

## Camera Integration Guide Installation Instructions

### Marine Camera Integration Guide

Integrating FLIR® and Axis® network cameras with your Garmin® marine electronics provides superior video surveillance for your boat. You can view video on every chartplotter screen on your boat, or view multiple video streams on one chartplotter combination screen. You can use touchscreen gestures to control your camera from your chartplotter, such as pinching to zoom, and dragging to pan and tilt the camera. You can customize your chartplotter to store settings with on-screen presets for each camera, such as camera position and zoom data.

A Garmin Power over Ethernet (PoE) Isolation Coupler (GPN 010-10580-10) must be used to connect standard Ethernet equipment to a Garmin Marine Network. Such equipment includes a network camera, network switch, video encoder, or

PoE injector. A shielded cable, such as a CAT 5e F/FTP, offers the best protection for your equipment. Connecting a PoE device directly to a Garmin Marine Network chartplotter damages the Garmin chartplotter and may damage the PoE device.

You can connect multiple supported video cameras and up to two video encoders (models with four channels or fewer) to the Garmin Marine Network.

You can set up combination screens to view multiple videos at once. In devices with multiple composite video inputs, only a single video function within a combination screen can use a built-in video input. Some chartplotters, including the GPSMAP® 8015 series and 8500 series, support quad view, which allows four built-in videos to be viewed within a single video function.

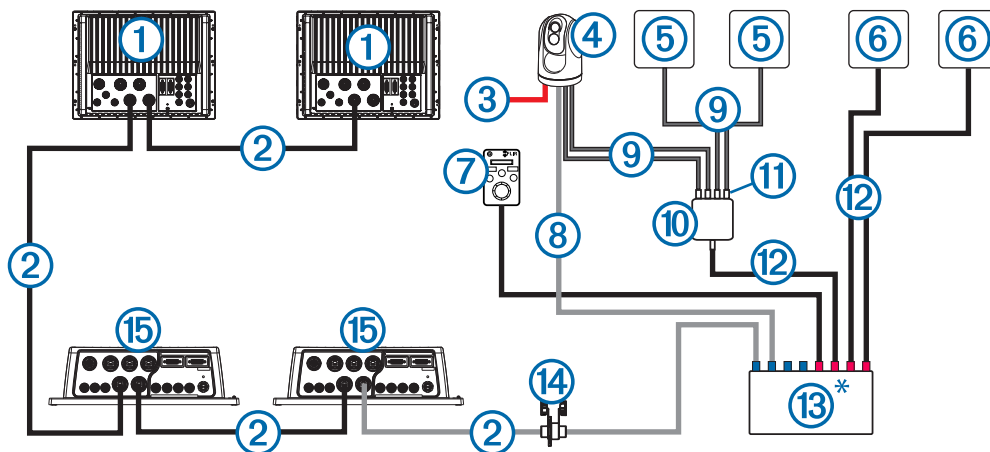
**NOTE:** When you connect multiple video cameras to the Garmin Marine Network, you can insert a PoE isolation coupler in the path to create a single connection from a network switch to your Garmin electronics.

### FLIR Cameras

FLIR marine cameras provide thermal imagery, and can provide an optional lowlight camera output. When you connect a FLIR camera to your compatible chartplotter, the network detects the camera automatically and displays it in the source list. You do not need to pre-configure the camera before installation.

Garmin GPSMAP 7400, 7600, and 8000 series chartplotters are compatible with FLIR M and MD series cameras.

### Multiple Network Camera Connection



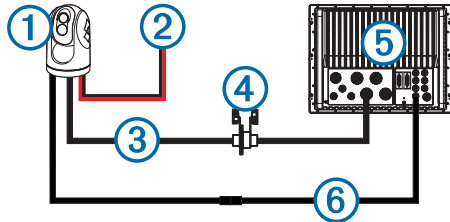
| Item | Description  |
|------|--|
| ①    | Compatible GPSMAP chartplotter                                   |
| ②    | Garmin Marine Network cable                                      |
| ③    | DC power   |
| ④    | FLIR M-series camera   |
| ⑤    | Analog/composite video camera such as Garmin GC10 (010-11372-00) |
| ⑥    | Axis network camera  |
| ⑦    | FLIR joystick  |
| ⑧    | Ethernet cable   |
| ⑨    | Composite video cable  |
| ⑩    | Axis video encoder   |
| ⑪    | BNC composite inputs   |
| ⑫    | PoE network cable  |

| Item | Description                                       |
|------|---|
| ⑬    | Multi-port PoE switch*                            |
| ⑭    | Garmin PoE isolation coupler (GPN 010-10580-10)** |
| ⑮    | Compatible GPSMAP chartplotter                    |

\*The blue ports on the multi-port PoE switch are non-powered ports. The red ports are powered ports.

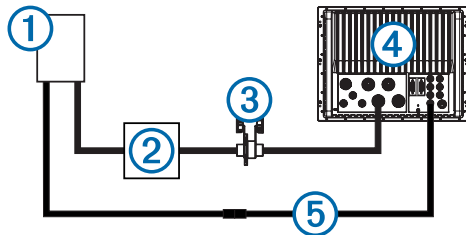
\*\*You should use a Garmin Marine Network waterproof connection on at least one side of the PoE isolation coupler. You can use a waterproof connection on both sides by crimping a new RJ-45 connector on one of the Garmin cables to connect to standard Ethernet equipment. For networks without a Garmin Marine Network waterproof connection, point the PoE isolation coupler down, or horizontal with a drip loop to avoid water retention around the connector.

### FLIR M-Series Camera to Network Connection



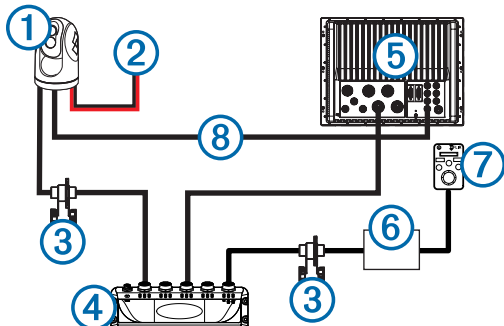
| Item | Description   |
|------|---|
| ①    | FLIR M-Series network camera  |
| ②    | DC power  |
| ③    | Ethernet cable  |
| ④    | PoE isolation coupler (GPN 010-10580-10)  |
| ⑤    | GPSMAP chartplotter   |
| ⑥    | Single or dual composite video (V/IR) F-type female to coaxial to BNC adapter cable |

### FLIR MD-Series Camera to Network Connection



| Item | Description   |
|------|---|
| ①    | FLIR MD-Series network camera   |
| ②    | FLIR midspan PoE injector (or equivalent)   |
| ③    | PoE isolation coupler (GPN 010-10580-10)  |
| ④    | GPSMAP chartplotter   |
| ⑤    | Single or dual composite video (V/IR) F-type female to coaxial to BNC adapter cable |

### FLIR Camera to GMS™ 10 Network Port Expander Connection



| Item | Description                                |
|------|--|
| ①    | FLIR M-series camera                       |
| ②    | DC power                                   |
| ③    | PoE isolation coupler (GPN 010-10580-10)   |
| ④    | GMS 10 network port expander               |
| ⑤    | GPSMAP chartplotter                        |
| ⑥    | FLIR midspan PoE injector (or equivalent)  |
| ⑦    | FLIR joystick                              |
| ⑧    | Single (V/IR) composite (BNC) video cable* |

\*See [Dual Payload FLIR Models](#) for recommended video connections from the camera to the chartplotters, with and without an Axis video encoder.

### FLIR Camera Settings

Using the chartplotter, you can change the polarity, color scheme, and scene setting (gain control) displayed on your FLIR camera. You can switch between a thermal and visible camera view on your chartplotter screen.

**NOTE:** You must have a dual-payload M-series FLIR camera connected to your chartplotter network to switch between views. FLIR MD-series cameras provide thermal views only.

From the video screen, select Menu.

**Change Colors:** Sets the color scheme of the infrared image.

**Change Scene:** Sets the camera to a night, night docking, day, or man overboard view.

**Polarity:** Sets the colors or shades that represent hot and cold in the infrared image.

### Associating a FLIR Camera with a Video Input Device

Associating a detected FLIR camera and a video input device creates a connection between the camera and the device. The video input device can be a built-in connection on a chartplotter or an Axis video encoder.

You must create an association between a FLIR camera and a chartplotter. A prompt appears the first time you select a FLIR camera as the video source. When >> appears next to the device name, you are prompted to form an association.

From the **Video Source** menu, select your device.

>> disappears from the device name.

### Changing the Associated Video Input Device for a FLIR Camera

You can change the video association between the FLIR camera and its video input device after the initial association.

1 From the video screen, select your connected FLIR camera.

2 From the video screen, select **Menu > Video Setup > Source**.

3 Select the source of the video feed.

### Dual Payload FLIR Models

Some FLIR camera models output multiple video streams. On these dual payload models, composite video cables are marked V/IR and IR-only from the camera. The video stream from the V/IR cable can be switched between daylight video and infrared

video, and the IR-only cable provides infrared video only. The V/IR video stream offers more flexibility when using one cable only. When you need to connect the video stream directly from a camera to a single chartplotter, you should use the V/IR cable.

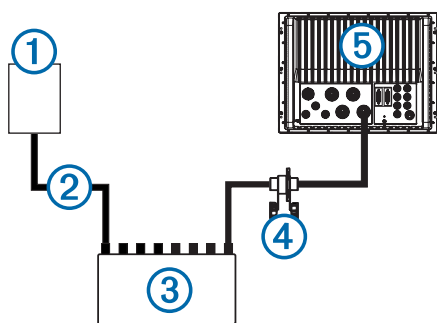
For networks with an Axis video encoder, both cables can be connected to the encoder, which is connected to the chartplotter. See [Multiple Network Camera Connection](#) for configuration details. This setup allows both the IR and V/IR video streams to be displayed in a single chartplotter combination screen. Using the video encoder allows these streams to be viewed on any compatible networked chartplotter. For a network with multiple chartplotters, you can connect one FLIR composite video cable to each chartplotter, allowing side-by-side display of each video stream.

## Axis Network Cameras

When you add Axis network cameras to a Garmin Marine Network, multiple camera feeds can be displayed on one chartplotter screen. You can also display one network camera feed on multiple Garmin chartplotters. When you connect an Axis camera to your compatible chartplotter, the network detects the camera automatically and displays it in the source list. You do not need to configure the camera.

Garmin GPSMAP 7400, 7600, and 8000 series chartplotters are compatible with many M, P, and Q series Axis cameras and encoders. The chartplotters support Axis fixed-dome cameras, including the P33 series cameras, and Axis network cameras, including the P39-R series network cameras. These chartplotters also support Axis pan/tilt/zoom (PTZ) model cameras, including the Q60-S PTZ dome camera. You can connect analog video cameras to Axis network encoders (up to 4-channel models), including the Q7424-R video encoder. These chartplotters support the F4X family of main units with connected sensors. Go to [www.axis.com](http://www.axis.com) for a current list of available F sensors, including the F10.

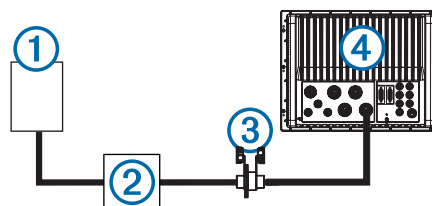
## Axis Camera to Chartplotter Connection with a PoE Switch



| Item | Description  |
|------|--|
| ①    | Axis network camera  |
| ②    | PoE IEEE 802.af or IEEE 802.at, depending on the Axis camera model |
| ③    | PoE switch*  |
| ④    | PoE isolator (GPN 010-10580-10)                                    |
| ⑤    | GPSMAP chartplotter  |

\*Not a Garmin part.

## Axis Camera to Chartplotter Connection with a Midspan PoE Injector



| Item | Description                               |
|------|---|
| ①    | Axis network camera                       |
| ②    | Axis midspan PoE injector (or equivalent) |
| ③    | PoE isolation coupler (GPN 010-10580-10)  |
| ④    | GPSMAP chartplotter                       |

## Troubleshooting

Before you contact your Garmin dealer or service center, you should perform a few simple troubleshooting steps to help diagnose the problem.

### My camera is installed but it is not in the video source menu

Powering up the chartplotters and cameras can take several minutes to resolve. If the camera still does not appear, you should complete these actions.

- Verify the power is connected.
- Verify the circuit breakers are set properly.
- Verify the Power over Ethernet (PoE) adapter power is on.
- Verify the Ethernet cable is connected to your chartplotter.
- Verify your routers and switches are on and functioning.
- Verify the camera is working. See your camera owner's manual for camera troubleshooting information.
- Verify the camera is compatible with Garmin systems. See [Axis Network Cameras](#) for more information on camera compatibility.

### My video displays but I cannot control the FLIR camera

- Verify the correct video input source (built-in or Axis video encoder) is associated with the FLIR camera. See [Changing the Associated Video Input Device for a FLIR Camera](#) for more information.
- Verify you selected the correct camera when associating the camera with the chartplotter.

### My chartplotter cannot access my Axis camera

The chartplotter uses the Axis camera's default password to initially access the camera. When the chartplotter cannot connect to the camera because of mismatched passwords, the chartplotter displays a message that it cannot connect to the camera. When this message appears, you must reset your Axis camera password to its factory default settings. Go to [www.axis.com](http://www.axis.com) for instructions on resetting the camera to factory default settings.

### My chartplotter combination screen will not allow a second built-in video source

Depending on the model, Garmin chartplotters can have up to four built-in, or composite, video inputs. Each input can receive a standard composite video feed from a camera. Combinations can be configured to display multiple video sources, but only a single video function within a combination can use a composite video input connection to the chartplotter. To display up to four analog video streams in one combination screen, you can add an Axis video encoder to your network. See [Multiple Network Camera Connection](#) for configuration details.

## **My chartplotter displays a rotated image in a combination screen display**

For cameras connected to an Axis video encoder, you must mount all cameras at 0 degrees of rotation for proper video display.

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