



INTEGRATION GUIDE

FOR ROV, SUBMERSIBLE AND SURFACE STREAMING OPERATIONS

MANTIS SUB ENCLOSURE FOR INSTA360 PRO/PRO2

Please read these instructions carefully before using this product, and save this manual for future use. For questions, email info@mantis-vr.com or visit <https://www.mantis-vr.com/>

Please note that the actual controls and components, menu items, etc. of your camera and software may look somewhat different from those shown in the illustrations in this manual.

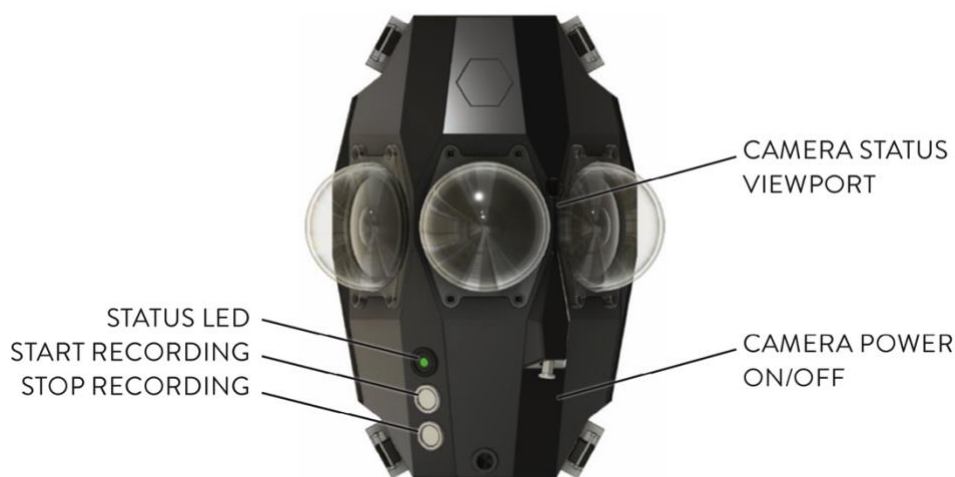
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ABOUT THE MANTIS SUB ENCLOSURE

The Mantis Sub housing for the Insta360 Pro2 camera allows low-latency 4K3D live streaming and 8K3D recording of full-spherical stereoscopic video at depths to 90 metres / 300 feet.

The distinctive hexagonal geometry of the allows an uninterrupted 360-degree view with clean zenith and nadir. The camera can be switched on and controlled using buttons on the body, or connected via a waterproof ethernet bulkhead to provide control and livestreaming via the Insta360 app for mobile or desktop.



MANTIS SUB LED STATES

- | | |
|-----------------|--------------------------|
| ○ No connection | ● No vacuum |
| ● Processing | ● Vacuum |
| ● Recording | ● Vacuum lost (blinking) |
| | ● Vacuum too great |

CONTROLLING AND MONITORING

The Insta360 Pro/Pro2 can be controlled with the buttons on the enclosure, or with the free Insta360 App via Ethernet:

PC/Mac: <https://www.insta360.com/download/insta360-pro2>

iOS: <https://apps.apple.com/us/app/insta360-pro-pro2-controller/id1245129112>

Android: <https://play.google.com/store/apps/details?id=com.arashivision.pro>

The live stream can be viewed inside the Insta360 Pro Camera Control App (windowed or full-screen) with minimal latency as low as 0.6s, depending on resolution and hardware capabilities.

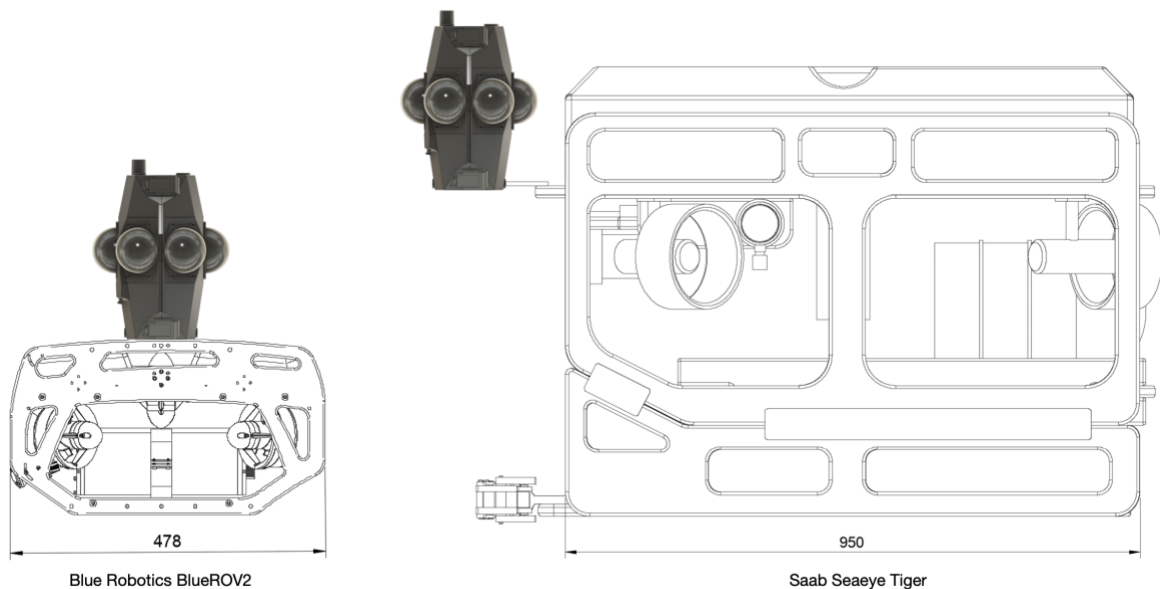
RTMP broadcasts to internet streaming platforms like Facebook, Youtube etc. have a typical delay of 15s.

Please follow the streaming manual provided by Insta360 at

- <https://onlinemanual.insta360.com/pro2/en-us/live/prepare/1>
- https://www.insta360.com/de/support/supportcourse?post_id=3417

ROV INTEGRATION OVERVIEW

The housing is 300gr / 10oz positive in saltwater and should be mounted upright for the best 3D experience. An optional ethernet or hybrid ethernet/power cable allows integration into the ROVs ethernet network.



Cabling - Data only	4x 24 AWG for Cat 5 (required) 8x 24 AWG for Cat 6 (optional)
Cabling - Power only	2x 14 AWG for 12V5A
Cabling - Data and Power	4x 14 AWG 24 + 2x 14 AWG, or 8x 14 AWG 24 + 2x 14 AWG, or
Bulkhead	M16x1.0
Connector – Data	RJ45
Connector – Power	5.5x2.5mm barrel connector
IPv4	DHCP or fixed at 192.168.1.188
Bandwidth	20Mbps at 4K3D (3840x3840)
Latency	0.6s at 720P 3D(1440x1440)

SPECIFICATIONS

ENCLOSURE

- Housing body: Aluminium alloy.
- Surface treatment: Hard anodised.
- Dome Material: Acrylic.
- Depth rating: 90m/300ft.
- Buoyancy: freshwater 200g/7oz positive, seawater 300g/10oz positive
- Dimensions:
 - Dome: 90x70x40mm / 3.5*2.8*1.6 inch
 - Enclosure w/o dome: 138*163*250mm / 5.5*6.4*9.85 inch
 - Enclosure with domes: 190*209*250mm / 7.5*8.2*1.6 inch
- Weight without camera and batteries: 2.2 kg/4.8 lbs.
- Weight with camera and batteries: 3.7 kg/8.2 lbs.
- Battery life, controller: up to 12 hours

POWER CONSUMPTION

Mode	With battery installed	Without battery installed
Off	25mA	50mA
Idle	0.6A	0.4A
Ready	1.9A	1.7A
Recording	2.2A	2.0A
Streaming	2.1A	1.9A
Formatting	3.0A	3.0A
Off + Charging	1.6A	n/a

LIVE STREAMING

Resolution	Bitrate	Latency
4K3D (3840x3840)	20 Mbps	0.9s
4K (3840x1920)	15 Mbps	0.8s
4K (3840x2160)	15 Mbps	0.8s
1440P 3D (2880x2880)	15 Mbps	0.8s
1440P (2880x1440)	10 Mbps	0.8s
1080P (2160x1080)	6 Mbps	0.7s
1080P (1920x1080)	6 Mbps	0.7s
960P 3D(1920x1920)	10 Mbps	0.7s
960P(1920x960)	6 Mbps	0.7s
720P 3D(1440x1440)	8 Mbps	0.6s
720P(1440x720)	4 Mbps	0.6s

CONNECTIONS

Audio	Socket	2x 3.5mm stereo (input)
Ethernet	Socket	1x RJ45
	Cable	Cat 5/5e/6 (min. 2x TP)
	IP Address	192.168.1.188 or DHCP
Power	Socket	1x 5.5x2.5mm
	Specification	DC 12V3A
HDMI	Socket	1x HDMI 2.0 Type D (Micro)
	Output	4K/60 fps
USB-C	Socket	1x USB 3.1 Type-C
Wifi (Insta360)	SSID	Insta360-Pro2-XXXX
	IP Address	192.168.43.1
	Password	88888888
WiFi (Mantis)	SSID	Mantis-Sub-XXXX
	IP Address	192.168.44.1
	Password	88888888

MOUNT POINTS

Top	15x 1/4-20 UNC, 9mm spacing
Base	16x 1/4-20 UNC, 9mm spacing
Front	1x 3/8-16 UNC
Back	1x 3/8-16 UNC

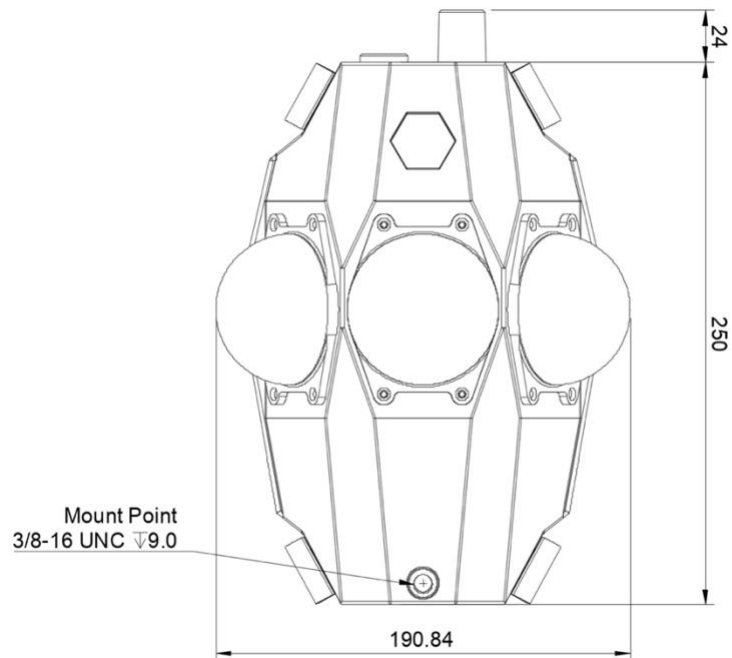
BULKHEADS

Top	2x M14x1.0 1x M16x1.0
Base	1x M16x1.0

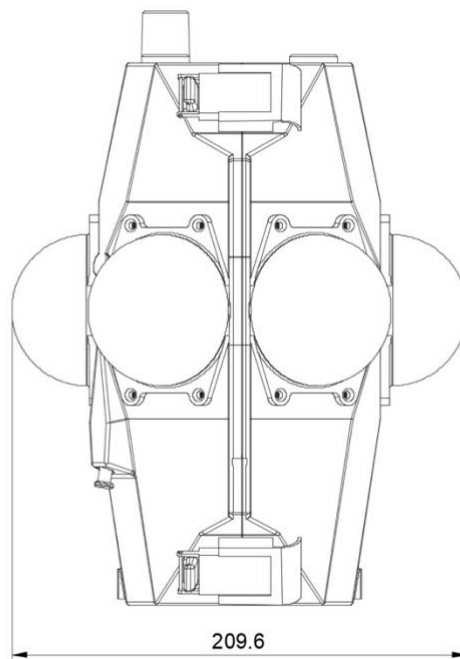
DRAWINGS

All dimensions in mm.

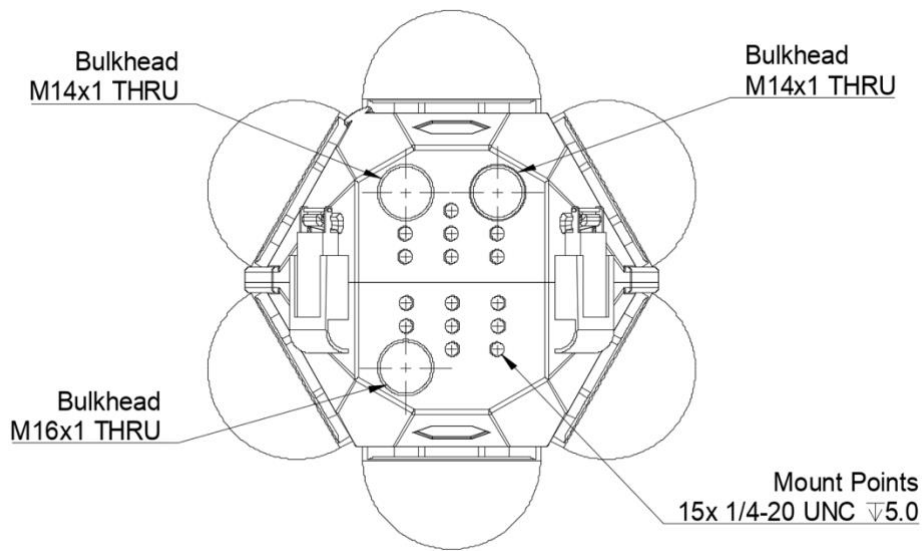
FRONT



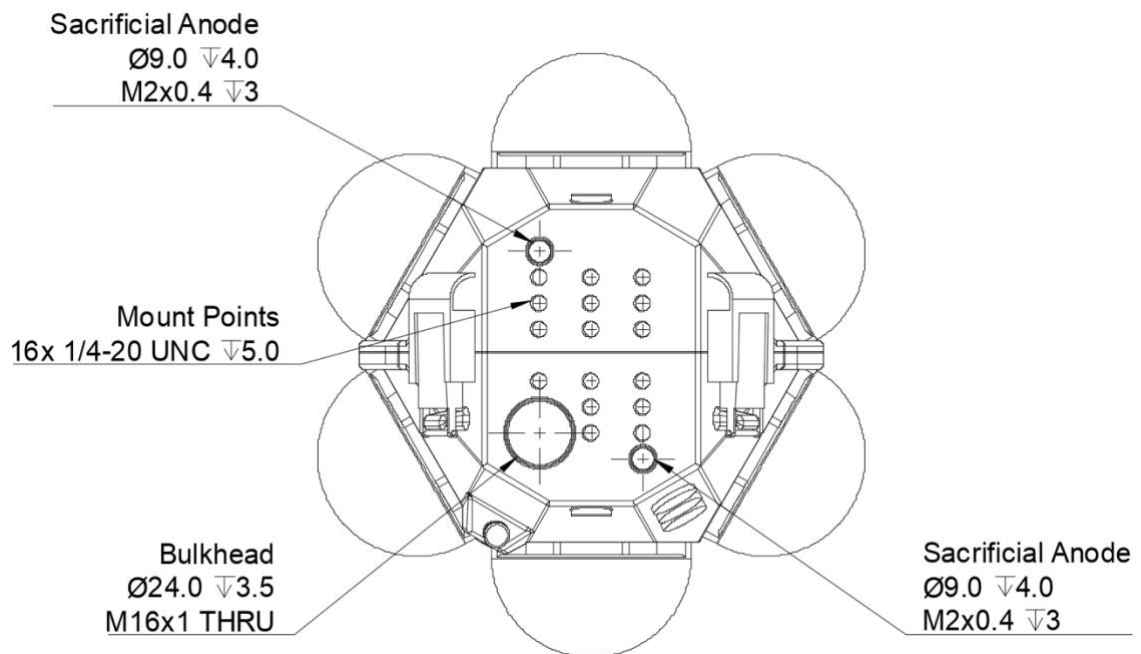
SIDE



TOP



BASE



BULKHEAD CONNECTOR GUIDE

AUDIO / HYDROPHONE

Insta360:

The Insta360 Pro and Pro2 feature a 3.5mm Audio input port at the base of the camera to support external audio equipment.

The Insta360 Pro2 features an additional 3.5mm Audio input port, a USB2.0 port, and a 1/4-20 UNC threaded hole at the top of the camera to support external audio equipment mounted at the top. This is the preferred configuration.

Mantis:

The Mantis Sub enclosure features two M14x1 and one M16x1 bulkhead ports on the top of the housing, and one M16x1 bulkhead port at the base. One M14x1 at the top is typically taken by the Vacuum valve. The other ports are available to accommodate audio connection and hydrophone(s) which are available from 3rd parties.

3rd Party Equipment:

- [Ambient Hydrophone ASF-G M14 with cable ASFG35DC](#), with M14x1 bulkhead connector.

ETHERNET

Insta360:

The Insta360 Pro1 and Pro2 feature a RJ45 socket at the base of the camera for control, monitoring, and live streaming of pre-stitched 360 video. The minimum cable requirement is Cat 5 (2x twisted pair). The maximum bandwidth requirement for live streaming is 20MBit. This can be adjusted with the Insta360 App via WiFi and Ethernet.

Mantis:

The Mantis Sub enclosure features one M16x1 bulkhead port at the base of the housing. RJ45 bulkhead connectors are available from Mantis and 3rd parties.

3rd Party Equipment:

- [DIVE AND SEE DNC-2025 LAN Ethernet Cat6 bulkhead connector](#), with M16x1 thread.

POWER

The internal battery is able to supply power for up to 90 Minutes of continuous recording. This can be extended by up to 30 Minutes with the Mantis battery pack. For longer deployments, external power is desirable.

Insta360:

The Insta360 Pro and Pro2 feature a 5.5x2.5mm DC female socket at the base of the camera to receive DC 10-12V at up to 3A (36W).

Mantis:

The Mantis Sub enclosure features one M16x1 bulkhead port at the base of the housing. Power bulkhead connectors are available from Mantis and 3rd parties. Please choose appropriate cable diameter and length considering current rating and voltage drop.

3rd Party Equipment:

- [DIVE AND SEE DNC-2067 waterproof power connector with voltage regulator](#), with M16x1 thread.

HYBRID – ETHERNET AND POWER

For deployments on ROVs, Submarines or in Aquariums both Ethernet and power connections may be desirable. This allows remote monitoring, control and live-streaming for extended periods of time.

With one M16x1 port is available at the base where the Ethernet and power sockets of the camera are located, a cable and connector with minimum 2x strands for power and 4x for Cat 5 Ethernet is necessary. It is not possible to run a cable from the top of the housing past the camera to the base. Suitable cables are available from Falmart, Harting, Lapp and others, the best choice depends on the deployment scenario. Please get in touch to discuss details.

3rd Party Equipment:

- Falmart XtremeNet
- Lapp ETHERLINE
- Harting PROFINET

HDMI

Insta360:

The Insta360 Pro and Pro2 feature a HDMI 2.0 Typ-D (HDMI Micro) socket at the base of the camera for monitoring and live streaming of pre-stitched 360 video at 4K/60fps.

Please ensure that the collection device supports processing 4K/60 fps; if not supported, Pro 2 will automatically reduce to other resolution specifications with a frame rate of 60 fps.

Mantis:

The Mantis Sub enclosure features one M16x1 bulkhead port at the base of the housing. HDMI bulkhead connectors are available from Mantis and 3rd parties.

3rd Party Equipment:

- [DIVE AND SEE DNC-2048 Micro HDMI bulkhead connector](#), with M16x1 thread.
- [Nauticam 25033 Standard HDMI bulkhead connector](#), with M16x1 thread.

USB 3.1 TYPE-C

Insta360:

The Insta360 Pro and Pro2 feature a USB 3.1 Type-C socket at the base of the camera for fast file transfer.

Mantis:

The Mantis Sub enclosure features one M16x1 bulkhead port at the base of the housing. USB-C bulkhead connectors are available from Mantis and 3rd parties.

3rd Party Equipment:

- [DIVE AND SEE DNC-2061 USB 3.1 Type C bulkhead connector](#), with M16x1 thread.

WARRANTY AND LIMITATIONS OF LIABILITY

For warranty, limitations of liability and terms of sale see our standard terms at <https://www.mantis-vr.com/>.

TRADEMARKS

- Mantis is a trademark or registered trademark in New Zealand and other countries.
- Insta360 is a trademark or registered trademark of Shenzhen ARASHI VISION INC.in the United States and/or other countries.
- Nauticam is a trademark or registered trademark of Nauticam Holdings Limited in the United States and/or other countries.
- Falmat and XtremeNet are trademarks or registered trademarks of Falmat Inc.
- Lapp and Etherline are trademarks or registered trademarks of Lapp Group.
- All other trademarks are the property of their respective owners.

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