

# CSLS

## Compact Smart Laser Sensor

### Description

The Compact Smart Laser Sensor (CSLS) is a self-contained optical sensor intended to be used to make non-contact speed measurements from rotating targets at distances up to 65 feet (19.8 m). The sensor has both digital pulse and analog outputs to provide non-contact reference points to balancing equipment or signals to a vibration analyzer. The sensor will track surface irregularities on rotating shafts and provide pulse outputs from reflective tape, contrasting colors and keyways. The sensor is IP64 rated and is suitable for use in dusty, damp environments. The unit has a removable plate with 1/4-20 bushing for tripod mounting. A single pushbutton and LED indicator allow for easy field setup. Supplied with 3 meter power/signal cable with molded M12 connector.



### Features

- Compact Rugged Design
- IP64 Rated
- Simple one push button setup
- Multi-color LED indicator
- Up to 65 foot operating distance
- Auto or Manual gain control
- 5Vdc input power
- Measure up to 500,000 RPM
- 1/4-20 tripod mounting bushing
- Digital pulse and analog outputs

### Typical Uses

- Tachometer input
- Data acquisition
- Provide non contact reference inputs to balancing equipment and vibration analyzers

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### Specifications

#### Operating

<b>Operating Range:</b>	Up to 65 feet depending on target reflectivity
1/2" T-5 Reflective Tape @ 3600 RPM	Up to 65 feet (19.8 m) or up to 75° from target
White/Black contrast @ 3600 RPM	Up to 3 feet (91 cm) or up to 45° from target
Black mark on dental drill	Up to 4 inches (10 cm) at over 260,000 RPM
<b>Max RPM:</b>	500,000 RPM
<b>Min. Trigger Duration:</b>	10 µsec
<b>Indicators:</b>	Bicolor status LED for various operating functions
<b>Modes:</b>	Auto/Normal (auto learn, automatic gain control) and Manual (manual adjustment of sensitivity/gain)
<b>Sensitivity Adjust:</b>	Push button (manual mode). Auto level adjust in normal mode after "learn"
<b>Power Requirements:</b>	5V ±5% at 30mA max
<b>Pulse Output:</b>	With respect to the Common (Pin 4).
<b>Pin 3</b>	Digital Output - 0 to 3.0V typical @ 5mA positive going pulse (TTL compatible)
<b>Pin 2</b>	Analog Output - analog signal tracks the movement of the reflecting source (emulates an accelerometer signal)
<b>Connector:</b>	M12 Circular 4-Pin Watertight Socket - Common, Power (+5V), Analog out, Digital out
<b>Mounting:</b>	Removable plate with 1/4-20 UNC bushing included (for tripod mounting)
<b>Weight:</b>	4.8 oz (136.1 grams)

#### Laser

<b>Classification:</b>	Class 3R (per IEC 60825-1 Ed 1.2 2001-8). Complies with FDA performance standards for laser products except for deviations pursuant to Laser Notice No. 50, dated July 26, 2001
<b>Maximum Laser Output:</b>	3mW
<b>Pulse Duration:</b>	Continuous
<b>Laser Wavelength:</b>	650 nm
<b>Beam Divergence:</b>	<0.5 mrad
<b>Beam Diameter:</b>	4 x 7 mm typical at 2 meters
<b>Laser Diode Life:</b>	8,000 hours MTBF (1 year warranty)

#### Environmental

<b>Installation:</b>	Category II Per IEC 664
<b>Pollution Degree:</b>	Level III per IEC 61010-1
<b>Temperature:</b>	32 to 120°F (0 to 50°C) operating 14 to 158°F (-10 to 70°C) storage
<b>Humidity:</b>	Maximum relative humidity of 80% for temperatures up to 88°F (31°C) decreasing linearly to 50% relative humidity at 104°F (40°C).

#### Ordering Information

Item	Description	Part No.
CSLS	Compact Smart Laser Sensor with power/output cable.	6180-038
<b>Accessories:</b>		
CSLS-CA-P	Cable, 9 foot (3m) with molded M12 4 pin plug and 1/8" phone plug connector.	6180-039
T-5	Reflective Tape, 5 foot (1.5m) roll, 1/2 inch (13mm) wide.	6180-070
T-5WP	Waterproof Reflective Tape (honeycomb Pattern) 5 foot (1.5m) roll, 1 inch (26mm) wide.	6180-079
TRIPOD	Miniature Tripod with retractable legs (can also be used as field handle).	6180-040

#### Dimensions

