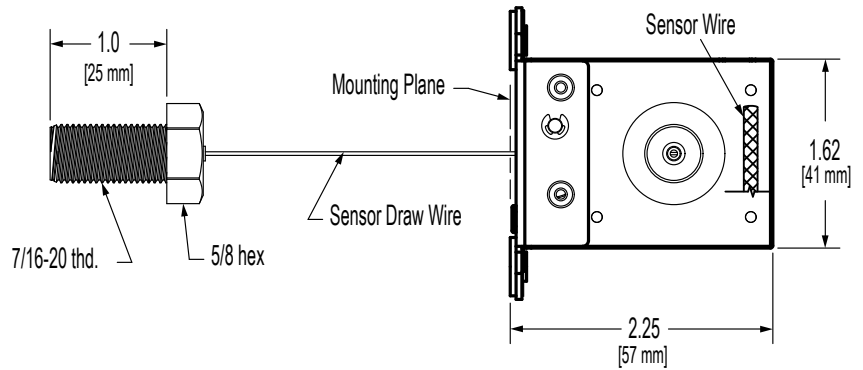
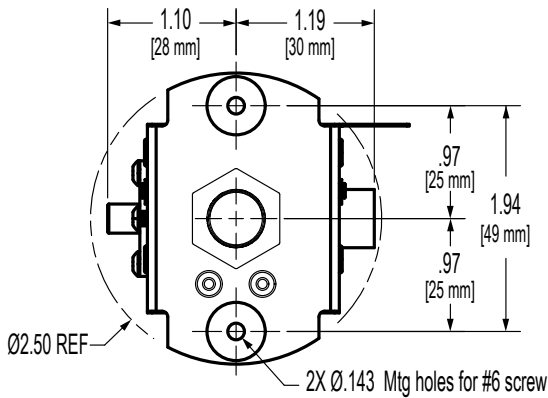


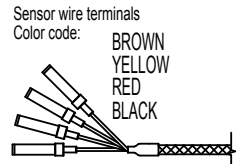
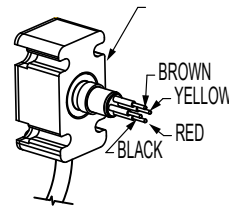
# SL1390 Linear Position Transducer



Connect sensor wire terminals to SC451 as shown by color code

High Pressure Connector - CPI PN SC451 (supplied separately)

- High shock and vibration immunity
- 39-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. The SL1390 is our latest internal-mount sensor with more robust design features including a tension roller to prevent cable derailment and heavier stainless steel cable. The new mounting flange and wire interconnect designs simplify cylinder design for sensor integration. The cable still installs via a 7/16-20 blind hole in your piston.



## Sensor Specifications

**Sensing Range:** 39 inches

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

**Tolerance:**  $\pm .70$ 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 .70mm

**Temperature Tolerance:** -40C to 125C

## SL Sensors: How they work

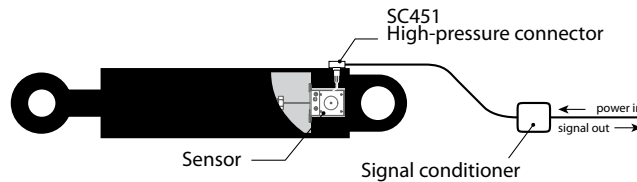
At the heart of the SL Series sensors is a Linear Variable Differential Transformer (LVDT). Because LVDTs are non-contacting, submersible, and unaffected by pressure and temperature, they are ideal for hydraulic cylinder applications. And as a mature technology, LVDTs are well known throughout the industry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

## Sensor System

Each internal mount sensor requires our SC451 high-pressure connector to provide an interface between the sensor and signal conditioner as well as seal the opening to pressures up to 5000psi. The 4-wire cable from the connector to the signal conditioner provides both power in to and signal out from the sensor.

Please visit our website [www.cpi-nj.com](http://www.cpi-nj.com) for the latest SC451 dimensional drawing or contact us at [sales@cpi-nj.com](mailto:sales@cpi-nj.com).



## 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 Correlations

SC451 Cable Leads Color	LVC-4000 Terminal	LVDT
White	Terminal 3	Primary 2
Blue	Terminal 4	Primary 1
Brown	Terminal 8	Secondary 2
Black	Terminal 7	Secondary 1



## 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		

