

# L505 VISUAL LEVEL INDICATOR

INSTALLATION AND OPERATIONS MANUAL

Dip-Tape Visual Level Indicator



**SOLUTIONS WITH INNOVATION**

AN INNOVATIVE SENSING COMPANY

ISO 9001:2008 CERTIFIED

This manual provides information on the **L505 Dip-Tape Visual Level Indicator**. It is important that all instructions are read carefully and followed sequentially. Detailed instructions are included in the **Complete Installation** section of this manual.

## Conventions Used in this Manual

Certain conventions are used in this manual to convey specific types of information. General technical material, support data and safety information are presented in narrative form. The following styles are used for notes, cautions and warnings:

### Notes

Notes contain information that augments or clarifies an operating step. Notes do not normally contain actions and often follow the procedural steps to which they refer.

### Cautions

Cautions alert the technician to special conditions that could injure personnel, damage equipment, or reduce a component's mechanical integrity. Cautions are also used to alert the technician of unsafe practices, the need for special protective equipment, or specific materials. In this manual, a caution indicates a potentially hazardous situation which, if not avoided, may result in minor to moderate injury.

## Notice of Copyright and Limitations

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*All rights reserved.*

Solutions With Innovation reserves the right to make changes to the product described in this manual at any time without notice. Solutions With Innovation makes no warranty with respect to the accuracy of the information in this manual.

## Warranty

All Solutions With Innovation Mechanical Level and Flow Controls are warranted free of defects in materials and workmanship for one full year from the date of the original factory shipment. If returned within the warranty period; and, upon factory inspection of the control, the cause of the claim is determined to be covered under the warranty; then, Solutions With Innovation will repair or replace the product at no cost to the purchaser (or owner) other than transportation.

Solutions With Innovation shall not be liable for misapplication, labor claims, direct or consequential damage, or expenses arising from the installation or use of the equipment. There are no other warranties expressed or implied, except special written warranties covering specific Solutions With Innovation products.

## Quality Assurance

The Quality Assurance System in place at Solutions With Innovation guarantees the highest level of quality throughout the company. Solutions With Innovation is committed to providing full customer satisfaction; both in quality products and in quality service.

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# L505 VISUAL LEVEL INDICATOR

Dip-Tape Indication Design

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## 1.0 COMPLETE INSTALLATION

This section provides detailed procedures on properly installing the L505 Dip-Tape Visual Level Indicator.

 **CAUTION!** IF THE EQUIPMENT IS USED IN A MANNER NOT SPECIFIED BY THE MANUFACTURER, PROTECTION PROVIDED BY THE EQUIPMENT MAY BE IMPAIRED.

### 1.1 UNPACKING

Unpack the instrument, carefully. Make sure that all components have been removed from the packing material. Inspect all components for damage. Report any concealed damage to the carrier within 24 hours of receiving. Compare the contents with the packing slip and report any discrepancies to the factory immediately. Record the sales order number and/or serial number for future reference when ordering parts.


#### **Before Proceeding to Installation, Complete the Following:**

- Inspect all components for damage. Report any damage to the carrier within 24 hours of receiving.
- Record the model and serial numbers for future reference when ordering parts.

Model Number \_\_\_\_\_

Serial Number \_\_\_\_\_

### 1.2 BEFORE YOU BEGIN

 **CAUTION!** DURING THE INSTALLATION OF THE L505 DIP-TAPE VISUAL LEVEL INDICATOR, THE FLOAT AREA MUST BE KEPT FREE OF METALLIC PARTICLES THAT MIGHT BE ATTRACTED TO THE FLOAT'S INTERNAL MAGNET.

#### 1.2.1 Site Preparation

Ensure that the length and mounting is sized correctly to accommodate the L505 Dip-Tape Visual Level Indicator.

#### 1.2.2 Equipment and Tools

No special equipment or tools are required to install the L505 Dip-Tape Visual Level Indicator.

#### **The Following Is Recommended:**

- An Appropriately-Sized Wrench

### 1.3 MOUNTING

The L505 Dip-Tape Visual Level Indicator is available in a variety of threaded mounting sizes. It is recommended that the unit is mounted vertically at the top of a tank or barrel.

#### **Installing the L505 Threaded Mount:**

- 1 Apply either Teflon<sup>®</sup> tape or an appropriate thread sealant to the mounting threads to prevent galling.
- 2 Engage the thread by hand to avoid unnecessary damage.
- 3 Using a wrench, rotate the unit clockwise until the threads are tight within the mounting.
- 4 Ensure that the float and stem are in a vertical orientation.

## 2.0 PREVENTATIVE MAINTENANCE

Periodic inspections are necessary to maintain the proper functionality of the L505 Dip-Tape Visual Level Indicator. A systematic program of preventative maintenance should be implemented at the time of installation. If the following instructions are completed routinely, the indicator will provide continuous, reliable protection.

### 2.1 MAINTENANCE PROCEDURES

#### 2.1.1 Inspect Unit Periodically

Verify that there are no dents or bends in the float and stem. Should the unit become damaged, obtain a replacement immediately.

#### 2.1.2 Keep Unit Clean

Periodic cleanings of the float and stem will ensure the continual, uninterrupted movement of the mechanism. Always keep the areas around the unit clean and free of any potential interferences. Objects and debris may cause systematic interruptions and a loss in equipment functionality.

### 2.2 WHAT TO AVOID



**NEVER USE IN SYSTEMS CONTAINING IRON PARTICLES.**

*The magnet within the float assembly can attract the particles and become jammed.*

## 3.0 REFERENCE INFORMATION

This section illustrates an overview of the L505 Dip-Tape Visual Level Indicator, as well as information on troubleshooting common problems, agency approval listings, and detailed physical, functional and performance specifications.

### 3.1 DESCRIPTION

The L505 is a simple and economical liquid level indicator designed for quick, continuous readings in remote and mobile storage tanks. The unit requires no electricity to operate and provides an accurate visual level indication within  $\frac{1}{16}$ ". Available construction materials include a brass/Buna-N combination and an all stainless steel option in a variety of threaded mounting sizes. Measuring lengths range from 6" to 6' (15.24 cm to 1.8 m) in either customary or metric steel tapes.

### 3.2 THEORY OF OPERATION

The sliding steel tape magnetically interlocks with the level position of the float. Level measurement is obtained by sliding the tape from the stem tube and locating the calibration mark where the interlock is felt. The float and stem make contact with the liquid, but the tape remains separate and clean. When the indicator is not in use, it is safely sealed within the tube by a protective screw cap.




### 3.3 TROUBLESHOOTING

The L505 Dip-Tape Visual Level Indicator is designed and manufactured for trouble-free operation over a wide range of operating conditions. Common problems are discussed in terms of their symptoms and recommended corrective actions.

#### 3.3.1 Unit Causes

SYMPTOM	PROBLEM	SOLUTION
THE OUTPUT IS INACCURATE.	A COATING OR BUILD-UP IS PRESENT ON THE FLOAT AND/OR STEM.	REMOVE THE INDICATOR FROM SERVICE. CHECK THE FLOAT AND STEM FOR A COATING OR BUILD-UP OF DEBRIS. IF A COATING OR BUILD-UP IS PRESENT, CLEAN THE STEM AND FLOAT TO REMOVE THE CONTAMINANTS.
THE OUTPUT IS INACCURATE.	LIQUID IS NOT ENTERING THE VESSEL.	CHECK TO ENSURE THAT LIQUID IS ENTERING THE TANK OR VESSEL. A CLOSED VALVE OR CLOGGED PIPELINE MAY PREVENT MOVEMENT OF THE LIQUID IN THE VESSEL.
THE OUTPUT IS INACCURATE.	THE TANK LEVEL IS NOT HIGH ENOUGH TO HAVE THE FLOAT FUNCTION.	CHECK THE FLOAT TO MAKE SURE IT IS BUOYANT IN THE LIQUID. THE TANK OR VESSEL MUST HAVE AN ADEQUATE LIQUID LEVEL.
THE FLOAT IS NOT BUOYANT.	THE FLOAT IS COLLAPSED AND/OR FILLED WITH LIQUID.	CHECK THE FLOAT FOR RUPTURES, DEFORMATION, AND ANY LIQUID TRAPPED INSIDE THE ASSEMBLY. IF THE FLOAT IS FILLED WITH LIQUID OR HAS COLLAPSED, IT MUST BE REPLACED. <b>DO NOT ATTEMPT TO REPAIR THE FLOAT.</b>

 *If you are still in doubt about the condition or performance of your indicator, consult the factory for further instructions.*

### 3.4 SPECIFICATIONS

#### 3.4.1 Physical Specifications

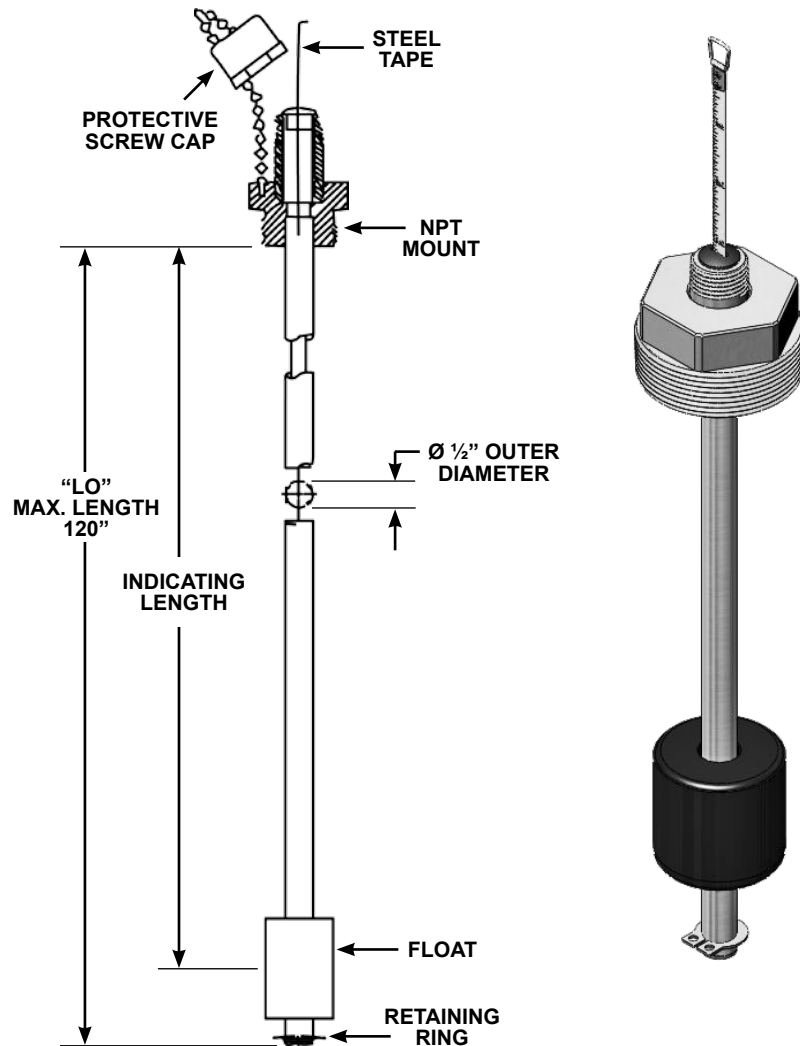
FLOAT MATERIAL	STEM MATERIAL	TEMPERATURE	PRESSURE	FLOAT SG*	SUGGESTED MIN. SG*
Buna-N	Brass	-40° to +180° F (-40° to +82° C)	150 PSIG (10.3 bar)	0.57	0.75
316 Stainless Steel	316 Stainless Steel	-40° to +300° F (-40° to +149° C)	750 PSIG (51.7 bar)	0.59	0.75

\*SG refers to the liquid specific gravity.

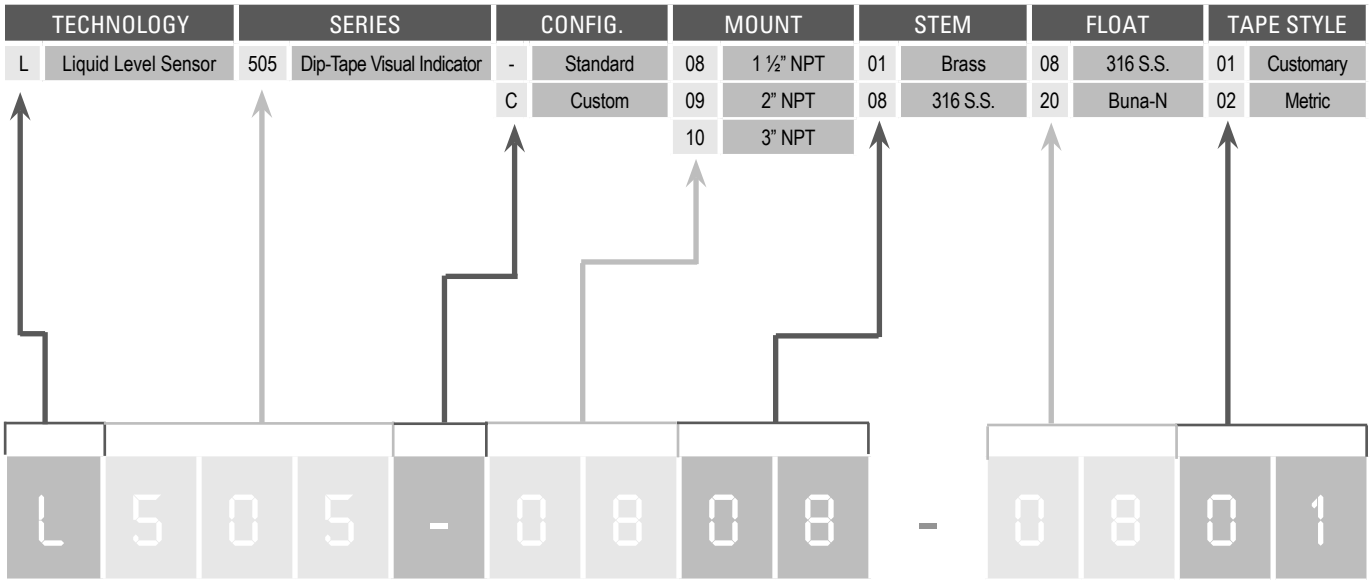
#### 3.4.2 Functional Specifications

MEASUREMENT PRINCIPLE	Magnetic Interlock
MEASUREMENT VARIABLE	Visual Level Indication with Graduated Steel Measuring Tape
INDICATION LENGTH	6" to 6' (15.24 cm to 1.8 m)
TAPE MEASURE OPTIONS	Customary (Inches, Feet)
	Metric (Centimeters, Meter)

#### 3.4.3 Dimensional Specifications



### 3.5 MODEL CONFIGURATOR





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## 3.6 NOTES

# ASSURED QUALITY & SERVICE COST LESS

## Service Policy

Owners of Solutions With Innovation products may request a return of the product, or any part of the product for complete rebuilding or replacement. Units will be rebuilt or replaced promptly. Products returned under the SWI Service Policy must be returned by prepaid transportation. Solutions With Innovation will repair or replace the product at no cost to the purchaser (or owner) other than transportation if:

- 1 Returned within the warranty period; and
- 2 Factory Inspection finds the cause of the claim to be covered under the warranty.

If the problem is due to circumstances beyond Solutions With Innovation's liability, or is NOT covered by the warranty, there will be charges for labor in addition to the parts required to rebuild or replace the equipment.

In rare cases, it may be expedient to ship replacement parts; or in extreme cases, an entire product before the damaged product is returned. If a quick replacement service is necessary, notify the manufacturer of the damaged product's model and serial number. In such cases, credit for the returned materials will be determined on the applicability of the warranty.

No claims for misapplication, labor, direct or consequential damage will be allowed.

## Return Material Procedure

In order to efficiently process any returned materials, it is essential that a *Return Material Authorization* (RMA) number be obtained from the manufacturer prior to an item's return. RMA's can be issued through local representatives, or by contacting the factory directly.

Please supply the following information:

- 1 The Company's Name
- 2 Description of the Material
- 3 Product Serial Number
- 4 Reason for Return
- 5 Product's Application

Used units must be properly cleaned in accordance with OSHA standards before it is returned to the manufacturer. A *Material Safety Data Sheet* (MSDS) must accompany units or materials that were used in any type of media. All return shipments to the factory must be by done via prepaid transportation. All product replacements will be shipped F.O.B. manufacturer.



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