

Fiber Optic Linear and Rotary Position Sensors

The design and adaptability of Cleveland Electric Labs linear and rotary displacement sensors provide optimum measurement possibilities for a wide variety of applications. CEL's linear sensor has a travel range from less than 1 inch up to 18 inches with an accuracy of 0.005 and our rotary sensor has a range of 360° with a 0.25° accuracy. Both sensors are able to cover a wide range of measurements from large civil structures to the smallest test applications. There are several advantages of fiber optic displacement sensing. First, several sensors can be multiplexed on the same fiber. The fiber can also be thousands of feet in length with no decrease in the performance of the sensor. Additionally, no external EMI/RF interference will affect the performance of the sensor, including lightning strikes. The body is available in both aluminum and stainless steel, for extreme environmental conditions. Both ends have configurable mounting options; including spherical bearings, trunnion mounting and a four bolt pattern to secure the sensor. Other options include a spring loaded displacement rod, rubber bellows for protection in dusty environments and a fully sealed version for submersible applications.



Features:

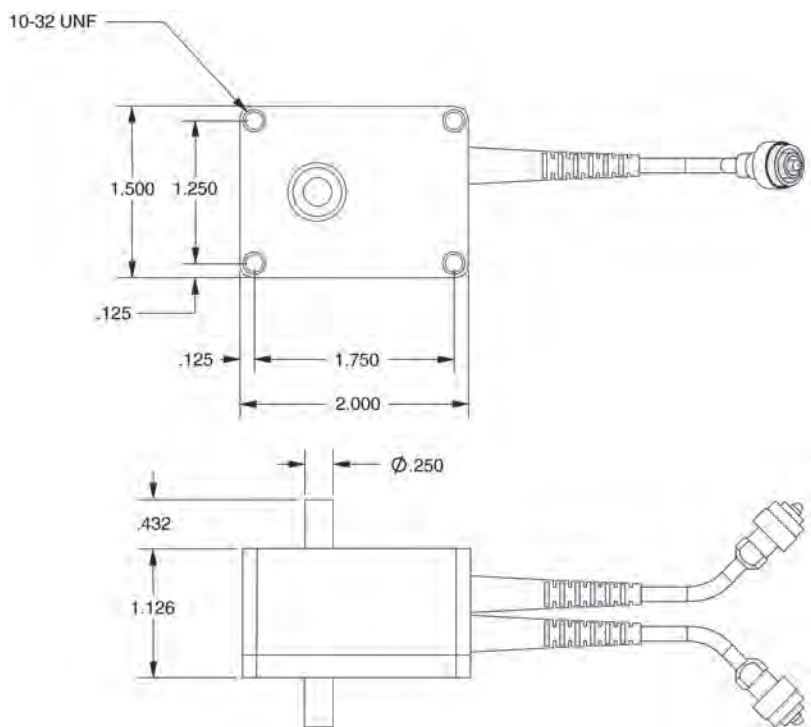
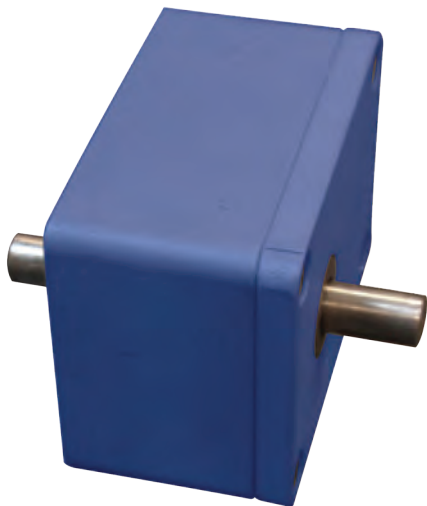
- ✓ Immune to electromagnetic and radio frequency interference
- ✓ No spark hazard, sensor requires no electrical power
- ✓ 18" stroke length on linear sensors and 360° range on rotary sensors
- ✓ Compatible with typical FBG interrogators
- ✓ Through connection allows multiplexing of sensors
- ✓ Multiple mounting and end configurations
- ✓ Temperature compensation
- ✓ Sealed from dust and moisture for harsh environments

Applications:

- ✓ Structural health monitoring of civil structures
- ✓ Feedback for pneumatic and hydraulic control systems
- ✓ Automotive and aerospace testing
- ✓ Industrial equipment control
- ✓ Electrical transformer monitoring
- ✓ Test environments

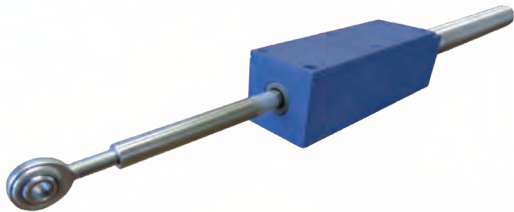


Rotary Position Sensor



Rotary Position Sensor Technical Data			
Sensitivity	8.3pm / ° rotation	Connector	FC/APC
Accuracy	± 0.005"	Peak reflectivity	>70%
Resolution	0.1° rotation	Wavelength range for measurement	4 nm
Operating temperature	-40° F to 250° F	Available wavelengths	1512 nm to 1584 nm
Operating speed	10 radians/second	Rotation range	300°

Linear Position Sensor



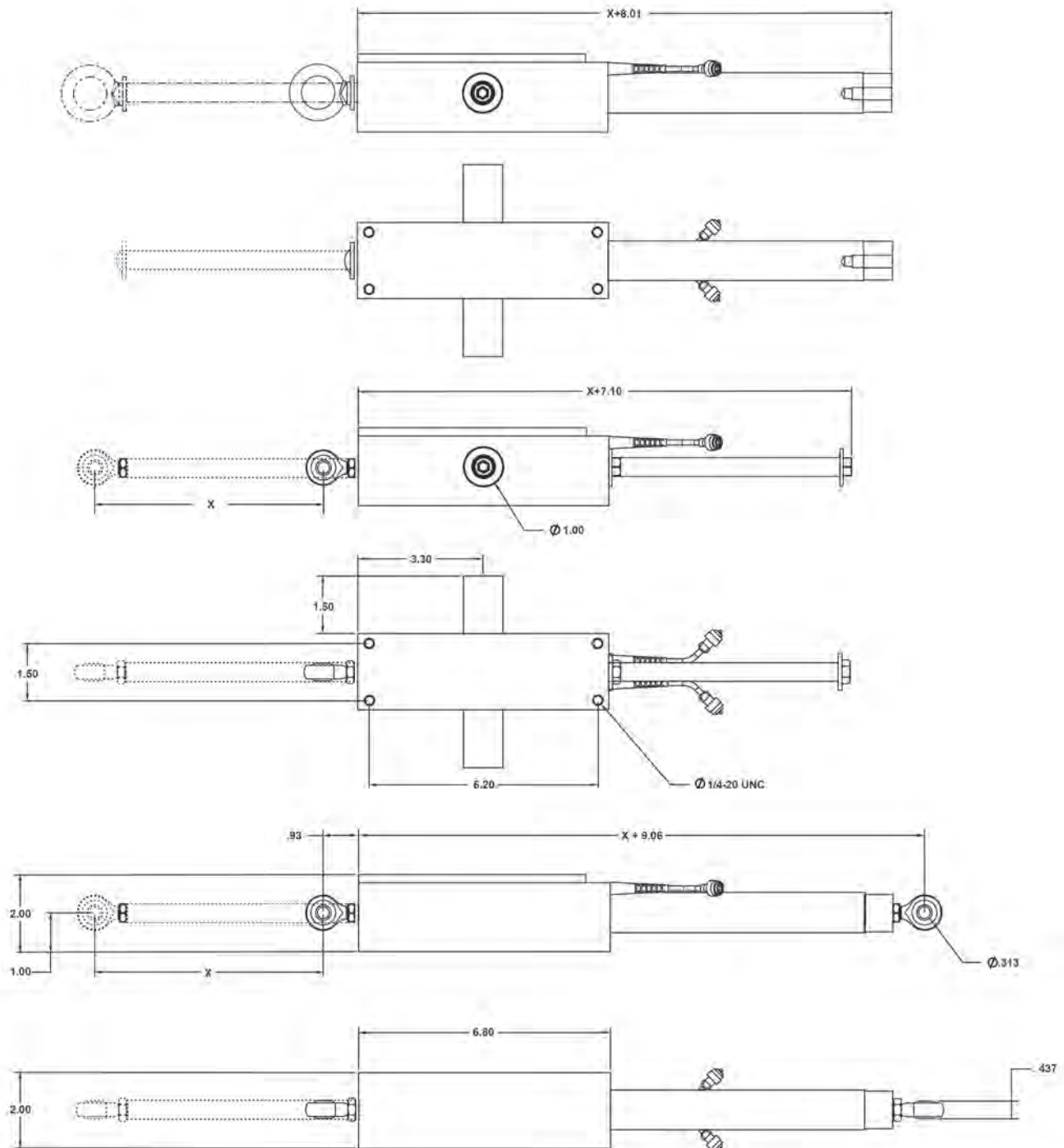
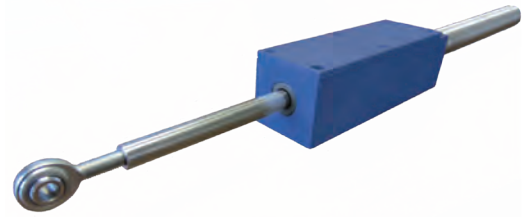
Linear Position Sensor Technical Data			
Sensitivity	1.5pm / 0.001" typical	Connector	FC/APC
Accuracy	± 0.005"	Peak reflectivity	>70%
Resolution	0.003"	Wavelength range for measurement	4 nm
Operating temperature	-40° F to 250° F	Available wavelengths	1512 nm to 1584 nm
Operating speed	2"/second	Rotation range	< 1" to 18"

Custom configurations available upon request.

Linear Position Sensor Dimensions

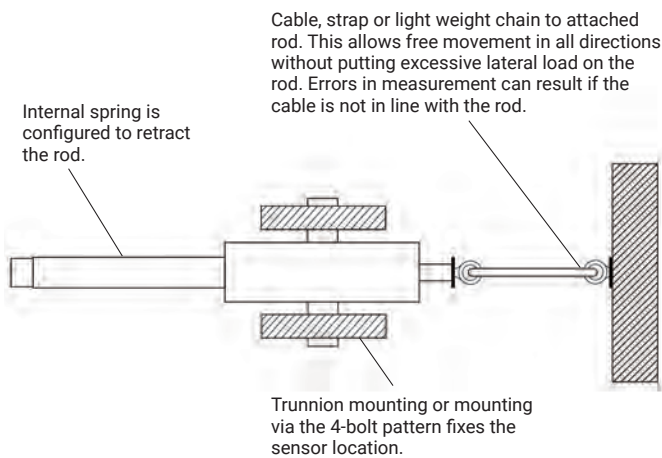
Note – When ordering specify the following:

- Sensor travel length – x
- Connector cable length, standard cable length is 2 feet
- Mounting configuration
- Spring configuration

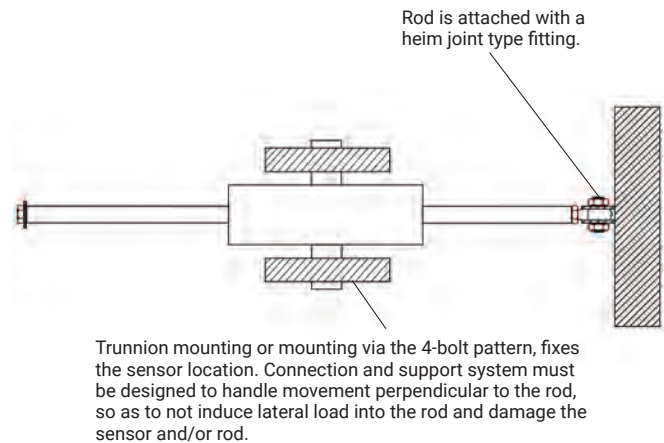


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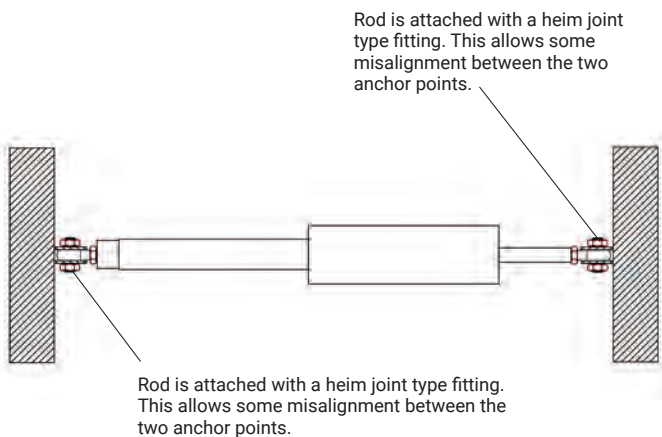
Linear Position Sensor Mounting Configurations



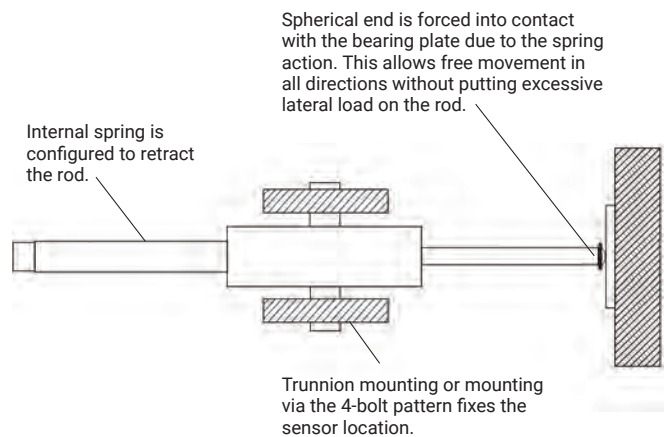
Configuration 1



Configuration 2



Configuration 3



Configuration 4

Custom configurations available upon request.

