

# GARMIN®



## GC™ 255 MARINE CAMERA INSTALLATION INSTRUCTIONS

### Important Safety Information

#### **⚠ WARNING**

See the *Important Safety and Product Information* guide in the product box for product warnings and other important information.

When connecting the power cable, do not remove the in-line fuse holder. To prevent the possibility of personal injury or product damage caused by fire or overheating, the appropriate fuse must be in place as indicated in the product specifications. Connecting the power cable without the appropriate fuse in place voids the product warranty.

#### **⚠ CAUTION**

To avoid possible personal injury, always wear safety goggles, ear protection, and a dust mask when drilling, cutting, or sanding.

To avoid possible personal injury or damage to the device and vessel, disconnect the vessel's power supply before beginning to install the device.

#### **NOTICE**

For the best possible performance, the device must be installed according to these instructions.

When drilling or cutting, always check what is on the opposite side of the surface to avoid damaging the vessel.

You must use the cables and connectors provided by Garmin® when installing the system. Using any cables or connectors other than those supplied by Garmin will void your warranty.

You must not cut, terminate, or splice the coaxial cable. Modifying the coaxial cable may cause the system to malfunction. Failures caused by an extended coaxial cable are not covered under warranty.

The camera comes with mounting screws, but they may not be appropriate for your hull material. You must use the appropriate screws for your hull material to avoid damaging the hull.

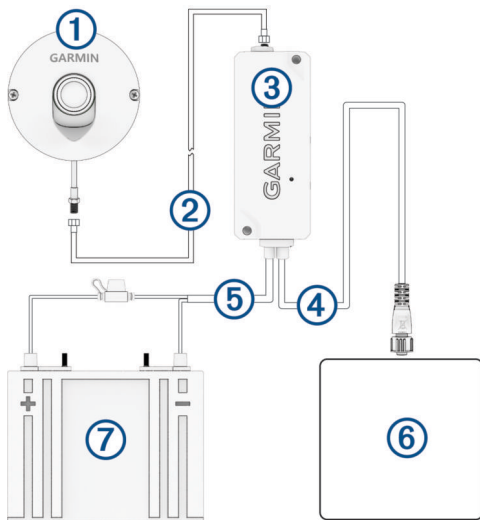
You must tighten the SMA connectors on the cameras and the GVAM 10 black box to the specified torque measurement in these instructions. Failures caused by improperly tightened connectors are not covered under warranty.

Read all installation instructions before proceeding with the installation. If you experience difficulty during the installation, contact Garmin Support.

## Tools Needed

- For hulls thinner than 12 mm (1/2 in.): 55 mm (2<sup>3</sup>/<sub>16</sub> in.) hole saw
- For hulls 12 mm (1/2 in.) or thicker: 57 mm (2<sup>1</sup>/<sub>4</sub> in.) hole saw
- 3.2 mm (1/8 in.) drill bit suitable for the camera mounting surface
- 4.5 mm (3/16 in.) drill bit suitable for the black box mounting surface
- 8 mm (5/16 in.) SMA connector torque wrench suitable for tightening to 9 kgf-cm (8 lbf-in.)  
Recommended: KCR Products KCR-3125S-8 SMA (5/16) torque wrench
- 8 mm (5/16 in.) wrench (to hold the SMA connector on one coaxial cable when tightening the other connector)
- T10 TORX® screwdriver or bit
- #2 Philips screwdriver or bit
- Torque screwdriver suitable for tightening to 11.5 kgf-cm (10 lbf-in.)
- 3M™ Marine Adhesive Sealant 5200 or equivalent
- (Optional) Fiberglass or epoxy (for sealing or capping the inside of the camera hole on a cored-hull or composite-hull vessel)

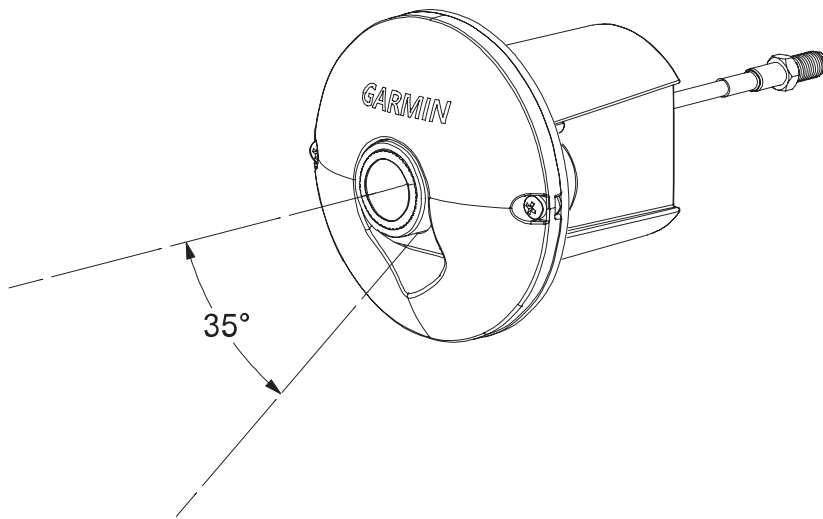
## Overview



①	GC 255 marine camera
②	8 m (26.25 ft.) coaxial cable (included)
③	GVAM 10 black box (included)
④	2 m (6.56 ft.) Garmin BlueNet™ cable (built into the GVAM 10 black box)
⑤	2 m (6.56 ft.) power cable (built into the GVAM 10 black box)
⑥	GPSMAP® chartplotter (not included)
⑦	Power supply

## Camera Overview

The adjustable lens module inside the GC 255 camera can tilt down in its enclosure by up to 35 degrees.



In some cases, such as mounting the camera on the bow, you can mount the camera upside down, tilt the lens up to obtain the desired field of view, and rotate the image on the chartplotter (*Rotating or Mirroring the Camera Image*, page 8).

We recommend installing the camera with the lens pointing down at approximately 35 degrees relative to the waterline, to ensure an adequate view of objects close to your vessel.

## Mounting Considerations

### NOTICE

This device should be mounted in a location that is not exposed to extreme temperatures or conditions. The temperature range for this device is listed in the product specifications (*Specifications*, page 9). Extended exposure to temperatures exceeding the specified temperature range, in storage or operating conditions, may cause device failure. Extreme-temperature-induced damage and related consequences are not covered by the warranty.

Before selecting the mounting location for the GC 255 camera and GVAM 10 black box, observe these considerations.

- You must mount the camera above the waterline.
- If you are mounting the black box more than 2 m (6.56 ft.) away from your GPSMAP chartplotter or network switch, you must extend the Garmin BlueNet network cable. See the *Technical Reference for Garmin BlueNet Network Technology* at [garmin.com/manuals/BlueNet](http://garmin.com/manuals/BlueNet) for more information.
- If you are mounting the black box more than 2 m (6.56 ft.) away from your power supply, you must extend the power cable (*Power Cable Extensions*, page 6).
- If you are mounting the camera more than 8 m (26.25 ft.) away from its black box, you must use a longer coaxial cable<sup>1</sup>.

### NOTICE

We do not recommend modifying the supplied coaxial cable. Failures caused by cutting or splicing the supplied coaxial cables, or by using a third party coaxial cable are not covered under the warranty.

- You must mount the black box in a location where it will not be submerged.
- You must mount the black box in a location with adequate ventilation so it does not trap heat.
- You must mount the black box and route its built-in network cable at least 71 cm (28 in.) away from noisy electrical sources such as spark plug wires and other sensitive electronics.
- You must mount the black box in a location that allows room for the routing and connection of all cables.

<sup>1</sup> You can purchase a 25 m (82 ft.) coaxial cable (part number 010-13026-02) from your Garmin dealer or on [garmin.com](http://garmin.com).

## Networking Considerations

This device uses Garmin BlueNet networking technology, and is compatible with both Garmin BlueNet devices and Garmin Marine Network devices. Before connecting this device to the network, observe these considerations.

- If your boat is equipped with a Garmin BlueNet chartplotter, you should connect the built-in Garmin BlueNet cable on the GVAM 10 black box to an open network port on your Garmin BlueNet chartplotter or on a Garmin BlueNet 20 switch.
- If your boat is equipped with a Garmin BlueNet chartplotter and uses a Garmin BlueNet 30 gateway to connect Garmin Marine Network devices, you should connect the built-in Garmin BlueNet cable on the GVAM 10 black box to the Garmin BlueNet side of the network, if possible, for the best performance and to best support future updates. If you must connect the GVAM 10 black box to the Garmin Marine Network side of your network, you must also have a Garmin Marine Network chartplotter that is compatible with the GC 255 device.
- If your boat is equipped with only Garmin Marine Network devices, you must use the Garmin Marine Network adapter cable to connect the GVAM 10 black box to your network<sup>2</sup>.

For more information about Garmin BlueNet technology, including best practices for constructing a network including both Garmin BlueNet devices and Garmin Marine Network devices, go to [garmin.com/manuals/BlueNet](http://garmin.com/manuals/BlueNet).

## Installing the Camera

- 1 Mount the black box (*Mounting the GVAM 10 Black Box, page 4*).
- 2 Select an option:
  - Connect to a Garmin BlueNet network device (*Connecting to a Garmin BlueNet Network, page 5*).
  - Connect to a Garmin Marine Network device (*Connecting to a Garmin Marine Network, page 5*).
- 3 Prepare the camera mounting surface (*Preparing the Camera Mounting Surface, page 5*).
- 4 Connect the camera to the black box (*Connecting the Camera, page 5*).
- 5 Connect the black box to power (*Connecting to Power, page 6*).
- 6 Mount the camera and fine-tune the lens orientation (*Mounting the Camera, page 7*).

## Mounting the GVAM IO Black Box

### NOTICE

Make sure the included screws are appropriate for the mounting surface material, and use a different set of screws if necessary.

- 1 Place the black box mounting template in the mounting location, and mark pilot holes on the mounting surface.
- 2 Place the GVAM 10 black box in the mounting location and verify the location of the pilot hole marks, correcting as necessary.
- 3 Using the appropriate bit for the mounting screws and the mounting surface material, drill the pilot holes.
- 4 Secure the black box to the mounting surface using the appropriate screws.

<sup>2</sup> If a Garmin Marine Network adapter cable is not supplied in the product box, you can purchase one from your local Garmin dealer (part number 010-12531-01) or go to [garmin.com/accessories/GMNAAdapterCable](http://garmin.com/accessories/GMNAAdapterCable).

## Connecting to the Network

### Connecting to a Garmin BlueNet Network

- 1 Route the built-in Garmin BlueNet cable from the GVAM 10 black box to your Garmin BlueNet chartplotter or the Garmin BlueNet 20 switch.

If need to extend the built-in Garmin BlueNet cable, you can purchase an additional Garmin BlueNet cable and a Garmin BlueNet coupler from your Garmin dealer or go to [garmin.com](http://garmin.com).

- 2 Connect the Garmin BlueNet cable to an open network port on the chartplotter or switch.
- 3 Tighten the locking ring on the connector.

### Connecting to a Garmin Marine Network

- 1 Route the built-in Garmin BlueNet cable from the GVAM 10 black box to your Garmin Marine Network chartplotter or the GMS™ 10 port expander.

If need to extend the built-in Garmin BlueNet cable, you can purchase an additional Garmin BlueNet cable and a Garmin BlueNet coupler from your Garmin dealer or go to [garmin.com](http://garmin.com).

- 2 Connect the Garmin BlueNet cable to the Garmin Marine Network adapter cable<sup>3</sup>.
- 3 Connect the other end of the Garmin Marine Network adapter cable to an open network port on the chartplotter or port expander.
- 4 Tighten the locking rings on the connectors.

### Preparing the Camera Mounting Surface

- 1 Determine the appropriate hole saw for the hull thickness:
  - For a hull thinner than 12 mm ( $1/2$  in.), use a 55 mm ( $2^{3}/_{16}$  in.) hole saw.
  - For a hull 12 mm ( $1/2$  in.) or thicker, use a 57 mm ( $2^{1}/_{4}$  in.) hole saw.

If the vessel has a cored or composite hull, you must use a slightly larger hole saw and seal the inside of the drilled hole using fiberglass, epoxy, or another material appropriate for the hull type, to prevent moisture from entering the core.

- 2 Drill the mounting hole perpendicular to the surface of the hull.

### Connecting the Camera

- 1 Route the included coaxial cable between the GVAM 10 black box and the camera mounting location.

#### NOTICE

You should not cut or splice the included coaxial cable. Failures caused by a modified coaxial cable are not covered under warranty.

- 2 Connect the coaxial cable to the black box using an 8 mm ( $5/_{16}$  in.) wrench.
- 3 Connect the other end of the coaxial cable to the camera's coaxial cable using the same size wrench.
- 4 Tighten both connectors to 9 kgf-cm (8 lbf-in.),  $\pm 1$  kgf-cm ( $\pm 1$  lbf-in.) of torque.

**TIP:** When tightening the connector to the camera cable, you should use an additional 8 mm ( $5/_{16}$  in.) wrench to hold the camera cable steady while you apply torque.

<sup>3</sup> If a Garmin Marine Network adapter cable is not supplied in the product box, you can purchase one from your local Garmin dealer (part number 010-12531-01) or go to [garmin.com/accessories/GMNAAdapterCable](http://garmin.com/accessories/GMNAAdapterCable).

## Connecting to Power

### ⚠ WARNING

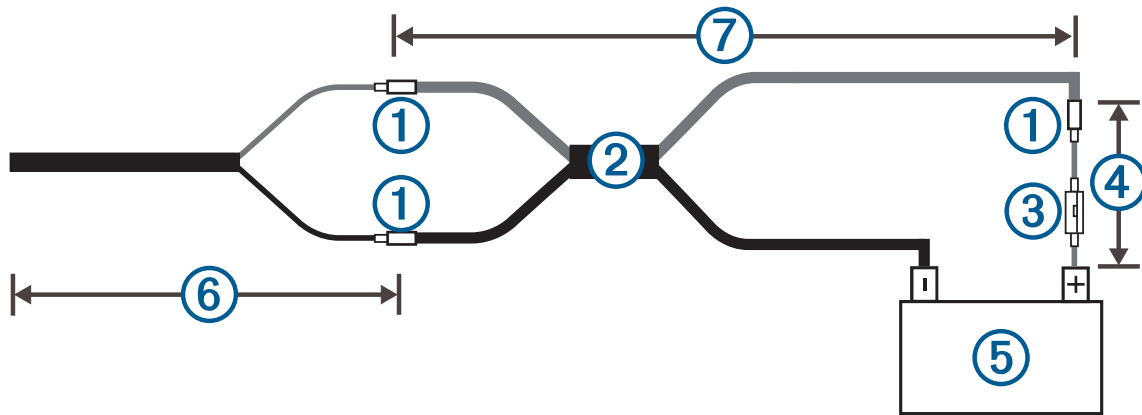
When connecting the power cable, do not remove the in-line fuse holder. To prevent the possibility of personal injury or product damage caused by fire or overheating, the appropriate fuse must be in place as indicated in the product specifications. Connecting the power cable without the appropriate fuse in place voids the product warranty.

You should connect the red wire to the power source through the ignition or another manual switch to turn the device on and off.

- 1 Route the power cable to the power source.  
If necessary, you can extend the power cable (*Power Cable Extensions, page 6*).
- 2 Connect the red power wire to the ignition or another manual switch, and connect the switch to the positive (+) battery terminal if necessary.
- 3 Connect the black wire to the negative (-) battery terminal or to ground.

### Power Cable Extensions

If necessary, the power cable can be extended using the appropriate wire gauge for the length of the extension. Use only wire with an insulation rating of 105° C or higher.



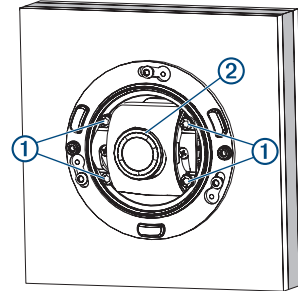
①	Splice
②	<ul style="list-style-type: none"><li>• Up to 18 m (60 ft.): 20 AWG (0.51 mm<sup>2</sup>) extension wire</li><li>• Up to 29 m (96 ft.): 18 AWG (0.81 mm<sup>2</sup>) extension wire</li><li>• Up to 47 m (155 ft.): 16 AWG (1.32 mm<sup>2</sup>) extension wire</li></ul>
③	Fuse (2 A)
④	20.3 cm (8 in.)
⑤	Battery
⑥	1.7 m (67 in.)
⑦	47 m (155 ft.) maximum extension

## Mounting the Camera

- 1 Insert the camera into the mounting hole.

Do not install the mounting screws yet. You will seal and secure the camera to the mounting surface after fine-tuning the camera orientation. If there is a concern that the camera may fall out, you can hold it in place using masking tape or another temporary method.

- 2 Using a T10 TORX screwdriver, loosen the four tilt-adjustment screws ① until you can tilt the adjustable lens module ② inside the mounting enclosure.



- 3 On a connected chartplotter, select **Home** > **Vessel** > **Video**.

**NOTE:** It may take several seconds for the camera feed to appear after powering on.

- 4 If you have more than one camera in your network, select **Options** > **Source**, and select the appropriate camera.
- 5 While watching the video feed on the chartplotter screen, manually rotate the camera enclosure clockwise or counterclockwise, and tilt the adjustable lens module up or down until you find the intended field of view.

**TIP:** You can use the ActiveCaptain® app to view the chartplotter screen on your mobile device while adjusting the camera. See the chartplotter *Owner's Manual* for details.

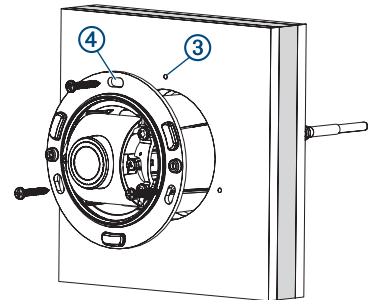
- 6 After the tilt angle is set, use a T10 TORX screwdriver to tighten the four tilt-adjustment screws evenly and in small, alternating increments to secure the camera inside the mounting enclosure.

**NOTE:** Tightening these screws in small, alternating increments helps avoid pulling the lens module out of position while locking it.

- 7 Mark three pilot hole locations ③ on the mounting surface through the three slots ④ in the mounting enclosure.

**TIP:** You should mark the pilot holes through the center of the slots in the mounting enclosure to allow room for fine adjustments when permanently mounting the camera.

- 8 Remove the camera from the mounting surface, but do not disconnect the coaxial cable.



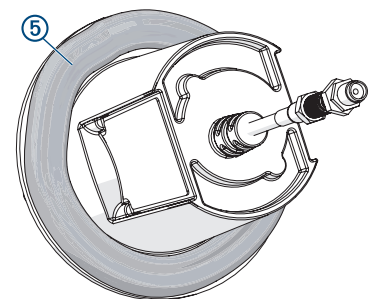
- 9 Using a 3.2 mm (1/8 in.) drill bit, drill the three pilot holes.

**NOTE:** Take care to protect the coaxial cable inside the hull while drilling.

- 10 Apply marine sealant ⑤ to the flange around the mounting enclosure, to seal it against the hull.

**NOTE:** You should apply plenty of marine sealant, because this is the only seal between the mounting enclosure and the inside of the hull.

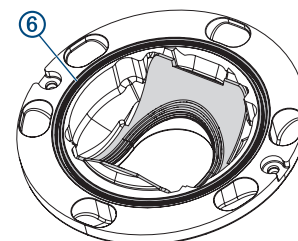
- 11 Insert the camera into the hull and rotate the mounting enclosure clockwise or counter-clockwise until the camera is in the intended alignment again.



- 12 Using a T10 TORX driver or bit, install the mounting screws and secure the camera.

- 13 If necessary, remove excess marine sealant while leaving a small bead of sealant around the outer edge of the flange.

- 14 Make sure the red gasket around the front of the enclosure is fully seated in its groove ⑥.



15 Install the mounting enclosure cap on the camera.

16 Tighten the screws on the mounting enclosure cap evenly and in small, alternating increments to 11.5 kgf-cm (10 lbf-in.),  $\pm 1$  kgf-cm ( $\pm 1$  lbf-in.).


**NOTE:** Tightening these screws in small, alternating increments helps ensure an even seal with the gasket on the mounting enclosure.

#### NOTICE

You must tighten the screws on the mounting enclosure cap to the appropriate torque specification to prevent water from entering the hull or the vessel.

## Configuring the Camera

### Rotating or Mirroring the Camera Image

- 1 Select  > **Vessel** > **Video** > **Options**.
- 2 If you have more than one camera on your network, select **Source**, and select a camera.
- 3 Select an option:
  - To mirror the image, select **Video Setup** > **Mirror**.
  - To rotate the image by 180 degrees, select **Installation** > **Inverted Install**.


### Configuring Guidance Lines

The guidance lines feature is intended primarily for rear-facing cameras that are used while docking your vessel.

#### CAUTION

Guidance lines are user-configured and intended for visual reference only. They may not prevent collisions in all circumstances and should not be relied upon for estimating exact distances. It is your obligation to ensure safe operation of your vessel and to remain aware of your surroundings while operating your vessel.

You can access a step-by-step video tutorial on [garmin.com/videos/gc255](https://garmin.com/videos/gc255).

- 1 Select  > **Vessel** > **Video** > **Options**.
- 2 If you have more than one camera connected to your network, select **Source**, and select a camera to configure.
- 3 Select **Video Setup** > **Adjust Guidance Lines**.
- 4 Select **Up**, **Down**, **Left** and **Right** to adjust the first reference point.
- 5 After you've set the first reference point, select **Next** to adjust the next point.
- 6 Repeat this process to set the other three points.

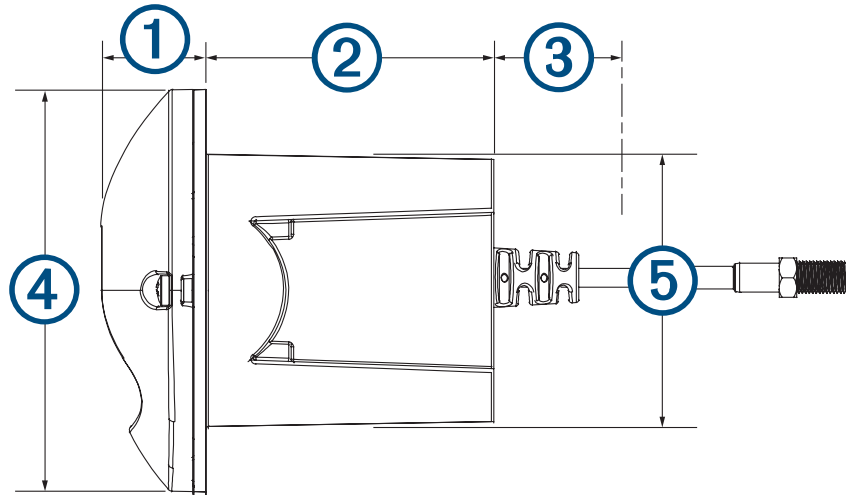
We recommend setting reference points so that the vertical lines align with the edge of a dock next to your vessel, and so that the red horizontal line is positioned just off the stern of your vessel.
- 7 After you've adjusted all of the reference points and have finished configuring the guidance lines, select **Back** to exit.

**TIP:** You can select Save as Default to save this configuration and recall it later by selecting Reset to Default.



## Specifications

### GC 255 Camera Dimensions



①	24 mm (1 <sup>5</sup> / <sub>16</sub> in.)
②	58 mm (2 <sup>5</sup> / <sub>16</sub> in.)
③	26 mm (1 <sup>1</sup> / <sub>16</sub> in.)
④	Ø 81 mm (3 <sup>3</sup> / <sub>16</sub> in.)
⑤	Ø 55 mm (2 <sup>3</sup> / <sub>16</sub> in.)

### GC 255 Camera Specifications

Weight	655 g (1 lb. 7.1 oz.)
Temperature range	From -20 to 55°C (From -4 to 131°F)
Case material	Stainless steel, polycarbonate
Resolution	2 megapixels, 1080p
Digital zoom	1× to 4×
Field of View	Horizontal: 160 degrees Vertical: 90 degrees
Compass safe distance	2.54 cm (1 in.)

## GVAM 10 Black Box Specifications

Dimensions (W×H×D)	151.31 × 64.3 × 30.25 mm (5.957 × 2.532 × 1.191 in.)
Weight	325 g (11.5 oz)
Temperature range	From -20 to 55°C (From -4 to 131°F)
Power source	10 to 32 Vdc
Average input current	0.31 A at 12 Vdc in
Peak input current	0.42 A
Average input power	4.1 W
Peak input power	4.5 W
Compass-safe distance	2.54 cm (1 in.)
Fuse	2 A

## GVAM 10 Status LED Codes

The color and flashing sequence of the status LED on the GVAM 10 black box indicates the system status.

LED Color	LED State	Status
Red	Solid	The system is powering up.
Green	Solid	The system is booting.
Green	Flashing	The system is operating normally.

## Open-Source Software License

To view the open-source software license(s) used in this product, go to [developer.garmin.com/open-source/linux/](https://developer.garmin.com/open-source/linux/).

## 物質宣言

部件名称	有毒有害物质或元素									
	铅	汞	镉	六价铬	多溴联苯	多溴二苯醚	邻苯二甲酸二(2-乙基己)酯	邻苯二甲酸丁苄酯	邻苯二甲酸二丁酯	邻苯二甲酸二异丁酯
印刷电路板组件	×	○	○	○	○	○	○	○	○	○
金属零件	×	○	○	○	○	○	○	○	○	○
电缆 电缆组件 连接器	×	○	○	○	○	○	○	○	○	○
塑料和橡胶零件	○	○	○	○	○	○	○	○	○	○

本表格依据 SJ/T11364 的规定编制。

○: 代表此种部件的所有均质材料中所含的该种有害物质均低于 (GB/T26572) 规定的限量

×: 代表此种部件所用的均质材料中, 至少有一类材料其所含的有害物质高于 (GB/T26572) 规定的限量

\* 该产品说明书应提供在环保使用期限和特殊标记的部分详细讲解产品的担保使用条件。



产品

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