

# Direct-Mount Temperature Switchgauge® Instrument SDB Series



## Features

- Easy to Read Dial
- Bi-Metallic Sensor
- Two Ranges:  
100 to 500°F (40 to 260°C)  
200 to 1000°F (100 to 500°C)
- Dials Scaled in Degrees  
Fahrenheit/Celsius
- CSA Listed Explosion-Proof Model Available

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

The SDB Series are direct-mounting temperature Switchgauge devices. They provide an accurate direct-reading gauge with an adjustable limit switch to activate alarms and/or shutdown. A knob on front of the Switchgauge instrument allows you to adjust the limit switch trip point. Pointer movement is actuated by a bi-metallic sensing element.

Models SDB500, SDB501 and SDB500EX have a temperature range of 100 to 500°F (40 to 260°C). SDB500EX enclosure is explosion-proof and CSA listed for Class I, Group C and D hazardous locations.

The SDB1000 has a temperature range of 200 to 1000°F (100 to 500°C).

## Basic Operation

SDB500, SDB501 and SDB1000: When the indicating pointer on the SDB touches the adjustable contact, a one-wire-to-ground circuit is completed to shut down the equipment and/or actuate audible or visual alarms. Proper relays or Tattletale® annunciators (magnetic switches) must be incorporated into the system.

SDB500EX: When the temperature rises to the preset trip point, the pointer engages an internal SPDT snap-switch to close/open circuits.

## Applications

The most common use of the SDB Series is to monitor gas compressor temperatures. Engine exhaust temperature can also be monitored to indicate overloading or lean fuel mixtures; or use the SDB to help coordinate loads on twin-engine installations.

## Specifications

### Temperature Ranges:

SDB500, SDB500EX, and SDB501:

100 to 500°F (40 to 260°C).

SDB1000: 200 to 1000°F (100 to 500°C).

### Sensing Bulb Material and Size:

304 stainless steel;

1/2 in. dia. x 4 in. (13 x 102 mm) insertion depth.

### Maximum Bulb Pressure:

285 psi (1.97 MPa) [19.7 bar] at 625°F (329°C).

**NOTE:** use of a thermowell is recommended.

### Process Connection:

1/2 NPTF. 3/4 NPT adapter available.

### Sensing Element:

High torque bi-metal element in heliarc welded stainless steel bulb.

### Contact Rating:

SDB500, SDB501 and SDB1000: 2 A @ 30 VAC

SDB500EX: 2 A @ 120 VAC

### Limit Contact Adjustment:

By knob through full range.

### Maximum Unit Temperature:

SDB500, SDB500EX, SDB501: 625°F (329°C).

SDB1000: 1250°F (677°C).

### Case Material:

SDB501: Die-cast aluminum.

SDB500, SDB1000, SDB500EX: Sand-cast aluminum.

### Switchgauge Accuracy:

± 3% of full scale.

**NOTE:** All models are calibrated for use with a thermowell.

Specify when a thermowell is **NOT** to be used,

(see How to Order on back page).

### Wire:

18 AWG (1.0 mm<sup>2</sup>). See Dimensions for lengths, reverse side.

### Dial:

Black print on stainless steel. Dials are scaled in degrees Fahrenheit and Celsius.

### Shipping Weight:

SDB501: 1 lb. 4 oz. (0.57 kg).

SDB500 and SDB1000: 2 lb. (1.0 kg).

SDB500EX: 2 lb. 5 oz. (1.05 kg).

### Shipping Dimensions:

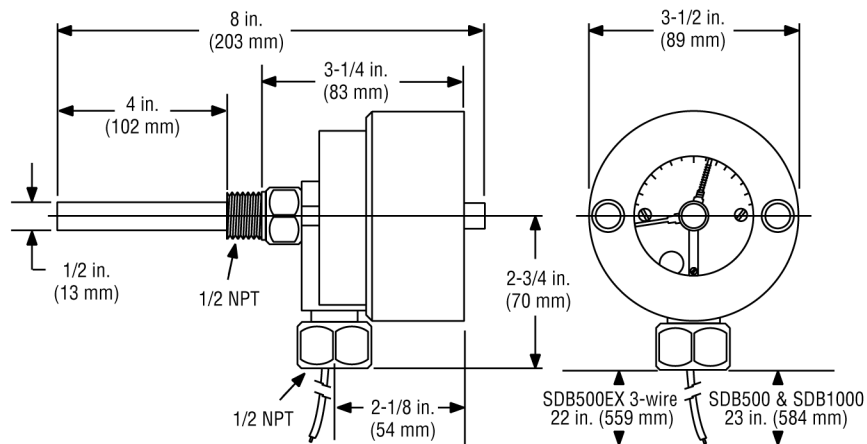
SDB501: 8-1/4 x 4-1/4 x 4-1/2 in. (210 x 108 x 114 mm).

SDB500 and SDB1000: 8-1/4 x 4-1/4 x 4-1/2 in. (210 x 108 x 114 mm).

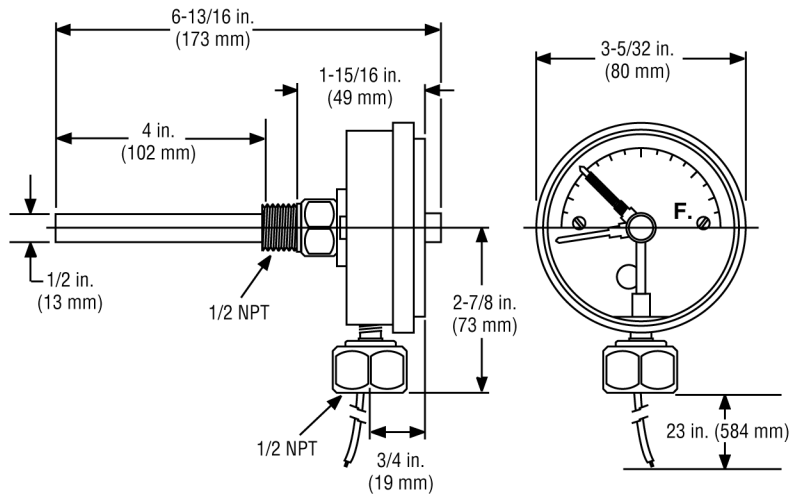
SDB500EX: 9 x 5-1/2 x 6 in. (229 x 140 x 152 mm).

## Dimensions

### SDB500, SDB500EX, and SDB1000

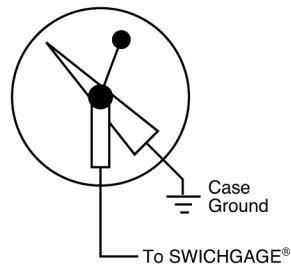


### SDB501



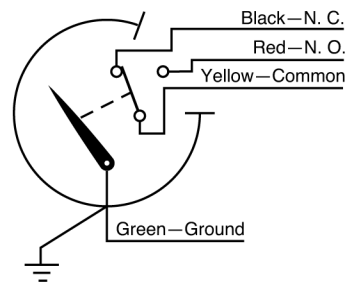
## Wiring Diagrams

### SDB500, SDB501, and SDB1000



**Contact Rating: 2 A @ 30 VAC**

### SDB500EX

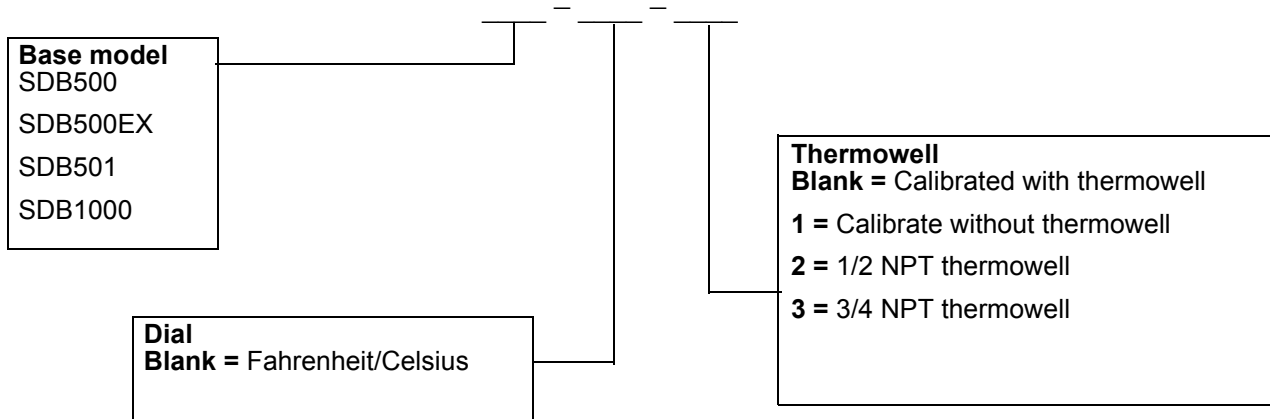


**Contact Rating: 2 A @ 120 VAC**

## How to Order

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To order the SDB use the model number diagram below. Model number example: **SDB500EX-3**.



## Optional Thermowells

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Murphy offers thermowells (separable sockets) to facilitate maintenance of a temperature Switchgauge instrument and to protect the temperature sensing bulb from extreme amounts of system pressure. For system pressures exceeding 285 psi (1.97 MPa) [19.7 bar] at 625°F (329°C) an optional thermowell is recommended for use with the SDB series. The thermowell protects the SDB bulb from system pressures up to 3000 psi (20.68 MPa) [206.8 bar] at 300°F (149°C). Two thermowell options are available: 1/2 NPT and 3/4 NPT. Thermowells can be ordered with the SDB Series Switchgauge instrument or ordered separately. See “How to Order” above.

To order thermowell separately:

Specify part number **10050025** for 1/2 NPT.

Specify part number **10050311** for 3/4 NPT.