

Tachometers and Tach/Hourmeters

FWMurphy

Series: ATS, ATA, ATHA, ATHS

3000 & 4000[†] RPM – 0 to 100,000 Hours



CE**

ATHS-30-12
model

- Sensing from Magnetic Sensor Signal or Battery Charging Alternator
- High Visibility Analog Readout
- Air Core Movement
- Easy Calibration
- Through Dial Lighting
- Powered by 12 VDC Battery Converter for 24 to 12 VDC Available

Description

The tachometer is a rugged, transistorized instrument with solid-state circuitry for indication of engine revolutions per minute (RPM). It is equipped with a bracket for mounting into a standard 3-3/8 in. (86 mm) dash mounting hole. The tachometer's full 270° sweep of the pointer gives an accurate indication on a large easy-to-read scale. The dial can be illuminated for night reading. The models equipped with tachometer and hourmeter also record the elapsed running time of an engine.

Models for Alternator or Magnetic Sensor

These instruments are designed to function from pulses generated by an **alternator** with 4, 8, 12, 14, or 16 poles on the rotor, or the pulses can 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. All models are for negative ground, positive ground or isolated electrical systems and are protected against reverse polarity hookup. If the instrument is connected reverse polarity, it will not operate until proper connections are made. The tachometer is powered by 12 VDC.

* To determine pulses per engine revolution, work the formulas on the back of this 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.

† Only Available on ATHA-40-12-A

Basic Models

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

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 Signal Tach/Hourmeter
70-225 pulses* 12 VDC, 2733 Hz to 13.62 kHz @ 3000 RPM

Model	Designation
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
3-27 pulses* 12 VDC, 137 to 1330 Hz @ 3000 RPM

Model	Designation
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 Tachometer/Hourmeter
3-27 pulses* 12 VDC, 137 to 1330 Hz @ 3000 RPM

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

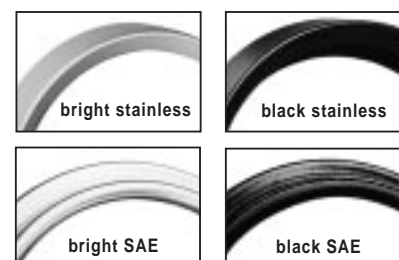
4000 RPM Model

ATHA-40-12-A Black Stainless Steel Bezel
193 to 1815 Hz @ 4000 RPM
ATVC12/24 24 to 12 VDC Converter

Applications

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

Bezels



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°F to 185°F (-20°C to +85°C).

Dial (Face Plate): 270° sweep with white numerals (over black background)

Bezel: 304 Stainless Steel.

Scale: 0-3000 RPM and 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).



Determine if the tachometer or tachometer/hourmeter can be used for your application

- A. When used with magnetic sensor systems, the tachometer will operate from 70 to 225 tooth flywheels.
- B. The alternator tachometer will operate from 3 to 27 pulses per engine revolution. Obtain the number of pulses per engine revolution for your alternator system by working the following formulas:
- 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.
 - The **ALTERNATOR TACHOMETER CHART** lists common alternators and their minimum and maximum pulley ratios. Determine pulley ratio with the following formula:

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

- 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.
- 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

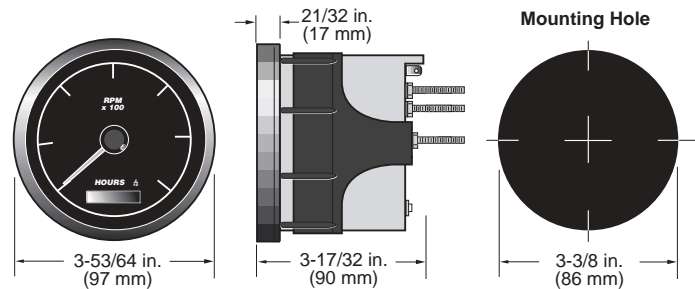
NO. OF POLES	RATIO										Minimum	Maximum
	0.5	1.5	2.0	2.5	3.0	3.5	4.0	4.5	5.0			
4											1.5	13
8											0.75	6.5
12											0.5	4.3
14											0.42	3.7
16											0.375	3.25

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.

Dimensions



How to Order

Order the Tachometer or Tachometer/Hourmeter by model designation.

Example: **ATA-30-12**

Basic Models

Magnetic Sensor Signal Tachometer 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 Signal Tach/Hourmeter 70 - 225 pulses 12 VDC

Model	Designation
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 3 - 27 pulses 12 VDC

Model	Designation
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 Tachometer/Hourmeter 3 - 27 pulses 12 VDC

Model	Designation
ATHA-30-12	Bright Stainless Steel Bezel
ATHA-30-12-A	Black Stainless Steel Bezel
ATHA-30-12-B	SAE Bright Stainless Steel Bezel
ATHA-30-12-C	SAE Black Stainless Steel Bezel
ATHA-40-12-A	Black Stainless Steel Bezel
ATVC12/24	24 VDC to 12 VDC Converter

Warranty

A two-year warranty on materials and workmanship is given with this FWMurphy product. A copy of the warranty may be viewed or printed by going to www.fwmurphy.com/warranty.asp.