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Installation Guide

Avigilon™ Analog Video Encoder Model:

ENC-4P-H264

Important Safety Information

This manual provides installation and operation information and precautions for the use of this camera. Incorrect installation could cause an unexpected fault. Before installing this equipment read this manual carefully. Please provide this manual to the owner of the equipment for future use.

The Warning symbol indicates the presence of dangerous voltage within and outside the product enclosure that may constitute a risk of electric shock, serious injury or death to persons if proper precautions are not followed.

The Caution symbol alerts the user to the presence of hazards that may cause minor or moderate injury to persons, damage to property or damage to the product itself if proper precautions are not followed.

WARNING — Failure to observe the following instructions may result in severe injury or death.

- Do not use near water or expose to dripping or splashing.
- Do not place objects filled with liquids above the device.
- Do not expose to rain or moisture.
- For indoor use only.
  If used outdoors, an approved outdoor mounting adapter or enclosure is required. Consult with Avigilon for more information.
- Installation must be performed by qualified personnel only, and must conform to all local codes.
- This product is intended to be supplied by a UL Listed Power Unit marked "Class 2" or "LPS" or "Limited Power Source" with output rated 12 VDC or 24 VAC, 8 W min. or Power over Ethernet (PoE), rated 48 VDC, 8 W min.
- Any external power supply connected to this product may only be connected to another Avigilon product of the same model series. External power connections must be properly insulated.
- Do not connect directly to mains power for any reason.

CAUTION — Failure to observe the following instructions may result in injury or damage to the camera.

- Do not install near any heat sources such as radiators, heat registers, stoves, or other sources of heat.
- Do not subject the cables to excessive stress, heavy loads or pinching.
- Do not open or disassemble the device. There are no user serviceable parts.
- Refer all servicing to qualified personnel. Servicing may be required when the device has been damaged (such as from a liquid spill or fallen objects), has been exposed to rain or moisture, does not operate normally, or has been dropped.
- Do not use strong or abrasive detergents when cleaning the device body.
- Use only accessories recommended by Avigilon.

- Use of controls or adjustments or performance of procedures other than those specified in this document may result in hazardous radiation exposure.

Regulatory Notices

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

This Class A digital apparatus complies with Canadian ICES-003.

FCC Notice

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 the user will be required to correct the interference at his own expense.

Changes or modifications made to this equipment not expressly approved by Avigilon Corporation or parties authorized by Avigilon Corporation could void the user's authority to operate this equipment.

Disposal and Recycling Information

When this product has reached the end of its useful life, please dispose of it according to your local environmental laws and guidelines.

Risk of fire, explosion, and burns. Do not disassemble, crush, heat above 100 °C (212 °F), or incinerate.

European Union:

This symbol means that according to local laws and regulations your product should be disposed of separately from household waste. When this product reaches its end of life, take it to a collection point designated by local authorities. Some collection points accept products for free. The separate collection and recycling of your product at the time of disposal will help conserve natural resources and ensure that it is recycled in a manner that protects human health and the environment.

Legal Notices

Disclaimer

Avigilon Corporation
avigilon.com

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Overview

Front View

1. **Audio I/O connector**

   Accepts a mini-jack connector (3.5 mm).

2. **Video input status LEDs**

   Provides information about the status of the analog video signal. The LED turns on when a video signal has been detected.

3. **Video inputs**

   Four BNC inputs for connecting analog video devices.

Rear View
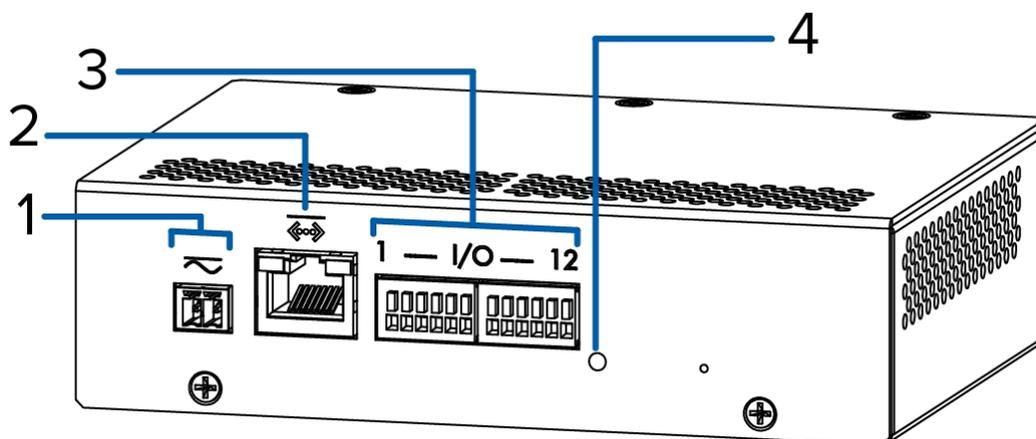
1. **Power connector block**

   Accepts a terminal block with either an AC or DC power connection. DC input can be either polarity. Only required when Power over Ethernet is not available.

2. **Ethernet port**

   Accepts an Ethernet connection to a network. Server communication and image data transmission occurs over this connection. Also receives power when it is connected to a network that provides Power over Ethernet.

   The Ethernet Port has two status lights indicating link (left) and activity (right).

3. **I/O connector block**

   Provides connections to external input/output devices.

4. **Connection status LED**

   Provides information about camera operation. For more information, see *LED Indicators* on page 14.

Installation

Required Tools and Materials

- Small slotted screwdriver with 5/64" or 2 mm blade width — for connecting power when not using Power over Ethernet.

Package Contents

- Avigilon™ H.264 Video Encoder
- Terminal Block

Installation Steps

Complete the following steps to install the camera:

Mounting the Encoder

⚠️ **CAUTION —** This Analog Audio/Video Encoder is designed for indoor use only. For outdoor use, a suitable UL listed outdoor enclosure rated type 3 or better shall be used.

The encoder can be mounted in a 19" rack by attaching it to the ENC-BRK1U encoder bracket that can be purchased separately. The bracket takes up to 1U of rack space and can hold 3 encoders.

Before installing the encoder, consider the following:

- Elevated Operating Ambient — If installed in a closed or multi-unit rack assembly, the operating ambient temperature of the rack environment may be greater than room ambient. Therefore, consideration should be given to installing the equipment in an environment compatible with the maximum ambient temperature (Tma) specified by the manufacturer.
- Reduced Air Flow — Installation of the equipment in a rack should be such that the amount of air flow required for safe operation of the equipment is not compromised.
- Mechanical Loading — Mounting of the equipment in the rack should be such that a hazardous condition is not achieved due to uneven mechanical loading.
- Circuit Overloading — Consideration should be given to the connection of the equipment to the supply circuit and the effect that overloading of the circuits might have on overcurrent protection and supply wiring. Appropriate consideration of equipment nameplate ratings should be used when addressing this concern.

Figure 1: ENC-BRK1U rack mountable bracket with 3 encoders.

To attach the encoder to a bracket, complete the following steps:

1. Line up the four holes on the bottom of the encoder with the hole pattern on the bracket.
2. Screw the encoder and bracket together with the screws provided.

Connecting Cables

Refer to the diagrams in the Overview section for the location of the different connectors.

To connect the cables required for proper operation, complete the following:

1. If external input or output devices are part of the installation (for example: door contacts, relays, etc.), connect the devices to the I/O connector block.

2. If an external microphone or speaker is required, connect the devices to the audio connector.

3. Connect power using one of the following methods:
    ○ Power over Ethernet (PoE) Class 3 — If PoE is available, the LEDs will turn on.
    ○ External Power — Connect an external 12 V DC or 24 V AC power source to the power connector block.

4. Connect a network cable to the Ethernet port (RJ-45 connector).

    The Link LED will turn on once a network link has been established.

5. Connect analog video cameras to the encoder. Use the coax/BNC connector video inputs on the front of the encoder.

    The encoder supports 4 video inputs and is initially configured for a composite video input with 75 ohm termination. The video standard (NTSC/PAL) is automatically detected. The video input status LEDs will turn on if the encoder locks to the video signal. If the video source is connected in parallel with other equipment, the input termination should be turned off, this can be done through the encoder web interface.

6. Check that the Connection Status LED indicates the correct state. For more information, see *LED Indicators* on page 14.

Assigning an IP Address

The encoder automatically obtains an IP address by default. Once connected to a network, it attempts to locate and obtain an IP address from a DHCP server. If this fails, Zero Configuration Networking (Zeroconf) is used to choose an IP address. When the IP address is set using Zeroconf, the IP address is in the 169.254.0.0/16 subnet.

The IP address settings can be changed using one of the following methods:

- Avigilon Camera Installation Tool software application.
- Encoder's web browser interface: http://*<encoder IP address>*/
- ARP/Ping method. For more information, see *Setting the IP Address Through the ARP/Ping Method* on page 16.
- Network Video Management software application (for example, Avigilon Control Center).

NOTE: The default encoder username is `admin` and the default password is `admin`.

Accessing the Live Video Stream

Live video stream can be viewed using one of the following methods:

- Web browser interface: http://*<IP address>*/
- Network video management software application (for example, the Avigilon Control Center software).

NOTE: The default camera username is `admin` and the default camera password is `admin`.

NOTE: The default camera username is `administrator` with no password.

For More Information

Additional information about setting up and using the device is available in the following guides:

- *Avigilon Control Center Client User Guide*
- *Avigilon High Definition H.264 Web Interface User Guide*
- *Avigilon Camera Configuration Tool User Guide*

The manuals are available on the Avigilon website: **avigilon.com/support-and-downloads**.

Cable Connections

Connecting External Power

NOTE: Do not perform this procedure if Power over Ethernet (POE) is used.

If PoE is not available, the device needs to be powered through the removable power connector block. Refer to the diagrams in this guide for the location of the power connector block.

The device can be powered from 12 V DC or 24 V AC. The power consumption information is listed in the product specifications.

To connect power to the power connector block, complete the following steps:

1. Remove the power connector block from the device.

2. Remove the insulation from ¼" (6 mm) of the power wires. Do not nick or damage the wires.

3. Insert the two power wires into the two terminals on the power connector block. The connection can be made with either polarity.

   Use a small slotted (5/64" or 2 mm blade width) screwdriver to loosen and tighten the terminals.

4. Attach the power connector block back into the receptacle on the device.

> ⚡ **WARNING —** This product is intended to be supplied by a UL Listed Power Unit marked "Class 2" or "LPS" or "Limited Power Source" with output rated 12 V DC or 24 V AC, 8 W min. or PoE rated 48 V DC, 8 W min.

Connecting to External Devices

External devices are connected to the encoder through the I/O terminal. The pinout for the I/O terminal is shown in the following diagram:
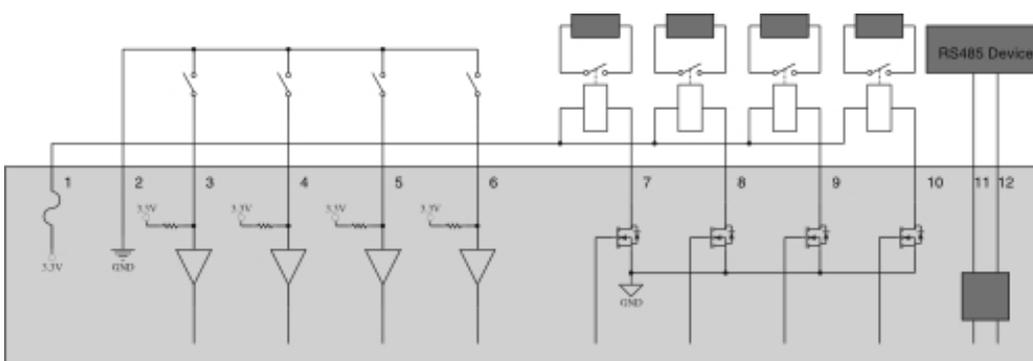
Figure 2: Example application.

1. 3.3 VDC @200 mA max — 3.3 VDC output. May be used to power small relays in conjunction with the relay outputs.

2. Ground

3. Input 1 — To activate, connect the Input to the Ground pin. To deactivate, leave disconnected or apply between 3-15 V.

4. Input 2 — To activate, connect the Input to the Ground pin. To deactivate, leave disconnected or apply between 3-15 V.

5. Input 3 — To activate, connect the Input to the Ground pin. To deactivate, leave disconnected or apply between 3-15 V.

6. Input 4 — To activate, connect the Input to the Ground pin. To deactivate, leave disconnected or apply between 3-15 V.

7. Output 1 — When active, Output is internally connected with the Ground pin. Circuit is open when inactive. Maximum load is 25 VDC, 120 mA.

8. Output 2 — When active, Output is internally connected with the Ground pin. Circuit is open when inactive. Maximum load is 25 VDC, 120 mA.

9. Output 3 — When active, Output is internally connected with the Ground pin. Circuit is open when inactive. Maximum load is 25 VDC, 120 mA.

10. Output 4 — When active, Output is internally connected with the Ground pin. Circuit is open when inactive. Maximum load is 25 VDC, 120 mA.

11. RS485 A — Half-duplex RS-485 interface for controlling PTZ cameras.

12. RS485 B — Half-duplex RS-485 interface for controlling PTZ cameras.

Connecting Microphones and Speakers

The encoder can be connected to up to four external microphones and speakers through the audio connectors. The audio connectors support input and output for line-level audio signals. The connector is a mini- jack (3.5mm). The pinout is shown in the following diagram.

Audio input and output use the left and right audio connections normally used on a stereo audio device.
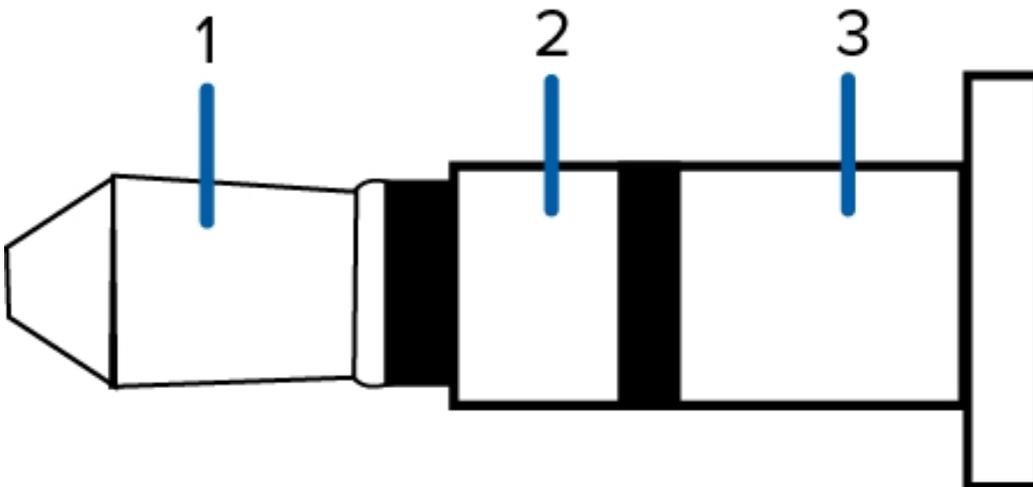
Figure 3: TRS mini-jack audio connector

1. Audio IN
2. Audio OUT
3. GND

LED Indicators

Once connected to the network, the Connection Status LED will display the progress in connecting to the Network Video Management software.

The following table describes what the LEDs indicate:

Connection State	Connection Status LED	Description
Obtaining IP Address	One short flash every second	Attempting to obtain an IP address.
Discoverable	Two short flashes every second	Obtained an IP address but is not connected to the Network Video Management software.
Upgrading Firmware	Two short flashes and one long flash every second	Updating the firmware.
Connected	On	Connected to the Network Video Management software or an ACC™ Server.

Reset to Factory Default Settings

If the encoder no longer functions as expected, you can choose to restore the encoder to its factory default settings.

Use the firmware revert button to reset the encoder.
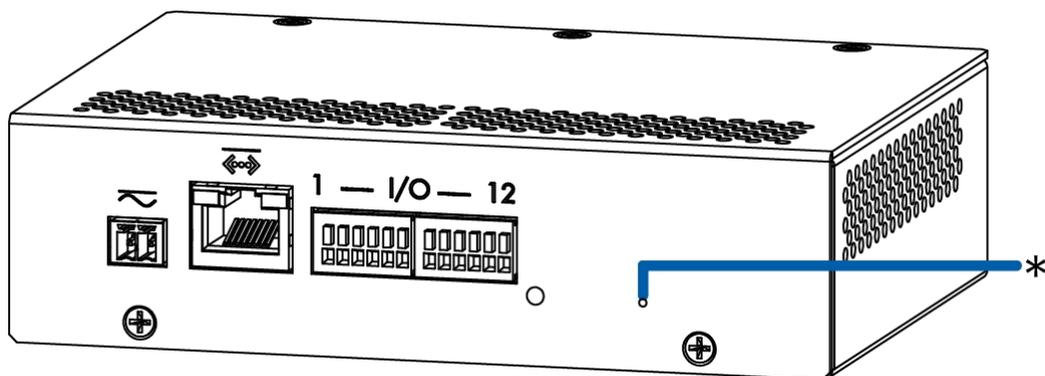
Figure 4: The firmware revert button on the rear of the encoder.

1. Disconnect power from the device.
2. Using a straightened paperclip or similar tool, gently press and hold the firmware revert button.
3. While continuing to hold the button, power the device.

   Release the button after three seconds.

> ⚠ **CAUTION —** Do not apply excessive force. Inserting the tool too far will damage the device.

Setting the IP Address Through the ARP/Ping Method

Complete the following steps to configure the encoder to use a specific IP address:

1. Locate and copy down the MAC Address (MAC) listed on the Serial Number Tag for reference.
2. Open a Command Prompt window and enter the following commands:

   a. `arp -s` *<New encoder IP Address> <encoder MAC Address>*

   For example: `arp -s 192.168.1.10 00-18-85-12-45-78`

   b. `ping -l 123 -t` *<New encoder IP Address>*

   For example: `ping -l 123 -t 192.168.1.10`

3. Reboot the encoder.
4. Close the Command prompt window when you see the following message:

   `Reply from` *<New encoder IP Address>*`: ...`

Specifications

Encoder

Video Input	BNC connector
Audio Input/Output	Line-level signal, TRS mini-jack (3.5 mm)

Network

Network	100Base-TX
Cabling Type	CAT5
Connector	RJ-45
API	ONVIF compliance version 1.02, 2.00, Profile S (www.onvif.org)
Security	Password protection, HTTPS encryption, digest authentication, WS authentication, user access log
Streaming Protocols	IPv4, HTTP, HTTPS, SOAP, DNS, NTP, RTSP, RTCP, RTP, TCP, UDP, IGMP, ICMP, DHCP, Zeroconf, ARP RTP/UDP, RTP/UDP multicast, RTP/RTSP/TCP, RTP/RTSP/HTTP/TCP,RTP/RTSP/HTTPS/TCP, HTTP

Mechanical

Dimensions LxWxH	140 mm x 123 mm x 38 mm (5.5" x 4.8" x 1.5")
Weight	0.62 kg (1.4 lbs)

Electrical

Power Consumption	8 W
Power Source	VDC: 12 V +/- 10%, 8 W min VAC: 24 V +/- 10%, 10 VA min PoE: IEEE802.3af Class 3 compliant
Power Connector	2-pin terminal block

Environmental

Operating Temperature	12VDC: -10 °C to +48 °C (14 °F to 118 °F) 24VAC or POE: -10 °C to +50 °C (14 °F to 122 °F)
Storage Temperature	-10 °C to +70 °C (14 °F to 158 °F)
Humidity	0-95% non-condensing

Certifications

Certifications	UL cUL WEEE CE ROHS RCM KC EAC

Safety	UL 60950-1 CSA 60950-1 IEC/EN 60950-1
Electromagnetic Emissions	FCC Part 15 Subpart B Class B EN 55032 Class B IC ICES-003 Class B EN 61000-6-3 EN 61000-3-2 EN 61000-3-3 KN 22
Electromagnetic Immunity	EN 55024 EN 61000-6-1 KN 24

Limited Warranty and Technical Support

Avigilon warranty terms for this product is provided at **avigilon.com/warranty**.

Warranty service and technical support can be obtained by contacting Avigilon Technical Support:
avigilon.com/contact-us/.