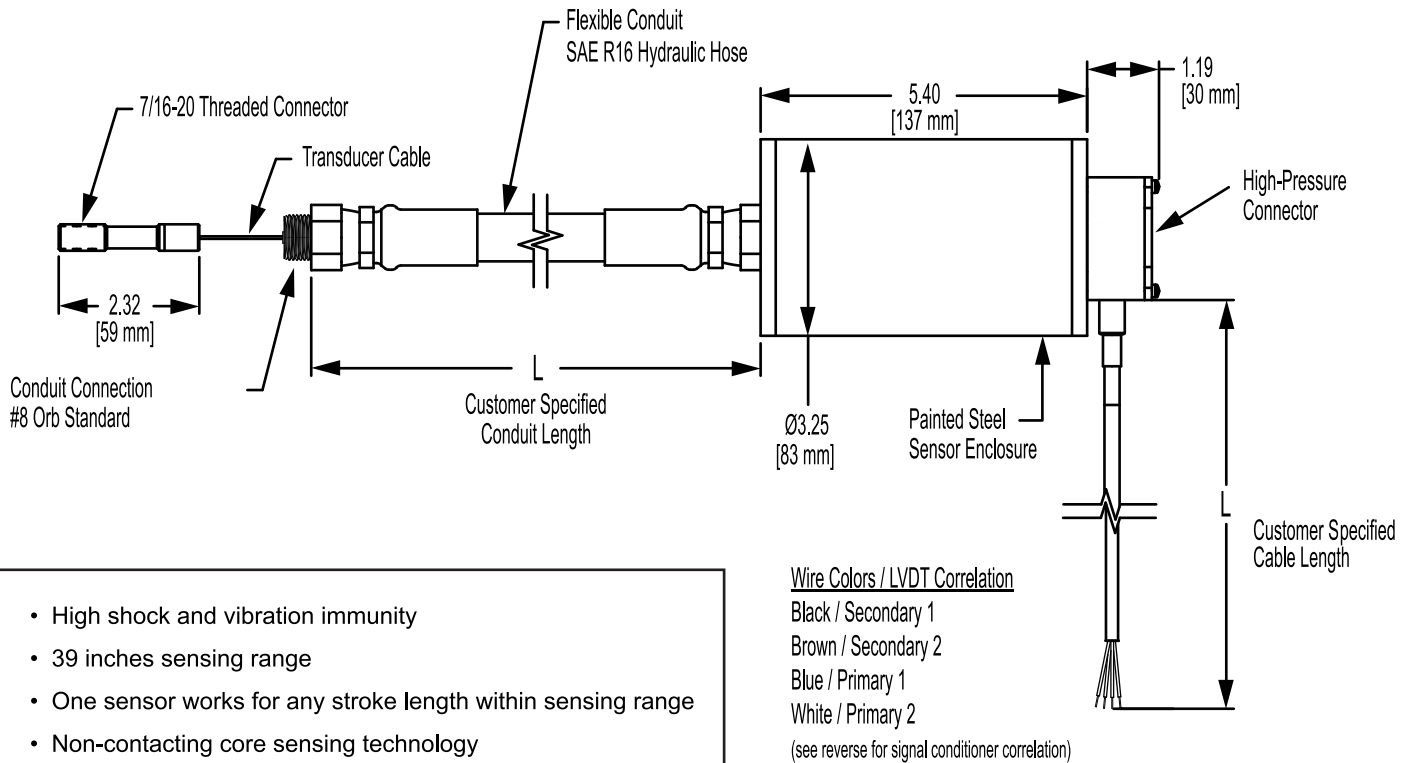


SL0390 Linear Position Transducer



- High shock and vibration immunity
- 39 inches 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: 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.

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

Specifications

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

