



Setup, Use and Care Guide

EM419 Color External Monitor

Dear Gates Customer,

Welcome to the Gates family! You now own one of the finest underwater housings available, and we thank you for choosing Gates. For over 33 years Gates has crafted the most **reliable, durable** and **dependable** housings to suit many needs, from recreational diving to treasure hunting, marine research and Hollywood productions to U.S. Navy programs.

You see, at Gates, your selection of our product is only the beginning. We are here to service you, the customer, for as long as you own our product. Our Customer Service is second to none. We'll make every reasonable effort to support you wherever your adventures land you, including remote corners of the globe. Anytime you need advice, parts, overhaul, or repair, Gates will take care of you promptly and to your satisfaction.

Please read through all the documentation contained in this package to become familiar with your Gates housing **before** diving. It contains important and valuable information to make using your new housing easy to learn and use. Soon you'll be capturing images and showing your friends and colleagues the splendor of the undersea realm.

Complete and return the warranty card enclosed in this package to activate your *2-year renewable warranty*. You'll receive 2 years of warranty coverage for your investment and unprecedented peace of mind, only from Gates.

Gates wishes you the greatest success in your diving adventures. May you capture the memories of a lifetime and the envy of your friends. And remember.....

Don't take a chance...Take a *Gates!*

Sincerely,

John Ellerbrock
President and General Manager

Gates EM419 External Color Monitor Setup and Use

Congratulations! You've selected a Gates product that will provide years of value and reliable service. This monitor was designed for operation with a variety of cameras and housings. Please read through this entire guide to become familiar with the Gates External Color Monitor. The following setup guidelines will explain how to prepare and use the EM419 and housing so you'll get the best results from your video endeavors.

Before You Begin

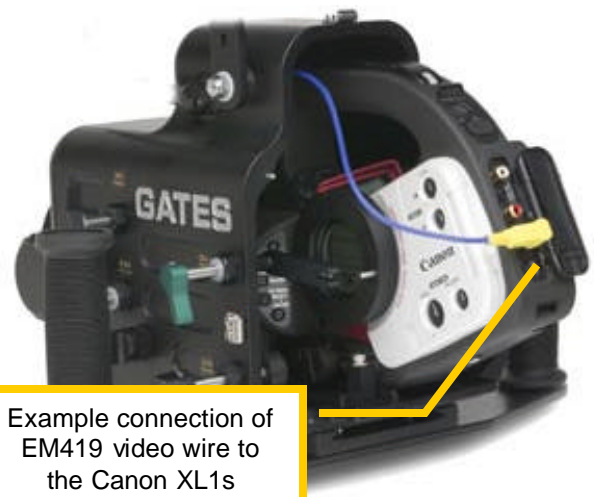
Every Gates housing is pressure tested before leaving the factory to assure a watertight seal. The EM419 is shipped with batteries installed and is ready to use. Rough or abusive handling during shipment however, could have caused unnoticed damage after leaving the factory. Please carefully inspect the contents of the package and the EM419 for any sign of damage during shipment. If damage is suspected, contact Gates directly for further action.

Camera Setup

Special setup of your camera may be required to use the EM419.

- ✍ **Information display.** Some cameras must be set to display important camera data on the video out signal. Every camera is different in this regard, so consult your camera user manual for further help. If you purchased the EM419 with a Gates housing, the housing Setup, Use and Care Guide may have specific information on these settings.
- ✍ **Camera video connection.** The location and type of connection required to supply the EM419 a video signal from your camera is specific to the camera. The Setup, Use and Care Guide for your housing may contain more specifics on this connection.

After plugging into the camera, you can verify operation of the EM419 by plugging the EM419 cable into the bulkhead connector on the housing and turning on the camera. You should see an image display on the monitor within a few seconds.



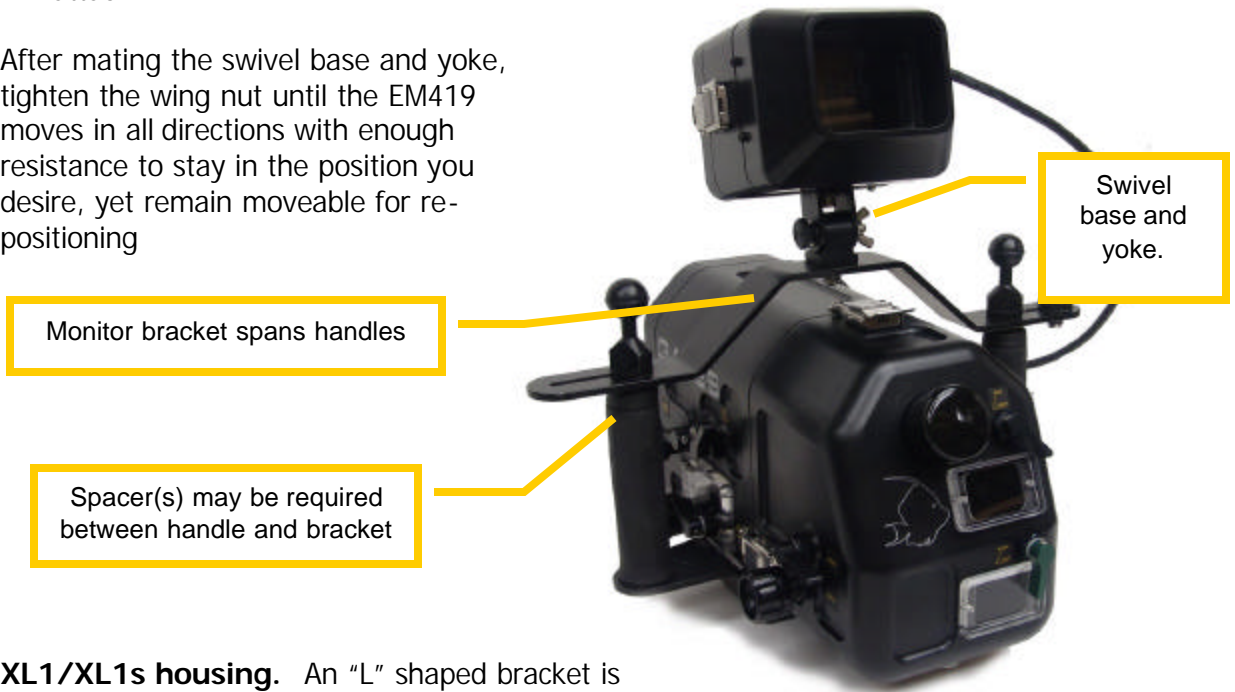
Example connection of EM419 video wire to the Canon XL1s

Mounting to a Housing

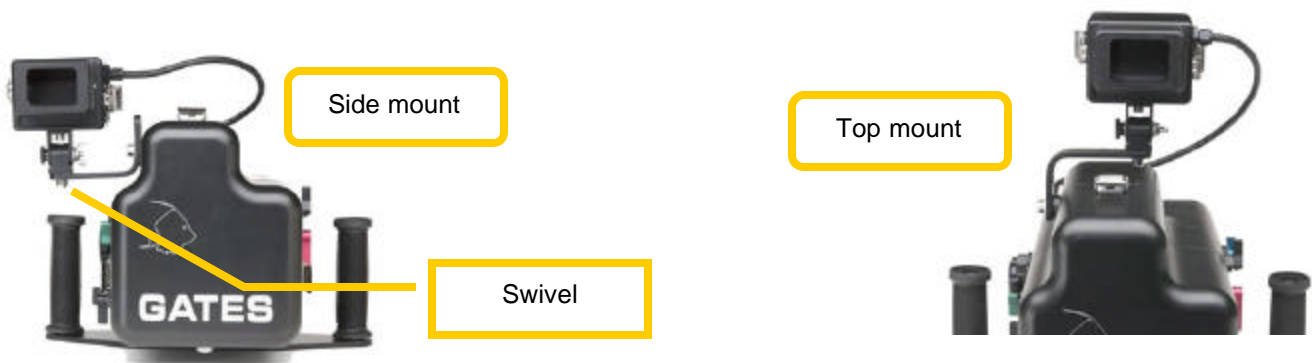
Attachment of the EM419 to any housing is straightforward and generally the same (with exception of the Gates XL1/XL1s housing). See photos below for typical installations.

- ✍ **TRV / VX / PD / HD /GL housings** utilize a bracket that secures to the handles and spans the top of housing. In the center of the bracket the EM419 swivel base will attach.

After mating the swivel base and yoke, tighten the wing nut until the EM419 moves in all directions with enough resistance to stay in the position you desire, yet remain moveable for re-positioning



- ✍ **XL1/XL1s housing.** An "L" shaped bracket is attached to the left side of the housing on a threaded stud located directly above the left handle.



Note that the monitor can be mounted in two ways: offset to the side, or directly on top of the housing (see photo. EM253 is shown.). Determine your preferred mounting method and attach the "L" bracket appropriately using the 1/4-20 nylock nut and stainless washer.

- ✍ **Sea & Sea VX2000 Housing.** The EM419 will mount to the Sea & Sea VX2000 housing on a dovetail bracket (see photo). This bracket will slide into the same slot as the carrying handle (which cannot be used at the same time as the monitor) and secured by use of a thumb screw. (EM 253 shown)



Dovetail mount bracket


EM419 Connection to Housing

The EM419 will connect to the housing via the 2-pin EO-type connector. The male connector on the cable will mate with an easily identifiable female bulkhead connector on the housing (see photo). If necessary, use water or lubricant for easier mating of the connectors.



Plug in the EM419 cable to the bulkhead connector. (HD1 housing shown)

While you may see a hole on both ends of the bulkhead connector, only one is big enough to accept the cable connector. Also, the connectors are 'wet mating' connectors, so there is no need to plug/unplug them only when dry.

 **Caution:** If you are not using the EM419 monitor for any reason, do not plug the video wires into your camera.

- ✍ **Verify operation** by turning on the camera. If properly connected, the monitor will automatically turn on and display an image. You may have to wait 3-4 seconds before an image will appear.


Batteries


The EM419 uses 8 AA cells for power. They can be Alkaline or NiMH/NiCad rechargeable. The monitor will operate for ~14 hours on a fresh set of Alkaline cells, and ~10 hours on fully charged NiMH/NiCad cells depending on the capacity.

To change the cells, release the latches on the either side of the monitor and separate the two halves where you'll find the batteries readily accessible.

When closing the EM419 housing, perform a routine inspection of the o-ring for any foreign material or damage. Replace if necessary and clean the o-ring groove before installing the new o-ring. Refer to the Gates "Housing Care and Maintenance Guide" for more information.



 **Caution:** Verify the batteries are installed in the holder in the proper direction. Reversed cells may leak acid and cause damage to the EM419.

 **Caution:** Do not lubricate the large orange o-ring! It is a special silicone o-ring and can be damaged by petroleum-based lubricants.

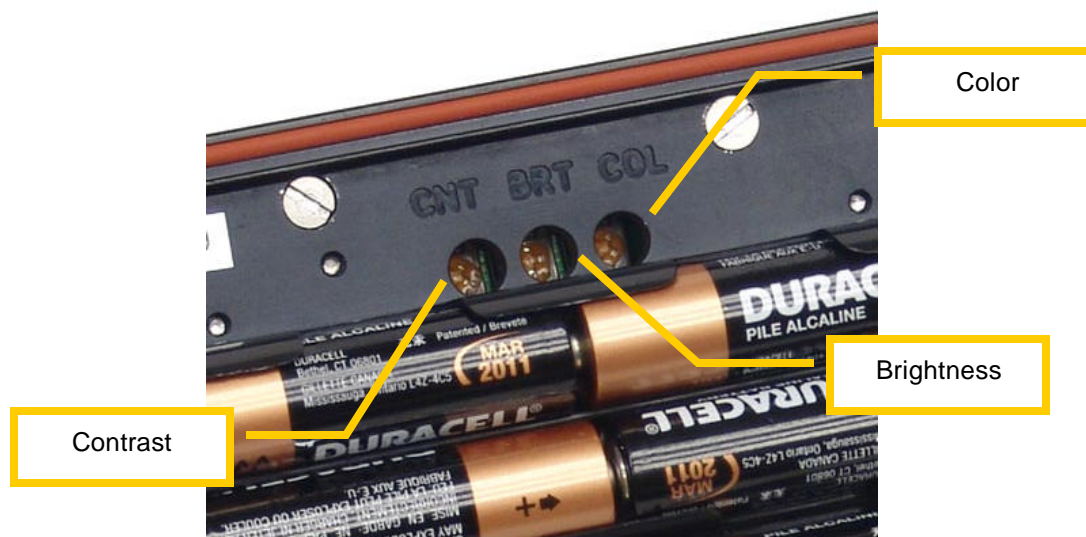
Monitor Adjustment

The EM419 has three adjustments for brightness, color and contrast. These adjustments can be found on the inside rear half of the housing (see photo).

While the monitor is pre-adjusted at the factory, Gates recommends the monitor be further adjusted to match the camera being used. This will ensure a consistent match between the monitor and the image actually being recorded.

Matching the camera and monitor should be done in a darkened area to allow good viewing of both the monitor and the camera electronic viewfinder (EVF).

With the camera on and the monitor plugged in, compare the image on the EVF to the monitor. Separate the monitor halves, make a small adjustment to the brightness, contrast or color control, then mate the halves again and view the results. (It is not necessary to secure the latches. Simply mating the halves should produce an image.) Fine tune your adjustments until you are satisfied that the image on the monitor accurately reflects that being seen in the EVF.



Customer Support

If you have any questions or require further assistance with your EM419 External Color Monitor, contact your dealer or Gates directly and we'll be happy to assist.

Email: Customersrvc@GatesHousings.com
Phone: 858-272-2501
Fax: 858-272-1208