

ROS IC-15X CONTROLLER

OPERATION AND MAINTENANCE MANUAL

SERIAL NUMBER: _____

SALES ORDER: _____



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WARRANTY

Remote Ocean Systems, Inc. (hereinafter called "**ROS**") warrants its products as stated below subject to the conditions specified.

ROS warrants its products, when operated under normal conditions, to be free from defects in material or workmanship for a period of one year from the date of purchase provided that inspection by **ROS** discloses that such defects developed under normal and proper use. **ROS** products repaired or replaced pursuant to this warranty shall be warranted for the unexpired portion of the warranty applying to the original product. The liability of **ROS** under this warranty shall exist subject to the following conditions:

- (a) **ROS** is properly notified of such defects by Purchaser, and the defective product is returned to **ROS**, transportation charges paid by Purchaser.
- (b) **ROS** shall be released from all obligations under its warranty in the event repairs or modifications are made by persons not authorized by **ROS**.
- (c) Representations and warranties made by any person, including distributors and representatives of **ROS**, which are inconsistent or conflict with the terms of this warranty, shall not be binding upon **ROS** unless reduced to writing and approved by an officer of **ROS**. **ROS** shall in no event be liable for other direct, special, incidental, consequential, indirect or penal damages.
- (d) This warranty shall be governed by the laws of the State of California.

In the event the defect is determined to be within the terms of this warranty, then **ROS** agrees to repair and/or replace (at **ROS**' discretion) the product or defective portion at no charge to the Purchaser. This warranty does not apply to expendable items or to normal wear and tear and is conditional upon performance of normal preventative maintenance procedures.

Our commitment to quality and customer service directs us to constantly strive to improve our products. The materials and specifications presented in our manuals and data sheets are correct and accurate to the best of our knowledge, and are presented in good faith. However, the information is not guaranteed and is subject to change without notice.

LIMITATION OF REMEDIES

Purchaser assumes all risk and liability for results obtained in any installation, operation, or use of the product. Purchaser's sole remedy for any breach of warranty by vendor shall be limited to the "express remedies" set forth above. Otherwise, in no event shall vendor, its agents, or employees be liable to the original purchaser or any third party for any consequential or incidental damages or expenses of any nature arising directly out of or in connection with the use of vendor products. Even if vendor has been advised of the possibility of such damages or expenses. In any event, unless otherwise contrary to state law, vendor liability under this limited warranty shall not exceed the purchase price of the product.

CUSTOMER ASSISTANCE

ROS, Inc. uses a worldwide network of stocking distributors and representatives who are familiar with our products and are able to provide assistance during installation and/or operation of these products.

If you have any questions or problems with this product that are not covered by this manual or instruction, please contact our agent in your area, or contact us directly by phone or fax or email.

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CHANGE RECORD

<u>REV</u>	<u>DESCRIPTION</u>	<u>DATE</u>
D	SEE EC-02596	22JUL16

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1. DESCRIPTION

The physical configuration of the IC-15X Controller is described on the installation drawing (45-03289) within the appendix to this manual.

Descriptions and maintenance information are provided in separate manuals and documents for the Camera, Pan & Tilt, and Lamp elements normally controlled from the IC-15X Controller. This document provides a general description, a wiring diagram, and a parts list for the controller.

The Integrated Controller is used to operate a complete, remotely positioned viewing system that typically includes an **ROS Bipolar Controlled Camera**, a **120 VAC Pan & Tilt Unit**, and **Dual 250W (max) Lamps**.

Front panel toggle switches allow direct control of the camera functions, zoom, focus and exposure. These controls deliver either +15 or -15 VDC for control of the focus, zoom, and exposure functions. These bipolar controls are typically used to control ROS Model S/CE-X underwater cameras.

Notes: With the camera, operation of the iris control includes full “exposure” control wherein iris, AGC and shuttering functions all operate in unison to achieve an ideal exposure of the camera sensor to the existing illumination conditions.

When either the exposure or the focus controls are actuated, those respective functions change from automatic to manual mode, where the operator has full control of these functions. If the operator wishes to return the camera to the automatic mode two of the three controls are momentarily held in the down position as indicated on the front panel of the control unit (reference installation drawing 45-03289).

A five-position joystick control, with center off position is used to control the azimuth and elevation angles of the pan and tilt unit. The control actually switches AC power ON to one of four circuits to perform Pan Left, Pan Right, Tilt Down, and Tilt Up functions. The pan or tilt action is stopped when the control is released. On the front panel of the controller, an invert switch reverses pan & tilt controls so that normal control can be used for a pan & tilt that is mounted in an inverted position.
















Finally, dual control knobs are used to select the illumination setting for the remote underwater lamps. Each control knob is attached to a variac. As either knob is rotated clockwise the amount of power delivered to the lamp increases. A panel lamp next to each knob provides a relative indication of the illumination setting.

The controller includes internal regulated DC power supplies for the camera. A ground fault interrupter is used with the lighting circuits to provide protection in the event of a fault in the underwater cable or lamp circuit. Finally, transformers for operation of the Pan & Tilt Unit are included in the assembly. The controller uses a 120 VAC to 20 VAC step down transformer that is used to provide braking to the pan and tilt.

2. CONTROL UNIT SPECIFICATIONS

Power Source: 115 ± 10 VAC, 60 Hz
Up to 550 watts with (2) lamps, 250W each

Front Panel Controls:

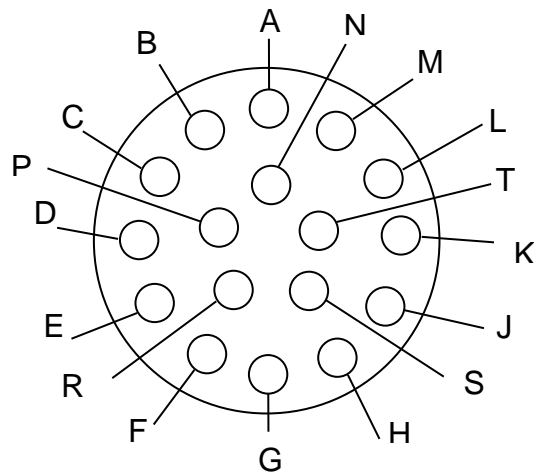
SYSTEM	Toggle	POWER ON	I
		POWER OFF	O
CAMERA	(3)Toggle-Momentary	EXPOSURE OPEN	
		EXPOSURE CLOSE	
		ZOOM TELE	T
		ZOOM WIDE	W
		FOCUS NEAR	
		FOCUS FAR	
		AUTO EXPOSURE	
		AUTO FOCUS	
PAN & TILT	5 Position Joystick	BRAKE	
		TILT UP	
		TILT DOWN	
		PAN LEFT	
		PAN RIGHT	
	Rocker	Standard Position Setting	
		Inverted Position Setting	
LIGHT1	Dimmer (variac)	INTENSITY INC/DEC	
LIGHT2	Dimmer (variac)	INTENSITY INC/DEC	

Main Connector:	Mil-Spec 17-pin
Mating Cable:	CA-95 (maximum length 500 ft)
Housing Material:	Front and Rear panels - Anodized Aluminum Chassis – Die cast aluminum Covers - Vinyl clad aluminum
Dimensions:	Height - 3.50 inches (89 mm) Depth - 13 inches (330 mm) (not including handles) Width - 17 inches (432 mm)
Weight (typical):	19.75 pounds (8.9 kg)
Protection (REF 45-03285):	System – 20A fuse Lights – GFCI
Output Power:	Camera – 15VDC Pan & Tilt – 120 VAC P&T Braking – 150mA/axis (max) Lights – 120VAC (adjustable)

3. OUTPUT CONNECTOR PINOUT

The main output connector for use with a cable to the remote camera, pan & tilt as well as the lamp is a 17-pin, mil-spec connector. The ROS mating cable is CA-95. Standard IC-15X Controller pin assignments are as follows:

<u>CONNECTOR PIN</u>	<u>FUNCTION</u>
A	Coax Shield and Power Supply Common
B	Video Signal (Coax Center Conductor)
C	Camera Power (+15 VDC nominal)
D	Zoom (+15V – Tele, -15 V Wide)
E	Focus (+15V – Near, -15 V Far)
F	Exposure (+15V – Increase, -15 V Decrease)
G	Pan and Tilt Return
H	Tilt CCW
J	Tilt CW
K	Pan CW
L	Pan CCW
M	Chassis Ground
N	Lamp 1 Power - 120VAC
P	Lamp 2 Power - 120VAC
R	Light 1 Neutral
S	Light 2 Neutral
T	N/C



FACE VIEW

APPENDIX

IC-15X CONTROLLER DRAWINGS***:

45-03289	Installation Outline Drawing, IC-15X Controller
45-03285	Top Assembly, IC-15X Controller

Drawings are available from ROS upon request