

# Digital Tachometer and Hourmeter with Adjustable Overspeed Trip Point

SHD3-97050B  
Revised 07-04  
Replaces SHD-95064B  
Catalog Section 20  
(00-02-0287)



## 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

## 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  $\mu$ A typical @ 90 VDC;  
300  $\mu$ A @ 350 VDC.

Magnetic Pickup: 5 to 120 Vrms.  
325  $\mu$ A typical @ 5 Vrms, 100 Hz;  
450  $\mu$ 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  $\pm 1$  RPM whichever is greater.

Hourmeter Range: 0 to 65535 hrs.

Hourmeter Accuracy:  $\pm 15$  minutes per year.

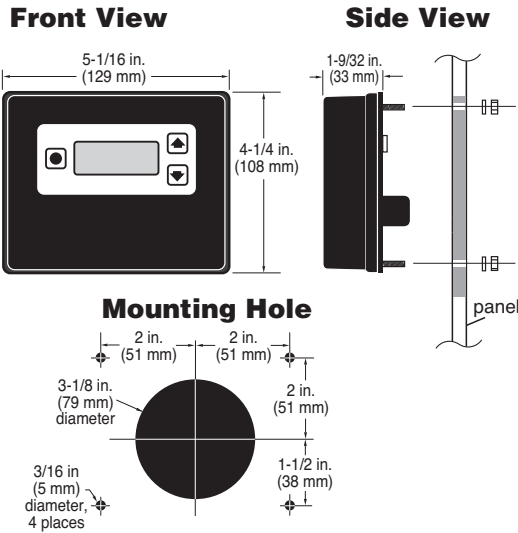
Laboratory Approvals: CSA (Canadian Standards Association) approved for Class I, Division 2, Groups C & D hazardous areas.

Shipping Weight : 1 lb (0.5 kg).

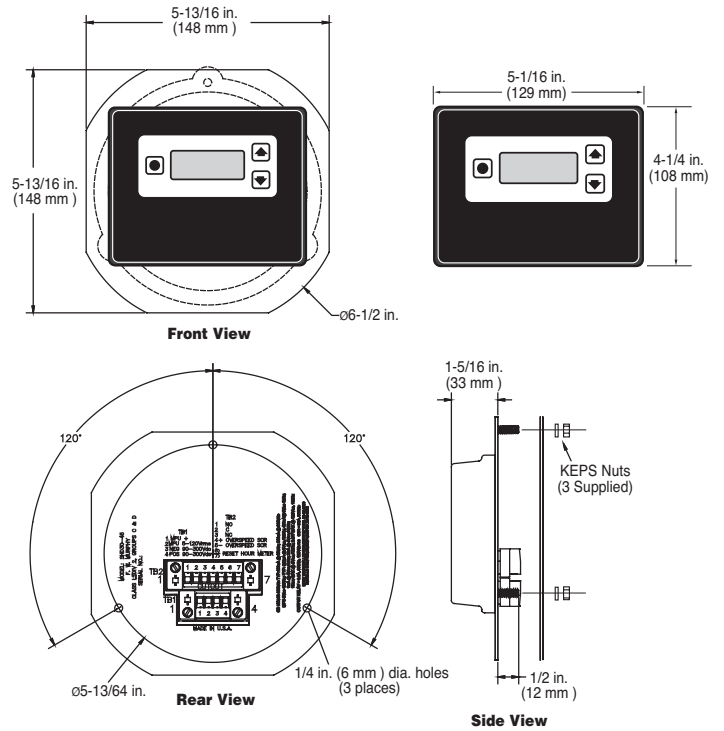
Shipping Dimensions: 9-1/4 x 8-1/4 x 5-1/4 in.  
(235 x 210 x 133 mm).



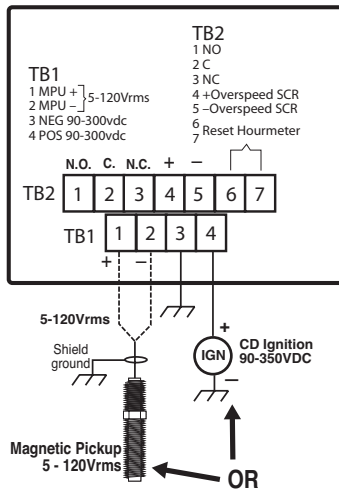
## SHD-30 Model Dimensions



## SHD-30-45 Model Dimensions



## Typical Wiring Diagram



## How to Order

Specify model number:

**SHD30** = Tach/hourmeter w/overspeed

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

**00-00-9389** = Panasonic CR2032 or equivalent backup battery (2 required)

## 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](http://www.fwmurphy.com/support/warranty.htm)



**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.

Refer to SHD3-97051N for more details.



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