

# OWNER'S MANUAL

## Custom Instrument Housing

For

### LI-1400 Datalogger

For Jane Doe, University of Somewhere

<u>Contents</u>	<u>Page</u>
Introduction	1
Installation	1
Removal	2
Care and Maintenance	2
Specifications	4
Warranty	5
Replacement Parts	6

**Sexton Photographics** dba ***THE SEXTON COMPANY***

860 E Street NE

Salem, OR 97301-1223

503/371-6239

FAX: 503/371-0994

[www.thesextonco.com](http://www.thesextonco.com)

email: [kens@thesextonco.com](mailto:kens@thesextonco.com)

January 2004

This manual is printed on recycled paper

## **1. INTRODUCTION**

Your decision to use a custom housing to protect your instrument is a wise one. The housing will protect the instrument against most of the hazards of fieldwork. Rain, snow, mud, sand, salt spray, and submersion all have a detrimental effect on optics and electronics. With proper care, use, and maintenance, the housing will provide years of protection for your expensive equipment.

This housing, serial number 9300206, was custom designed and manufactured for your LI-1400 Datalogger. It features a removable front door that is o-ring sealed against water leakage, and three 2-pin waterproof connectors for incoming data. The housing also has a Loc-Line mount for the LI-193SA Spherical Quantum Sensor. Included with the housing is a kit of spare o-rings and silicone grease for lubricating the o-rings.

## **2. INSTALLATION**

- 2.1. Remove the o-ring from the front door, lubricate it with silicone grease, and reinstall this o-ring on the front door.
- 2.2. Make sure that the two-pin cables are securely attached to the inside pins of the bulkhead connectors.
- 2.3. Connect the three BNC connectors of the internal cables to the BMC connectors on the front of the datalogger
- 2.4. Mount the Datalogger on the top surface of the tray between the plastic blocks and secure with the Velcro strap.
- 2.5. Bundle any extra cable out of the way and secure with nylon tie wraps. It is important to insure that no wires can get caught in the way of the door o-ring seal.
- 2.6. Turn the Datalogger on, before inserting into the housing at the beginning of a dive. Position the door/tray assembly so that the serial number label is at the bottom of the housing (same plane as the bottom of the housing) and slide the instrument package into the housing. As the door is seated, be sure that no wires are caught between the door and the body of the housing.
- 2.7. Close both latches simultaneously to insure even compression of the o-ring. Inspect for a visible continuous seal line around the o-ring.

2.8. The Loc-Line adjustable sensor holder may be positioned as necessary for data reading and for transportation. These segments may be twisted freely as required for proper sensor orientation. The Loc-Line segments may be removed by manually popping them apart. Segments may be joined by use of the included pliers. Note that the jaws of the pliers are asymmetrical, experimentation will show the best way to use these.

### **3. REMOVAL**

- 3.1. Be sure to rinse the housing in fresh water and thoroughly dry it before opening the housing. To remove the instrument pack, release the opposite front door latches simultaneously, then remove the front door with the attached instrument pack as a single unit.
- 3.2. While the instrument pack is away from the housing, be sure to protect the exposed o-ring mating surfaces from damage.

### **4. CARE AND MAINTENANCE**

- 4.1. The body of the housing is made of acrylic plastic, a material that is well suited for this application, but with certain limitations which must be observed:
- 4.2. Keep the housing out of direct sunlight as much as possible. The material is subject to crazing, a surface cracking phenomenon, which does not affect its strength. Crazing is caused by ultraviolet radiation, present in sunlight. The closed clear box is a greenhouse and will heat quickly if left in direct sunlight. Heat is hard on optical and electronic components, so keep the housing covered or shaded as much as possible.
- 4.3. Protect the housing from impact. The material will shatter if subjected to sufficient shock. A rigid, padded carrying case is recommended to keep the housing out of direct sunlight and to protect it while the unit is in use.
- 4.4. Rinse the outside surfaces with fresh water after use. The plastic and stainless steel fittings are impervious to salt water, but will lose

their luster if even small amounts of salt are allowed to accumulate. Use WD-40 on the joints of the stainless steel latches.

- 4.5. **WARNING:** Do not exceed the depth limitation of the housing as specified on the following page. Failure to heed this warning may result in leakage and possibly implosion and serious injury.
- 4.6. The housing is sealed by o-rings, which require meticulous care. In order to maintain a watertight seal, the o-rings and their mating surfaces must be clean, free of foreign material, and lubricated with silicone grease.
- 4.7. The following procedure must be performed on access door o-rings before each use. Maintenance is as follows:
  - 4.7.1. Clean all old silicone grease from o-rings and mating surfaces using paper towels.
  - 4.7.2. Inspect o-rings for foreign material (sand, seaweed, hair, etc.), cracks, cuts, soft spots, or deformities. Replace o-ring if damaged. Inspect mating surfaces for scratches, rough spots, dents, or cracks.
  - 4.7.3. Apply thin, even coat of silicone grease to o-rings using fingers. Install o-ring on the door, place the door on the housing, and close the latches simultaneously. Inspect for an unbroken dark line on mating surfaces around centerline of the o-ring, indicating that a proper seal has been made.
- 4.8. **Cleaning:** Do not clean acrylic or polycarbonate parts with any solvents other than soap and water or 70% Isopropyl Alcohol.

**NOTE:** The screws mounting the latches to the housing sides are sealed with RTV Silicone Sealer, and provide a waterproof barrier. Do not disturb these screws, or loss of seal will cause leakage of water into the housing.

If these screws must be disturbed for any reason, be sure to clean sealant out of the threaded holes, and extrude silicone RTV into the holes before replacing the screws.

## **5. SPECIFICATIONS**

- 5.1. The instrument housing is made from 1/2 inch [12 mm] Plexiglas®, buna-N O-ring seals, stainless steel latches, and

stainless steel hardware. It is waterproof to a depth of 165-ft. [50 M]. Each housing is custom designed and manufactured for a specific make and model of instrument, and is not suitable for other instruments.

## **6. WARRANTY**

- 6.1. The manufacturer inspects and tests each housing for watertight integrity before it is delivered.
- 6.2. The manufacturer will repair or replace at the manufacturer's option any housing that proves to be defective in construction or materials within one year of date of delivery.
- 6.3. The manufacturer is not liable for damage to equipment caused by leakage of water into the housing, nor is the manufacturer liable for loss of data or income therefrom as may result from such leakage. The manufacturer is not liable for any accidents during which this housing was in use.
- 6.4. This warranty is void in event of negligent handling of the housing including, but not limited to, dropping the housing, modifications to the housing by other than the manufacturer, improper care of the sealing components, and exceeding the specified depth limitation of 165 feet [50 M].
- 6.5. There is no express or implied warranty, nor warranty of merchantability, except as stated by the manufacturer above.
- 6.6. The buyer understands that, because of the nature of this product, he/she uses the housing at his/her own risk and agrees to hold the manufacturer harmless, except as stated above.

Please fill out and return the enclosed warranty registration and information card, so that we may better serve your needs in future products.

## 7 REPLACEMENT PARTS

<u>PART #</u>	<u>DESCRIPTION</u>	<u>PRICE</u>
5001	Latch, stainless steel	4.85
5002	Strike, stainless, for latch	0.95
5005	Screw, machine 6-32 x 1/2 pan head Phillips, SS	0.14
5015	Screw, SHCS 6-32 x 1, SS	0.29
5012	Washer, flat #6, SS	0.09
6001	Large O-ring, for door (2-251-70)	7.10
6006	Silicone grease, in small container	2.10
8003	Owner's Manual	3.50
8004	*Spare parts package	8.20

\*Spare parts packages include one door o-ring, one silicone grease package, and are included with each housing. Numbers after the o-rings are Parker Seal part numbers.

All other parts are custom made, and will require return of the housing and instrument for repair.

Please add \$7.00 shipping and handling (for UPS Ground within continental USA) to your prepaid \$10.00 minimum order for parts.

### **Notes:**

