SubC Imaging

MantaRay Parallel Lasers

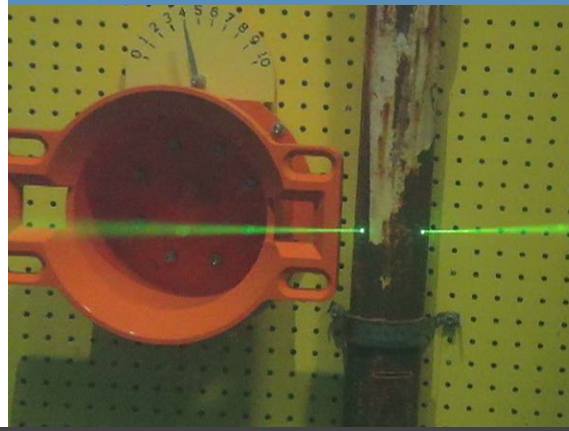
Plug-and-play with cameras and underwater systems

Key Features

- 10cm parallel, calibrated and accurate to 5m
- Simple attachment to camera
- 532nm wavelength
- Designed for precision applications
- 6000m, Titanium and Sapphire
- Can operate as a stand-alone product with TTL enable
- Class 3B lasers

Harshest Conditions. Clearest Images.

The MantaRay Parallel Lasers is used to identify the distance and scale of underwater objects by projecting two parallel beams that appear as green dots in images.



Contact team@subcimaging.com for pricing, rental information or live demonstration

MantaRay-Ti-100-Points

Electrical: CC
Production: JMH
Mechanical: BL

Updated: 2021-04-15

Laser Specifications

Parallelism: 10cm ±10mm @ 5m distance
Output Power: >5mW
Wavelength: 532nm (green)
Class: 3B (avoid direct exposure/laser protective eyewear required)

Electrical Specifications

Power: 7.2 W
Protection: Short circuit, over voltage, reverse voltage, ESD
Min/Max Temperature: -2 to +20 °C
Voltage: 7 - 32.5 Vdc
Control: 5 - 24V Inverse TTL modulation

Mechanical Specifications

Material: Sapphire, Grade 5 Titanium
Weight: 700g in Air, 400g in Water
Depth Rating: 6000m

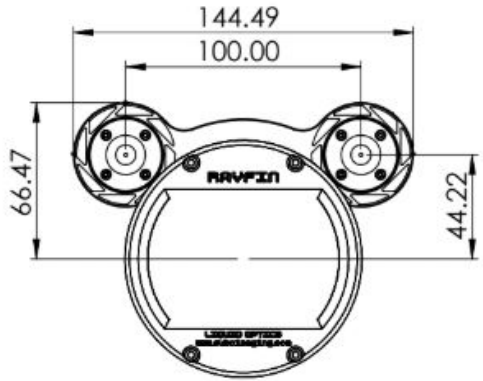
TTL Operation

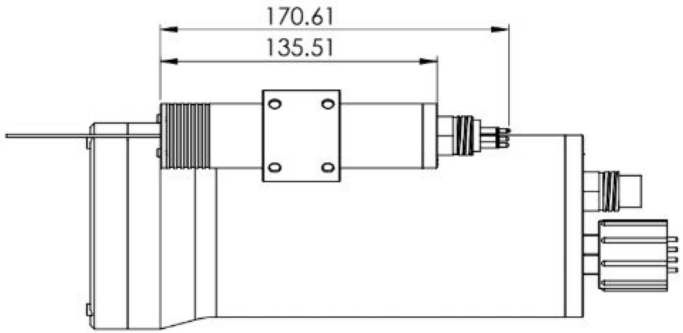
- The Laser is enabled by default when power is applied and also when GND is applied to pin 3.
- When 5 - 24V DC is applied to pin 3, the output is disabled.

Included

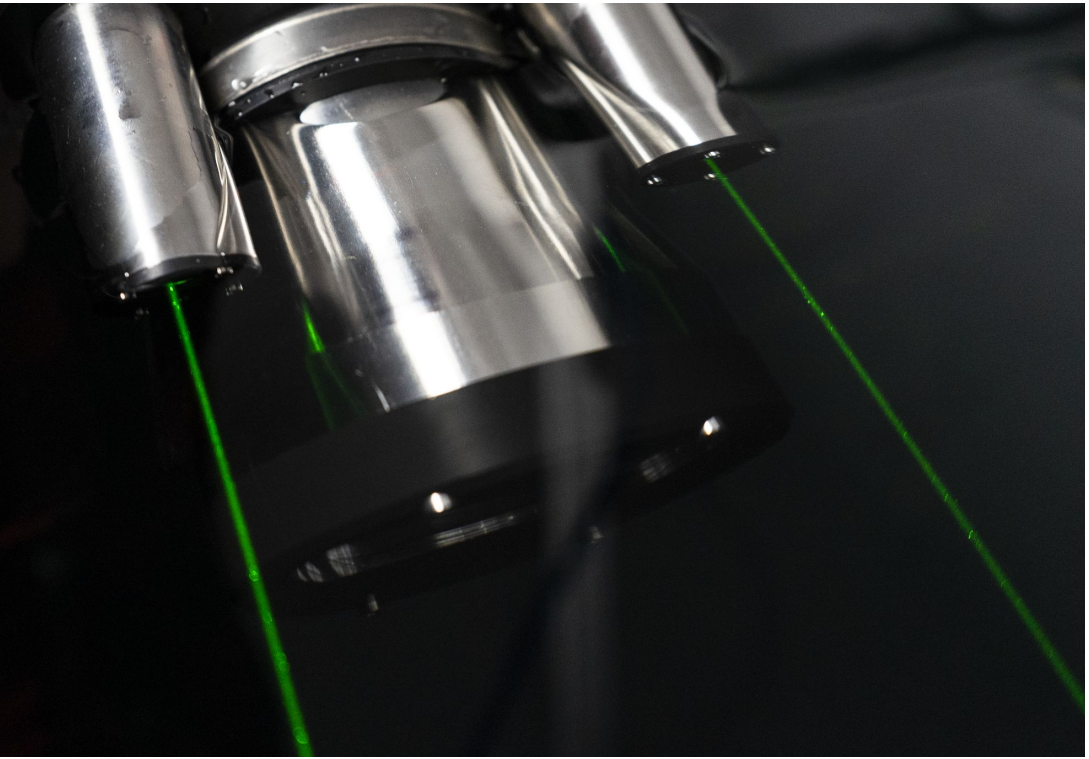
- Calibrated delrin Mount for 89mm diameter camera
- Titanium hose clamps for attachment
- Y-splice MCBH5M to 2x MCBH5F cable with locking sleeves

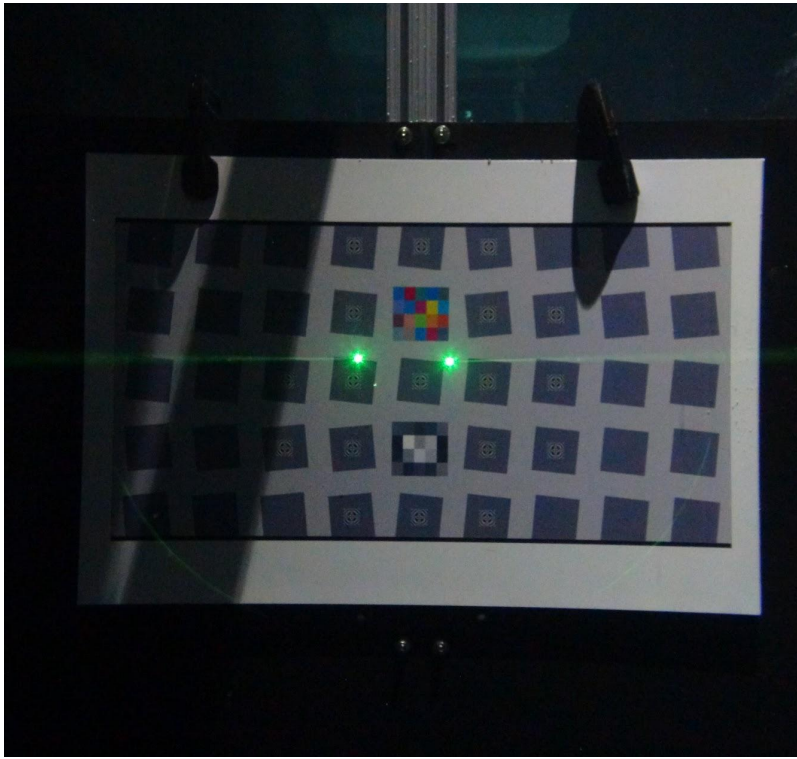
	MCBH5M
1	GND
2	PWR
3	Inverse TTL Enabled
4	N/C
5	N/C





Underwater Target Calibration





Support

Contact support

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Installing TeamViewer for remote support

1. Ensure the LAN functionality in TeamViewer is enabled (go to Extras > Options > General > Incoming LAN connections). Using TeamViewer over LAN allows for much faster operation and better quality. SubC recommends using a LAN connection whenever possible.

2. You can obtain TeamViewer 8 software from: https://community.teamviewer.com/t5/Knowledge-Base/Download-TeamViewer-8-and-9/ta-p/78348

3. Install and open Teamviewer on your computer. You will see a window similar to the one below.

4. Make note of the Your ID and Password fields.

5. Contact SubC tech support and provide them with your codes; they now have remote access and can help with any issues that may arise.

Precautions and Maintenance - Lasers

Please read this manual carefully before setting-up and using your unit. The electronic version of this document is the controlled copy. Therefore all printed versions of this document are uncontrolled.

1. This device has been designed for subsea usage. Do not operate for an extended period of time (>10 minutes) in air.

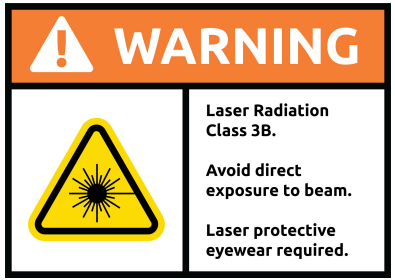
2. The power supply is polarized. Please ensure that the correct polarity is used before plugging into the unit. Incorrect electrical connections may damage the internal electronics. See the bulkhead pinout.

3. Before attaching the connector to the camera be certain that the pins are aligned, clean and lightly lubricated with appropriate silicone o-ring grease (Ultimate o-ring lubricant for example http://www.ablesealanddesign.com).

4. **Do not stare into the beam. Staring directly into the beam or the reflected beam can cause permanent eye damage.**

5. Please refer to the regulations according to EN 60825-1 and BGV B2. For laser sources classified in Laser Classes 3 and 4, please refer to the additional regulations according to EN 207/208 (Laser Safety).

****The customer is responsible for ensuring that the device conforms to Laser Safety Standards.**



O-Ring Lubricant

Best practices for assembling your system

Greasing the Connector/Dummy Plug (**ABOVE WATER - DRY MATE ONLY**)

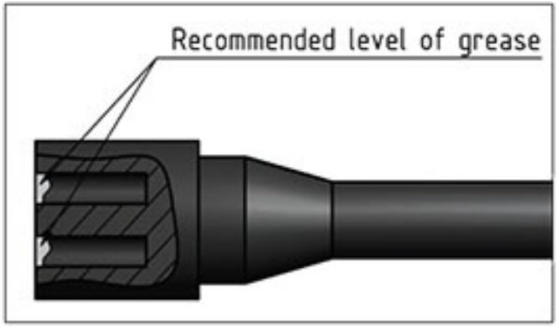
A. Connectors must be greased with Molykote 44 Medium (or equivalent) before every mating. **Check the MSDS for your type of o-ring lubricant before use.**

B. A layer of grease corresponding to minimum 1/10 of socket depth should be applied to the female connector

C. The inner edge of all sockets should be completely covered, and a thin transparent layer of grease left visible on the face of the connector

D. After greasing, fully mate the male and female connector in order to secure optimal distribution of grease on pins and in sockets

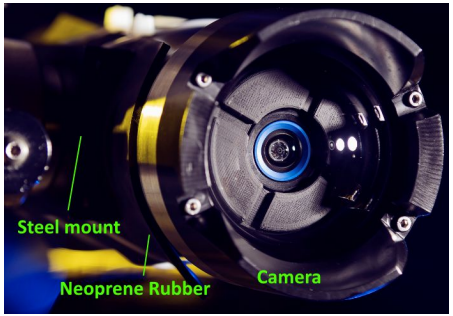
E. To confirm that grease has been sufficiently applied, de-mate and check for grease on every male pin then re-mate the connector



System Hookup

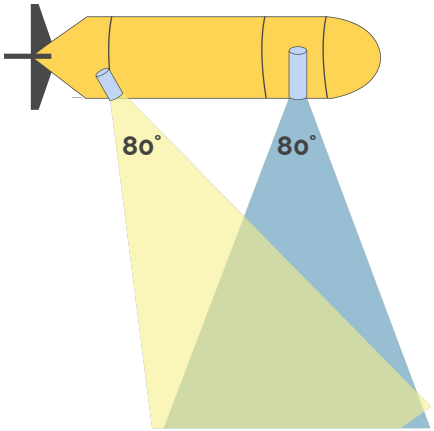
Best practices for assembling your system

For the fundamentals of how to capture excellent underwater photos and detailed video, check out our Underwater Photography Guide:
https://issuu.com/subcimaging/docs/subc_underwater_photography_guide?fr=sZmI1MTI1MjM2MzM



1. **SubC products are designed to run in water.** There is built-in thermal protection in our equipment, however, we cannot guarantee performance in air.

2. The camera, LED, and laser should be attached to a solid mounting point with either stainless steel hose clamps OR a machined clamp. In between the mount point and the equipment, use some neoprene rubber, electrical tape, or similar insulation material to prevent corrosion from dissimilar metal contact.



3. To limit particle backscatter, the LED should be positioned as far away from the camera as possible in the system while also angling the light so that there is sufficient overlap. The Rayfin camera field of view is 80 degrees diagonal and the LED's beam angle is also matched at 80. So the light should be slightly further from the scene than the camera, which is easily achievable. If it isn't set up properly, you may end up with dark corners in the images.

4. When connecting the cables to the equipment, use o-ring lubricant. See page about **o-ring lubricant**.

CONTACT SUBC IMAGING

As leaders in our field, our goal is to provide complete imaging solutions to the Ocean Science Community. Our first step is always a simple conversation about the nature of your project and how our solutions can help you achieve success.

If you're interested in learning more about our products and services, please reach out to:

team@subcimaging.com