

# Specifications

## SUPPLY VOLTAGE

- 12 to 30 VDC
  - Polarity Protected
- Note: For use in Class 2 Circuits*

## CURRENT REQUIREMENTS

- 95mA @ 12 VDC, 45mA @ 30 VDC

## DIGITAL OUTPUTS

- (1) NPN and (1) PNP open collector output 150mA Max; <2V Residual Voltage
- (*Note: LAC-1 M8, NPN & PNP are software selectable.*)
- All outputs are continuously short circuit protected

## REMOTE AUTOSET INPUT

- Momentary sinking or sourcing input; 1.2mA max; Software Selectable

## DIAGNOSTIC INDICATORS

- OLED Graphic Display - Includes Contrast Indicator, Numerical Display, Set Point and Trigger Point, and all sensor options and modes.
- Red LED Output Indicator- Illuminates when the sensor's output transistors are "ON".

*Note: If output LED flashes on power up, a short circuit condition exists.*

## PUSHBUTTON CONTROL

- Three (3) push button controls
- Gap (for Gap AUTOSET)
- Label (for multi-layered labels)
- Menu (for accessing Options)

## HYSTERESIS

- Dynamic – adjusted by AUTOSET

## RESPONSE TIME

- 200µs

## REPEATABILITY

- 125µs

## AMBIENT TEMPERATURE

- 4°C to 50°C (39°F to 122°F)

## RUGGED CONSTRUCTION

- Chemical resistant, high impact Aluminum housing
- Waterproof ratings: NEMA 4X, 6P and IP65
- Conforms to heavy industry grade CE requirements

## THRESHOLD SET

- 1-Point, 2-Point, or Dynamic AUTOSET; manually or remotely.

## THRESHOLD ADJUST

- Manual or AUTO Adjust

# ULTRASONIC ALL LABEL SENSOR



## OUTPUT TIMERS

- On Delay, Off Delay, One Shot, or Debounce (Advanced Option, software selectable).

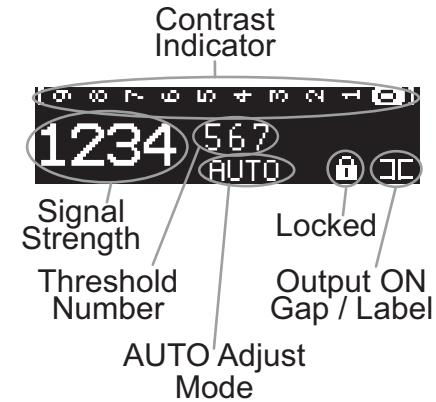
## CONNECTOR

- M12 5-Pin, M8 4-Pin, or 6' (1.8m) Shielded Cable

RoHS Compliant  
Product subject to change without notice

# Installation Manual

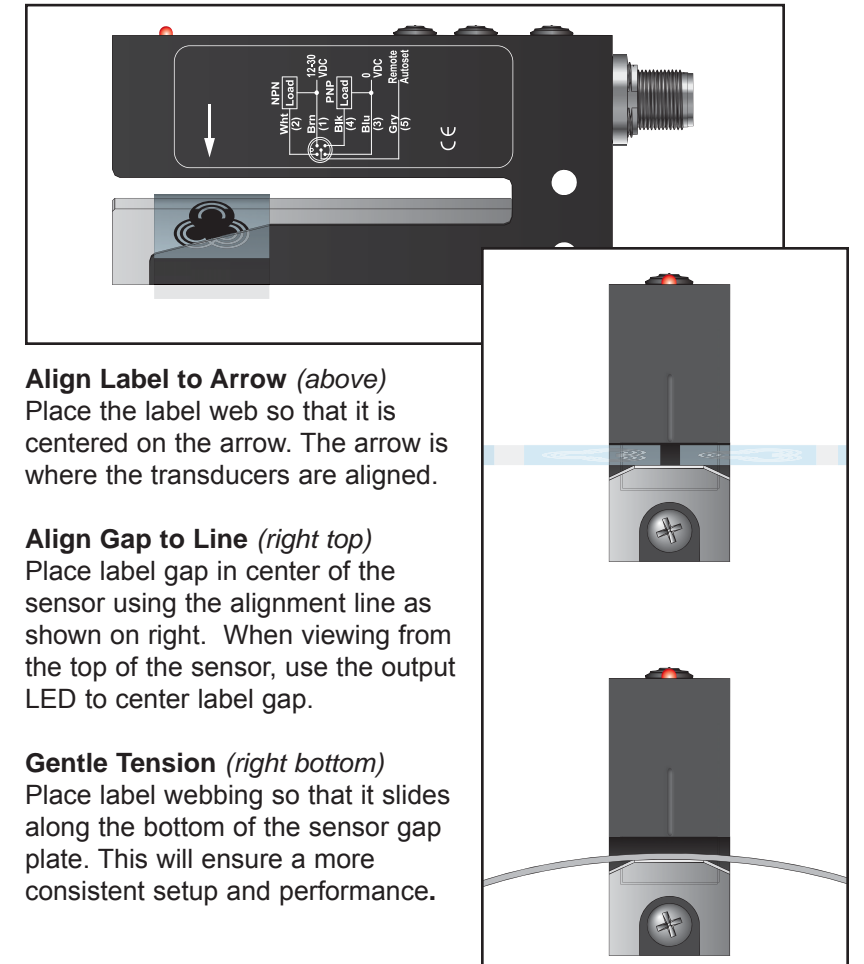
## Setup Instructions



**Simple Setup Start** ➡ Put the Gap in view, press and hold the AUTOSET/GAP button for two seconds, "Gap Set" will be displayed when complete. This will result in a perfect setup 99% of the time. If you have any false triggers, put the Label in view, push and hold the AUTOSET/LABEL button for two seconds, "Label Set" will be displayed when complete. This two-point setup will create a new threshold setting resulting in a more consistent signal span between web and label.

*Note: Sensor is shipped with a protective plastic covering for the display. Remove protective covering for clearer viewing.*

## Label Position



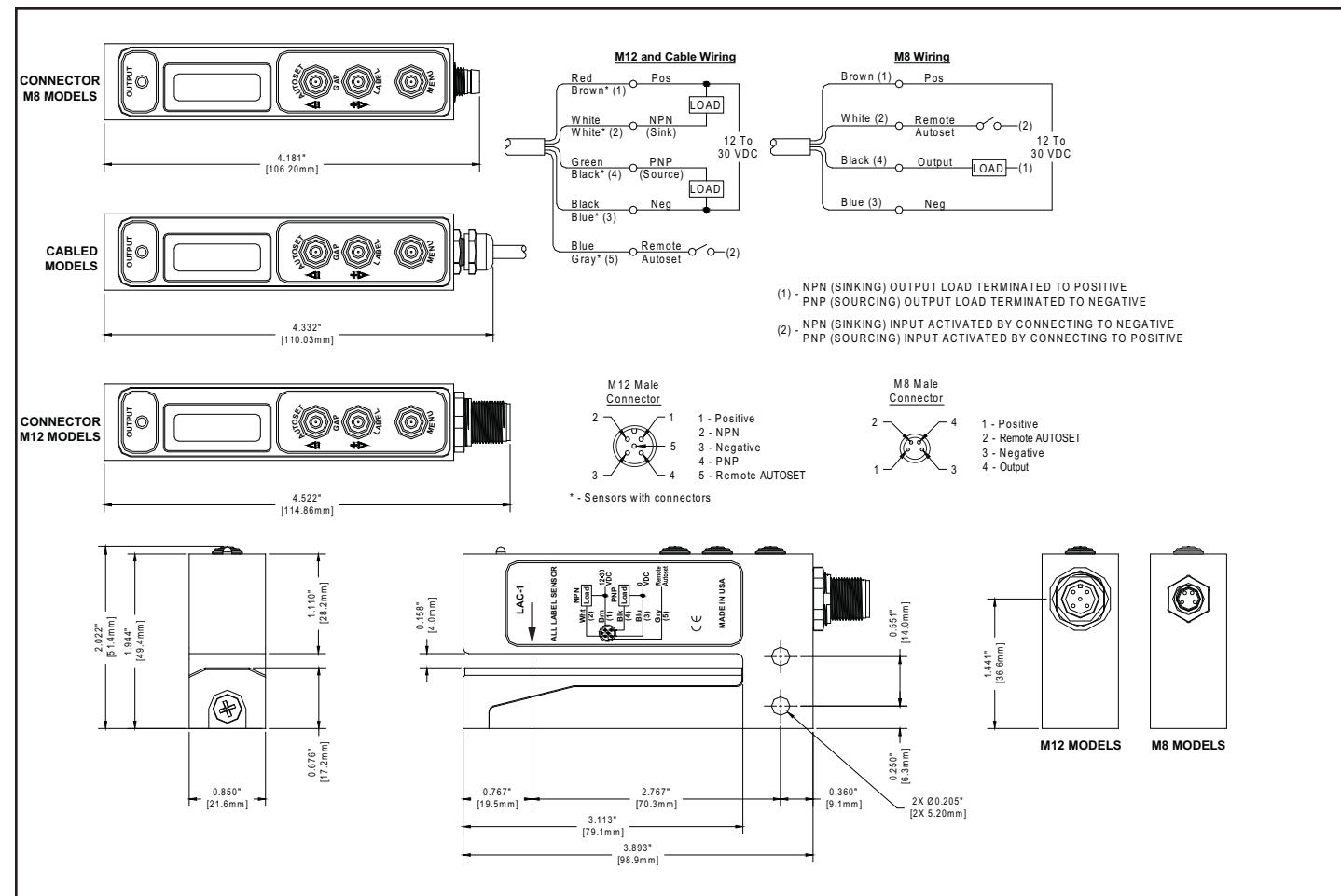
**Align Label to Arrow** (above)  
Place the label web so that it is centered on the arrow. The arrow is where the transducers are aligned.

**Align Gap to Line** (right top)  
Place label gap in center of the sensor using the alignment line as shown on right. When viewing from the top of the sensor, use the output LED to center label gap.

**Gentle Tension** (right bottom)  
Place label webbing so that it slides along the bottom of the sensor gap plate. This will ensure a more consistent setup and performance.

## Connections and Dimensions

## Ultrasonic ALL Label Sensor



## OUTPUT INDICATORS

Red LED illuminates when when outputs are ON

Flashes when short circuit or overload detected

## AUTOSET/GAP Δ BUTTON

1. Push and Hold with gap in view for 2 seconds for AUTOSET.
2. Tap for UP on Contrast Indicator, or reduce threshold.
3. Change settings in MENU options

## AUTOSET/LABEL ▽ BUTTON

1. Push and Hold with label in view after GAP Autaset Ton rare occasions when labels have multiple layers.
2. Tap DOWN on Contrast Indicator, or increase threshold.
3. Change settings in MENU options

## OLED NUMERICAL DISPLAY

1. 1 to 10 bar Contrast Indicator
2. Numerical display for threshold and feedback number
3. Options Status Display: Button Lock or Unlock (🔒); auto adjust on/off (AUTO); output in Gap(☐) or on Label (▣).
4. View Menu Options

## MENU BUTTON

1. Scroll through MENU options
2. Hold during power up for additional Menu Options; Timer and Factory Diagnostics (sensor scope)

# Press Menu for Detailed Setup

**1 Initiate Dynamic Set**

**Initiate Dynamic Set**  
Press either the  $\Delta$  or  $\nabla$  button to start a Dynamic Set; pull labels and gaps through sensor; press either the  $\Delta$  or  $\nabla$  button to complete.

**Dynamic Set**  
Tap +/- to End  
Sensor exits to run mode and should be setup and ready for operation.

**2 Auto Adjust**

**Auto Adjust: On (AUTO)**  
Change from off to on by momentarily pressing either the  $\Delta$  or  $\nabla$  button. The Auto adjust evaluates signal levels and makes automatic adjustments to keep the sensor in optimum response levels.

**Auto Adjust: Off**

**3 Output Mode**

**Output Mode: Label (LO)**  
Change from GAP (GO) to LABEL (LO) by momentarily pressing either the  $\Delta$  or  $\nabla$  button. Output will toggle back and forth in this mode.

**Output Mode: Gap (GO)**  
LO = Output on the Label  
GO = Output in the Gap

**4 Display Orientation**

**Toggle Display Orientation**  
Momentarily press either the  $\Delta$  or  $\nabla$  button to toggle orientation.

**Toggle Display Orientation**

**5 Timer Mode (\*\*Advanced Option)**

**Timer Mode: Enabled**

← PRESS the  $\nabla$  button →      PRESS the  $\Delta$  button →

<b>Timer Mode: Off Delay</b>	<b>Timer Mode: On Delay</b>	<b>Timer Mode: One Shot</b>	<b>Timer Mode: Debounce</b>
Off Delay: Outputs stay on for set time after duration of input.	On Delay: Outputs turn on when input exceeds set time	One Shot: Outputs turn on for set time when triggered by input	Debounce: Outputs are stabilized and held in current state for duration of time setting

**6 Button Lockout**

**Button Lockout: Off**      **Button Lockout: On (L)**

Momentarily press either the  $\Delta$  or  $\nabla$  button to toggle from Lock (L) to Unlock (no symbol). Useful for tamper-free operation.


**7 Quick Reference**

← PRESS the  $\nabla$  button →      PRESS the  $\Delta$  button →

<b>Quick Reference</b> Top +/- : Scroll Text Run Mode	<b>Run Mode</b> Hold - : Gap Set Hold + : Label Set Tap +/- : Threshold	<b>Dynamic Set</b> Tap Menu Button Tap +/- to Start Advance +/- Labels Tap +/- to End	<b>Remote Input</b> Tap ix : Gap Set Tap rx : Label Set Hold : Dynamic Set	<b>Label Set</b> Can be used after a Gap/Txn Set to set max label thickness	<b>Factory Menu</b> Hold Menu on Power Up for more Options Support	<b>Support</b> Tri-Tronics Tampa, FL www.ttrco.com/cis support@ttrco.com
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Press the the  $\Delta$  button to scroll down through simple setup and options instructions.  
Press the the  $\nabla$  button to scroll up.

**8 Sensor Scope (\*\*Advanced Option)**

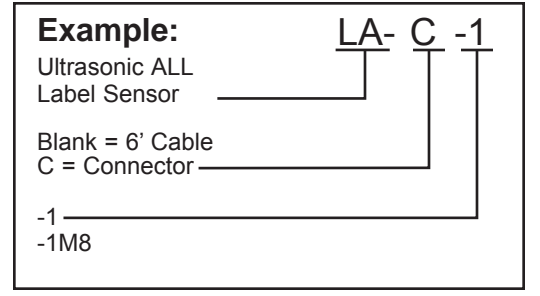


This option allows the operator to visually inspect the current setup for repeatability. The sensor scope will also reveal any nominal setup issues or sensitivities to label or gap thickness changes.

Momentarily press the  $\Delta$  button to shorten the time between signals. Momentarily press the  $\nabla$  button to lengthen the time between signals.

# How to Specify

- 1. Select Sensor:**  
Ultrasonic ALL Label Sensor
- 2. Select Cable:**  
Blank = 6' (1.8m) Cable  
C = Connector M12, 5-Pin (Standard)
- 3. Select Connector:**  
-1 = Standard M12 Connector, see #2  
Includes both NPN and PNP  
-1M8 = M8, 4-Pin Connector  
NPN/PNP Software Selectable

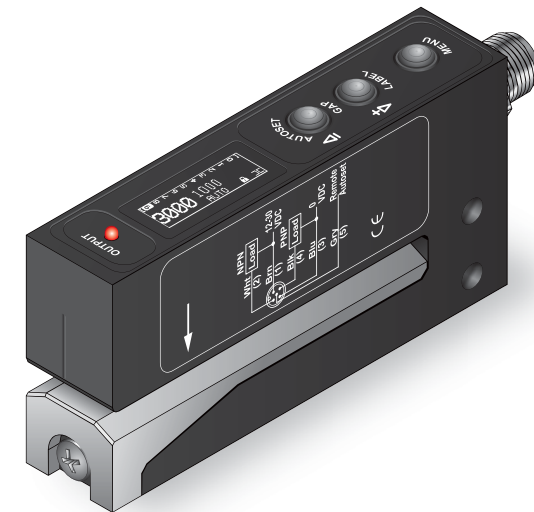


# Advanced Options

To access Advance Options, press and hold the Menu button during power up.

Press the Menu button to move from screen to screen.

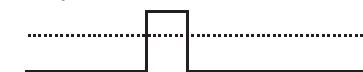
Press either the  $\Delta$  or  $\nabla$  button to select.



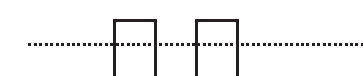
- 1 Factory Reset**  
**Factory Reset**  
Version:  
Serial:  
Press either the  $\Delta$  or  $\nabla$  button to initiate factory reset.  
*Note: Advanced Option screen will time out in 5 minutes.*
- 2 Input Mode (-1, -1M8 models)**  
**Input Mode: NPN / Sink**  
Press either the  $\Delta$  or  $\nabla$  button to toggle to PNP / Source or NPN / Sink.
- 3 Timer Features**  
**Timer Features: Disabled**  
Press either the  $\Delta$  or  $\nabla$  button to toggle to Enable or Disable.
- 4 Factory Diagnostics/Sensor Scope**  
**Factory Diag: Disabled**  
Press either the  $\Delta$  or  $\nabla$  button to toggle to Enable or Disable.  
Returns to Main Screen

# Remote Input Signals

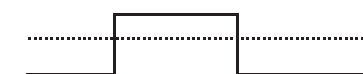
Gap Set: Pulse once, 40ms to 400ms.



Label Set: Pulse twice, 40ms to 400ms, with 40ms to 400ms idle time between pulses.



Dynamic Set: Hold Remote Input on for more than 750ms, pull labels and gaps through sensor, release Remote Input line and sensor returns to Run mode.



*Note: Waveforms shown correspond to PNP input mode.*