IRS - Infrared Optical Sensor

SAFEGUARDS AND PRECAUTIONS:

Read and follow all instructions in this instruction sheet carefully, and retain this sheet for future reference.

Do not use this instrument in any manner inconsistent with these operating instructions or under any conditions that exceed the environmental specifications stated.

This instrument is not user serviceable. For technical assistance, contact the sales organization from which you purchased the product.

SPECIFICATIONS:

Speed Range:	1-1,000,000 RPM
Illumination:	Infrared LED (not visible)
On-Target Indicator:	Green LED on wire end cap
Target:	Contrasting colors or beam interrupt
Operating Range:	up to 0.5 inch [12 mm] from target
Power Requirement:	3.3 - 15 Vdc @ 40mA
Output Signal:	Negative pulse input voltage (+V) to 0
Operating Temp.:	-40° to 185° F [-40° to 85° C]
Humidity:	Maximum relative humidity 80% for temperature up to 88 °F [31 °C] decreasing linearly to 50% relative humidity at 104 °F [40 °C], humidity must be non-condensing
Connection:	3.5 mm [1/8 inch] male stereo plug (IRS-P); Tinned wires (IRS-W)
Cable Length:	8 feet [2.4 m]
Material:	303 Stainless Steel tube supplied with Mounting Bracket and two M16 Jam Nuts
Dimensions:	Threaded Tube 2.90 in x 0.62 in diameter [M16 x 1.5 x 74 mm] long

M16 x 1.5

Green On Target LED

2.90" [74.0mm]   0.62" [15.9mm]
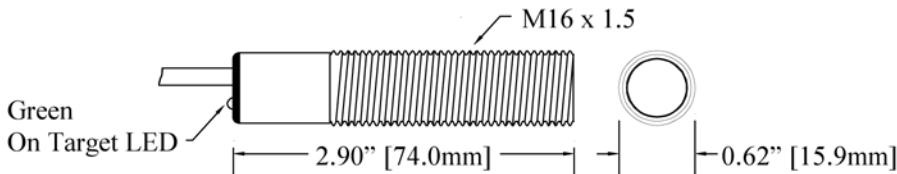
CONNECTION DETAIL for Plug (IRS-P):

Base (Common) - Blue
Tip (Signal) - Black
Middle (+V) Excitation- Brown
Shield (Common)
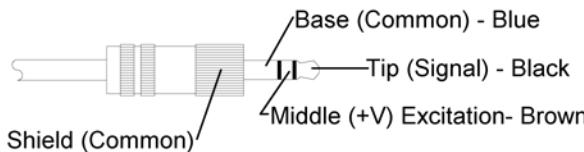
CONNECTION DETAIL for Tinned Wires (IRS-W):

Wire Color	Function	Connect to
Brown	Positive Power Excitation	(+V)
Blue	Common	(Com)
Black	Signal (+V to 0 Vdc Pulse)	(Sig)
Shield	Housing Ground	(Com) or (Gnd)

OVERVIEW:

The Infrared Optical Sensor has an invisible infrared light source that is ideal for working up to 0.5 inch (12 mm) from high-speed equipment or other applications providing only contrasting light and dark surfaces or beam interruption by solid objects as small as 0.039 inch [1 mm]. The sensor is housed in a threaded 303 stainless steel tube and supplied with a 90 degree angle aluminum-mounting bracket and two M16 jam nuts. The IRS is supplied with an 8 foot [2.4 m] cable terminated with a 1/8 inch [3.5 mm] male stereo plug (IRS-P) or 4 tinned wires (IRS-W). An optional 25 foot [7.6 mm] extension cable EC-25P is available with a female socket for the plug on one end, and a 1/8 inch [3.5 mm] male stereo plug on the other.

The IRS-P will work directly with all Monarch Tachometers (PLT200), Deluxe Nova-Strobes (dax, dbx, DBL) and Phaser Strobes (pbx, PBL). The IRS-W will work with all Monarch panel instruments that accept pulse inputs (e.g. ACT Series, DataChart 1250, DataChart 6000). A sensor power supply (SPSR-IM) with BNC output is available for those applications that require a separate power source for the sensor.

PREPARATION FOR USE:

In order for the sensor to work, you are required to have a contrasting color target on the rotating part. **NOTE: Standard Monarch reflective tape will not work.** The target can be any white surface that will reflect the infrared. A solution that works well on small high-speed shafts is wax crayon. Use black or white paint/ink to coat the shaft, 2/3 black and 1/3 white, so that as the shaft rotates the colors alternate in front of the sensor. White paper labels also work when wrapped fully around the shaft and then part of the label is blackened out with a marker. The sensor can also target off gear teeth, objects 0.039 inch [1 mm] diameter, slots, bolt heads and keys.

CAUTION: **Centrifugal Force at high speeds can be dangerous. Ensure all targets are adequately secured to shafts and always have operators protected by a sheet of Plexiglas at least 0.5 inch [12 mm] thick.**

NOTE: In order for the IRS to be fully CE compliant, the supplied ferrite must be attached around the plug/wire end of the cable.

OPERATING INSTRUCTIONS:

The user must mount the IRS to obtain an accurate measurement. The ideal focal point of the sensor is 0.5 inch [12 mm], but this is dependent on the size and speed of the target. The sensor has a green LED On-Target Indicator that indicates when it is picking up a valid signal. The green LED will blink on and off at slow speeds and remain on steady at high speeds. Use this to properly place the sensor, as you cannot see the infrared emissions. **NOTE:** The sensor is sensitive to lighting, such as fluorescent lamps or sunlight. If the system appears to read a speed when the shaft is stationary, it may be necessary to shield it from ambient lighting.

ACCESSORIES:

SPSR-IM   Self Powered Sensor - Interface Module
EC-25P   25 foot [7.6 m] Extension Cable for ROS-P
ROS-NUT   Set of two M16 Jam Nuts
ROS-MNT 90° Slotted Mounting Bracket
PLUG   3.5 mm [1/8 inch] male stereo plug
WIRE   3-wire shielded Sensor Cable, bulk lengths

In order to comply with EU Directive 2002/96/EC on Waste Electrical and Electronic Equipment (WEEE):
This product may contain material which could be hazardous to human health and the environment. DO NOT DISPOSE of this product as unsorted municipal waste. This product needs to be RECYCLED in accordance with local regulations, contact your local authorities for more information. This product may be returnable to your distributor for recycling - contact the distributor for details.

CE Compliant (with supplied ferrite). RoHS Compliant. Meets the safety requirements of IEC61010-1. This product is not waterproof.