

Gasoline Engine RPM Detector

Innovation in Instrumentation



The new Monarch Instrument Universal Engine tachometer offers accurate and easy RPM checks on 2 or 4 stroke gasoline or diesel engines. The Tachometer is ideal for:

- Research and Development
- Quality Control
- Production Line Verification
- EPA Emissions and Field Testing

Also measure speed on Fans, Pulleys and PTOs



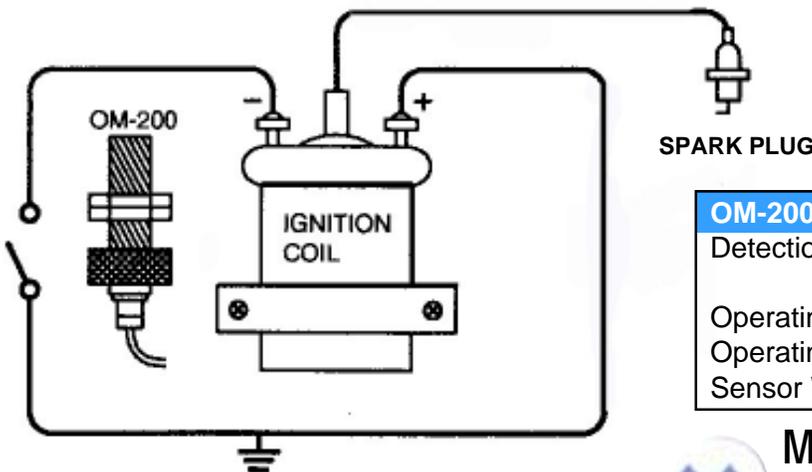
ACT-3 Tachometer, OM-200 Inductive Sensor and ROS-5 (remote optical sensor)

The Engine Tachometer is available with 12Vdc, 230Vac or 115 Vac power. The ACT-3 Tachometer offers all the required output options available for easy interfacing to your data acquisition systems. Outputs include: 4-20 mA, 0-5V, TTL pulse, two alarm set points and an RS232C bidirectional serial interface. The analog outputs offer 12 bit resolution which can provide extremely accurate and repeatable readings. The operating range of the ACT-3 Tachometer is 5-999,990 RPM with an accuracy of 0.0015% ± 1RPM.

The OM-200 Sensor is an electromagnetic inductive detector designed to pickup the high voltage flux induced from ignition coils, magnetos, or transistorized ignition systems. The ROS-5 (Remote Optical Sensor) offers an alternative method of picking up RPM. When using the ROS, install a small piece of reflective tape on the rotating target and aim the powerful visible red LED from the sensor at the tape, up to 3 feet away. As the target rotates, accurate RPM readings are displayed. The ROS Sensor can be mounted up to 200 feet away from the Tachometer.

Operation of OM-200 Sensor

The OM-200 Sensor is mounted close to and parallel to the engine ignition coil or magneto, up to 4" away. It will even work through the metal housing. Move detector around the engine ignition source until the tachometer display starts to read. **Note:** Some engines read 1/2 actual rpm if the detector is pointed 90° to the source. For accurate readings ensure the detector is parallel to the ignition source.



OM-200 Sensor Specifications	
Detection Method	Electromagnetic induction, senses flux fields
Operating Range	Up to 4" (100 mm)
Operating Temp.	0 to 175°F (80°C)
Sensor Weight	100 oz. (280 g)

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N.I.S.T.

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The relationship between the pulse setting of the detector and the measurement range

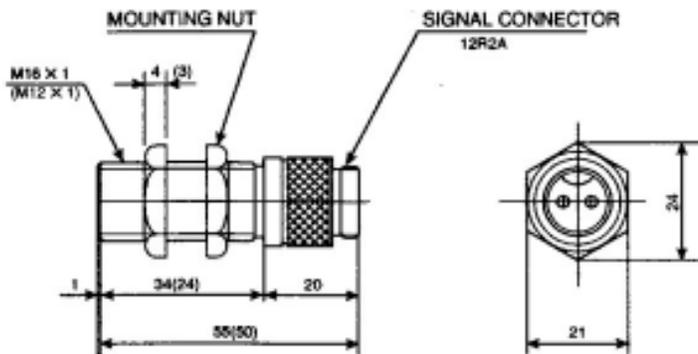
2 CYCLE	4 CYCLE	ACT-3 SCALE SETTING	MEASUREMENT RANGE
1 CYLINDER	2 CYLINDERS	60 PULSE PER REV	200-20,000 RPM
2 CYLINDER	4 CYLINDERS	30 PULSES PER REV	
3 CYLINDER	6 CYLINDERS	20 PULSES PER REV	200-10,000 RPM
	8 CYLINDERS	15 PULSES PER REV	

Operation is the same for engines having transistorized ignitions. For measurements on engines using a flywheel magneto-type ignition, the coil leakage flux is detected. If multiple spark plugs are used, the RPM displayed will be a doubled value.

The detector distance should be set to approximately 4" or 100 mm as a guide. However, this should be adjusted until you obtain a stable tachometer indication. The detector and the tachometer may be separated up to 50 feet (15 m).

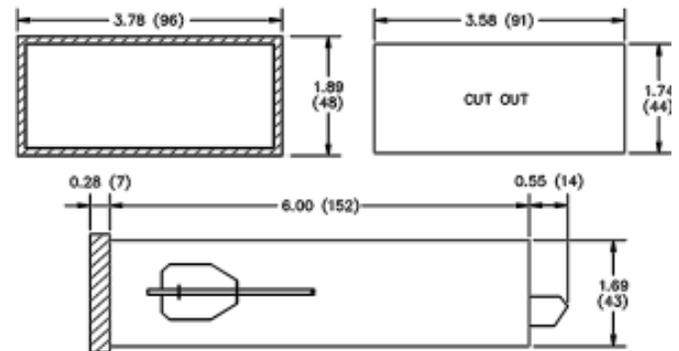
OM-200 Outer Dimensions

Approximate: 1" diameter x 2.2" (L)



ACT-3 Dimensions

Inches (mm)



ORDERING INFORMATION

PART NUMBER	DESCRIPTION
6140-030	ACT-3 Tachometer multiple pulse per rev, user programmable, Form C relay contacts with 2 alarm set points each. Voltage output: 0-5Vdc and Current Output: 4-20mA. Pulse output: 0-5V TTL compatible. RS232C interface. Dimensions: 1/8 DIN by 7" (178 mm) deep. (Note: Specify power: 12 VDC, 115 or 230 VAC)
6180-019	GE-200 includes: (1) 4180-404 Magnetic Amplifier for OM-200 Sensor, (1) OM-200 Electromagnetic Detector and 23 feet of cable. (see above dimensions) Mounting bracket included.
6180-051	ROS-5W Remote optical Sensor with 8 foot cable and mounting bracket. Use with reflective tape target.
6180-070	T-5 Reflective tape-5 foot roll, 0.5 inch wide

Easy Engine RPM Measurements

The new Monarch Instrument Universal Engine Tachometer offers accurate and easy RPM checks on 2 or 4 stroke gasoline or diesel engines. The tachometer is aimed at R&D, emission and field testing applications. This system will be utilized for engine dynamometer tests or production line verifications of idle and no load engine RPM tests.

The ACT-3 Panel or Bench Mount Tachometer is available with 12Vdc, 230Vac or 115Vac mains power. The ACT-3 Tachometer offers all the required output options available for easy interfacing to your data acquisition systems. These outputs include 4-20mA, 0-5V, TTL pulse output, two alarm set points and an RS232C bi-directional serial interface. The analog outputs offer 12 bit resolution which can provide extremely accurate and repeatable readings. An example of a 12 bit resolution on a 10,000 RPM full scale setting equals 2.4 RPM resolution when you divide by the 4,096 steps. You may also offset the 12 bit resolution for a full scale setting as example 5,000-10,000 RPM and that will give you a 1.22 RPM resolution with your data acquisition system. The operating range of the ACT-3 tachometers is 5-999,990 RPM with an accuracy of .001% \pm 1 RPM. The ACT-3 comes with an N.I.S.T. Traceable Certificate of Calibration. The ACT-3 can be used with many universal sensors such as magnetic, proximity, optical, laser, infrared and accepts all 200mV to 50Vac inputs. You may purchase the tachometer and choice of sensors separately to match your engine applications.

The OM200 is an electromagnetic inductive detector designed to pickup the high voltage flux induced from ignition coils, magnetos, or transistorized ignition systems. The operating gap from the detector when placed next to the inductive target is typically 6 inches. The inductive detector comes with a 90° mounting bracket and 15 foot cable for easy mounting in the vicinity of the electromagnetic flux target. The push button "scale mode" allows accurate readings on 1 to 16 cylinder engines.

The Remote Optical Sensor (ROS-5W) also offers an alternate method of picking up RPM. Users may simply install a small piece of reflective tape on the rotating target and the powerful visible red LED from the sensor will be aimed at the reflective tape up to three feet and 45° from the rotating target. Simply install a piece of reflective tape on the end of your string trimmer wheel, crankshaft, flywheel, or sprocket and record RPM measurements. The Remote Optical Sensor cable can be extended up to 200 feet to meet all application requirements.

The enclosed specification sheet on the ACT-3 Tachometer and operating instructions on the remote optical sensor and inductive detector show how easily RPM measurements are accomplished!