

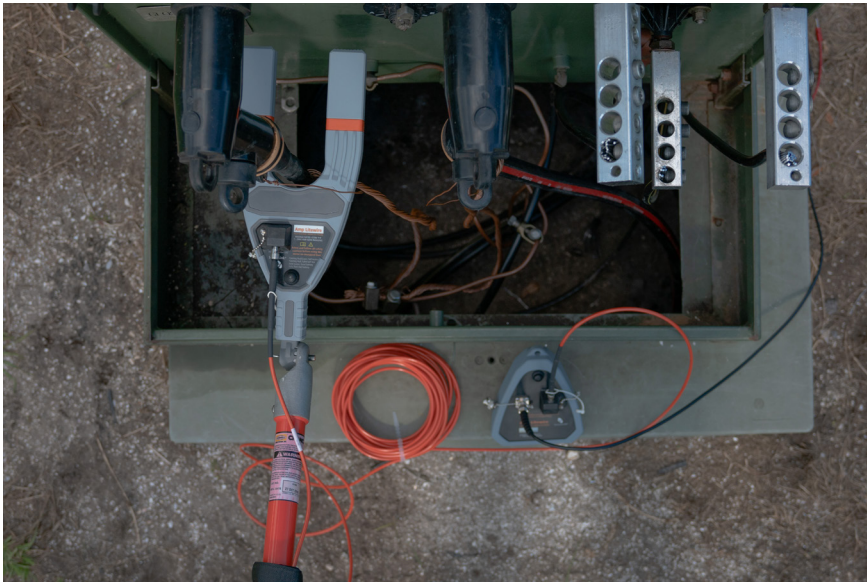
Operators Manual

Amp Litewire

High Voltage Ammeter Probe

Padmount Conductor

Model 8-117XT



Overhead Conductor

Model 8-117WJ



Operators Manual

Amp Litewire

High Voltage Ammeter Probe

Available Stock Codes:			
8-117 XT 50HZ	8-117 XT 60HZ	8-117 XT EURO	
8-117 WJ 50HZ	8-117 WJ 60HZ	8-117 WJ EURO	

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SAFETY INFORMATION



Read all safety and instruction statements before using the product. Failing to follow the safety guidelines can cause severe injury or death.



The Amp Litewire is designed for use on live, overhead lines. All procedures appropriate for the line voltage are to be taken, including proper work techniques, equipment, and Personal Protection Equipment.



The Amp Litewire should be used by personnel who have been trained for live-line, high voltage work by their organization.



The hot stick should be considered the sole isolation device.



The hot stick lengths must be correct for line voltage per minimum approach distances stated in published OSHA regulations and/or provided by the utility.



The cover plate, chuck, probe section, resistor section, and entire Amp Litewire Transmitter is to be considered at the same potential. Putting the cover plate, chuck, or other parts of the Radio Voltstik within the air gap of adjacent phases or ground could cause a phase to phase or phase to ground fault.



The fiber optic cable is a high voltage insulator and will isolate equipment in the same manner as a fiberglass hot stick. Wind extra cable and do not allow extra length to hang loose.



The Amp Litewire should never be left unattended while on the line.



Do not force the arms of the Amp Litewire.



Do not alter the product in any manner.

THEORY OF OPERATION

The Amp Litewire is a two piece, True RMS Ammeter with a fiber optic link between the high voltage amp sensor transmitter and the analog output at ground potential. The amp sensor transmitter is mounted on a hot stick (insulated pole) and slipped over a low or high voltage line. A fiber optic cable connects the amp sensor transmitter to a receiver unit at ground potential, which provides the analog output.

An analog replica of the current waveform is available at the BNC connector. This signal may be read with any instrument that is capable of reading 0-2 volt AC. The unit has an output impedance of 50 ohms.

The fiber optic cable is physically rugged while providing the high speed data path required for digital waveform transmission. The cable is the high voltage insulator between the two units and is specified to provide 100kv isolation per foot. It also is the high voltage insulator between the two units.

The Amp Litewire may be used with the Volt Litewire to maintain power systems and troubleshoot power problems.

SPECIFICATIONS			
Model Number	8-117 XT	8-117 WJ	
Sensor Opening	Standard	Wide Jaw	
Opening Width	2.5" 6.35 cm	4" 10.16 cm	
Transmitter Weight	1.75 lbs 0.79kg	2.60 lbs 1.18 kg	
Range of Operation			
Current	1-2000 A	1-2000 A	
Phase to Phase Voltage	up to 433 kV	up to 433 kV	
Phase to Ground Voltage	up to 250 kV	up to 250 kV	
Accuracy	± 1 %, ±0.1 millivolt		
Phase Angle	± 1°		
Resolution	0.1 millivolt		
Frequency			
50Hz Calibrated	47 to 53 Hz		
60Hz Calibrated	57 to 63 Hz		
Analog Output	1 millivolt RMS per Amp		
Output Connector	BNC. No DC offset voltage.		
Output Impedance	50 ohms minimum		
Frequency Response	3000 Hz or to the 50th harmonic		
Fiber Optic Cable			
Standard Length	40 ft, 12.19 m		
Isolation	100 kV per Foot, 150 kV max		
Mechanical			
Ambient Temperature	-22° to +140° F, -30° to +60° C Lithium battery required for use below -4°F (-20° C)		
Housing	Fire resistant and waterproof polycarbonate and silicone		
Hotstick Mounting	Universal Chuck Adaptor (hot stick not included)		
Battery	9 volt, one per Transmitter and Receiver		
Battery Life	Minimum six hours of continuous use		

Amp Litewire Operating Instructions

Step 1: Connect the Fiber Optic link. Inspect and clean the fiber optic cable per instructions on page 11 and 12. Uncover the male connector dust cover on the fiber optic cable. Uncover the dust cap on the female receiver, located on the face of the unit. Line up the male connector and insert into the female receiver. Push and twist to lock into place. Repeat the process on the opposite end of the fiber for the other unit.



Step 2: Attach unit to the hot stick. Attach the sensor transmitter to a universal hot stick (Insulated Pole).

Step 3: Attach the Strain Relief Strap. To prevent strain on the fiber optic cable, wrap the Velcro securely around the handle of the transmitter as shown below:



Step 4: Power on the unit. The Amp Litewire is controlled by the single push button switch located on the front panel of each unit. Press the push button switch one time on both the transmitter and the receiver.

Startup Test: The Amp Litewire conducts a startup test to verify the sensors and circuitry is functioning correctly. While in startup mode the receiver screen will display TESTING.

When the test determines the unit is functioning properly, the transmitter push button LED will be solid green, and the receiver display will be in Measurement Range selection.

If the test detects a failure the display will show FAIL and a corresponding code. See page 13 for the failure code chart.

Step 5: Select Measurement Range.

Unit will automatically be set to "2000". To change, press and hold the button. The LCD will continuously toggle through "20", "200", "2000", and "OFF" messages until one is selected by releasing the button.

20

200

2000

OFF

"20" means 0 to 20A measurement range. In this range, 100mV RMS analog output represents 1A RMS input.

"200" means 0 to 200A measurement range. In this range, 10mV RMS analog output represents 1A RMS input.

"2000" means 0 to 2000A measurement range. In this range, 1mV RMS analog output represents 1A RMS input.

Once the range is selected, and the fiber optic cable is connected, the receiver display will show "<1" to indicate there is no current applied through the sensor transmitter.

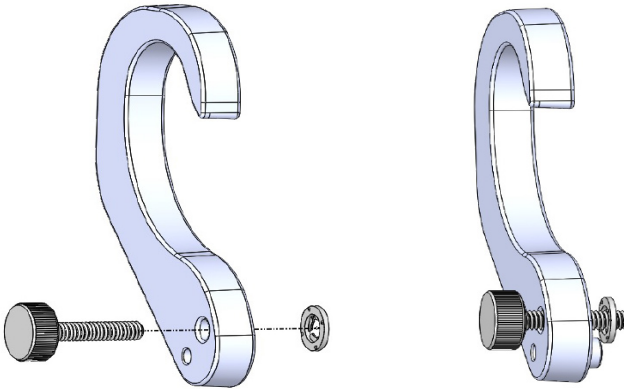
Step 6: Connect to the analyzer. An analog replica of the current waveform is available at the BNC connector. This signal may be read with any instrument that is capable of reading 0-2 volt AC. The unit has an output impedance of 50 ohms. A portable oscilloscope, waveform recorder, or power analyzer may be used. You will need the following equipment to output an analog device:

- (1) Amp Litewire: 8-117 XT or 8-117 WJ
- (2) 7-011-CABL

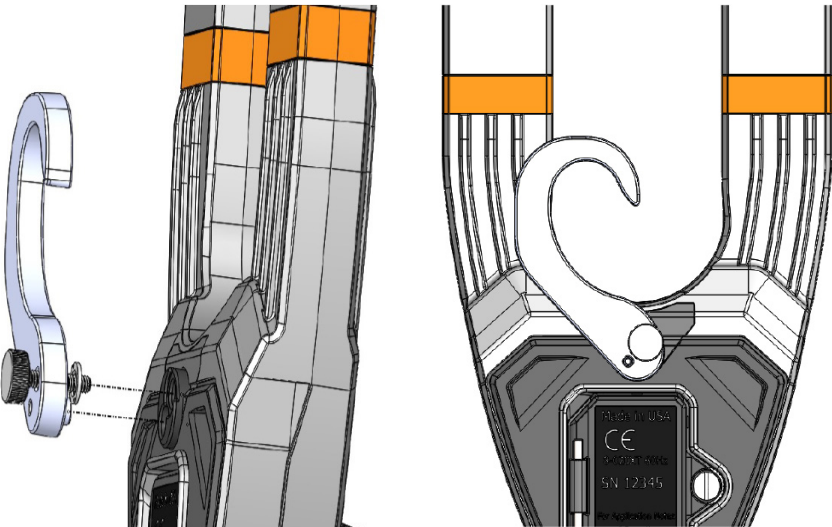
See the operation manual of the analyzer on how to connect the Amp Litewire to get the analog replica of the current waveform.

Step 7: Assembling the hanger (if applicable).

A retaining ring keeps the thumb screw bound to the hanger.



The hanger attaches to a mount on the back of the Amp Litewire, centered just above the battery door. Insert the thumb screw into the recessed thread. The pin on the back of the hook aligns with a receptacle adjacent to the threaded insert.



Step 8: Hanging the Transmitter. A detachable hook, ordered separately, is available to allow the amp sensor transmitter and its hot stick to hang temporarily from overhead wires.

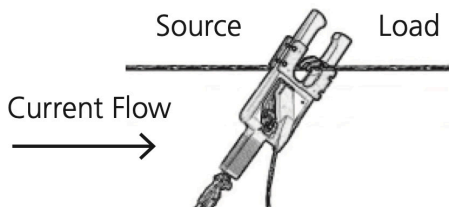
**The unit should never be left unattended while hanging.

**The receiver unit should never be allowed to hang free.

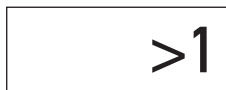


Directional Properties

The Amp sensor on the Litewire is direction sensitive. In order to ensure proper phase relationship when comparing to a voltage reference, place the Amp Litewire so the face of the instrument is facing the load. The proper phase angle should be 0 to $\pm 90^\circ$ when measuring the fundamental. When the sensor is positioned in an improper orientation the phase angle will read $\pm 91^\circ$ to $\pm 180^\circ$.



Step 9: Communication. Once hung, the transmitter unit will read and communicate to the receiver. The display on the receiver will update to ">1" when there is more than 1A of current applied.



Step 10: Powering the unit OFF. Press and release the switch button to turn off both the transmitter and receiver.

Step 11: Auto Power OFF. The receiver units and transmitter will power off if it does not receive more than 1A input for approximately 30 minutes. This feature is designed to save battery power. If an automatic time-out occurs, the units will have to be manually restarted.

Fiber Optic Cable Handling Guidelines



Male Connector
(End of Cable)



Female Receiver
(Mounted on Instrument)

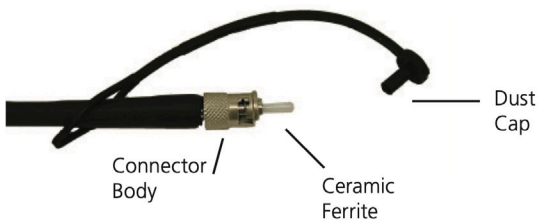
Keeping Ferrites Covered

1. Do not touch the ceramic ferrite end.
2. Cover the fiber optic connector when not in use. Unprotected connector ends are most often damaged by impact, such as hitting the floor. The provided tethered dust cap will protect the connector's ceramic ferrite end from impact damage that might crack or chip the polished surface. Please contact SensorLink Corporation for a replacement if the provided dust cap is lost or broken.
3. The fiber end face, ceramic ferrite, and dust cap must be clean and it is recommended they be cleaned each time they are connected.

Cleaning

The fiber optic cable should be cleaned and handled in the same manner as a fiberglass hot stick. It is critically important for fiber optic connectors to be free of dust and dirt to maintain optimum performance. Cleaning should be done as often as possible in dusty and dirty environment. A simple and effective way to guarantee cleanliness is to clean the ends of your fiber optic cables each time they are disconnected and reconnected. Dust, lint, oil (from touching the fiber end face), or other foreign particles obscure the end face, compromising the integrity of the optical signal being sent over the fiber.

Recommended Equipment:



Kimwipes® or any lens-grade, lint-free tissue.

Use only industrial grade 99% pure isopropyl alcohol. Commercially available isopropyl alcohol is for medicinal use and is diluted with water and a light mineral oil. Industrial grade isopropyl alcohol should be used exclusively.

Canned dry air.

(Optional) Microscope

Recommended Process:

1. Fold the tissue twice so it is four layers thick.
2. Saturate the tissue with alcohol.
3. Clean the sides of the connector ferrule. Place the connector ferrule in the tissue. Apply pressure to the sides of the ferrule. Rotate the ferrule several times to remove all contamination from ferrule sides.
4. Move to a clean, saturated part of the tissue. Put the tissue against the end of the connector ferrule. Put your fingernail against the tissue so that it is directly over the ferrule.
5. (Optional) Use the microscope to verify the quality of the cleaning. If it isn't completely clean, repeat the steps with a clean tissue. Repeat until you have a cleaning technique that yields good, repeatable results.
6. Connect immediately. If not possible, be sure to replace protective boot.
7. Air can be used to remove lint or loose dust from the connectors. Never insert any liquid into the ports.

High Voltage Operation

This instrument is designed to operate in high voltage fields. However, difficulty may be experienced when excessive corona to the instrument occurs, resulting in a lost reading or requiring the power to be cycled.

Transporting

There are no special considerations for transporting the device.

Battery Replacement

The Amp Litewire is powered by a single 9V battery in both the receiver and transmitter. The battery should be replaced when the low battery icon shows on the display. To change the battery, loosen the screw on the battery cover at the rear of the unit. Pull the battery out of the compartment and install a fresh battery. Secure by closing and tightening the screw on the battery cover.

Cleaning

The Amp Litewire can be cleaned by wiping with a silicone hot stick wipe to remove sand, salt, and dirt.

Troubleshooting Guide

Fail Codes

The unit will not enter into measurement mode if the self-test has any of the below failures. The unit will need to be returned to SensorLink for repair evaluation.

FAIL CODE "1": Break to the main current sensor

FAIL CODE "2": Break to a current sensor component

FAIL CODE "3": Circuit failure, low gain

FAIL CODE "4": Circuit failure, high gain

Why does the receiver display show "No Signal"? No data output to the analyzer?

This indicates there is not data output to the analyzer.

- Make sure the amp sensor transmitter is powered on.
- Make sure the battery in the amp sensor transmitter has 8.5VDC or greater
- Check the fiber end faces and ceramic ferrites for dirt. See page 11 and 12 for the fiber optic cable handling and cleaning instructions
- There is a break in the Fiber. Replace the Fiber Optic Cable.

Why is my unit not powering on?

Verify that there are fresh 9V batteries in each unit.

Why did my unit power off?

- The battery voltage is too low.
- The units will automatically power off after approximately 30 minutes of no current ($<1A$) being sensed.

Service and Repair Questions

Please contact SensorLink or an authorized agent for the return process of product for evaluation, repair, calibration, and verification.

SensorLink Corporation

Tel: (360)595-1000

Fax: (360)595-1001

E-mail: info@sensorlink.com

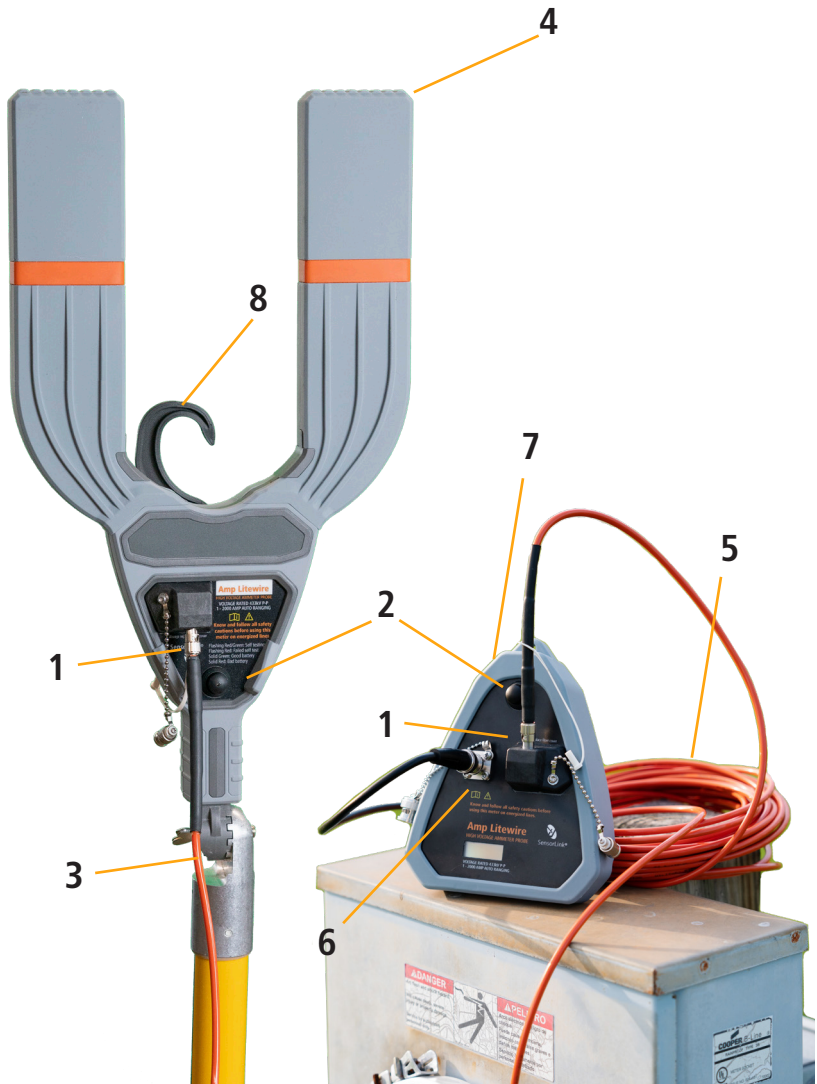
Web: www.sensorlink.com

Scan code for more production information



Amp Litewire Diagram

- 1. Fiber Optic Ends
- 2. ON/OFF Switch
- 3. Universal Chuck Adaptor
- 4. Amp Sensor/Transmitter
- 5. Fiber Optic Cable
- 6. BNC Output
- 7. Receiver
- 8. Hanger



SENSORLINK CORPORATION

LIMITED WARRANTY

What Does This Warranty Cover?

This warranty covers the following with respect to new, non-custom SensorLink products (the "Product"):

- Defects in materials
- Defects in workmanship
- Damages occurring during shipping from SensorLink if shipped under FOB Freight Allowed shipping terms

How Long Does This Warranty Last?

This warranty runs for twenty-four (24) months from the date of invoice by SensorLink.

What SensorLink Will Do:

If a defect in materials or workmanship or shipping damages as described above occurs within the warranty period, SensorLink will, at its election, repair or replace the Product at no charge or provide a refund.

What This Warranty Does Not Cover:

This warranty does not cover or apply to:

- Any defects or damages caused directly or indirectly by misuse, abuse, disassembly, alteration, negligence, accident, act of God, improper voltage, or improperly or incorrectly performed maintenance or repair
- Any defects or damages caused by any connection, installation or use of the Product not in compliance with the instructions and specifications for its use
- Any defects or damages caused by any alterations, modifications or repairs not made by SensorLink
- Third party products connected to the Product or in which the Product is installed
- Any Product purchased by the user in used condition
- Any custom Product produced by SensorLink
- Any Product repaired or calibrated by any party other than SensorLink

No Other Warranties:

OTHER THAN THE WARRANTIES PROVIDED HEREIN, SENSORLINK MAKES NO EXPRESS OR IMPLIED, ORAL OR WRITTEN WARRANTIES WITH RESPECT TO THE PRODUCT AND ALL SUCH WARRANTIES ARE EXCLUDED BY AGREEMENT AND SHALL NOT BE IMPLIED BY LAW, CUSTOM, USAGE, TRADE PRACTICE, COURSE OF DEALING OR COURSE OF PERFORMANCE. ALL WARRANTIES IMPLIED BY LAW, INCLUDING ANY WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, WHICH CANNOT BE EXCLUDED BY LAW ARE LIMITED TO THE DURATION OF THE WARRANTY. Some states do not allow limitations on how long an implied warranty lasts, so the above limitation may not apply to you.

Limitation On Damages:

SENSORLINK SHALL IN NO EVENT BE LIABLE FOR DEATH, INJURIES TO PERSONS OR PROPERTY OR FOR INCIDENTAL, CONTINGENT, SPECIAL OR CONSEQUENTIAL DAMAGES ARISING FROM USE OF THE PRODUCT. Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation or exclusion may not apply to you.

How Do You Get Warranty Performance?

In order to be eligible under this warranty, you must promptly contact SensorLink upon discovery of a possible defect, supply a copy of this warranty along with proof of purchase, and request a return material authorization (RMA). If you do not contact SensorLink within the twenty-four (24) month warranty period, your rights under this warranty will terminate. All warranty correspondence should be directed to:

SensorLink Corporation
1360 Stonegate Way
Ferndale, WA 98248
(360) 595-1000

SensorLink will begin its inspection of the Product within five (5) business days of receipt and will contact you when its inspection is complete. If the inspection uncovers a defect, SensorLink will repair or replace the Product and pay for the cost of shipping the Product back to you. Alternatively, SensorLink may issue you a refund of your original purchase price.

If the inspection does not uncover a defect, or the defect resulted from causes not within the scope of the warranty, then the Product will be replaced only at your request and at your expense and you must bear all costs of shipping the Product. Additionally, you will be responsible to reimburse SensorLink for its evaluation expenses and Product verification fee. You may obtain SensorLink's current fees by calling the number listed above.

How Does State Law Apply?

This warranty gives you specific legal rights, and you may also have other rights which vary from state to state.

Choice of Law:

This warranty, including without limitations the rights and responsibilities granted hereunder, shall be governed and construed in accordance with the laws of the State of Washington, without regard to the conflicts of law provisions thereof.

Severability:

If any provision of this warranty is held unenforceable or illegal, or otherwise limited in its application, by a court or other authority with competent jurisdiction, such provisions shall be modified to the minimum extent required such that the rest of the warranty will continue in full force and effect in accordance with its terms.

Entire Agreement:

This writing embodies the entire limited warranty of SensorLink, and no other warranties are given beyond those set forth herein. No oral agreements or understandings shall be binding on SensorLink. SensorLink neither assumes, nor authorizes, anyone (including without limitation SensorLink agents, employees or contractors) to assume or create for it other obligations or liabilities or modify in any way any item or provision of this warranty.

Quality Assurance Certification

High Voltage Ammeter Probe

8-117

SensorLink certifies that its calibration measurements are traceable to the National Institute of Standards and Technology (NIST), to the extent allowed by the Institute's calibration facility, and to the calibration facilities of other International Standards Organization members.

This document certifies the following High Voltage Ammeter Probe was tested at the SensorLink High Voltage Laboratory, Ferndale, WA, USA to the appropriate standard and comply with the requirements of that standard.

Sensor Transmitter Amp Meter; Model 8-117; Serial Number: _____

I hereby certify that the High Voltage Ammeter Probe listed above has passed all tests defined in the SensorLink standard. I also certify that I have reviewed the standard and test procedure and that they are sufficient in determining compliance with the standard.

Signed: _____

Date: _____

Scan code for more production information on the Amp Litewire



Form No: SALE-Manual Template Amp Litewire

Date: 01/2023

Manual Stock Code No: M050-005-001 V01

Information contained in this document is preliminary and subject to change without notice. Product specification may change. Contact your SensorLink representative for the most current product information.

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These products proudly
made in the USA.



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