

# Installation of Direct Mount Temperature Gage with Adjustable Limit Switch

## SDB Series (For Gas Compressor Cylinder Discharge Temperatures)

The SDB Series are direct-mounting temperature devices. They provide an accurate direct-reading gage with an adjustable limit switch to activate alarms and/or shutdown. A knob on the front of the 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).

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, 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. insertion depth (13 x 102 mm)

**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

**Accuracy:** ± 3% of full scale;

**NOTE:** All models are calibrated for use with a thermowell. Specify when a thermowell is NOT to be used when ordering.

**Wire:** 18 AWG (1.0 mm<sup>2</sup>). See Dimensions for lengths.

**Dial:** Black print on stainless steel

Dials are scaled in degrees Fahrenheit and Celsius.

**Approximate 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)

**Approximate 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)

### Basic Operation

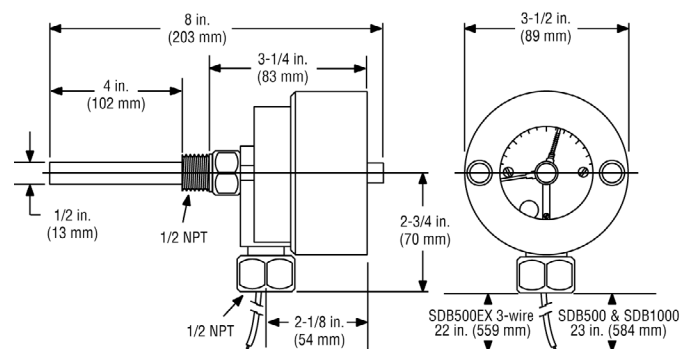
**SDB500, SDB501 and SDB1000:** When the indicating pointer on the SDB touches the adjustable switch contact, a one-wire-to-ground circuit is completed to shut down the equipment and/or actuate audible or visual alarms. Proper relays or annunciators (with magnetic switches) must be incorporated into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

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

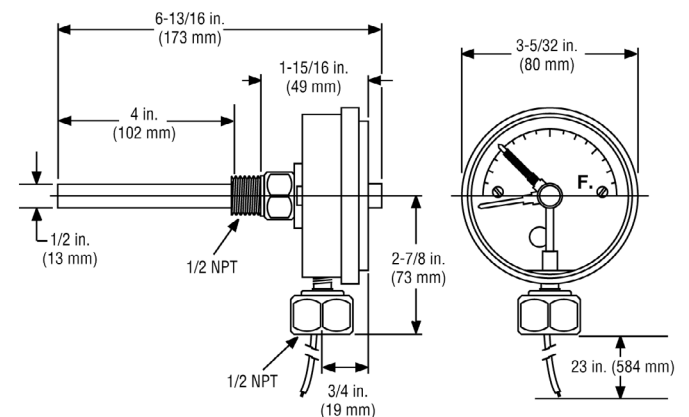
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### Dimensions

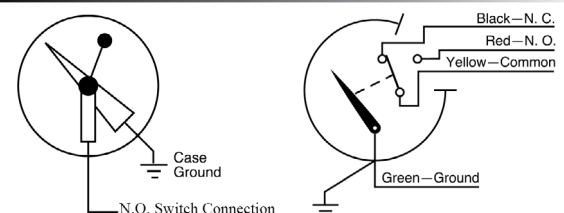
#### SDB500, SDB500EX and SDB1000



#### SDB501



### Wiring Diagrams



Contact Rating: 2 A @ 30 VAC

Contact Rating: 2 A @ 120 VAC

# Installation



**WARNING:** Before beginning installation of this FW 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 FW 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.

## Optional Thermowells

Thermowells (separable sockets) are available to facilitate maintenance of a temperature 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 instrument or ordered separately.

Part	Model and Description	Notes
10000245	Lens, Assembly SDB500EX	Gage Part
10050025	Thermowell used with SDB Rated 3000 psi @ 300° F (20.7 MPa @ 149° C) Material is 304 Stainless Steel A. 4.800 in. (122 mm) E. 0.660 in. (17 mm) B. 4.490 in. (114 mm) F. 1/2-14 NPT C. 3.300 in. (84 mm) G. 1.125 Hex D. 0.510 in. (13 mm) H. 1/2-14 NPT	
10050311	Thermowell used with SDB Rated 3000 psi @ 300° F (20.7 MPa @ 149° C) Material is 304 Stainless Steel A. 4.800 in. (122 mm) E. 0.810 in. (21 mm) B. 4.490 in. (114 mm) F. 3/4-14 NPT C. 3.300 in. (84 mm) G. 1.125 Hex D. 0.510 in. (13 mm) H. 1/2-14 NPT	

FW Murphy 摩菲仪器仪表签约中国经销商: 北京卡梅迩控制技术有限公司 (原信德迈公司)

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