Model SDT

Submersible Level Transducer



Model SDT submersible level transducer

Description

The Model SDT Submersible Level Transducer 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
- Easy to install and use
- Optional temperature measurement capability
- Lightweight and compact size
- Ranges as low as 0 to 1 psi (2.3 ft), to 0 to 150 psi (345 ft)
- Solid state semiconductor sensor for accuracy and reliability
- Rugged 316 stainless steel housing with excellentenvironmental protection
- Advanced digital compensation
- 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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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 25ºC 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

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

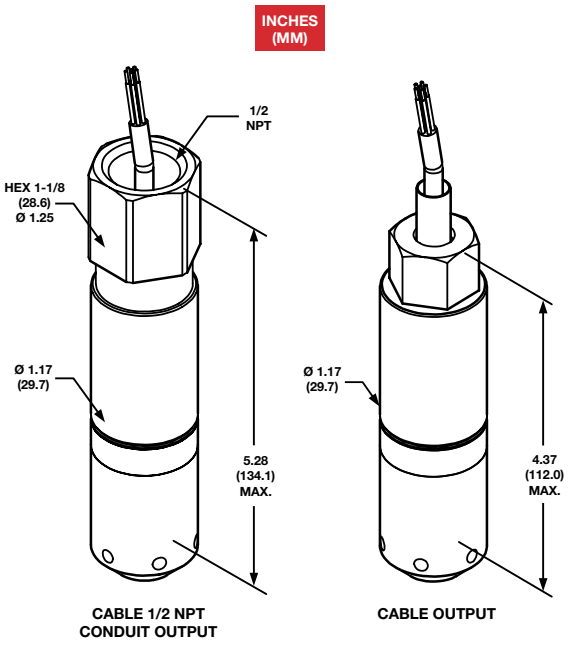
Electrical Connection: 24 AWG, 6 conductor cable (specify length – cable must be vented to a dry environment)

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

Weight: 8.9 oz. without bracket (252 g)

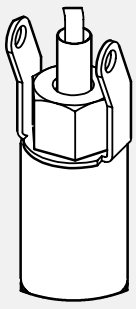
Removable Snubnose: Delrin, prevents damage to diaphragm; periodic cleaning may be required

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.

Cable Support Option



Model SDT Submersible Level Transducer

Model Numbering

Model Numbering:

SDT submersible level transmitter

SDT Submersible pressure transducer

Sensing port

S Delrin snubnose
M 316 SST snubnose
N No snubnose

Input/output

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)

Pressure ranges

PSI	BAR	Reference equivalents	
0001	B0.2	0-2.31 ft. water	0-0.7 meters water
0006	B0.4	0-13.8 ft. water	0-4.2 meters water
0015	B001	0-34.6 ft. water	0-10.5 meters water
0030	B002	0-69.2 ft. water	0-21.1 meters water
0060	B004	0-138 ft. water	0-42.2 meters water
0100	B007	0-230 ft. water	0-70.3 meters water
0150	B010	0-345 ft. water	0-105.4 meters water

Electrical connection

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

Diaphragm material

L 316L stainless steel (Hastelloy or Monel available)

Fill Fluid

S Silicon oil

Cable Seal

V VITON® (standard)

Temperature measurement option

T Yes
Leave Blank No

Cable length

Must be specified in feet

SDT	S	B	0015	N	L	S	V	T	(050)

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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

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.

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.



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Visit our website for most up-to-date information.

Sales/Technical Support Phone: +1 215-674-1234
E-mail: usg.sales@ametek.com
205 Keith Valley Road | Horsham PA 19044 U.S.A.
AMETEK®
SENSORS, TEST & CALIBRATION
www.ametekpmt.com