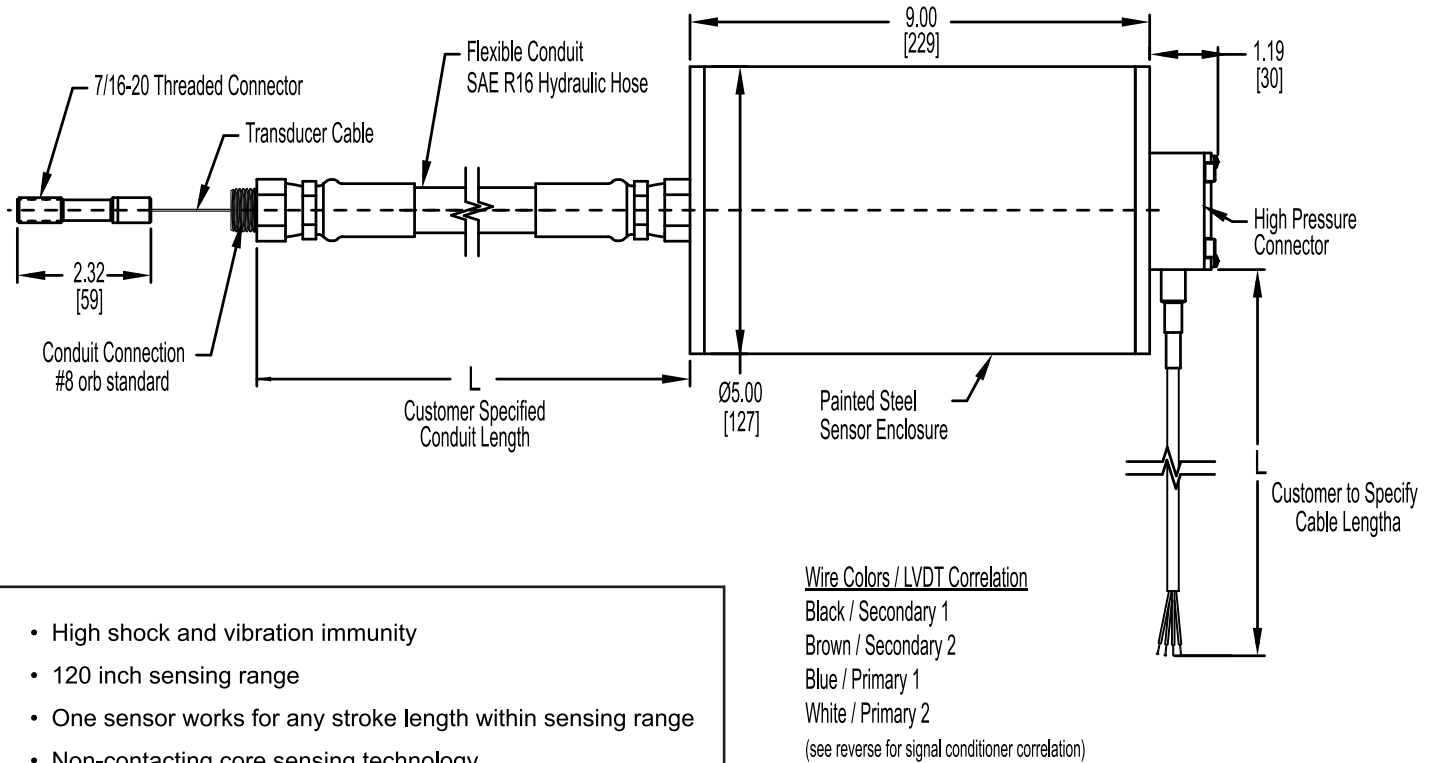


# SL1200 Linear Position Transducer



- High shock and vibration immunity
- 120 inch sensing range
- One sensor works for any stroke length within sensing range
- Non-contacting core sensing technology
- Rugged steel enclosure

CPI's SL Series Linear Position Sensors provide reliable and accurate position sensing in virtually any accumulator or hydraulic cylinder -- including telescoping models, with no core drilling of the rod and no limit to cylinder bore size. In concept, we've simply enclosed an SL Sensor (see reverse) in a pressure vessel, and passed the cable through a high-pressure conduit made from standard hydraulic hose, which length can be specified. The cable connector still attaches via a blind hole in your piston, but the only other attachment directly to your cylinder or accumulator is the hydraulic hose via a #8 SAE port.



## Sensor Specifications

**Sensing Range:** 120 inches

**Non-linearity:** 2% max. FSO

**Tolerance:**  $\pm .70\text{mm}$

**Shock & Vibration:** MIL-STD 810C

**Fluid Compatibility:** all non-corrosive liquids & gases

**Endurance:** 1 million full-stroke cycles

**Output:** LVDT signal compatible with industry standard signal conditioners

**Port Connection:** #8 SAE O-ring standard (others available)

**Repeatability:** within  $.70\text{mm}$

**Temperature Tolerance:**  $-40\text{C}$  to  $125\text{C}$

## SL Sensors: How they work

At the heart of the SL Series sensors is a Linear Variable Differential Transformer (LVDT). Because LVDTs are non-contacting, submersible, and unaffected by pressure and temperature, they are ideal for hydraulic cylinder applications. And as a mature technology, LVDTs are well known throughout the industry for being reliable, accurate, and tough.

An integrated precision mechanism couples the long translation of the hydraulic cylinder to the short translation of the LVDT via a micrometer-like threaded element. The LVDT/micrometer assembly forms the axis of a recoil spool mechanism. The spool uses a flexible polymer-coated stainless steel cable to form a reliable, repeatable coupling between the piston and sensor. The cable is drawn off the recoil reel as the piston moves away from the sensor, and vice-versa.

## Signal Conditioner

Signal conditioners for SL Series sensors are available from a variety of suppliers. We suggest sourcing directly from our LVDT supplier Macro Sensors. Featured below is their LVC-4000, which offers outstanding flexibility in terms of voltage input range and multiple output options:



### Wire Color (LVDT) to LVC-4000 Terminal Correlation

Black (secondary 1) = Terminal 7  
Brown (secondary 2) = Terminal 8  
Blue (primary 1) = Terminal 4  
White (primary 2) = Terminal 3

## Sensor Specifications

<b>Power Input</b>	9-30VDC (90 mA max @ 24VDC)	<b>Output Non-Linearity</b>	< ±0.01% of FSO
<b>LVDT Excitation</b>	3.0 Vrms (1.5Vrms selectable)	<b>Output Voltage Ripple</b>	1 mVrms max. (2.5kHz excitation, no filter) 2 mVrms max. (10 kHz excitation, no filter)
<b>LVDT Excitation Frequency</b>	2.5, 5, 7.5 or 10kHz	<b>Output Current Ripple</b>	10 µArms max. (2.5 kHz excitation, no filter) 20 µArms max. (10 kHz excitation, no filter)
<b>Input Sensitivity Range</b>	55 mVrms to 5.5 Vrms full scale input produces full scale DC output	<b>Frequency Response (-3dB)</b>	250 or 500 Hz (user selectable)
<b>Full-Scale Outputs</b>	0-5VDC, 0-10VDC, 0.5-4.5VDC, ±5VDC, ±10VDC or 4-20mA		

