



## HOW TO SPECIFY A MONARCH TACHOMETER and SENSOR August 2007

Answering the following questions will help you to identify the Tachometer, which is best suited to your application.

### 1.) Does Your Tachometer Application Require a Portable “Hand-Held” or “Panel/Bench Top” Model?

#### PORTABLE MODELS

POCKET TACH 99 PT99  
POCKET LASER TACH 200 PLT200  
PHASAR-LASER  
PHASARLASER-R

#### PANEL/BENCH TOP MODELS

ACT-1B (1 pulse/rev) ACT-2A  
ACT-1B-60 (60 pulses/rev) ACT-3

Suffix “R” = Tachometer has a plug-in connection which accepts a 1/8” (3.5mm) phone plug from an optional Remote Optical Magnetic, Laser or Infrared Sensor. Two Tachs in One - internal and remote optics capability.

### 2.) What RPM Range Do You Need To Measure?

#### PORTABLE RPM RANGE

POCKET TACH 99 5-99,999  
POCKET LASER 200 5-200,000  
PHASARLASER/-R 5-100,000

#### PANEL/BENCH TOP RANGE

ACT-1B 5-100,000  
ACT-2A, ACT-3 5-999,990

### 3.) In Addition To a Tachometer, Are a Totalizer / Counter or Timer / Stopwatch Measurement Required?

POCKET LASER TACH 200 is a Tachometer, Totalizer / Counter, Timer / Stopwatch  
ACT-2A or ACT-3 is a Tachometer, Totalizer / Counter

### 4.) Listed In Order: What Are The Most Popular Tachometers And Sensors?

Portable Models – POCKET LASER TACH 200 KIT, PT99. Panel Models - ACT models used with the Remote Optical Sensor (ROS-W), ACT models with Proximity Sensor (P5-11) MT-190, M-190 and IRS-W.

### 5.) Does Application Require a Remote Optical Sensor Hand Held or Mounted in Remote Location?

POCKET LASER TACH 200 can be used with an ROS-P, MT-190P, IRS-P sensor with 8 or 25-foot cable lengths.  
PHASAR LASER-R can be used with a ROS-P with 8 or 25-foot cable lengths.

The ACT Series used with Remote Optical Sensor (ROS-W) has a standard cable length of 8 feet with up to 400 feet available. Additional bulk cable is priced at \$1.00/foot over standard 8-foot cable length for sensor.

NOTE: W = Tinned Wires P = 1/8" (3.5mm) Phone Plug Plugs into a tach or strobe.

Optical Tachs and sensors will shoot operate through glass, plastic and wire mesh protective screens.

### 6.) Can User Shut Down Device and Attach a 1/2 Inch Piece of Reflective Tape? If Yes, Use “Non-Contact” Optical Models? If Not, Use a contact tach - POCKET LASER TACH 200 KIT or a Stroboscope to Measure RPM.

POCKET TACH 99 operates up to 36 inches  $\pm 45^\circ$  from reflective tape.

POCKET LASER TACH 200 operates up to 25 feet from reflective tape and  $\pm 70$  degrees.

PHASAR LASER operates up to 10 feet and  $\pm 45^\circ$  from reflective tape.

ACT with a Remote Optical Sensor operates up to 36 inches  $\pm 45^\circ$  from reflective tape.

ACT-3 with SMART LASER SENSOR operates up to 65 feet  $\pm 70^\circ$  from reflective tape.



7.) **Does Operating Environment Prevent Using a Reflective Tape Target?**

Maximum temperature for Tape is 175°F ( 80 C ). If dirt, oil or water gets on Optics or Target or speed exceeds 60,000 RPM then Reflective Tape could come off. Try to use a IRS-P infrared sensor (painted target) or magnetic or proximity sensor from a bolt head, gear teeth or drill and tap a ¼ -20 bolt into the coupling

ACT models can be used with “Magnetic Sensor” (M-190W), “Magnetic Sensor with Amplifier” (MT-190W), “Proximity Sensor”(P5-11), “Infrared Sensor” (IRS-W), and “Smart Laser Sensor” (SLS-115/230).

The gap for the Magnetic Sensor must be .005 inches max. to gear teeth. The MT-190W Magnetic Trigger Sensor with Amplifier allows an increased gap up to .250 inches from a ferrous target like bolts or teeth.

Proximity Sensor (P5-11) is mounted up to a .200 inch operating gap from a metallic target usually a bolt head, keyway or ANY 1/ 2 inch square area protruding on the rotating device. Operates up to 250 feet from Tachometer. The P5-11 is smaller and easier to install than a magnetic sensors.

The PLT200, ACT with an Infrared Sensor can be used on targets where tape cannot be used. Must mark surface with white/black contrast colored target such as wax crayon, paint or black felt tip marker pen. The Infrared Sensor’s converging .5-inch beam could also be “Broken” by the rotating device to trigger an input to tachometer. Example you can shoot infrared beam through gear teeth.

8.) **Does Application Require “Contact” Tachometer to Read in RPM or Linear Speeds Such As a Conveyor Belt or Elevator Speed in Inches per Minute, Feet per Minute or Meters per Minute?**

PLT200 KIT is a non-contact or with the included Remote Contact Assembly also a direct contact tach. PLT200 KIT will measure all English or Metric linear unit rates. Best value for contact/non-contact linear Speeds or RPM.

9.) **Do You Require Additional Output Options From the Tachometer?**

OPTIONS  
Pulse Output 0-5V TTL  
Trigger Signal

TACHOMETER REQUIRED  
PLT200, ACT-1B, ACT-3

Current Output (IO)  
4-20 mA to recorder  
Or  
Voltage Output (AO)  
0-5 V dc to recorder

ACT-1B user must specify full-scale RPM level 20mA or 5Vdc so factory can preset full-scale value.

AO/IO Simultaneous

ACT-3 push button programmable by user for full scale settings and offset settings. Example: 4 - 20 mA : 0 = 3000 RPM and 20 mA = 3600 RPM range.

RS232 Bi-directional Interface

ACT-3

High Alarm & Low Alarm

ACT-3 push button programmable (set 2 limits) by user.

**NOTE:** ACT-3 has all output options above as standard equipment and **INCLUDES N.I.S.T.** (National Institute of Standards and Technology) Certificate of Calibration for no extra charge. Best value for customer’s dollar!

10.) **User Must Specify Input Power Voltage to Operate ACT Series Tachometer - 12Vdc, 115Vac or 230Vac?**

Part Number Examples: ACT-1B/115 or ACT-3/12

11.) **What Accessories/ Options Do You Need for Your Monarch Instrument Tachometer?**

**NOTE:** Portable Tachometers can be ordered in a “**Kit form**”, which usually adds a latching carrying case, roll of T-5 Reflective Tape and a Remote Contact Assembly ( RCA ) for contact measurements.

12.) **N.I.S.T. Certificate of Calibration Required for Instrument?**

Pocket Laser Tach 200, Phasar Laser, SLS and ACT-3 Models include an N.I.S.T. Certificate of Calibration at no additional charge. All other Digital instruments can be supplied with a Certificate of Calibration traceable to N.I.S.T. for an additional charge. Initial certificate is good for 12 –18 months. Rotate your stock to keep s/n certificates current-sell oldest.