

Tachometers and Tach/Hourmeters



AT and ATH Series

- 3000 and 4000 RPM –0 to 100,000 hours
- Sensing from Magnetic Sensor, Battery Charging Alternator or Ignition Signal
- High Visibility Analog Readout
- Air Core Movement
- Easy Calibration
- Through Dial Lighting
- Powered by 12 VDC Battery
Available Converter for 24 to 12 VDC



Description

The AT Series tachometers are rugged, transistorized instruments with solid-state circuitry for indication of engine RPM. They are equipped with a bracket for mounting into a standard 3-3/8 in. (86 mm) dash mounting hole. A full 270° sweep of the pointer gives an accurate indication on a large easy-to-read scale and the dial can be illuminated for night reading. The ATH Series models are also equipped with hourmeter to record the elapsed running time of an engine.

Models available for Alternator, Magnetic Sensor or Ignition signal

These instruments are designed to function from pulses generated by an **alternator** with 4, 8, 12, 14, or 16 poles on the rotor. The pulses can also be obtained from the ring gear of an engine by means of an **electromagnetic sensor** (magnetic pickup). Murphy's magnetic sensor driven models are designed to function with flywheels having anywhere from 70 to 225 teeth.

Ignition signal model available for 4, 6 or 8 cylinder, spark-ignited engines.

All models are for negative ground, positive ground or isolated electrical systems and are protected against reverse polarity hookup.

All models are powered by 12 VDC and are reverse polarity protected.

Series Models

ATS Series Magnetic Sensor Signal Tach
 70 - 225 pulses* 12 VDC, 2733 Hz to 13.62 kHz @ 3000 RPM

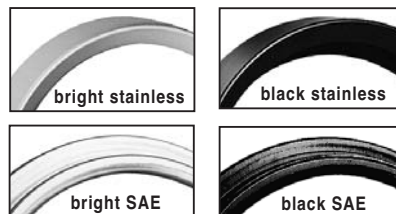
ATHS Series Magnetic Sensor Signal Tachometer/Hourmeter
 70-225 pulses* 12 VDC, 2733 Hz to 13.62 kHz @ 3000 RPM

ATA Series Alternator Signal Tachometer
 3-27 pulses* 12 VDC, 137 to 1330 Hz @ 3000 RPM

ATHA Series Alternator Signal Tachometer/Hourmeter
 3-27 pulses* 12 VDC, 137 to 1330 Hz @ 3000 RPM or 193 to 1815 Hz @ 4000 RPM

ATHI Series Ignition Signal Tachometer/Hourmeter
 4, 6 or 8 cylinder engines @ 4000 RPM

Bezel Styles



Applications

These tachometers are specially designed for use on truck, marine, industrial, or stationary engines.

Specifications

Power Input: 12 VDC (11.5 to 16 V) [0.84 to 1.44W].

Back Light: 3 to 4.7 W.

RPM Input Signal Voltage: 1.5 Vrms min. from a magnetic pickup or alternator (minimum 3-pole).

Accuracy: Tachometer: ± 2% full scale.
 Hourmeter: ± 0.01% hours, ± 1 count.

Temperature Range: -5 to 185°F (-20 to +85°C).

Dial: 270° sweep (white numerals over black)

Bezel: 304 Stainless Steel.

Scales: 0 - 3000 RPM or 0 - 4000 RPM†.

Case Material: Plastic.

Hourmeter Range: Measures elapsed time: 100,000 hours in 0.1 increments (tenths).

Shipping Weight: 0.89 lb. (403 g).

Shipping Dimensions: 5-1/2 x 5-1/2 x 5-1/2 in. (140 x 140 x 140 mm).

* To determine pulses per engine revolution, work the formulas on the back page and use the pulses per revolution number to determine if the tachometer can be used for your application.

** Products covered by this bulletin comply with EMC Council directive 89/336/EEC regarding electromagnetic compatibility except as noted.

† Range available only for ATHA-40-12-A; ATHI-40-12-A



How to Determine if the Tachometer or Tach/Hourmeter is Suitable for Your Equipment

- A. Ignition sensing Tach/hourmeters can be used on 4, 6 or 8 cylinder, spark ignited engines.
- B. Magnetic pick up sensing Tachometer or Tach/hourmeters will operate from 70 to 225 tooth flywheels.
- C. Alternator sensing Tachometer or Tach/hourmeters will operate from 3 to 27 pulses per engine revolution. To obtain the number of pulses per engine revolution, work the following formulas:
1. Determine the number of poles on your alternator. Look for the designation/type in the manufacturer's manual or remove the pulley and fan to count the number of poles on the rotor.
 2. The **ALTERNATOR TACHOMETER CHART** lists common alternators and their minimum and maximum pulley ratios. Determine pulley ratio with the following formula:

$$\text{PULLEY RATIO} = \frac{\text{CRANK SHAFT PULLEY DIAMETER}}{\text{ALTERNATOR PULLEY DIAMETER}}$$

3. Check that Pulley Ratio falls within the range shown on the **PULLEY RATIOS CHART** for a particular alternator. If ratio falls in the shaded area, the tachometer can be calibrated for the application.
4. To determine the pulses per engine revolution:

$$\frac{\text{NUMBER OF POLES}}{2} \times \text{PULLEY RATIO} = \text{PULSES PER ENGINE REVOLUTION}$$

PULLEY RATIOS CHART

RATIO →	0.5	1.5	2.0	2.5	3.0	3.5	4.0	4.5	5.0	Minimum	Maximum
4										1.5	13
8										0.75	6.5
12										0.5	4.3
14										0.42	3.7
16										0.375	3.25

ALTERNATOR TACHOMETER CHART

Manufacturer	Designation/Type	Poles	Minimum pulley-ratio	Maximum* pulley-ratio
Prestolite	All	8	0.75	6.5
Load Handler	88A, 8LHA, 89C, 8LHC	16	0.375	3.25
Load Handler	All 5 inch models	12	0.5	4.3
Leece Neville	All	12	0.5	4.3
Bosch	G and K Series	12	0.5	4.3
C.E. Neihoff	All	12	0.5	4.3
Delco Remy	30DN	4	1.5	13
Delco Remy	15SI, 21SI, 40DN, 40SI	12	0.5	4.3
Delco Remy	10DN, 10SI, 12SI	14	0.42	3.7
Delco Remy	20DN, 25SI, 27SI	16	0.375	3.25
Delco Remy	29SI, 30SI	16	0.375	3.25
Hitachi	LT125, LT130, LT133	8	0.75	6.5
Hitachi	LT150	12	0.5	4.3
Lucas	All	12	0.5	4.3
Mando	All	12	0.5	4.3
Motorcraft	All	12	0.5	4.3
Nippondenso	All	12	0.5	4.3
Powerline	Series 23	14	0.42	3.7
Powerline	Series 24, 25, 26	12	0.5	4.3
Valeo	All	12	0.5	4.3

* Although the tach may be calibrated for higher input frequencies in some cases, as shown on the Pulley Ratio chart, pulley ratios in excess of 5.0 are NOT recommended nor are they normally used.

MURPHY

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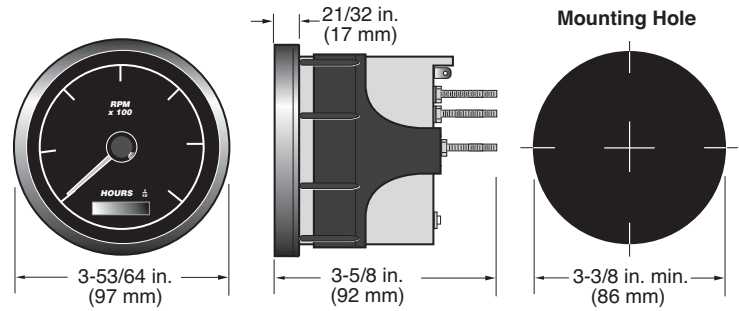


ISO 9001
REGISTERED

USA-ISO 9001:2000 FM 28221
UK-ISO 9001:2000 FM 29422

Printed in U.S.A.

Dimensions



How to Order

Order the Tachometer or Tachometer/Hourmeter by model number.

Magnetic Sensor Tachometer 3000 RPM; 70 - 225 pulses 12 VDC

Model #	Designation
ATS-30-12	Bright Stainless Steel Bezel
ATS-30-12-A	Black Stainless Steel Bezel
ATS-30-12-B	SAE Bright Stainless Steel Bezel
ATS-30-12-C	SAE Black Stainless Steel Bezel

Magnetic Sensor Tach/Hourmeter 3000 RPM; 70 - 225 pulses 12 VDC

ATHS-30-12	Bright Stainless Steel Bezel
ATHS-30-12-A	Black Stainless Steel Bezel
ATHS-30-12-B	SAE Bright Stainless Steel Bezel
ATHS-30-12-C	SAE Black Stainless Steel Bezel

Alternator Signal Tachometer 3000 RPM; 3 - 27 pulses 12 VDC

ATA-30-12	Bright Stainless Steel Bezel
ATA-30-12-A	Black Stainless Steel Bezel
ATA-30-12-B	SAE Bright Stainless Steel Bezel
ATA-30-12-C	SAE Black Stainless Steel Bezel

Alternator Signal Tach/Hourmeter 4000 RPM; 3 - 27 pulses 12 VDC

ATHA-40-12	Bright Stainless Steel Bezel
ATHA-40-12-A	Black Stainless Steel Bezel
ATHA-40-12-B	SAE Bright Stainless Steel Bezel
ATHA-40-12-C	SAE Black Stainless Steel Bezel
ATHA-40-12-A	Black Stainless Steel Bezel

Ignition Signal Tach/Hourmeter 4000 RPM; 4, 6 or 8 cylinder 12 VDC

ATHI-40-12-A	Black Stainless Steel Bezel
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Optional Power Input Converter

ATVC12/24	24 VDC to 12 VDC Converter
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Warranty

A limited warranty on materials and workmanship is given with this FW Murphy product. A copy of the warranty may be viewed or printed by going to www.fwmurphy.com/support/warranty.htm

In order to consistently bring you the highest quality, full featured products, we reserve the right to change our specifications and designs at any time.