling the equipment.

9. Lightning

For added protection for this equipment during a lightning storm, or when it is left unattended and unused for long periods of time, unplug it from the wall outlet and disconnect the antenna or cable system. This will prevent damage to the equipment due to lightning and power-line surges. If thunder or lightning is common where the equipment is installed, use a surge protection device.

10. Overloading

Do not overload wall outlets and extension cords as this can result in the risk of fire or electric shock.

11. Objects and Liquids

Never push objects of any kind through openings of this equipment as they may touch dangerous voltage points or short out parts that could result in a fire or electric shock. Never spill liquid of any kind on the equipment.

12. Servicing

Do not attempt to service this equipment yourself. Refer all servicing to qualified service personnel.

13. Damage requiring Service

Unplug this equipment from the wall outlet and refer servicing to qualified service personnel under the following conditions:

- A. When the power-supply cord or the plug has been damaged.
- B. If liquid is spilled, or objects have hit the equipment.
- C. If the equipment has been exposed to rain or water.
- D. If the equipment does not operate normally by following the operating instructions, adjust only those controls that are covered by the operating instructions as an improper adjustment of other controls may result in damage and will often require extensive work by a qualified technician to restore the equipment to its normal operation.
- E. If the equipment has been dropped, or the cabinet damaged.
- F. When the equipment exhibits a distinct change in performance — this indicates a need for service.

14. Replacement Parts

When replacement parts are required, be sure the service technician has used replacement parts specified by the manufacturer or that have the same characteristics as the original part. Unauthorized substitutions may result in fire, electric shock or other hazards.

15. Safety Check

Upon completion of any service or repairs to this equipment, ask the service technician to perform safety checks to determine that the equipment is in proper operating condition.

16. Field Installation

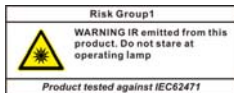
This installation should be made by a qualified service person and should conform to all local codes.

17. Correct Batteries

Warning: Risk of explosion if battery is replaced by an incorrect type. Dispose of used batteries according to the instructions.

18. Tmra

A manufacturer's maximum recommended ambient temperature (Tmra) for the equipment must be specified so that the customer and installer may determine a suitable maximum operating environment for the equipment.



WARNING: IR (Infrared Radiation) is emitted from this product. Do NOT stare at the IR LED.

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Chapter 1 — Introduction

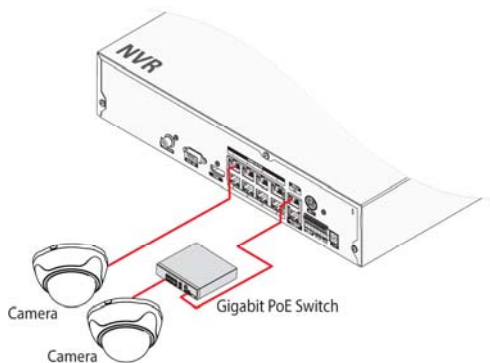
This manual is intended for users of the network camera and includes instructions for using and managing the camera on the network.

Features

This network camera compresses live video and transmits the video over Ethernet connections. The camera can be accessed, configured and managed by using the INIT (Integrated Network Installation Tool) program or NVR. This camera offers the following features:

- Multistream for live monitoring and recording
- H.264 compression algorithm
- Four levels of video compression and various video compression resolutions
- Pre- and post-event buffering and video stream buffering to enhance reliability of network recording
- Convenient firmware upgrades via the network connection
- Firmware duplication and autorecovery functions to enhance system stability
- Management of multiple cameras via Ethernet connections

Typical Applications

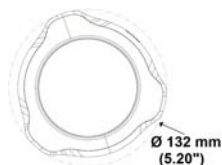


Chapter 2 — Installation

Package Contents

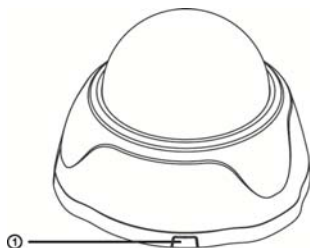
- Network Camera
- Software CD (INIT software and User's Manual)
- Camera User's Manual (this document)
- Mount Kits

Dimensions

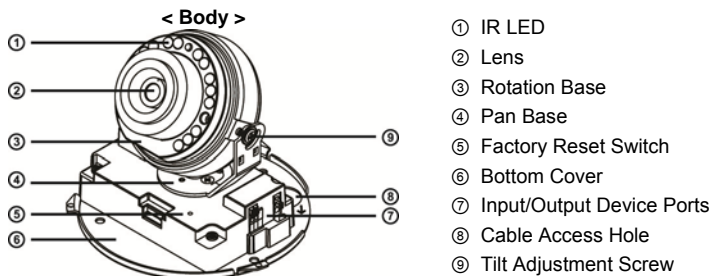


Illustrated Parts List

< Dome Cover >



- ① Side Cable Access Hole



- **Side Cable Access Hole, Cable Access Hole:** Allows you to feed wires and cables for connection to power, devices, and Ethernet.
- **IR LED:** The sensor in the middle of IR LEDs detects low illumination and the IR LEDs are lit at night or under low lighting conditions.
- **Lens:** Fixed focus lens is installed. You can adjust the focus of the lens by turning the lens clockwise or counter clockwise, and a focus fixation spring fixes the lens position.
- **Rotation Base:** Allows you to adjust the rotation angle by turning the rotation base clockwise or counterclockwise.
- **Pan Base:** Allows you to adjust the pan angle.
- **Factory Reset Switch:** Use to return all settings to the original factory settings. See below for details.
- **Bottom Cover:** Allows you to mount the camera to the wall or ceiling.
- **Input/Output Device Ports:** Allows you to connect the input/output device. See the section below.
- **Tilt Adjustment Screw:** Allows you to adjust the tilt angle.

Factory Reset

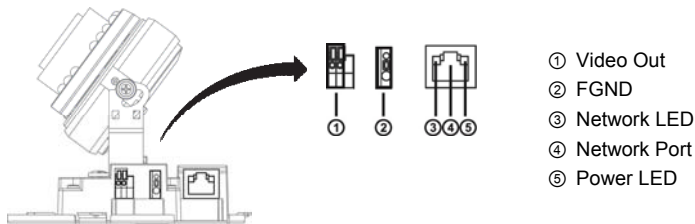
This will only be used on the rare occasions that you want to return all the settings to the original factory settings.

CAUTION: When performing a Factory Reset, you will lose any settings you have saved.

Cut off the power from the camera. → Poke a straightened paperclip into the factory reset switch hole. → Turn on the power while holding the reset switch → Release the switch in about 5 seconds after the Power LED blinks. → The camera resets to factory defaults and restarts after completing the factory reset.

You can perform a factory reset while the camera is turned on by pressing the factory reset switch and releasing the reset switch. A factory reset also can be performed remotely by running the INIT program. The camera restarts after completing the factory reset. Refer to the INIT User's Manual for details on remote factory resetting.

Input/Output Device Ports



- ① Video Out
- ② FGND
- ③ Network LED
- ④ Network Port
- ⑤ Power LED

- **Video**
 - **CVBS, GND:** Connect two wires from the cable to the camera and the other connector from the cable to a monitor. This is intended for video preview while adjusting the camera. Configure the video signal (NTSC or PAL) for video output in Remote Setup (**System – General** menu).
- **FGND (Frame GND):** Ground the camera by using the grounding cable and screw.
- **Network LED:** Indicates network connection status. See **Appendix – LED Indicators** for details. The LED will not light regardless of the status if the Status LED is disabled when configuring the **System – General** setup.
- **Network Port:** Connect a Cat5 cable with an RJ-45 connector. You can manage the camera or upgrade the software via the network connection. Refer to the INIT User's Manual for details. The camera is supplied with power over Ethernet cable by connecting to a PoE-enabled RJ-45 port.
- **Power LED:** Indicates system operation status. See **Appendix – LED Indicators** for details. The LED will not light regardless of the status if the Status LED is disabled when configuring the **System – General** setup.

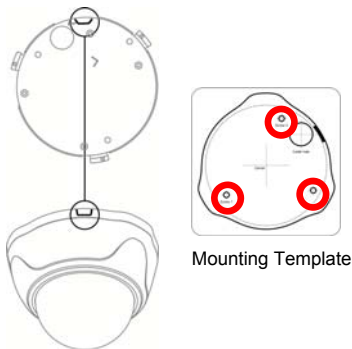
NOTES:

- Camera surveillance may be prohibited by laws that vary by region. Check the laws in your area before using this product for surveillance purposes.
- To make connections on the video and power connector strip, press and hold the button and insert the wire in the hole below the button. After releasing the button, tug gently on the wire to make certain it is connected. To disconnect a wire, press and hold the button above the wire and pull out the wire.

CAUTIONS:

- **The frame GND should be grounded before using.**
- **The network connector is not designed to be connected directly with cable or wire intended for outdoor use.**
- **It is required that you coil twice around the end of the network cable in the camera side by using the core (28A2024-0A2 model of Laird Technologies brand) provided with the camera for EMI (electromagnetic interference) suppression.**

Mounting

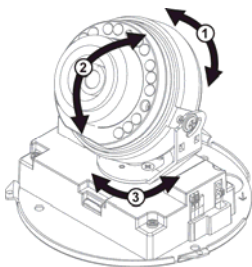


1. Screw the bottom cover to the wall or ceiling by using the mounting screws provided with the camera. Use the mounting template provided with the camera.
2. Connect the external devices, network.
3. Adjust the angle of the lens for the proper view angle. Refer to the **View Angle** section below for details.
4. Adjust the focus.
5. Match the mark beside the cable access hole of the bottom cover and the side cable access hole of the dome cover, and then turn the dome cover clockwise to lock the dome cover to the bottom cover.

WARNING: You might need to reinforce the wall or ceiling. If the wall or ceiling is not strong enough to support the camera, the camera might fall damaging the camera or causing injuries.

View Angle

Three-axis lens positioning is supported.



- ① **Rotation:** Adjusts the rotation angle. Move the rotation base clockwise or counterclockwise.
- ② **Tilt:** Adjusts the tilt angle. Loosen the tilt adjustment screws, move the lens up and down and tighten the screws to lock the angle.
- ③ **Pan:** Adjusts the pan angle. Turn the pan base clockwise or counterclockwise.

Appendix

LED Indicators

LED Status		Description
Power LED	Unlit	No power connected to the unit.
	Flicker	The unit is booting.
	Lit	The unit is operating.
Network LED	Lit	The unit is connected to a network.
Power LED & Network LED	Flicker sequentially	The unit is upgrading the software.

Connector Pin Outs



Video	GND	GND (Frame Ground)
	CVBS	Video Output
FGND		Frame GND

Specifications

LENS	
Lens Type	Fixed focus lens (F2.0)
Focal Length	4.3mm
Angle View	H: 88° (4.3mm), V: 49° (4.3mm), D: 100° (4.3mm)
Lens Iris Control	F2.0
Day/Night Filter	Yes

CAMERA	
Image Sensor	1/2.7" CMOS
Minimum Illumination	IR LED On: 0 Lux @ F 2.0 (30 IRE) IR LED Off: 0.0002 Lux @ F 2.0 (30 IRE)
Scanning Mode	Progressive scan
SNR	45 dB or higher
Dynamic Range (Digital WDR)	90 dB or higher
Electronic Shutter	Auto
IR LED	LED x 16 (850 nm)
Illumination Sensor	Yes
IR Working Distance	20 m

VIDEO	
Video Signal	NTSC or PAL (programmable)
Compression Algorithm	H.264 (Four levels)
Compression Resolution	352x240, 640x360, 704x480, 1280x720, 1920x1080
Bitrate Control	H.264 –CBR / VBR
Maximum Frame Rate (images per second)	15 ips @ 1920x1080 + 15 ips @ 640x360
Multistream	Live 1, Live 2

INPUTS/OUTPUTS	
Video Output ⁱ	1 Composite, 1 Vp-p
Network Connectivity	10/100 Mbps Ethernet

ⁱ It is intended for video preview while adjusting the camera.

CONNECTORS	
Video Output ⁱⁱ	Terminal block
Ethernet Port	RJ-45

ⁱⁱ It is intended for video preview while adjusting the camera.

GENERAL	
Dimensions (Ø x H)	5.2 " x 4.1" (132mm x 103mm)
Shipping Dimensions (W x H x D)	7.9" x 5" x 5.7" (200mm x 127mm x 144mm)
Unit Weight	0.8 lbs. (0.35kg)
Shipping Weight	1.2 lbs. (0.53kg)
Operating Temperature	14°F to 122°F (-10°C to 50°C) (Boot up temperature: 32°F to 122°F (0°C to 50°C))
Operating Humidity	0% to 90%
Power Supply	PoE (Power over Ethernet) (IEEE 802.3af, Class 2)
Power Consumption	Max. 4.8W
Approval	FCC, CE

Specifications are subject to change without notice.