

**5.2a Installation on a PC**

Install the USB Key in a USB port.

1. Click Start.
2. Click My Computer.
3. Double-click on the USB drive.
4. Double-click on setup.exe.
5. Complete the installation as instructed on the computer screen.

**5.2b Quick Start**

1. Start the data logger viewer application.
2. Open the log file (see section 4.1b). Only .dtl files generated by the GS550 data logger can be displayed.

**5.2c Full Report**

1. Start the data logger viewer application.
2. Open the log file (see section 4.1b). Only .dtl files generated by the GS550 data logger can be displayed.

<b>COLUMN</b>	<b>DESCRIPTION</b>
Event	Record trigger*
Date	Event date stamp.
Time	Event time stamp.
System Units	Length units (metric or US) and weight units at the time of the event.
Battery Voltage	Display power supply voltage at the time of the event.
Temperature	Internal temperature of the GS550 Underhook display.
Firm. Version	Display firmware version at the time of the event.
Sensor # 1	Sensor type: the sensor number corresponds to the sensor list programmed into the GS550 Underhook.

**Table: Full report column headings**

<b>COLUMN</b>	<b>DESCRIPTION</b>
Event	Record trigger*
Date	Event date stamp.
Time	Event time stamp.
System Units	Length units (metric or US) and weight units at the time of the event.
Battery Voltage	Display power supply voltage at the time of the event.

\* Examples: Crane start-up, sensor alarm. The beginning and end of sensor alarms are indicated as “in” and “out”: examples: “overload in”, “overload out”.

## 6: MAINTENANCE

### 6.1 GS550 Underhook Display

#### 6.1a Rechargeable battery

The GS550 Underhook display operates for up to 40 hours with the battery pack fully charged. Actual battery life varies depending display settings, battery pack age and other factors. The battery pack can be fully recharged in about 4 hours under normal conditions.

Actual battery life will vary greatly depending on the application, the frequency of use, the age and quality of the battery, etc.

#### Low Battery Alert

The amber battery light is on and the amber **INFO** light flashes when less than 10% of battery life remains or when a programmed sensor has low batteries. Press **INFO** to read the alert messages; use **NEXT** to advance through the alert messages.

#### Batteries Level

Battery level is indicated in the information menu. The voltage of the battery pack is indicated on menu section **5D3**.

#### Level Life Remaining

Full .....	More than 80%
Good .....	More than 30%
Low .....	More than 10%
Recharge Now .....	Less than 10%

#### Recharging

### CAUTION

**RECHARGING THE INTERNAL BATTERY PACK AT TEMPERATURES OVER 104° FAHRENHEIT (40° CELSIUS) WILL VOID THE WARRANTY AND MAY DAMAGE THE BATTERY PACK AND THE CHARGE CABLE.**

Connect the display to an appropriate power source with the cable provided.

The battery light flashes and the message “GS550 battery charging” appears in the information menu when the batteries are charging. The display automatically stops charging when the batteries are fully charged. It is not necessary to disconnect the display when the battery is done recharging.

### 6.2 Replacing Load Cell Battery

### CAUTION



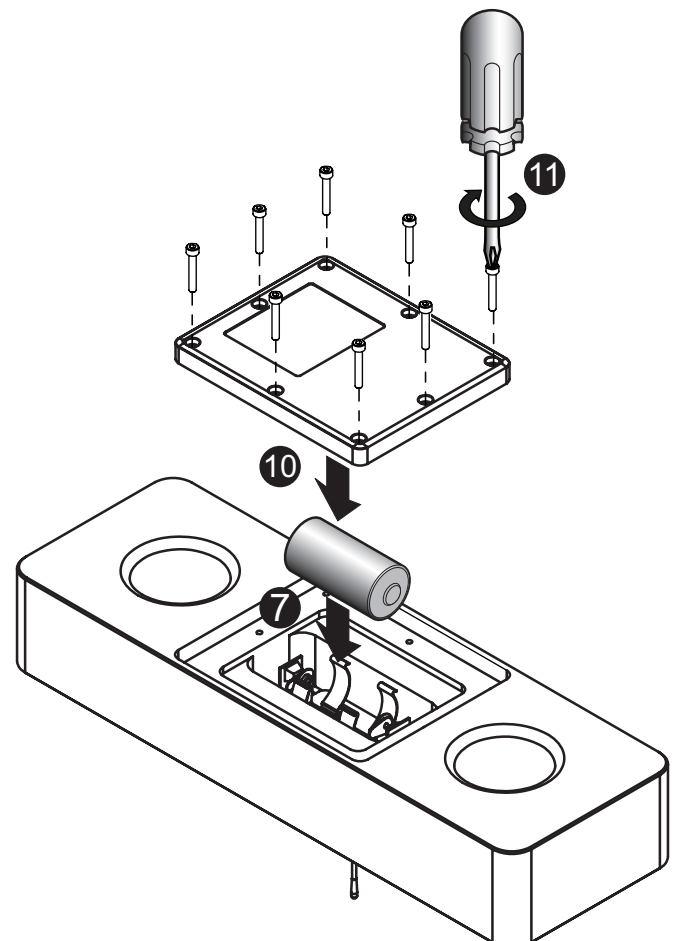
**PROTECT THE INTERIOR OF THE SENSOR FROM DIRT AND HUMIDITY AT ALL TIMES.**

### CAUTION



**EITHER LITHIUM OR ALKALINE BATTERIES CAN BE USED. HOWEVER, A LITHIUM BATTERY WILL LAST ABOUT 2.5X LONGER.**

1. Locate the load cell side showing the battery. This side will have PoziDriv fasteners for the removable plate.
2. Using a suitable PoziDriv/Phillips screwdriver, carefully remove each fastener from the unit.
3. When the last fastener is being removed, support the cap with your hand and remove the plate from the load cell body.



**Figure: Install the new battery and replace plate.**

4. Ensure the O-ring and hole collars are still on the plate and place to one side.
5. Place the load cell on its side and proceed to remove from the clamp.
6. Note the polarity direction marked on the battery clamp before replacing battery.
7. Place in position and ensure the battery has clicked into place on both sides.
8. Inspect the O-ring and plate. If required the O-ring can be cleaned and grease re-applied at this time. Use 111 grease or a suitable silicon based grease for O-rings.
9. The plate and cell surface should be free of dirt/ grit before re-assembly.
10. Replace plate into position.
11. Proceed to secure fasteners to the plate back onto the load cell. Do not overtighten – a gentle tighten of the fasteners is sufficient.
12. The plate is correctly positioned when none of the fasteners are loose and are hand tightened.

**6.3 Replacing Load Cell Antenna**

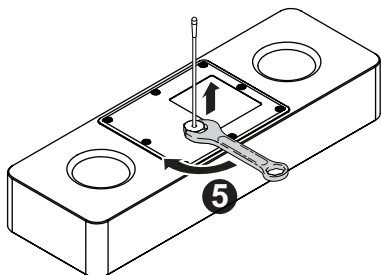
Heavily damaged antennas (ripped out, sheared off, wire exposed and fraying etc.) should be replaced to ensure effective communication between the sensor and the cabin display unit.

**CAUTION**



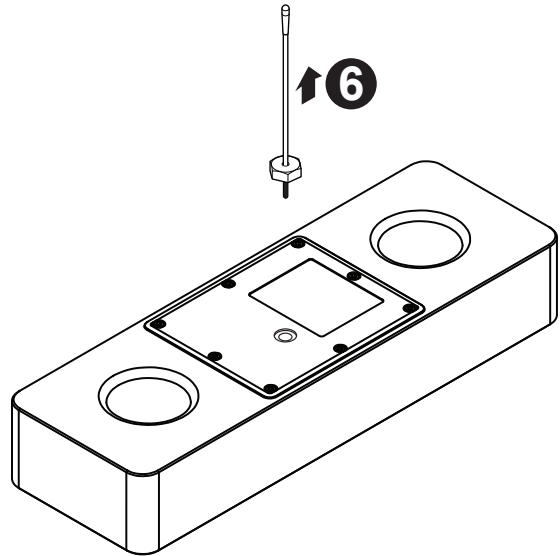
**THE INTERIOR OF THE SENSOR MUST BE PROTECTED FROM DUST, GRIME, AND WATER AT ALL TIMES.**

1. Clean dust, grime and water from the sensor.
2. Identify the short black whip antenna and the white hex bolt securing it.
3. Inspect the antenna for signs of obvious physical damage.
4. Carefully unscrew the white nylon hex bolt completely and slide it up the antenna.



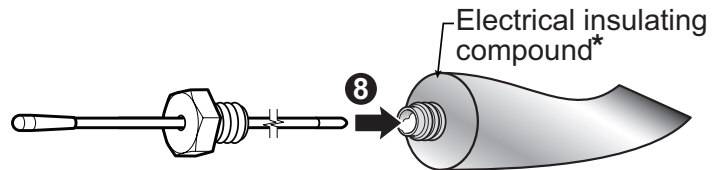
**Figure: Unscrew the white nylon hex**

5. Grip the antenna by the base of the black plastic sheathing and pull it straight out of the hole in which it is seated. Place the old antenna carefully aside.



**Figure: Pull out the antenna**

1. Slide the white nylon hex bolt to the middle of the length of the new antenna. Coat the exposed metal foot of the new antenna with an electrical insulating compound by carefully inserting it in the mouth of the compound tube.



**Figure: Coat the exposed metal foot of the antenna**

\* Suggest Dow Corning dielectric grease No.4 or Molycote 111 grease.

2. Hold the new antenna by the black plastic sheathing and guide it through the hole in the sensor box. Carefully seat the antenna in its mating connector. When the antenna is correctly seated, pulling on it will be met with light resistance.

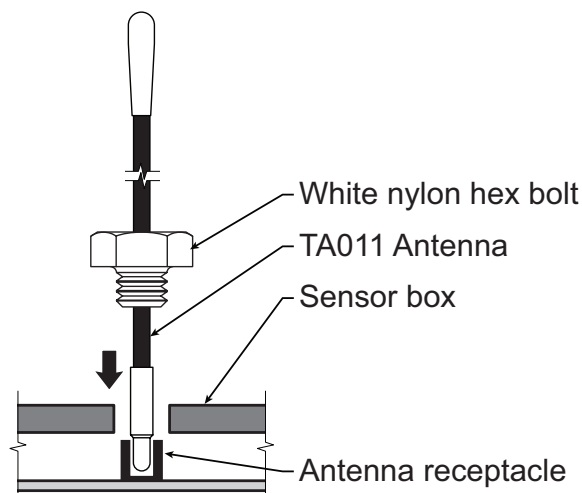


Figure: Install the new antenna

3. Carefully re-thread, screw in and tighten the white nylon hex bolt to secure the antenna in place. Do not overtighten.
4. Verify that the sensor functions properly.

## 6.4 Load Cells

### CAUTION



**HEAVY SHOCK MAY AFFECT LOAD INDICATION ACCURACY. INSPECT THE LOAD CELL REGULARLY FOR CLEARLY VISIBLE DENTS OR SCRATCHES. TEST THE LOAD INDICATION IF COLLISION DAMAGE IS VISIBLE.**

### 6.4a Underhook

*LSI-Robway* flat bar Load Cells are pre-calibrated at the factory. No “zeroing” or other calibration is required on installation. Each cell is heat treated to age the aluminum and ensure stable readings for many years. *LSI-Robway* Load Cells are calibrated for 100% of their Safe Working Load (SWL).

*LSI-Robway* load pins, line riding tensiometers and compression cells must be calibrated at installation and every time thereafter the installation, the load sensor or the transmitter is changed.

SAE J 159 4.2.1 recommends load indicating devices should show not less than 100% of the actual load and not more than 110% of the actual load.

### 6.4b Load Testing

*LSI-Robway* recommends testing the load cell every year for accuracy.

## 6.4c Care

### Battery.

Lithium batteries older than 18 months old (alkaline batteries over 6 months old) should be changed at the first available planned inspection even if there is not yet a low battery warning. This will avoid costly delays in the field.

### Corrosion.

Verify that no corrosion is visible on the battery holder inside the load cell transmitter. If some trace of corrosion is visible, rub it off gently and put a small amount of dielectric grease\* on each battery holder post to protect the contacts.

\* Suggest Dow Corning dielectric grease No. 4.

### Mechanical stresses.

Inspect the load cell sides for dents or heavy scratches.

### Seal.

If the cover has been removed it must be correctly resealed with silicone based grease.

### Antenna.

Small scratches on the antenna will not affect radio communications. A heavy bending of the antenna or bare sections on the wire may reduce the radio efficiency.

A return of the unit to a external calibration facility will ensure an accurate calibration. Facility must be *LSI-Robway* approved.

Calibrations required on location should only be performed by competent persons and reference weights traceable to a recognized authority.

## 7: TROUBLESHOOTING

### 7.1 Alarms & Hardware

#### Display In Alarm

Identify the sensor in alarm.

Verify that the limits and the tare are correctly adjusted.

Verify all sensor batteries: see Battery Diagnostic troubleshooting section.

Verify the red light on the sensor box flashes (change the load on a load sensor).

Verify radio communication: see Radio communication troubleshooting section.

#### Radio communication

Verify that the antennas have a direct clear line of sight to each other.

Verify that the antennas do not point directly towards, or directly away from, each other.

Verify that the antennas are not in contact with metal other than the sensor itself.

Verify that the antennas are not damaged.

Go to menu **5A) System Sensors Diagnostic** and press **Enter**. Select a sensor and press **Enter** to verify the sensor status. Press **Exit** and then **Next** to advance to the next sensor.

#### Sensor Malfunction

Verify the sensor batteries: see Battery Diagnostic troubleshooting section 6.2.

Verify the red light on the sensor box flashes (change the load on a load sensor).

Verify radio communication: see Radio communication troubleshooting section.

### 7.2 Battery Diagnostic

Go to menu **5A) System Sensors Diagnostic** and press **Enter**. Select a sensor and press **Enter** to verify the sensor status. Press **Exit** and then **Next** to advance to the next sensor.

**“B: 50%”**: 50% of battery life remains (typically several months).

**“In Timeout”**: communication not yet established.

Verify the radio ID corresponds to the correct installed sensor.

Battery status is usually known within 2 minutes.

When 10% or less battery life remains, for any sensor, a message will be generated. Follow the battery diagnostic procedure to identify the sensor.

Batteries do not need to be replaced before the **Low Battery** message is generated. Usually several days, or weeks, of operation remain from the moment the **Low Battery** message comes. A new high quality alkaline or lithium ‘D’ cell battery may be used.

### 7.3 USB Port & Software

#### Problem:

The file does not appear on the USB key.

**Solution 1:** Did the transfer complete successfully? Try again.

**Solution 2:** Look in the root directory of the USB key? The root directory is the folder that appears when you open the USB key.

#### Problem:

The file appears on the key but its size is 0 kb.

**Solution:** Did the transfer complete successfully? Try again.

#### Problem:

The file does not appear on the USB key.

**Solution 1:** Did the transfer complete successfully? Try again.

**Solution 2:** Look in the root directory of the USB key? The root directory is the folder that appears when you open the USB key.

#### Problem:

The following message appears on screen during the transfer: “Unable to create File. Replace USB”

**Solution 1:** The USB device may not work correctly. Replace the USB device.

**Solution 2:** The USB device may be in read only mode. Allow read/write permissions.

#### Problem:

An error message appears on screen during the transfer: “Error ##”, where ## is the error number.

**Solution:** restart the GS550 Underhook and try again to transfer the file. If the trouble persists, contact LSI-Robway.

#### Problem:

Nothing happens when the USB key is inserted into the USB port of the display.

**Solution:** Insert the USB key in the USB port, power down and then power up the display.

## 8: CERTIFICATION NOTES

### 8.1 FCC & IC – Instructions to the User

This equipment has been tested and found to comply with the limits for a class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference via one or more of the following:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from the circuit to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

In order to maintain compliance with FCC regulations, shielded cables must be used with this equipment. Operation with non-approved equipment or unshielded cables is likely to result in interference to radio and TV reception.

#### CAUTION



**CHANGES OR MODIFICATIONS TO THIS EQUIPMENT NOT EXPRESSLY APPROVED BY THE PARTY RESPONSIBLE FOR COMPLIANCE COULD VOID THE USER'S AUTHORITY TO OPERATE THE EQUIPMENT.**

#### CAUTION



**THE IP OF THE DISPLAY CORRESPONDS TO 65 AND THE UNDERHOOK IS 66.**

**FCC ID: QVBGS550 IC: 7076A-ICGS550**

#### RF Exposure Warning:

This product complies with FCC/IC radiation exposure limits set forth for an uncontrolled environment. To comply with RF exposure requirements, the unit must be installed and operated with 20 cm (8 in.) or more between the product and your body. This product may not be collocated or operated in conjunction with any other antenna or transmitter.

This device has been designed to operate with the antennas listed below, and having a maximum gain of 2.0 dB. Antennas not included in this list or having a gain greater than 2.0 dB are strictly prohibited for use with this device. The required antenna impedance is 50 ohms. To reduce potential radio interference to other users, the antenna type and its gain should be so chosen that the equivalent isotropically radiated power (e.i.r.p.) is not more than that permitted for successful communication.

#### ANTENNA LIST

LSI-Robway P/N:	TA001
Description:	1/4 wave monopole
MFG	Linx Technologies
P/N	ANT-916-CW-QW
LSI-Robway P/N:	TA008
Description:	1/2 wave dipole
MFG:	Nearson
P/N:	S467AH-915S

#### WARNING



**THE PROTECTION WILL BE IMPAIRED IF THE MATERIAL AND EQUIPMENT ARE USED IN A MANNER NOT SPECIFIED BY THE MANUFACTURER.**

**FCC ID: QVBGS000 IC: 7076A-ICGS000**  
**FCC ID: QVBGS001 IC: 7076A-ICGS001**  
**FCC ID: QVBGS050 IC: 7076A-ICGS050**  
**FCC ID: QVBGS075 IC: 7076A-ICGS075**  
**FCC ID: QVBGLC000 IC: 7076A-ICGLC000**

**RF Exposure Warning:**

This device complies with Industry Canada license-exempt RSS standard(s). Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device.

This product complies with FCC/IC radiation exposure limits set forth for an uncontrolled environment. To comply with RF exposure requirements, the unit must be installed and operated with 20 cm (8 in.) or more between the product and your body. This product may not be collocated or operated in conjunction with any other antenna or transmitter.

This device has been designed to operate with the antennas listed below, and having a maximum gain of 3.0 dB. Antennas not included in this list or having a gain greater than 3.0 dB are strictly prohibited for use with this device. The required antenna impedance is 50 ohms.

To reduce potential radio interference to other users, the antenna type and its gain should be so chosen that the equivalent isotropically radiated power (e.i.r.p.) is not more than that permitted for successful communication.

**ANTENNA LIST**

LSI-Robway P/N:	TA011
Description:	1/4 wave monopole
MFG	LSI-Robway

**8.2 EMI / EMC**

EMI/EMC (Electro-Magnetic Immunity & Electro-Magnetic Compatibility):

EN 301 489-3 V1.4.1 (2002-08)

Clause 8.2: Limits for radiated emissions from ancillary equipment, measured on a standalone basis (measuring distance of 10m): Pass

Clause 8.3: Limits for conducted emissions DC power input/output ports: Pass

Test method used: CISPR 22, EN 61000-3-2: 2000 and EN 61000-3-3:1995+ A1:2001

All tests were performed using measurement apparatus defined in CISPR 16-1. Radiated emissions measurements conformed to requirements of CISPR 16-1.

Clause 8: immunity tests

Enclosure-radio frequency electromagnetic field, EN 61000-4-3: Pass

Signal – RF common mode, EN 61000-4-6: Pass

DC Power input ports, RF common mode, EN 61000-4-6: Pass

Clause 9.2, radio frequency electromagnetic field: Pass

Clause 9.5, radio frequency common mode: Pass

ESD (Electro-Static Discharges)

LSI-Robway products are tested against norm

EN 61000-4.

Other Compliances:

- SAE J159 and SAE J987
- ASME B30.5-2000
- Franklin laboratory: LSI-Robway products are safe to use in proximity to blasting caps
- New-York City: MEA 110-05-E, in compliance with 19.1.1(a).1 requirements of Reference Standard RS 19-2 of the Building Code
- ABS (American Bureau of Shipping)
- API Spec 2C compliant

**8.3 Environmental conditions**

Ambient temperature	84° C maximum for the sensors, and 59° C maximum for the display
Operating temperature	-35° C to 85° C (-31° F to 185° F)
Humidity range	0% to 100%

**WARNING**



**WHEN SENSORS ARE USED, THE AMBIENT TEMPERATURE SHOULD NOT BE HIGHER THAN 84°C AND THE DISPLAY SHOULD NOT BE USED WHEN THE AMBIENT TEMPERATURE IS HIGHER THAN 59°C, OTHERWISE THERE IS A BURN POSSIBILITY.**

**WARNING**



**FOR THE OPERATOR'S SAFETY, TAKE ONLY THE AMBIENT TEMPERATURE RANGE INTO CONSIDERATION. THE DEVICE SHOULD BE USED WITHIN THE RANGE SPECIFIED ABOVE.**

## 8.4 CE

### 8.4a Declaration of conformity



LOAD SYSTEMS INTERNATIONAL INC.

#### Declaration of Conformity According to EN 45014

**Manufacturer's Name:** Load Systems International Inc.

**Manufacturer's Address:**  
**Canada:**  
 4495 Blvd. Wilfrid-Hamel, Suite 110  
 Québec, QC, Canada, G1P 2J7

Declare under our own responsibility that the products:

**Load sensors:** GCXXX-CE, GCXXX-ATEX-CE, GLCXXX-02, GS001-CE, GS001-ATEX-CE; GS002-CE, GS002-ATEX-CE; GS007-XX-CE; GS009-CE

**Anti-Two-Block :** GS005-CE, GS005-ATEX-CE; GS050-CE; GS050-ATEX-CE; GS075-CE; GS085

**Angle sensors :** GS010-XX-CE; GS010-XX-ATEX-CE; GS011-XX-CE, GS011-XX-ATEX-CE; GS012-CE, GS030-CE, GS030-10

**Wind speed sensors :** GS020-CE; GS020-ATEX-CE, GS025

**Pressure sensors:** PT00120-XXX; PT00130-XXX

**Gateways:** GS2XX-XX-CE

**Displays:** GS320-CE; GS375-CE; GS550-XX, GS550-CE; GS550-ATEX-CE; GS550-03-CE; GS550-XX-CE; GS820-CE; GS820-XX-CE

to which this declaration refers conform to the relevant standards or other standardising documents:

**Safety:** IEC 61010-1: 2<sup>nd</sup> ed. (2001), EN 61010-1: 2<sup>nd</sup> ed. (2001)  
**Wireless:** EN 300 220-3 V1.1.1 (2000-09)  
**EMC:** EN 301 489-3 V1.4.1 (2002-08)



Québec, May 15, 2013

  
 Éric Beaulieu  
 Technologies Manager

### 8.5 Underhook Load Cells

S.I. No 2307:1998 The Lifting Operations and Lifting Equipment Regulations  
 The Supply of Machinery (safety) Regulations 2008 (PUWER), 1597  
 S.I. No. 2306:1998 The Provision and Use of Work Equipment Regulations  
 BS 8422:2003 British Standards – Force measurement  
 BS EN ISO 7500-1:1999 National Standards Level



## 9: LIMITED WARRANTY - APRIL 1<sup>ST</sup>, 2013

### 9.1 Limited Warranty

LOAD SYSTEMS INTERNATIONAL INC. (hereafter “LSI”) warrants its products (the “Products”) will be free from defects in materials and workmanship for a period as determined by the product family as indicated below (the “Warranty Period”).

warranty duration	product family
24 months	GC Series Load Cells, GD Series Line Riders, GP Series Load Pins GS001, GS002, GS003, GS004, GS005, GS007, GS010, GS011, GS012, GS020, GS030, GS031, GS035, GS050, GS075, GS101, GS106, GS110, GS112, GS220, GS221, GS222, GS224, GS550, GS820, LP Series Load Pins, LS051, LS055, PT00100
12 months	GS025, GS085, GS320, GS375

Unless otherwise specified, the default Warranty Period for the Products is 12 months after delivery of such product. Please consult LSI for any Product that is not listed in the above chart for further details.

The Warranty Period commences after delivery of such Products to the user (as evidenced on a LSI document) subject to installation and use in accordance with specifications described in the LSI Installer and User’s Manual, as amended from time to time, LSI technical materials and any related writings published by LSI with respect with such Products and any applicable industry standards.

During the Warranty Period, LSI or its designated service representative shall repair, or at its option, replace any Product that is confirmed to be defective by LSI, in its sole discretion, in accordance with the Limited Warranty Services Procedures described in this section.

### 9.2 Warranty Services Procedures

In order to benefit from this Limited Warranty, the purchaser must notify LSI’s customer service or LSI’s authorized distributor or representative originally responsible for the sale of the Products within 10 days of the occurrence of a suspected defect in materials or workmanship, and in any case prior to the expiry of

the Warranty Period. Timely notification will permit the purchaser to obtain a Return Authorization Number which will indicate return procedures and terms and conditions of such returns. A proof of purchase of the Product, such as an invoice or a receipt certifying the validity of the Warranty, must be presented in order to obtain Limited Warranty coverage. In any event, even if a Return Authorization Number is provided to purchaser, LSI reserves the right to inspect the damaged Product or part before its final decision to repair or replace the defective Product or part.

The Product or part shall be returned to LSI or its designated service representative, accompanied by the Return Authorization Number with prepaid shipping charges. The purchaser must insure the shipment or accept the risk of loss or damage during the shipment. Purchaser shall also pay any tariff or duty applicable to the return of the defective part or Product. LSI will, at its option, repair or replace the Product or part returned to LSI or to its designated service representative. LSI owns all parts or Products replaced, repaired or removed from a repaired Product. If LSI repairs a Product, the Product Warranty coverage Period is not extended and the Limited Warranty shall expire as if uninterrupted at the end of the last month of the original Warranty Period from shipping from LSI. If LSI replaces a Product, the replaced Product is warranted for the remainder of the original term or sixty consecutive (60) days, whichever is longer.

LSI reserves the right to require from the user or owner of the Products, prior to determining if the Limited Warranty coverage is applicable, that LSI receive the data logging equipment used with the Products and that LSI be authorized to retrieve all information from such data logging equipment in order to, among others, ensure that the written instructions and applicable standards, including safety margins, were respected and not exceeded during Product use. Failure by the owner or user of the Product to supply such information shall be deemed a material default of the terms and conditions of this Limited Warranty and shall be irrevocably construed as evidence that the Product was misused or abused. Consequently LSI shall irrevocably be relieved of any obligations to compensate the user or owner of the Product for any and all damages resulting from Product failures when data logging equipment, and access to its content, cannot be freely and readily provided, unhampered, to LSI.

LSI will pay ground freight transportation costs of replacement or repaired parts or Products to the destination in the countries in which it maintains a service center (currently Canada, continental United States of America, United Kingdom, Australia and the United

Arab Emirates) (the “Territory”). LSI will not pay any transportation costs of replacement or repaired parts to a destination outside of the Territory. Shipping and handling costs to locations outside the Territory shall be the responsibility of and borne by Purchaser or Owner of the Product prior to any shipment by LSI. (Contact LSI to obtain a Return Authorization Number and the address to ship parts).

### **9.3 Exclusion of Other Warranties**

THE ABOVE WARRANTY IS THE SOLE WARRANTY APPLICABLE AND THERE ARE NO EXPRESS, LEGAL OR IMPLIED WARRANTIES OR CONDITIONS IN RELATION TO ANY PRODUCTS INCLUDING ANY IMPLIED WARRANTY OR CONDITION OF MERCHANTABILITY, NON-INFRINGEMENT OR FITNESS FOR A PARTICULAR PURPOSE AND THOSE OTHERWISE ARISING BY STATUTE OR OTHERWISE IN LAW OR FROM A COURSE OF DEALING OR USAGE OF TRADE, WHICH ARE EXPRESSLY DISCLAIMED. NO ORAL OR WRITTEN INFORMATION OR ADVICE GIVEN BY LSI OR ITS EMPLOYEES OR REPRESENTATIVES SHALL CREATE A WARRANTY OR CONDITION OR IN ANY WAY INCREASE THE SCOPE OF LSI’S OBLIGATIONS. LSI DOES NOT WARRANT THAT THE BUSINESS RESULTS OBTAINED FROM THE USE OF THE PRODUCTS WILL BE APPROPRIATE OR ADEQUATE FOR THE PURCHASER.

### **9.4 Exclusion**

This Limited Warranty does not cover and shall not apply to:

- Any Product that is misused or abused, including being altered, modified or repaired not in accordance with LSI written instructions or authorizations or used not in compliance with LSI’s instructions and/or industry standards and practices;
- Any incidental costs or expense, such as shipping charges to LSI or an designated service representative as well as the technician out-of-pocket expenses including traveling, lodging and meal expenses, if any; The damages caused during the transport or the moving of the Product;
- Damages caused by accidents, abuse, misuse, a force majeure (described as events outside a LSI’s or any Product user’s control, including war, riot, strikes, embargoes) or external cause;
- Any cost, damage or expenses for field labor or any other expenses related to or arising from the replacement of defective parts.
- Products used for pile-driving, wire rope activated clamshell or dragline applications. If purchaser uses the Products for pile-driving, wire rope activated clamshell or dragline application, the Limited Warranty

will be deemed to have been violated for abuse.

- Any costs associated with providing LSI with data logging equipment.

### **9.5 Limitation of Liability**

To the maximum extent permitted by applicable law, in no event will LSI be liable to the purchaser or any third party for any indirect, special, consequential, incidental or exemplary damages whatsoever, including but not limited to loss of revenue or profit, lost or damaged data, business interruption or any other pecuniary loss whether based on contract, tort or other causes of action, even if LSI has been advised of the possibility of such damages. In any event, the total liability of LSI arising from any cause of action or claim whatsoever, whether (1) in contract, (2) in tort (including negligence, whether sole, joint, contributory, concurrent or otherwise, but not including intentional, reckless or wanton tort), (3) under strict liability, (4) under any environmental or antipollution law or regulation, (5) connected with any toxic or hazardous substance or constituent, (6) arising out of any representation or instruction, or under any warranty, (7) or otherwise, arising out of, connected with, or resulting from the design, manufacture, sale, resale, delivery, repair, replacement or use of Products or the furnishing of any service shall in no event exceed the price allocable to and paid to LSI for the individual unit of Products or service or part thereof which gives rise to the cause of action or claim.

SOME STATES OR JURISDICTIONS DO NOT ALLOW THE LIMITATION OR EXCLUSION OF LIABILITY FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES, SO THE ABOVE LIMITATION OR EXCLUSION MAY NOT APPLY TO YOU.

### **9.6 Recommended Practices**

LSI recommends careful consideration of the following factors when specifying and installing the Products. Before installing a Product, the Installation, Operation, and Maintenance instructions provided with the unit must be read and understood and complied with.

### **9.7 Choice of Law**

This Limited Warranty shall be governed by and construed in accordance with:

- the laws of the Province of Quebec, Canada for products sold by LSI in Quebec;
- the laws of the Province of Ontario, Canada for products sold by LSI in Ontario and anywhere else in Canada; and
- the laws of the State of New York for products sold by LSI anywhere in the United States of America or anywhere else, excluding Canada.

***9.8 Entire Agreement***

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This document contains the entire agreement of the parties regarding the subject matter of the Product and supersedes all previous communications, representations, understandings and agreements, either oral or written, between you and LSI.

***9.9 Vienna Convention Excluded***

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The United Nations Convention on Contracts for the International Sale of Goods does not apply to this Limited Warranty.

***DOCUMENT REVISION HISTORY***

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Version	Date	Summary of Change	Approved By
1.0	05/15/2013	Initial Release	M. Tessier
1.1	06/07/2013	8.1 – Added Industry Canada compliance verbiage	N. Labrie

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## **LSI-Robway technical support is available 24 hours a day, 7 days a week**

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