

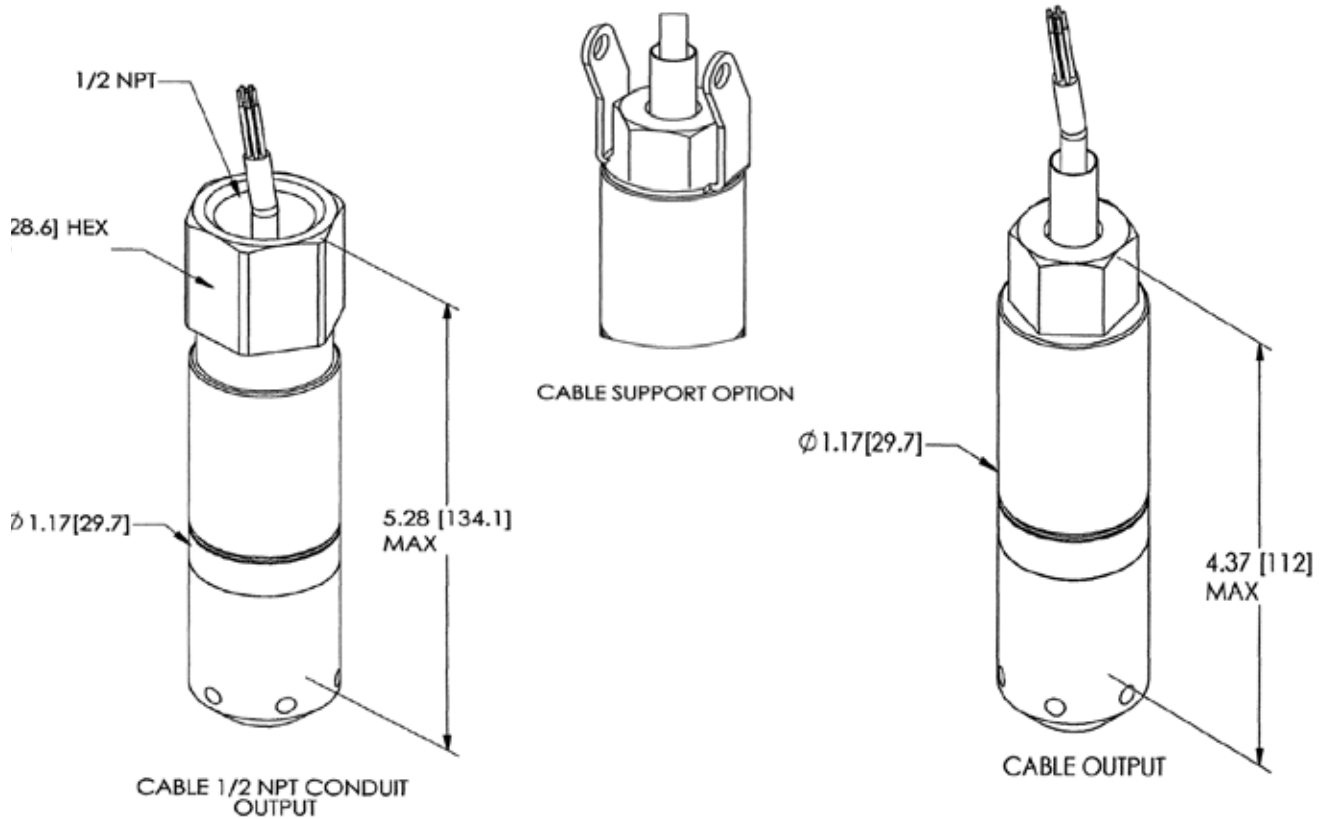


# **Ametek Model SDT Submersible Pressure Transmitter Installation and Operation Manual**





## Model SDT Submersible Level Transmitter



### Specifications

PRESSURE RANGE	UP TO 150 PSIG	0-1 PSI	0-2 PSI	0-3 PSI	0-4 PSI	0-6 PSI
ACCURACY AT 25° C INCLUDING LINEARITY (BFSL), HYSTERESIS, REPEATABILITY	±0.2% FS TYPICAL; ±0.3% FS MAX	±1% FS MAX	±0.5% FS MAX	±0.5% FS MAX	±0.5% FS MAX	±0.5% FS MAX
1 YR. STABILITY	<0.25% FS	<1% FS	<1% FS	<1% FS	<0.75% FS	<0.5% FS
LOAD LIMITATION	50K OHM MIN (ALL VOLTAGE OUTPUTS) 600 OHM MAX (4-20MA)					
OPERATING TEMPERATURE	-25 TO 60° C (-13 TO 140° F)					
COMPENSATED TEMPERATURE	-25 TO 60° C (-13 TO 140° F)					
TOTAL ERROR BAND (INCLUDES TEMPERATURE EFFECTS, ZERO & SPAN SET)	±1% FS	±2.5% FS	±2.5% FS	±2.5% FS	±2% FS	±1.5% FS
BURST PRESSURE	3XFS					
VIBRATION	10G, 55 – 2000 HZ					
SHOCK	30G					
WETTED MATERIALS	316L STAINLESS STEEL, CABLE & SEAL AS SELECTED BELOW, DELRIN					
PROCESS CONNECTION	1/4 – 18 NPT MALE WITH DELRIN THREAD PROTECTOR					
ELECTRICAL CONNECTION	24 AWG, 6 CONDUCTOR CABLE, (SPECIFY LENGTH) (CABLE MUST BE VENTED TO DRY ENVIRONMENT)					
TEMPERATURE MEASUREMENT	LM335AZ (BLUE-CATHODE; BROWN-ANODE) SELECT TEMPERATURE OPTION CODE "T"					



## Model Number And Ordering Information

SDT S B 0015 N L S V T

### TEMPERATURE MEASUREMENT OPTION

T = YES  
LEAVE BLANK = NO

### CABLE SEAL

V = VITON  
N = NEOPRENE

### FILL FLUID

S = SILICONE OIL (STANDARD)

### DIAPHRAGM MATERIAL

L = 316L STAINLESS STEEL

### ELECTRICAL CONNECTION OPTION

N = POLYURETHANE CABLE (K515136)/NUT  
R = POLYURETHANE CABLE (K515136)/NUT/CABLE SUPPORT BRACKET  
C = POLYURETHANE CABLE (K515136)/CONDUIT ADAPTER  
E = POLYURETHANE CABLE (K515136)/EMI/NUT  
F = POLYURETHANE CABLE (K515136)/EMI/CABLE SUPPORT BRACKET  
G = POLYURETHANE CABLE (K515136)/EMI/CONDUIT ADAPTER  
O = POLYOLEFIN CABLE (K515101)/NUT  
Y = POLYOLEFIN CABLE (K515101)/NUT/CABLE SUPPORT BRACKET  
W = POLYOLEFIN CABLE (K515101)/CONDUIT ADAPTER  
T = TEFLON CABLE (K515075)/NUT  
S = TEFLON CABLE (K515075)/NUT/CABLE SUPPORT BRACKET  
V = TEFLON CABLE (K515075)/CONDUIT ADAPTER  
X = TEFLON CABLE (K515075)/EMI/CONDUIT ADAPTER

### PRESSURE CODE

XXXX = PRESSURE RANGE (PSI)  
BXXX = PRESSURE RANGE (BAR)

### INPUT/OUTPUT

B = 11-30 VDC / 4-20 MA  
C = 9-30VDC / 1-6VDC  
D = 9-30VDC / 1-5VDC  
E = 9-30VDC / 0.5-4.5VDC  
F = 9-30VDC / 0-5VDC  
G = 5VDC / 0.8-3.2VDC (RATIOMETRIC FROM 4.75 TO 5.25VDC INPUT)  
H = 5VDC / 1-6VDC (RATIOMETRIC FROM 4.75 TO 5.25VDC INPUT)  
J = 9-30VDC / 0.25-2.75VDC  
R = 5VDC / 1-6VDC (RATIOMETRIC FROM 4.75 TO 5.25VDC INPUT)

### SENSING PORT

S = DELRIN SNUBNOSE

### SDT - SUBMERSIBLE DIGITAL TRANSDUCER

WIRE LEGEND			
COLOR TEFLON	COLOR POLY-URETHANE/POLYOLEFIN	VOLTAGE OUTPUT	CURRENT (R-20MA) OUTPUT
RED	RED	+Vin	+Vin
BLACK	BLACK	-Vin	-Vin
WHITE	WHITE	Vout	N/A
GREEN	GREEN	CASE GROUND	
BLUE	BLUE	TEMPERATURE	
ORANGE	BROWN		

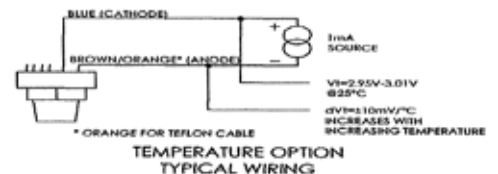
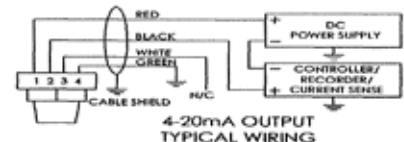
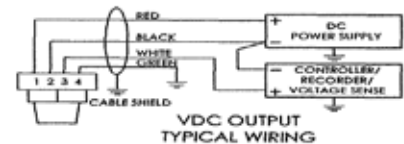
STANDARD PRESSURE RANGES*			
PSI	BAR	Reference Equivalents	
0001	B0.2	0-2.31 ft water	0-0.7 m water
0006	B0.4	0-13.8 ft water	0-4.2 m water
0015	B001	0-34.6 ft water	0-10.5 m water
0030	B002	0-69.2 ft water	0-21.1 m water
0060	B004	0-138 ft water	0-42.2 m water
0100	B007	0-230 ft water	0-70.3 m water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

EXAMPLE: To specify the Model SDT Submersible Transmitter with 11-30V Input and 4-20mA Output, having to measure 15psi (34.6 Ft water), with a standard nut and polyurethane cable & electrical connection, 316 stainless steel diaphragm, silicone oil fill, Viton grommet and 100 feet of cable: SDTSB0015NLSV (100ft cable)

### NOTES:

- 1) Cable Termination side should be located in a dry temperature stable environment.
- 2) Damage will result if submerged in frozen liquid.
- 3) A fused or current limited DC power source is recommended to prevent damage during fault conditions.
- 4) Shield is tied to case on EMI versions only
- 5) Additional pressure ranges are available, consult factory.

### ELECTRICAL CONNECTION





## Model SDT Transmitter Installation

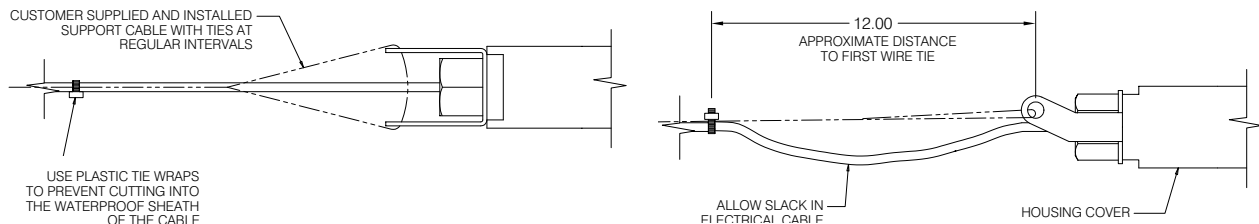
**CAUTION: Remove power before installing or servicing.** To install the Model SDT Transmitter, connect the surface end of the cable to the Ametek Model DMC Meter Controller or other power source and indicator. Suspend the transmitter into a well or tank supported only by its attached shielded electronic cable. Insure that the opening in the well or tank cover is large enough for possible future removal of the transmitter.

Additional support to the transmitter is available with an optional factory installed cable support. The optional cable support is recommended when using longer lengths of cable or when suspending the transmitter into agitated liquids. The cable support provides strain relief for the excess stress found under these circumstances. See diagram of Model SDT Transmitter with cable support using customer supplied and installed support cable.

**CAUTION** - The cable grommet and support are specially installed by factory-trained personnel to insure watertightness. Any adjustment or removal of these items may destroy the watertight feature thus exposing the transmitter to water seepage, an electrical short and transmitter failure. Any adjustment or removal of the cable grommet or cable support voids the warranty.

**CAUTION** - Waterproof cable should not be kinked or nicked, this would allow water into the electronics housing. Permanent damage will result. (Never cut or splice the waterproof cable). The surface end of the cable is used as the system's atmospheric reference, this end should not be sealed. Vent to dry temperature stable environment.

### Model SDT with Cable Support Option



### SURGE OR LIGHTNING PROTECTION

External surge or lightning protectors are available as optional items and are strongly recommended for increased protection from secondary surges or lightning strikes. The units are easy to install, are maintenance-free and respond in less than one nanosecond. Install in accordance with the instructions:

1. Lightning protection devices should be placed as close to the instrument as possible and wired in accordance with National Electric Code in an approved watertight enclosure.
2. If the distance between the meter and transmitter, or the meter and recorder is less than 100 feet, only 1 protector per line may be used.
3. Use No. 10 AWG ground wire or better from protector to earth ground.
4. Provide a separate ground for each run of shielded cable or metal conduit.

5. Keep the ground wire less than 1 foot long and tie to a suitable ground rod or metal frame ground. Surge capability is only as good as the grounding method. All ground connections must be installed.
6. Install all protectors in weathertight enclosures.
7. Run signal lines shielded and away from power lines.
8. Wire according to the Electrical Code.
9. When used for an intrinsically safe installation, only one LMA912 should be installed in the hazardous location. Do not substitute protector types.

**Caution** - This or any installation cannot protect against a direct lightning strike, or secondary strikes of sufficient magnitude. Ametek cannot accept liability for damage due to lightning or secondary surges.



## Service & Accessories

### FACTORY SERVICE

Factory service is available by contacting the Customer Service Department. Supply the following information:

1. Instrument Model Number and Serial Number as shown on the Instrument Data Tag.
2. Description of problem being experienced.
3. Description and location of the installation.

#### **For service:**

Phone: 215-355-6900

Fax: 215-354-1804

### PARTS / ORDERING

When ordering replacement transmitters, supply the following information:

1. Part description and model number
2. Quantity of each transmitter required.
3. Shipping instructions and address.
4. P.O. number and address, or phone in your credit card information

#### **Mail, Telephone, Fax or E-mail orders to:**

AMETEK US GAUGE, PMT PRODUCTS  
820 Pennsylvania Blvd.  
Feasterville, PA 19053

Phone: 215-355-6900

Fax: 215-354-1802

Email: [mctpmt.sales@ametek.com](mailto:mctpmt.sales@ametek.com)

### ACCESSORIES

<u>Part No.</u>	<u>Description</u>
LMA 912	30 VDC SURGE/LIGHTNING PROTECTOR Protects the excitation and signal lines between an Ametek Model DMC Meter Controller, or other power source and indicator, and the Model SDT 4-20mA output transmitter.
SJB-100	Termination Junction Box with Desiccant and Seal Fittings (LMA 912 mounting possible)
DDMC	Meter/Controller/Power Supply (120VAC/240VAC) Consult Factory

### WARRANTY POLICY

AMETEK ["Seller"] warrants for a period of one year from the date of shipment and that all products manufactured by the seller are free from defects of material and workmanship when used within the service, range, and purpose for which they were manufactured.

Seller will, at its option, repair, replace, or refund the purchase price of parts found by Seller to be defective in material or workmanship provided that written notice of such defect requesting instructions for repair, replacement, or refund is received by Seller at the address below within the warranty period and provided that any instructions thereafter given by Seller are complied with.

This warranty shall not apply (i) to the performance of any system of which Seller's products are a component part, (ii) to deterioration by corrosion or any cause of failure other than defect of material or workmanship, or (iii) to any of Seller's products or parts thereof which have been tampered with or altered or repaired by anyone except Seller or someone authorized by Seller, or subjected to misuse, neglect, abuse or improper use or misapplication such as breakage by negligence, accident, vandalism, the elements, shock, vibration, or exposure to any other service, range, or environment of greater severity than that for which the products were designed.

SELLER MAKES NO WARRANTY OF ANY KIND, EXPRESS OR IMPLIED. INCLUDING WITHOUT LIMITATION ANY WARRANTIES OF FITNESS OR OF MERCHANTABILITY WITH RESPECT TO ITS PRODUCTS, OR ANY PART THEREOF, OTHER THAN AS EXPRESSLY SET FORTH ABOVE. NOR SHALL SELLER HAVE INCURRED ANY OTHER OBLIGATIONS OR LIABILITIES OR BE LIABLE FOR ANY ANTICIPATED OR LOST PROFITS, INCIDENTAL DAMAGES, CONSEQUENTIAL DAMAGES, TIME CHARGES, OR ANY OTHER LOSSES INCURRED IN CONNECTION WITH THE PURCHASE, INSTALLATION, REPAIR, OR OPERATION OF ITS PRODUCTS (INCLUDING ANY PARTS REPAIRED OR REPLACED).

This warranty does not extend to anyone other than the original Buyer from Seller.