

Multi-SeaCam User Manual

P/N 740-048-601, Preliminary, 6/01/99

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Multi-SeaCam Options:

The Multi-SeaCam supports a variety of connectors, camera modules, depth ratings, pin-outs, and long line amp. Underneath the front port is a label that identifies internal features, with the options for your specific camera checked off. These features and options are:

	MULTI-SEACAM 1050	MULTI-SEACAM 1060	MULTI-SEACAM 2050
Model Description	Black & White Camera	Black & White Camera, Low Light	Color Camera
Video Format	-EIA U.S.-format -PAL European- format	-EIA U.S.- format -PAL European- format	-NTSC U.S.- format -CCIR European- format
Depth Rating	-300m (990ft) Delrin housing -6000m (19,800ft) Titanium housing	-300m (990ft) Delrin housing -6000m (19,800ft) Titanium housing	-300m (990ft) Delrin housing -6000m (19,800ft) Titanium housing
Custom Pin-Out	Yes	Yes	Yes
LLA Option	1,530m (5,000 ft.) capable, set at factory per customer specs	XXXXm (XXXX ft.) capable, set at factory per customer specs	915m (3,000 ft.) capable, set at factory per customer specs

Long Line Amp Settings:

The long line amp uses two dip switches to select different lengths of cable to drive the video signal. The settings are:

1 & 2 DOWN = No amplification, 1 UP & 2 DOWN = 3,000 ft., 1 DOWN & 2 UP = 5,000 ft., 1 & 2 UP = 6,000 ft. A tag is attached to the camera showing the current setting. All amplification lengths are nominal values. Actual value depends on the condition of the video cable.

Camera Operations:

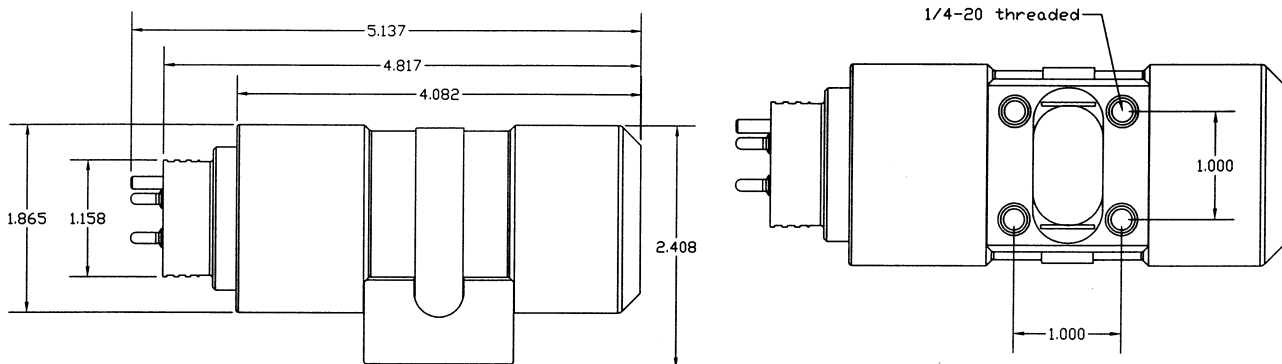
WARNING: Whenever AC or DC power is used in the vicinity of water, we **strongly** recommend that a Ground Fault Circuit Interrupt (GFCI) or other safety device be utilized to minimize the chance of electric shock due to a short circuit.

First, plug the 12-volt DC power supply into the GFCI (make sure the switch on the power supply is in the OFF position). Plug the red (positive 12V) and black (12V return (-)) banana plugs of the camera cable into their respective jacks on the power supply. Plug the BNC connector on this end of the cable into the monitor or VCR video-in jack (a BNC-to-RCA adapter may be required by the monitor/VCR in use). Lubricate the camera bulkhead connector with an appropriate silicone lubricant, spray recommended, and using a linear motion plug the female underwater connector on the other end of the cable into the male bulkhead connector on the back of the camera. Screw the locking sleeves together firmly (hand tight--do not use tools). The camera is now ready for operation; switch the power supply ON to power the camera. The camera draws approximately 300 mA of current during operation, and will work when supplied between 11-30 volts DC.

Camera Flooding Emergency Procedure:

WARNING: In certain rare instances, a pressure case can flood and then reseal itself which may result in internal pressurization. Additionally, if the power is applied while water is present inside the case, hydrogen and oxygen can be generated by electrolysis, forming an explosive mixture.

- 1) Immediately turn off the power to the unit.
- 2) Open the housing by removing the rear endcap retaining ring. Grasp the rear endcap in one hand and the camera housing in the other. With care, separate the two components using a linear motion. If required gently twist components while separating.
- 3) Pour out any water trapped in the housing.
- 4) If the camera is completely flooded, rinse the internal components with clean fresh water in order to minimize contamination and corrosion.
- 5) Allow parts to dry in air or a vacuum chamber.
- 6) Loosely assemble the camera, call DeepSea for an RMA number, and return camera to DeepSea.



Multi-SeaCam Specifications

	MULTI-SEACAM 1050	LOW LIGHT MULTI-SEACAM	MULTI-SEACAM 2050
MECHANICAL			
Housing:	Delrin or titanium	Delrin or titanium	Delrin or titanium
Port:	Sapphire	Sapphire	Sapphire
Outer Diameter:	4.74 cm (1.87 in.)	4.74 cm (1.87 in.)	4.74 cm (1.87 in.)
Overall Length:	12.95 cm (5.10 in.)	12.95 cm (5.10 in.)	12.95 cm (5.10 in.)
Weight in Air--Delrin:	296 g (10.5 oz.)	296 g (10.5 oz.)	296 g (10.5 oz.)
Weight in Air--Titanium:	459 g (16 oz.)	459 g (16 oz.)	459 g (16 oz.)
Weight in Water--Delrin:	56 g (2 oz.)	56 g (2 oz.)	56 g (2 oz.)
Weight in Water--Titanium:	112 g (4 oz.)	112 g (4 oz.)	112 g (4 oz.)
OPTICAL			
Lens:	2.8 mm, f2.8	5 mm, f2.8	2.9 mm, f1.8, wide angle
Focus:	Fixed focus, wide angle	Fixed focus	Fixed focus, wide angle
Depth of Field:	10 cm (4 in.) to infinity	30 cm (12 in.) to infinity	10 cm (4 in.) to infinity
Field of View in Air:	106 deg. (H) x 78 deg. (V) x 149 deg. (D)	77 deg. (H) x 56 deg. (V) x 98.3 deg. (D)	108 deg. (H) x 92 deg. (V) x 120 deg. (D)
Field of View in Water:	77 deg. (H) x 59 deg. (V) x 98 deg. (D)	57 deg. (H) x 44.6 deg. (V) x 70.5 deg. (D)	75 deg. (H) x 65 deg. (V) x 81 deg. (D)
VIDEO			
Image Sensor:	1/3-inch CCD image sensor	1/2-inch CCD image sensor	1/3-inch CCD image sensor
Number of Pixels:	537 (H) x 505 (V) (EIA); 537 (H) x 595 (V) (CCIR)	811 (H) x 508 (V) (EIA); 795 (H) x 596 (V) (CCIR)	768 (H) x 494 (V) (NTSC); 752 (H) x 582 (V) (PAL)
Resolution:	400+ TV lines horizontal	570 TV lines horizontal	460 (H) x 400 (V) (NTSC); 450 (H) x 450 (V) (PAL)
Scene Illumination:	0.27 Lux at f2.8	0.01 Lux at f2.8	8 Lux at f1.8
Signal to Noise:	More than 45 dB (AGC off)	46 dB (AGC off)	50 dB (AGC off)
Video Output:	1.0 volt peak-to-peak at 75 ohm	1.0 volt peak-to-peak at 75 ohm	1.0 volt peak-to-peak at 75 ohm
Video Format:	EIA (RS170), CCIR	EIA (RS170), CCIR	NTSC, PAL, composite standard, Y/C optional
ELECTRICAL			
Power:	11-30 volts DC	11-30 volts DC	11-30 volts DC
Current:	110 mA	160 mA	300 mA
Connector:	Impulse: BH4MP, LPBH4MP, MSSJ-9-BCR, IE55-1508/2008; Burton: 5507-1508/2008; Call for others	Impulse: BH4MP, LPBH4MP, MSSJ-9-BCR, IE55-1508/2008; Burton: 5507-1508/2008; Call for others	Impulse: BH4MP, LPBH4MP, MSSJ-9-BCR, IE55-1508 & 2008; Burton: 5507-1508 & 2008; Call for others
Pin-out:	1 = Ground, 2 = Power, 3 = Video (standard)	1 = Ground, 2 = Power, 3 = Video (standard)	1 = Ground, 2 = Power, 3 = Video (standard)
ENVIRONMENTAL			
Depth:	Delrin: 300 meters Titanium: 6,000 meters	Delrin: 300 meters Titanium: 6,000 meters	Delrin: 300 meters Titanium: 6,000 meters
Operating Temperature:	-20 deg. C to +40 deg. C	-10 deg. C to +40 deg. C	-10 deg. C to +50 deg. C
Storage Temperature:	-30 deg. C to +70 deg. C	-30 deg. C to +70 deg. C	-10 deg. C to +50 deg. C

Options:

Model Number	Part Number	Description
LLA	740-048-900	Long line amp, powers video signal up to 5,000 ft.
B5501-1508		B5507-1508 mating connector with locking sleeve on 18" (0.5m) whip
B5501-2008		B5507-2008 mating connector with locking sleeve on 18" (0.5m) whip
IE55-1508-CCP		IE55-1508-BCR mating connector with locking sleeve on 18" (0.5m) whip
IE55-2008-CCP		IE55-2008-BCR mating connector with locking sleeve on 18" (0.5m) whip
IL4FS	140-00064	BH4MP mating connector with female locking sleeve on 18" (0.5m) whip
LPIL4FS	140-00096	LPBH4MP mating connector on 18" (0.5m) whip
MSSJ-9-CCP		MSSJ-9-BCR mating connector with female locking sleeve on 18" (0.5m) whip
IE55-1508-SCP		IE55-1508-BCR dummy connector
IE55-1508-SCR		IE55-1508-CCP dummy connector
IE55-2008-SCP		IE55-2008-BCR dummy connector
IE55-2008-SCR		IE55-2008-CCP dummy connector
UHMB	774-00011	Universal helmet mounting bracket for Superlite 17 and 27
UHG		Universal Hand Grip
		Carrying case

DeepSea Power & Light ○ Multi-SeaCam Long Line Amp Settings (in feet, nominal) A: 1 & 2 Down = No amplification, B: 1 Up & 2 Down = 3,000, C: 1 Down & 2 Up = 5,000, D: 1 & 2 Up = 6,000 Note: Distance of usable video is halved for color cameras. Start at bottom, punch appropriate box, cut off old row when punching new row			
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