

# M-190W Magnetic Sensor



## SPECIFICATIONS:

<b>Speed Range:</b>	1-99,999 RPM
<b>Operating Distance:</b>	0.005" [0.127 mm] gap from target
<b>Minimum Target Size:</b>	0.106" [2.692 mm] minimum diameter
<b>Power required:</b>	None - Self Generating AC voltage
<b>Output Signal:</b>	190V P-P maximum
<b>Pole Piece Magnet Diameter:</b>	0.106 inch [2.692 mm]
<b>Operating Temperature:</b>	-100° to 225° F [-73° to 107° C]
<b>Standard Cable Length:</b>	8 feet [2.438 m]
<b>Dimensions:</b>	2.0" (L) x 0.625" [50.8 x 15.875 mm]
<b>Weight:</b>	3 oz [85 g]

Specifications are subject to change without notice.

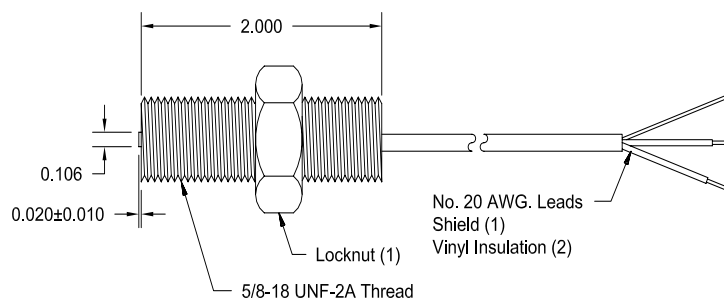


Figure 1 M-190W Dimensions

## OVERVIEW:

The M-190W Magnetic Sensor is a self-powered gear sensor that is most popular for use with 60 tooth 20 pitch gears. The sensor mounts within 0.005 inches [0.127 mm] of a minimum 0.106 inch [2.692 mm] diameter ferrous target. The sensor self-generates an AC signal and requires no power from the display module.

The M-190W is compatible with all Monarch ACT Series panel tachometers and MT-190 Magnetic Trigger Sensor/Amplifier models.

## CONNECTION DETAIL:

<u>Wire Color</u>	<u>Function</u>
Black	AC Signal
White	AC Signal
Shield	Housing Ground

When using the M-190W with any Monarch ACT Series panel tachometer, refer to the panel tachometer instruction manual for sensor connection detail.

## OPERATION:

Magnetic sensors convert motion of a ferrous target into an AC voltage output proportional to speed. The target must not be smaller than the magnetic pole piece (0.106 inches, 2.692 mm) or larger than the diameter of the sensor (0.625 inches, 15.875 mm). Gear teeth are preferred, but bolt heads, slots or keys also work. The Monarch ACT Series panel tachometers will typically operate from all 2-wire design magnetic sensors. The stainless steel and waterproof housing of the M-190W sensor allow operation in harsh locations. The user can increase the cable length up to a total of 500 feet [152.4 m] in length.



### 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.

# MT-190 Magnetic Trigger Sensor with Amplifier



## SPECIFICATIONS:

<b>Speed Range:</b>	1-99,999 RPM
<b>Operating Distance:</b>	0.25" [6.35 mm] gap from target
<b>Minimum Target Size:</b>	0.106" [2.692 mm] minimum diameter
<b>Power required:</b>	3.3 to 24 Vdc, 4 mA
<b>Output Signal:</b>	Same as power supplied, TTL compatible with 5 Vdc supplied
<b>Operating Temperature:</b>	-100° to 225° F [-73° to 107° C]
<b>Standard Cable Length:</b>	Magnetic Sensor - 8 feet [2.438 m], Amplifier - 1.5 feet [0.457 m]
<b>Dimensions:</b>	2.0" (L) x 0.625" [50.8 x 15.875 mm]
<b>Weight:</b>	6.4 oz [181 g]

Specifications are subject to change without notice.

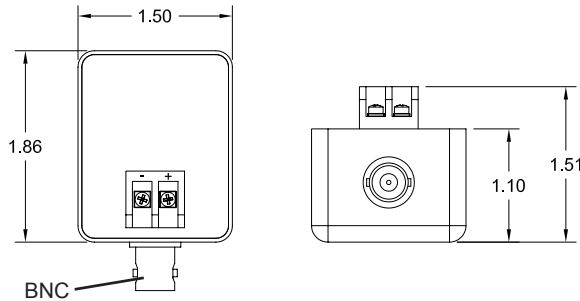
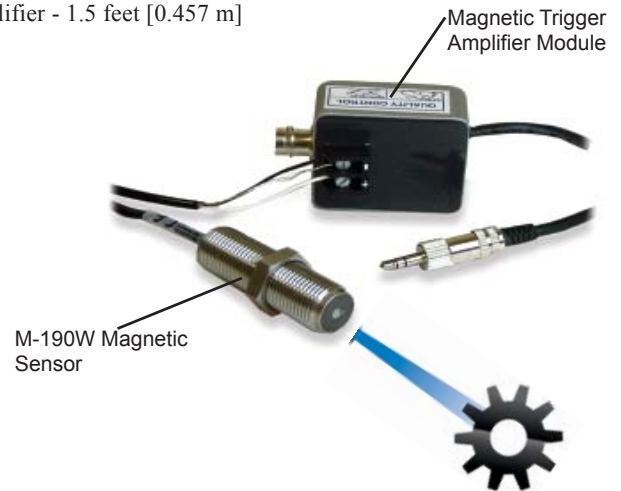


Figure 1 Amplifier Module Dimensions



MT-190P Magnetic Trigger Sensor/Amplifier with plug

## OVERVIEW:

The MT-190 Magnetic Trigger Sensor has an Amplifier Module that enhances the performance of the M-190W Magnetic Sensor. The Amplifier extends the operating gap to 0.25 inches [6.35 mm] from the ferrous target. The MT-190 Magnetic Trigger Sensor with Amplifier can sense gear teeth, bolt heads or shaft keys. The MT-190 provides a pulsed output signal and is TTL compatible with 5 Vdc supplied.

The MT-190 has an 8 foot [2.438 m] cable with 3 tinned wires (MT-190W) or 1/8 [3.5 mm] phone plug (MT-190P) termination.

The MT-190W is compatible with all Monarch ACT Series panel tachometers and Data-Chart 1250 Paperless Recorders.

The MT-190P is compatible with the following Monarch instruments: Pocket Laser Tachometer 200 (PLT200), SPSR Self-Powered Sensor, Deluxe Nova-Strobe x Series (dbx and dax) and Phaser-Strobe pbx.

The MT-190W and MT-190P can also output pulses to a user's data acquisition system.

## CONNECTION DETAIL:

The Magnetic Sensor must be connected to the Magnetic Trigger Amplifier Module. Refer to Figure 2 for connection detail. The connection details for the Amplifier Module are shown below Figure 2.

When using the MT-190W with any Monarch instrument, refer to the instrument instruction manual for sensor connection detail.

When using the MT-190P with any Monarch instrument, plug the 1/8 [3.5 mm] phone plug into the input jack on the respective instrument.

When using the Amplifier Module with the GE-200 Gasoline Engine Sensor, the 15 foot [4.572 m] MX-005 cable is connected to the OM-200 sensor and then the BNC end of the MX-005 cable is connected to the BNC connector on the Magnetic Trigger Amplifier Module.

## OPERATION:

Magnetic sensors convert motion of a ferrous target into an AC voltage output proportional to speed. The Amplifier Module converts the signal to pulses. The target must not be smaller than the magnetic poll piece (0.106 inches, 2.692 mm) or larger than the diameter of the sensor (0.625 inches, 15.875 mm). Gear teeth are preferred, but bolt heads, slots or keys also work. The Monarch ACT Series panel tachometers will typically operate from all 2-wire design magnetic sensors. The stainless steel and waterproof housing of the M-190W sensor allow operation in harsh locations. The user can increase the cable length up to a total of 500 feet [152.4 m] in length.

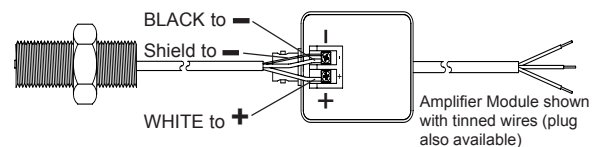


Figure 2  
Magnetic Sensor to Amplifier Connection Detail

### Connection Detail for Amplifier Tinned Wires:

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

### Connection Detail for Amplifier Plug:

