

Digital Tachometer and Hourmeter with Adjustable Overspeed Trip Point



SHD45 Series

- Panel-Mount, 4-1/2 in. (114 mm) Diameter Dial
- Normally Open and Normally Closed Overspeed Alarm or Shutdown Switch
- 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 20-08-0255 Revision C. Call Murphy for Details.

NRTL/C*

Description

The SHD45 is a microprocessor-based tachometer and hourmeter with an overspeed trip point. The trip point can be connected as either a form "B" relay output or as a normally open SCR output for alarm or shutdown on overspeed.

The SHD45 features a panel-mounting design, a glass-filled molded nylon case, and a faceplate that is 4-1/2 in. (114 mm) in diameter.

The SHD45 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 allow the run hours display and for resetting the overspeed relay output. The hours and settings are stored in non-volatile EEPROM.

Basic Operation

When a tach signal is present the SHD45 displays 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, and can be configured to alternate with the RPM display.

Applications

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

Easy-to-Calibrate

The SHD45 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 SHD45.

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, 3.5 V, 350 mA 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: Glass-filled molded nylon.

Ignition Frequency Range: 3 to 666 Hz.

Magnetic Pickup Frequency Range: 1 to 10 kHz.

Overspeed Output:

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

Connected to "Form B" Relay output terminals:
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.

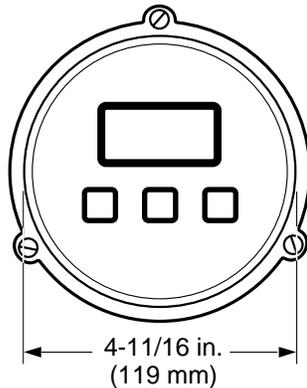
Shipping Weight : 3 lb (1.4 kg).

Shipping Dimensions: 10 x 9-1/2 x 6 in.
(254 x 241 x 152 mm).

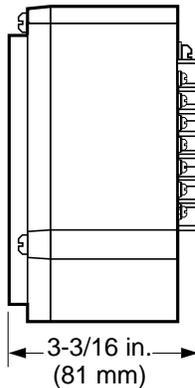
* The NRTL/C indicator adjacent to the CSA Mark signifies that the product has been evaluated to the applicable ANSI/UL and CSA Standards, for use in the U.S. and Canada. NRTL/C, i.e. Nationally Recognized Testing Laboratory, is a designation granted by the U.S. Occupational Safety and Health Administration (OSHA).

Dimensions

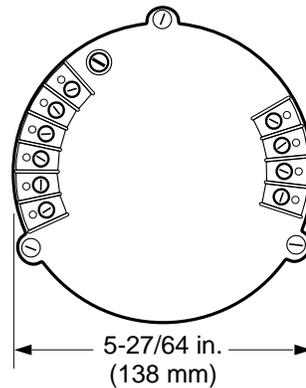
Front View



Side View



Back View



How to Order

Specify model number:

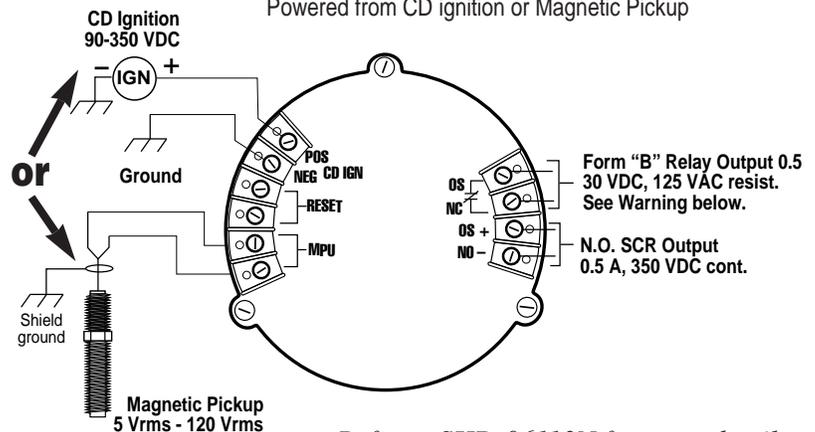
SHD45 = Tach/hourmeter w/overspeed
00-00-5489 = backup battery (2 required)

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

Powered from CD ignition or Magnetic Pickup



Refer to SHD-96113N for more details.



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.

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<http://www.fwmurphy.com>

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.

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USA-ISO 9001 FM 28221
 UK-ISO 9002 FM 29422

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