for Tachometers & Stroboscopes or stand alone use

Optical LED (1-250,000 RPM) *Most popular.*

ROS (Remote Optical Sensor): Threaded stainless steel remote optical sensors have a visible red LED light source and green LED 'On Target' indicator. Performs over a wide speed range and operating envelope. Modulated and High Temperature versions available (to 257°F). **Common usage**: Wide range of general purpose applications in relatively clean environments.

Operating Distance	3 feet (1 m) and 45° from reflective tape
Speed Range	1-250,000 RPM
Operating Temperature	-14 ° to 158°F (-10° to 70°C)
Power Required	3.3 to 15 Vdc @ 45 mA
Output Signal	TTL same as source
Standard Cable	8 feet (2.4 m)
Dimensions	2.9" (L) x 0.625" diameter (73 x 16mm)

Optical Laser (1-250,000 RPM) *Distances to 25 feet.*

ROLS (Remote Optical Laser Sensor): Threaded stainless steel remote optical laser sensors have a visible red laser light source and green LED 'On Target' indicator. Performs over a wide speed range and operating envelope.

Operating Distance	Up to 25 feet (7.62 m) and 60° offset from target
Speed Range	1-250,000 RPM
Operating Temperature	-40 ° to 180° F -40° to 80° C
Power Required	3.3-15 Vdc @ 35mA
Output Signal	TTL Same as Source
Standard Cable	8 Feet (2.4 m)
Dimensions	3.12" (L) x 0.71" (M16 x 18 x 79.4mm)

Proximity (1-60,000 RPM) *Rugged industrial sensor.*

P5-11: A two wire probe style inductive sensor for use up to 0.2 inches (5 mm) from 0.5 inch (12 mm) metallic target such as bolt head or shaft locking key. **Common usage:** Permanent installation in harsh industrial environments.

Operating Distance	0.2" (5mm) from 0.5" (12mm) metallic target
Speed Range	1-60,000 RPM
Operating Temperature	-4 ° to 140° F (-20° to 60° C)
Power Required	7.7 to 9 Vdc, 3mA
Output Signal	Namur (DIN 19 234)
Standard Cable	6 Feet (1.8 m)
Dimensions	1.3" (L) x 0.43" (32 x 11 mm)

Magnetic (1-99,999 RPM) *Self-powered gear sensor.*

M-190W or M-190P: Most popular sensor for use with 60 tooth 20 pitch gears. Sensor mounts within 0.005 inches (0.127 mm) of a minimum 0.1 inch (2.5 mm) target. Requires no power from the display module and self-generates an AC signal. **Common usage**: Ferrous metals, primarily gear teeth.

Operating Distance	0.005" (0.127 mm) gap with 0.1" target (2.5mm) min.
Speed Range	1-99,999 RPM
Operating Temperature	-100 ° to 225°F (-73° to 107°C)
Power Required	None (Self Generating)
Output Signal	190V P-P
Standard Cable	8 Feet (2.4 m)
Dimensions	2.0" (L) x 0.625" (50 x 16mm)

Magnetic with Amplifier Module (1-99,999 RPM) *Enhances performance of M-190 magnetic sensor.*

MT-190W or MT-190P: Amplifier extends operating gap to 0.25 inches (6.35 mm) from the target. Frequently used on gears as the M-190, but can also sense bolt heads or shaft keys and provides a 0-5V TTL output signal. **Common usage:** Ferrous metals including bolt heads or shaft keys in addition to gear teeth.

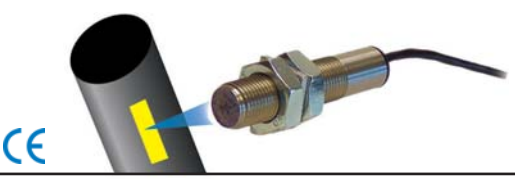
Operating Distance	0.25" (6.35mm) gap with 0.1" target (2.5mm) min.
Speed Range	1-99,999 RPM
Operating Temperature	-100 ° to 225°F (-73° to 107°C)
Power Required	3.3 to 24 Vdc, 4mA
Output Signal	TTL Same as Source
Standard Cable	8 Feet (2.4m)
Dimensions	2.0" (L) x 0.625" (50 x 16mm)

Inductive (200-20,000 RPM) *Gasoline Engine RPM.*

GE-200: Ideal sensor for gasoline engine RPM, working 0.5 to 4.0 inches (12 to 100 mm) from ignition coil or magneto.
Common usage: 2-cycle and 4-cycle gasoline engines.

Operating Distance	Up to 4 inches (100mm)
Speed Range	200-20,000 RPM
Operating Temperature	0° to 175 °F (-18° to 80°C)
Power Required	3.3 to 24 Vdc, 4mA
Output Signal	TTL Same as Source
Standard Cable	15 Feet (4.5 m)
Dimensions	2.16" (L) x 0.82" (55 x 21 mm)

Infrared (1-999,990 RPM) *High speed sensor.*



IRS-W or IRS-P: Ideal sensor for working 0.5 to 1.0 inch (12 to 25 mm) from high speed equipment or other applications providing only contrasting light and dark surfaces or beam interruption by solid objects.
Common usage: Dentist and other high speed drills, slots or gear teeth. Does not require reflective tape.

Operating Distance	0.5 to 1.0" (12 to 25 mm)
Speed Range	1-999,990 RPM
Operating Temperature	-10 ° to 212°F (-23° to 100°C)
Power Required	3.3 to 15 Vdc
Output Signal	TTL Same as Source
Standard Cable	8 Feet (2.4 m)
Dimensions	2.9" (L) x 0.625" diameter (73 x 16mm)

NOTE: W = tinned wire leads, P = 1/8" (3.5mm) phone plug connector. ROS is available with 8 or 25 foot cable.

NOTE: Additional cable length for all sensors (up to 500 feet) can be purchased and added in the field.

SPSR Series and Smart Laser Sensor

RoHS CE

SPSR-115/230

Common Applications:
- Vibration Studies
- Fans/Blades
- Engines/Motors
- Balancers
- Tach Input
- Data Acquisition

The unique SPSR Series of Self-Powered Sensors provide a TTL compatible pulse output from any of four input sensors (see page 9 for details):

- A laser light source (ROLS-P)
- A visible optical red LED light source (ROS-P)
- An infrared light source (IRS-P)
- An amplified magnetic sensor (MT-190P)

See Page 9 for detailed sensor specifications

The TTL compatible pulse output is switch selectable as either positive going 0-5V pulses or negative going 5-0V pulses provided on a BNC connector. Internal rechargeable batteries provide 40 hours of operation between charges. For continuous operation, all SPSR configurations can be powered by 115Vac, 230Vac or 9-15Vdc.

Self-powered sensors are a critical element for providing one TTL pulse per revolution for vibration analyzers, spectrum analyzers, stroboscopes, data acquisition equipment, tachometers, balancers, waveform analyzers and magnetic tape recorders.

1 SPSR-IM with PSC-2U

2

Remote Optical Laser Sensor (ROSL-P)

Remote Optical Sensor (ROS-P)

Magnetic Trigger Sensor (MT-190P)

Infrared Sensor (IRS-P)

How to Select your custom SPSR and sensor

1. **Begin with the SPSR-IM Interface Module and PSC-2U**
2. **Select the sensor(s) best suited for your application**

Ordering Information
SPSR-115/230 includes: SPSR-IM, PSC-2U, ROS-P and 12 inches of reflective tape
SPSR-IM includes: PSC-2U, 115/230 Vac power supply/ re-charger (USA, AUS, UK and EURO plugs).
CA-DCSPSR: Cigarette Lighter DC Power adapter with 6 foot cable

Specifications	SPSR Series
Range (RPM)	Same as sensor
Output Signal	TTL compatible pulse, 0-5V or 5-0V
Pulse Width	Determined by size of target and rotational speed
Output Connector	BNC
Power	Built in rechargeable battery pack (NiMH), 4.8Vdc

Cigarette Lighter DC Power adapter with 6 foot cable (optional)

Smart Laser Sensor is an internal battery-powered optical speed sensor utilizing a visible Class 3R Laser for a TTL pulse output. Operating range up to 65 feet (19.8 m) with reflective tape and up to 3 feet* (1 m) from contrasting color targets, keyways, bolt heads or blades.

- "Smart" auto gain provides best performance in picking up target reflections.
- "On Target" indicator
- TTL pulse output signal inverter switch
- Manual sensitivity knob provides dynamic fine tuning of sensor response
- Signal/Pulse/RS232 Output DIN connector port
- External DC power or recharger port
- Tripod mounting bushing (¼ - 20 UNC)
- Optional RS232, DB9 Pin connector with tinned wire leads

* performance subject to intensity of ambient light irradiation.

Specifications	Smart Laser Sensor
Optical:	Class 3R (per IEC 60825-1) visible laser 650nm @ 3 mW peak power
Operating Range:	up to 65 feet (19.8 m) from T-5 reflective tape
Speed Range:	1-500,000 RPM
Output Signal:	TTL 5-0 VDC (user selectable polarity), RS232
Operating Temp:	32° to 104°F (0° to 40°C)
Dimensions:	5.41(L) x 2.35(W) x 2.14" (H) (13.74 x 6.43 x 5.43cm)
Mounting:	¼ - 20 UNC bushing for tripod

Ordering Information
SLS-115/230
Smart Laser Sensor with 115/230 VAC PR Universal recharger, SLS-CA-BNC cable and 12 inches of Reflective Tape.