

# Direct-Mount Temperature SWICHGAGE®

FW Murphy



## SDB Series

- 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

### Description

The SDB Series are direct-mounting temperature SWICHGAGE® 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 SWICHGAGE® 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 TATTLE-TALE® annunciators (magnetic switches) must be incorporated into the system.

**SDB500EX:** When the temperature rises to the pre-set 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.

**SWICHGAGE® 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).

### Optional Thermowells

Murphy offers thermowells (separable sockets) to facilitate maintenance of a temperature SWICHGAGE® 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 SWICHGAGE® or ordered separately. See "How to Order" on back page.

### Warranty

A limited 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](http://www.fwmurphy.com/warranty.asp).



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

Call MurCal To Place Your Order



# Installation

## WARNING

Before beginning installation of this Murphy product:

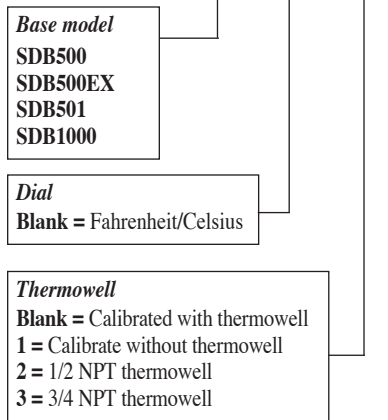
- ✓ Disconnect ALL electrical power to the machine.
- ✓ Make sure the equipment CANNOT operate during installation.
- ✓ Follow all safety warnings of the machine manufacturer.
- ✓ Read and follow all installation instructions.

**Important :** The preferred mounting for the SDB Series units is with the face dial in the vertical position.

1. Thermowell use is recommended-only use Murphy thermowells. Install thermowell using pipe sealant, and make sure insertion depth is appropriate for the application.
2. Apply a small amount of high temperature, heat transfer grease on the tip of the element (do NOT pack the thermowell with grease) before installing.
3. Tighten the SDB using the hex for the wrench only. Do NOT use the housing. Use backup wrench(s) as necessary.
4. Anti-seize compound is applied to housing/cover threads of the SDB units, re-apply as necessary.
5. Use anti-seize compound on conduit threads.
6. Explosion-proof models require explosion-proof conduit seals, for installation refer to NEC and/or applicable codes.
7. The SDB is not intended for high cycle applications.
8. Do NOT exceed contact ratings.
9. Non-explosion-proof models are simple apparatus and can be used with non-incendive or intrinsically safe circuits in hazardous areas, refer to NEC and/or applicable codes.

## How to Order

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



To order thermowell separately:  
 Specify part number **10050025** for 1/2 NPT.  
 Specify part number **10050311** for 3/4 NPT.



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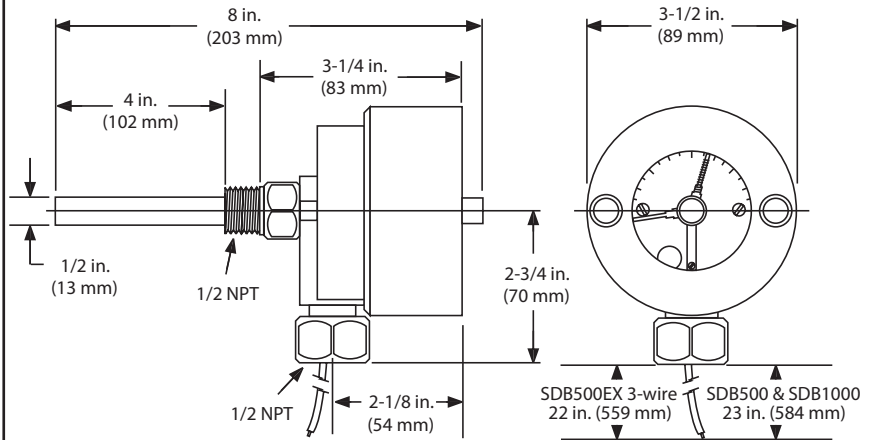
**(661) 272-4700 Fax: (661) 947-7570**  
 www.murcal.com email: sales@murcal.com



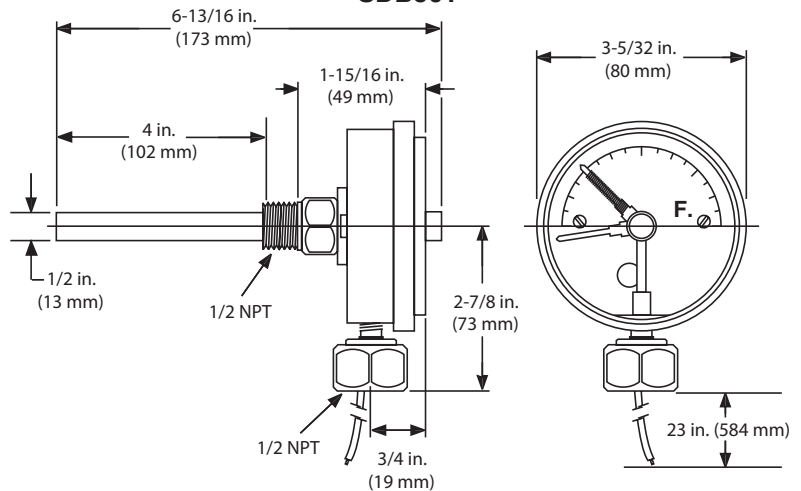
USA-ISO 9001:2000 FM 28221  
 UK-ISO 9001:2000 FM 29422

## Dimensions

### SDB500, SDB500EX, and SDB1000

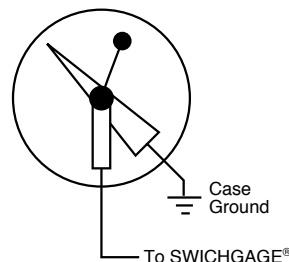


### SDB501



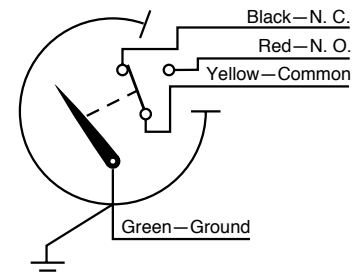
## Wiring Diagrams

### SDB500, SDB501, and SDB1000



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

### SDB500EX



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