

# DREXELBROOK<sup>®</sup>

## Model SDT

### Submersible Level Transmitter

**Model SDT**  
submersible  
level  
transmitter



#### Description

The Model SDT Submersible Level Transmitter is specially designed to provide the convenience of direct submergence in many types of liquid for quick, accurate and reliable level measurement. The SDT provides a lower cost, lighter weight option for submersible level applications. The simple design and rugged construction of this solid state instrument provide long lasting service with virtually no maintenance.

The Model SDT Transducer indicates the level of liquid by continuously measuring hydrostatic pressure via its isolated sensing element, an ion implanted silicon semiconductor sensor. Once the sensor measures the pressure, the data is transmitted by a 4 to 20 mA, 0.5 to 4.5 VDC, 1 to 5 VDC, 1 to 6 VDC, or 0 to 5 VDC output signal. This design provides for excellent linearity and repeatability, low hysteresis and long term stability.

The Model SDT is easy to install; simply lower the transducer into a vessel or well. It's that easy. All the electronics are mounted in a submersible 316 stainless steel housing. A special cable support bracket is also available. This gives extra stability to the transducer when used with longer lengths of cable (up to 2500 feet) or when used in an agitated liquid. A conduit adapter is also available.

The transducer is available calibrated for any span needed, from 0 to 1 psi or 0 to 0.07 bar (0 to 2.31 feet or 0 to 0.7 meters of water) to 0 to 150 psi or 0 to 10 bar (0 to 345 feet or 0 to 105 meters of water).

#### Features

- Low cost
- Solid state semiconductor sensor for accuracy and reliability
- Lightweight and compact size
- Rugged 316 stainless steel housing with excellent environmental protection
- Advanced digital compensation
- Easy to install and use
- Optional temperature measurement capability
- Vented to the atmosphere through the surface end of the cable
- Reverse polarity and surge protected
- 2 wire, 4 to 20 mA output standard; other outputs available

#### Applications

- Tanks
- Ponds
- Rivers
- Lakes
- Water wells
- Landfills
- Flood channels
- Solar, low powered or pulsed operation

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## Submersible Level Transmitter

### Specifications

**Feet of Water (standard ranges):** 0 to 2.31, 0 to 14, 0 to 35, 0 to 69, 0 to 138, 0 to 230, 0 to 345 feet of water

**Meters of Water (standard ranges):** 0 to 0.7, 0 to 4.2, 0 to 10.5, 0 to 21.1, 0 to 70.3, 0 to 105.4 meters of water

**Bar (standard ranges):** 0 to 0.07, 0 to 0.4, 0 to 1, 0 to 2, 0 to 4, 0 to 7, 0 to 10

**PSI (standard ranges):** 0 to 1, 0 to 6, 0 to 15, 0 to 30, 0 to 60, 0 to 100, 0 to 150 psi

**Burst Pressure:** 3 times full scale

**Accuracy:** (at 25°C including linearity (BFSL), hysteresis, and repeatability): ±0.2% full scale typical, ±0.3% full scale max; 0 to 1 psi ±1% full scale max; and 0 to 6 psi ±0.5% full scale max

**Stability (per year):** <0.25% full scale; 0 to 1 psi <1% full scale; and 0 to 6 psi <0.5% full scale

**Operating Temperature Range:** -25° to 60°C (-13° to 140°F) Media must not freeze!

**Compensated Temperature Range:** -25° to 60°C (-13° to 140°F)

**Total Error Band:** (includes temperature effects, zero, and span set): ±1% full scale; 0 to 1 psi ±2.5% full scale; and 0 to 6 psi ±1.5% full scale

**Shock:** 30G

**Vibration:** 10G, 55 to 2000 Hz

**Wetted Material:** 316L stainless steel, cable and seal as selected below, Delrin snubnose

**Process Connection:** 1/4-18 NPT male with mounted Delrin thread protective snubnose end

**Cable Seal:** VITON® standard; Neoprene optional

**Cable Jacket:** Polyurethane standard; Polyurethane/EMI, Polyolefin and TEFLON® optional

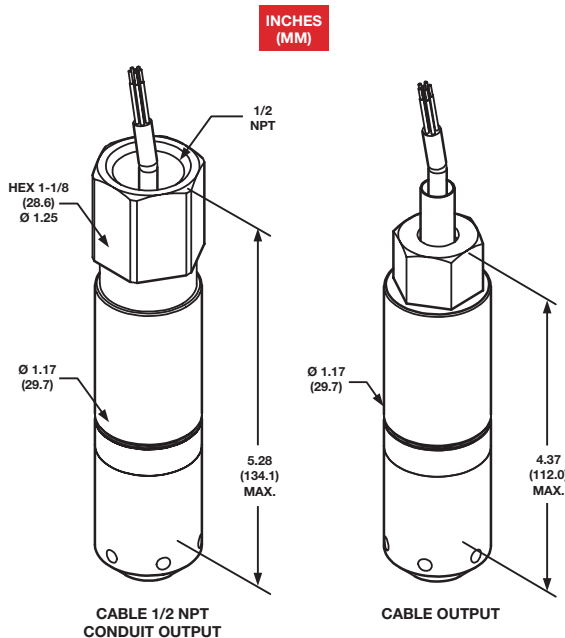
**Electrical Connection:** 24 AWG, 6 conductor cable (specify length – cable must be vented to a dry environment)

**Temperature Measurement:** LM335AZ (blue-cathode; brown-anode) select temperature option code "T"

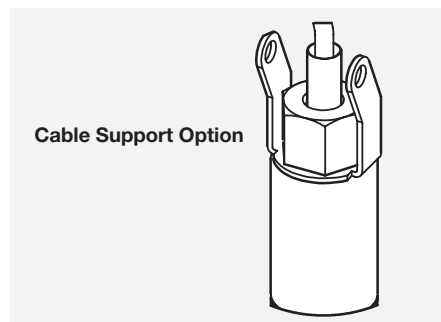
**Weight:** 8.9 oz. without bracket (252 g)

**Removable Snubnose:** Delrin, prevents damage to diaphragm; periodic cleaning may be required

**Option:** Stainless steel support cable option for electrical connection options F, R, S or Y with cable support bracket on model number page



Input / Output						
Output	0.5-4.5 VDC	1-5 VDC	1.6 VDC	0-5 VDC	4-20 mA	0.5-4.5 ratiometric
Input Supply Voltage	9-30 VDC	9-30 VDC	9-30 VDC	9-30 VDC	11-30 VDC	5 VDC
Null Offset (±1% of span)	0.5 VDC	1.0 VDC	1.0 VDC	0.0 VDC	4 mA	0.5 VDC
Span (±1% of span)	4.0 VDC	4.0 VDC	5.0 VDC	5.0 VDC	16 mA	4.0 VDC
Load Limitation	50K Ω min.	50K Ω min.	50K Ω min.	50K Ω min.	900 Ω max.	50K Ω min.



# Model SDT

## Submersible Level Transmitter

### Model Numbering

Model Numbering:	
● <b>SDT submersible level transmitter</b>	
SDT	Submersible pressure transducer
● <b>Sensing port</b>	
S	Delrin snubnose
M	316 SST snubnose
N	No snubnose
● <b>Input/output</b>	
B	11 to 30 VDC / 4 to 20 mA
C	9 to 30 VDC / 1 to 6 VDC
D	9 to 30 VDC / 1 to 5 VDC
E	9 to 30 VDC / 0.5 to 4.5 VDC
F	9 to 30 VDC / 0 to 5 VDC
R	5 VDC / 0.5-4.5 VDC (ratiometric from 4.75 to 5.25 VDC input)
● <b>Pressure ranges</b>	
<b>PSI</b>	<b>BAR</b>
0001	B0.2
0006	B0.4
0015	B001
0030	B002
0060	B004
0100	B007
0150	B010
● <b>Reference equivalents</b>	
0-2.31 ft. water	0-0.7 meters water
0-13.8 ft. water	0-4.2 meters water
0-34.6 ft. water	0-10.5 meters water
0-69.2 ft. water	0-21.1 meters water
0-138 ft. water	0-42.2 meters water
0-230 ft. water	0-70.3 meters water
0-345 ft. water	0-105.4 meters water
● <b>Electrical connection</b>	
N	Polyurethane cable/nut
R	Polyurethane cable/nut/cable support bracket
C	Polyurethane cable/conduit adapter
E	Polyurethane cable/EMI/nut
F	Polyurethane cable/EMI/cable support bracket
G	Polyurethane cable/EMI/conduit adapter
O	Polyolefin cable/nut
Y	Polyolefin cable/nut/cable support bracket
W	Polyolefin cable/conduit adapter
T	TEFLON® cable/nut
S	TEFLON cable/nut/cable support bracket
V	TEFLON conduit adapter
X	TEFLON cable/conduit adapter/EMI
● <b>Diaphragm material</b>	
L	316L stainless steel (Hastelloy or Monel available)
● <b>Fill Fluid</b>	
S	Silicon oil
● <b>Cable Seal</b>	
V	VITON® (standard)
N	Neoprene
● <b>Temperature measurement option</b>	
T	Yes
Leave Blank	No
● <b>Cable length</b>	
(050)	Must be specified in feet
SDT	S
B	0015
N	L
S	V
T	(050)

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# Model SDT Submersible Level Transmitter

## Options and Accessories

### Display Meters, Surge Protectors, Junction Boxes and Desiccants

#### DISPLAY METERS AND SYSTEMS

##### Model DDMC Digital Meter/Controller

Dual display meter provides power to the sensor with alarm and 4-20 mA analog output options. Standard panel mount housing or a NEMA 4X weathertight housing for field mounting is available. The weathertight housing also provides internal mounting locations for lightning and surge protectors.



##### LEVEL MATE™ III Level Measurement System

The complete LEVEL MATE III system includes a level sensor (various models are available), cable and a meter/ controller all packaged in a NEMA 4X enclosure. Everything is factory programmed for easy installation and the LEVEL MATE III has an extended 2-year warranty.



Inside view of the NEMA 4X enclosure showing the desiccant and optional surge protectors. Unit is factory wired so that the user needs to connect power and sensor only.

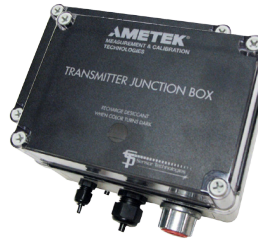
#### LIGHTNING AND SECONDARY SURGE PROTECTORS

Lightning protection units are available to help protect systems and components from lightning and secondary surges. These LP units are available in both 30 VDC (LMA912) for 24 VDC supply on excitation/signal lines and analog meter output lines to protect the meter and/or the transmitter as well as 115 VAC (LMA918) and 230 VAC (LMA919) to protect the meter on AC power input lines.

#### JUNCTION BOXES

##### Model SBJ100 with Reusable Desiccant

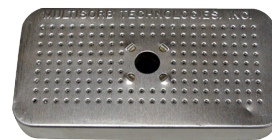
These boxes are used on long cable runs and provide quicker access to atmospheric reference. SBJ100 provides a clean, dry enclosure with an internal, reusable desiccant canister.



Back view of SBJ100 junction box that shows the reusable desiccant canister.

#### DESICCANTS

An initial desiccant is supplied with the SBJ100 and the LEVEL MATE III enclosure. The desiccant canister is reusable with visible color change when the time comes to replace the desiccant.



Disposable in-line cartridges are also available for use with sensors with a separate vent tube only.

*NOTE: the in-line cartridges will not fit in the SBJ100 junction box.*

