

Murphy Digital Tachometer and Hourmeter

Digital Tachometer and Hourmeter with Adjustable Overspeed Trip Point

FWMurphy



SHD30 and SHD30-45 Models

- Normally Open and Normally Closed Overspeed Alarm or Shutdown Switch (Standard)
- RPM Data and Power Supplied by Magnetic Pickup or Capacitor Discharge (CD) Ignition
- Accurate to $\pm 0.5\%$ of Display Reading
- Hours Can Be Preset and Reset to Zero
- Approved for Class I, Division 2, Groups C & D Hazardous Areas



When installed per Murphy Drawing 20-08-0258

7

Description

The SHD30 and SHD30-45 are microprocessor-based tachometers with hourmeter and an overspeed trip point. The trip point can be connected as either a form "c" relay output or as a normally open SCR output for alarm or shutdown on overspeed.

The SHD30 features a panel-mounting design, plastic enclosure that is 5-1/16 (129 mm) long and 4-1/4 in. (108 mm) high.

The SHD30-45 has the same enclosure, but it also has a backplate with studs to mount like a SHD-45, OPLFC.

The SHD30 models power and RPM data are supplied by either a magnetic pickup or a capacitor discharge (CD) ignition. The hourmeter is adjustable to a preset time and resettable to zero. Should power be lost, on-board batteries maintain the run hours display and allow for resetting the overspeed relay output.

Basic Operation

When a tach signal is present the SHD30 models display rpm. When a tach signal is not present, the display is blank unless the Read Hours membrane key, on the faceplate is pressed and held.

The five-digit, liquid crystal display is updated every second. The run hours, overspeed set point and current pulses per engine revolution can be displayed by manipulating the membrane switches. Run hours can be displayed even after power is lost. The run hours display can be configured to alternate with the RPM display.

Applications

- Gas Compressors
- Industrial Engines
- Oil Field Equipment
- Generators

Easy-to-Calibrate

The SHD30 models calibration is done by entering the number of pulses per engine revolution using the Pulses per Revolution and Overspeed Setpoint membrane keys, on the faceplate. The number of pulses is determined by the number of cylinders, cycles and ignition features. It is also determined by the number of ring gear teeth of the engine's flywheel on a magnetic pickup system.

Presetting and resetting running hours is done from the back and front of the SHD30 models.

Specifications

Power input:

CD ignition: 90 to 350 VDC.
150 μ A typical @ 90 VDC;
300 μ A @ 350 VDC.

Magnetic Pickup: 5 to 120 Vrms.
325 μ A typical @ 5 Vrms, 100 Hz;
450 μ A typical @ 5 Vrms, 1 kHz;
1 mA typical @ 5 Vrms, 5 kHz;
2 mA typical @ 5 Vrms, 10 kHz;
15 mW max. @ 5 Vrms, 10 kHz;
2.8 W max. @ 120 Vrms, 10 kHz.

Backup Batteries: 2 replaceable, long life Lithium batteries, Panasonic CR2032 or equivalent, 3 V, 220 mAh power. Shelf life expectancy 10 years.

Operating Temperature:
-4° to 158°F (-20° to 70°C).

Storage Temperature:
-40° to 300°F (-40° to 150°C).

Case Material: Plastic.

Ignition Frequency Range: 3 to 666 Hz.

Magnetic Pickup Frequency Range: 1 to 10 kHz.

Overspeed Output:

Connected to S.C.R. (Silicon Controlled Rectifier) terminals:
0.5 A, 350 VDC continuous.

Connected to Form "C" Relay terminals:
Relay Contact, 0.5 A, 30 VDC, 125 VAC resistive.

Tachometer Accuracy: $\pm 0.5\%$ of the display reading or ± 1 RPM whichever is greater.

Hourmeter Range: 0 to 65535 hrs.

Hourmeter Accuracy: ± 15 minutes per year.

Laboratory Approvals: CSA (Canadian Standards Association) approved for Class I, Division 2, Groups C & D hazardous areas.

Shipping Weight : 1 lb (0.5 kg).

Shipping Dimensions: 9-1/4 x 8-1/4 x 5-1/4 in.
(235 x 210 x 133 mm).

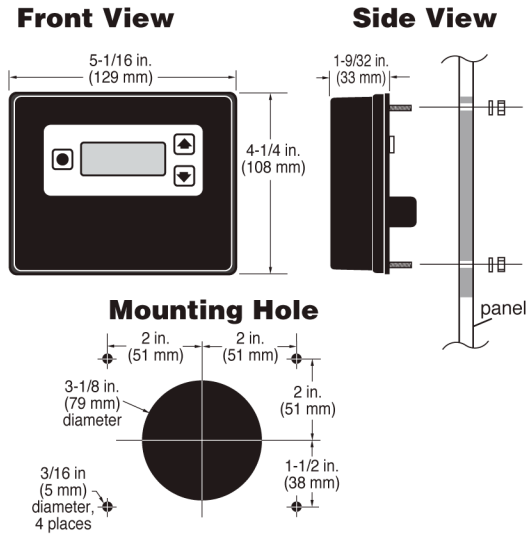


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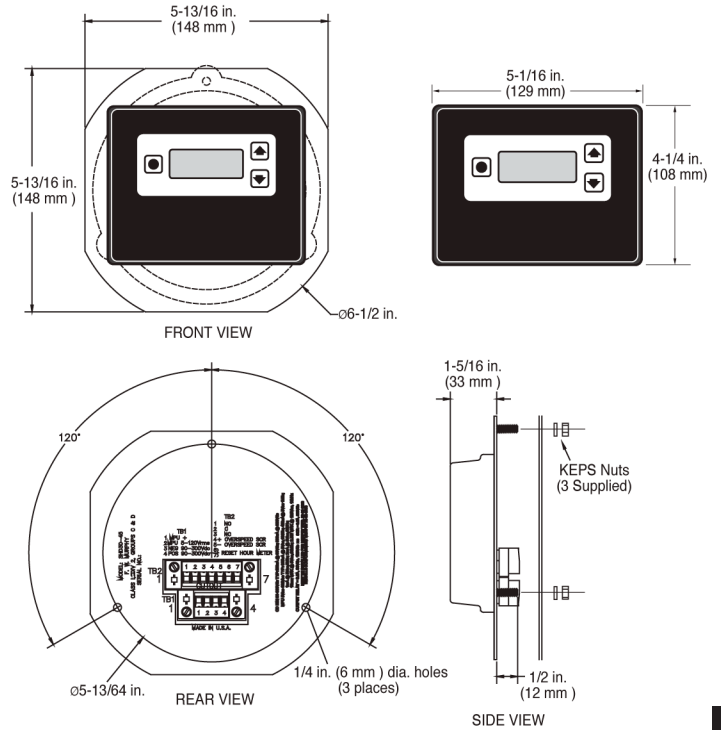
HUMCO ENGINE ROOM

Murphy Digital Tachometer and Hourmeter

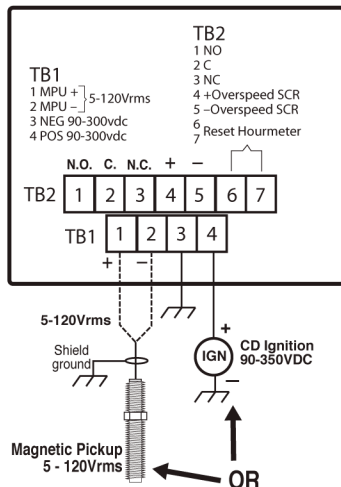
SHD-30 Model Dimensions



SHD-30-45 Model Dimensions



Typical Wiring Diagram



WARNING: In hazardous areas the overspeed relay contact is certified for use ONLY with Murphy non-incendive or intrinsically safe products. In non-hazardous areas overspeed relay contact may be used to switch electromechanical Tattletale® or Magnetic Switches that do not exceed the relay contact rating: 1 A, 30 VDC; 0.3 A, 110 VDC; 0.5 A, 125 VAC. However, the preferred output to switch electromechanical Tattletale® or Magnetic Switches is the N.O. SCR.

How to Order

Specify model number:

SHD30 = Tach/hourmeter w/overspeed

SHD30-45 = Tach/hourmeter w/overspeed to mount like SHD45 or OPLFC

00-00-9384 = Panasonic CR2032 or equivalent backup battery (2 required)



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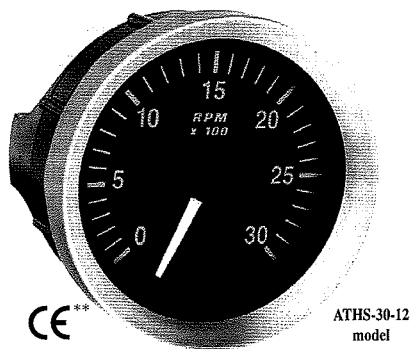
Murphy Tachometers and Tach/Hourmeters



Tachometers and Tach/Hourmeters

Series: ATS, ATA, ATHA, ATHS

3000 RPM – 0 to 100,000 Hours



- 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.

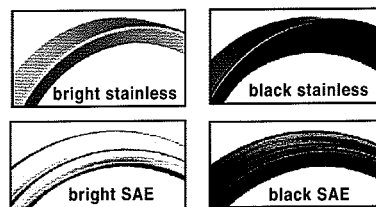
Applications

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

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
ATVC12/24	24 to 12 VDC Converter

Bezels



Specifications

Power Input: 12 VDC (11.5 – 16 V)
RPM Input Signal Voltage: 1.5 Vrms minimum 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
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.)

Warranty

A one-year limited warranty on materials and workmanship is given with this Murphy product. Details are available on request and are packed with each unit.



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Murphy Tachometers and Tach/Hourmeters

Tachometers and Tach/Hourmeters



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

- When used with magnetic sensor systems, the tachometer will operate from 70 to 225 tooth flywheels.
- 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:

$$\text{Number of poles} \times \text{PULLEY RATIO} = \text{PULSES PER ENGINE REVOLUTION}$$

PULLEY RATIOS CHART

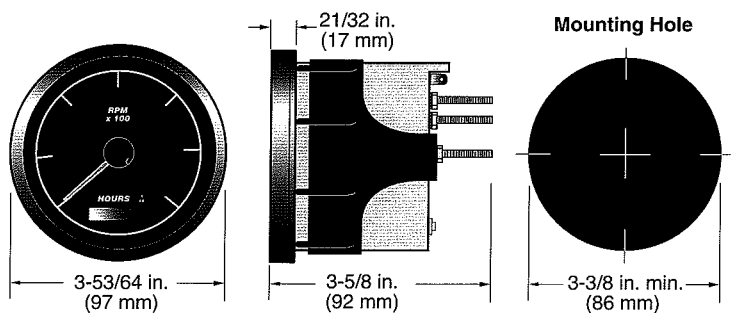
NO. OF POLES	RATIO										Minimum	Maximum
	0.5	1.5	2.0	2.5	3.0	3.5	4.0	4.5	5.0			
4											1.5	13
8											0.75	6.5
12											0.5	4.3
14											0.42	3.7
16											0.375	3.25

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
ATVC12/24	24 VDC to 12 VDC Converter



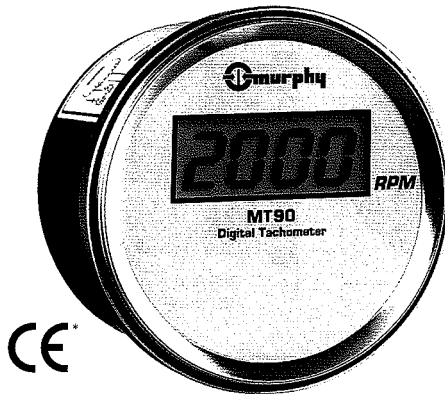
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Murphy Digital Tachometer



Digital Tachometer by Murphy SELECTRONIC®



MT90 Model

- ±1 RPM Accuracy
- Easy Calibration
- Clear-Read LCD Display
- Back Light for Night Viewing (Battery Powered models)
- Input Source Can Be a Magnetic Pickup or Engine Alternator
- Power Supplied by Magnetic Pickup or 12, 24 or 32 VDC Battery System

Description

The Murphy SELECTRONIC® MT90 is a digital tachometer. Its high accuracy and dependability result from use of a quartz crystal time based and digital, solid-state electronics.

Tachometer power is supplied by either a Murphy magnetic pickup, mounted at the fly-wheel ring-gear of an engine, or by a 12, 24 or 32 volt DC battery system.

RPM data is supplied by either a Murphy magnetic pickup or by the alternator in your battery charging circuit. The MT90 also has back-lighting for easy readings in low lit areas; this lighting requires a battery power source.

RPM Calibration

The MT90 is calibrated to engine RPM by setting a series of calibration rotary switches on the back of the tachometer. The proper switch sequence for the engine is determined by (1) the number of ring gear teeth for the magnetic pickup, or (2) by the ratio of alternator to engine pulley diameter, and the number of poles of the alternator.

Applications

Typical applications include: Generators, Compressors, Industrial Engines, Oil Field Equipment, Marine Vessels, Vehicles, Farm Equipment, and Construction Equipment.

Specifications

Signal Input Voltage: 4 to 35 Vrms from a magnetic pickup or alternator**

Pulses per Revolution: 3 to 999

Power Requirements:

- Pickup Power: 4-35Vrms**
- Battery Power: 8-40 VDC (12, 24, 32 volt)

Current:

- Tach back-light Off, 4mA @ 40 VDC
- Tach back-light On, 25 mA @ 40 VDC

Case: 1018 polycarbonate/polyester blend

Lens: Polycarbonate

Bezel: #430 Stainless Steel

Display: LCD, 4-digit, seven segment

Operating Temperature: -4 to 158°F (-20 to 70°C)

Storage Temperature: -13 to 185°F (-25 to 85°C)

Mounting Hole: 3-7/16 in. (87 mm.)

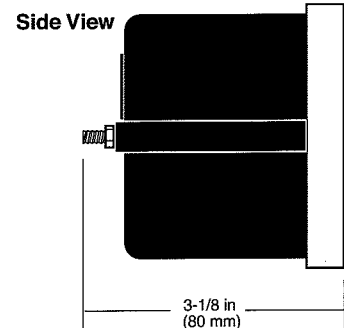
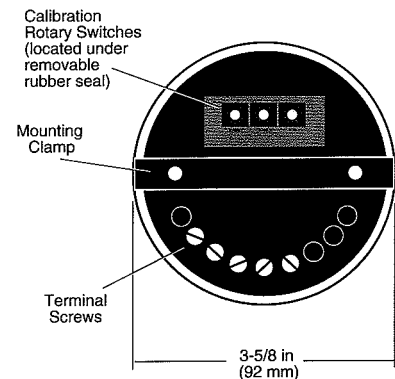
Shipping Weight: 14 oz. (0.4 kg)

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

Warranty

A two-year limited warranty on materials and workmanship is given with this Murphy product. Details are available on request and are packed with each unit.

Dimensions



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

**See "Special Note" for Magnetic Pickup Powered MT90 applications (page 539)



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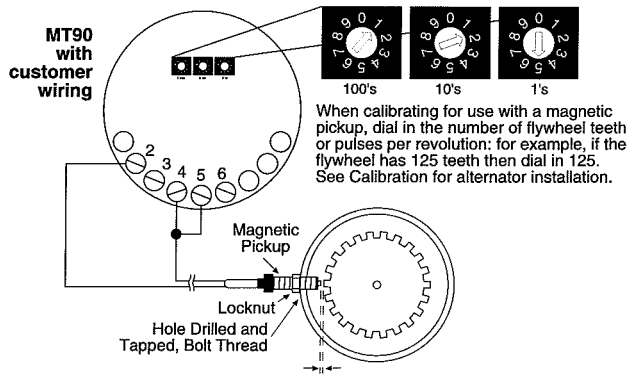
Murphy Digital Tachometer



Typical Wiring Diagrams for MT90

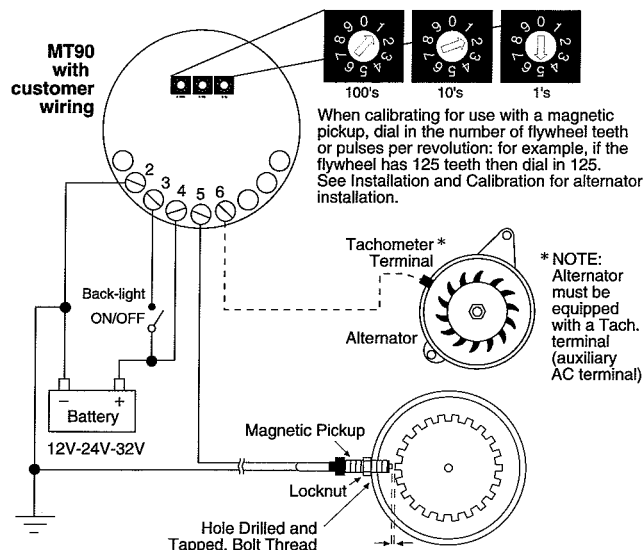
- Terminal 2: connects to battery (-) or ground
- Terminal 3: connects the back-light to battery (+), (back-light can only be used when powering from battery)
- Terminal 4: connects to battery (+) or power from magnetic pickup or alternator
- Terminal 5: RPM input signal from magnetic pickup
- Terminal 6: RPM input signal from alternator

Magnetic Pickup Powered MT90 (No back-lighting)



NOTE: Gap from face of gear tooth must be enough for gear to move. Rotate gear completely to be sure of minimum, no-touch clearance. See instructions supplied with the magnetic sensors. To get minimum of 4 VAC RMS, gap tolerance is critical. Turn the pickup in until it stops against the face of a gear tooth. Back the pickup out only enough to allow rotation of the gear. Rotate the gear, if any tooth touches the pickup, back it out to clear the tooth. After clear rotation secure the pickup locking nut.

Battery Powered MT90 (With back-lighting)



NOTE: Gap from face of gear tooth must be enough for gear to move. Rotate gear completely to be sure of minimum, no-touch clearance. See instructions supplied with magnetic sensor.

Calibration

To calibrate the MT90 for your engine, remove the rubber seal on the back of the tachometer and dial in the correct number.

- **Magnetic Pickup:** dial in the number of teeth on your ring gear. Set the switches from left to right. For example, if the engine gear has 125 teeth, dial a 1 on the left switch, a 2 on the center switch, and a 5 on the right switch. Using this setting, the MT90 will count the passing teeth and convert them into engine RPM.
- **Alternator:** Multiply the ratio of alternator to engine pulley diameter, times, the number of poles of the alternator divided by two, to determine the correct calibration number (also see "Other Calibration Methods").

Other Calibration Methods (teeth or ratio unknown)

For setting the calibration switches when the number of pulses per revolution are not known, set the rotary switches on back of the MT90 to 0-6-0 and read the tachometer at a known engine RPM. This can be read by a hand-held tachometer or any means which tells actual RPM. The reading is the input frequency in hertz. Multiply the frequency times 60 and divide the result by the engine RPM. Set this number into the rotary calibration switches. **NOTE:** If pulses per revolution are not a whole number, for example: 21.5, a setting of 021 will read slightly high and a setting of 022 will read slightly low.

7

Magnetic Pickups

MP3298



Pickup Models	Total Length	Threaded Length	Thread Size
MP3298*	3 in. (76 mm.)	3 in. (76 mm.)	5/8-18 UNF
MP7906†	3 in. (76 mm.)	3 in. (76 mm.)	3/4-16 UNF
MP7905††	4-1/2 in. (114 mm.)	4-1/2 in. (114 mm.)	3/4-16 UNF

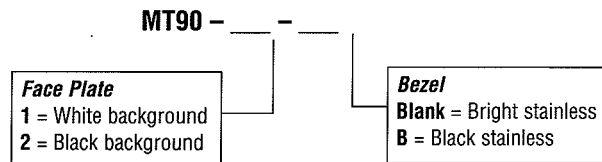
*Replaces 20-01-0080 and MP100. Lead wire hookup (12 in. [305 mm.]).

† Replaces 20-01-0081. Lead wire hookup (12 in. [305 mm.]).

†† Replaces 20-01-0082. Lead wire hookup (12 in. [305 mm.]).

How to Order

To order a MT90 for your application, use the diagram below.



To order a magnetic pickup, specify model number.

Example: MP3298

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.

Murphy Digital Tachometer and Hourmeter



Digital Tachometer and Hourmeter With Adjustable Overspeed Set Point



Model MTH6

- Tachometer and Hourmeter With Overspeed Shutdown or Alarm Switch
- 3-1/2 Inches (89 mm.) Diameter Dial
- Reads RPM Data from a Magnetic Pickup or Battery Charging Alternator
- Powered by 8 to 40 VDC
- Large 5-Digit LCD Display
- Maintains Hours Count When Power Is Lost
- Front Panel Programming
- Hours Can Be Reset to Zero

7

Description

This microprocessor-based digital tachometer and hourmeter with a built-in overspeed switch is highly accurate and dependable. It measures speed and running hours and can give an alarm or shut down the engine on overspeed.

The MTH6 case is polycarbonate, and its dial measures 3-1/2 in. (89 mm.) in diameter.

RPM data for the tachometer and overspeed switch is supplied by a magnetic pickup or battery charging alternator. The magnetic pickup is installed into the flywheel housing of an internal combustion engine. The starter ring gear acts upon the magnetic pickup to generate a voltage pulse each time a gear tooth passes the end of the sensor.

Applications

- Industrial Engines
- Generators
- Compressors
- Oil Field Equipment
- Marine Engines
- Vehicles
- Farm Equipment
- Construction Equipment

Basic Operation

During normal operation, the MTH6 displays RPM. Its five-digit, liquid crystal display is updated every second. When the MTH6 is displaying hours and a speed signal is present, the far left digit and decimal point will flash indicating the hourmeter is operating.

The overspeed set point and running hours can be viewed by manipulating three membrane switches located on the MTH6 front panel.

When the overspeed set point is met an LED, also located on the front panel, lights.

Easy-Calibration

The MTH6 calibration is simple. The operator enters the number of pulses per engine revolution and the overspeed set point value using the membrane-switches located on the front of the MTH6.

Specifications

Power Requirements:

8-40 VDC (12, 24 or 32 VDC systems)

Maximum Current:

12 VDC: 0.011 A, backlight Off;
0.025 A, backlight On

24 VDC: 0.008 A, backlight Off;
0.015 A, backlight On
32 VDC: 0.007 A, backlight Off;
0.010 A, backlight On

Operating Temperature: -4° to 158°F
(-20° to 70°C)

Storage Temperature: -40° to 185°F
(-40° to 85°C)

Case: 1018 Polycarbonate/Polyester blend
Mounting Hole Dim.: 3-3/8 in. (86 mm.) Dia.

Speed Input: 4.5 Vrms minimum

Overspeed Switch Rating: 2 A, 50 VDC

Overspeed Range: 0 to 9000 RPM

Pulses per Revolution: 4 to 255

Tachometer Range: 0 to 65,535 RPM

Tachometer Accuracy: ±1% of the display reading or -2 RPM whichever is greater

Input Frequency Range: 25 Hz to 20 kHz

Hourmeter Range: 0 to 99999 hrs

Hourmeter Resolution: ±0.1 Hour up to 9999.9; ±1 hour 10,000 and up

Reset Hourmeter: Apply temporary ground to terminal #5 to reset hours to zero

Shipping Weight: 14 oz. (435 g)

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



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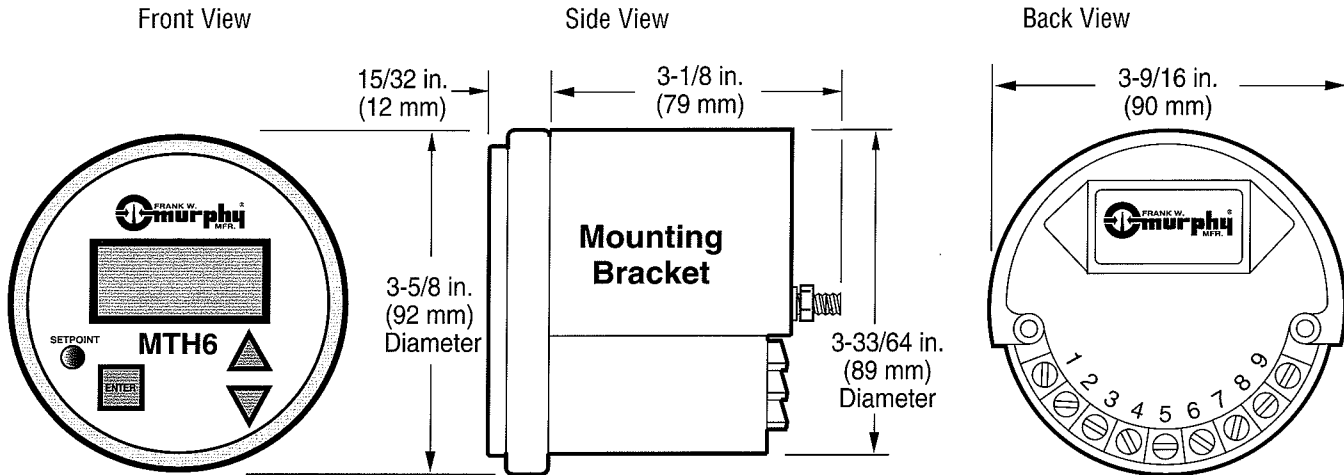
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Murphy Digital Tachometer and Hourmeter

Digital Tachometer and Hourmeter With Adjustable Overspeed Set Point



Dimensions



How to Order

Order by model designation:

MTH6 -- |

Face Plate:

- 1 = White Background
- 2 = Black Background

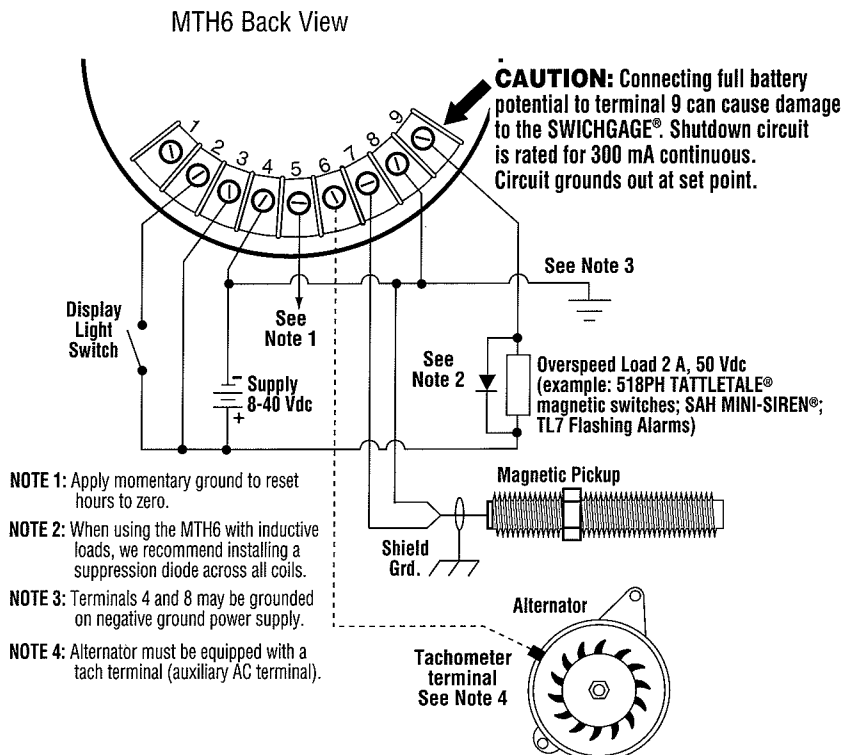
Bezel:

- Blank = Bright Stainless
- A = Black Stainless

Warranty

A two-year limited warranty on materials and workmanship is given with this Murphy product. Details are available on request and are packed with each unit.

Typical Wiring Diagram





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Murphy Hourmeter



Hourmeter



TM SERIES

- 2 in. (51 mm.) Diameter Dial
- Tamperproof and Environmentally Sealed
- Mechanical Counter—No Battery Needed to Maintain Elapsed Time
- Reversed Polarity Protected
- Quartz-Crystal Time Base for Accurate Long-Term Timekeeping
- Powered by 12 to 24 VDC

Description

The TM Series hourmeters record the operating time of vehicles or powered equipment. They are electro-mechanical and have a quartz base time counter that insures accuracy (better than $\pm 0.02\%$ over the entire range). They can record up to 99,999.9 hours (9,999.9 for TM612/624) and include an automatic recycle to zero hours feature. The TM Series models have a shock-proof and tamperproof, totally sealed case made of an engineered plastic. These small, lightweight time meters are rugged and durable. They are the answer to applications requiring a low DC power, reliable hourmeter.

The TM612/624 model includes a 3-hole mounting shock ring for extreme-shock protection.



Basic Models

6-Digits Hourmeters

Model	Bezel Type
TM4592	Bright Stainless Steel Bezel
TM4593	Black Stainless Steel Bezel
TM4594	SAE Bright Stainless Steel Bezel
TM4595	SAE Stainless Steel Black Bezel

5-Digits Hourmeter with Shock Ring Mounting

TM612/624 3-Hole Mount, Black Bezel

Applications

These hourmeters can be used on any engine where operating time needs to be recorded. All it requires is a DC power source (refer to Specifications, at right).

Outstanding Features

- Solid-State Electronic Drive Circuit
- Quartz-Crystal for Accurate Timing
- Quiet Operation—Permanently Lubricated
- High-Impact, Tamperproof Plastic Case
- Sealed Against Moisture and Dirt
- Indicates Operating Time in Hours and Tenths
- No Battery Back Up Required
- Made in the U.S.A.

Specifications

Power Input: 12 to 24 VDC

Power Consumption: Less than 0.03 W @ 12 VDC; 0.4 W @ 24 VDC.

Accuracy: $\pm 0.02\%$ over entire range.

Temperature Range: -40°F to 185°F (-40°C to $+85^{\circ}\text{C}$).

Dial (Face Plate): White numerals (over black background).

Time Scale: TM4592-95 models: 6-digits 99,999.9 hours; TM612/624 models: 5-digits 9,999.9 hours. Automatic recycle to zero.

Vibration Resistance: Withstands 10 to 75 Hz @ 1 to 8 G's.

Case Material: Plastic.

Bezel: Stainless Steel.

Terminations: 1/4 in. (6 mm.) male blade terminals.

TM4592/4595 Shipping Weight: 5 ozs. (140 g).

Shipping Dimensions: 3-1/8 x 3 x 3 in. (79 x 76 x 76 mm.) approximately.

TM612/624 Shipping Weight: 8 ozs. (230 g).

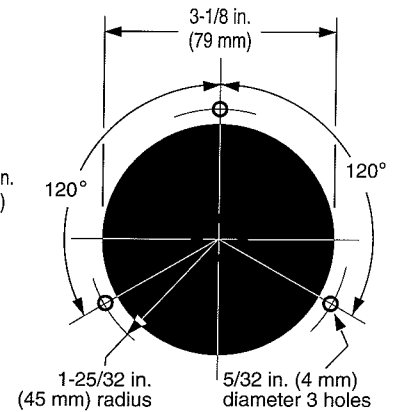
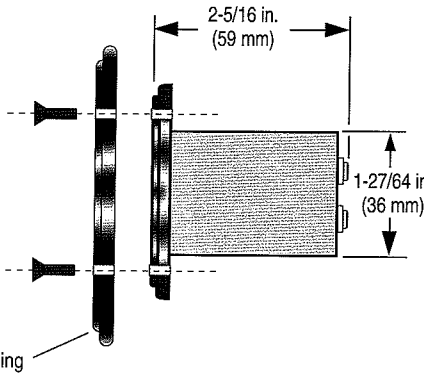
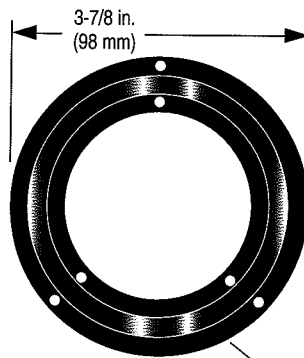
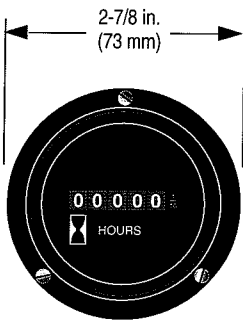
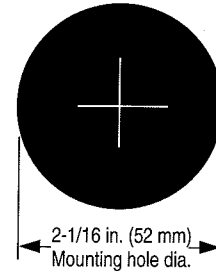
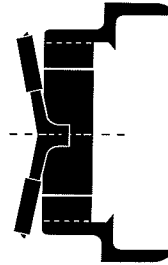
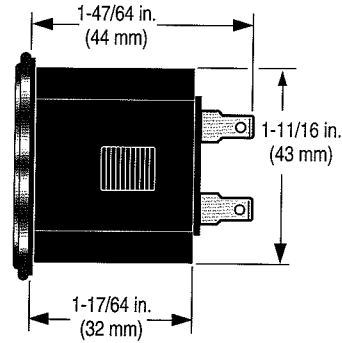
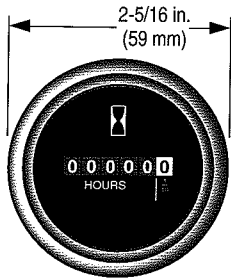
TM612/624 Shipping Dimensions: 5 x 5 x 3-1/4 in. (127 x 127 x 83 mm.) approx.



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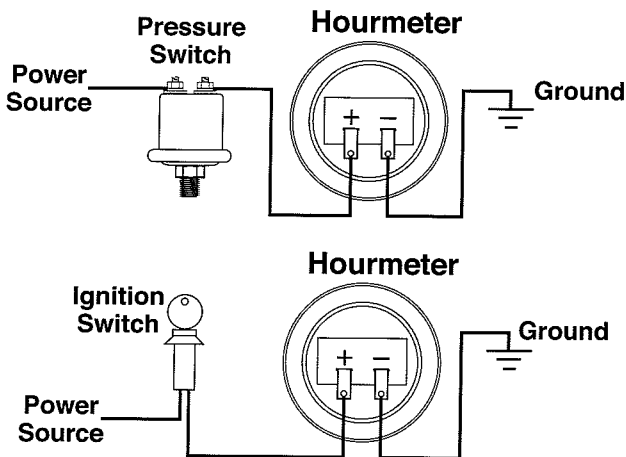
HUMCO ENGINE ROOM

Murphy Hourmeter



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Typical Wiring Diagrams



How to Order

Example: TM4592

Model Designation

Model	Description
TM4592	6-digits w/Bright Stainless Steel Bezel
TM4593	6-digits w/Black Stainless Steel Bezel
TM4594	6-digits w/SAE Bright Stainless Steel Bezel
TM4595	6-digits w/SAE Stainless Steel Black Bezel
TM612/624	5-digits w/Shock Ring Mount Black Bezel
00000355	Shock Ring only for TM612/624