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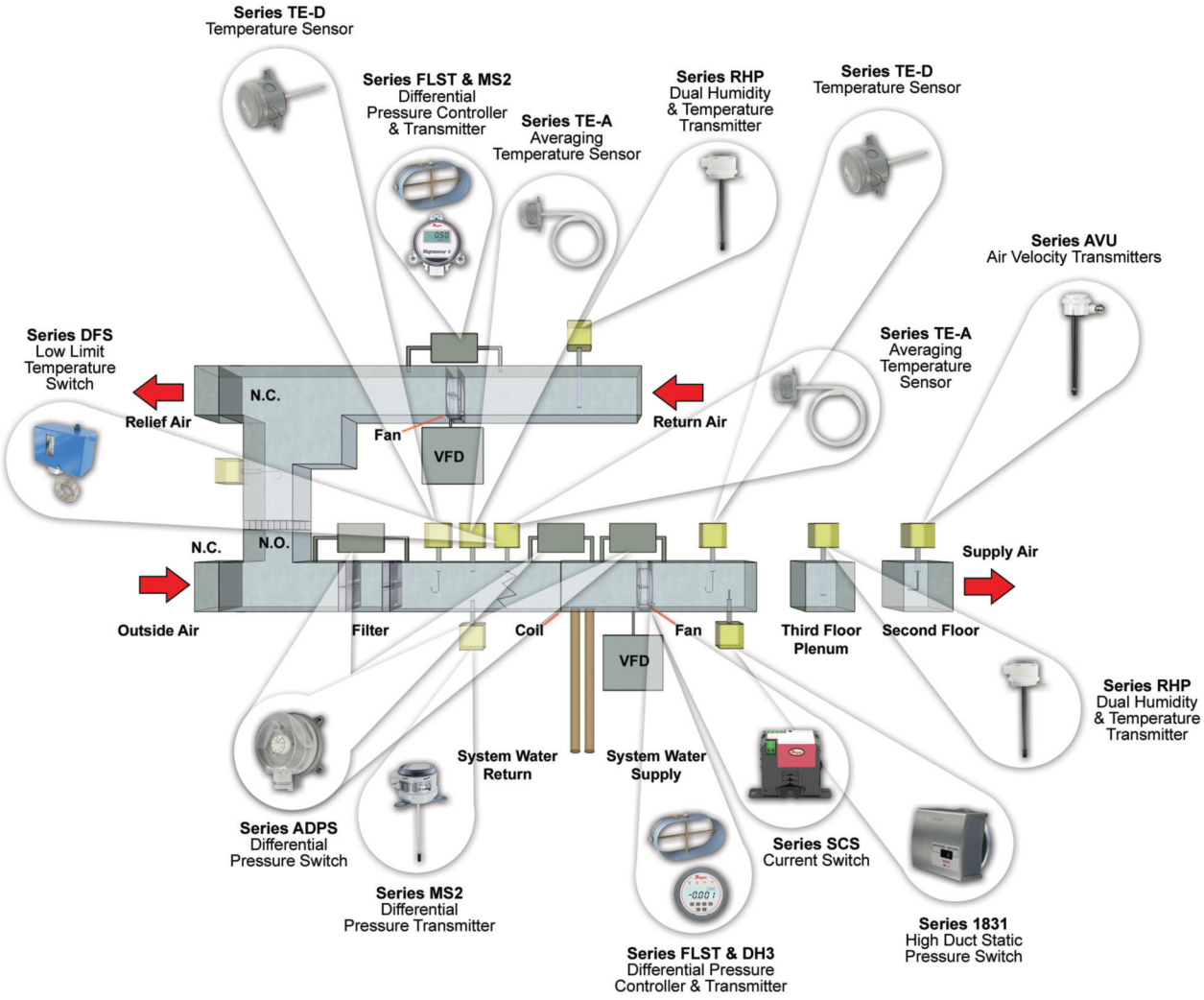

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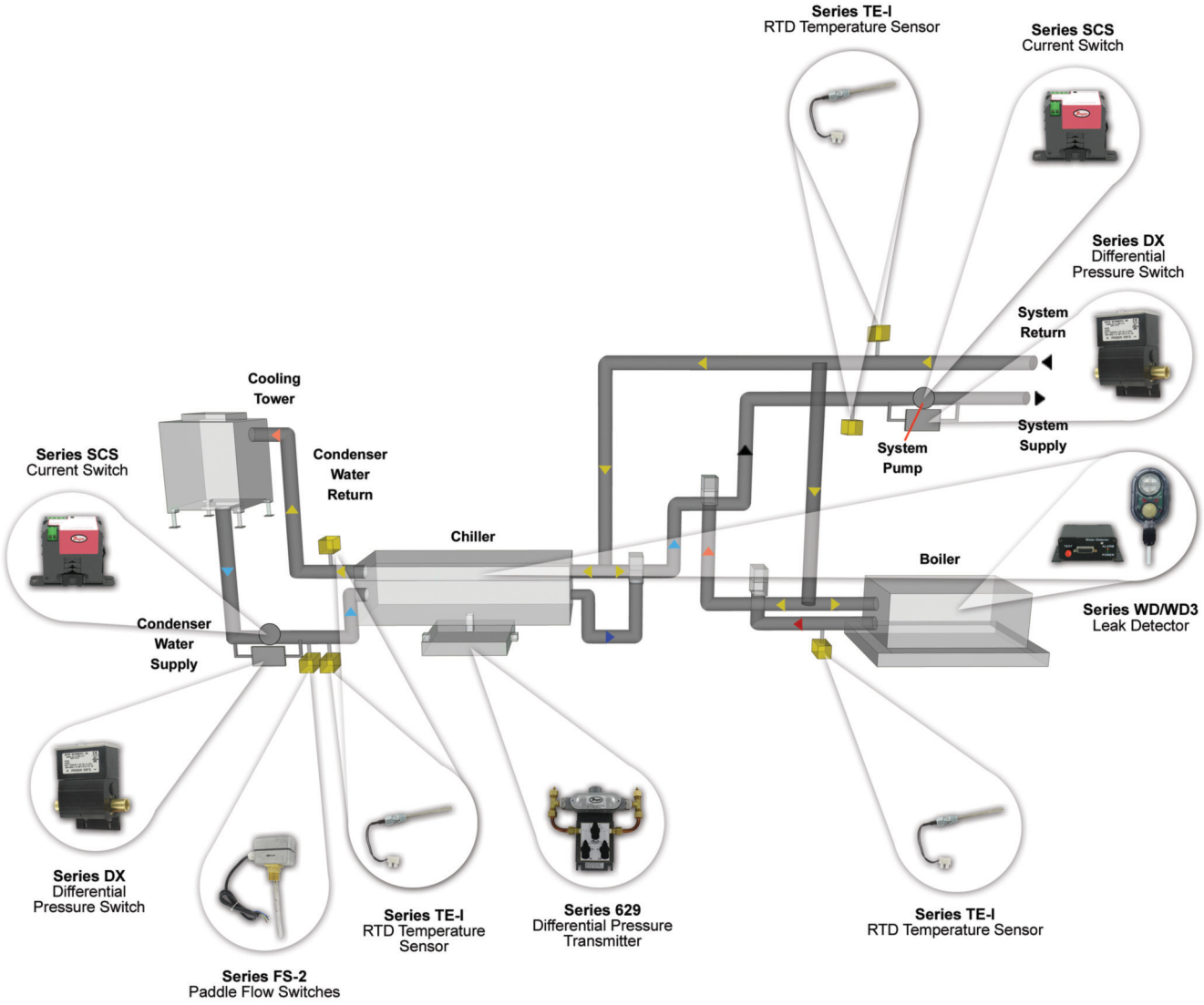

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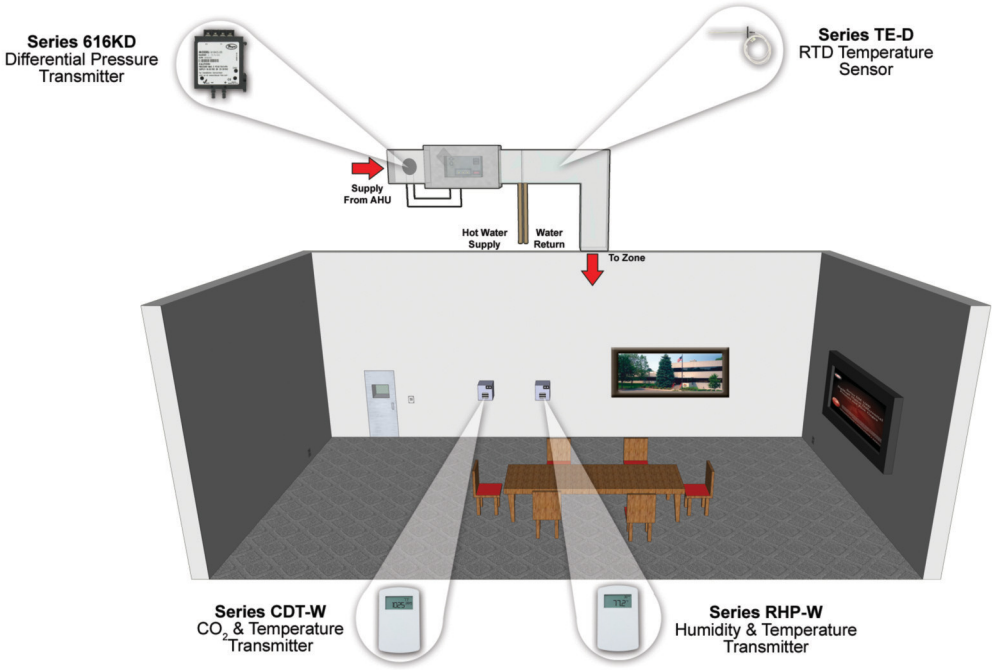

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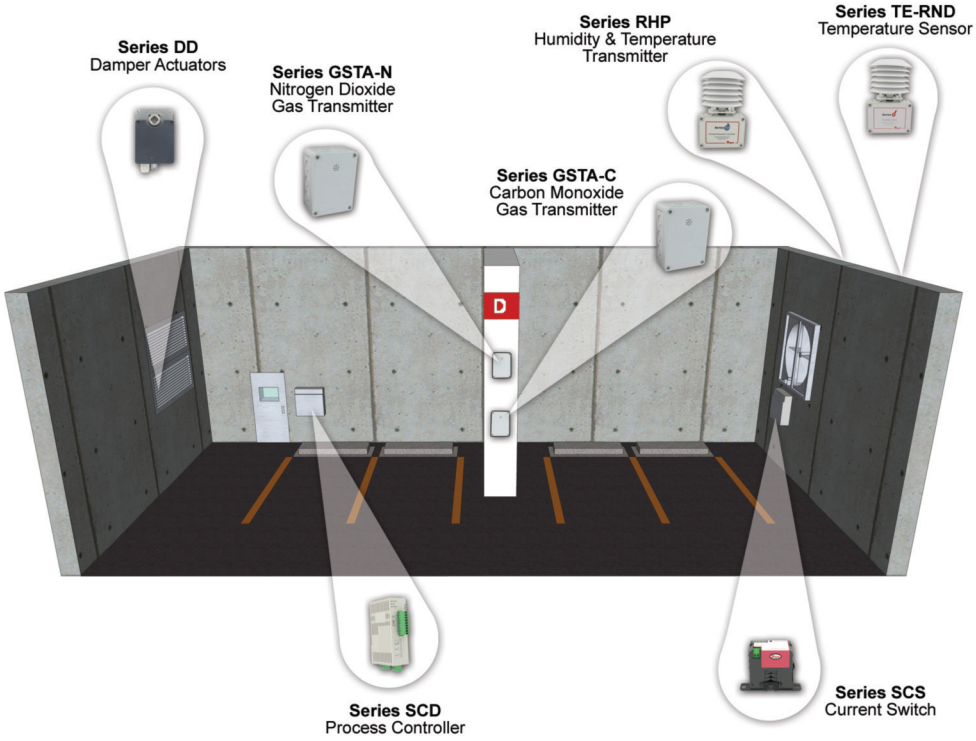
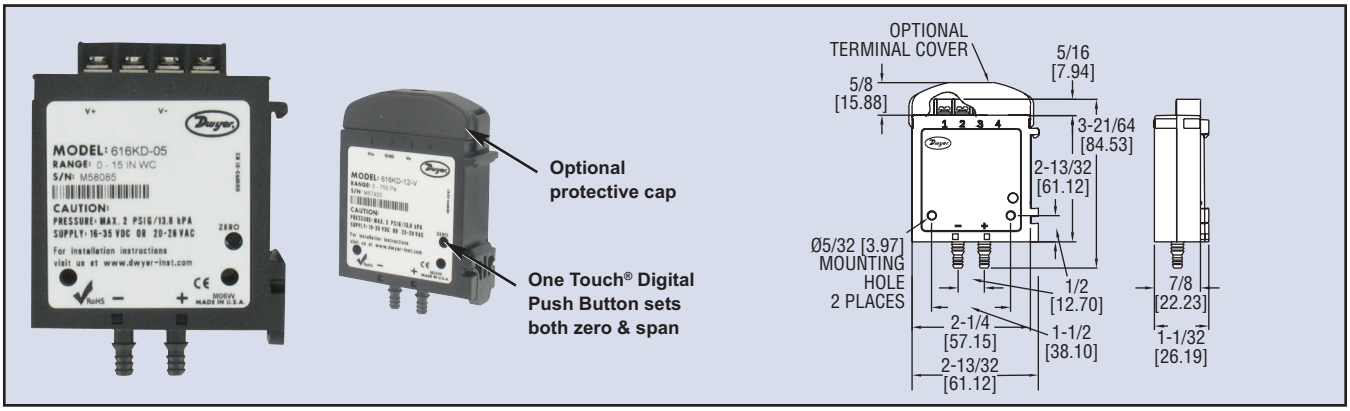


Series 616KD

Differential Pressure Transmitter

Digital Push-Button Calibration with One-Touch® Transmitter Technology, DIN Mount Housing



The Series 616KD Differential Pressure Transmitters with One-Touch® technology are designed for simplicity, making them the ideal choice for installers and maintenance professionals.

The One-Touch® Differential Pressure Transmitters are cost-effective, compact transmitters that reduce up front costs as well as expenses over the life of the product. These instruments not only alleviate cumbersome turn pots typically found in most transmitters, but eliminate entirely the need to span the instrument during calibration. With a single digital push button, both ZERO AND SPAN are calibrated properly, nothing else is required. No additional reference pressure sources and separate calibration devices are necessary; no need to remove from service and send to a lab. All that is required of the installer or user is to let the unit sit at zero reference pressure, then push a button. That is it! The transmitter is now ready for operation. Time savings are enormous over the life of the product compared to traditional transmitters which require time to annually remove the product from service plus the additional time to actually perform a complete full-span calibration. Mounting is simple with integral mounting holes on the 616KD that are inherent to the molded housing. The 616KD has the expanded capability to be mounted on a 35 mm DIN rail either via its side or back integral DIN rail clips. The Series 616KD has easy-to-wire open screw terminals at the top of the housing. An optional protective cap snaps directly to housing to cover terminals.

The One-Touch® family of Differential Pressure Transmitters are ideal for building automation applications such as air handlers, duct pressure, variable air volume and filter monitoring. Available models include ranges from 1 in w.c. to 20 in w.c. depending on series.

ACCESSORIES

A-302F-A, 303 SS Static Pressure Tip with mounting flange. For 3/16″ ID rubber or plastic tubing. 4″ insertion depth. Includes mounting screws
A-360, Aluminum DIN Rail, 1 m
A-480, Plastic Static Pressure Tip
A-489, 4″ Straight Static Pressure Tip with Flange
A-618, Protective Terminal Cap
SCD-PS, 100 to 240 VAC/VDC to 24 VDC Power Supply

OPTION

For NIST traceable calibration certificate, add suffix -NIST to model numbers. Example: 616KD-01-NIST.

See page 68 for process tubing options.

SPECIFICATIONS

Service: Air and non-combustible, compatible gases.
Wetted Materials: Consult factory.
Accuracy: ±2% FS.
Stability: ±1% FS/year.
Temperature Limits: 32 to 122°F (0 to 50°C).
Pressure Limits: 2 psi (13.8 kPa).
Thermal Effect on Span: ±0.11% FS/°F (±0.19% FS/°C) typ.
Thermal Effect on Zero: 616KD-X0: 0.6%/°F (1%/°C); 616KD-X1: 0.3%/°F (0.5%/°C); 616KD-X2: 0.2%/°F (0.33%/°C); 616KD-X3: 0.12%/°F (0.2%/°C); 616KD-X4: 0.06%/°F (0.1%/°C) FS max.
Power Requirements: 16 to 35 VDC (2 or 3 wire), 20 to 28 VAC (3 wire).
Output Signal: 4 to 20 mA or unit with field selectable 0 to 10 & 0 to 5 volt.
Zero and Span Adjustments: Push button.
Loop Resistance: DC=1000 Ω max.; AC=1200 Ω max.
Current Consumption: 21 mA max.
Electrical Connections: Screw-type terminal block.
Process Connections: Barbed, dual size to fit 1/8″ & 3/16″ (3 mm & 5 mm) ID rubber or vinyl tubing.
Enclosure Rating: NEMA1 (IP10).
Mounting Orientation: Position insensitive.
Weight: 1.8 oz (51 g).
Agency Approval: CE, RoHS.

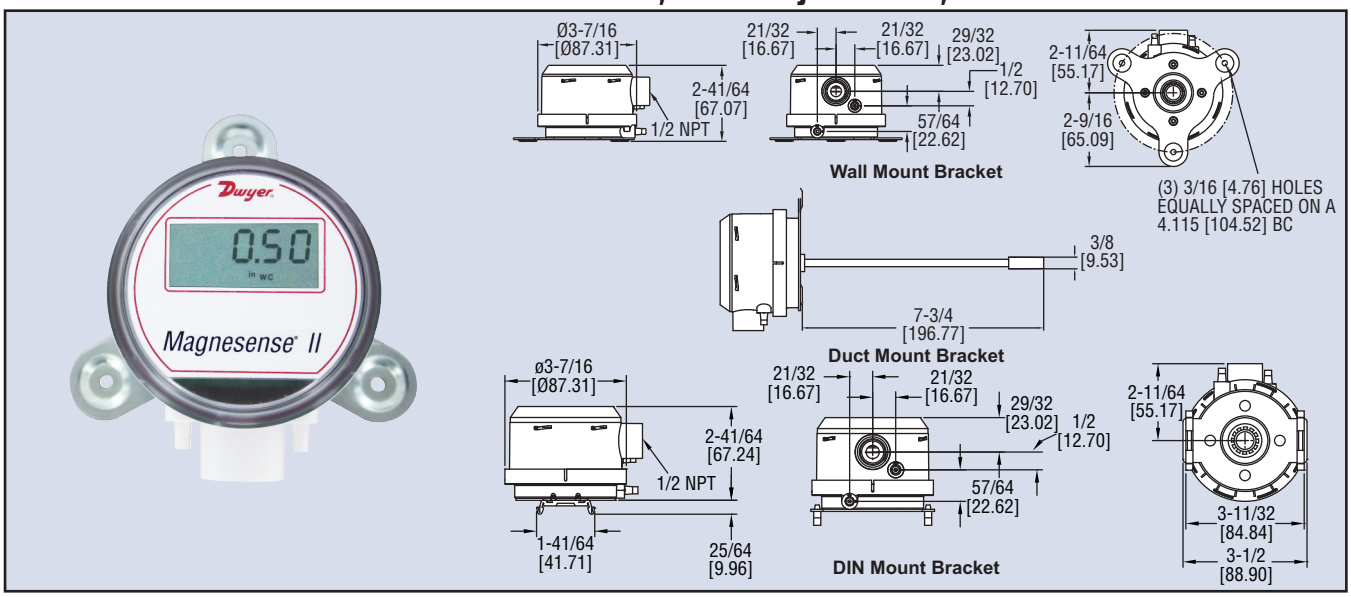
Model	Range
616KD-00	0 to 1 in w.c.
616KD-01	0 to 2 in w.c.
616KD-02	0 to 3 in w.c.
616KD-03	0 to 5 in w.c.
616KD-04	0 to 10 in w.c.
616KD-05	0 to 15 in w.c.
616KD-06	0 to 20 in w.c.
616KD-07	0 to 25 in w.c.
616KD-10	0 to 250 Pa
616KD-11	0 to 500 Pa
616KD-12	0 to 750 Pa
616KD-13	0 to 1250 Pa
616KD-14	0 to 2500 Pa

Note: For field selectable 0 to 10 / 0 to 5 volt output models, add -V to end of model. Ex: 616KD-01-V.

Series MS2

Magnesense® II Differential Pressure Transmitter

Monitors Pressure, Air Velocity & Air Flow, BACnet/Modbus® Communications



The Series MS2 Magnesense® II Differential Pressure Transmitter combines the proven stable Hall Effect sensing technology of our original Series MS with additional features to reduce installation time and simplify ordering. In this second generation transmitter, we have added additional field selectable pressure ranges so that each model can have four selectable ranges along with four additional bidirectional ranges. When using the pluggable integral display or the portable remote display tool, both Metric and English engineering units can be selected via on board dip switches. Dual current and voltage outputs allow users to simultaneously take either a current or voltage output to their building controller and have a local test circuit for verification of the output reading. The voltage output can be selected to be either 0 to 5 VDC or 0 to 10 VDC, while the current is always 4 to 20 mA. Both the current and voltage output can also be inverted. The MS2 can also be ordered with either a BACnet® or MODBUS® Communications protocol output that will allow the transmitters to be daisy-chained together.

Like the original Series MS, the second generation transmitter can be used as a linear pressure output or a linear velocity output with the square root extraction done in the transmitter. Additional parameters have been included to expand the square root capability to include flow measurements.

Model	in w.c.	Pa	mm w.c.	kPa
MS2-W101	0.10, 0.15, 0.25, 0.50	25, 40 50, 125	2.5, 4, 6, 10	0.025, 0.04, 0.05, 0.125
MS2-W111	±0.10, ±0.15, ±0.25, ±0.5	±25, ±40, ±50, ±125	±2.5, ±4, ±6, ±10	±0.025, ±0.04, ±0.05, ±0.125
MS2-W102	1, 2, 3, 5	250, 500, 750, 1250	25, 50, 75, 125	0.25, 0.5, 0.75, 1.25
MS2-W103*	10, 15, 25, 28	2500, 3500, 5000, 6975	250, 350, 500, 697.5	2.5, 3.5, 5.0, 6.975

*Models can be changed in the field to have zero centered ranges at reduced accuracy.

OPTIONS

Add -LCD to end of model numbers for units with display
Example: MS2-W101-LCD
Add -BC to end of model numbers for BACnet Communications
Example: MS2-W101-BC
Add -MC to end of model numbers for Modbus® Communications
Example: MS2-W101-MC
Add -NIST to end of model numbers for NIST Traceable Certificate
Example: MS2-W101-NIST
Add -FC to end of model numbers for Factory Calibration Certificate
Example: MS2-W101-FC
Change W to D for Duct Mount Static Probe
Example: MS2-D101
Change W to N for DIN Rail Mounting
Example: MS2-N101

SPECIFICATIONS

Service: Air and non-combustible, compatible gases.
Wetted Materials: Consult factory.
Typical Accuracy: ±1% FS for 0.25″ (50 Pa), 0.5″ (100 Pa), 2″ (500 Pa), 5″ (1250 Pa), 10″ (2 kPa), 15″ (3 kPa), 25″ (5 kPa); ±2% FS for 0.1″ (25 Pa), 1″ (250 Pa), and all bi-directional ranges.
Stability: ±1% / year FSO.
Temperature Limits: 0 to 150°F (-18 to 66°C).
Pressure Limits: 1 psi max., operation; 10 psi burst.
Power Requirements: 10 to 35 VDC (2-wire), 17 to 36 VDC or isolated 21.6 to 33 VAC (3-wire).
Output Signals: 4 to 20 mA (2-wire), 0 to 5 VDC, 0 to 10 VDC (3-wire).
Response Time: Adjustable: 0.5 to 15 sec. time constant. Provides a 95% response time of 1.5 to 45 seconds.
Zero & Span Adjustments: Digital push buttons.
Loop Resistance:
Current Output: 0 to 1250 Ω max;
Voltage Output: Min. load resistance 1 kΩ.
Current Consumption: 40 mA max.
Display (Optional): 5 digit LCD.
Electrical Connections: 3-wire removable European style terminal block for 16 to 22 AWG.
Electrical Entry: 1/2″ NPS thread.
Process Connection: 3/16″ ID tubing (5 mm ID); Max. OD 9 mm.
Enclosure Rating: IP66.
Mounting Orientation: Diaphragm in vertical position.
Weight: 8.0 oz (230 g).
Agency Approvals: BTL, CE.

ACCESSORIES

A-151, Cable gland for 5 to 10 mm diameter cable
A-MS2-LCD, Field Upgradeable Display
A-435-A, Remote Display Tool
A-480, Plastic Static Pressure Tip
A-481, Installer kit. Includes 2 plastic static pressure tips and 7 ft (2.1 m) of PVC tubing
A-489, 4″ 303 SS Straight Static Pressure Tip with Flange
A-302F-A, 4″ 303 SS Static Pressure Tip with mounting flange. For 3/16″ ID rubber or plastic tubing
SCD-PS, 100 to 240 VAC/VDC to 24 VDC Power Supply

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One Unit for all your Building Pressure Applications

The Industry Standard for Building Automation

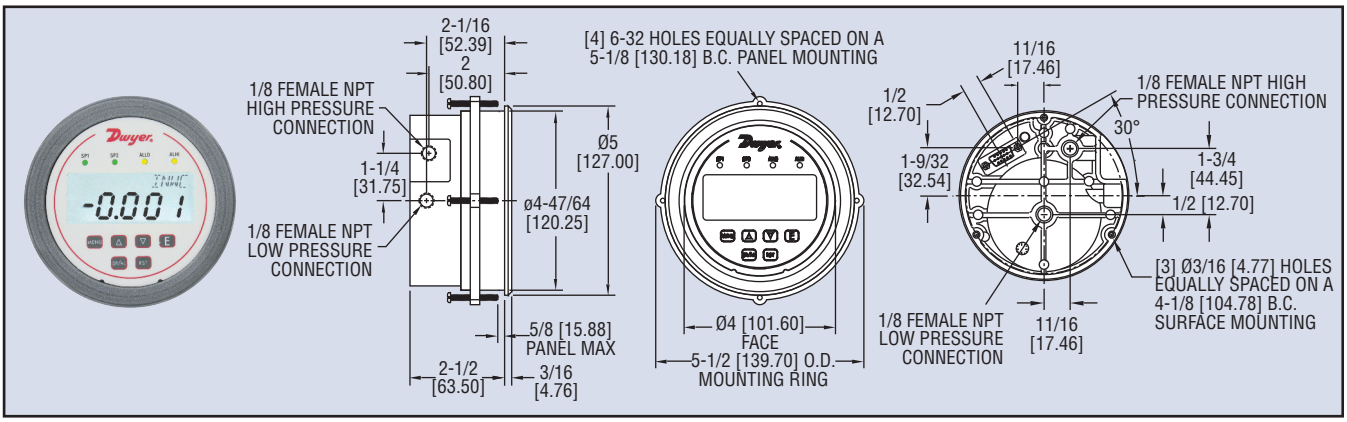
- **Field Upgradable LCD**. No need to order two separate transmitters. Simply stock a transmitter and display and you can satisfy any customer's requests. Simply remove cover and snap the LCD onto the board.
- **Large Integral LCD**. Second generation Magnesense® has a larger LCD that includes the engineering units. Display also has 5 digits allowing measurements up to 99,999 to be displayed directly.
- **Remote Display Tool** reduces instrument cost by eliminating need for each transmitter to have its own display. The buttons on the display tool also provide a means to zero and span the units without reaching into the transmitter.
- **Digital Push Button Zero and Span.** Reduces calibration time significantly over other transmitters that utilize potentiometers. Lowers maintenance time and costs.
- **Field Selectable Ranges** in metric or English. Lowers stock and inventory requirements. You'll always have the right transmitter for every job.
- **Field Selectable Air Velocity and Flow Modes** for fan and blower applications. Unit provides square root output that accurately tracks fpm or m/s for velocity measurements. Now area can be programmed to directly display cfm or m^3/hr for volumetric flow measurements. No need for a smart programmable indicator or PLC to convert pressure to air flow. Reduces components and installation time lowering overall costs.
- **Removeable Terminal Block** ease installation by allowing for the wiring to be done outside of the housing where the installer has more room.
- **Simultaneous Current/Voltage Output** reduces inventory by combining 0 to 10 V, 0 to 5 V and 4 to 20 mA models into one model. Both outputs are always present allowing field selection of which signal to use and the other signal can be used for local diagnostic without interrupting system.

Series DH3

Digihelic® Differential Pressure Controller

CE

Digihelic® Controller in Photohelic® Gage, Square Root Output for Flow



The Series DH3 Digihelic® Differential Pressure Controller is a 3 in 1 instrument possessing a digital display gage, control relay switches, and a transmitter with current output all packed in the popular Photohelic® gage style housing. Combining these 3 features allows the reduction of several instruments with one product, saving inventory, installation time and money. The Digihelic® controller is the ideal instrument for pressure, velocity and flow applications, achieving a 1% full scale accuracy on ranges down to the extremely low 0.25 in w.c. to 2.5 in w.c. full scale. Ranges of 5 in w.c. and greater maintain 0.5% F.S. accuracy. Bi-directional ranges are also available.

The Series DH3 Digihelic® controller allows the selection of pressure, velocity or volumetric flow operation in several commonly used engineering units. 2 SPDT control relays with adjustable deadbands are provided along with a scalable 4-20 mA process output.

Programming is easy using the menu key to access 5 simplified menus which provide access to: security level; selection of pressure, velocity or flow operation; selection of engineering units; K-factor for use with flow sensors; rectangular or circular duct for inputting area in flow applications; set point control or set point and alarm operation; alarm operation as a high, low, or high/low alarm; automatic or manual alarm reset; alarm delay; view peak and valley process reading; digital damping for smoothing erratic process applications; scaling the 4-20 mA process output to fit your applications range and field calibration. See applications below for some popular uses.

APPLICATIONS

- SCFM flow in ducts
- Filter status
- Static pressures in ducts or buildings
- Damper control
- Fan control

Model	Ranges
DH3-002	0-0.25 in w.c.
DH3-003	0-0.5 in w.c.
DH3-004	0-1 in w.c.
DH3-005	0-2.5 in w.c.
DH3-006	0-5 in w.c.
DH3-007	0-10 in w.c.
DH3-009	0-25 in w.c.
*DH3-010	0-50 in w.c.
*DH3-011	0-100 in w.c.
*DH3-013	0.25-0-0.25 in w.c.
*DH3-014	0.5-0-0.5 in w.c.
*DH3-015	1-0-1 in w.c.
*DH3-016	2.5-0-2.5 in w.c.
*DH3-017	5-0-5 in w.c.
*DH3-018	10-0-10 in w.c.

*Velocity and volumetric flow not available on bi-directional range units and models DH3-010 and DH3-011.

SPECIFICATIONS

Service: Air and non-combustible, compatible gases.
Wetted Materials: Consult factory.
Housing Material: Die cast aluminum case and bezel.
Accuracy: ±1.5% for 0.25″ and ±0.25″ w.c. ranges. Ranges 0.5″ to 5″ w.c. and corresponding bi-directional (except ±2.5″ w.c.) ±1%; All other ranges: ±0.5% @ 77°F (25°C) including hysteresis and repeatability (after 1 hour warm-up).
Stability: < ±1% per year.
Pressure Limits: Ranges ≤ 2.5 in w.c.: 25 psi; ±2.5″, 5 in w.c.: 5 psi; 10 in w.c.: 5 psi; 25 in w.c.: 5 psi; 50 in w.c.: 5 psi; 100 in w.c.: 9 psi.
Temperature Limits: 32 to 140°F (0 to 60°C).
Compensated Temperature Limits: 32 to 140°F (0 to 60°C).
Thermal Effects: 0.020%/°F (0.036/°C) from 77°F (25°C). For 0.25″ and ±0.25″ w.c. ranges: ±0.03%/°F (±0.054%/°C).
Power Requirements: 12-28 VDC, 12-28 VAC 50 to 400 Hz.
Power Consumption: 3 VA max.
Output Signal: 4-20 mA DC into 900 ohms max.
Zero & Span Adjustments: Accessible via menus.
Response Time: 250 ms (damping set to 1).
Display: Backlit 4 digit LCD 0.4″ height LED indicators for set point and alarm status.
Electrical Connections: 15 pin male high density D-sub connection. 18″ (46 cm) cable with 10 conductors included. 4′ and 10′ cables available.
Process Connections: 1/8″ female NPT. Side or back connections.
Mounting Orientation: Mount unit in vertical plane.
Size: 5″ (127 mm) OD x 3-1/8″ (79.38 mm).
Weight: 1.75 lbs. (794 g).
Agency Approvals: CE.

SWITCH SPECIFICATIONS

Switch Type: 2 SPDT relays.
Electrical Rating: 1 amp @ 30 VAC/VDC.
Set Point Adjustment: Adjustable via keypad on face.

ACCESSORIES

A-298, Flat Aluminum Bracket for flush mounting
A-301, Static Pressure Tip for 1/4″ metal tubing connection
A-302, Static Pressure Tip for 3/16″ and 1/8″ I.D. plastic or rubber tubing
A-302F-A, 303 SS Static Pressure Tip with mounting flange. For 3/16″ ID rubber or plastic tubing. 4″ insertion depth. Includes mounting screws
A-370, Mounting Bracket flush mount bracket. Bracket is then surface mounted. Steel with gray hammertone epoxy finish
A-489, 4″ Straight Static Pressure Tip with Flange

OPTIONS

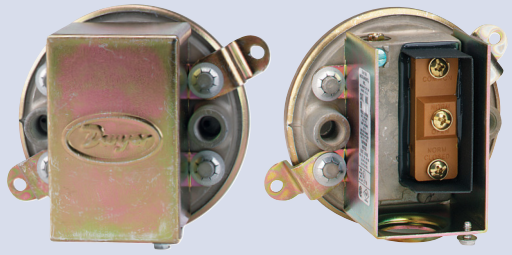
For NIST traceable calibration certificate, add suffix -NIST to model numbers. Example DH3-004-NIST.
For factory calibration certificate, add suffix -FC to model numbers. Example DH3-004-FC.

See page 68 for process tubing options.

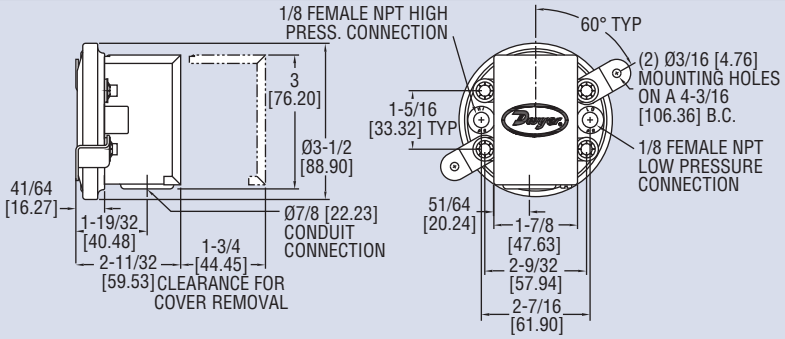
Series 1900

Compact Low Differential Pressure Switches

Set Points from 0.07 in to 20 in w.c. Repetitive Accuracy within 3%



Series 1910 switch with conduit enclosure off. Shows electric switch and set point adjustment screw located on same side for easy installation.



The Dwyer-engineered force-motion amplifier increases the leverage of diaphragm movement and results in a switch with excellent sensitivity and repeatability.

Our most popular series combines advanced design and precision construction to make these switches able to perform many of the tasks of larger, costlier units. Designed for air conditioning service, they also serve many fluidics, refrigeration, oven and dryer applications. For air and non combustible compatible gases, Series 1900 switches have set points from 0.07 to 20 in w.c. (1.8 to 508 mm). Set point adjustment is easy with range screw located inside conduit enclosure. Internal location helps prevent tampering. UL, CE, CSA listed, and FM approved.

Series 1910 Switches
Operating Ranges, Deadbands

Model	Operating Range, in w.c.	Approximate Dead Band	
		At Min. Set Point	At Max. Set Point
1910-00	0.07 to 0.15	0.04	0.04
1910-0	0.15 to 0.55	0.10	0.10
1910-1	0.40 to 1.6	0.15	0.16
1910-5	1.40 to 5.5	0.30	0.30
1910-10	3.0 to 11.75	0.40	0.40
1910-20	4.0 to 20.0	0.40	0.50

OPTION
Manual reset Model 1900 MR includes special snap switch which latches on pressure increase above the setpoint. Switch must be manually reset after pressure drops below the setpoint. To order, change base model to 1900 and add MR suffix after range number. Example: 1900-10-MR. Available on -1, -5,-10 or -20 ranges only. Option is not UL, CSA or FM listed
Note: Manual Reset (MR) Option for use only in single positive pressure applications.

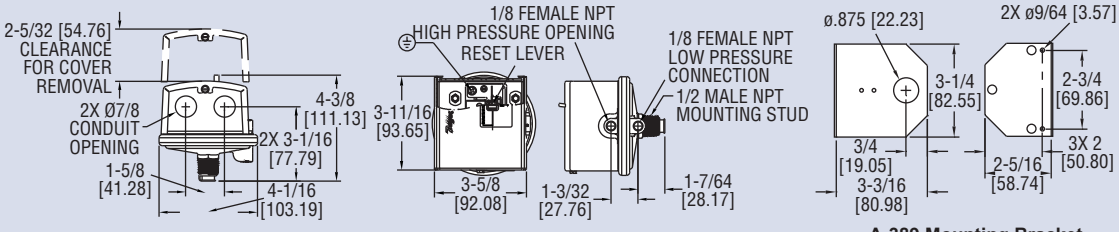
SPECIFICATIONS
Service: Air and non-combustible, compatible gases.
Wetted Materials: Consult factory.
Temperature Limits: -30 to 180°F (-34 to 82.2°C).
Pressure Limits: 45 in w.c. (11.2 kPa) continuous, 10 psig (68.95 kPa) surge.
Switch Type: Single-pole double-throw (SPDT).
Repeatability: ±3%.
Electrical Rating: 15 A @ 120-480 VAC, 60 Hz. Resistive 1/8 HP @125 VAC, 1/4 HP @ 250 VAC, 60 Hz. Derate to 10 A for operation at high cycle rates.
Electrical Connections: 3 screw type, common, normally open and normally closed.
Process Connections: 1/8˝ female NPT.
Mounting Orientation: Diaphragm in vertical position. Consult factory for other position orientations.
Set Point Adjustment: Screw type inside conduit enclosure.
Weight: 1lb, 4.5 oz (581 g).
Agency Approvals: CE , CSA, FM, and UL. Optional-EXPL explosion-proof enclosure does not possess any agency approvals.

ACCESSORIES
A-399, Duct Pressure Monitor Kit — For use with standard or manual reset model switches. Includes mounting flange, tubing and adapters.
A-329, Street Ell — Brass adapter for applications requiring right angle connections. Two required for differential pressures.
A-302F-A, 303 SS Static Pressure Tip with mounting flange. For 3/16˝ ID rubber or plastic tubing. 4˝ insertion depth. Includes mounting screws
A-489, 4˝ Straight Static Pressure Tip with Flange

Series 1831

DPDT Low Differential Pressure Switches

Manual Reset, No Power Required



A-389 Mounting Bracket

Note: Shown with included mounting bracket. Bracket can rotate and be tightened at any angle.

One of our most popular differential pressure switches is now available with a DPDT switch and manual reset. The 1831 combines small size with 4% set point repeatability. Absolutely no power is required to operate the DPDT switch. Set point adjustment on the switch is easily accessible for modifying the set point.

ACCESSORIES
A-489, 4˝ Straight Static Pressure Tip with Flange
A-491, 6˝ Straight Static Pressure Tip with Flange
A-493, 8˝ Straight Static Pressure Tip with Flange
A-302F-A, 303 SS Static Pressure Tip with mounting flange. For 3/16˝ ID rubber or plastic tubing. 4˝ insertion depth. Includes mounting screws
A-302F-B, 303 SS Static Pressure Tip with mounting flange. For 3/16˝ rubber or plastic tubing. 6˝ insertion depth. Includes mounting screws
A-302F-C, 303 SS Static Pressure Tip with mounting flange. For 3/16˝ rubber or plastic tubing. 8˝ insertion depth. Includes mounting screws

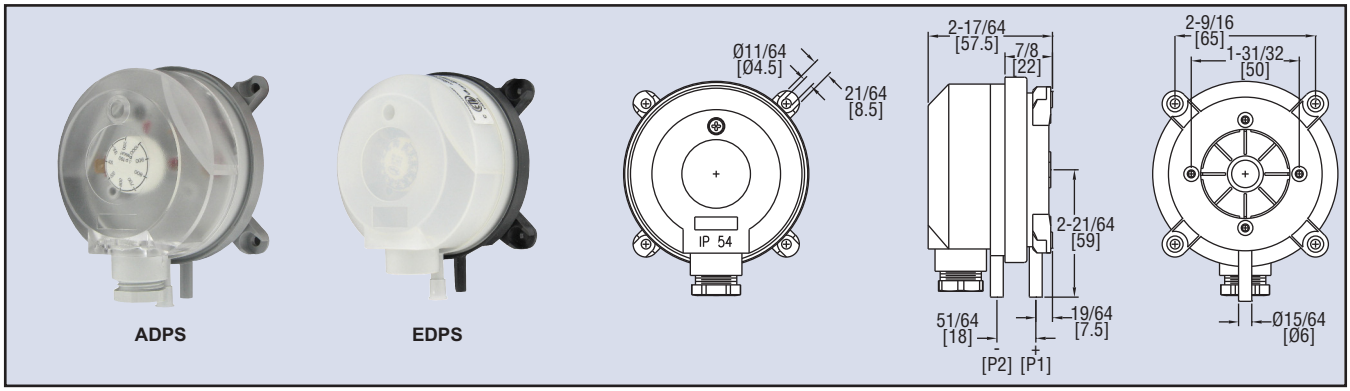
SPECIFICATIONS
Service: Air and non-combustible, compatible gases.
Wetted Materials: Consult factory.
Temperature Limits: -30 to 180°F (-34 to 82.2°C).
Pressure Limits: 10 psig (68.95 kPa) continuous, 25 psig (172.4 kPa) surge.
Switch Type: 2 SPDT.
Actuation Time Difference: 1 millisecond maximum actuation delay between contacts
Repeatability: ±4% max.
Electrical Rating: 4A @ 125/250 VAC.
Electrical Connections: Screw type terminal block.
Process Connections: 1/8˝ female NPT.
Mounting Orientation: Diaphragm in vertical position. Consult factory for other position orientations.
Set Point Adjustment: Screw type inside mounting spud.
Weight: 1 lb 2 oz (522 g).

Model	Description	Range (in w.c.)
1831-1-RA-S	Manual reset DPDT, activate on increase	2.5 to 9
1831-2-RA-S	Manual reset DPDT, activate on increase	7.5 to 23

Series ADPS/ EDPS

H.V.A.C. Differential Pressure Switch

With Dual Scale Field Adjustable Set Point Knob



The Series ADPS/EDPS Adjustable Differential Pressure Switch is designed for pressure, vacuum, and differential pressures. The dual scaled adjustment knob in inches water column and pascals allows changes to the switching pressure to be made without a pressure gage. The ADPS/EDPS is available with settings from 0.08 in w.c. (20 Pa) up to 20 in w.c. (5000 Pa). The silicone diaphragm and PA 6.6 body make the series ADPS ideal for use with air and other noncombustible gases. Series EDPS models meet UL508 and are constructed of plenum rated plastics. The compact size, adjustment knob and low cost make the ADPS/EDPS the perfect choice for HVAC applications.

APPLICATIONS

- Monitoring air filters and ventilators
- Monitoring industrial cooling-air circuits
- Overheating protection for fan heaters
- Monitoring flows in ventilation ducts
- Controlling air and fire-protection dampers
- Frost protection for heat exchanges

ACCESSORIES

A-288, "L" type metal mounting bracket with screws
A-289, "S" type metal mounting bracket with screws
A-480, Plastic static pressure tip
A-481, Installer kit. Includes 2 plastic static pressure tips and 7′ (2.1 m) of PVC tubing
A-489, 4″ Straight Static Pressure Tip with Flange

A-480

See page 68 for process tubing options.

SPECIFICATIONS

Service: Air and non-combustible, compatible gases.
Wetted Materials:
ADPS: Diaphragm material: Silicone; Housing material: POM; Switch body: PA 6.6; Cover: Polystyrene;
EDPS: Diaphragm material: Silicone; Housing material: Switch body: PA 6.6; Cover: Polystyrene; Materials UL94 V-0 rated.
Temperature Limits: Process and ambient temperature from -4 to 185°F (-20 to 85°C).
Pressure Limits: Max. operating pressure: 40 in w.c. (10 kPa) for all pressure ranges.
Switch Type: Single-pole double-throw (SPDT).
Electrical Rating: Max. 1.5 A res./0.4 A ind./250 VAC, 50/60 Hz; Max. switching rate: 6 cycles/min.
Electrical Connections: Push-on screw terminals. M20x1.5 with cable strain relief or optional 1/2″ NPT connection.
Process Connections: 5/16″ (7.94 mm) outside diameter tubing, 1/4″ (6.0 mm) inside diameter tubing.
Enclosure Rating: NEMA 13 (IP54).
Mounting Orientation: Vertically, with pressure connections pointing downwards.
Mechanical Working Life: Over 10^6 switching operations.
Weight: 5.6 oz (160 g).
Agency Approvals: CE, ETL approved to UL508 and CSA C22.2#14 (EDPS only), RoHS.

ADPS

Model	Set Point Range in w.c. (Pa)	Approx. Dead Band @ Min Set Point in w.c. (Pa)	Approx. Deadband @ Max Set Point in w.c. (Pa)
ADPS-08-2-N	0.08 to 1.20 (20-300)	0.04 (10)	0.05 (12)
ADPS-04-2-N	0.12 to 1.60 (30-400)	0.06 (15)	0.09 (22)
ADPS-03-2-N	0.20 to 2.00 (50-500)	0.08 (20)	0.09 (23)
ADPS-05-2-N	0.80 to 4.00 (200-1000)	0.4 (100)	0.5 (130)
ADPS-06-2-N	2.00 to 10.00 (500-2500)	0.6 (150)	0.8 (200)
ADPS-07-2-N	4.00 to 20.00 (1000-5000)	1.0 (250)	1.4 (350)

Note: For optional 1/2″ NPT conduit connection, change -2-N to -1-N. Models that include installer kit add -C to the end of the model number (-2-N cable gland models only). Installer kit includes two static tips and 7 ft of PVC tubing. Order installer kit separately with 1/2″ NPT conduit connection models. See A-481 in the accessories list.

EDPS

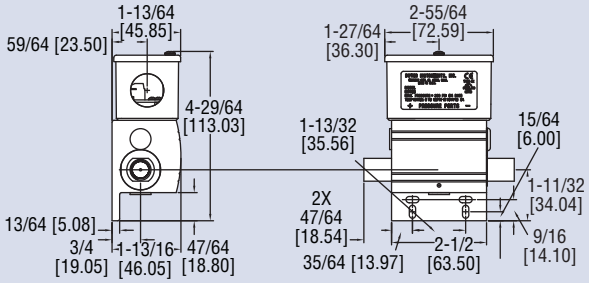
Model	Set Point Range in w.c. (Pa)	Approx. Dead Band @ Min Set Point in w.c. (Pa)	Approx. Dead Band @ Max Set Point in w.c. (Pa)
EDPS-08-1-N	0.08 to 1.20 (20-300)	0.04 (10)	0.05 (12)
EDPS-04-1-N	0.12 to 1.60 (30-400)	0.06 (15)	0.09 (23)
EDPS-03-1-N	0.20 to 2.00 (50-500)	0.08 (20)	0.09 (23)
EDPS-05-1-N	0.80 to 4.00 (200-1000)	0.4 (100)	0.5 (130)
EDPS-06-1-N	2.00 to 10.00 (500-2500)	0.6 (150)	0.8 (200)
EDPS-07-1-N	4.00 to 20.00 (1000-5000)	1.0 (250)	1.4 (350)

Note: For optional M20 cable gland connection, change -1-N to -2-N.

Series DX

Wet/Wet Differential Pressure Switch

NEMA 4X Enclosure, Low Differential Set Points



The Series DX is a differential pressure switch that makes a contact output based on the differential between two pressure sources. Wetted materials of brass and fluoroelastomer are suitable for use with most gases and water based solutions. The switch can be used for low differential pressure indication with set point on a decrease of pressure as low as 1 psid (0.07 bar). Differential set point ranges are available from 2.5 to 75 psid (0.17 to 5.17 bar) on increasing differential pressure and 1.0 to 67 psid (0.07 to 4.62 bar) on decreasing differential pressure. Unit features a high static pressure rating of 200 psig (13.8 bar) for higher static pressure applications. Standard is a weatherproof, UL type 4X, enclosure for dust laden, outdoor, or wash-down installation environments. Series DX incorporates an externally adjustable set point, integral mounting flange and a removeable electrical terminal block for quick and easy installation. The DX uses opposing diaphragms to sense the high and low pressure with a pivot mechanism that transfers the difference of the two pressures to the SPDT switch.

Series DX, Differential Pressure Switch

Model	Adjustable Differential Range (on increase) psid (bar)	Fixed Deadband psid (bar)	
		At Low Set Point	At High Set Point
DXW-11-153-1	2.5 to 10 (0.17 to 0.69)	1.5 (0.10)	2.5 (0.17)
DXW-11-153-2	10 to 25 (0.69 to 1.72)	2.5 (0.17)	3.5 (0.24)
DXW-11-153-3	25 to 50 (1.72 to 3.45)	3.5 (0.24)	6.0 (0.41)
DXW-11-153-4	50 to 75 (3.46 to 5.17)	6.0 (0.41)	8.0 (0.55)

Note: Set points on decrease will be the range minus the deadband.

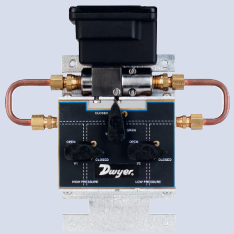
SPECIFICATIONS
Service: Compatible gases and liquids.
Wetted Materials: Connection: Brass; Diaphragm: Fluoroelastomer.
Temperature Limits: 30 to 140°F (-1 to 60°C).
Pressure Limits: 200 psig (13.8 bar). Continuous single side only pressure should not exceed 1.25 x full differential range.
Enclosure Rating: Weatherproof UL type 4X (IP65).
Repeatability: ±2% of full range.
Switch Type: SPDT snap switch.
Electrical Rating: 5 A @ 125/250 VAC (~), 5 A res. @ 30 VDC (⎓).
Electrical Connection: Removable terminal block.
Conduit Connection: 0.871″ diameter hole for 1/2″ conduit fitting.
Process Connection: 1/4″ NPT female.
Mounting Orientation: Ports on horizontal plane, ±10°.
Set Point Adjustment: External screw.
Housing Materials: Body: Aluminum; Housing: Polycarbonate; Cover: 300 SS.
Vibration and Shock: Set point repeats after 2.5 Gs, 5 to 500 Hz. Set point repeats after a 15 Gs, 10 millisecond duration.
Altitude Limit: 6560 ft (2000 m).
Humidity Limit: 80% (non-condensing).
Pollution Degree: 2.
Environment: Intended for indoor and outdoor use.
Weight: 1 lb 3 oz (0.54 kg).
Agency Approvals: CE, cUL, UL.

OPTION
For preset unit, add suffix -PRESET to model number.
Example: DXW-11-153-1-PRESET

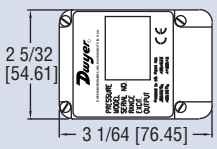
Series 645

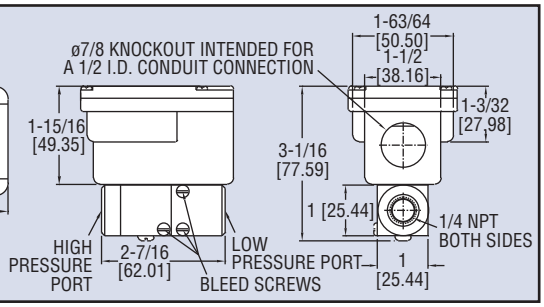
Wet/Wet Differential Pressure Transmitter

±0.25% Accuracy, Quick Response, 2-Wire Design



Optional 3-Valve Manifold Assembly





Series 645 Wet/Wet Differential Pressure Transmitters are designed for use with compatible gases and liquids which can be applied to both the pressure and reference ports. Quick response capacitance sensor delivers a 4 to 20 mA output signal proportional to differential pressure with ±.25% accuracy. The Series 645 transmitters are ideal for process control, filter condition monitoring, refrigeration equipment, pump speed control, HVAC equipment, and liquid level measurement. For ease of installation and maintenance, order optional 3-valve manifold assembly. Bleed ports allow for total elimination of air in the line and pressure cavities.

Model	Range
645-0	0 to 1 psid
645-1	0 to 2 psid
645-2	0 to 5 psid
645-3	0 to 10 psid
645-4	0 to 25 psid
645-5	0 to 50 psid
645-6	0 to 100 psid

OPTION
For NIST traceable calibration certificate, use order code NISTCAL-PT1.

SPECIFICATIONS
Service: Compatible gases or liquids on both pressure and reference sides.
Wetted Materials: 17-4 PH stainless steel, 300 Series stainless steel, fluoroelastomer and silicone O-rings and bleed screw seals.
Accuracy: ±0.25% FS (RSS).
Temperature Limits: Operating: 0 to 175°F (-22 to 80°C); Storage: -65 to 260°F (-54 to 126°C).
Pressure Limits: (High side) 1 to 5 psi: 20 x FS, 10 to 25 psi: 10 x FS, 50 psi: 5 x FS, 100 psi: 2.5 x FS; (low side) 2.5 x FS.
Thermal Effects: (includes zero and span) ±0.02% FS/°F, 30 to 150°F (-1 to 65°C).
Power Requirements: 11 to 30 VDC.
Output Signal: 4 to 20 mA, 2-wire.
Zero and Span Adjustments: Adjustable, ±1 mA, non-interactive.
Response Time: 30 to 50 ms.
Loop Resistance: 0 to 1000Ω.
Electrical Connection: Barrier strip terminal block with conduit enclosure and .875″ (22 mm) diameter conduit opening.
Process Connection: 1/4″-18 female NPT.
Housing: Stainless steel/aluminum, NEMA 4X (IP56).
Weight: 14.4 oz (0.4 kg).
Agency Approvals: CE.

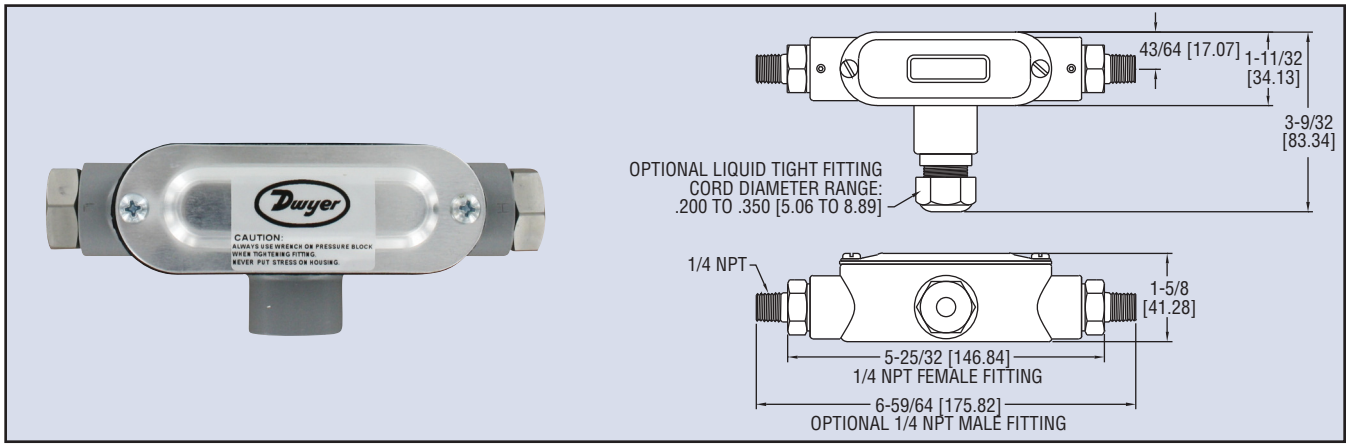
3-Valve Manifold Assembly
Manifold: Brass.
Valve Type: 90° on/off.
Process Connection: 1/4″-18 female NPT.

Series 629

Wet/Wet Differential Pressure Transmitter

0.5% Accuracy, NEMA 4X (IP66) Enclosure

CE



The **Series 629 Differential Pressure Transmitter** monitors differential pressure of air and compatible gases and liquids with 0.5% accuracy. The design employs dual pressure sensors converting pressure changes into a standard 4 to 20 mA output signal for two wire circuits. Small internal volume and minimum moving parts result in exceptional response and reliability. Terminal block, zero and span adjustments are easily accessed under the top cover. The Series 629 Differential Pressure Transmitter is designed to meet NEMA 4X (IP66) construction.

APPLICATIONS

Monitor differential pressures across:

- Flow elements
- Heat exchangers
- Filters
- Pumps
- Coils

Standard

Model	Range (psid)	Pressure Limits	
		Working* Pressure (psi)	Over Pressure (psi)
629-02-CH-P2-E5-S1	10	20	100
629-03-CH-P2-E5-S1	25	50	250
629-04-CH-P2-E5-S1	50	100	250
629-05-CH-P2-E5-S1	100	200	500

*Pressures exceeding the working pressure limit may cause a calibration shift of up to ±3% of full scale.

3-Way Valve Manifold Assembly

Model	Range (psid)	Pressure Limits	
		Working* Pressure (psi)	Over Pressure (psi)
629-02-CH-P2-E5-S1-3V	10	20	100
629-03-CH-P2-E5-S1-3V	25	50	100
629-04-CH-P2-E5-S1-3V	50	100	100
629-05-CH-P2-E5-S1-3V	100	100	100

SPECIFICATIONS

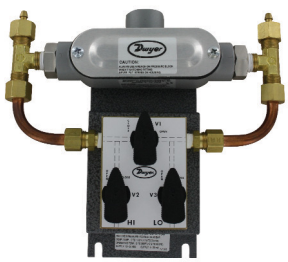
Service: Compatible gases & liquids.
Wetted Materials: Without valve: 316, 316L SS. Additional wetted parts with 3-way valve option: Buna-N, silicone grease, PTFE, brass 360, copper, reinforced acetal copolymer.
Accuracy: ±0.5% FS (includes linearity, hysteresis & repeatability).
Temperature Limits: 0 to 200°F (-18 to 93°C).
Compensated Temperature Limits: 0 to 175°F (-18 to 79°C).
Pressure Limits: See chart.
Thermal Effect: 0.02%/°F (0.036%/°C) includes zero & span.
Power Requirements: 13 to 30 VDC (2-wire).
Output Signal: 4 to 20 mA. Optional 0 to 5, 0 to 10 VDC.
Response Time: 50 ms.
Loop Resistance: 0 to 1300 Ω maximum for current output. For voltage outputs, minimum load resistance: 2000 Ω.
Electrical Connections: Terminal block; 1/2″ female NPT conduit.
Process Connections: 1/4″ female NPT.
Enclosure Rating: Designed to meet NEMA 4X (IP66).
Mounting Orientation: Not position sensitive.
Weight: 10.1 oz (286 g).
Agency Approvals: CE.

OPTIONS

-LED, 4.5 Digit LED Display
-NIST, NIST traceable calibration certificate

ACCESSORIES

A-131, 3-way brass manifold valve
A-132, Mounting bracket for 3-way valve
641-LED, Field-upgradeable LED
A-155, Cable gland with 1/2″ NPT male
BBV-1B, Mini SS 3-valve block manifold
A-228, 12″ SS flex hose



3-way valve assembly with integral bleed screws

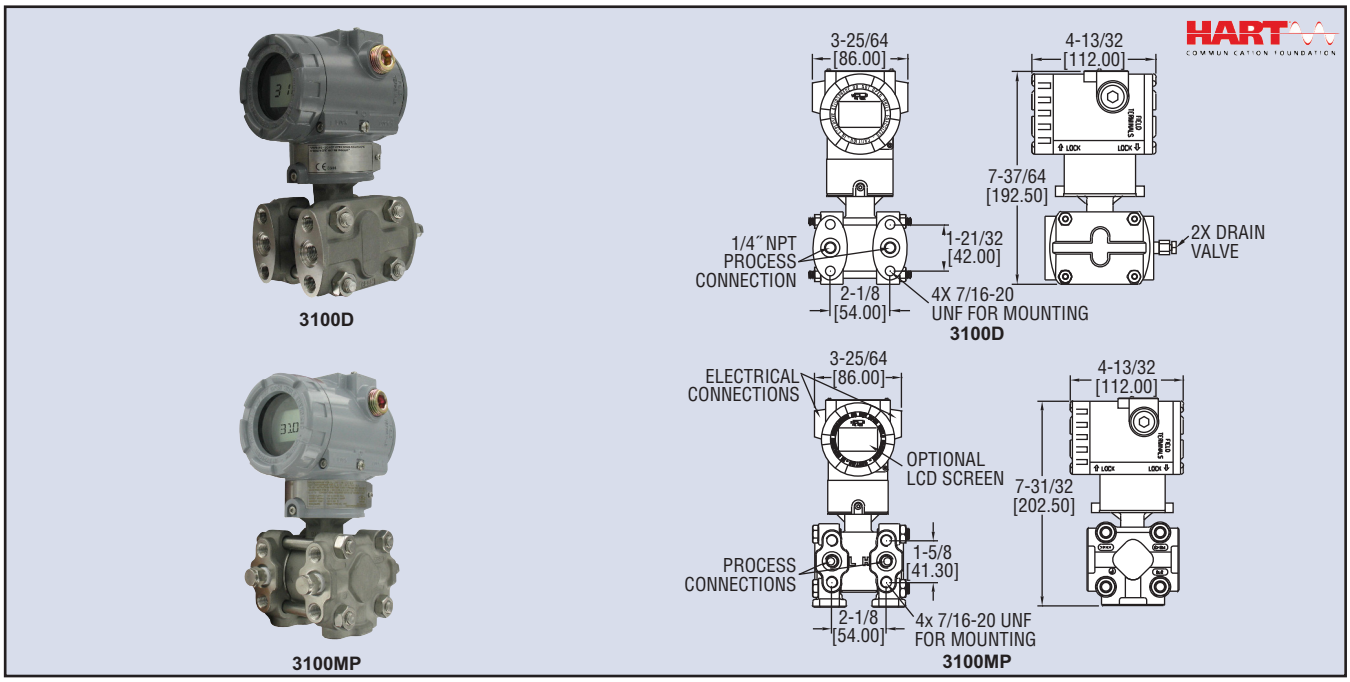
629 shown with optional Red LED and cable gland.

Mercoid®

Series 3100

Explosion-Proof Differential Pressure Transmitter

HART®, Push Button Configuration, Rangeability (100:1)



The Mercoid® Series 3100 Smart Pressure Transmitter is a microprocessor-based high performance transmitter, which has flexible pressure calibration, push button configuration, and programmable using HART® Communication. The Series 3100 is capable of being configured for differential pressure or level applications with the zero and span buttons. A field calibrator is not required for configuration. The transmitter software compensates for thermal effects, improving performance. EEPROM stores configuration settings and stores sensor correction coefficients in the event of shutdowns or power loss. The Series 3100 is FM or ATEX approved for use in hazardous (classified) locations. The 100:1 rangeability allows the smart transmitter to be configured to fit any application.

FEATURES

- Configurable using zero/span buttons (no calibrator required)
- Rangeability (100:1)
- High accuracy (±0.075%)
- Automatic sensor temperature compensation
- Fail-mode process function
- Selectable engineering units

APPLICATIONS

- Flow measurement
- Level monitoring
- Filter or pump differential pressure
- Critical process monitoring

SPECIFICATIONS

Service: Compatible gases, steam, liquids or vapors.
Wetted Materials: 316L SS.
Accuracy: ±0.075% FS (@ 20°C).
Rangeability: 100:1 turn down.
Stability: ±0.125% FSO/yr.
Temperature Limits:
Process: -40 to 248°F (-40 to 120°C);
Ambient: Without LCD: -40 to 185°F (-40 to 85°C);
With LCD: -22 to 176°F (-30 to 80°C).
Pressure Limits: Max. pressure: Range: -14.5 to 2000 psi; Burst pressure: 10000 psi.
Thermal Effect: ±0.125% span/32°C.
Power Requirements: 11.9 to 45 VDC.
Output Signal: 4 to 20 mA / HART® Communication.
Response Time: 0.12 seconds.
Damping Time: 0.25 to 60 seconds.
Loop Resistance:
Operation: 0 to 1500 Ω;
HART® Communication: 250 to 500 Ω.
Electrical Connection: Two 1/2″ female NPT conduit, screw terminal.
Process Connection: 1/4″ female NPT.
Display: Optional 5 digit LCD.
Enclosure Rating: NEMA 4X (IP66) and explosion-proof for Class I, Div I, Groups A, B, C and D.
Weight: 8.6 lb (3.9 kg).
Agency Approvals: CE, FM, ATEX option available (consult factory).

Model	Calibrated Span (Min. to Max.)		Lower Range Limit		Upper Range Limit		LCD Display
3100D-2-FM-1-1	0.6 to 30 in w.c.	0.15 to 7.5 kPa	-30 in w.c.	-7.5 kPa	30 in w.c.	7.5 kPa	No
3100D-3-FM-1-1	1.5 to 150 in w.c.	0.373 to 37.3 kPa	-150 in w.c.	-37.3 kPa	150 in w.c.	37.3 kPa	No
3100D-4-FM-1-1	7.5 to 750 in w.c.	1.865 to 186.5 kPa	-750 in w.c.	-186.5 kPa	750 in w.c.	186.5 kPa	No
3100D-5-FM-1-1	1 to 100 psi	6.9 to 690 kPa	-100 psi	-690 kPa	100 psi	690 kPa	No
3100D-6-FM-1-1	3 to 300 psi	20.68 to 2068 kPa	-300 psi	-2068 kPa	300 psi	2068 kPa	No
3100D-2-FM-1-1-LCD	0.6 to 30 in w.c.	0.15 to 7.5 kPa	-30 in w.c.	-7.5 kPa	30 in w.c.	7.5 kPa	Yes
3100D-3-FM-1-1-LCD	1.5 to 150 in w.c.	0.373 to 37.3 kPa	-150 in w.c.	-37.3 kPa	150 in w.c.	37.3 kPa	Yes
3100D-4-FM-1-1-LCD	7.5 to 750 in w.c.	1.865 to 186.5 kPa	-750 in w.c.	-186.5 kPa	750 in w.c.	186.5 kPa	Yes
3100D-5-FM-1-1-LCD	1 to 100 psi	6.9 to 690 kPa	-100 psi	-690 kPa	100 psi	690 kPa	Yes
3100D-6-FM-1-1-LCD	3 to 300 psi	20.68 to 2068 kPa	-300 psi	-2068 kPa	300 psi	2068 kPa	Yes

Consult factory for custom calibration.

Model	Calibrated Span (Min. to Max.)		Lower Range Limit		Upper Range Limit		LCD Display
3100MP-2-FM-1-1	0.6 to 30 in w.c.	0.15 to 7.5 kPa	-30 in w.c.	-7.5 kPa	30 in w.c.	7.5 kPa	No
3100MP-3-FM-1-1	1.5 to 150 in w.c.	0.373 to 37.3 kPa	-150 in w.c.	-37.3 kPa	150 in w.c.	37.3 kPa	No
3100MP-4-FM-1-1	7.5 to 750 in w.c.	1.865 to 186.5 kPa	-750 in w.c.	-186.5 kPa	750 in w.c.	186.5 kPa	No
3100MP-5-FM-1-1	1 to 100 psi	6.9 to 690 kPa	-100 psi	-690 kPa	100 psi	690 kPa	No
3100MP-6-FM-1-1	3 to 300 psi	20.68 to 2068 kPa	-300 psi	-2068 kPa	300 psi	2068 kPa	No
3100MP-2-FM-1-1-LCD	0.6 to 30 in w.c.	0.15 to 7.5 kPa	-30 in w.c.	-7.5 kPa	30 in w.c.	7.5 kPa	Yes
3100MP-3-FM-1-1-LCD	1.5 to 150 in w.c.	0.373 to 37.3 kPa	-150 in w.c.	-37.3 kPa	150 in w.c.	37.3 kPa	Yes
3100MP-4-FM-1-1-LCD	7.5 to 750 in w.c.	1.865 to 186.5 kPa	-750 in w.c.	-186.5 kPa	750 in w.c.	186.5 kPa	Yes
3100MP-5-FM-1-1-LCD	1 to 100 psi	6.9 to 690 kPa	-100 psi	-690 kPa	100 psi	690 kPa	Yes
3100MP-6-FM-1-1-LCD	3 to 300 psi	20.68 to 2068 kPa	-300 psi	-2068 kPa	300 psi	2068 kPa	Yes

Consult factory for custom calibration.

Series 626 & 628

Industrial Pressure Transmitter

Complete Offering of Ranges, Connections and Outputs

General Purpose Housing (-GH)

General Purpose Housing (-GH) with DIN C

626 with LED Display (CH housing only)

Conduit Housing (-CH)

*Please see our website for dimensional drawings.

The Series 626 Pressure Transmitters possess a highly precise 0.25% full scale accuracy piezo-resistive sensor contained in a compact, rugged, NEMA 4X (IP66) stainless steel general purpose housing or cast aluminum conduit housing.

The Series 628 Pressure Transmitters are ideal for OEMs with 1% full scale accuracy sensors. The transmitter is also available in the general purpose stainless steel housing and the cast aluminum conduit housing.
The corrosion resistant 316L stainless steel wetted parts allow the Series 626 and 628 transmitters to measure the pressure in a multitude of processes from hydraulic oils to chemicals. The Series 626 and 628 are available in absolute and pressure ranges with a variety of optional outputs, process connections and electrical terminations to allow you to select the right transmitter for your application.

SPECIFICATIONS

Service: Compatible gases and liquids.
Wetted Materials: Type 316L SS.
Accuracy:
626 : 0.25% F.S.;
: 0.20% RSS;
628 : 1.0% F.S.;
: 0.5% RSS;
626 Absolute Ranges : 0.5% F.S.;
: 0.30% RSS.
(Includes linearity, hysteresis, and repeatability.)
Temperature Limit: 0 to 200°F (-18 to 93°C).
Compensated Temperature Range: 0 to 175°F (-18 to 79°C).
Thermal Effect: ±0.02% FS/°F (includes zero and span).
Pressure Limits: See table.
Power Requirements: 10-30 VDC (for 4-20 mA, 0-5, 1-5, 1-6 VDC outputs); 13-30 VDC (for 0-10, 2-10 VDC outputs); 5 VDC ±0.5 VDC (for 0.5-4.5 VDC ratio-metric output).
Output Signal: 4-20 mA, 0-5 VDC,1-5 VDC, 0-10 VDC, or 0.5-4.5 VDC.
Response Time: 50 ms.
Loop Resistance: 0-1000 Ohms max. R max = 50 (Vps-10) Ohms (4-20 mA output), 5K Ohms (0-5, 1-5, 1-6, 0-10, 2-10, 0.5-4.5 VDC output).
Stability: 1.0% FS/year (Typ.).
Current Consumption: 38 mA maximum (for 4-20 mA output); 10 mA maximum (for 0-5, 1-5, 1-6, 0-10, 2-10, 0.5-4.5 VDC output); 140 mA maximum (for all 626/628/629-CH with optional LED).
Electrical Connections: Conduit Housing (-CH): terminal block, 1/2″ female NPT conduit; General Purpose Housing (-GH): cable DIN EN 175801-803-C.
Process Connection: 1/4″ male or female NPT and BSPT.
Enclosure Rating: NEMA 4X (IP66).
Mounting Orientation: Mount in any position.
Weight: 10 oz (283 g).
Agency Approvals: CE.

① Available with -GH Housing only
② Available with -CH Housing only
③ LED option is not NEMA 4X (IP66)
④ Power Requirement: 5 VDC ±10%

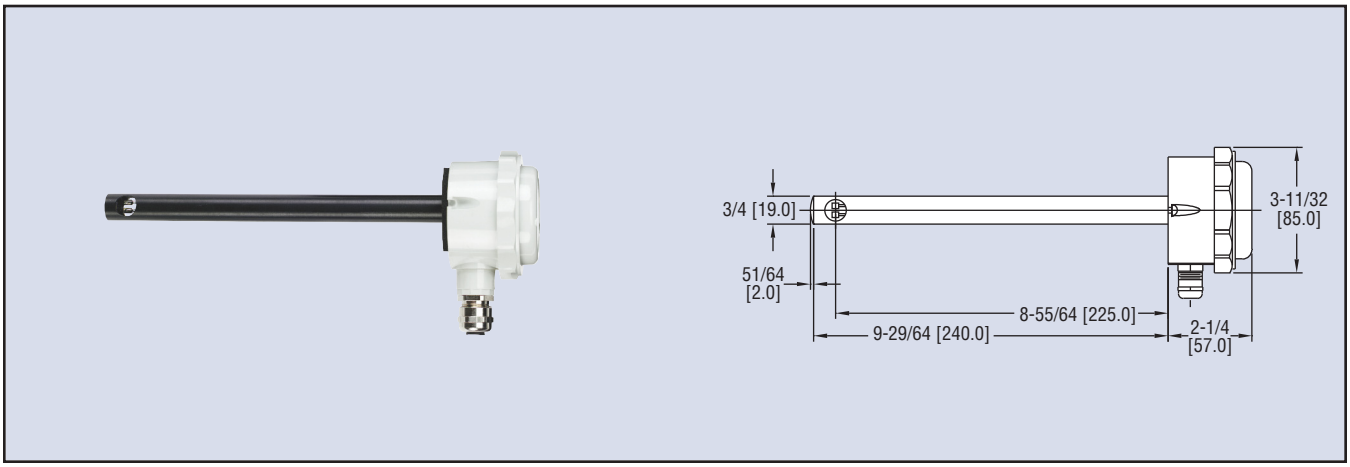
Ordering Chart

Accuracy	626							0.25% Full-Scale Accuracy
	628							1.0% Full-Scale Accuracy
Range		-00						0-15 psia
		-01						0-30 psia
		-02						0-50 psia
		-03						0-100 psia
		-04						0-200 psia
		-05						0-300 psia
		-06						0-5 psi
		-07						0-15 psi
		-08						0-30 psi
		-09						0-50 psi
		-10						0-100 psi
		-11						0-150 psi
		-12						0-200 psi
		-13						0-300 psi
		-14						0-500 psi
		-22						0-600 psi
		-15						0-1000 psi
		-16						0-1500 psi
		-18						0-3000 psi
		-19						0-5000 psi
		-26						0-8000 psi
		-67						0-0.5 bar
		-71						0-2.5 bar
		-75						0-10 bar
		-81						0-40 bar
Housing			-CH					Conduit Housing
			-GH					General Purpose Housing
Process Connection				-P1				1/4″ male NPT
				-P2				1/4″ female NPT
				-P3				1/4″ male BSPT
				-P5				1/4″ female SAE with Refrigerant Valve Depressor ①
				-P9				1/2″ male NPT ①
Electrical Connection					-E1			Cable Gland with 3' of Prewired Cable
					-E3			Cable Gland with 9' of Prewired Cable
					-E4			DIN EN 175801-803-C ①
					-E5			1/2″ female NPT Conduit ②
					-E6			M-12 4 Pin Connector
Signal Output						-S1		4-20 mA
						-S2		1-5 VDC
						-S4		0-5 VDC
						-S5		0-10 VDC
						-S7		0.5-4.5 VDC ①
Options							-AT	Aluminum Tag
							-NIST	NIST Traceable Certificate
							-LED	Bright Red LED display ②③

Series AVU

Air Velocity Transmitter

Ideal for Building Automation Systems, ±5% or ±8% Full Scale Accuracy



The Series AVU Air Velocity Transmitter is ideal for a wide range of HVAC measurement and control applications, particularly in complete building control and energy management systems. The Series AVU is available with 5% or 8% accuracy at a surprisingly low cost, with 9 models covering ranges from 0-785 FPM to 0-3150 FPM, with either 4-20 mA or 0-10 VDC output.

The Series AVU Transmitter operates by measuring the heat loss from one of the two sensing elements in the air stream, then calculating the air velocity. Units are virtually immune to drift due to the design of the sensing element, which makes the transmitter accurate over the whole air velocity range.

FEATURES

- 4 to 20 mA or 0 to 10 V output versions
- NEMA 6 (IP67) enclosure rating
- AC or DC powered (loop version DC only)
- 5% or 8% accuracy

APPLICATIONS

- Supply and exhaust fan tracking
- Clean room systems
- Air pollution studies and manufacturing
- Process control systems

OPTION

For NIST traceable calibration certificate, use order code NISTCAL-AV1.

SPECIFICATIONS

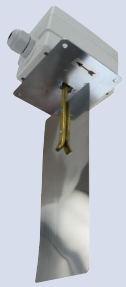
Service: Clean air and compatible, non-combustible gases.
Accuracy: AVU: ±5% of full-scale; AVUB: ±8% of full-scale.
Response Time (90%): 5 sec (typical).
Temperature Limits: 32 to 122°F (0 to 50°C).
Humidity Limit: 0-90% RH, non-condensing.
Power Requirements: -A models 24 VDC +10% -15%; -V models 24 VDC or 24 VAC +10% - 15%.
Output Signal: -A models 4 to 20 mA current loop; -V models 0-10 VDC.
Loop Resistance: (-A models) 700 Ω.
Current Consumption: 60 mA + output current.
Max. Start Up Current: 85 mA; 10 V.
Output Current Limit: (-V models) >10 mA.
Electrical Connections: Screw terminal. Cable gland for 4-8 mm wire (16 gauge wire).
Enclosure Rating: NEMA 6 (IP67) except sensing point.
Probe Dimensions: 9.45 x .75″ (240 x 19 mm).
Mounting Orientation: Unit not position sensitive. Probe must be aligned with airflow.
Weight: 8.8 oz (250 g).
Agency Approvals: CE.

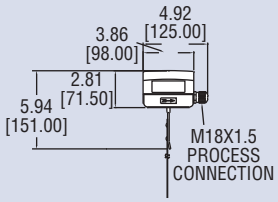
Model	Range	Output	Accuracy
AVU-1-A	0 to 785 fpm (0 to 4 m/s)	4 to 20 mA	5%
AVU-2-A	0 to 1575 fpm (0 to 8 m/s)	4 to 20 mA	5%
AVU-3-A	0 to 3150 fpm (0 to 16 m/s)	4 to 20 mA	5%
AVU-1-V	0 to 785 fpm (0 to 4 m/s)	0 to 10 VDC	5%
AVU-2-V	0 to 1575 fpm (0 to 8 m/s)	0 to 10 VDC	5%
AVU-3-V	0 to 3150 fpm (0 to 16 m/s)	0 to 10 VDC	5%
AVUB-1-V	0 to 785 fpm (0 to 4 m/s)	0 to 10 VDC	8%
AVUB-2-V	0 to 1575 fpm (0 to 8 m/s)	0 to 10 VDC	8%
AVUB-3-V	0 to 3150 fpm (0 to 16 m/s)	0 to 10 VDC	8%

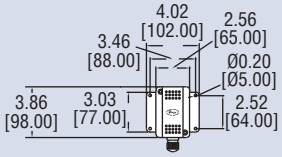
Model AAFS

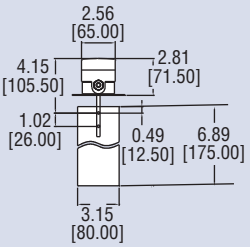
Adjustable Air Flow Paddle Switch

Ranges from 200 to 1800 FPM, Stainless Steel Vane, ABS Housing









The Model AAFS Adjustable Air Flow Switch is capable of detecting a wide range of air velocities with minimal user calibration. The adjustable screw changes the set point at which the SPDT snap switch engages. Quality features include a stainless steel vane, galvanized steel base, and ABS enclosure. The unit is field adjustable from 200 to 1800 FPM (1 to 9.2 m/sec).

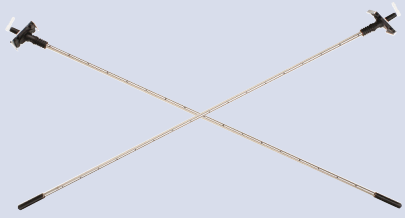
Model AAFS, Adjustable Air Flow Paddle Switch

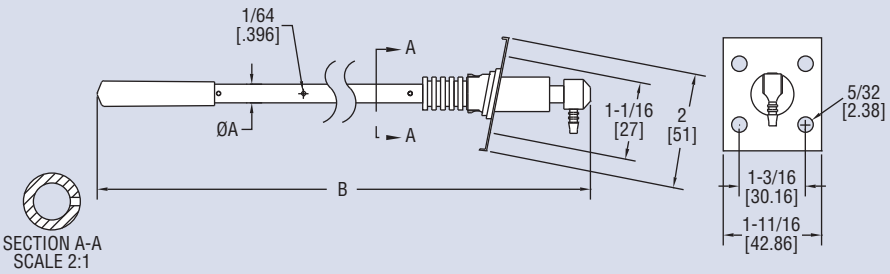
SPECIFICATIONS
Service: Air and compatible gas.
Wetted Materials:
Vane: SS;
Lever: Brass;
Base: Galvanized steel.
Housing: ABS.
Temperature Limits:
Ambient: -40 to 180°F (-40 to 85°C);
Process: -14 to 185°F (-10 to 85°C).
Humidity Limits: 10 to 90%, non-condensing.
Switch Type: SPDT.
Electrical Rating: 15(8) A @ 250 VAC.
Electrical Connection: Screw terminal with M18 x 1.5 cable gland.
Process Connection: Flange.
Mounting Orientation: Horizontal duct flow.
Set Point: Internal screw.
Enclosure Rating: IP65.
Weight: 13.6 oz (380 g).

Series AFG

Averaging Flow Grid

Cost Effective Air Flow Station for Ducts up to 60″





The Series AFG Flow Grid is an outstandingly simple yet accurate and cost effective alternative to other duct mounted pressure sensors. Once installed and connected to a suitable measuring instrument, the device will provide years of trouble free monitoring of both air and gas flow. Installing the AFG Flow Grid is quick and easy, the AFG is supplied in kit form to allow both workshop and on-site installation into a wide range of square and circular ducts up to approximately 60″.
The AFG Flow Grid is a fundamental pressure-sensing device designed to transmit a continuous differential pressure signal. When this output is connected to a suitable measuring instrument (i.e. manometer, pressure transducer, etc.) it may be used to determine air velocity and volume flow rate.

How the AFG Flow Grid Works
The AFG Flow Grid consists of two tubes mounted diagonally across a square or rectangular duct, or diametrically across a round duct. The tubes are drilled with a series of equi-spaced holes.
The holes in one tube face directly upstream and sense total pressure, while the pairs of holes in the second tube also face forward but at an included angle of 79 degrees, sensing static pressure.
The total and (sub) static pressures are averaged along the length of each tube and provide pressure signals at connectors outside the duct wall. The pressure differentials across these connectors constitute the output signal.

Model	Diameter Tube "A"	Length "B"
AFG-1	5/16″ (8 mm)	27″ (688 mm)
AFG-2	5/8″ (16 mm)	59-4/5″ (1518 mm)

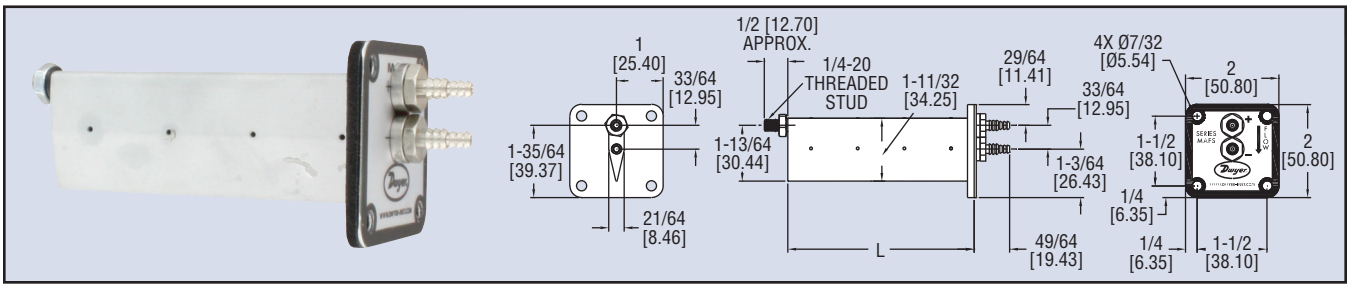
SPECIFICATIONS
Service: Monitor air or compatible gas flow.
Wetted Materials: 304 SS, PVC, polyurethane, acetyl plastics, and neoprene rubber.
Accuracy: ±5%.
Maximum Temperature: 176ºF (80ºC).
Velocity Range: 295.2 ft/min to 5904 ft/min (1.5 to 30 m/sec).
Diameter of Tubes: 5/16″ (8 mm) or 5/8″ (16 mm).
Max Duct Diagonal: 60.4″ (153.4 cm).
Max Duct Diameter: 59.4″ (150.9 cm).
Process Connections: 5/16″ barbed.
Weight: AFG-1: 1 lb (454 g); AFG-2: 3 lb (1361 g).

APPLICATIONS
The AFG Flow Grids will give useful and reliable readings in a wide variety of 'in duct' locations often where other flow rate measuring devices are found to be unsatisfactory.
The signal from an AFG Flow Grid can be used in a variety of ways, for example:
- To display differential pressure, velocity or volume flow using a micro manometer, gage or transmitter.
- To give a warning of over or under flow rate using a pressure switch.
- To control air supply in a system by connecting the grid to a pressure transmitter with an electrical output which can be used to feed into a control system.
- To display differential pressure on a simple fluid manometer to give visual indication of changes in volume flow rate in the duct.

Series MAFS

Metal Averaging Flow Sensor

Blade Profile Provides Enhanced Performance and Minimal Flow Disruption



The Series MAFS is ideal for use with Dwyer Instruments, Inc. precision air velocity gages, transmitters and switches. The Series MAFS uses evenly distributed total and static pressure measuring points to deliver an accurate measurement of flows in a duct. The blade profile provides enhanced performance with minimal flow disruption in the air stream. The air flow measuring probe can be completely installed from the outside of round or circular ducts, making it very quick to install. With its lightweight and durable construction, in addition to its ease of installation, the MAFS flow sensor lends itself superbly to applications in the HVAC industry.

Model	Probe Length (in inches)	Model	Probe Length (in inches)
MAFS-04	4	MAFS-24	24
MAFS-06	6	MAFS-26	26
MAFS-08	8	MAFS-28	28
MAFS-10	10	MAFS-30	30
MAFS-12	12	MAFS-32	32
MAFS-14	14	MAFS-34	34
MAFS-16	16	MAFS-36	36
MAFS-18	18	MAFS-40	40
MAFS-20	20	MAFS-48	48
MAFS-22	22		

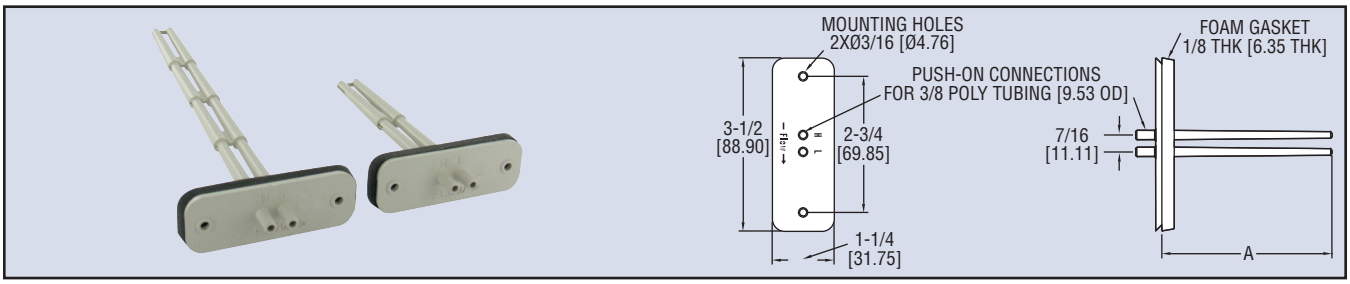
SPECIFICATIONS

Service: Clean air.
Wetted Materials: Aluminum AA6063.
Accuracy: 400 to 9000 FPM (45.7 m/s); ±2% FS, ±3% FS for 6″ and 48″ length models.
K-Factor: 0.81, 0.80 for 6″ and 48″ lengths, 4″ length=0.82.
Max. Temperature: 400°F (204°C); Gasket: -31 to 230°F (-35 to 110°C).
Minimum Design Flow: 400 fpm (2 m/sec).
Maximum Design Flow: 12,000 fpm (60.91 m/sec).
Process Connections: Dual barb for 3/16″ or 1/4″ ID tubing.
Straight Run Requirements: 5 diameters or longest side dimensions.

Series PAFS-1000

Averaging Flow Sensor

Ideal for Sensing Fan Flow Rates



The Series PAFS-1000 Averaging Flow Sensor is ideal for sensing differential pressure in the inlet section of variable air volume terminal units and fan terminal units. Units can also be used to sense differential pressure at other locations in the main or branch duct systems.

The "H" port senses total pressure and the "L" port senses static pressure. The difference between these signals is the differential, or velocity pressure.

For models PAFS-1002 to PAFS-1005, up to four sensing points and lengths of 3-5/32″ to 9-29/32″ (8.02 to 25.26 cm) to accommodate box size diameters of 4″ to 16″ (10.16 to 40.64 cm) are available. For models PAFS-1006 to PAFS -1011, up to 10 sensing points and lengths from 12-1/2″ to 23-29/32″ (31.75 to 60.72 cm) are available to accommodate appropriately sized duct dimensions.

APPLICATION

- Zone control in HVAC systems

SPECIFICATIONS

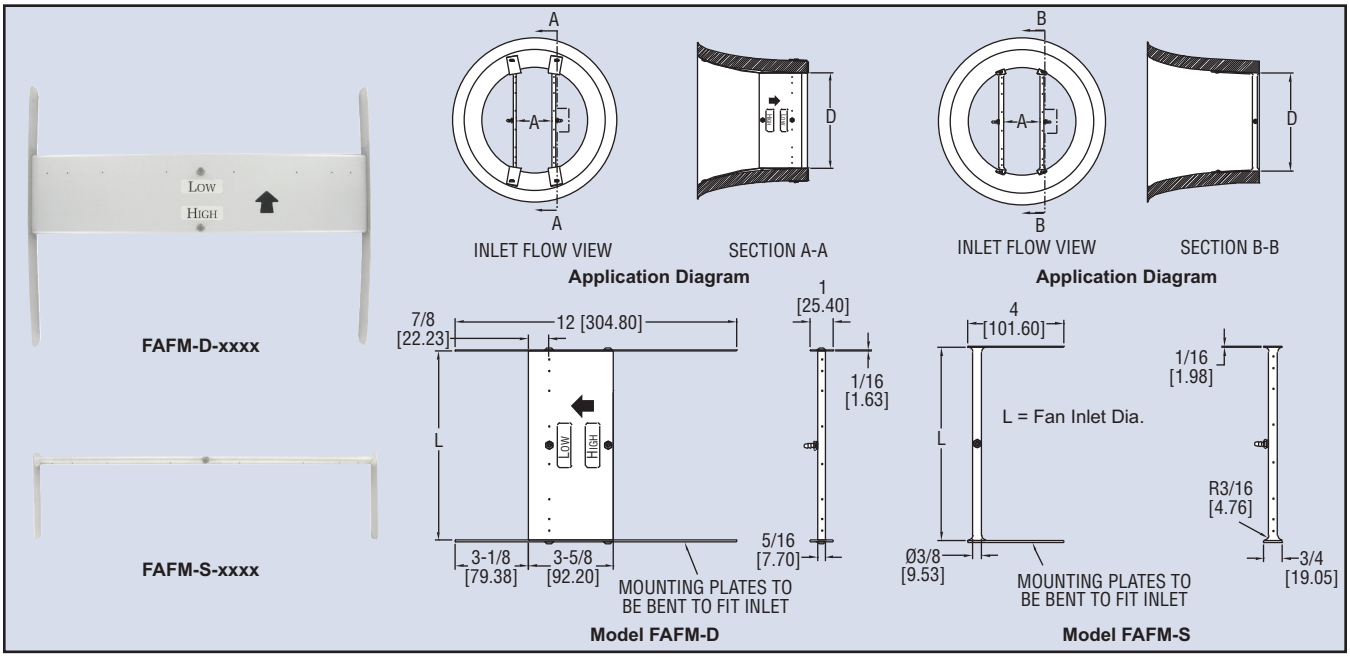
Service: Air and compatible gases.
Wetted Materials: ABS/polycarbonate (UL94-5V).
Temperature Limits:
Operating: 40 to 120°F (4 to 49°C);
Storage: -40 to 140°F (-40 to 60°C).
Process Connection: 1/4″ (6 mm) ID, 3/8″ (10 mm) OD tubing.
Mounting Orientation: Integral flange with gasket.
Weight: 1 oz (28 g).

Model	Length (Dimension A)
PAFS-1002	3-5/32″ (8.02 cm)
PAFS-1003	5-13/32″ (13.73 cm)
PAFS-1004	7-21/32″ (19.55 cm)
PAFS-1005	9-29/32″ (25.26 cm)
PAFS-1006	12-1/2″ (31.75 cm)
PAFS-1007	14-3/4″ (37.47 cm)
PAFS-1008	17-1/8″ (43.50 cm)
PAFS-1009	19-13/32″ (49.29 cm)
PAFS-1010	21-21/32″ (55.01 cm)
PAFS-1011	23-29/32″ (60.72 cm)

Series FAFM

Fan Inlet Air Flow Measuring Probe

Lightweight, Durable, & Easy to Install



The Model FAFM Fan Inlet Air Flow Measuring Probes use evenly distributed total and static pressure measuring points to deliver an accurate measurement of flow in a fan inlet. The Air Flow Measuring Probes can be completely installed from outside of the fan making it ideal for when proper duct locations are unavailable. With its lightweight and durable construction in addition to its ease of installation, this product lends itself to being used in the HVAC industry.
There are two versions of the model FAFM fan inlet air flow probes to choose from depending on the depth of the fan inlet.

For fan inlets with depth less than 3-1/2″ (8.89 cm): Please order a fan inlet probe with an "S" suffix. This probe has a diameter of .375″ (.95 cm). It employs one total flow measuring tube and one static measuring tube. Each probe is covered with an extruded aluminum anodized coat. Each measuring tube has multiple sensing points.

For fan inlets with depth greater than 3-1/2″ (8.89 cm): Please order a fan inlet probe with a "D" suffix. This probe has a diameter of 3-1/2″ (8.89 cm). It employs extruded aluminum anodized coated probes with both total and static sensors on each tube.

Please Note: A set of two fan inlet air flow measurement probes comes with every model ordered. A set is necessary in order to ensure an accurate reading. No more than two air flow measurement probes will be needed to obtain an accurate reading.

SPECIFICATIONS
Wetted Materials: Aluminum with clear anodized finish.
Accuracy: ±2% (**Note:** Field calibration may be required).
Temperature Limit: 400°F (204°C).
Minimum Design Flow: 400 fpm (2.03 m/sec).
Maximum Design Flow: 12,000 fpm (60.96 m/sec).
Process Connections: 1/4″ barb.

FAFM - □ - □ □ □ □

S - Fan inlet depth less than 3-1/2″
D - Fan inlet depth greater than 3-1/2″

Fan inlet diameter in inches where the boxes represent the tens, ones, tenths, and hundredths digits of the diameter respectively.
i.e. __ __ . __ __ go to the corresponding box in the sequence.

Example: For a fan inlet that is exactly 12″ in diameter and has a depth of more than 3-1/2″ the model number will be: FAFM-D-1200.

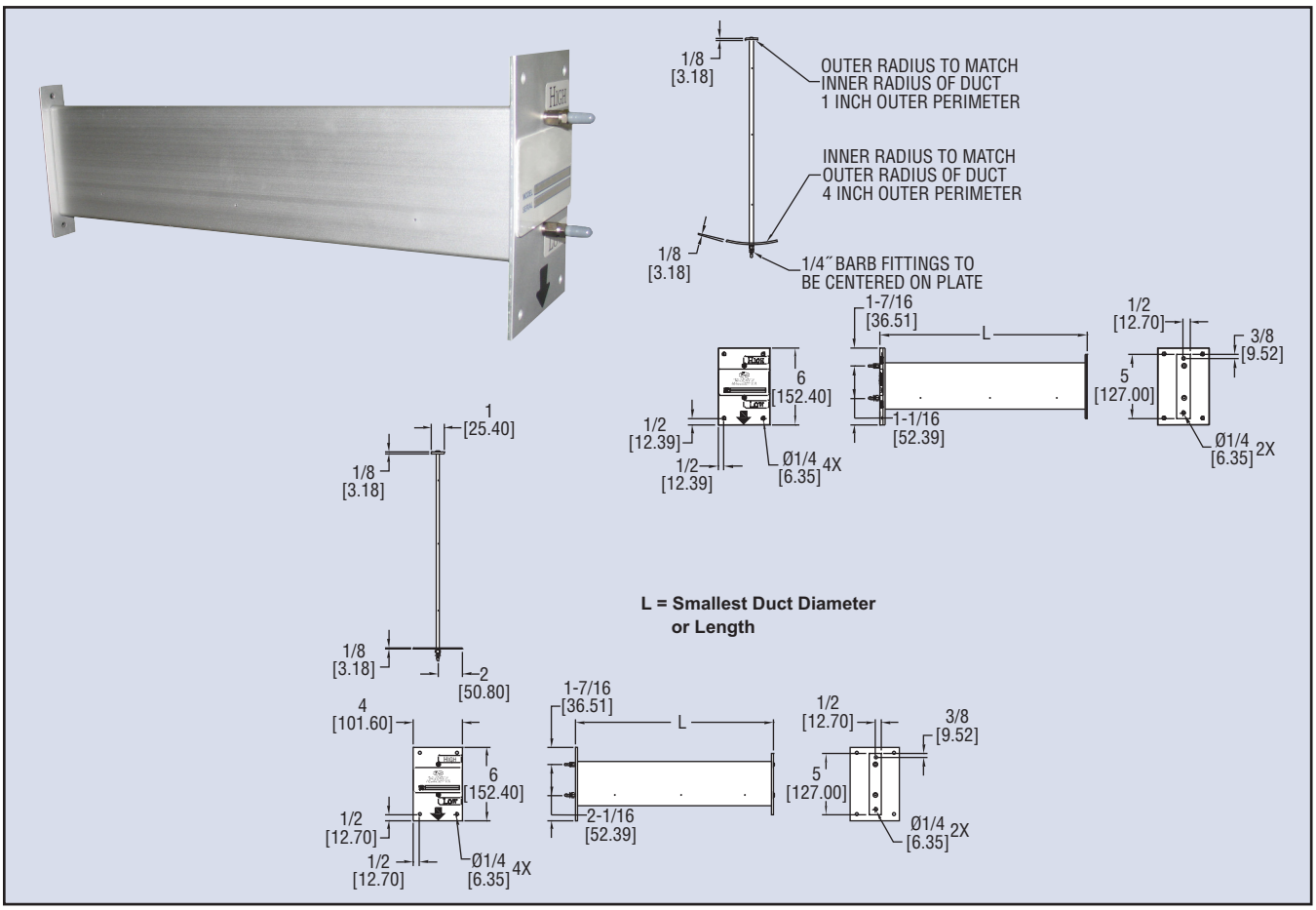
Example: For a fan inlet that is 23.89″ in diameter and has a depth of less than 3-1/2″ the model number will be: FAFM-S-2389.

Example: For a fan inlet that is 6.24″ in diameter and has a depth of less than 3-1/2″ the model number will be: FAFM-S-0624.

Series
DAFM

Duct Air Flow Measuring Probe

Lightweight, Durable, & Easy to Install



The Model DAFM Duct Air Flow Measuring Probe uses evenly distributed total and static pressure measuring points to deliver an accurate measurement of flow in a duct. The Air Flow Measuring Probe can be completely installed from outside of the duct making it very easy to install. With its lightweight and durable construction in addition to its ease of installation, this product lends itself to being used in the HVAC industry. These air flow measuring probes may be ordered for either round or rectangular ducts.

In order to ensure accurate measurements you must determine the number of probes needed for your size duct. If the duct is rectangular, then consult the chart to determine appropriate quantity of probes.

If the duct is round, it is only necessary to purchase two probes for any size of duct and mount them perpendicular to each other.

Short Duct Dimension	<12"	12" to 23"	24" to 35"	36" to 59"	60" to 89"	>89"
Number of Probes	1	2	3	4	5	6

SPECIFICATIONS

Wetted Materials: Aluminum with clear anodized finish.
Accuracy: ±2% (**Note:** Field calibration may be required).
Temperature Limit: 400°F (204°C).
Minimum Design Flow: 400 fpm (2.03 m/sec).
Maximum Design Flow: 12,000 fpm (60.96 m/sec).
Process Connections: 1/4" barb.
Straight Run Requirements: 5 diameters or longest side dimensions.

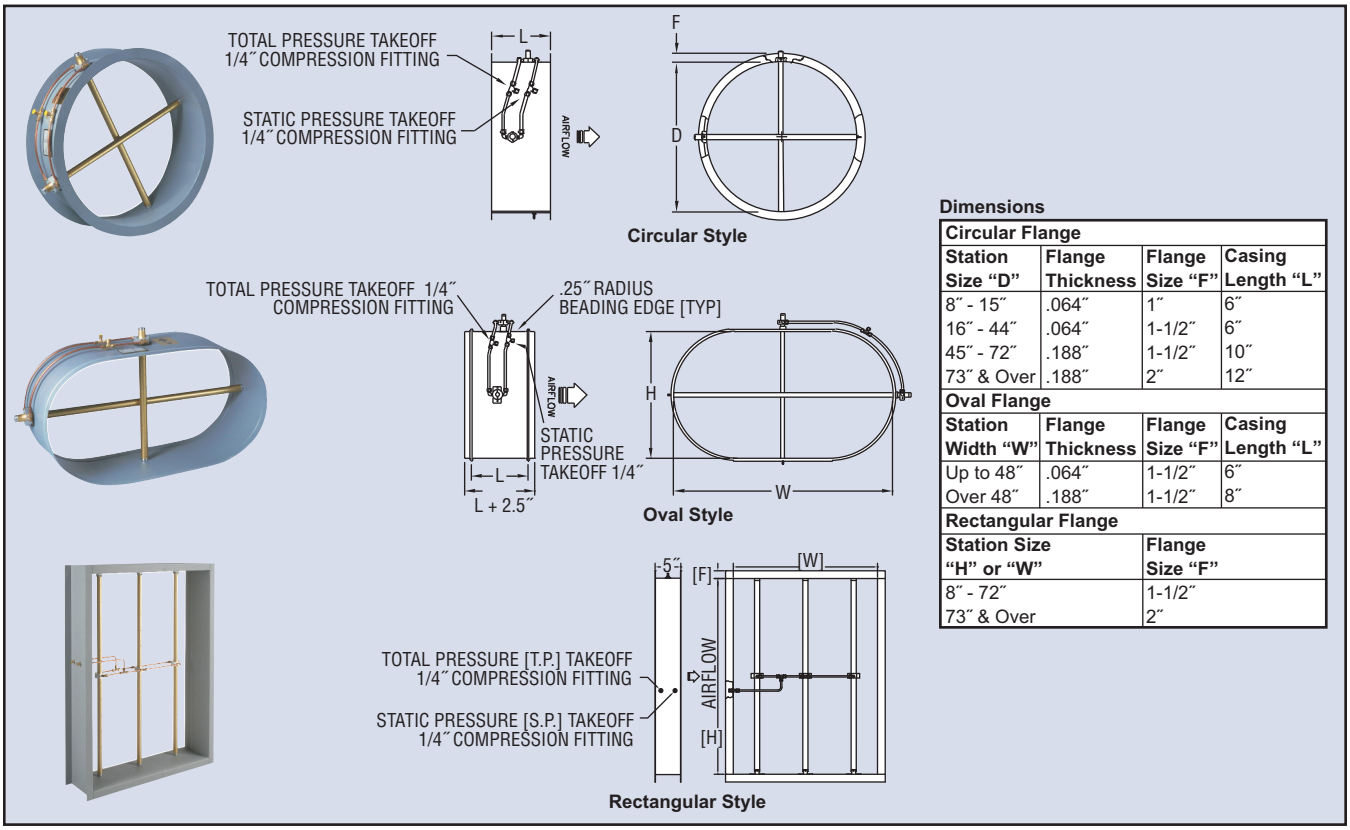
Model	Duct Shape	Smallest Duct Diameter or Length (L)
DAFM-000	Round	6" (15.24 cm)
DAFM-001	Round	8" (20.32 cm)
DAFM-002	Round	10" (25.4 cm)
DAFM-003	Round	12" (30.48 cm)
DAFM-004	Round	14" (35.56 cm)
DAFM-005	Round	16" (40.64 cm)
DAFM-006	Round	18" (45.72 cm)
DAFM-007	Round	20" (50.8 cm)
DAFM-008	Round	22" (55.88 cm)
DAFM-009	Round	24" (60.96 cm)
DAFM-100	Rectangular	6" (15.24 cm)
DAFM-101	Rectangular	8" (20.32 cm)
DAFM-102	Rectangular	10" (25.4 cm)
DAFM-103	Rectangular	12" (30.48 cm)
DAFM-104	Rectangular	14" (35.56 cm)
DAFM-105	Rectangular	16" (40.64 cm)
DAFM-106	Rectangular	18" (45.72 cm)
DAFM-107	Rectangular	20" (50.8 cm)
DAFM-108	Rectangular	22" (55.88 cm)
DAFM-109	Rectangular	24" (60.96 cm)

For larger sizes up to 96" (243.84 cm), please contact factory.

Series FLST

Duct Mounted Airflow Measurement Station

Rectangular, Oval or Circular Configurations



Dimensions

Circular Flange			
Station Size "D"	**Flange Thickness**	**Flange Size "F"**	**Casing Length "L"**
8″ - 15″	.064″	1″	6″
16″ - 44″	.064″	1-1/2″	6″
45″ - 72″	.188″	1-1/2″	10″
73″ & Over	.188″	2″	12″
Oval Flange			
Station Width "W"	**Flange Thickness**	**Flange Size "F"**	**Casing Length "L"**
Up to 48″	.064″	1-1/2″	6″
Over 48″	.188″	1-1/2″	8″
Rectangular Flange			
Station Size "H" or "W"		**Flange Size "F"**	
8″ - 72″		1-1/2″	
73″ & Over		2″	

The Series FLST Airflow Measurement Station is easy to install - simply connect the tubing to the station fittings, then to a differential pressure manometer, gage, transmitter or switch. Single or multiple airflow elements are factory mounted and pre-piped in a casing designed for flanged connection to the ductwork. Standard materials consist of a G90 galvanized casing and 6063-T5 anodized aluminum flow sensors, suitable for most HVAC applications.

The Series FLST utilizes an airflow averaging element in a head-type device, generating a differential (velocity) pressure signal similar to the orifice, venturi, and other head producing primary elements. Strategically located sensing ports continually sample the total and static pressures when inserted normal to flow.

Total pressures sensed by the upstream ports are continually averaged within the airflow element in an isolated chamber. The static sensing ports are averaged in a second isolation chamber. Multiple elements are joined together for connection to a differential measurement device (gage, transmitter, etc.) for flow measurement and indication purposes.

FEATURES

- Low signal-to-noise ratio
- Multiple total and static pressure sensing ports along the length of the element
- Factory mounted and pre-piped in a flanged duct section (casing)
- ±2% accuracy throughout velocity ranges of 100 FPM and over
- Standard construction includes galvanized casing and 6063-T5 anodized aluminum flow sensors
- Standard airflow stations can be operated (in air) continuously in temperatures up to 350°F or intermittently in temperatures up to 400°F
- All airflow stations can be operated in humidity ranges of 0 to 100%
- Standard airflow stations have good salt air resistance and are suitable for most HVAC applications

SPECIFICATIONS

Accuracy: Within 2% of actual flow when installed in accordance with published recommendations.
K-Factor: 0.97.
Velocity Range: 100 to 10,000 FPM (0.51-51 m/s).
Wetted Material: Elements: 6063-T5 anodized aluminum; Casings: 16 ga G90 galvanized steel.
Temperature Limits: Galvanized casings and aluminum elements 350°F (177°C) continuous operation (in air) 400°F (204°C) intermittent operation (in air).
Humidity: All airflow stations 0 to 100% non condensing.
Process Connections: 1/4″ compression fittings.

How To Order:

Rectangular or Oval Models

FLST- ☐ ☐ X ☐ - Option

- ☐: R - Rectangular, O - Oval
- ☐ X ☐: Height (in) x Width (in)
- Option: IM - Internal Pressure Connections; F - Flange for Oval Mount Station

Circular Models

FLST-C ☐

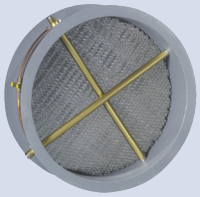
☐: Diameter (in)

Note: When ordering rectangular or oval flow stations, pressure taps will always be located on the longer of the two dimensions.

Series STRA

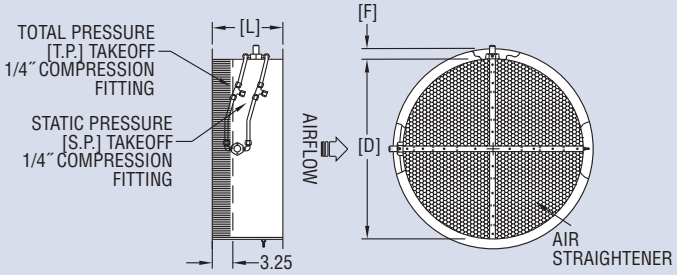
Duct Mounted Airflow Measurement Station

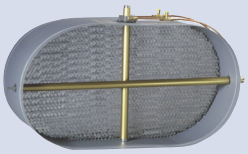
Integral Flow Straightener, Ideal for Turbulent Measuring Conditions



Circular Flange Dimensions

Station Size "D"	Flange Thickness	Flange Size "F"	Casing Length "L"
8" – 15"	.064"	1"	8"
16" – 44"	.064"	1-1/2"	8"
45" – 72"	.188"	1-1/2"	10"
73" & Over	.188"	2"	12"

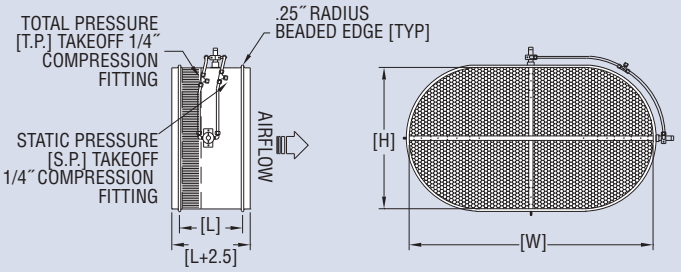




Oval Flange Dimensions (Optional)

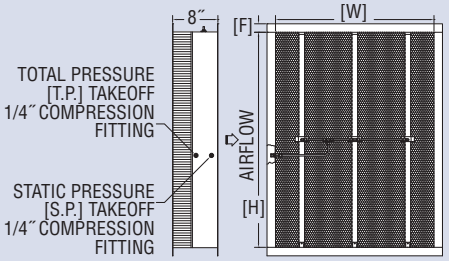
Station Width "W"	Flange Thickness	Flange Size	*Casing Length "L"
Up to 44"	.064"	1-1/2"	8"
Over 44"	.188"	1-1/2"	10"

***Note:** All oval flow stations without flange have a casing length of 8".



Rectangular Flange Dimensions

Station Size "H" or "W"	Flange Size "F"
8" – 72"	1-1/2"
73" & Over	2"



Selectable Sizes: 1. Oval or rectangular "H" or "W" dimensions in inches can be the following: 8, 10, 12, 14, 16, 18, 20, 22, 24, 26, 28, 30, 32, 34, 36, 40, 44, 48, 52, 56, 60, 66, 72, 78, 84, 90, 96, 102, 108, 114 or 120. 2. Circular "D" dimension in inches can be the following: 8, 10, 12, 14, 16, 18, 20, 22, 24, 26, 28, 30, 32, 36, 40, 44, 48, 54, 60, 66, 72, 78, 84, 90, 96, 102, 108, 114 or 120

The Series STRA Airflow Measurement Station is easy to install - simply connect the tubing to the station fittings, then to a differential pressure manometer, gage, transmitter or switch. Single or multiple airflow elements are factory mounted and pre-piped in a casing designed for flanged connection to the ductwork. The Series STRA utilizes an airflow averaging element in a head-type device, generating a differential (velocity) pressure signal similar to the orifice, venturi, and other head producing primary elements. It has been developed with a honeycomb airflow straightening section for use in duct systems having highly turbulent conditions at the point of measurement. Strategically located sensing ports continually sample the total and static pressures when inserted normal to flow. Total pressures sensed by the upstream ports are continually averaged within the airflow element in an isolated chamber. The static sensing ports are averaged in a second isolation chamber. Multiple elements are joined together for connection to a differential measurement device (gage, transmitter, etc.) for flow measurement and indication purposes.

FEATURES

- Low signal-to-noise ratio
- Honeycomb airflow straightening section with 1/2" opening by 3" depth
- Multiple total and static pressure sensing ports along the length of the element
- Factory mounted and pre-piped in a flanged duct section (casing)
- ±2% accuracy throughout velocity ranges of 100 fpm and over
- Standard construction includes galvanized casing and 6063-T5 anodized aluminum flow sensors
- Standard airflow stations can be operated (in air) continuously in temperatures up to 350°F or intermittently in temperatures up to 400°F
- All airflow stations can be operated in humidity ranges of 0 to 100%
- Standard airflow stations have good salt air resistance and are suitable for most HVAC applications
- Great for use where turbulent conditions exist

SPECIFICATIONS

Accuracy: Within 2% of actual flow when installed in accordance with published recommendations.
K Factor: 0.97.
Velocity Range: 100 to 10,000 FPM (0.51 to 51 m/s).
Wetted Materials: Elements: 6063-T5 anodized aluminum; Casings: 16 ga G90 galvanized steel, 3003 aluminum air flow straightener.
Temperature Limits: Galvanized casings and aluminum elements 350°F (177°C) continuous operation (in air), 400°F (204°C) intermittent operation (in air).
Humidity Limits: All airflow stations 0 to 100% non condensing.
Process Connections: 1/4" compression fittings.

Rectangular or Oval Models:

STRA- ☐ ☐ X ☐ - Option

R - Rectangular
O - Oval
Height (in) x Width (in)
IM - Internal Pressure Connections
F - Flange for Oval Mount Station

Circular Models:

STRA-C ☐

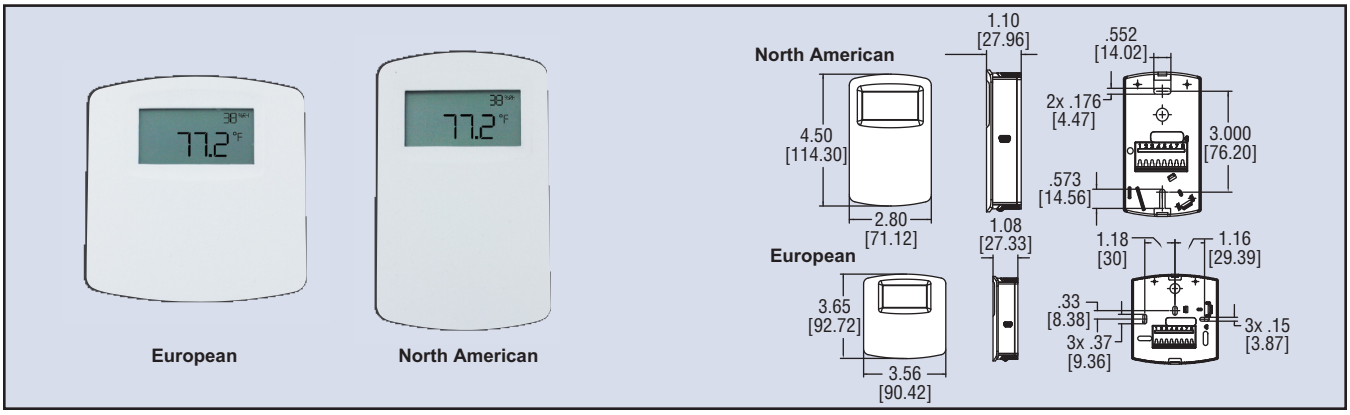
Diameter (in)

When ordering rectangular or oval flow stations, pressure taps will always be located on the longer of the two dimensions.

Series RHP-E/N

Wall Mount Humidity/Temperature/ Dew Point Transmitter

Optional LCD Display, Replaceable Sensors



The Series RHP-E/N Wall Mount Humidity/Temperature/Dew Point Transmitter is the most versatile room transmitter on the market. The stylish housing is well vented to provide air flow across the sensor to improve measurement accuracy. An optional LCD display can be integral to the transmitter or a remote display can be ordered for building balancing or LEED® validation. The LCD display indicates the ambient temperature along with the humidity or dew point. The transmitter has internal dip switches to select the temperature engineering units and whether the transmitter outputs humidity or dew point.

The humidity and temperature sensors are field replaceable to reduce service cost and inventory. The humidity and the dew point are measured using a capacitive polymer sensor that completely recovers from 100% saturation. The humidity and dew point can have either a current or voltage output, while the optional temperature output can be a current, voltage, RTD or thermistor. For models with current or voltage for the temperature output, the temperature range is field selectable.

Example	RHP	3	N	4	A	LCD	RHP-3N4A-LCD
Series	RHP						Humidity/Temperature/ Dew Point Transmitter
Accuracy		2 3 5					2% Accuracy 3% Accuracy 5% Accuracy
Housing			E N				European Wall Mount North American Wall Mount
Humidity/Dew Point Output				4			4-20mA/0-5 VDC/0-10 VDC
Temperature Output					0 4 A B C D E F		None 4-20mA/0-5 VDC/0-10 VDC 10KΩ @ 25°C Thermistor Type III 10KΩ @ 25°C Thermistor Type II 3KΩ @ 25°C Thermistor 100Ω RTD DIN 385 1KΩ RTD DIN 385 20KΩ @ 25°C Thermistor
Options						LCD NIST	LCD Display NIST traceable calibration certificate (Humidity)

ACCESSORIES

A-449, Remote LCD Display allows remote indication of select Dwyer Wall Mount Transmitters for validation or certification purposes

A-449A, Remote LCD Display with buttons allows remote indication and calibration of select Dwyer® Wall Mount Transmitters for validation and certification purposes

SCD-PS, 100-240 VAC/VDC to 24 VDC Power Supply

SPECIFICATIONS

Relative Humidity Range: 0 to 100% RH.

Temperature Range: -40 to 140°F (-40 to 60°C) for thermistor and RTD sensors.
-20 to 140°F (-28.9 to 60°C) for solid state band gap temperature sensors.

Dew Point Temperature Range: -20 to 140°F (-28.9 to 60°C); 0 to 100°F (-17.8 to 37.8°C); 40 to 90°F (4.4 to 32.3°C); -4 to 140°F (-20 to 60°C) field-selectable ranges.

Accuracy:
RH: Model RHP-2XXX ±2% 10-90% RH @ 25°C; Model RHP-3XXX ±3% 20-80% RH @ 25°C; Model RHP-5XXX ±5% 20-80% RH @ 25°C;
Thermistor temperature sensor: ±0.36°F @ 77°F (±0.2°C @ 25°C);
RTD temperature sensor: DIN Class B; ±0.54°F @ 32°F (±0.3°C @ 0°C);
Solid state band gap temperature sensor: ±0.9°F @ 77°F (±0.3°C @ 25°C).

Hysteresis: ±1%.

Repeatability: ±0.1% typical.

Temperature Limits:
Operating: -40 to 140°F (-40 to 60°C);
Storage: -40 to 176°F (-40 to 80°C).

Compensated Temperature Range: -4 to 140°F (-20 to 60°C).

4-20 mA Loop Powered Outputs:
Power requirements: 10 to 35 VDC;
Output signal: 4 to 20 mA, 2 channels for humidity/solid state temperature sensor models (loop powered on RH). Switch selectable RH/dew point. Switch selectable normal or reverse output.

0-5/10V Outputs:
Power requirements: 15 to 35 VDC or 15 to 29 VAC;
Output load: 5 mA max., 2 channels for humidity/solid state temperature sensor models. Switch selectable 0-10V/2-10V or 0-5V/1-5V output. Switch selectable RH/dew point. Switch selectable normal or reverse output.

Solid State Band Gap Temperature Sensor Output Ranges: Switch selectable, -20 to 140°F (-28.9 to 60°C); 0 to 100°F (-17.8 to 37.8°C); 40 to 90°F (4.4 to 32.3°C); -4 to 140°F (-20 to 60°C).

Response Time: 15 seconds.

Electrical Connections: Screw terminal block.

Drift: <1% RH/year.

RH Sensor: Capacitance polymer.

Enclosure Material: White polycarbonate (European); Warm gray polycarbonate (North American).

Display: Optional LCD; Switch selectable %RH or dew point, °F/°C.

Display Resolution: RH: 1%; Temperature: 0.1°F (0.1°C); Dew Point: 1°F (1°C).

Weight: 4.4 oz (125 g).

Agency Approvals: CE.

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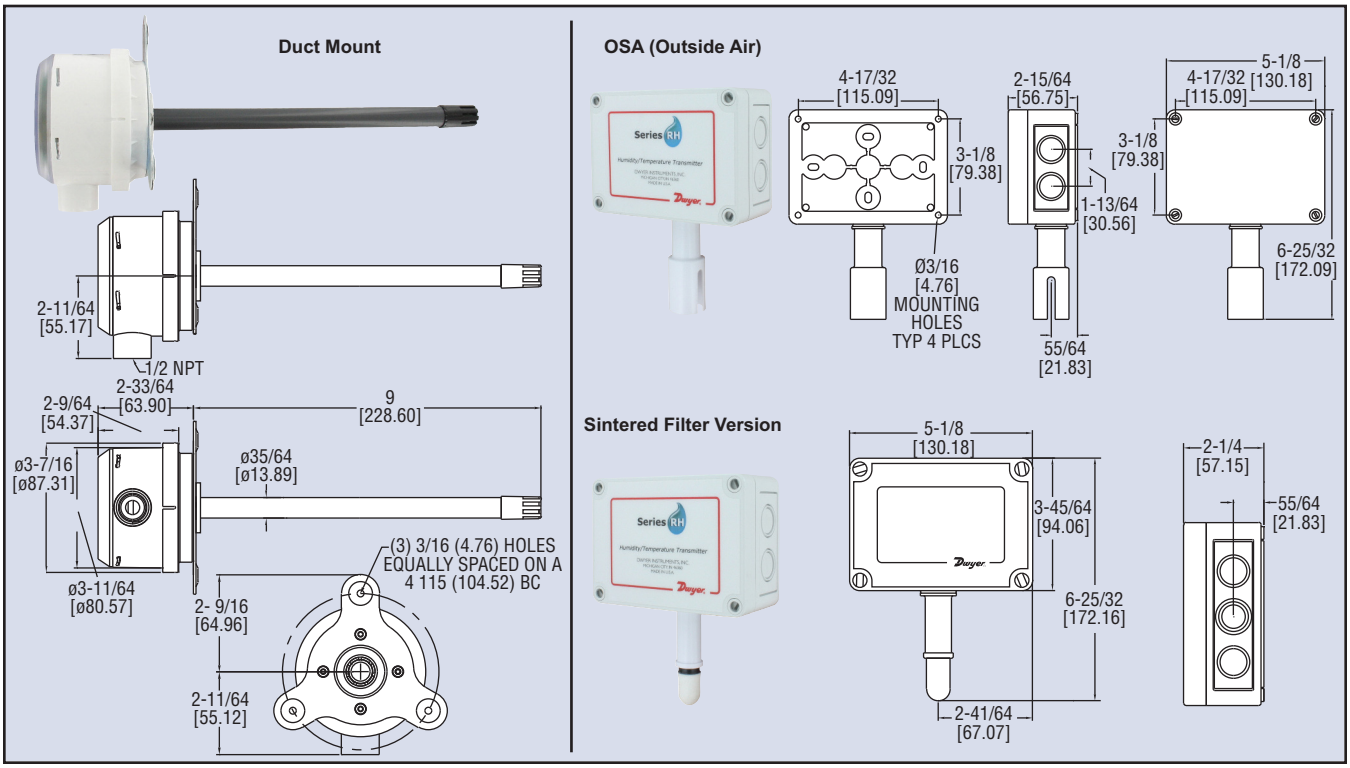
Series RHP

Humidity/Temperature Transmitter

Passive Temperature Outputs, Sintered Filter Options



The Series RHP Temperature and Humidity Transmitter combine the voltage or current humidity transmitter output with a passive temperature thermistor or RTD output. The polymer capacitance humidity sensor is not affected by condensation, fog, high humidity, or contaminants. The humidity sensors are available with 2%, 3% or 5% accuracies. Duct mounted transmitters are available with an optional two-line alpha numeric LCD display. The Series RHP is available with interchangeable filter options as well as replaceable sensors.

Example	RHP	2	D	1	A	LCD	RHP-2D1A-LCD
Series	RHP						RH/Passive Temperature Sensor Transmitter
Accuracy		2					2% Accuracy
		3					3% Accuracy
		5					5% Accuracy
Housing Type			D				Duct Mount w/Membrane Filter
			F				Duct Mount w/Sintered Filter
			O				OSA (Outside Air)
			S				OSA w/Sintered Filter*
			R				Radiation Shield
RH Output				1			4 to 20mA
				2			0 to 10V
				3			0 to 5 VDC
Temperature Sensor					0		None
					1		4 to 20mA
					2		0 to 10 VDC
					3		0 to 5 VDC
					A		10K @ 25°C Thermistor Type III
					B		10K @ 25°C Thermistor Type II
					C		3K @ 25°C Thermistor
					D		100Ω RTD DIN 385
					E		1KΩ RTD DIN 385
					F		20KΩ @ 25°C Thermistor
Option						LCD	LCD Display
						NIST	NIST traceable calibration certificate (Humidity)

*Model RHRS Radiation Shield is required for sintered filter OSA models.

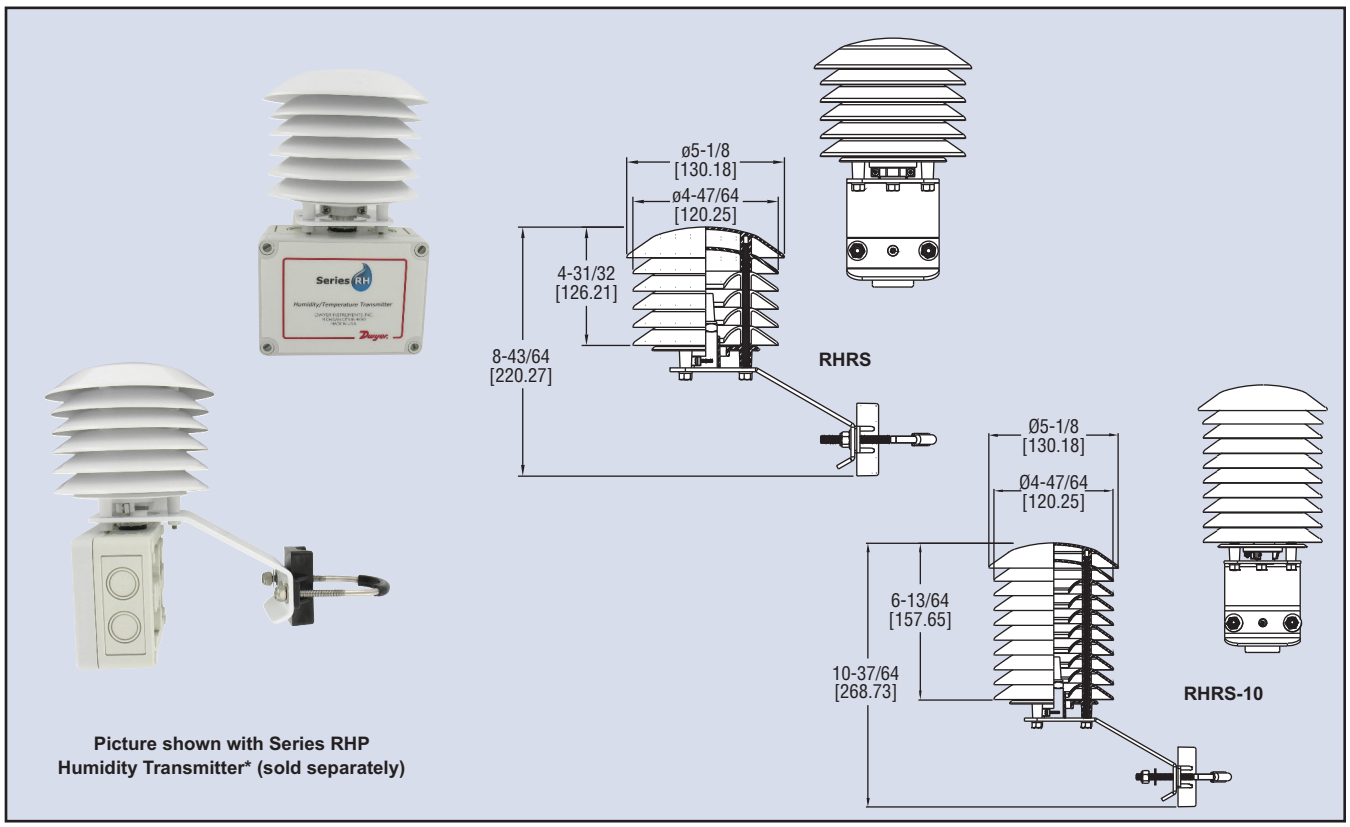
SPECIFICATIONS

Relative Humidity Range: 0 to 100% RH.
Temperature Range: -40 to 140°F (-40 to 60°C).
Accuracy, RH:
RHP-2XXX ±2% 10-90% RH @ 25°C;
RHP-3XXX ±3% 20-80% RH @ 25°C;
RHP-5XXX ±5% 20-80% RH @ 25°C.
Accuracy, Thermistor Temp Sensor: ±0.2°C @ 25°C (±0.36°F @ 77°F).
Accuracy, RTD Temp Sensor: DIN Class B; ±0.3°C @ 0°C (±0.54°F @ 32°F).
Hysteresis: ±1%.
Repeatability: ±0.1% typical.
Temperature Limits: -40 to 140°F (-40 to 60°C).
Storage Temperature: -40 to 176°F (-40 to 80°C).
Compensated Temperature Range: -4 to 140°F (-20 to 60°C).
4 to 20 mA Loop Powered Models:
Power requirements: 10 to 35 VDC;
Output signal: 4 to 20 mA.
0-5/10V Output Models:
Power requirements: 15 to 35 VDC or 15 to 29 VAC;
Output signal: 0 to 10V @ 5 mA max.
Response Time: 15 seconds.
Electrical Connections: Removable screw terminal block.
Conduit Connection:
Duct mount: 1/2˝ NPS;
OSA: 1/2˝ (22.3 mm).
Drift: <1% RH/year.
RH Sensor: Capacitance polymer.
Temperature Sensor:
Types 1, 2, 3: Solid state band gap;
Curves A, B, C: Thermistor;
Curves D, E: Platinum RTD DIN 385.
Enclosure:
Duct mount: PBT;
OSA: Polycarbonate.
Enclosure Rating: NEMA 4X (IP66) for OSA mount only.
Display: Duct mount only, optional 2-line alpha numeric, 8 characters/line.
Display Resolution: RH: 0.1%; 0.1°F (0.1°C).
Weight:
Duct mount: .616 lb (.3 kg);
OSA: 1 lb (.45 kg).
Agency Approvals: CE.

Series RHRS

Outside Air Humidity Radiation Shield

6 or 10 Plate Design, Integral Pipe Mounting Kit



The Series RHRS Radiation Shield protects outside air humidity transmitters from rain and radiated heat. With the curved shape and color of the plates, air flow is able to move across the sensor to keep radiated temperatures from rooftops and surrounding surfaces from affecting humidity readings. For ease of installation, the Series RHRS has integral pipe mounting hardware which can be removed for surface mounting applications. The brackets on the Series RHRS are specifically designed to be installed on the Dwyer Series RHP outside air humidity transmitters with sintered filters. The pipe mounting bracket fits 3/4″ to 1-1/2″ iron pipe.

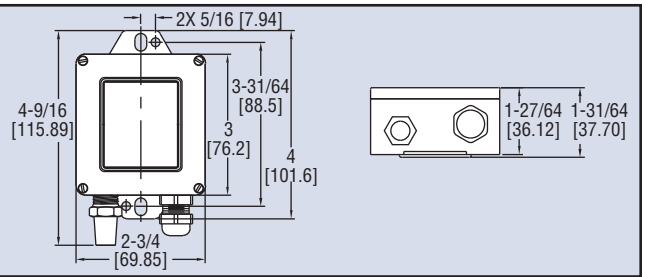
Model RHRS, 6 Plate Radiation Shield
Model RHRS-10, 10 Plate Radiation Shield

*Only sintered filter OSA models of Series RHP are compatible with the shield.

Series WHT

Weather-Resistant Humidity/ Temperature Transmitter

Compact Housing, Sintered Filter



The Compact Series WHT Humidity/Temperature Transmitter is designed to withstand the elements. A removable sintered filter protects the polymer capacitance sensor from solid objects that may come in contact with the transmitter. The transmitter is available with 4 to 20 mA or 0 to 10 VDC output signals for both temperature and humidity. This transmitter is ideal for measuring outside air temperature and humidity levels for air handling economizer applications.

Model	Accuracy	RH Output	Temperature
WHT-310	3%	4 to 20 mA	None
WHT-311	3%	4 to 20 mA	4 to 20 mA
WHT-320	3%	0 to 10 VDC	None
WHT-322	3%	0 to 10 VDC	0 to 10 VDC
WHT-330	3%	0 to 5 VDC	None
WHT-333	3%	0 to 5 VDC	0 to 5 VDC
WHT-31A	3%	4 to 20 mA	10K Ω Type III
WHT-32A	3%	0 to 10 VDC	10K Ω Type III

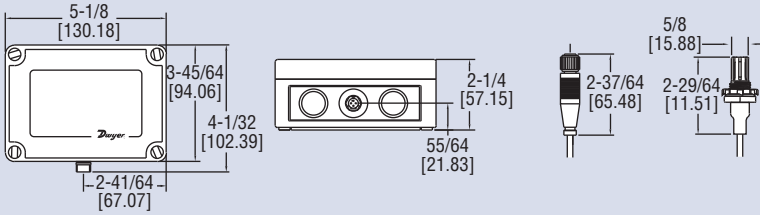
Note: For 2% accuracy, change the leading 3 to a 2. (For example, WHT-210)

SPECIFICATIONS
Relative Humidity Range: 0 to 100% RH.
Temperature Range: -40 to 140°F (-40 to 60°C).
Accuracy, RH: ±3% 20 to 80% RH, ±4% @ 10-20%, 80 to 90%.
Accuracy, Temp Models with 4 to 20 mA Temp. Output: ±0.9°F @ 72°F (±0.3°C @ 25°C).
Accuracy, Temp Models with Passive Thermistor Temp Sensor: ±0.36°F @ 77°F (±0.2°C @ 25°C).
Hysteresis, RH: ±1%.
Repeatability, RH: ±0.1% typical.
Temperature Limits: -40 to 140°F (-40 to 60°C).
Storage Temperature: -40 to 176°F (-40 to 80°C).
Compensated Temperature Range, RH: -4 to 140°F (-20 to 60°C).
4 to 20 mA Loop Powered Models: Power requirements: 10 to 35 VDC; Output signal: 4 to 20 mA.
0 to 10 V Output Models: Power requirements: 15 to 35 VDC or 15 to 29 VAC; Output signal: 0 to 10 V @ 5 mA max.
0 to 5 V Output Models: Power requirements: 10 to 35 VDC or 10 to 29 VAC; Output signal: 0 to 5 V @ 5 mA max.
Response Time: 15 seconds.
Electrical Connections: Removable screw terminal block.
Drift: <1% RH/year.
RH Sensor: Capacitance polymer.
Temperature Sensor: 4 to 20 mA output, solid state band gap. Passive output: 10K @ 25°C thermistor (Dwyer curve A).
Enclosure: ABS.
Enclosure Rating: Designed to meet NEMA 3S (IP54).
Weight: 0.3 oz (8.5 g).
Agency Approvals: CE.

Series RH-R

Humidity/Temperature Transmitter

Remote Mount, Field Replaceable Sensor Filter, Up to 16 Cable



The Series RH-R Humidity Transmitter is the ideal transmitter for those applications where space is limited. The compact sensor is protected by a removable filter. It can be mounted up to 16 feet away from the weatherproof base. The Series RH-R is ideal for environmental chambers, rubber bladder burst detection and air handler applications.

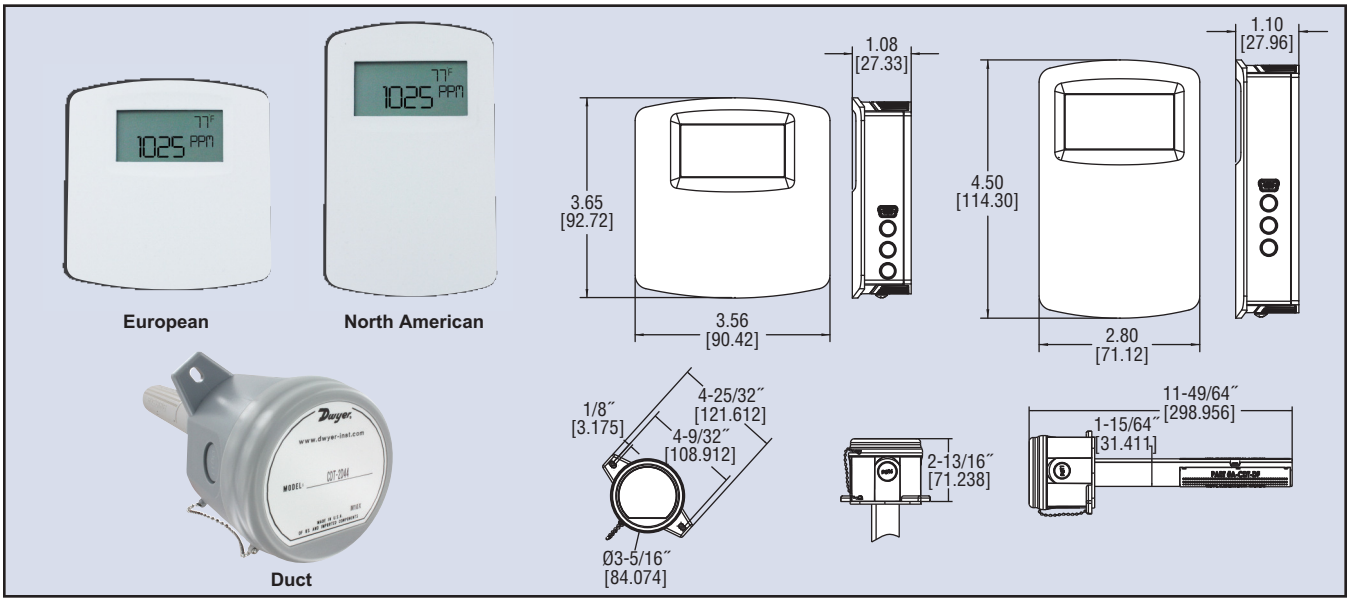
Model	Cable Length	Description	Output
RHU-R004	4´	Humidity	Current
RHU-R008	8´	Humidity	Current
RHU-R012	12´	Humidity	Current
RHU-R016	16´	Humidity	Current
RHT-R004	4´	Humidity/Temperature	Current
RHT-R008	8´	Humidity/Temperature	Current
RHT-R012	12´	Humidity/Temperature	Current
RHT-R016	16´	Humidity/Temperature	Current
RHU-R104	4´	Humidity	Voltage
RHU-R108	8´	Humidity	Voltage
RHU-R112	12´	Humidity	Voltage
RHU-R116	16´	Humidity	Voltage
RHT-R104	4´	Humidity/Temperature	Voltage
RHT-R108	8´	Humidity/Temperature	Voltage
RHT-R112	12´	Humidity/Temperature	Voltage
RHT-R116	16´	Humidity/Temperature	Voltage

SPECIFICATIONS
Service: Dry clean air.
Relative Humidity Range: 0 to 100% RH.
Temperature Range: -40 to 140°F (-40 to 60°C).
Accuracy: ±2% @ 10-90%.
Temperature Limits: -40 to 140°F (-40 to 60°C).
Storage Temperature: -40 to 176°F (-40 to 80°C).
Compensated Temperature Range: -4 to 140°F (-20 to 60°C).
Power Requirements: 10 to 35 VDC.
Output Signal: 4 to 20 mA loop powered or 0 to 10 VDC.
Response Time: Less than 15 seconds.
Electrical Connections: Terminal block.
Conduit Connection: 1/2˝ NPT.
Process Connection: 1/2 NPSM.
Drift: Less than 1%/year.
RH Sensor: Capacitance polymer
Cable Length: Up to 16 ft.
Housing Material: Polycarbonate, aluminum enclosure.
Enclosure Rating: NEMA 4X (IP66).
Agency Approvals: CE.

Series CDT-E/N/D

Carbon Dioxide/Temperature Transmitter

NDIR Sensor, Universal Outputs, Optional Relay



Series CDT Carbon Dioxide and Temperature Transmitters accurately monitor the CO_2 concentration and temperature in schools, office buildings, and other indoor environments to help achieve LEED® certification. For increased sensor accuracy, a single-beam dual-wavelength non-dispersive infrared (NDIR) sensor is used to automatically correct the measurement in both occupied and unoccupied buildings against light source aging effects. The single-beam dual-wavelength sensor technology provides the highest level of accuracy compared to Automatic Baseline Correction methods which can unintentionally shift the calibration based on CO_2 levels and barometric pressure conditions. In order to achieve a higher level of accuracy, the Series CDT includes digital barometric pressure adjustment and the ability to field-calibrate the sensor.

Universal outputs for both carbon dioxide and temperature allow users to select the transmitter output to be 4 to 20 mA, 0 to 5 VDC, or 0 to 10 VDC to work with virtually any building management controller. Additionally, a passive thermistor or RTD sensor can be ordered for a temperature output. An optional relay with user adjustable set points can be used to control exhaust fans, open actuated windows or dampers, or signal a light or horn.

For applications that require visual indication, the wall mount configurations of the Series CDT can be ordered with an integral LCD display. When ordering a duct mount configuration or a wall mount configuration without the display, the Model A-449 or A-449A remote LCD display can plug into the miniature connector port on the transmitter. The display can be configured to display temperature only, CO_2 only, or CO_2 and temperature together. Push buttons are standard on all configurations of the transmitters for access to the menu structure, but wall mount configurations can be ordered without the buttons. To prevent tampering, the action of the buttons can be locked out using an internal dip switch selection. Menu items that can be accessed via the push buttons include: engineering units, relay output set points, display configuration, transmitter output scaling, ambient barometric pressure, and field calibration of the transmitter.

Single beam dual-wavelength sensor advantages:

- Automatically corrects for aging effects in occupied and unoccupied buildings*
  - Perfect for hospitals and manufacturing plants that are occupied 24 hours per day
- Measures actual unfiltered light intensity directly
  - Eliminates error from incorrect assumptions of gas concentration in theoretical logic assumption methods

* For buildings occupied 24 hours per day, it is recommended that calibration be verified every 6 to 12 months depending on application.

GCK-200CO-2000CO2, Calibration Gas Kit includes a 99.99% Nitrogen gas cylinder for calibrating the zero point and a 200 PPM CO / 2000 PPM CO_2 gas cylinder for calibrating the span point on Dwyer's gas sensing transmitters

SPECIFICATIONS

Sensor: Single beam, dual-wavelength NDIR.

Range:
CO_2: 0 to 2000 or 0 to 5000 ppm (depending on model);
Temperature: 32 to 122°F (0 to 50°C).

Accuracy:
CO_2: ±40 ppm ±3% of reading;
RH: ±2% (10 to 90% RH);
Temperature: ±1°C @ 25°C.

Temperature Dependence: ±8 ppm/°C at 1100 ppm.

Non-Linearity: 16 ppm.

Pressure Dependence: 0.13% of reading per mm of Hg.

Response Time: 2 min for 99% step change.

Temperature Limits: 32 to 122°F (0 to 50°C).

Humidity Limits: 10 to 95% RH (non-condensing).

Power Requirements: 16 to 35 VDC or 19 to 28 VAC.

Power Consumption: Average: 2 w; Peak: 3.75 w.

Output:
Current: 4 to 20 mA (max. 500 Ω);
Voltage: 0 to 5 VDC or 0 to 10 VDC (min. 500 Ω);
Relay: SPST NO rated 2A @ 30 VDC;
RTD or thermistor per r-t curves on page XXX (depending on model).

Weight: 4.4 oz (125 g).

Agency Approvals: CE, RoHS.

Series	CDT	-2	N	4	4	-LCD	Example: CDT-2N44-LCD
Range		2					0 to 2000 ppm CO_2 range
		5					0 to 5000 ppm CO_2 range
Configuration			N				North American Wall Mount
			E				European Wall Mount
			D				Duct Mount
CO_2 Output				4			4 to 20 mA / 0 to (5 or 10) VDC
Temperature Output					0		None
					4		4 to 20 mA / 0 to (5 or 10) VDC
					A		10 KΩ NTC thermistor type III
					B		10 KΩ NTC thermistor type II
					C		3 KΩ NTC thermistor
					D		Pt100 Ω RTD
					E		Pt1000 Ω RTD
					F		20 KΩ NTC thermistor
Options						-LCD	LCD display (wall only)
						-RLY	Relay
						-NBC	No buttons (wall only)

ACCESSORIES

A-449, Remote LCD Display allows remote indication of select Dwyer® Wall Mount Transmitters for validation or certification purposes

A-449A, Remote LCD Display with buttons allows remote indication and calibration of select Dwyer® Wall Mount Transmitters for validation and certification purposes

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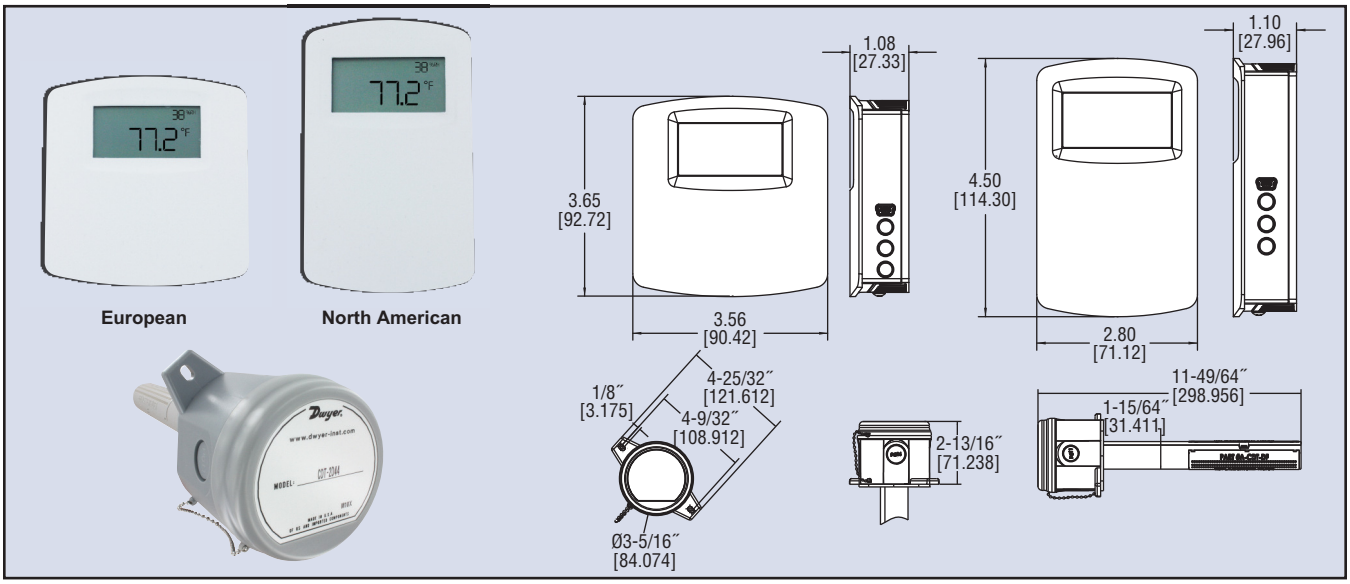
Series CDTR-E/N

Carbon Dioxide/RH/ Temperature Transmitter

NDIR CO_2 Sensor, Universal CO_2/RH Outputs, Optional Relay



Series CDTR Carbon Dioxide, Relative Humidity and Temperature Transmitters reduce the number of sensors mounted on a wall or in a duct. By combining CO_2, RH, and temperature in one device, system integrators are able to lower installation time of mounting multiple housings, while lowering material cost at the same time. Even with the three sensors combined into a single unit, replacement cost is not increased due to the pluggable nature of the humidity sensor, which allows it or the temperature to be replaced at a fraction of the cost of a new CO_2 transmitter.

Like our popular Series CDT Carbon Dioxide Transmitter, a single-beam dual-wavelength non-dispersive infrared (NDIR) sensor is used to automatically correct the measurement in both occupied* and unoccupied buildings against light source aging effects. The single-beam dual-wavelength sensor technology provides a higher level of accuracy compared to Automatic Baseline Correction methods which can unintentionally shift the calibration based on CO_2 levels and barometric pressure conditions. In order to achieve the best possible accuracy, the Series CDTR also includes digital barometric pressure adjustment and the ability to field-calibrate the sensor.

Universal outputs for both carbon dioxide and relative humidity allow users to select the transmitter output to be 4 to 20 mA, 0 to 5 VDC, or 0 to 10 VDC to work with virtually any building management controller. Additionally, passive thermistor or RTD sensor can be ordered for a temperature output. An optional relay for the carbon dioxide measurement can be used to control exhaust fans, open actuated windows or dampers, or signal a light or horn.

For applications that require visual indication, the wall mount configurations of the Series CDTR can be ordered with an integral LCD display. When ordering a duct mount configuration or a wall mount configuration without the display, the Model A-449 or A-449A remote LCD display can plug into the miniature connector port on the transmitter. The display can be configured to display temperature only, relative humidity only, CO_2 only, CO_2 and humidity, or CO_2 and temperature. Push buttons are standard on all configurations of the transmitters for access to the menu structure, but wall mount configurations can be ordered without the buttons. To prevent tampering, the action of the buttons can be locked out using an internal jumper selection. Menu items that can be accessed via the push buttons include: engineering units, relay output set points, display configuration, transmitter output scaling, ambient barometric pressure, and field calibration of the transmitter.

*For buildings occupied 24 hours per day, it is recommended that calibration be verified every 6 to 12 months depending on application.

GCK-200CO-2000CO2, Calibration Gas Kit includes a 99.99% Nitrogen gas cylinder for calibrating the zero point and a 200 PPM CO / 2000 PPM CO_2 gas cylinder for calibrating the span point on Dwyer's gas sensing transmitters

SPECIFICATIONS

Range:
CO_2: 0 to 2000 or 0 to 5000 ppm (depending on model);
Relative Humidity: 0 to 100%;
Temperature: 32 to 122°F (0 to 50°C).
Accuracy: ±40 ppm + 3% of reading (CO_2); ±2% (RH).
Temperature Dependence: ±8 ppm / °C at 1100 ppm.
Non-Linearity: 16 ppm.
Pressure Dependence: 0.13% of reading per mm of Hg.
Response Time: 2 minutes for 99% step change.
Temperature Limits: 32 to 122°F (0 to 50°C).
Humidity Limits: 10 to 95% RH (non-condensing).
Power Requirements: 16 to 35 VDC / 19 to 28 VAC.
Power Consumption: Average: 2 watts; Peak: 3.75 watts.
Sensor: Single-beam, dual-wavelength NDIR.
Output:
Current: 4 to 20 mA (max 500 Ω);
Voltage: 0 to 5 VDC or 0 to 10 VDC (min 500 Ω);
Relay: SPST NO 2A @ 30 VDC;
RTD or thermistor per r-t curves (depending on model).
Weight: 5.6 oz (158.8 g).
Agency Approvals: CE.

Series	CDTR-	2	N	4	A	4	-LCD	Example: CDTR-2N4A4-LCD
Range		2						0 to 2000 ppm CO_2 range
		5						0 to 5000 ppm CO_2 range
Configuration			N					North American Wall Mount
			E					European Wall Mount
CO_2 Output				4				4 to 20 mA / 0 to (5 or 10) VDC
Temperature Output					0			None
					A			10 KΩ NTC thermistor type III
					B			10 KΩ NTC thermistor type II
					C			3 KΩ NTC thermistor
					D			Pt100 Ω RTD
					E			Pt1000 Ω RTD
					F			20 KΩ NTC thermistor
RH Output						4		4 to 20 mA / 0 to (5 or 10) VDC
Options							-LCD	LCD display (wall only)
							-RLY	Relay
							-NBC	No buttons (wall only)

ACCESSORIES

A-449, Remote LCD Display allows remote indication of select Dwyer® Wall Mount Transmitters for validation or certification purposes

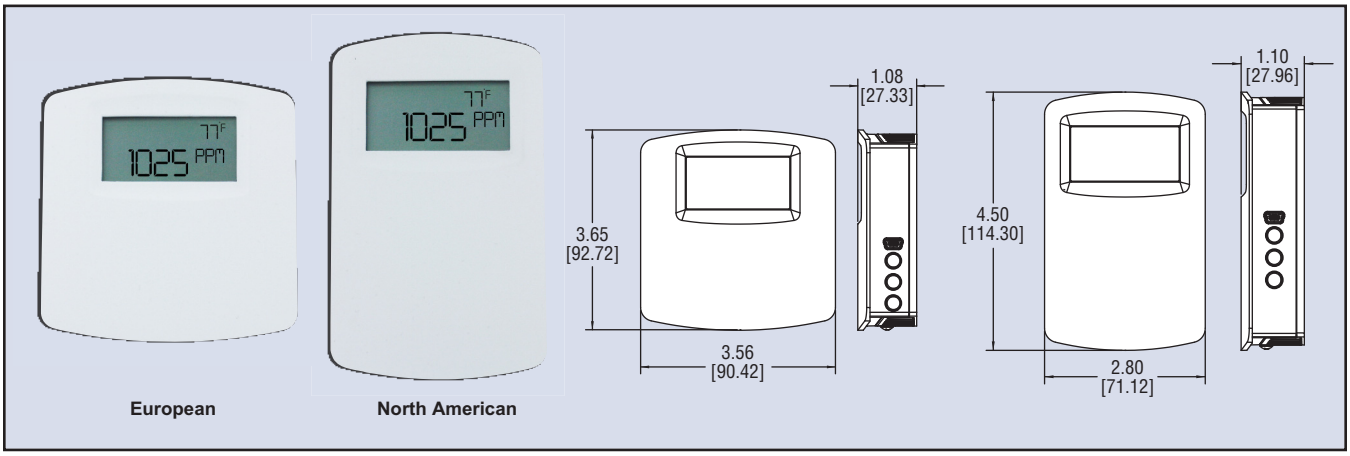
A-449A, Remote LCD Display with buttons allows remote indication and calibration of select Dwyer® Wall Mount Transmitters for validation and certification purposes

GAS SENSING

Series CDTA

Communicating Carbon Dioxide Detector

Measures CO_2, Humidity, Temperature, Temperature Set Point, and Override



The Series CDTA Communicating Carbon Dioxide Detector combines the function of three room sensors into a single, compact housing. Parameters include carbon dioxide, humidity, temperature, and temperature set point with override. By having field selectable Modbus® and BACnet Communications, only four wires are needed for power and the communication signal. The communicating detectors can be daisy-chained together to further reduce installation cost. In order to reduce the set up time, the RS-485 MAC address is set up using on board dip switches. A second set of dip switches are used to select whether output is Modbus® RTU or BACnet MS/TP communication protocols and to limit access to the set up menu.

Like our Series CDT Carbon Dioxide Transmitter, the Series CDTA uses a Single Beam Dual Wavelength Non-Dispersive Infrared (NDIR) sensor to measure the carbon dioxide level. This technology can be used in installations that will be occupied 24 hours per day. For improved accuracy, the transmitter can be field calibrated to the environmental conditions of the installation. Also, the barometric pressure can be programmed to correct for altitude. The humidity uses a capacitive polymer sensor and the temperature is measured using a 10KΩ thermistor sensor. The humidity sensor is field replaceable without the need for additional calibration.

Optional local and remote displays are available to display any of the parameters. For applications in which the building occupants aren't familiar with CO_2 concentrations, the LCD can be programmed to display temperature, humidity, or temperature set point instead.

FEATURES

- Field selectable Modbus® and BACnet communications
- Single-beam dual-wavelength CO_2 sensor
- Replaceable humidity/temperature sensor
- Physical hardware lockout
- Optional remote display tool

SPECIFICATIONS

Sensor (CO_2): Single-beam, dual-wavelength NDIR;
Humidity: Capacitive polymer;
Temperature: 10KΩ thermistor.
Range:
CO_2: 0 to 2000 or 5000 PPM CO_2 (depending on model);
Humidity: 0 to 100% RH;
Temperature: 32 to 122°F (0 to 50°C).
Accuracy:
CO_2: ±40 ppm ±3% of reading;
RH: ±2% (10 to 90% RH);
Temperature: ±1°C @ 25°C.
Temperature Dependence (CO_2): ±8 ppm / °C at 1100 ppm.
Non-Linearity (CO_2): 16 ppm.
Pressure Dependence (CO_2): 0.13% of reading per mm of Hg.
Response Time (CO_2): 2 minutes for 99% step change.
Temperature Limits: 32 to 122°F (0 to 50°C).
Humidity Limits: 10 to 95% RH (non-condensing).
Power Requirements: 10 to 42 VDC / 10 to 30 VAC.
Power Consumption:
Average: 0.5 watts;
Peak: 1.2 watts.
Output: 2-wire RS-485, Modbus® RTU or BACnet MS/TP communication protocol.
Weight: 4.4 oz (125 g).
Agency Approvals: BTL, CE, RoHS.

Model	CO_2 Concentration	Housing	Display
CDTA-2N000	2000 PPM	North American	No
CDTA-2N000-LCD	2000 PPM	North American	Yes
CDTA-2E000	2000 PPM	European	No
CDTA-2E000-LCD	2000 PPM	European	Yes
CDTA-5N000	5000 PPM	North American	No
CDTA-5N000-LCD	5000 PPM	North American	Yes
CDTA-5E000	5000 PPM	European	No
CDTA-5E000-LCD	5000 PPM	European	Yes

ACCESSORIES

GCK-200CO-2000CO2, Calibration Gas Kit includes a 99.99% Nitrogen gas cylinder for calibrating the zero point and a 200 PPM CO / 2000 PPM CO_2 gas cylinder for calibrating the span point on Dwyer's gas sensing transmitters

A-449, Remote LCD Display allows remote indication of select Dwyer Wall Mount Transmitters for validation or certification purposes

A-449A, Remote LCD Display with buttons allows remote indication and calibration of select Dwyer® Wall Mount Transmitters for validation and certification purposes

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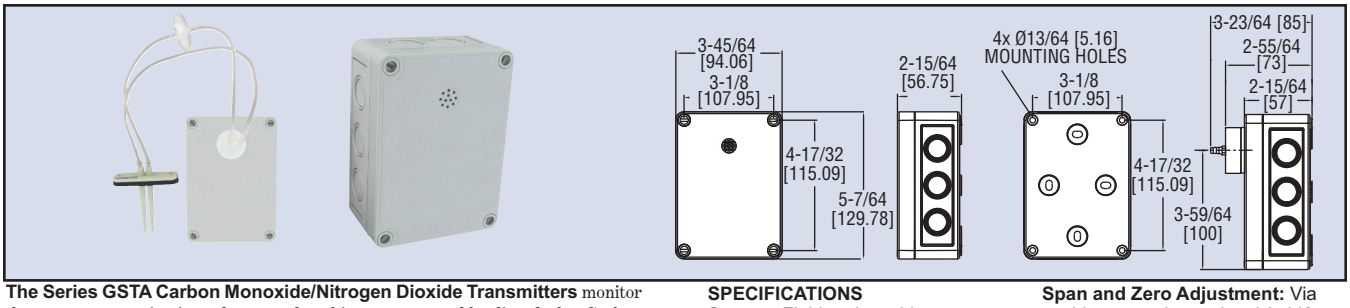
GAS SENSING

Series GSTA

Carbon Monoxide/Nitrogen Dioxide Gas Transmitter

High Accuracy Electrochemical Sensor, Universal Output



The Series GSTA Carbon Monoxide/Nitrogen Dioxide Transmitters monitor the gas concentration in underground parking garages and loading docks. Carbon monoxide is commonly used to measure the exhaust of gasoline engines, while nitrogen dioxide is used for diesel engines. Field selectable current and voltage outputs allow the transmitter to be used with almost any building management controller. For carbon monoxide units, the user can select the output range to be from 0 to 50 ppm up to 0 to 500 ppm. Nitrogen dioxide units come with a standard 0 to 10 ppm range. The output can be inverted to read 20 to 4 mA or 10 (5) to 0 VDC using internal dip switches.
To maximize the accuracy of the Series GSTA, the sensor can be field-calibrated using the A-449 remote LCD display. When the sensor reaches the end of its life, the display will indicate that the sensor needs to be replaced.

Model	Gas Sensed	Mounting
GSTA-C	CO	Wall
GSTA-N	NO_2	Wall
GSTA-C-D	CO	Duct
GSTA-N-D	NO_2	Duct

A-449, Remote LCD Display

A-505, CO Replacement Sensor

A-506, NO_2 Replacement Sensor

A-507, Calibration Adapter

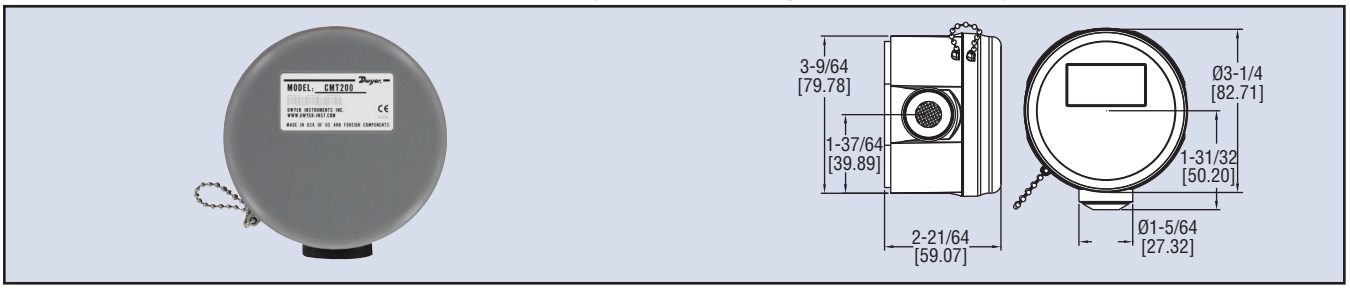
SPECIFICATIONS
Sensor: Field replaceable electrochemical, 4 years typical lifespan. Recommend calibration every 6 months.
Range: CO: selectable 0-50 ppm up to 0-500 ppm; NO_2: 10 ppm.
Output Drift: <5% per year in air.
Coverage Area: 5000 to 7500 sq ft typical.
Accuracy: CO=2% of reading, NO_2=3% of reading at the time of calibration.
Resolution: CO=1 ppm; NO_2 = 0.1 ppm.
Temperature Limits:
Ambient: -4 to 122°F (-20 to 50°C);
Storage: For best sensor life, 32 to 68°F (0 to 20°C).
Humidity Limits: 15 to 90% RH constant; 0 to 99% RH intermittent.
Response Time: <45 seconds to 90% CO, <25 to 90% NO_2.
Span and Zero Adjustment: Via pushbutton, using optional A-449 display.
Housing: UV resistant glass filled polycarbonate.
Output: Switch selectable 4 to 20 mA (loop powered), 0 to 5 V @ 5 mA, or 0 to 10 V@ 5 mA; Switch selectable 0 to 5 V / 1 to 5 V and 0 to 10 V / 2 to 10 V; Switch selectable normal or reverse output.
Power Supply: Current output=10 to 35 VDC; Voltage output=15 to 35 VDC or 15 to 29 VAC.
Electrical Connection: Removable terminal block, knocks out for conduit fitting.
Calibration: Via pushbuttons using A-449 auxiliary display. Span gas concentration is field selectable.
Weight: 1 lb (.45 kg).
Agency Approval: CE, RoHS.

GAS SENSING

Model CMT200

Carbon Monoxide Transmitter

Current/Voltage Selectable Output, 200 PPM Range



The Model CMT200 Carbon Monoxide Transmitter provides a field selectable current or voltage output that is proportional to the gas concentration in underground parking garages, vehicle maintenance facilities, or mechanical rooms. A field replaceable, electrochemical sensor provides accurate readings for up to 4 years with proper calibration. Field calibration can be done by using Model GCK-200CO-2000CO2 calibration gas, Model A-507A calibration adapter, and the on board span and zero potentiometers.

Model CMT200, Carbon Monoxide Transmitter

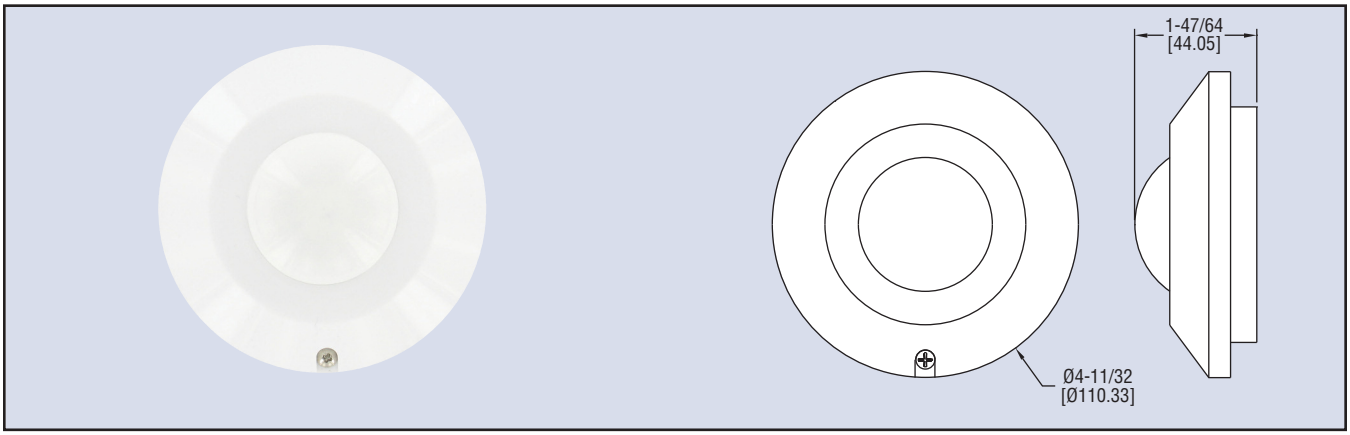
ACCESSORIES
Model GCK-200CO-2000CO2, Calibration Gas
Model A-507A, Calibration Adapter
Model A-505A, Replacement CO Sensor

SPECIFICATIONS
Sensor: Field replaceable electrochemical, 4 year typical lifespan.
Range: 0 to 200 ppm.
Output Drift: <5% per year in air.
Coverage Area: 5000 to 7000 sq. ft. typical.
Accuracy: ±2% of reading at the time of calibration.
Temperature Limits: -4 to 122°F (-20 to 50°C).
Storage Temperature: For best sensor life, 32 to 68°F (0 to 20°C).
Humidity Limits: 15 to 90% RH constant; 0 to 99% RH intermittent.
Response Time: <45 seconds to 90% of final value.
Calibration: 15 turn span and zero adjustment potentiometers.
Housing: UV resistant polycarbonate.
Output: Jumper selectable 4 to 20 mA (loop powered) or 2 to 10 V (load must be >50 KΩ).
Power Requirements: Current Output: 18 to 28 VDC; Voltage Output: 18 to 28 VDC/VAC, reverse polarity protected.
Electrical Connection: Removable terminal block, includes two PG11 and one PG 16 knockouts for conduit fitting.
Weight: 0.28 lb (0.11 kg).
Agency Approvals: CE, RoHS.

Model OSC-200

Omnidirectional Occupancy Sensor

360° Detection Pattern, Energy Efficient



The Model OSC-200 Omnidirectional Occupancy Sensor automatically controls a HVAC ventilation system. A spherical Fresnel lens provides a 360° detection zone with the use of infrared technology. The integrated dual delay processor saves energy by eliminating false activation due to short-term occupancies. The Model OSC-200 is designed to be ceiling mounted.

Model OSC-200, Omnidirectional Occupancy Sensor

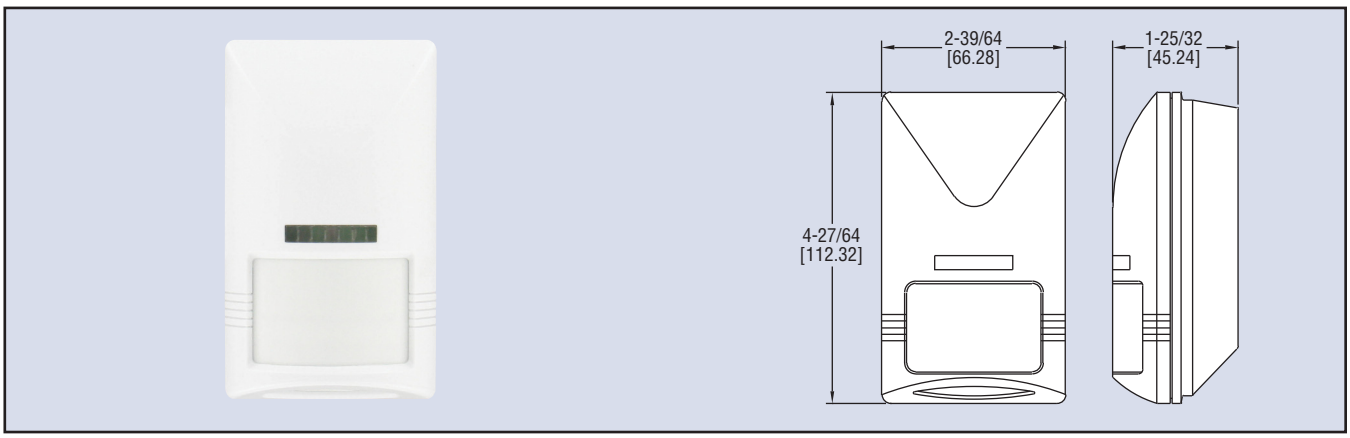
SPECIFICATIONS
Infrared Sensor: Dual element.
Range: 34.4 ft (10.5 m) Diameter at 13.8 ft (4.2 m) mount height.
Detectable Speed: 0.33 to 9.8 ft/s (0.1 to 3.0 m/s).
Control Output Rating: SPDT, 0.2A at 30 VDC.
Ambient Operating Temperature: -4 to 140°F (-20 to 60°C).
Power Consumption: Standby: 5 mA; Operating: 18 mA.
Mounting Height: 7.9 to 13.8 ft (2.4 to 4.2 m).
Power Requirements: 22 to 26 VAC/DC.
Weight: 2.4 oz (68 g).
Agency Approvals: CE.

OCCUPANCY

Model OSW-100

Wall Mount Occupancy Sensor

Wide Viewing Angle, Easy To Install



The Model OSW-100 Wall Mount Occupancy Sensor is an infrared sensor designed to automatically control a HVAC ventilation system. A unique dual delay processor eliminates false triggers due to short-term occupancies. The Model OSW-100 has a wide 110° viewing angle to capture movement up to 49.2 ft (15 m) away.

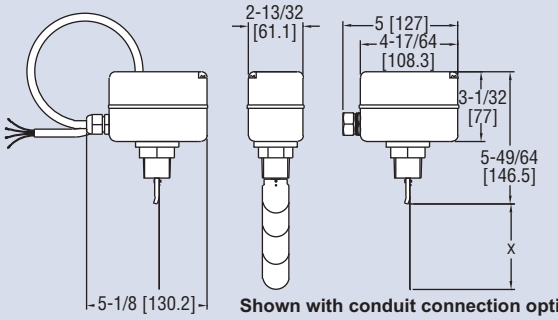
Model OSW-100, Wall Mount Occupancy Sensor

SPECIFICATIONS
Infrared Sensor: Dual element.
Range: 49.2 ft (15 m).
Detectable Speed: 0.33 to 9.8 ft/s (0.1 to 3.0 m/s).
Control Output Rating: SPDT, 0.2A @ 30 VDC.
Ambient Operating Temperature: -4 to 140°F (-20 to 60°C).
Power Consumption: Standby: 5 mA; Operating: 18 mA.
Mounting Height: 5.9 to 11.8 ft (1.8 to 3.6 m).
Power Requirements: 22 to 26 VAC/DC.
Weight: 3.2 oz (90.7 g).
Agency Approvals: CE.

Series FS-2

Vane Flow Switch

Low Cost, Field Adjustable Set Point and Paddle



Shown with conduit connection option

The Series FS-2 Vane Flow Switch offers an economical flow proving solution. Custom set points tailored for the application are enabled by field adjustable vane layers and a set point adjustment screw. The FS-2 features an aluminum weatherproof housing for outdoor installation. Paddles are adjustable to fit 1˝ to 8˝ size pipe. FS-2 is ideal for use in "flow or no flow" applications in cold and hot water systems. Perfect for proving flow in boilers, hot water heaters, and chillers.

Series FS-2, Paddle Flow Switch

Flow Rate Chart

Pipe Diameter (inch)	Blade Vane Length in (mm) Dim. X	Approximate Actuation and Deactuation Flow Rates for Water			
		Minimum Setting GPM (LPM)		Maximum Setting GPM (LPM)	
		Actuate	Deactuate	Actuate	Deactuate
1	1.34 (34)	4.0 (15.0)	1.8 (6.7)	8.8 (33.3)	6.6 (25.0)
1-1/4	1.34 (34)	5.3 (20.0)	2.6 (10.0)	11.4 (43.3)	8.4 (31.7)
1-1/2	2.24 (57)	7.0 (26.7)	4.0 (15.0)	14.5 (55.0)	11.4 (43.3)
2	2.24 (57)	14.1 (53.3)	9.7 (36.7)	31.3 (118.3)	22.5 (85.0)
2-1/2	3.46 (88)	18.5 (70.0)	15.4 (58.3)	35.2 (133.3)	30.8 (116.7)
3	3.46 (88)	27.7 (105.0)	25.1 (95.0)	52.8 (200.0)	46.2 (175.0)
4	3.46 (88)	59.4 (225.0)	52.8 (200.0)	123.3 (466.7)	114.5 (433.3)
5	6.57 (167)	52.8 (200.0)	39.6 (150.0)	132.1 (500.0)	123.3 (466.7)
6	6.57 (167)	75.7 (286.7)	52.8 (200.0)	154.1 (583.3)	140.9 (533.3)
8	6.57 (167)	184.9 (700.0)	158.5 (600.0)	396.3 (1500.0)	374.2 (1416.7)

SPECIFICATIONS
Service: Compatible liquids.
Wetted Materials:
Bellow: Tin-bronze;
Vane: SS;
Body: Forged brass.
Temperature Limit: 230ºF (110ºC).
Pressure Limit: 145 psig (10 bar).
Enclosure Rating: NEMA 4 (IP64).
Switch Type: SPDT snap switch.
Electrical Rating: 10A res, 3A ind @ 250 VAC.
Electrical Connection: Cable gland with attached wire leads or optional conduit connection.
Process Connection: 1˝ male NPT or BSPT.
Mounting Orientation: Switch must be installed vertically on horizontal pipe runs.
Set Point Adjustment: Four vane combinations and an adjustment screw.
Enclosure: Die-cast aluminum alloy.
Weight: 28.22 oz (0.8 kg).
Agency Approvals: CE.

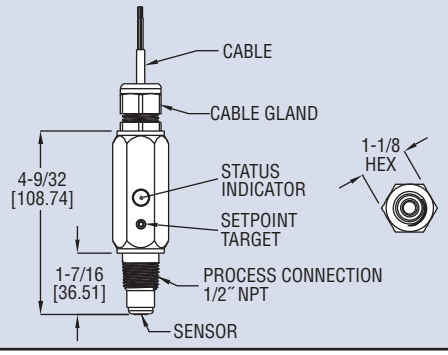
OPTIONS
BSPT Process Connection,
To order add suffix -BSPT.
Example: **FS-2-BSPT**

Conduit Connection, 1˝ NPT female conduit connection with no wire leads.
To order add suffix -CND.
Example: **FS-2-CND**

Series TDFS

Thermal Dispersion Flow Switch

Non-Mechanical, Low Pressure Drop



The Series TDFS is a thermal flow switch that indicates whether the flow rate is above or below a user set flow rate with NO and NC NPN outputs. Setpoint is easily field set, just tap the included magnet on the setpoint target three times at the desired flow rate and it's done. Incorporated into the unit are two LED status indicators on opposite sides of the unit providing visual switch indication, green when the flow is above set point, red when the flow is below set point.
The TDFS uses an impulse thermal dispersion measurement technique to measure the flow rate where the probe is heated above the process temperature and then is allowed to cool down to the process temperature. Empty pipe is not a problem with the TDFS unlike some competitor units that will overheat. Thermal flow switches can offer better long term reliability and life expectancy than mechanical flow switches.

TDFS Advantages over Mechanical Flow Switches
- No paddles or vanes to break off into the flow
- No jams or material stopping the paddle movement
- No seals on movement assembly to wear or leak
- Low pressure drop, only needs to be 10% into the flow (e.g. 1/8˝ for 3/4˝ schedule 40 pipe)

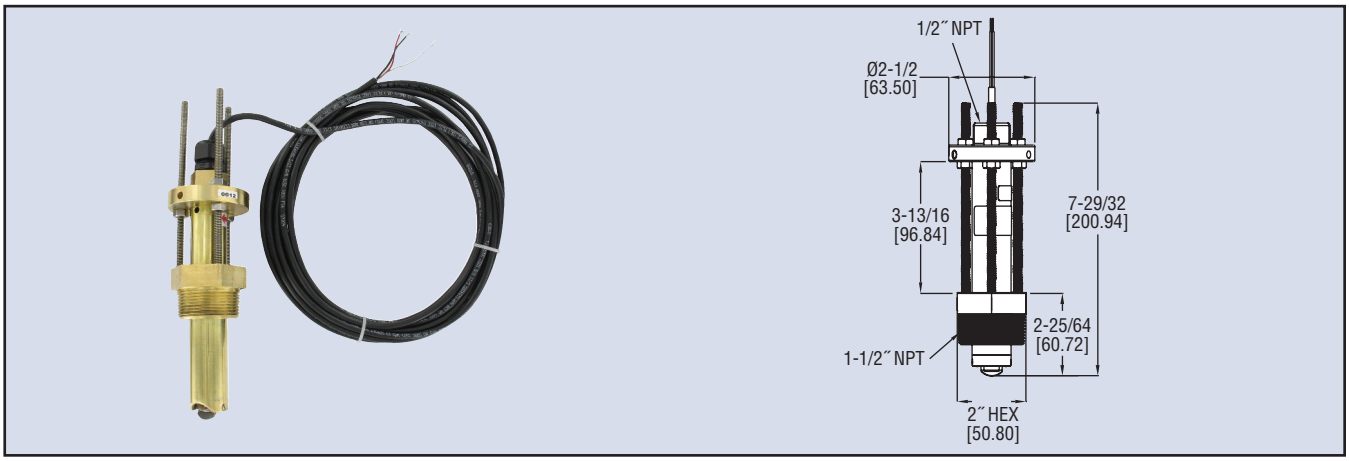
TDFS-1-P-06, Thermal flow switch, 6´ cable with cable gland*
*Consult factory for longer cable lengths

SPECIFICATIONS
Service: Compatible water-based fluids.
Wetted Materials: 316 SS, Polysulfone, and FKM.
Setpoint Range: 0.5 to 10 ft/s (0.15 to 3.0 m/s).
Repeatability: 0.07 ft/s +3% of setpoint.
Typical Deadband: 0.1 ft/s +15% of setpoint.
Temperature Limits: Process: 5 to 185°F (-15 to 85°C) (non-freezing); Ambient: 5 to 167°F (-15 to 75°C), Storage: -40 to 185°F (-40 to 85°C).
Pressure Limits: 300 psig (20.67 bar), max. momentary surge: 500 psig (34.47 bar).
Response Time: Approximately 8 s.
Power Requirement: 9 to 24 VDC.
Switching Current: 400 mA, derate 5 mA/°C above 23°C.
Current Consumption: Average: 93 mA, Peak: 300 mA.
Electrical Connection: 4 conductor 22 AWG, 6´ (1.83 m) long with cable gland.
Process Connection: 1/2˝NPT male.
Enclosure Rating: NEMA 4X (IP65).
Housing Materials: 316 SS, 416 SS, polycarbonate, neoprene, and acrylated urethane.
Switch Type: 1 NO NPN, 1 NC NPN.
Input Power and Protection: 0.5A fuse (resettable) reverse polarity protected.
Switched Output Protection: 0.5A fuse (resettable) reverse polarity protected.
Agency Approvals: CE, RoHS.

Series PFT

Paddlewheel Flow Sensor

Non-Magnetic Sensing, Insertion Style for 1-1/2 to 40″ Pipe, Pulse or 4 to 20 mA



The Series PFT is a paddlewheel flow sensor used to monitor liquid flow rates in pipes from 1-1/2 to 40″ with just one size adjustable sensor. Multiple wetted material choices offer application versatility. The PFT is ideal for monitoring water flow rates in building automation cooling systems.

The PFT uses inductive sensing to sense the blades of the impeller as they rotate. Sensor technology does not use magnets allowing low flow rate monitoring and no concerns with magnetic material in the flow. Two output choices are available in the PFT, pulse or 4 to 20 mA. The pulse models are a square wave output signal with frequency proportional to the flow velocity. The 4 to 20 mA models have a linear output of the velocity with 4 mA equal to 1.2 ft/s and 20 mA equal to 25 ft/s. There are no external components needed to have the 4 to 20 mA output unlike other competitor products. Paddlewheel, shaft and bearings are easily field replaceable.

FEATURES

- Bearings and shaft offer excellent wear protection even in applications with particulate for long life
- Weatherproof and submersible rated for irrigation applications

SPECIFICATIONS

Service: Water-based fluids.
Range: 1.2 to 25 ft/s (0.37 to 7.62 m/s).
Wetted Materials: Body and fitting: Brass or 316 SS; fitting O-ring: FKM standard, silicone or Buna-N optional; impeller: 316 SS; shaft: Tungsten carbide standard or 316 SS optional; bearing: PTFE standard, carbon graphite optional.
Linearity: ±1.0% of full range.
Repeatability: ±0.5% of full range.
Temperature Limits: -40 to 212°F (-40 to 100°C).
Pressure Limits: 400 psig (27.6 bar) @ 100°F (37.8°C), 325 psig (22.4 bar) @ 212°F (100°C).
Process Connection: 1-1/2″ NPT male standard, 2″ NPT male optional.
Output:
Pulse: NPN open collector with square wave output, rated 60 V @ 50 mA max.Frequency: 3.2 to 200 Hz. Pulse Width: 2.5 msec ±25%.
4 to 20 mA: 4 mA is 0 ft/s, 20 mA is 25 ft/s.
Power Requirement: 10 to 35 VDC.
Power Consumption: 40 mA (max.).
Electrical Connection: 22 AWG shielded UL type PTLC rated 105°C, 20′ (6.1 m) long with cable gland. Can be extended up to 2000′ (609 m) with similar cable. Optional UL listed burial rated cable.
Enclosure Rating: NEMA 6P (IP67).
Housing Materials: Brass or 316 SS.
Weight: 3 lb.
Agency Approval: CE.

Model	Body Material	Output	Description
PFT-IAN-B111-S	Brass	4 to 20 mA	1-1/2″ NPT connection, FKM seals, tungsten-carbide shaft, PTFE bearing, 20' of cable
PFT-IAN-S111-S	316 SS	4 to 20 mA	1-1/2″ NPT connection, FKM seals, tungsten-carbide shaft, PTFE bearing, 20' of cable
PFT-IDN-B111-S	Brass	Pulse	1-1/2″ NPT connection, FKM seals, tungsten-carbide shaft, PTFE bearing, 20' of cable
PFT-IDN-S111-S	316 SS	Pulse	1-1/2″ NPT connection, FKM seals, tungsten-carbide shaft, PTFE bearing, 20' of cable

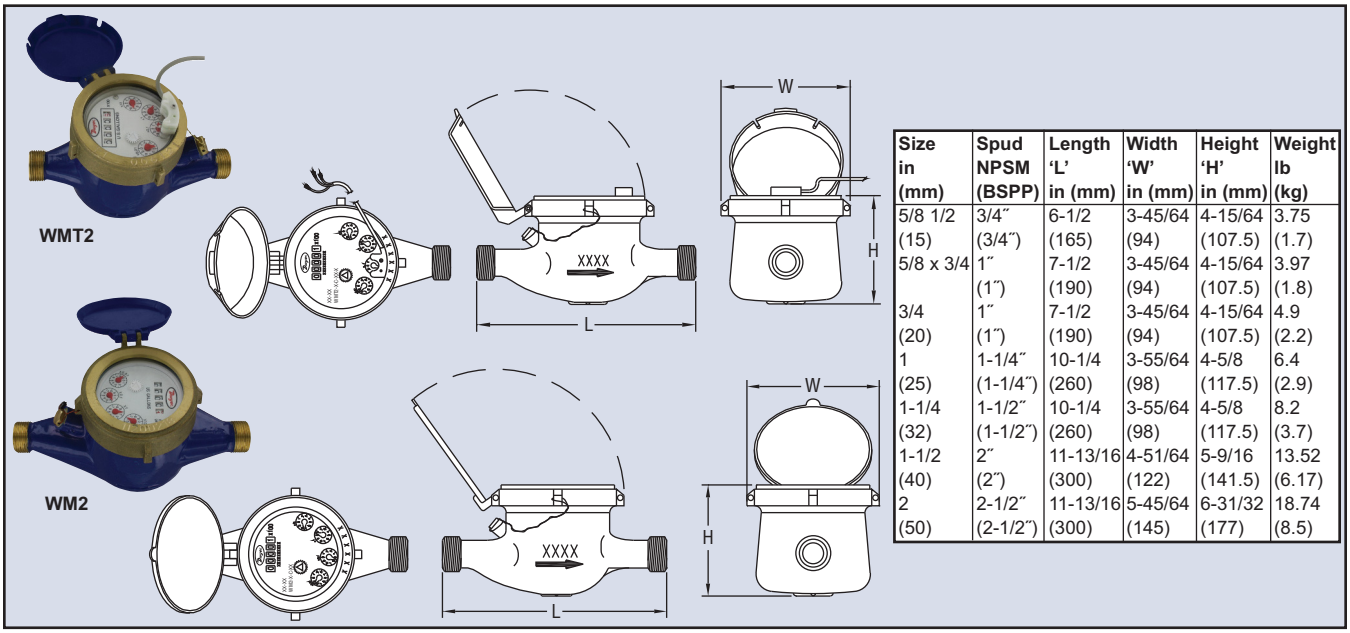
Consult factory for longer cable lengths, burial rated cable, 2″ NPT connection, or other wetted materials.

For compatible installation fittings see Series SDF on the Dwyer® website.

Series WMT2/ WM2

Multi-Jet Water Meter with Pulsed Output

Economical, Brass Body, Dry Dial



Size in (mm)	Spud NPSM (BSPP)	Length 'L' in (mm)	Width 'W' in (mm)	Height 'H' in (mm)	Weight lb (kg)
5/8 1/2 (15)	3/4″ (3/4″)	6-1/2 (165)	3-45/64 (94)	4-15/64 (107.5)	3.75 (1.7)
5/8 x 3/4	1″ (1″)	7-1/2 (190)	3-45/64 (94)	4-15/64 (107.5)	3.97 (1.8)
3/4 (20)	1″ (1″)	7-1/2 (190)	3-45/64 (94)	4-15/64 (107.5)	4.9 (2.2)
1 (25)	1-1/4″ (1-1/4″)	10-1/4 (260)	3-55/64 (98)	4-5/8 (117.5)	6.4 (2.9)
1-1/4 (32)	1-1/2″ (1-1/2″)	10-1/4 (260)	3-55/64 (98)	4-5/8 (117.5)	8.2 (3.7)
1-1/2 (40)	2″ (2″)	11-13/16 (300)	4-51/64 (122)	5-9/16 (141.5)	13.52 (6.17)
2 (50)	2-1/2″ (2-1/2″)	11-13/16 (300)	5-45/64 (145)	6-31/32 (177)	18.74 (8.5)

The Series WMT2 Multi-Jet Water Meter is ideal for commercial and industrial applications. The multi-jet design allows simplicity and accuracy with wide flow ranges even in low flow applications. The meter is designed for long service life and relatively maintenance-free operation, even under adverse conditions. The magnetically driven, hermetically sealed register will not leak or fog and is completely separated from the water. The reed switch is activated by a magnet on the dial, which is directly proportional to the flow rate. The output is perfect for remote monitoring of flow rate or flow totalization, and can interface with PLC's, counters, data loggers, and SCADA systems.

The Series WM2 Multi-Jet Water Meter is ideal for commercial and industrial applications. The multi-jet design allows for simplicity and accuracy with wide flow ranges, even in low flow applications. The magnetically driven, hermetically sealed register will not leak or fog and is completely separated from the water. These water meters are designed for long service life and maintenance-free operation, even under harsh conditions.

FEATURES

- Magnetic Drive – water is sealed from entering register
- Dry dial won't discolor or fade – hermetically sealed from the elements
- Integral strainer that protects meters from particulate damage
- Pointer-roller indicator
- Frost resistant body
- Pulsed output
- Includes two mounting adapters (couplings)

SPECIFICATIONS

COMMON SPECIFICATIONS

Service: Water.
Wetted Materials:
Body: Brass, polyethylene;
Couplings: Brass;
Measuring Chamber: Polyethylene, ABS plastic, ferrite, acetal.
Flow Range: See model chart.
Accuracy: Transitional Flow: ±5%; Nominal Flow: ±2%.
Temperature Limit: 104°F (40°C).
Pressure Limit: 232 psi (16 bar).
Pressure Drop: See service manual.
Mounting Orientation: Horizontal.
Weight: See dimension chart.

PULSED OUTPUT SPECIFICATIONS (WMT2 ONLY)

Totalizing Display Maximum: See model chart.
Output Signal: Pulse output with frequency proportional to flow rate.
Pulse Options: 0.1 gal, 1 gal, 10 gal, 100 gal per pulse (1 L, 10 L, 100 L per pulse).
Electrical Rating: 0.01 A @ 24 VAC/DC.
Electrical Connections: Color-coded lead wires, 4.5′ (1.5 m) long.

Model	Coupling Size	Size	Max Flow	Nominal Flow Range	Transitional Flow	Display Max (Gallons)	Pulse Rate (Gal./Pulse)
			GPM (Gallons Per Minute)				
WMT2-A-C-01	1/2′ NPT	5/8 x 1/2′	20	1 to 10	0.25	9,999,999.99	0.1
WMT2-A-C-02	3/4′ NPT	5/8 x 3/4′	20	1 to 20	0.25	9,999,999.99	0.1
WMT2-A-C-03	3/4′ NPT	3/4′	30	2 to 30	0.25	9,999,999.99	0.1
WMT2-A-C-04	1′ NPT	1′	50	3 to 50	0.75	99,999,999.9	0.1
WMT2-A-C-01-1	1/2′ NPT	5/8 x 1/2′	20	1 to 10	0.25	9,999,999.99	1
WMT2-A-C-02-1	3/4′ NPT	5/8 x 3/4′	20	1 to 20	0.25	9,999,999.99	1
WMT2-A-C-03-1	3/4′ NPT	3/4′	30	2 to 30	0.25	9,999,999.99	1
WMT2-A-C-04-1	1′ NPT	1′	50	3 to 50	0.75	99,999,999.9	1
WMT2-A-C-06-10	1-1/2′ NPT	1-1/2′	100	5 to 100	1.5	99,999,999.9	10
WMT2-A-C-07-10	2′ NPT	2′	160	80 to 160	2	99,999,999.9	10

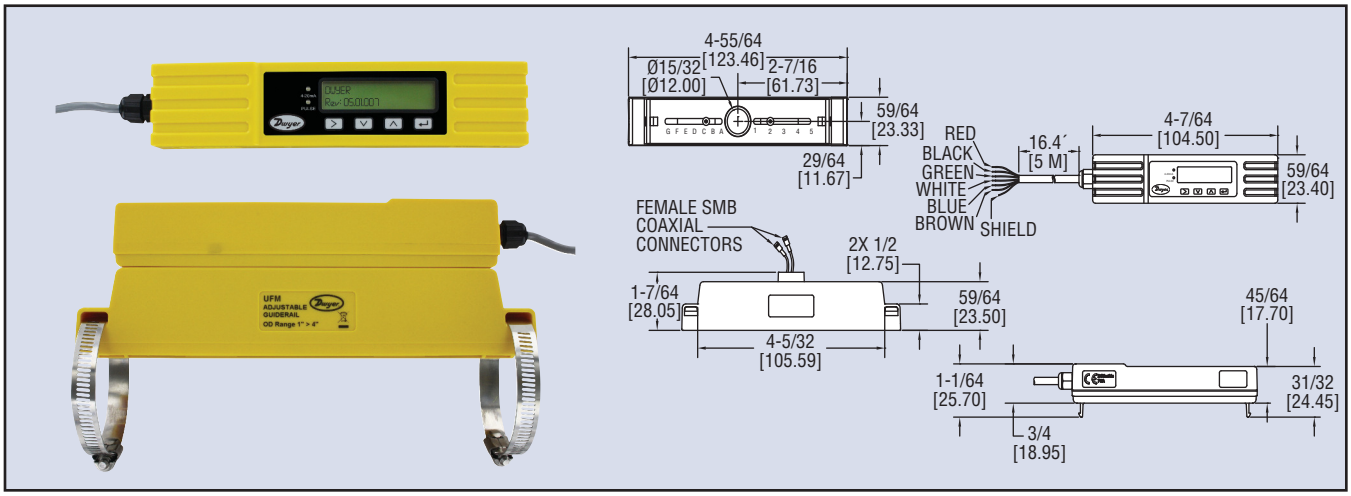
Model	Size	Coupling Size	Max Flow	Nominal Flow Range	Transitional Flow	Display Max (Gallons)
			GPM (Gallons Per Minute)			
WM2-A-C-01	5/8 x 1/2″	1/2″ NPT	20	1 to 10	0.25	9,999,999.99
WM2-A-C-02	5/8 x 3/4″	3/4″ NPT	20	1 to 20	0.25	9,999,999.99
WM2-A-C-03	3/4″	3/4″ NPT	30	2 to 30	0.25	99,999,999.9
WM2-A-C-04	1″	1″ NPT	50	3 to 50	0.75	99,999,999.9
WM2-A-C-06	1-1/2″	1-1/2″ NPT	100	5 to 100	1.5	99,999,999.9
WM2-A-C-07	2″	2″ NPT	160	80 to 160	2	99,999,999.9

Note: Contact factory for additional pulse rate and BSP connection models.

Model UFM

Compact Ultrasonic Flowmeter

Cost Effective, Compact & Adjustable Design, Non-Invasive



Model UFM Compact Ultrasonic Flowmeter is a low cost clamp-on, ultrasonic flowmeter. The Model UFM implements the transit-time difference to measure flow rates in pipes non-invasively. It is a compact and lightweight design, featuring an easily installed, all in one clamp-on unit. This unit can measure velocity and flow in pipes with outside diameters ranging from 0.98 to 4.62˝ (24.89 to 117.35 mm). The screen offers easy to read text with a convenient backlight for visual comfort. This model comes with a volume pulse and 4 to 20 mA flow rate output.

PRINCIPLES OF OPERATION

Two sensors located in the guiderail are placed on the exterior of the pipe, and each transmits an ultrasonic pulse through the pipe and fluid to the other. The velocity of the liquid flowing through the pipes causes the pulse to accelerate or decelerate. The difference in the transit times of the two pulses is used to calculate the flow rate. The use of transit time allows the flowmeter to be unaffected by pressure or temperature changes.

APPLICATIONS

- Flow measurement for heat metering
- Chilled water metering and monitoring

Kit Includes:

- Converter w/ adjustable guiderail
- Set of 1.81 to 2.75” (46 to 70 mm) clamps
- Set of 2 to 5” (51 to 127 mm) clamps
- Set of small pipe adaptor circle clamps
- Set of small pipe adaptor V clamps
- Ultrasonic coupling grease

Model UFM-1, Compact Ultrasonic Flowmeter

SPECIFICATIONS

Service: Clean water with <3% by volume of particulate content.
Range: 0.33 to 32.8 ft/s (0.1 to 10 m/s).
Display: Backlit: 3.27˝ H x 0.74˝ W (83.1 mm x 18.8 mm), 2 line x 16 characters.
Accuracy: ±3% of flow reading for > 0.98 ft/s (> 0.3 m/s).
Power Requirements: 12 to 24 VDC or VAC.
Power Consumption: 7 W max.
Temperature Limits:
Process: 32 to 185°F (0 to 85°C);
Ambient: 32 to 122°F (0 to 50°C).
Outputs:
Analog: 1 opto-isolated: 4 to 20 mA;
Error current: 3.5 mA;
Load resistance: 620 Ω max;
Pulse: 1 opto-isolated MOSFET relay, 500 mA max, 166 pps max, 200 Hz max.
Enclosure Rating: IP54.
Enclosure Material: Plastic polycarbonate.
Repeatability: ±0.5% of measured value.
Electrical Connections: 16.4´ (5 m) cable.
Response Time: < 1 s.
Weight: 2.9 lb (1.315 kg).
Agency Approvals: CE.

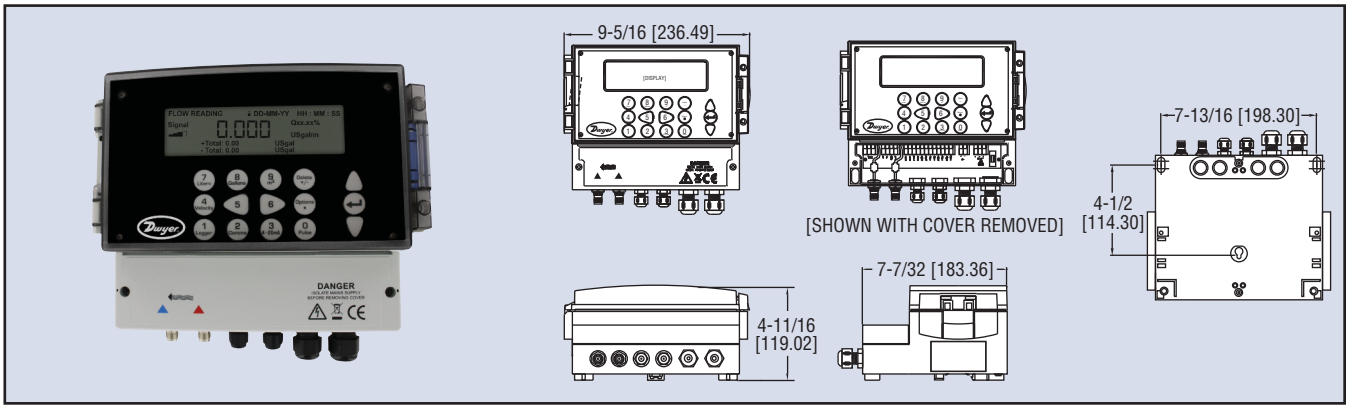
ADDITIONAL SPECIFICATIONS

Applicable Pipe Material: Steel, copper, or plastic.
Pipe Outside Diameter: 0.98 to 4.62˝ (24.89 to 117.35 mm).
Applicable Pipe Lining: None.
Pipe Wall Thickness: 0.02 to 0.39˝ (0.5 to 10 mm).

Series UFB

Ultrasonic Flowmeter Set

Excellent Performance and Easy Operation



The Series UFB Ultrasonic Flowmeter Set utilizes the transit-time difference for measuring flow rates in pipes non-invasively. This is the permanent model, allowing the user to mount the converter on a surface or pipe. The easy-to-use compact and lightweight design is intended for mechanical devices using ideally homogeneous liquids that contain no air pockets. The Series UFB comes with a sturdy IP65 rating, protecting it from dust and direct water contact. The Series UFB has 4 to 20 mA and pulse output capabilities.

PRINCIPLES OF OPERATION

Two sensors are placed on the exterior of the pipe, and each transmits an ultrasonic pulse through the pipe and fluid to the other. The velocity of the liquid flowing through the pipes causes the pulse to accelerate or decelerate. The difference in the transit times of the two pulses is used to calculate the flow rate. The use of transit time allows the flowmeter to be unaffected by pressure or temperature changes.

Kit Includes:

- Converter
- Set of Transducers
- Ruled Guide Rail
- Steel Banding
- Banding Clips
- Set of Transducer Cables
- Set of High Temperature Interface Cables
- Ultrasonic Coupling Grease

Model	Pipe Size Range	Power Supply
UFB-122	0.5 to 4.5″ (13 to 115 mm)	86 to 264 VAC
UFB-123	2 to 79″ (50 to 2000 mm)	86 to 264 VAC
UFB-222	0.5 to 4.5″ (13 to 115 mm)	24 VAC/VDC
UFB-223	2 to 79″ (50 to 2000 mm)	24 VAC/VDC

For data logging version see Series UFC on the Dwyer® website.

SPECIFICATIONS

Service: Homogeneous liquids that do not contain more than 3% of air bubbles or particulate and capable of ultrasonic wave propagation.
Inputs: TNC cable from sensors.
Range: 0.33 to 33 ft/s (0.1 to 10 m/s).
Display: 240 x 64 pixel graphic display, high contrast black on white with backlight; Languages: English, French, German, Swedish, Italian, Spanish, Portuguese, Russian, Norwegian, and Dutch; 5″ W x 1.3″ H (5 x 33.02 mm).
Accuracy:
±0.5 to ±2% of flow reading of flow rate > 0.03 ft/s (0.01 m/s) and pipe OD > 3.0 in (75 mm);
±3% of flow reading for flow rate > 0.03 ft/s (0.01 m/s) and pipe OD 0.5 to 3 in (13 to 75 mm); ±6% of flow reading for flow rate < 0.03 ft/s (0.01 m/s).
Power Requirements: 86 to 264 VAC (50 to 60 Hz) or 24 VAC/VDC (1 A max).
Power Consumption: 10.5 W.
Temperature Limits: Transducer: -4 to 275°F (-20 to 135°C); Controller: -4 to 122°F (-20 to 50°C).
Outputs:
Analog:
1 opto-isolated output: 4 to 20 mA, 0 to 16 mA or 0 to 20 mA (selectable);
Error current: 0 to 26 mA (selectable);
Load resistance: 620 Ω max;
Alarm:
2 opto-isolated MOSFET NO relays, 48 V at 500 mA, maximum 200 Hz;
Pulsed:
1 opto-isolated MOSFET relay, 48 V at 500 mA, 1 to 250 pps;
Pulse width: 2 to 500 ms (selectable).
Enclosure Rating: IP65 when using TNC connector; Transducers IP54.
Materials: Plastic ABS and aluminum.
Repeatability: ±0.5 % of measured value or 0.03 ft/s (0.01 m/s).
Electrical Connections: Removeable screw-in type terminal block.
Mounting: Wall mounted using 3 type M4 screws.
Turbidity: < 3 % by volume of particulate content.
Permissible Air Content: < 3% by volume.
Response Time: < 500 ms.
Weight:
Unit not including accessories: 2.80 lb (1.26 kg);
Unit including accessories: 9.92 lb (4.5 kg).
Agency Approvals: CE.

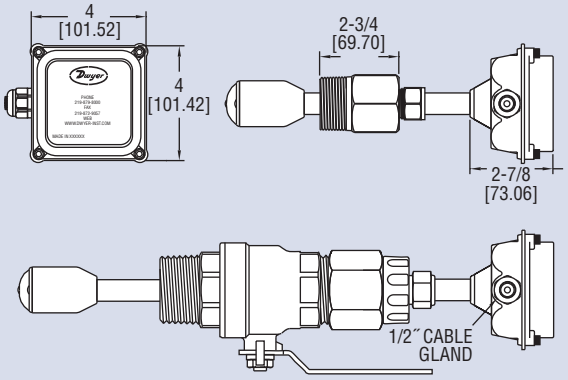
ADDITIONAL SPECIFICATIONS

Applicable Pipe Material: Carbon steel, SS, copper, UPVC/PVDF, concrete, mild steel, glass, brass.
Applicable Pipe Lining: Rubber, glass, concrete, epoxy, steel, other*.
Pipe Wall Thickness: 0.04 to 3″ (1 to 75 mm).
Pipe Lining Thickness: < 1″ (< 25 mm).
*Selectable option for special material with known propagation rate of lining material.

Series IEFS

Insertion Electromagnetic Flow Sensor

No Moving Parts, Hot-Tap Option, 3 to 48″ Field Adjustable Insertion



Hot-Tap Option

The Series IEFS Insertion Electromagnetic Flow Sensor comes in brass or stainless steel allowing it to handle a wide range of pressures and temperatures, as well as a variety of available saddle fittings, Series SDF, to fit pipe sizes 3 to 24″. The IEFS-1XX has an isolation valve which allows hot-tap installation. Additional options for this flow meter include adapter fittings and a reverse flow output. The Series IEFS is great for "dirty" water applications or any application where moving parts may be an issue.

PRINCIPLE OF OPERATION

The IEFS is a liquid flow meter that uses a magnetic field to measure flow. As conductive fluids flow through the magnetic field, a voltage is generated which is measured and translated into a pulse frequency output signal. This signal can then be used with the Series BAT to produce a 4 to 20 mA analog signal, or the Series RTI to display rate and total.

APPLICATION

- Conductive Liquids

ACCESSORIES

- Series BAT, Blind Analog Transmitter, converts pulse output to 4 to 20 mA analog output. Unit is loop powered, fits on the enclosure of the meter, and is field spannable.*
- Series RTI, Rate Total Indicator, converts pulse output to 4 to 20 mA analog output with local flow rate and totalization display. Unit is loop powered, can fit on the enclosure of the meter, and provides a high/low flow alarm.*
- Series PWD, Pulse Divider, for use with pacing electronic metering pumps. Unit divides the input frequency to any number from 1 to 9999 with the use of rotary switches to suit a number of metering pump inputs.*

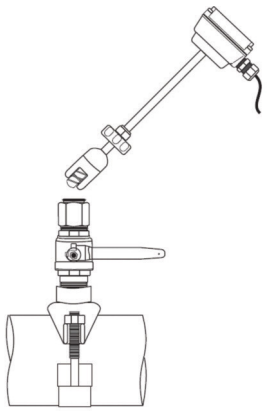
*Series can be located on the Dwyer® website.

SPECIFICATIONS

Service: Compatible clean or dirty non-coating, conductive liquids.
Range: 0.28 to 20 ft/s (0.08 to 6.09 m/s).
Wetted Materials:
Body Shaft/Fitting: 316 SS or brass;
Electrodes: Hastelloy®;
Electrode Cap: PVDF;
Valve Assembly: (IEFS-1XX) Bronze (SS optional) with bronze ball valve;
O-ring: EPDM.
Accuracy: ±1% FS.
Temperature Limits:
Process: 32 to 200°F (0 to 93°C);
Ambient: 0 to 160°F (-17 to 72°C).
Process Connection:
IEFS-0XX: 1-1/2″ male NPT;
IEFS-1XX: 2″ male NPT.
Pressure Limit: 200 psi (13.8 bar).
Output: Current sinking, square wave pulse, opto-isolated, 550 Hz @ 20 ft/s, 30 VDC @ 6 mA max.
Power Requirements: 12 to 25 VDC @ 250 mA; Low Power: 12 to 25 VDC @ 40 mA.
Electrical Connection: Terminal block.
Conductivity: ≥ 20 microSiemens/cm.
Enclosure Material: Housing: Die-cast powder-coated aluminum.
Enclosure Rating: NEMA 4X (IP66).
Weight:
IEFS-0SX: 6 lb (2721 g);
IEFS-0LB: 12 lb (5443 g);
IEFS-1XX: 15 lb (6804 g).

Example	IEFS	0SB	BAF	IEFS-DSB-BAT		
Series IEFS	IEFS			Insertion Electromagnetic Flow Sensor		
Size/Material				Size	Hot-Tap	Material
		0SB		3 to 10″	No Hot-Tap	Brass
		0SS		3 to 10″	No Hot-Tap	SS
		0LB		10 to 48″	Hot-Tap	Brass
		0LS		10 to 48″	Hot-Tap	SS
		1SB		3 to 10″	No Hot-Tap	Brass
		1SS		3 to 10″	No Hot-Tap	SS*
		1LB		10 to 48″	Hot-Tap	Brass
		1LS		10 to 48″	Hot-Tap	SS*
Options			BAF	2″ Brass Adapter Fittings (IEFS-0XX only)		
			SAF	2″ SS Adapter Fittings (IEFS-0XX only)		
			SVA	316 SS Valve Assembly (IEFS-1XX only)		
			NVA	No Valve Assembly (deduct price) (IEFS-1XX only)		
			RFO	Reverse Flow Output		
			BPT	1-1/2″ Brass BPT Adapter (2 piece) (IEFS-0XX only)		
			SPT	1-1/2″ SS BPT Adapter (2 piece) (IEFS-0XX only)		
			IMM	Immersible (Urethane potted electrical components)		
			LOP	Low Power (12 to 25 VDC @ 40 mA)		
			EXT	12″ Extension (IEFS-XLX only)		

*SS is stem and fitting. For SS valve order SVA option.



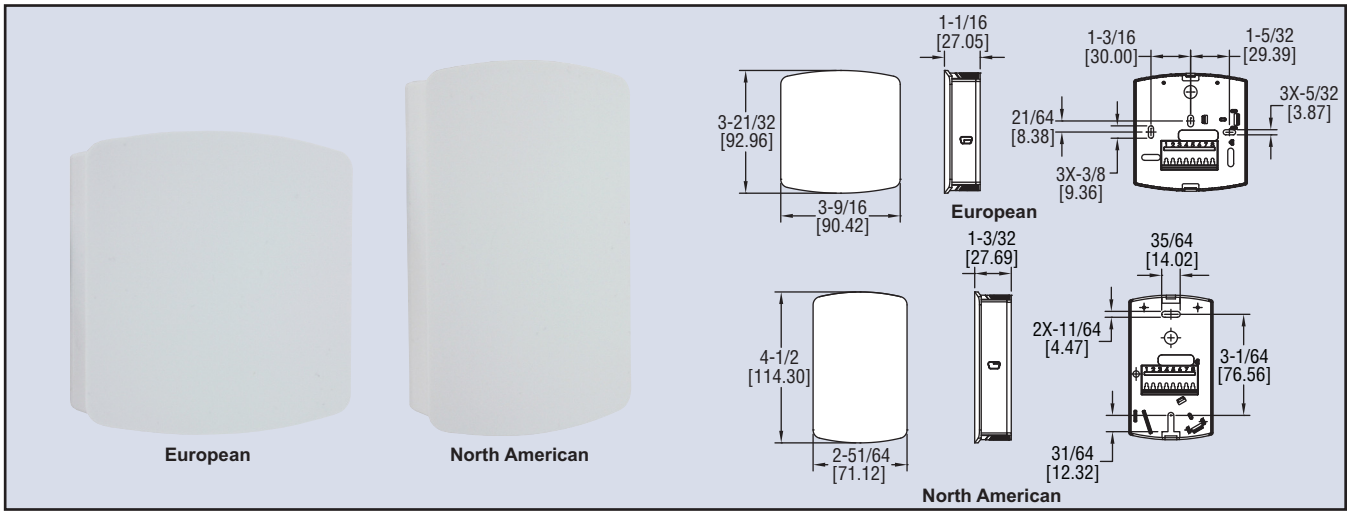
Hot-Tap Option
(Shown installed on pipe)

Hastelloy® is a registered trademark of Hanes International

Series
TE-N/E

Wall Mount Temperature Sensor

Discrete Wall Mount Housing



The Series TE-N/E Wall Mount Temperature Sensor provides a low cost temperature input for any building management system. With large vents in the housing for proper air flow, the sensor accurately measures the ambient temperature in hotel rooms or office buildings. Multiple mounting holes on the wall plate allow for mounting to numerous surfaces.

Model	Sensor Type	Model	Sensor Type
TE-NND-A	10K Ω Type III Thermistor	TE-END-A	10K Ω Type III Thermistor
TE-NND-B	10K Ω Type II Thermistor	TE-END-B	10K Ω Type II Thermistor
TE-NND-C	3K Ω Thermistor	TE-END-C	3K Ω Thermistor
TE-NND-D	Pt100 Ω RTD	TE-END-D	Pt100 Ω RTD
TE-NND-E	Pt1000 Ω RTD	TE-END-E	Pt1000 Ω RTD
TE-NND-F	20K Ω Thermistor	TE-END-F	20K Ω Thermistor

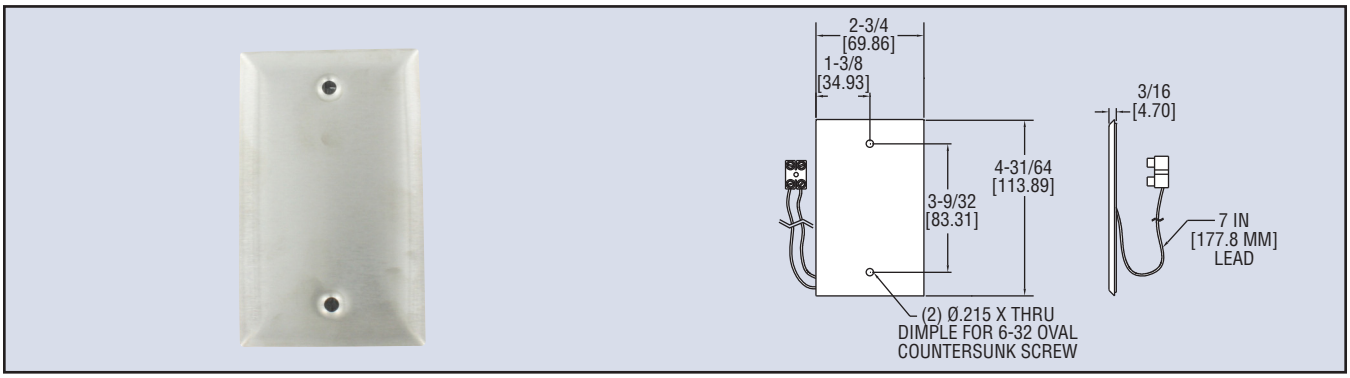
SPECIFICATIONS
Accuracy:
Thermistor temp sensor: ±0.2°C @ 25°C (±0.36°F @ 77°F);
RTD temp sensor: DIN class B; ±0.3°C @ 0°C (±54°F @ 32°F).
Operating Temperature: -40 to 140°F (-40 to 60°C).
Housing Material: ABS plastic.
Weight: 0.3 lb (136 g).

Resistance vs Temperature Table
See page 46.

Series
TE-WSS

Stainless Steel Wall Plate Temperature Sensor

Screw Terminal Connection, Suitable for Wash Down Applications



The Series TE-WSS Stainless Steel Wall Plate Temperature Sensor measures the ambient air temperature in classrooms and industrial environments. By having a flush mount design, the temperature sensor can withstand a wash down. A foam gasket prevents ambient temperature from behind the wall plate from skewing the temperature measurements. The discrete stainless steel wall plate sensor also hides the sensor to prevent tampering. Each sensor comes with a terminal block and two mounting screws for quick installation.

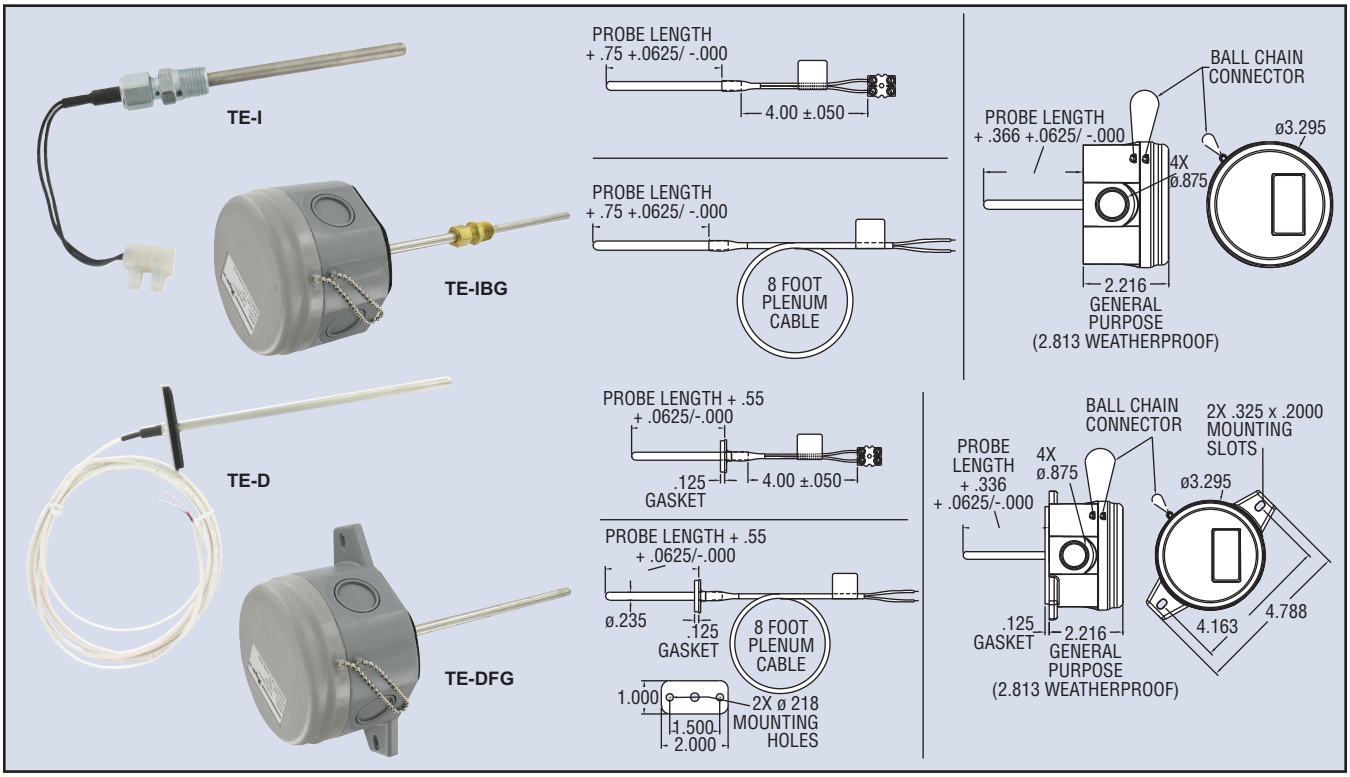
Model	Sensor Type
TE-WSS-A	10K Ω Type III Thermistor
TE-WSS-B	10K Ω Type II Thermistor
TE-WSS-C	3K Ω Thermistor
TE-WSS-D	PT100 Ω RTD
TE-WSS-E	PT1000 Ω RTD
TE-WSS-F	20K Ω Thermistor

SPECIFICATIONS
Accuracy:
Thermistor: ±0.2°C @ 25°C (±0.36°F @ 77°F);
RTD: DIN Class B ±0.3°C @ 0°C.
Temperature Limits: Operating -40 to 140°F (-40 to 60°C).
Sensor Curves: See Resistance Curves for TE Series (page 46).
Housing Material: 304 SS wall plate.
Weight: 2.3 oz (65 g).

Series TE

Duct and Immersion Building Automation Temperature Sensors

Available up to 18″ Probe Length, Thermistor or RTD Outputs



The Series TE Duct and Immersion Temperature Sensor can be used to monitor air or water temperature throughout a building management system or an air handler unit. Flanged duct sensors monitor the supply or return air and provide a thermistor or RTD output to the digital controller. Immersion sensors which are supplied with compression fittings are typically used to monitor the hot or chilled water lines throughout a building. Thermowells are recommended, but not required on the immersion sensors.

For variable air volume applications, the Series TE can be configured to have 8 plenum rated cable with flying leads. Standard units come with 4″ leads with an integral terminal block to eliminate carrying extra wire nuts. For housing models, multiple knockouts provide easy conduit access to any side of the housing. The 1/4 turn lid comes with a chain to prevent it from being lost during installation.

Example	TE	-DFN	-A	04	4	8	-00	TE-DFN-A0448-00
Series	TE							Temperature Sensor
Mounting Configuration		DFN						Duct Mount Probe Only
		DFG						Duct Mount Probe in General Purpose Housing
		DFW						Duct Mount Probe in NEMA 4X Housing
		IBN						Immersion Probe Only
		IBG						Immersion Probe in General Purpose Housing
		IBW						Immersion Probe in NEMA 4X Housing
Sensor Type			A					10K Ohm Type III Thermistor
			B					10K Ohm Type II Thermistor
			C					3K Ohm Thermistor
			D					Pt100 Ohm RTD
			E					Pt1000 Ohm RTD
			F					20K Ohm Thermistor
Probe Length				25				2.5″
				04				4″
				06				6″
				08				8″
				12				12″
				18				18″ (DFN/DFG Only)
Probe Diameter					4			1/4″
Termination						4		4″ leads
						8		8′ Plenum Rated Cable
Thermowell Connection							00	Probe only
							12	1/2″ NPT Compression Fitting
							14	1/4″ NPT Compression Fitting

SPECIFICATIONS

Accuracy:
Thermistor temperature sensor: ±0.2°C @ 25°C (±0.36°F @ 77°F);
RTD temperature sensor: DIN class A: ±0.15°C @ 0°C (±0.28°F @ 32°F).

Temperature Limits: Operating: -40 to 302°F (-40 to 150°C).

Sensor Curves: See resistance vs. temperature table on page 46.

Cable Rating: Plenum option includes UL listed plenum cable.

Housing Material: Meets UL, 94 V-O polycarbonate plastic.

Housing Rating: NEMA 4X (IP66) (DFW, IBW only).

Weight: 5.3 oz (150.3 g).

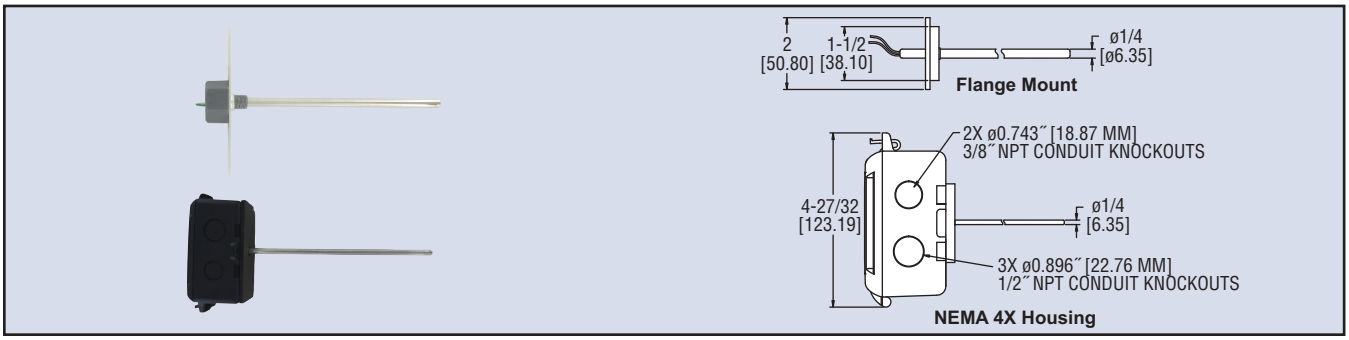
Thermowells

Model	Length	Connection (Internal/ External) (NPT)
TE-TNS-N044N-14	4″	1/4″ / 1/2″
TE-TNS-N044N-12	4″	1/2″ / 3/4″
TE-TNS-N064N-14	6″	1/4″ / 1/2″
TE-TNS-N064N-12	6″	1/2″ / 3/4″
TE-TNS-N094N-14	9″	1/4″ / 1/2″
TE-TNS-N094N-12	9″	1/2″ / 3/4″
TE-TNS-N124N-14	12″	1/4″ / 1/2″
TE-TNS-N124N-12	12″	1/2″ / 3/4″

Note: R-T temperature curves are on page 46.

Series AD

Air/Duct Temperature Sensors



Air/Duct Temperature Sensors are available in precision platinum, nickel, or balco RTDs and interchangeable NTC thermistors. Sensors are constructed with a hermetically sealed 304 SS sheath and are unaffected by high humidity, contamination, thermal shock or vibration. Flange mount sensors offer low profile mounting and quick installation directly into duct work. Rugged air/duct sensors are ideal for air handlers, fan coil units, ducts, furnaces, freezers, ovens and other through wall temperature sensing applications.

SPECIFICATIONS

Accuracy:
Platinum RTD: ±0.6% @ 32°F (0°C);
Nickel RTD: ±0.5°F @ 32°F (0°C);
Balco RTD: ±0.1% @ 32°F (0°C);
Thermistors: ±0.36°F from 32 to 158°F (0 to 70°C).
Operating Temperature: -32 to 240°F (-35.5 to 115.5°C).
Probe Diameter: 1/4″ (6.3 mm).
Cable Length: 8″ (housing models only).
Probe Material: 304 SS.

Model Coding

Fill in the appropriate numbers or letters to specify the probe of your choice. Fill in all boxes. If an item or dimension does not apply, fill those boxes with zeros '0'.

AD – □ □ □

INSTALLATION
1 – Flange mount 3″ (175 mm) wire leads
2 – Flange mount 6′ (1.8 m) cable
5 – Flange mount with NEMA 4X housing

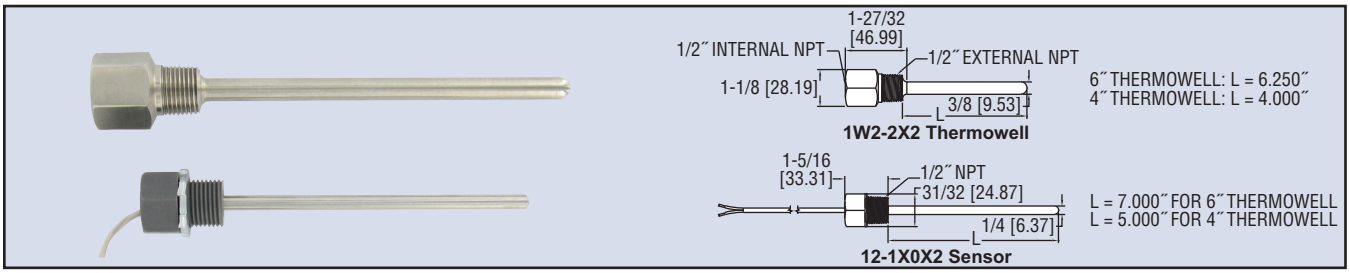
SENSOR TYPE
3 – Ni 1000 Ω RTD
4 – 1000 Ω Balco RTD
7 – 5 kΩ NTC Thermistor
8 – 100 kΩ NTC Thermistor
A – 2252 Ω NTC Thermistor

PROBE LENGTH
04 – 4″ (100 mm)
06 – 6″ (150 mm)
08 – 8″ (200 mm)
12 – 12″ (300 mm)

Series I2-1

Immersion Temperature Probes

RTD & Thermistor Outputs, 304 SS Probes



The Series I2-1 Immersion Temperature Probes are designed to monitor the hot and chilled water lines throughout a building's water distribution loop. The multiple temperature sensor outputs allow these sensors to connect to virtually any digital building controller. The Series IW2 SS thermowells allow the temperature sensors to be replaced without draining the water line. The temperature sensors are available in 4″ and 6″ insertion lengths.

Note: A Series IW2 Thermowell must be used on pressurized air and water lines to prevent leakage around the probe.

SPECIFICATIONS

Accuracy: Platinum RTD: ±0.6% @ 32°F (0°C); Nickel RTD: ±0.5°F @ 32°F (0°C); Balco RTD: ±0.1% @ 32°F (0°C); Thermistors: ±0.36°F from 32 to 158°F (0 to 70°C).
Operating Temperature: -32 to 240°F (-35.5 to 115.5°C).
Probe Diameter: 1/4″ (6.3 mm).
Cable Length: 6′ (1.8 m).
Probe Material: 304 SS.
Mounting: 1/2″ threaded connection to fit Series IW2 thermowell.

Model	Sensor Type	Insertion Length	Model	Sensor Type	Insertion Length
I2-13062	Ni 1000 Ω RTD	6″	**I2-13042**	Ni 1000 Ω RTD	4″
I2-14062	Balco 1000 Ω RTD	6″	**I2-14042**	Balco 1000 Ω RTD	4″
I2-17062	5K Ω Thermistor	6″	**I2-17042**	5K Ω Thermistor	4″
I2-18062	100K Ω Thermistor	6″	**I2-18042**	100K Ω Thermistor	4″
I2-1A062	2252 Ω Thermistor	6″	**I2-1A042**	2252 Ω Thermistor	4″

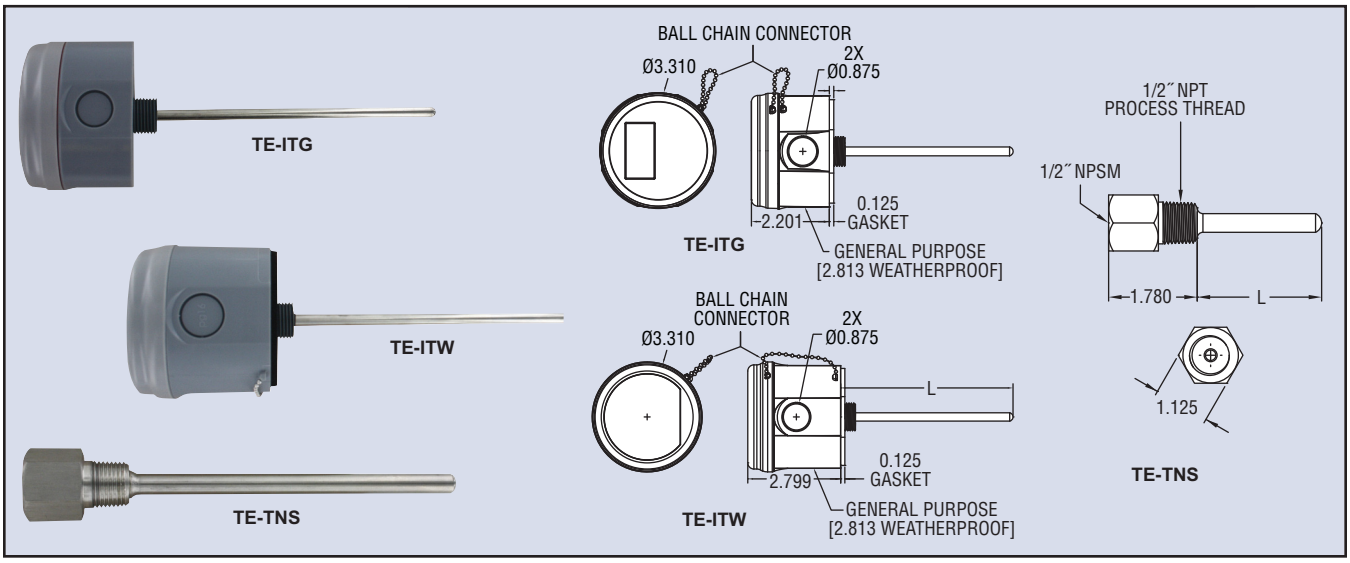
Thermowells

Model	Material	Insertion Length
IW2-262	304 SS	6″
IW2-242	304 SS	4″

Series TE-I

Immersion Temperature Sensors

New Integral Mounting Connection, Welded Thermowells



The Series TE-I Immersion Style Temperature Sensors accurately measure water temperature in side chilled and hot water loops in HVAC systems. Sensors can be ordered either with a general purpose or weatherproof enclosure and have an integral 1/2˝ NPT threaded connection so that the housing mounts flush against the thermowell. All models come standard with a terminal block that ensure a better electrical connection to the sensor. Both housing configurations include a chain that prevents the lid from being lost during installation. Electrical knockouts on the housing can adapt to either a cable gland or conduit. Thermowells are required to protect the electrical connection from the process water and to allow replacement of the sensors without draining the system.

SPECIFICATIONS

Accuracy:
Thermistor Temperature Sensor: ±0.22°C @ 25°C (±0.4°F @ 77°F);
RTD Temperature Sensor DIN Class A: ±0.15°C @ 0°C (±0.28°F @ 32°F).
Temperature Limits: Operating: -40 to 302°F (-40 to 150°C).
Sensor Curves: See resistance-temperature curves on page 46.
Housing Material: Meets UL, 94 V-O polycarbonate plastic.
Thermowell Material: 304 SS.
Weight: 5.3 oz (150.3 g).

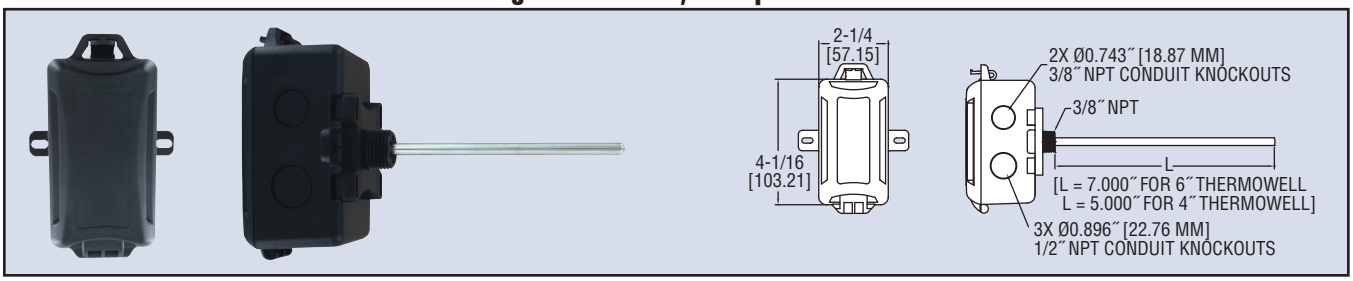
Example	TE	ITG	A	25	4	4	00	Model TE-ITG-A2544-00 Immersion Probe, 10K Type 3 Thermistor, 4˝ probe length, 1/4˝ probe diameter, 4˝ flying leads, with 1/2˝ NPT connection.
Series	TE							Duct and Immersion Building Automation Temperature Sensor
Housing		ITG						Immersion in General Purpose Housing
		ITW						Immersion in NEMA 4X Housing
Sensor Type			A					10K Type 3 Thermistor
			B					10K Type 2 Thermistor
			C					3K Ohm Thermistor
			D					PT100 Ohm RTD
			E					PT1000 Ohm RTD
			F					20K Thermistor
Probe Length				25				2.5˝
				04				4˝
				06				6˝
				08				8˝
				12				12˝
				18				18˝
Probe Diameter					4			1/4˝
Cable Configuration						4		4˝ Flying Leads Terminal Block
Connection Size							00	No Options

Thermowell Model	Material	Insertion Length
TE-TNS-N253N-00	304 SS	2.5˝
TE-TNS-N043N-00	304 SS	4˝
TE-TNS-N063N-00	304 SS	6˝
TE-TNS-N083N-00	304 SS	8˝
TE-TNS-N123N-00	304 SS	12˝
TE-TNS-N183N-00	304 SS	18˝

Series I2-2

General Purpose Immersion Temperature Sensor

Locking Screw Cover, Multiple Conduit Holes



The Series I2-2 General Purpose Immersion Temperature Sensor is ideal for monitoring hot and chilled water lines throughout a building or mechanical room. The plastic housing is in the shape of a standard junction box with multiple knockouts for easy conduit access. The locking cover prevents unauthorized occupants from tampering with the temperature sensor. The Sensor I2-2 can be ordered with a choice of 11 output options that allow it to communicate to any standard building control system.

Note: A Series IW2 Thermowell must be used on pressurized air and water lines to prevent leakage around the probe.

Model	Sensor Type	Insertion Length
I2-23062	Ni 1000 Ω RTD	6″
I2-24062	Balco 1000 Ω RTD	6″
I2-27062	5K Ω Thermistor	6″
I2-28062	100K Ω Thermistor	6″
I2-2A062	2252 Ω Thermistor	6″
I2-23042	Ni 1000 Ω RTD	4″
I2-24042	Balco 1000 Ω RTD	4″
I2-27042	5K Ω Thermistor	4″
I2-28042	100K Ω Thermistor	4″
I2-2A042	2252 Ω Thermistor	4″

SPECIFICATIONS
Accuracy:
Platinum RTD: ±0.6% @ 32°F (0°C);
Nickel RTD: ±0.5°F @ 32°F (0°C);
Balco RTD: ±0.1% @ 32°F (0°C);
Thermistors: ±0.36°F from 32 to 158°F (0 to 70°C).

Operating Temperature: -32 to 240°F (-35.5 to 115.5°C).
Probe Diameter: 1/4″ (6.3 mm).
Cable Length: 8″.
Probe Material: 304 SS.
Mounting: 1/2″ threaded connection to fit Series IW2 thermowell.

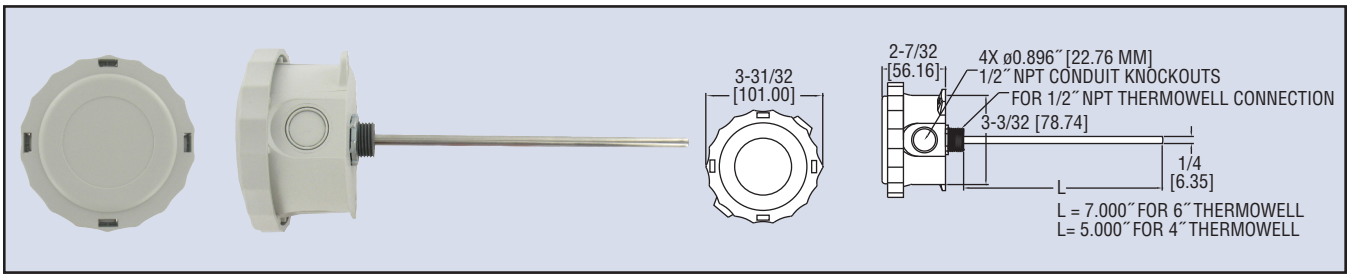
Thermowells

Model	Material	Insertion Length
IW2-262	304 SS	6″
IW2-242	304 SS	4″

Series I2-4

Weather-Proof Immersion Temperature Sensor

Twist Off Cover, Multiple Conduit Holes



The Series I2-4 Weather-Proof Immersion Temperature Sensor is ideal for monitoring hot and chilled water lines feeding Air Handlers and Cooling Towers. The plastic housing has a 1/4 turn twist off cover to reduce installation time. The multiple knockouts allow for easy conduit access to any side of the housing. The Series I2-4 can be ordered with a choice of 11 output options that allow it to communicate to any standard building control system.
Note: A Series IW2 Thermowell must be used on pressurized air and water lines to prevent leakage around the probe.

SPECIFICATIONS
Accuracy:
Platinum RTD: ±0.6% @ 32°F (0°C);
Nickel RTD: ±0.5°F @ 32°F (0°C);
Balco RTD: ±0.1% @ 32°F (0°C);
Thermistors: ±0.36°F from 32 to 158°F (0 to 70°C).

Operating Temperature: -32 to 240°F (-35.5 to 115.5°C).
Probe Diameter: 1/4″ (6.3 mm).
Cable Length: 8″.
Probe Material: 304 SS.
Mounting: 1/2″ threaded connection to fit Series IW2 thermowell.

Model	Sensor Type	Insertion Length	Model	Sensor Type	Insertion Length
I2-41062	Pt 100 Ω RTD	6″	**I2-41042**	Pt 100 Ω RTD	4″
I2-42062	PT 1000 Ω RTD	6″	**I2-42042**	PT 1000 Ω RTD	4″
I2-43062	Ni 1000 Ω RTD	6″	**I2-43042**	Ni 1000 Ω RTD	4″
I2-44062	Balco 1000 Ω RTD	6″	**I2-44042**	Balco 1000 Ω RTD	4″
I2-45062	10K Ω Type II Thermistor	6″	**I2-45042**	10K Ω Type II Thermistor	4″
I2-46062	3K Ω Thermistor	6″	**I2-46042**	3K Ω Thermistor	4″
I2-47062	5K Ω Thermistor	6″	**I2-47042**	5K Ω Thermistor	4″
I2-48062	100K Ω Thermistor	6″	**I2-48042**	100K Ω Thermistor	4″
I2-49062	20K Ω Thermistor	6″	**I2-49042**	20K Ω Thermistor	4″
I2-4A062	2252 Ω Thermistor	6″	**I2-4A042**	2252 Ω Thermistor	4″
I2-4B062	10K Ω Type III Thermistor	6″	**I2-4B042**	10K Ω Type III Thermistor	4″

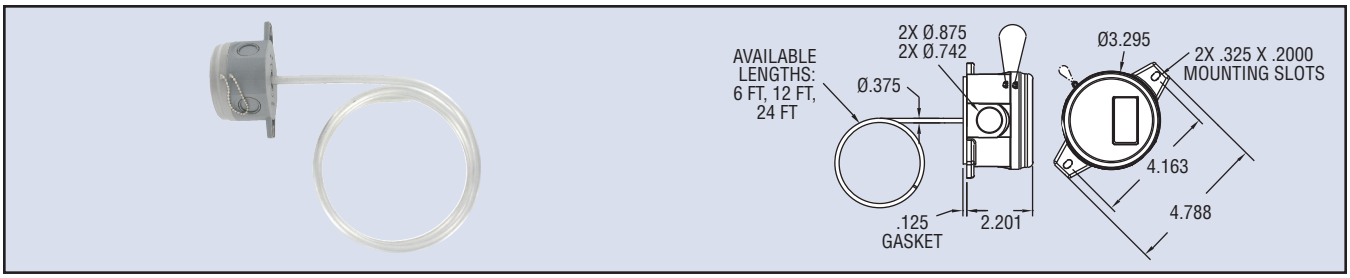
Thermowells

Model	Material	Insertion Length
IW2-262	304 SS	6″
IW2-242	304 SS	4″

Series TE-A

Averaging Temperature Sensors

Available in 6´, 12´ and 24´ Lengths



The Series TE-A Averaging Temperature Sensors are used to measure the temperature in large ducts and air handler units. Bendable aluminum capillaries are available in 6´, 12´, and 24´ foot lengths. These capillaries consist of four thermistor or RTD sensors which are internally averaged to give a single output signal. Series CC1 mounting brackets are available to mount the capillary to the wall of the duct or air handler without kinking the sensor wires inside the probe. For faster installation, the enclosure has multiple knockouts, wide mounting ears, and a screw-off captured lid.

SPECIFICATIONS

Accuracy:
Thermistor temperature sensor: ± 0.22°C @ 25°C (±0.4°F @ 77°F);
RTD temperature sensor: DIN class B: ±0.3°C @ 0°C (±0.54°F @ 32°F).
Temperature Limits: -40 to 302°F (-40 to 150°C).
Capillary Lengths: 6, 12 or 24´ (depending on model).
Cable Length: 4˝.
Sensor Curves: See Resistance Curves for TE Series (page 46).
Probe Material: Bendable aluminum probe.
Housing Material: Meets UL, 94 V-0 polycarbonate plastic.
Weight: 14 oz (397 g).

Model	Sensor Type	Capillary Length	Model	Sensor Type	Capillary Length
TE-AAG-A0634-00	10K Type III NTC Thermistor	6´	**TE-AAG-D0634-00**	Pt100 RTD	6´
TE-AAG-A1234-00	10K Type III NTC Thermistor	12´	**TE-AAG-D1234-00**	Pt100 RTD	12´
TE-AAG-A2434-00	10K Type III NTC Thermistor	24´	**TE-AAG-D2434-00**	Pt100 RTD	24´
TE-AAG-B0634-00	10K Type II NTC Thermistor	6´	**TE-AAG-E0634-00**	Pt1000 RTD	6´
TE-AAG-B1234-00	10K Type II NTC Thermistor	12´	**TE-AAG-E1234-00**	Pt1000 RTD	12´
TE-AAG-B2434-00	10K Type II NTC Thermistor	24´	**TE-AAG-E2434-00**	Pt1000 RTD	24´
TE-AAG-C0634-00	3K NTC Thermistor	6´	**TE-AAG-F0634-00**	20K NTC Thermistor	6´
TE-AAG-C1234-00	3K NTC Thermistor	12´	**TE-AAG-F1234-00**	20K NTC Thermistor	12´
TE-AAG-C2434-00	3K NTC Thermistor	24´	**TE-AAG-F2434-00**	20K NTC Thermistor	24´

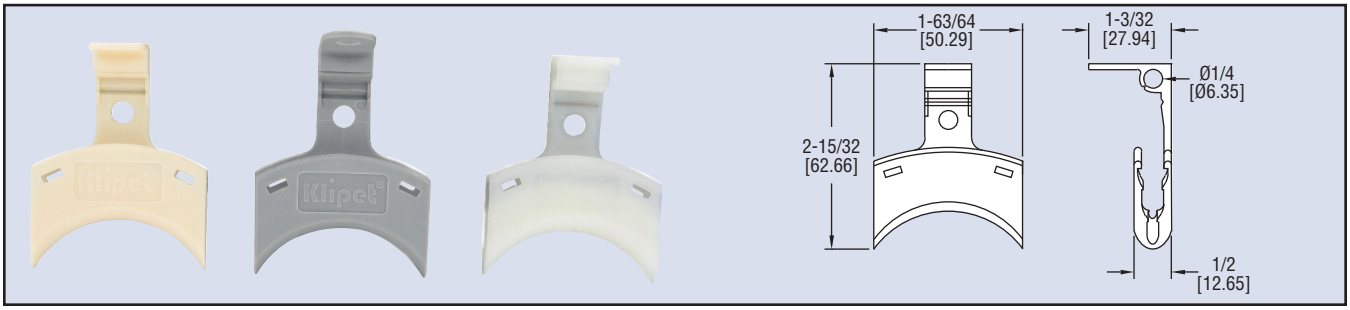
ACCESSORIES

CC1-N, Averaging Temperature Sensor Clip, Natural
CC1-B, Averaging Temperature Sensor Clip, Beige
CC1-GY, Averaging Temperature Sensor Clip, Grey

Series CC1

Averaging Temperature Sensor Clips

Grey, Natural or Beige



The Series CC1 Averaging Temperature Sensor Clips are used to mount the capillary of the AVG series temperature sensor to the wall of the duct or air handler. The clips are available in grey, beige or a natural color. The clip can hold 1/8˝, 1/4˝ or 3/8˝ capillary diameters. The top of the mounting clip can also be used to hold a single 1/4˝ diameter temperature probes in place. Slots are provided for using nylon zip ties to hold the tubing in place, if needed.

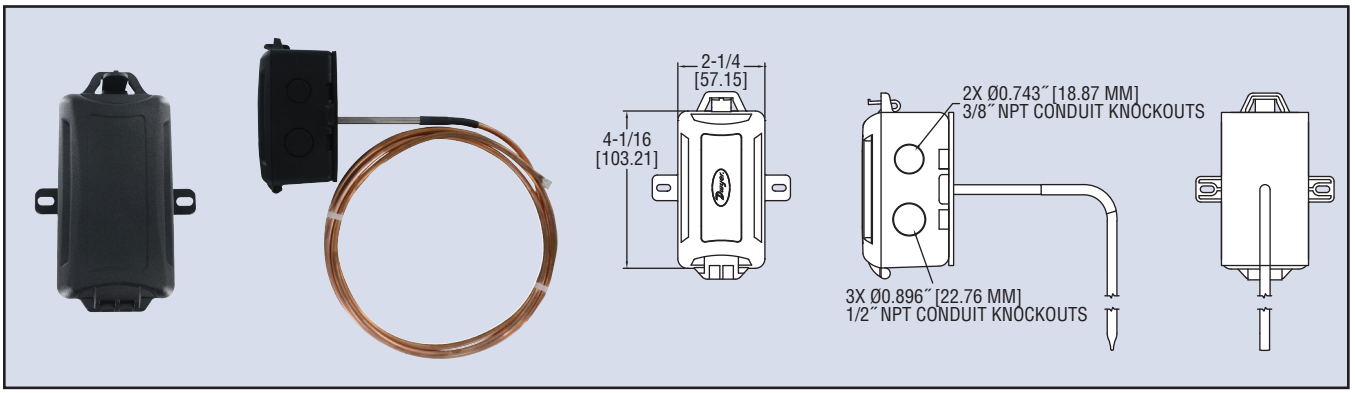
Model	Color
CC1-N	Natural
CC1-B	Beige
CC1-GY	Grey

(sold individually)

Series AVG

Averaging Temperature Sensor

Available in 12˝ or 24˝ Lengths



The Series AVG Averaging Temperature Sensor can be used to measure the average temperature up stream of the cooling coils in an air handler. The coiled sensor unwinds to a length of 12˝ or 24˝ to take an average temperature reading across a large space. The housing has multiple knockouts to reduce the time to install conduit. The Series CC1 mounting brackets can be used to secure the capillary to the wall of the air handler without kinking. The Series AVG can be ordered with a choice of 11 output options that allow it to communicate to any standard building control system.

SPECIFICATIONS

Accuracy: Platinum RTD: ±0.6% @ 32°F (0°C); Nickel RTD: ±0.5°F @ 32°F (0°C); Balco RTD: ±0.1% @ 32°F (0°C); Thermistors: ±0.36°F from 32 to 158°F (0 to 70°C).

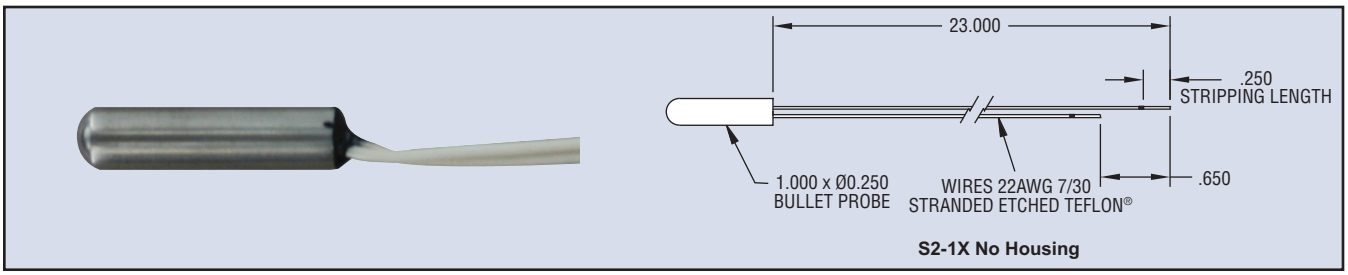
Operating Temperature: -32 to 240°F (-35.5 to 115.5°C).
Capillary Length: 12˝ or 24˝ depending on model.
Cable Length: 8˝.
Probe Material: Bendable copper capillary.
Mounting: Flanged mounting ears.

Model	Sensor Type	Capillary Length	Model	Sensor Type	Capillary Length
AVG-21121	Pt 100 Ω RTD	12˝	**AVG-21241**	Pt 100 Ω RTD	24˝
AVG-22121	PT 1000 Ω RTD	12˝	**AVG-22241**	PT 1000 Ω RTD	24˝
AVG-23121	Ni 1000 Ω RTD	12˝	**AVG-23241**	Ni 1000 Ω RTD	24˝
AVG-24121	Balco 1000 Ω RTD	12˝	**AVG-24241**	Balco 1000 Ω RTD	24˝
AVG-25121	10K Ω Type II Thermistor	12˝	**AVG-25241**	10K Ω Type II Thermistor	24˝
AVG-26121	3K Ω Thermistor	12˝	**AVG-26241**	3K Ω Thermistor	24˝
AVG-27121	5K Ω Thermistor	12˝	**AVG-27241**	5K Ω Thermistor	24˝
AVG-28121	100K Ω Thermistor	12˝	**AVG-28241**	100K Ω Thermistor	24˝
AVG-29121	20K Ω Thermistor	12˝	**AVG-29241**	20K Ω Thermistor	24˝
AVG-2A121	2252 Ω Thermistor	12˝	**AVG-2A241**	2252 Ω Thermistor	24˝
AVG-2B121	10K Ω Type III Thermistor	12˝	**AVG-2B241**	10K Ω Type III Thermistor	24˝

Series S2-1

Surface Mount Temperature Sensor

RTD and Thermistor, 304 SS Probe, Waterproof



S2-1X No Housing

The Series S2-1 Surface Mount Temperature Sensors provide a cost effective and reliable solution for surface contact temperature measurement of conditioned water pipes, low pressure steam or refrigerant lines. The sensors are ideal for applications where immersion wells are not practical to install. Models are constructed with a 1˝ (25 mm) 304 SS probe and a 23˝ stranded etched Teflon® leads.

Model	Sensor Type
S2-11	Pt 100Ω RTD
S2-12	Pt 1000Ω RTD
S2-13	Ni 1000Ω RTD
S2-14	1000Ω Balco® RTD
S2-15	10 kΩ Type II Thermistor
S2-16	3 kΩ NTC Thermistor
S2-17	5 kΩ NTC Thermistor
S2-18	100 kΩ NTC Thermistor
S2-19	20 kΩ NTC Thermistor
S2-1A	2252Ω NTC Thermistor
S2-1B	10KΩ Type III NTC Thermistor

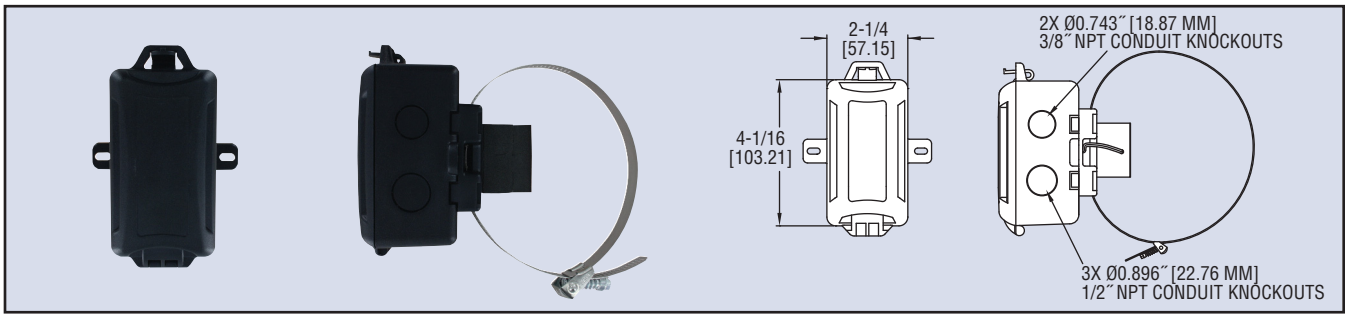
SPECIFICATIONS

Accuracy:
Platinum RTD: ±0.1% @ 32°F (0°C), alpha 385 per DIN 43760;
Nickel RTD: ±0.5°F @ 70°F (21.1°C);
Balco®: ±0.5°F @ 70°F (21.1°C);
Thermistor: ±0.2°C interchangeable @ 77°F (25°C).
Operating Temperature: -40 to 250°F (-40 to 125°C).
Probe Diameter: 1/4˝ (6.3 mm).
Probe Length: 1˝ (25 mm).
Probe Material: 304 SS.

Series S2-2

General Purpose Surface Temperature Assembly

Strap-On Design, Multiple Conduit Holes



The Series S2-2 General Purpose Surface Temperature Assembly is ideal for monitoring the temperature of indoor distribution lines when it is not possible to penetrate the pipe. The plastic housing is in the shape of a standard junction box with multiple knockouts for easy conduit access. The strap-on connection quickly wraps around a pipe and can be securely tightened using a flat head screw driver. The Series S2-2 can be ordered with a choice of 11 output options that allow it to communicate to any standard building control system.

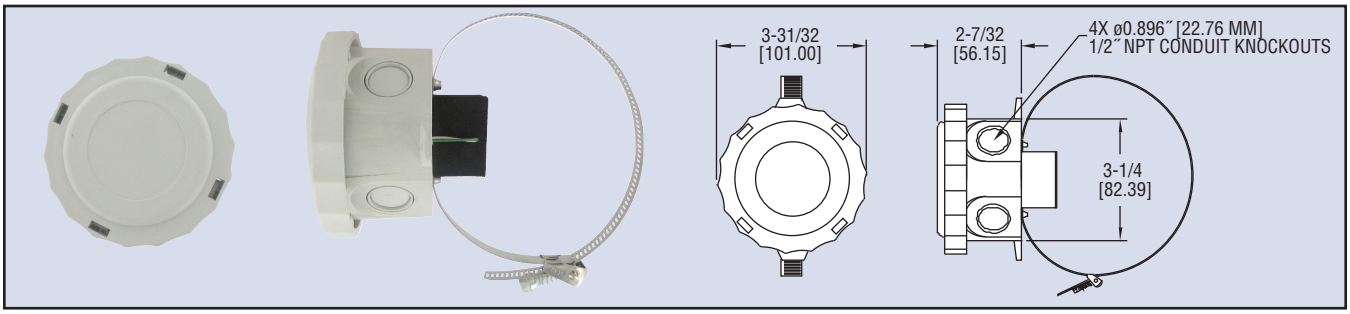
Model	Sensor Type
S2-23	Ni 1000 Ω RTD
S2-24	Balco 1000 Ω RTD
S2-27	5K Ω Thermistor
S2-28	100K Ω Thermistor
S2-2A	2252 Ω Thermistor

SPECIFICATIONS
Accuracy:
Platinum RTD: ±0.6% @ 32°F (0°C);
Nickel RTD: ±0.5°F @ 32°F (0°C);
Balco RTD: ±0.1% @ 32°F (0°C);
Thermistors: ±0.36°F from 32 to 158°F (0 to 70°C).
Operating Temperature: -32 to 240°F (-35.5 to 115.5°C).
Probe Material: Copper conductor.
Mounting: Strap-on to pipe (fits 2 to 5˝ pipe sizes).

Series S2-4

Weatherproof Surface Temperature Assembly

Strap-On Design, Twist off Housing Cover



The Series S2-4 Weatherproof Surface Temperature Assembly is ideal for monitoring the temperature of distribution lines when it is not possible to penetrate the pipe. The strap-on connection quickly wraps around a pipe and can be securely tightened using a flat head screw driver. The twist-off housing cover reduces installation time. The housing has multiple knockout conduit holes which allows the installer to bring conduit to any side of the housing. The Series S2-4 can be ordered with a choice of 11 output options that allow it to communicate to any standard building control system.

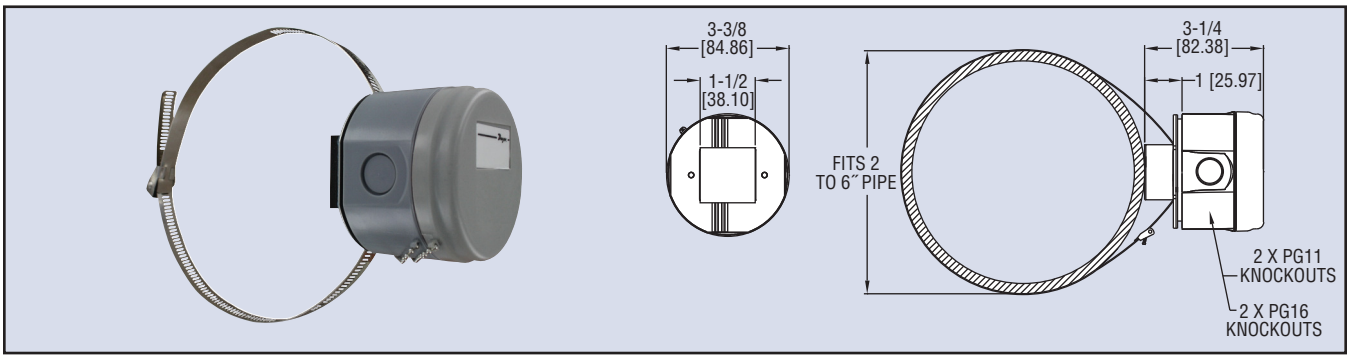
Model	Sensor Type	Model	Sensor Type
S2-41	Pt 100 Ω RTD	S2-47	5K Ω Thermistor
S2-42	PT 1000 Ω RTD	S2-48	100K Ω Thermistor
S2-43	Ni 1000 Ω RTD	S2-49	20K Ω Thermistor
S2-44	Balco 1000 Ω RTD	S2-4A	2252 Ω Thermistor
S2-45	10K Ω Type II Thermistor	S2-4B	10K Ω Type III Thermistor
S2-46	3K Ω Thermistor		

SPECIFICATIONS
Accuracy:
Platinum RTD: ±0.6% @ 32°F (0°C);
Nickel RTD: ±0.5°F @ 32°F (0°C);
Balco RTD: ±0.1% @ 32°F (0°C);
Thermistors: ±0.36°F from 32 to 158°F (0 to 70°C).
Operating Temperature: -32 to 240°F (-35.5 to 115.5 °C).
Probe Material: Copper conductor.
Mounting: Strap-on to pipe (fits 2 to 5˝ pipe sizes).
Enclosure Rating: NEMA 4X (IP66).

Series
TE-SNW

Weather Resistant Surface Temperature Sensor

Strap On Design, Twist Off Cover, 2 to 6˝ Pipe Sizes



The Series TE-SNW Surface Temperature Sensor non-intrusively measures the process temperature in hot and cold water loops in buildings. An adjustable metal strap can tightly fit around 2 through 6˝ pipe sizes, allowing the surface area of the copper plate on the sensor to make good contact with the pipe surface. In order to work with most common building controllers, the output of the sensor can be chosen from 6 different RTD and Thermistor curves. Additional features include a quarter turn twist off cap that is chained to the housing to prevent it from getting lost, and multiple knockout locations and sizes to reduce installation time.

Model	Sensor Type
TE-SNW-A	10KΩ Type III Thermistor
TE-SNW-B	10KΩ Type II Thermistor
TE-SNW-C	3KΩ Thermistor
TE-SNW-D	Pt100Ω RTD
TE-SNW-E	Pt1000Ω RTD
TE-SNW-F	20KΩ Thermistor

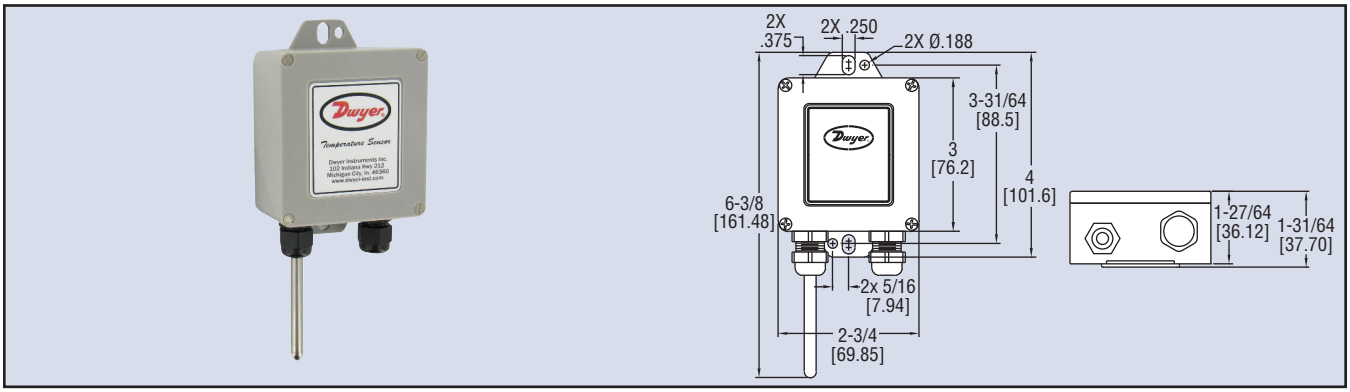
SPECIFICATIONS

Accuracy:
Thermistor Temperature Sensor: ±0.2°C @ 25°C (±-0.36°F @ 77°F);
RTD Temperature Sensor: DIN Class A ±0.15°C @ 0°C (±0.28°F @ 32°F).
Temperature Limits: Operating: -32 to 240°F (-35.5 to 115.5°C).
Sensor Curves: See resistance vs temperature table.
Housing Material: Meets UL 94 V-0 polycarbonate plastic, NEMA 3R.
Weight: 7 oz (198 g).

Series
O-4

Outside Air Temperature Sensors

NEMA 4X, Removable Terminal Block



The Series O-4 Outside Air Temperature Sensors are great for monitoring ambient air temperatures in outdoor applications. The temperature sensors are mounted in a NEMA 4X enclosure with integral mounting tabs. The mounting tabs can be used to surface or suspension mount the temperature sensors. The removable terminal block makes installation easy. The Series O-4 can be used to measure outside air temperatures in building automation systems or room temperatures inside agricultural ventilation houses.

Model	Sensor Type
O-4A	10K Ohm Type III Thermistor
O-4B	10K Ohm Type II Thermistor
O-4C	3K Ohm Thermistor
O-4D	Pt100 Ohm RTD
O-4E	Pt1000 Ohm RTD
O-4F	20K Ohm Thermistor

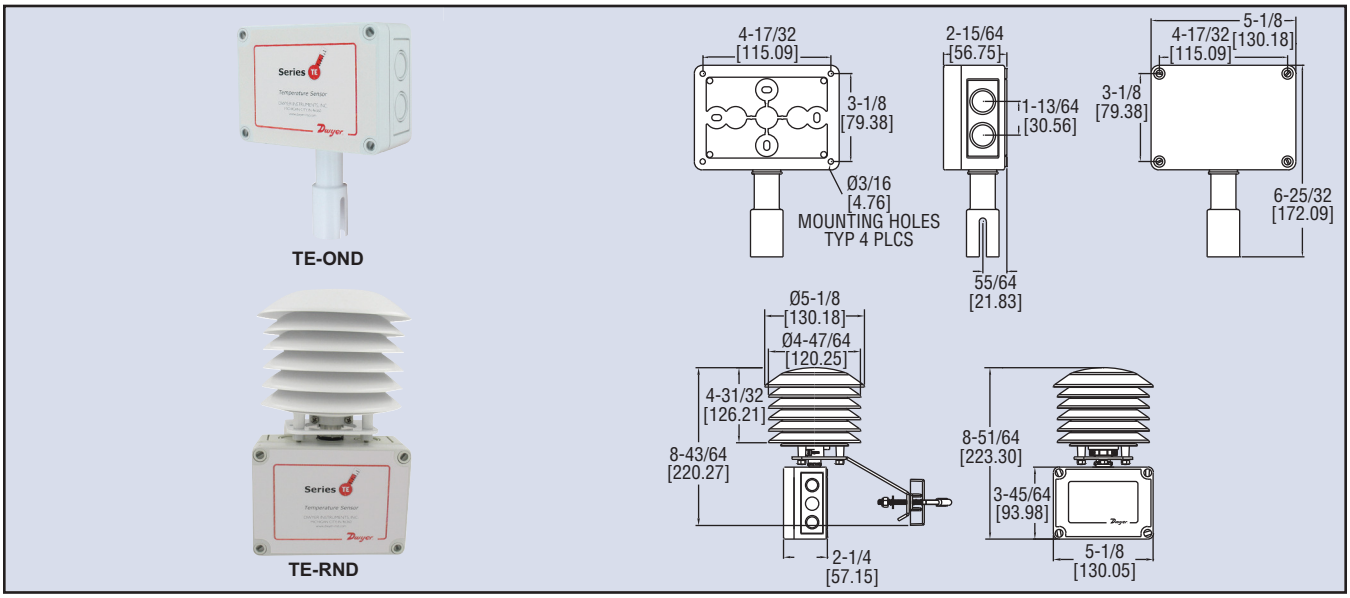
SPECIFICATIONS

Accuracy: Thermistor temperature sensor: ±0.22°C @ 25°C (±0.4°F @ 77°F); RTD temperature sensor: DIN class B: ±0.3°C @ 0°C (±0.54°F @ 32°F).
Operating Temperature: -40 to 250°F.
Probe Diameter: 0.235˝ (5.97 mm).
Probe Length: 3.5˝.
Probe Material: 304 SS.
Mounting: Suspension or surface.
Enclosure Rating: NEMA 4X (IP66).
Weight: 3 oz (85 g).

Series TE-OND/ TE-RND

Outdoor Temperature Sensors

Protection Against Radiated Heat, NEMA 4X (IP65) Enclosure



The Series TE-OND/TE-RND Outdoor Air Temperature Sensors are offered in two different configurations to increase measurement accuracy by reducing radiated heat effects. For applications where the north side of the building is accessible, the TE-OND can be used to protect against low levels of radiated heat. If the sensor must be mounted in direct sunlight or a more precise measurement is required, our six plate radiation shield mounts over the temperature probe. The TE-RND radiation shield models can be surface or pipe mounted. All models include removeable terminal blocks to simply wire.

Resistance vs Temperature Table

Temperature		Resistance Curves (Ω)					
°C	°F	A	B	C	D	E	F
-55	-67.0	607800.00	963849.00	289154.70	78.32	783.2	2394000.00
-50	-58.0	441200.00	670166.00	201049.80	80.31	803.1	1646200.00
-45	-49.0	323600.00	471985.00	141595.50	82.29	822.9	1145800.00
-40	-40.0	239700.00	336479.00	100943.70	84.27	842.7	806800.00
-35	-31.0	179200.00	242681.00	72804.30	86.25	862.5	574400.00
-30	-22.0	135200.00	176974.00	53092.20	88.22	882.2	413400.00
-25	-13.0	102900.00	130421.00	39126.30	90.19	901.9	300400.00
-20	-4.0	78910.00	97081.00	29124.30	92.16	921.6	220600.00
-15	5.0	61020.00	72957.00	21887.10	94.12	941.2	163500.00
-10	14.0	47540.00	55329.00	16598.70	96.09	960.9	122280.00
-5	23.0	37310.00	42327.00	12698.10	98.04	980.4	92240.00
0	32.0	29490.00	32650.00	9795.00	100.00	1000.0	70160.00
5	41.0	23460.00	25392.00	7617.60	101.95	1019.5	53780.00
10	50.0	18780.00	19901.00	5970.30	103.90	1039.0	41560.00
15	59.0	15130.00	15712.00	4713.60	105.85	1058.5	32340.00
20	68.0	12260.00	12493.00	3747.90	107.79	1077.9	25360.00
25	77.0	10000.00	10000.00	3000.00	109.74	1097.4	20000.00
30	86.0	8194.00	8057.00	2417.10	111.67	1116.7	15892.00
35	95.0	6752.00	6531.00	1959.30	113.61	1136.1	12704.00
40	104.0	5592.00	5326.00	1597.80	115.54	1155.4	10216.00
45	113.0	4655.00	4368.00	1310.40	117.47	1174.7	8264.00
50	122.0	3893.00	3602.00	1080.60	119.40	1194.0	6722.00
55	131.0	3271.00	2986.00	895.80	121.32	1213.2	5498.00
60	140.0	2760.00	2488.00	746.40	123.24	1232.4	4520.00
65	149.0	2339.00	2083.00	624.90	125.16	1251.6	3734.00
70	158.0	1990.00	1752.00	525.60	127.08	1270.8	3100.00
75	167.0	1700.00	1480.00	444.00	128.99	1289.9	2586.00
80	176.0	1458.00	1255.00	376.50	130.90	1309.0	2166.00
85	185.0	1255.00	1070.00	321.00	132.80	1328.0	1822.60
90	194.0	1084.00	915.50	274.65	134.71	1347.1	1540.00
95	203.0	939.30	786.60	235.98	136.61	1366.1	1306.40
100	212.0	816.80	678.60	203.58	138.51	1385.1	1112.60
105	221.0	712.60	587.60	176.28	140.40	1404.0	951.00
110	230.0	623.60	510.60	153.18	142.29	1422.9	815.80
115	239.0	547.30	445.30	133.59	144.18	1441.8	702.20
120	248.0	481.80	389.60	116.88	146.07	1460.7	606.40
125	257.0	425.30	341.90	102.57	147.95	1479.5	525.60
130	266.0	376.40	301.00	90.30	149.83	1498.3	N/A
135	275.0	334.00	265.80	79.74	151.71	1517.1	N/A
140	284.0	297.20	235.30	70.59	153.58	1535.8	N/A
145	293.0	265.10	208.90	62.67	155.46	1554.6	N/A
150	302.0	237.00	186.10	55.83	157.33	1573.3	N/A

SPECIFICATIONS

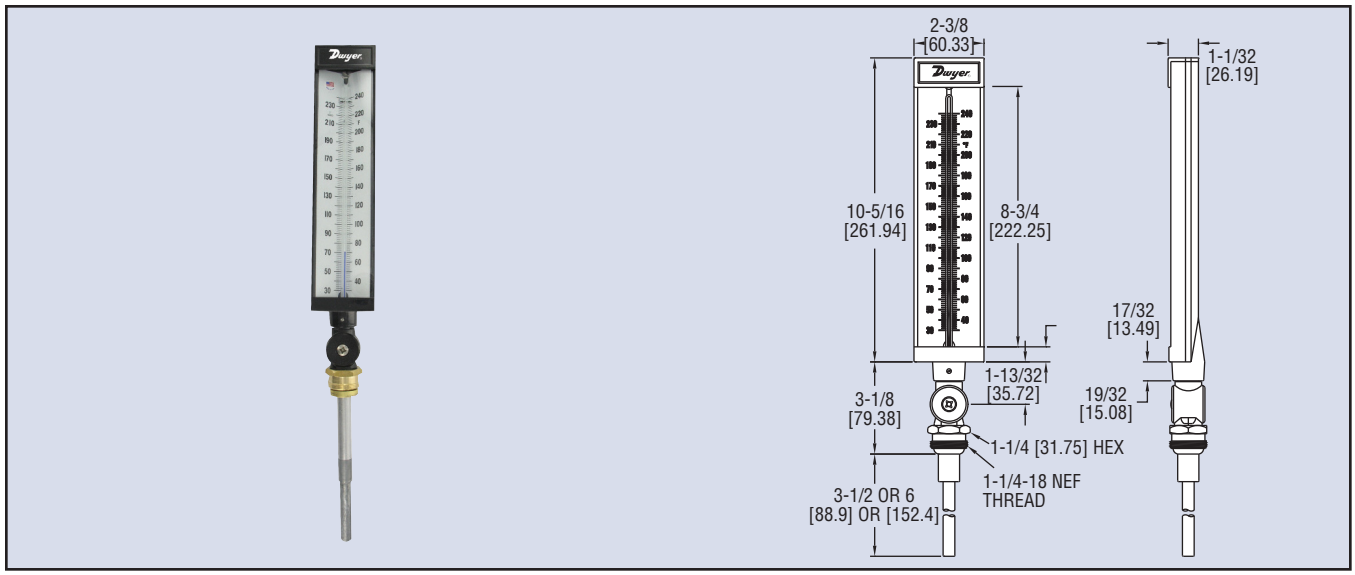
Accuracy:
Thermistor temperature sensor: ±0.2°C @ 25°C (±0.36°F @ 77°F);
RTD temperature sensor: DIN class A: ±0.15°C @ 0°C (±0.28°F @ 32°F).
Temperature Limits: Operating: -40 to 302°F (-40 to 150°C).
Sensor Curves: See resistance vs. temperature table.
Housing Material: Polycarbonate.
Enclosure Rating: NEMA 4X (IP65).
Weight: 0.65 lb (295 g).

Model	Sensor Type
TE-OND-A	10K Ω type III thermistor
TE-OND-B	10K Ω type II thermistor
TE-OND-C	3K Ω thermistor
TE-OND-D	PT100 Ω RTD
TE-OND-E	PT1000 Ω RTD
TE-OND-F	20K Ω thermistor
TE-RND-A	10K Ω type III thermistor
TE-RND-B	10K Ω type II thermistor
TE-RND-C	3K Ω thermistor
TE-RND-D	PT100 Ω RTD
TE-RND-E	PT1000 Ω RTD
TE-RND-F	20K Ω thermistor

Series IT

Industrial Thermometer

9″ Scale, Adjustable Angle Stem



The Series IT Industrial Thermometer allows users to easily take accurate temperature measurements in any environment. The case of the IT series is made of die cast aluminum for extra durability in industrial environments. The glass lens is easily cleaned and resists scratches for better viewing of the scale. The stem can be adjusted 180° in order to achieve the best viewing angle. The blue organic fill is non-toxic and allows users to better see the temperature reading. The scales can be ordered with dual units, °F, or °C.

3-1/2″ Stem		6″ Stem	
Model	**Range**	**Model**	**Range**
ITA9351D	-40 to 110°F (-40 to 40°C)	**ITA9601D**	-40 to 110°F (-40 to 40°C)
ITA9352D	0 to 120°F (-15 to 50°C)	**ITA9602D**	0 to 120°F (-15 to 50°C)
ITA9353D	0 to 160°F (-15 to 70°C)	**ITA9603D**	0 to 160°F (-15 to 70°C)
ITA9354D	30 to 180°F (0 to 80°C)	**ITA9604D**	30 to 180°F (0 to 80°C)
ITA9355D	30 to 240°F (0 to 115°C)	**ITA9605D**	30 to 240°F (0 to 115°C)
ITA9356D	30 to 300°F (0 to 150°C)	**ITA9606D**	30 to 300°F (0 to 150°C)
ITA9357D	50 to 400°F (10 to 205°C)		
ITA9358D	100 to 550°F (40 to 300°C)		

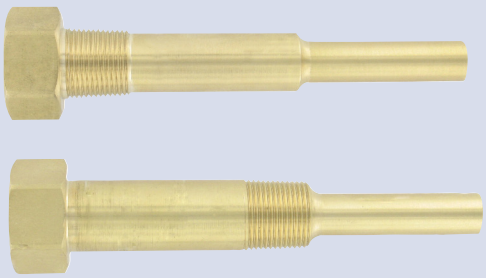
SPECIFICATIONS
Wetted Material: Tapered cast aluminum with graphite fill.
Housing Material: 9″ (228 mm) aluminum.
Lens: Glass.
Accuracy: 1% accuracy.
Scales: Aluminum painted white with black markings.
Process Connection: 1-1/4-18 NEF thread.
Liquid Filling: Organic blue liquid filled tube.
Mounting: Adjustable stem: Vertical plane 180° horizontal plane 360°.
Weight: 1 lb 7 oz (0.65 kg).

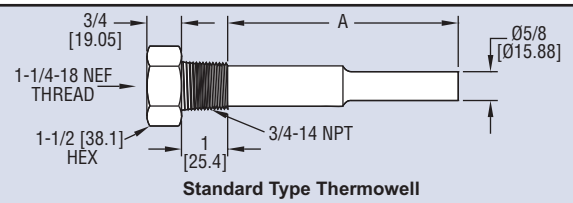
OPTION
For NIST traceable calibration certificate, use order code NISTCAL-TG.

Series IT-W

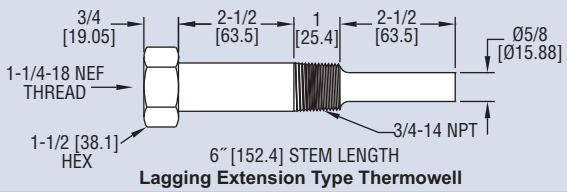
Industrial Thermometer Thermowells

Fits IT Thermometers with 3-1/2″ and 6″ Stem Lengths





Standard Type Thermowell



Lagging Extension Type Thermowell

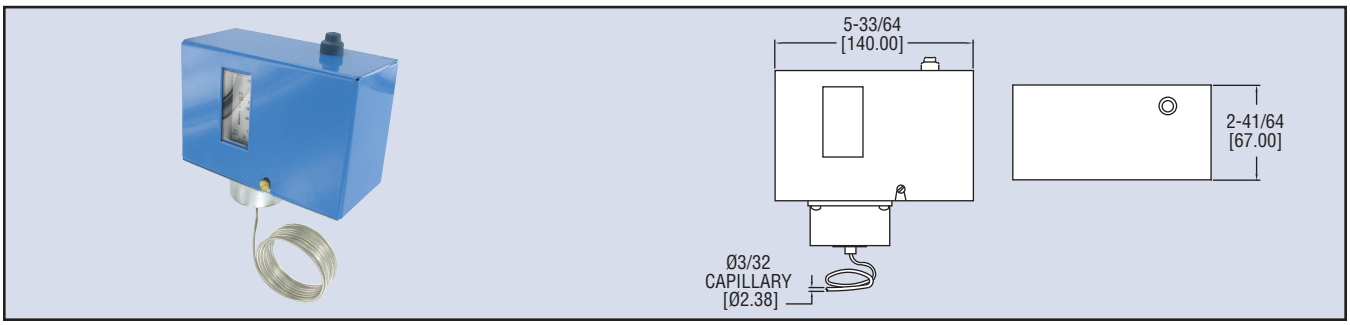
The Series IT-W Thermowells reduce installation cost and time by eliminating the need to drain the system when servicing industrial thermometers. The thermowells protect industrial thermometers from high pressure, flow and corrosive media. Series IT-W Thermowells are available with 2-1/2″ and 5″ insertion lengths and with the option of a 2-1/2″ lagging extension. These cost efficient brass, 304 stainless steel, and 316 stainless steel thermowells with 3/4″ NPT threads are compatible with Series IT for most applications.

Model	Materials	Insertion Length	Lag
IT-W01	Brass	2-1/2″	N/A
IT-W11	304 SS	2-1/2″	N/A
IT-W21	316 SS	2-1/2″	N/A
IT-W04	Brass	5″	N/A
IT-W14	304 SS	5″	N/A
IT-W24	316 SS	5″	N/A
IT-W07	Brass	2-1/2″	2-1/2″
IT-W17	304 SS	2-1/2″	2-1/2″
IT-W27	316 SS	2-1/2″	2-1/2″

Series DFS

Low Limit Freeze Protection Switch

Manual and Auto Reset, DPDT Output



The Series DFS Low Limit Freeze Protection Switch protects cooling coils in air handler systems by preventing frost build up on the coils. By sensing the lowest temperature along any 1´ section of capillary, the DPDT manual or automatic reset relays signal the building management system, as well as cut off the fan. Set points can be adjusted as low as 34°F (1° C) utilizing the visual set point indicator and set point screw. The Series DFS includes mounting clips for easy installation.

SPECIFICATIONS
Wetted Material: Vapor-filled copper capillary, tin-plated, 10´ or 20´.
Housing Material: Plated steel case, painted steel cover, plastic set point window.
Temperature Limit:
Operating: -60 to 160°F (-51 to 71°C);
Sensing element: 300°F (149°C) max.
Switch Type: DPDT snap acting.

Electrical Ratings:
Inductive: 14 FLA, 84 LRA, 3/4 hp @ 120VAC; 12 FLA, 72 LRA, 2 hp @ 240 VAC.
Pilot Duty: 720 VA max. @ 120 to 600 VAC; 144 VA max. @ 24 VAC.
Reset Action: Manual or automatic.
Adjustable Range: 34 to 70°F (1 to 21°C).
Deadband: 4.5°F (2.5°C), fixed.
Agency Approvals: cUL, UL.

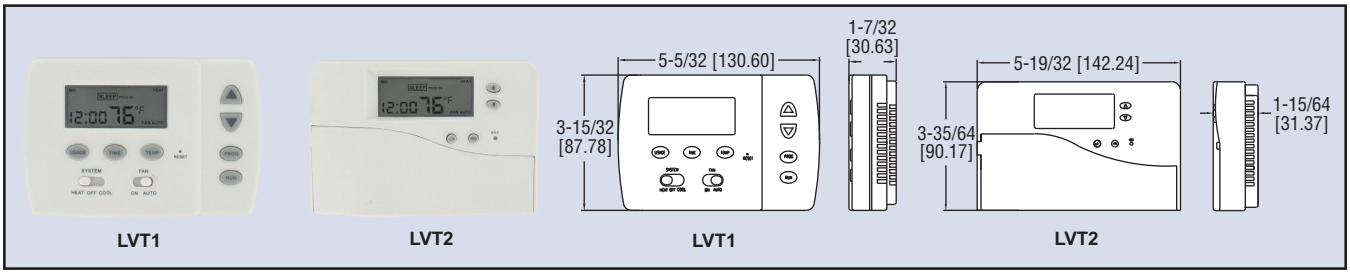
Model	Reset Action	Capillary Length
DFS-DM20	Manual	20´ (609 cm)
DFS-DA20	Automatic	20´ (609 cm)
DFS-DM10	Manual	10´ (305 cm)
DFS-DA10	Automatic	10´ (305 cm)

ACCESSORIES
CC1-N, Averaging Temperature Sensor Clip, Natural
CC1-B, Averaging Temperature Sensor Clip, Beige
CC1-GY, Averaging Temperature Sensor Clip, Grey

Series LVT

Digital Programmable Indoor Thermostat with Heat Pump Control

4 Event - 2 Day Program Schedule, Filter Use Indicator



The Series LVT Digital Programmable Indoor Thermostats with Heat Pump controls the ambient temperature inside of commercial and residential buildings. For energy conservation, the thermostats have separate programming for weekdays and weekends, along with four programmable events per day to allow building owners to have different settings for occupied and unoccupied times of the day. Set points are stored for both heating and cooling stages to eliminate the need to reprogram when the seasons change. Internal jumpers allow for the selection of the engineering units, time delay between compressor starts and fan controlled heating type. A system and filter usage timer can be used as a maintenance tool to schedule filter replacement. A filter icon will display when the filter needs to be changed. For protection against frozen pipes, if the temperature falls below 40°F (5°C), the heater will be turned on regardless of the set point.

SPECIFICATIONS
Range: Measurement: 32 to 99°F (0 to 40°C); Adjustable: 40 to 95°F (5 to 35°C).
Accuracy: ±1°F (0.5°C).
Sensor Type: NTC thermistor.
Resolution: 1°F (0.5°C).
Power Requirements: 24 VAC 50/60 Hz or (2) AA alkaline batteries, not included.

Output: 1 A @ 24 VAC (inductive).
Temperature Limits:
Operating: 32 to 104°F (0 to 40°C);
Storage: 32 to 122°F (0 to 50°C).
Humidity Limits: 5 to 95% RH (non-condensing).
Weight: 4.9 oz (138.9 g).
Agency Approval: RoHS.

Model	Front Access Panel
LVT1	No
LVT2	Yes

ACCESSORIES
TG-1, Large Thermostat Cover
TG-2, Small Thermostat Cover

Model PLVT1

Compact Digital Thermostat with Heat Pump Control

5 Control Modes, Large LCD Display

The Model PLVT1 Compact Digital Thermostat with Heat Pump directly controls the furnace, small boiler, air conditioner, circulator fan, and heat pump in commercial or residential buildings. A large easy to read LCD display shows the current temperature and the operating mode. In case of a power outage, the thermostat can be operated off batteries. In order to reduce the need to switch modes for different seasons, the thermostat can be set to automatically switch between heating and cooling.

Model PLVT1, Compact Digital Thermostat with Heat Pump

ACCESSORIES
TG-1, Large Thermostat Cover
TG-2, Small Thermostat Cover

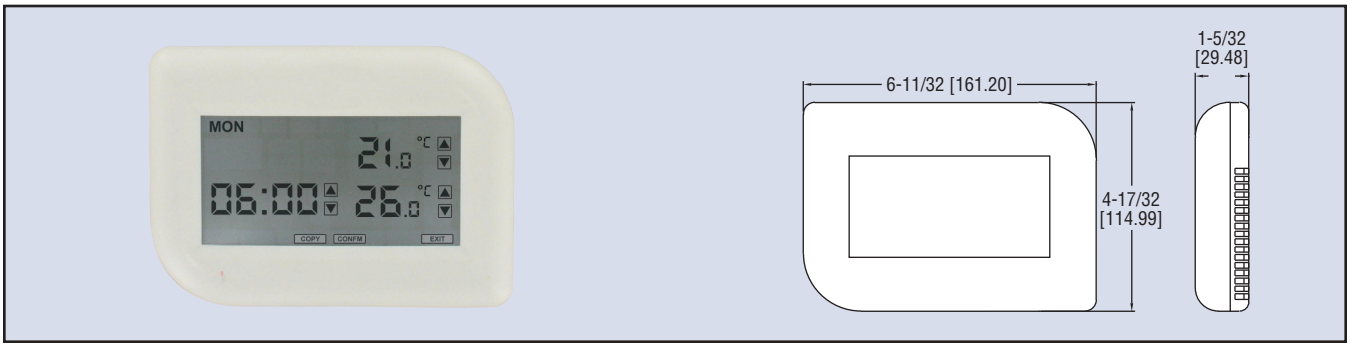
SPECIFICATIONS
Range:
Measurement: 32 to 99°F (0 to 40°C);
Adjustment:
Heat/Cool Mode:
Heat/Cool Setting: 40 to 95°F (5 to 35°C);
Auto Mode:
Heat Setting: 40 to 85°F (5 to 30°C);
Cool Setting: 50 to 95°F (10 to 35°C).

Accuracy: ±1°F (0.5°C).
Sensor Type: NTC thermistor.
Resolution: 1°F (0.5°C).
Power Requirements: 24 VAC ±10% or (2) AAA alkaline batteries, not included.
Output: 1 A @ 24 VAC @ 50/60 Hz.
Temperature Limits:
Operating: 32 to 122°F (0 to 50°C);
Storage: 23 to 122°F (-5 to 50°C).
Weight: 4.5 oz (127.6 g).
Agency Approval: RoHS.

Model TLVT1

Digital Touch Screen Programmable Thermostat with Heat Pump Control

5 Control Modes, Large LCD Display



The Model TLVT1 Digital Touch Screen Programmable Thermostat with Heat Pump simplifies controlling indoor temperatures in commercial and residential buildings. A large easy to read LCD display shows the current temperature, set point, as well as time and day of the week. By touching the icons on the display, building occupants can temporarily change the set point, edit the weekly program, or select the control mode. For larger offices or homes, a single thermostat can control up to two heating and two cooling units. For Heat pump applications, the thermostat can control a two stage compressor. To make programming the time easier, there is a daylight savings time function that will automatically change the time based on the US time change dates. To prevent tampering, the Model TLVT1 has a security code feature that can lock out the programming. For additional energy savings, the filter, UV and energy usage timers tracks the number of hours the fan, heater/cooler, and thermostat is powered on. Additional energy savings can be achieved by programming the thermostat for up to 4 temperature events for each day of the week.

Model TLVT1, LCD Touch Screen Programmable Thermostat

SPECIFICATIONS
Range:
Measurement: 32 to 99°F (0 to 40°C);
Adjustment: 41 to 95°F (5 to 35°C).
Accuracy: ±1°F (0.5°C).
Sensor Type: NTC thermistor.
Resolution: 1°F (0.5°C).
Power Requirements: 24 VAC 50/60 Hz or (2) AA alkaline batteries, not included.

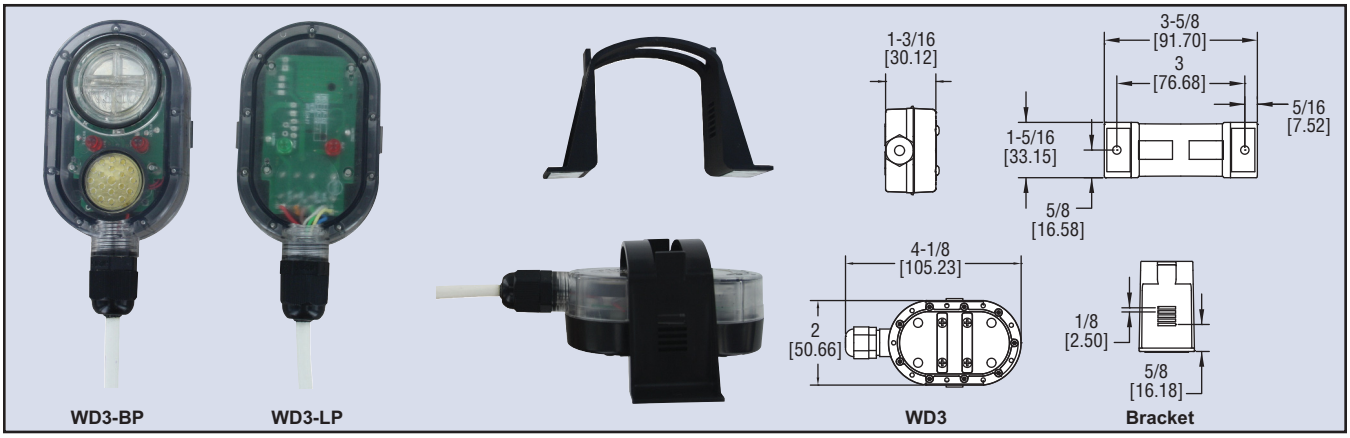
Output: 1 A @ 24 VAC 50/60 Hz.
Temperature Limits:
Operating: 32 to 122°F (0 to 50°C);
Storage: 23 to 122°F (-5 to 50°C).
Weight: 10 oz (283.5 g).
Agency Approval: RoHS.

ACCESSORIES
TG-1, Large Thermostat Cover
TG-2, Small Thermostat Cover

Series
WD3

Water Leak Detector

Battery or External Powered, SPST or DPDT Relays



The Series WD3 Water Leak Detector protects equipment from water damage by detecting the presence of water in drip pans in air handler units, under raised floors in data centers, or on floors around sump pumps and drains. Water is detected once it reaches a level that bridges the two conductive strips on the bottom of the housing. Depending on the model ordered, audible and visual alerts provide local indication of the alarm condition and an internal switch will give remote indication or control to prevent further build up of water.

For applications where power is not available, the Model WD3-BP-D1-A is battery powered. Otherwise, either AC or DC supply voltages can be used to power the water detector. The sensing height can be adjusted to as low as 1/32″ using the included adjustable mounting bracket. The mounting bracket can attach to any flat surface by either using the attached adhesive strips or mounting screws.

Model	Output	Power	Audible Alarm
WD3-BP-D1-A	SPST NO SSR	Battery	Yes
WD3-LP-D2	DPDT Relay	11 to 27 VAC/DC	No
WD3-LP-D2-A	DPDT Relay	11 to 27 VAC/DC	Yes

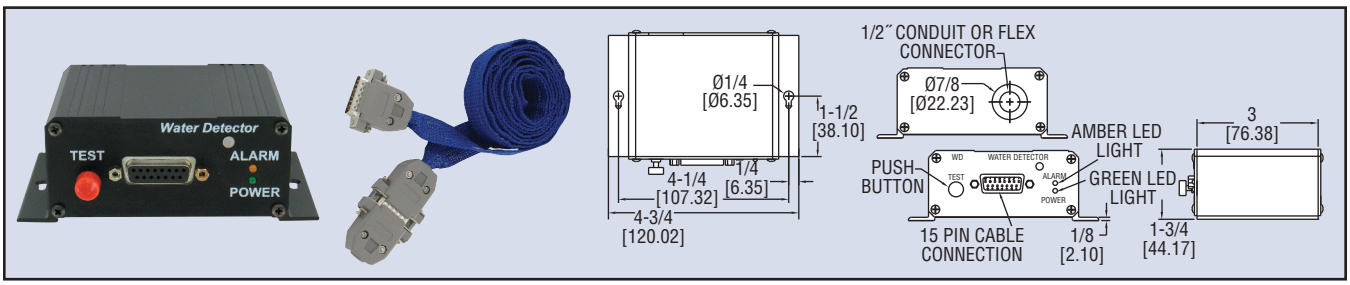
ACCESSORY
A-WD3-BRK, Replacement Mounting Bracket

SPECIFICATIONS
Service: Water or conductive fluids.
Minimum Sensing Gap: 1/32″.
Switch Type: Battery Powered Models: SPST NO SSR; External Powered Models: DPDT relay.
Electrical Ratings: Battery Powered Model: Pilot duty rating 250 mA @ 24 VDC; External Powered Models: 1A @ 24 VAC/DC.
Audible Alarm: At least 85 dB @ 1 foot distance (depends on model).
Visual Alarm: Red LED for water level; Yellow LED for low battery (battery powered models only); Green LED for power condition (external powered models only).
Temperature Limits: 32 to 122°F (0 to 50°C).
Power Requirements: Battery Powered Model: 3V CR2450 lithium metal battery, installed functional, user replaceable; External Powered Models: 11 to 27 VAC/DC.
Power Consumption: Battery Powered Model: 0.9 mA steady state / 3.0 mA during alarm condition; External Powered Models: 30 mA steady state / 85 mA during alarm condition.
Battery Life: 5 years steady state / 48 hours during alarm condition.
Electrical Connections: 4.9′ (1.5 m), 22 AWG, PVC, UL plenum rated cable.
Enclosure Material: ABS and polycarbonate with flammability classification UL 94 V-0.
Enclosure Rating: Audible Alarm Models: Water-tight up to 3/4 of the body height; Non-Audible Alarm Models: NEMA 6P (IP 68) submersible.
Weight: 4.85 oz (137.5 g).
Agency Approvals: CE, RoHS.

Model
WD

Water Detector and Sensor Tape

Detects Low Levels Of Conductive Liquids



The small and discreet Model WD Water Detector is designed for dependable detection of low levels of conductive liquids. The module features a sturdy and reliable aluminum enclosure and is powered by 24 VAC or 24 to 30 VDC. Water sensing tape attaches to module and if any liquid comes in contact with the tape the resistance is changed and the alarm will be triggered. The tape is hydrophobic so it does not absorb any of the liquid it is detecting which makes for a faster drying time and faster return to service after a water leak.

The sensing tape is 1″ wide and can be bought in lengths of 5′, 10′, 15′ and 25′. Multiple tapes can be connected together to extend the coverage area which makes it ideal for domestic as well as commercial applications. Features include power and alarm LED's, alarm test switch, continuous tape integrity self check and extendable tape sensor.

SPECIFICATIONS
Service: Conductive liquid.
Switch Type: DPDT.
Electrical Rating: 1 A @ 24 VAC/VDC.
Power Requirements: 24 VAC, 24 to 30 VDC.
Power Consumption: 35 mA maximum.
Electrical Connections: Screw terminals.
Conduit Connections: Hole for 1/2″ conduit.
Enclosure: Extruded aluminum.
Sensor Tape: 1″ (25.4 mm) wide and 5′, 10′, 15′ or 25′ long.
Weight: 8 oz (.23 kg).

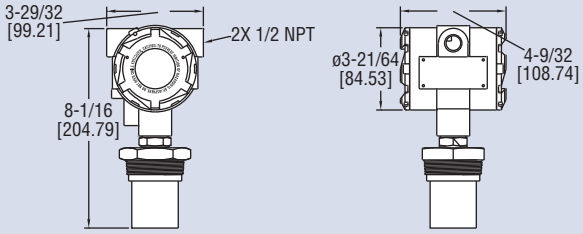
Model	Description
WD	Water Module
TP05	5′ (1.52 m) Tape
TP10	10′ (3.05 m) Tape
TP15	15′ (4.57 m) Tape
TP25	25′ (7.62 m) Tape

LEVEL

Series ULT

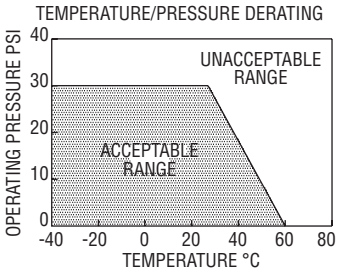
Ultrasonic Level Transmitter

Explosion-proof, Mapping Software



Series ULT Ultrasonic Level Transmitter provides reliable, accurate, noncontact measurement of liquid levels. Ultrasonic non-contact technology offers no moving parts to wear, jam, corrode, or get coated like contact technologies. Mapping software makes effective measuring surface only a 3˝ diameter column. No concerns with ladders, pipes, or other tank intrusions in the remaining sound cone. Unit is FM approved explosion-proof making it ideal for use in hazardous locations. The ULT features easy programming with 6 digit LCD display and simple menu structure. Output range is adjustable with choices of inputting tank dimensions or just fill and empty the tank while calibrating and it automatically scales to levels it senses. Window cover allows early viewing of display. Failsafe output options and diagnostic capabilities makes the ULT a good choice for critical applications.

Model	Range
ULT-11	24.6´ (7.5 m)
ULT-21	32.8´ (10 m)

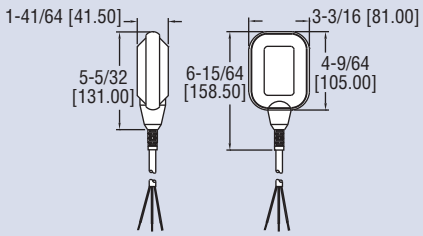


SPECIFICATIONS
Service: Compatible fluids. Not for use with powder and bulk solids.
Wetted Materials:
Sensor: PVDF;
Process connection: 303 SS;
O-ring: fluoroelastomer.
Ranges: 24.6´ (7.5 m), 32.8´ (10 m).
Accuracy: ±0.2% of max range.
Resolution: 0.079˝ (2 mm).
Blind Zone: Under 8˝ (20 cm).
Beam Width: 3˝ (7.6 cm) diameter.
Temperature Limits:
Ambient: -40 to 140°F (-40 to 60°C);
Process: -4 to 140°F (-20 to 60°C).
Temperature Compensation: -40 to 140°F (-40 to 60°C).
Pressure Limits: 30 psi (2 bar) up to 25°C (77°C). Above 25°C (77°F), rating decreases 1.667 psi per 1°C increase. See chart.
Power Requirement: 18 to 28 VDC (Two-wire).
Output Signal: 4 to 20 mA or 20 to 4 mA (Two-wire).
Max. Loop Resistance: 250 Ω at 24 VDC.
Electrical Connections: Screw terminal.
Conduit Connection: 1/2˝ NPT female (two) or optional M20.
Process Connection: 2˝ NPT male or optional BSPT.
Enclosure Rating: Weather-proof meets NEMA 4X (IP66), explosion-proof rated Class I, Div. 1, Groups B, C, D; Class II/III, Div. 1, Groups E, F, G.
Mounting Orientation: Vertical.
Failsafe: On lost echo after 30 seconds, user selectable to 4, 20, 21, 22 mA or last signal.
Memory: Non-volatile.
Display: 6 character LCD.
Units: In, cm, ft, m, percent.
Memory: Non-volatile.
Programming: 4 button.
Weight: 4.0 lb (1.8 kg).
Agency Approvals: CE, FM.

Series CFS2

Cable Float Switch

Mercury-Free, UL/CSA Approved Options



The Series CFS2 Cable Float Switch is a mechanically actuated floating switch intended to activate electrical components, usually pumps, to start and stop automatically. The CFS2 is perfect for simple level control of liquids for filling or draining reservoirs and tanks. Float switches such as the CFS2 are the most universally used for pump automation, due to their high reliability, economical pricing, and easy installation. Counterweights and cable hangers are available to suit a variety of mounting applications. Optional cables available include those with UL/CSA approval, higher chemical compatibility, high temperature durability, oil resistance, and drinking water suitability. Contact factory for piggyback plug option, gold contact switch option and cable length options ranging from 10 to 70 ft (3.04 to 21.34 m).

SPECIFICATIONS
Service: Compatible liquids.
Wetted Materials: Enclosure: Polypropylene; Cable: See model chart.
Temperature Limits: 32 to 122°F (0 to 50°C).
Pressure Limits: 14.5 psi (1 bar).
Enclosure Rating: IP68.
Switch Type: See model chart.

ACCESSORIES
A-457, 7.76 oz (220 g) counterweight
A-459, Cable hanger

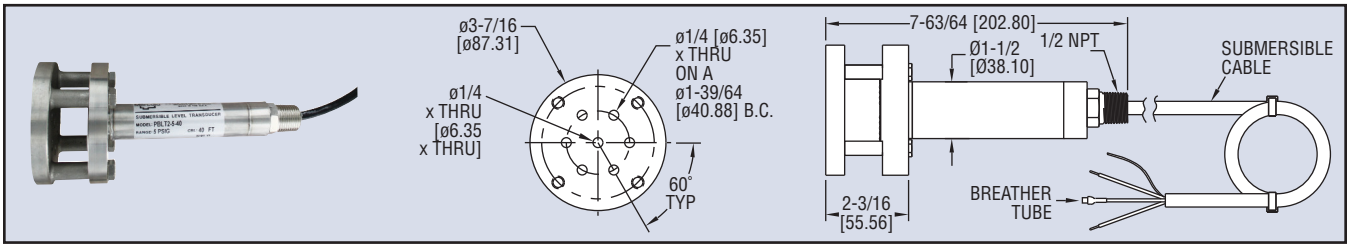
Electrical Rating:
CFS2-XXBXX-XX:
10 (8) A @ 250 VAC;
CFS2-XXDXX-XX:
1 HP @ 125 VAC 16 FLA;
2 HP @ 250 VAC 12 FLA.
Shipping Weight:
Enclosure: 5.43 oz (154 g);
Cable: 0.77 oz (21.27 g) per ft.
Agency Approvals: See model chart.

Model	Cable Type	Approvals	Switch Type	Cable Length
CFS2-ONBPN-20	PVC	CE	SPST NO	20 ft (6.10 m)
CFS2-ONBPN-30	PVC	CE	SPST NO	30 ft (9.14 m)
CFS2-ONBPN-40	PVC	CE	SPST NO	40 ft (12.19 m)
CFS2-ONBPN-50	PVC	CE	SPST NO	50 ft (15.24 m)
CFS2-CNBPN-20	PVC	CE	SPST NC	20 ft (6.10 m)
CFS2-CNBPN-30	PVC	CE	SPST NC	30 ft (9.14 m)
CFS2-CNBPN-40	PVC	CE	SPST NC	40 ft (12.19 m)
CFS2-CNBPN-50	PVC	CE	SPST NC	50 ft (15.24 m)
CFS2-DNBPN-7	PVC	CE	SPDT	7 ft (2.13 m)
CFS2-DNBPN-10	PVC	CE	SPDT	10 ft (3.05 m)
CFS2-DNBPN-15	PVC	CE	SPDT	15 ft (4.57 m)
CFS2-DNBPN-20	PVC	CE	SPDT	20 ft (6.10 m)
CFS2-DNBPN-30	PVC	CE	SPDT	30 ft (9.14 m)
CFS2-DNBPN-40	PVC	CE	SPDT	40 ft (12.19 m)
CFS2-DNBPN-50	PVC	CE	SPDT	50 ft (15.24 m)
CFS2-DNBPN-60	PVC	CE	SPDT	60 ft (19.29 m)
CFS2-DNBPN-80	PVC	CE	SPDT	80 ft (24.38 m)
CFS2-DNBPN-100	PVC	CE	SPDT	100 ft (30.48 m)
CFS2-OGDSN-20	SJOW	UL/CSA	SPST NO	20 ft (6.10 m)
CFS2-OGDSN-30	SJOW	UL/CSA	SPST NO	30 ft (9.14 m)
CFS2-OGDSN-40	SJOW	UL/CSA	SPST NO	40 ft (12.19 m)
CFS2-OGDSN-50	SJOW	UL/CSA	SPST NO	50 ft (15.24 m)
CFS2-CGDSN-20	SJOW	UL/CSA	SPST NC	20 ft (6.10 m)
CFS2-CGDSN-30	SJOW	UL/CSA	SPST NC	30 ft (9.14 m)
CFS2-CGDSN-40	SJOW	UL/CSA	SPST NC	40 ft (12.19 m)
CFS2-CGDSN-50	SJOW	UL/CSA	SPST NC	50 ft (15.24 m)

Series
PBLT2

Submersible Level Transmitters

Perfect for Cooling Towers and Storm Water Collection



PBLT2 Submersible Level Transmitters are manufactured for years of trouble free service in the harshest applications. Both measure the height of liquid above the position in the tank referenced to atmospheric pressure. The transmitters consist of a piezoresistive sensing element, encased in a 316 SS housing. Large diameter 316 SS diaphragm seal is non-clogging and damage resistant to floating solids.
The PBLT2 incorporates lightning and surge protection utilizing dual arrestor technology, grounded to case, eliminating both power supply surges and lightning ground strike transients (surge protection is not guaranteed and is not covered by warranty).
Units come equipped with a 270-pound tensile strength shielded and vented cable. Ventilation tube in the cable automatically compensates for changes in atmospheric pressure above the tank. The vent is protected with a maintenance free filter eliminating particulate or water droplets from entering the transducers.

FEATURES
- Excellent chemical compatibility with 316 construction and ETFE cable
- Lightning and surge protection on PBLT2 models
- Maintenance free vent filter
- Large diameter, non-clogging, damage resistant, 316 SS diaphragm seal

OPTIONS
Custom ranges or Cable Lengths

ACCESSORIES
A-297, Dessicant Filter for vent tube. Removes humidity for protection of the sensor. Changes color to show saturation

A-625, 316 SS Cable Hanger use with NPT option for attaching chain for easy pulling out of application

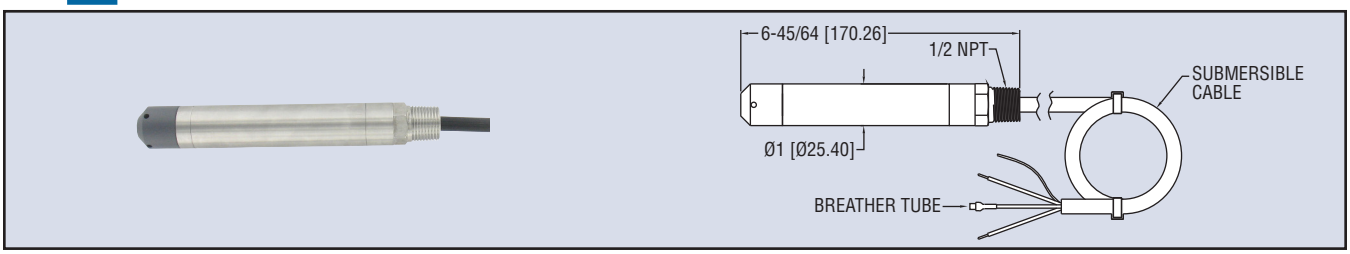
SPECIFICATIONS
Service: Compatible liquids.
Wetted Materials: 316 SS, 316L SS, epoxy, cable: ETFE or polyurethane.
Accuracy: ±0.25% full-scale (includes linearity, hysteresis, and repeatability).
Temperature Limit: 0 to 200˚F (-18 to 93°C).
Compensated Temperature Range: 0 to 180°F (-18 to 82°C).
Thermal Effect: ±0.02% FS/°F.
Pressure Limit: 2X full-scale.
Power Requirement: 13 to 30 VDC.
Output Signal: 4 to 20 mA DC, two wire.
Response Time: 50 ms.
Loop Resistance: 900 Ω.
Electrical Connection: Wire pigtail.
Mounting Orientation: Suspended in tank below level being measured.
Weight: 4.3 lb (2.0 kg).
Electrical Protection: Lightning and surge protection.

Model	Range psi (ft w.c.) [m w.c.]	Cable Length ft (m)	Cable Type
PBLT2-5-40	5 (11.54) [3.52]	40 (12.2)	ETFE
PBLT2-10-40	10 (23.09) [7.04]	40 (12.2)	ETFE
PBLT2-15-60	15 (34.63) [10.56]	60 (18.3)	ETFE
PBLT2-20-60	20 (46.18) [14.08]	60 (18.3)	ETFE
PBLT2-5-40-PU	5 (11.54) [3.52]	40 (12.2)	Polyurethane
PBLT2-10-40-PU	10 (23.09) [7.04]	40 (12.2)	Polyurethane
PBLT2-15-60-PU	15 (34.63) [10.56]	60 (18.3)	Polyurethane
PBLT2-20-60-PU	20 (46.18) [14.08]	60 (18.3)	Polyurethane
PBLT2-3.5M-5M-PU	4.97 (11.48) [3.5]	16.40 (5)	Polyurethane
PBLT2-5M-10M-PU	14.21 (32.81) [10]	32.81 (10)	Polyurethane
PBLT2-10M-18M-PU	25.58 (59.06) [18]	59.06 (18)	Polyurethane

Series
SBLT2

Submersible Level Transmitters

Perfect for Cooling Towers and Storm Water Collection



SBLT2 Submersible Level Transmitters are manufactured for years of trouble free service in the harshest applications. Both measure the height of liquid above the position in the tank referenced to atmospheric pressure. The transmitters consist of a piezoresistive sensing element, encased in a 316 SS housing. Bullet nose design protects the diaphragm from damage.
The SBLT2 incorporates lightning and surge protection utilizing dual arrestor technology, grounded to case, eliminating both power supply surges and lightning ground strike transients (surge protection is not guaranteed and is not covered by warranty).
Units come equipped with a 270-pound tensile strength shielded and vented cable. Ventilation tube in the cable automatically compensates for changes in atmospheric pressure above the tank. The vent is protected with a maintenance free filter eliminating particulate or water droplets from entering the transducers.

FEATURES
- Excellent chemical compatibility
- Lightning and surge protection on SBLT2 models
- Maintenance free vent filter
- Slim design for tight applications

OPTIONS
Custom ranges or Cable Lengths

ACCESSORIES
A-297, Dessicant Filter for vent tube. Removes humidity for protection of the sensor. Changes color to show saturation

A-625, 316 SS Cable Hanger use with NPT option for attaching chain for easy pulling out of application

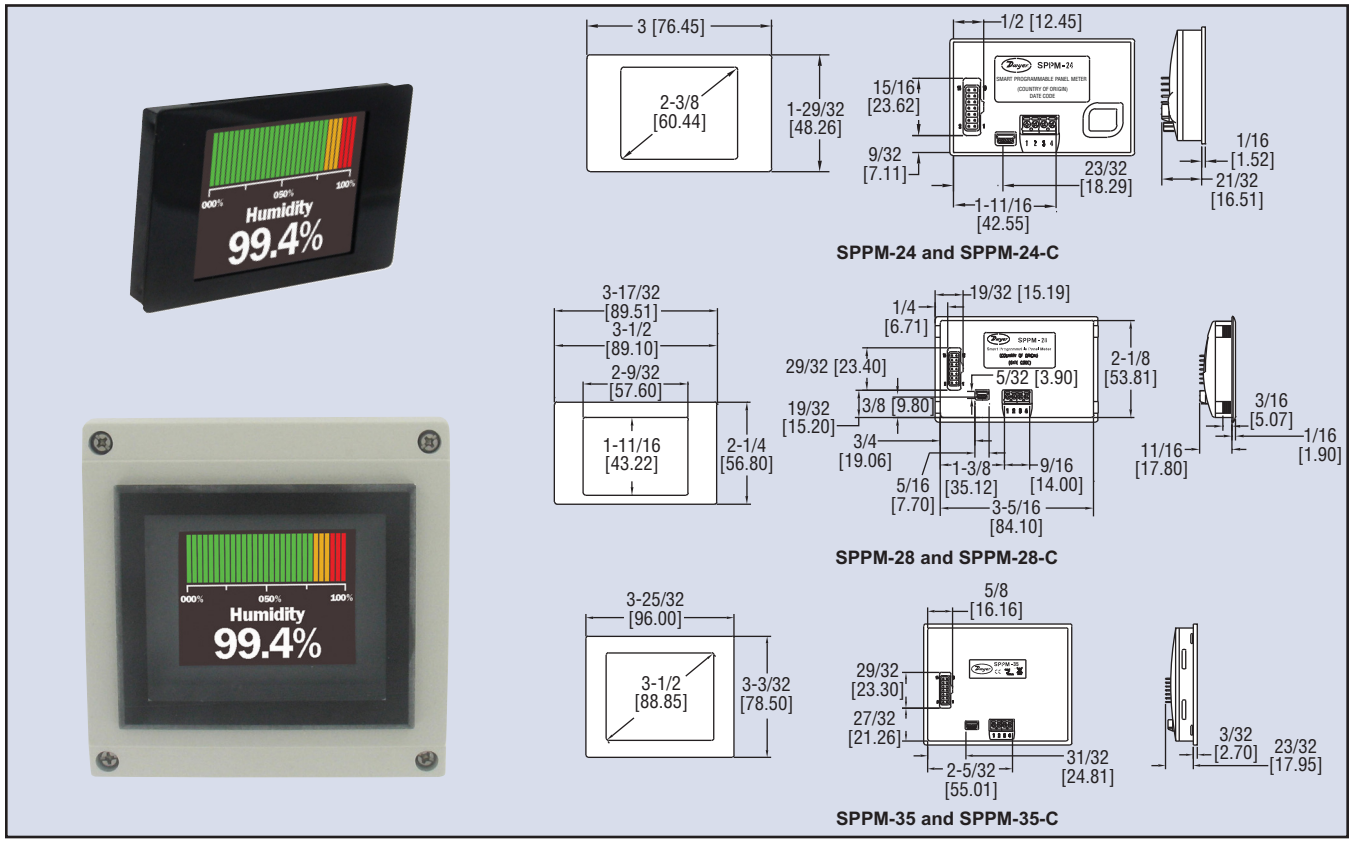
SPECIFICATIONS
Service: Compatible liquids.
Wetted Materials: 316 SS, 316L SS, epoxy; Cable: Polyurethane or ETFE; Bullet nose: PVC.
Accuracy: ±0.25% of full-scale.
Temperature Limit: 0 to 150°F (-18 to 66°C).
Compensated Temperature Range: 0 to 140°F (-18 to 60°C).
Thermal Effect: ±0.02% full-scale/°F.
Pressure Limit: 2X full-scale.
Power Requirement: 13 to 30 VDC.
Output Signal: 4 to 20 mA DC, 2-wire.
Response Time: 50 ms.
Max. Loop Resistance: 900 Ω at 30 VDC.
Electrical Connections: Wire pigtail.
Mounting Orientation: Suspended in tank below level being measured.
Weight: 2.2 lb (1.0 kg).
Electrical Protection: Lightning and surge protection.

Model	Range psi (ft w.c.) [m w.c.]	Cable Length ft (m)	Cable Type
SBLT2-5-40-ETFE	5 (11.54) [3.52]	40 (12.2)	ETFE
SBLT2-10-40-ETFE	10 (23.09) [7.04]	40 (12.2)	ETFE
SBLT2-15-60-ETFE	15 (34.63) [10.56]	60 (18.3)	ETFE
SBLT2-20-60-ETFE	20 (46.18) [14.08]	60 (18.3)	ETFE
SBLT2-5-40	5 (11.54) [3.52]	40 (12.2)	Polyurethane
SBLT2-10-40	10 (23.09) [7.04]	40 (12.2)	Polyurethane
SBLT2-15-60	15 (34.63) [10.56]	60 (18.3)	Polyurethane
SBLT2-20-60	20 (46.18) [14.08]	60 (18.3)	Polyurethane
SBLT2-3.5M-5M	4.97 (11.48) [3.5]	16.40 (5)	Polyurethane
SBLT2-5M-10M	14.21 (32.81) [10]	32.81 (10)	Polyurethane
SBLT2-10M-18M	25.58 (59.06) [18]	59.06 (18)	Polyurethane

Series SPPM

Smart Programmable Panel Meter

Fully Field Configurable, 16-Bit Color Touch Screen Display



The Series SPPM Smart Programmable Panel Meter is a configurable, full-color touch-screen display that can be used in a variety of applications. Utilizing a USB connection, the panel meter can be configured with downloadable software, using any computer running Windows® based software. Available with either a 2.4˝, 2.8˝ or 3.5˝ screen that features remarkable graphics that can easily be customized to read and/or graph pressure, temperature, humidity, gas concentration, or many other parameters. Up to two transmitters or transducers can feed the panel meter's user scalable inputs (voltage models only).

Model	Description	Input
SPPM-24	Smart Programmable Panel Meter with 2.4˝ display	Voltage
SPPM-28	Smart Programmable Panel Meter with 2.8˝ display	Voltage
SPPM-35	Smart Programmable Panel Meter with 3.5˝ display	Voltage
SPPM-24-C	Smart Programmable Panel Meter with 2.4˝ display	Current
SPPM-28-C	Smart Programmable Panel Meter with 2.8˝ display	Current
SPPM-35-C	Smart Programmable Panel Meter with 3.5˝ display	Current

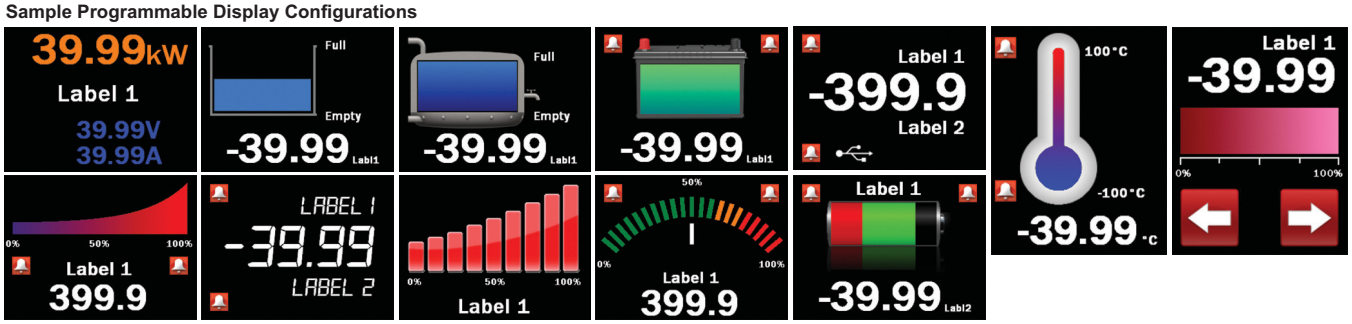
ACCESSORIES

A-SPPM-TC, Thermocouple Input Board
SPPM-CA, Mini USB to full USB cable
SPPM-HSG24, 2.4˝ Display Housing
SPPM-HSG28, 2.8˝ Display Housing
Additional configurations available via online software.

SPECIFICATIONS

Inputs: Current: 0 to 50 mA, scalable (factory set from 4 to 20 mA); Voltage: 0 to 40 VDC, scalable (factory set from 0 to 10 V).
Accuracy: 0.1%.
Resolution: 0.3 to 9.8 mV (depending on input range).
Power Supply: 4 to 30 VDC max or via USB.
Current Consumption: 190 mA max.
Display: 2.4˝, 2.8˝ or 3.5˝ TFT full color touch screen.
Display Resolution: 320 x 240 pixels.
Sampling Rate: 3 samples/s.
Temperature Limits: 32 to 104°F (0 to 40°C).
Warm Up: 30 s.
Mounting: Panel mount.
Electrical Connection: Screw terminals, pin connection, or USB.
Software Requirements: Compatible with Windows® XP, Windows® 2000, Windows® 7 and Windows Vista®.
Weight: 2.8 oz (79.4 g).
Approvals: CE, RoHS.

Sample Programmable Display Configurations



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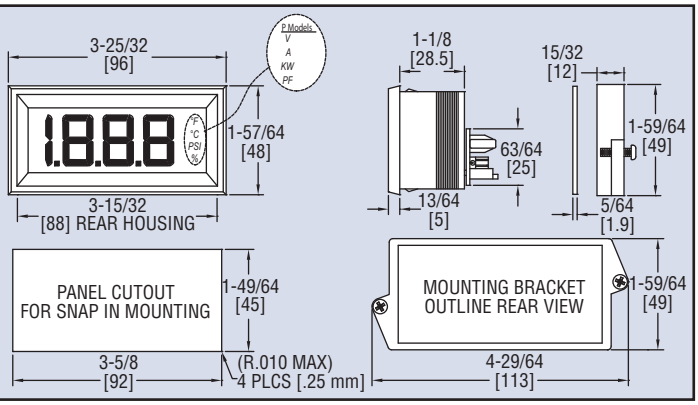
ELECTRICAL

Series DPMA

LCD Digital Panel Meters

1/8 DIN, Loop Powered, Large 3-1/2 Digit Display



Series DPMA Adjustable LCD Digital Panel Meter offers a 3-1/2 digit display for easy viewing in a standard 1/8 DIN package. Unit accepts 4 to 20 mA, 0 to 5 VDC, or 0 to 10 VDC inputs with a wide bipolar span and zero adjustment. Standard features include field selectable engineering units and decimal point positions. Choose from red, amber, or green segments for easy viewing at a distance. A 24 VDC power supply is required for the operation of the backlight.

Model	Input	Segments	Engineering Units
DPMA-401	Current	Amber Segments	°F, °C, %, PSI
DPMA-402	Current	Red Segments	
DPMA-404	Current	Green Segments	
DPMA-501	Voltage	Amber Segments	
DPMA-502	Voltage	Red Segments	
DPMA-504	Voltage	Green Segments	
DPMA-401P	Current	Amber Segments	V, A, KW, PF
DPMA-402P	Current	Red Segments	
DPMA-404P	Current	Green Segments	
DPMA-501P	Voltage	Amber Segments	
DPMA-502P	Voltage	Red Segments	
DPMA-504P	Voltage	Green Segments	

ACCESSORIES
DPM-12P, Regulated 120 VAC to 12 VDC Power Supply
DPM-24P, Regulated 120 VAC to 24 VDC Power Supply

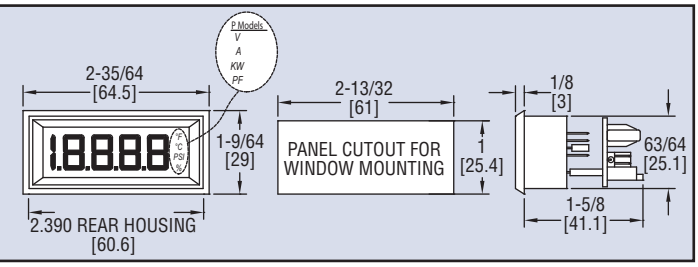
SPECIFICATIONS
Input: DPMA-4XX(P): 4 to 20 mA; DPMA-5XX(P): 0 to 200 mVDC, 0 to 5 VDC or 0 to 10 VDC.
Input Impedance: DPMA-4XX(P): 300Ω nominal; DPMA-5XX(P): 390KΩ nominal.
Accuracy: ±(0.05% FS + 1 count).
Power Supply: DPMA-4XX(P): Powered by control loop; DPMA-5XX(P): 12 VDC or 24 VDC.
Backlight Power Supply: 24 VDC @ 35 mA typical.
Span and Zero: Adjustable. (±1999 counts).
Display: 3-1/2 digits, 7 segments, 1″ (25.4 mm) H.
Decimal Points: 3-position, user selectable.
Engineering Units: DPMA-XXX: °F, °C, %, psi; DPMA-XXXP: V, A, KW, PF.
Polarity: Automatic, "-" displayed.
Operating Temperature: 32 to 122°F (0 to 50°C).
Storage Temperature: -4 to 158°F (-20 to 70°C).
Mounting: Snap-in panel mount or clamp (gasket included).
Connection: Screw terminals.
Conversion Rate: 3 per second.
Warm-Up: 10 minutes typical.
Weight: 4 oz (113.4 g).
Agency Approvals: RoHS.

APPLICATIONS
Used to display process values from pressure, humidity, temperature, voltage, current, watt, or power factor transmitters.

Series DPML

LCD Digital Panel Meters

4-1/2 Digit LCD, Selectable Engineering Units, Panel Mount



The Series DPML LCD Digital Panel Meter offers a large 4-1/2 digit LCD display with a choice of red, amber or green segments for easy viewing at a distance. The meter accepts loop powered 4 to 20 mA DC input, 0 to 5 VDC, or 0 to 10 VDC voltage input. Standard features include field-selectable engineering units and decimal point positions. A 24 VDC power supply is required for the operation of the back light.

Model	Input	Segments	Engineering Units
DPML-401	Current	Amber Segments	°F, °C, %, PSI
DPML-402	Current	Green Segments	
DPML-403	Current	Red Segments	
DPML-501	Voltage	Amber Segments	
DPML-502	Voltage	Green Segments	
DPML-503	Voltage	Red Segments	
DPML-401P	Current	Amber Segments	V, A, KW, PF
DPML-402P	Current	Green Segments	
DPML-403P	Current	Red Segments	
DPML-501P	Voltage	Amber Segments	
DPML-502P	Voltage	Green Segments	
DPML-503P	Voltage	Red Segments	

ACCESSORIES
DPM-12P, Regulated 120 VAC to 12 VDC Power Supply
DPM-24P, Regulated 120 VAC to 24 VDC Power Supply

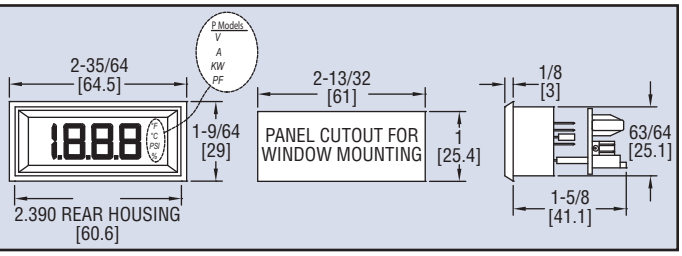
SPECIFICATIONS
Input: DPML-4XX(P): 4 to 20 mA; DPML-5XX(P): 0 to 200 mVDC, 0 to 5 VDC, or 0 to 10 VDC.
Input Impedance: DPML-4XX(P): 300Ω nominal; DPML-5XX(P): 390Ω nominal.
Accuracy: ±(0.1% FS + 2 count).
Power Supply: DPML-4XX(P): Powered by control loop; DPML-5XX(P): 12 VDC or 24 VDC.
Backlight Power Supply: 24 VDC @ 35 mA typical.
Span and Zero: Adjustable (±19999 counts).
Display: 4-1/2 digits, 7 segments, 0.45″ (11.4 mm) H.
Decimal Points: 4-position, user selectable.
Engineering Units: DPML-XXX: °F, °C, %, psi; DPML-XXXP: V, A, KW, PF.
Polarity: Automatic, "-" displayed.
Operating Temperature: 32 to 122°F (0 to 50°C).
Storage Temperature: -4 to 158°F (-20 to 70°C).
Mounting: Snap-in bezel mount.
Connection: Screw terminals.
Conversion Rate: 3 per second.
Warm-Up: 10 minutes typical.
Weight: 2 oz (56.7 g).
Agency Approvals: RoHS.

APPLICATIONS
Used to display process values from pressure, humidity, temperature, voltage, current, watt, or power factor transmitters.

Series DPMP

LCD Digital Panel Meters

3-1/2 Digit, User Selectable Engineering Units, Panel Mount



The Series DPMP LCD Digital Process Meter provides easy viewing on the 3-1/2 digit LCD display. The display segments are available in a choice of amber, black, red or green. The meter features user-selectable engineering units, adjustable span and zero and field-selectable decimal point position. The snap-in bezel mount eliminates mounting hardware for quick installation. A 24 VDC power supply is required for the operation of the backlight.

Model	Input	Segments	Engineering Units
DPMP-401	Current	Amber Segments	°F, °C, %, PSI
DPMP-402	Current	Green Segments	
DPMP-403	Current	Red Segments	
DPMP-501	Voltage	Amber Segments	
DPMP-502	Voltage	Green Segments	
DPMP-503	Voltage	Red Segments	
DPMP-401P	Current	Amber Segments	V, A, KW, PF
DPMP-402P	Current	Green Segments	
DPMP-403P	Current	Red Segments	
DPMP-501P	Voltage	Amber Segments	
DPMP-502P	Voltage	Green Segments	
DPMP-503P	Voltage	Red Segments	

SPECIFICATIONS

Input: DPMP-4XX(P): 4 to 20 mA; DPMP-5XX(P): 0 to 200 mVDC, 0 to 5 VDC, or 0 to 10 VDC.
Input Impedance: DPMP-4XX(P): 300Ω nominal; DPMP-5XX(P): 390Ω nominal.
Accuracy: ±(0.1% FS + 2 count).
Power Supply: DPMP-4XX(P): Powered by control loop; DPMP-5XX(P): 12 VDC or 24 VDC.
Backlight Power Supply: 24 VDC @ 35 mA typical.
Span and Zero: Adjustable (±1999 Counts).
Display: 3-1/2 digits, 7 segments, 0.45″ (11.4 mm) H.
Decimal Points: 3-position, user selectable.
Engineering Units: DPMP-XXX: °F, °C, %, psi; DPMP-XXXP: V, A, KW, PF.
Polarity: Automatic, "-" displayed.
Operating Temperature: 32 to 122°F (0 to 50°C).
Storage Temperature: -4 to 158°F (-20 to 70°C).
Mounting: Snap-in bezel mount.
Connection: Screw terminals.
Conversion Rate: 3 per second.
Warm-Up: 10 minutes typical.
Weight: 2 oz (56.7 g).
Agency Approvals: RoHS.

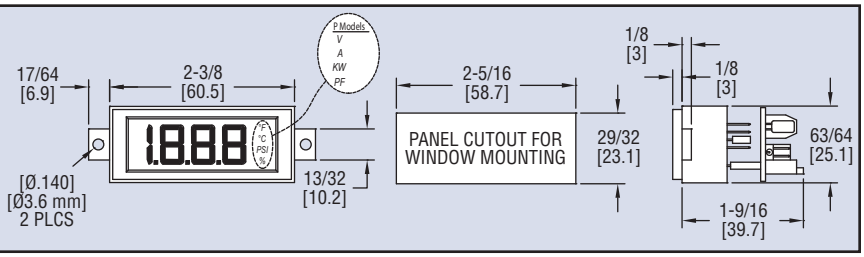
ACCESSORIES

DPM-12P, Regulated 120 VAC to 12 VDC Power Supply
DPM-24P, Regulated 120 VAC to 24 VDC Power Supply

Series DPMW

LCD Digital Panel Meters

3-1/2 Digits, Window Mount



The Series DPMW LCD Digital Panel Meter is designed with a 3-1/2 digit, high-contrast LCD display. The colored segments are available in red, amber, or green - ideal for viewing at a distance. The Series DPMW features user selectable engineering units, selectable decimal point position and adjustable span and zero. The meter accepts a 4 to 20 mA input signal from pressure, level, flow, temperature, voltage, current, watt, or power factor transmitters. A 24 VDC power supply is required to illuminate the colored segments. The Series DPMW can be quickly installed in a window cutout.

Model	Segments	Engineering Units
DPMW-401	Amber Segments	°F, °C, %, PSI
DPMW-402	Green Segments	
DPMW-403	Red Segments	
DPMW-401P	Amber Segments	V, A, KW, PF
DPMW-402P	Green Segments	
DPMW-403P	Red Segments	

ACCESSORY

DPM-24P, Regulated 120 VAC to 24 VDC Power Supply

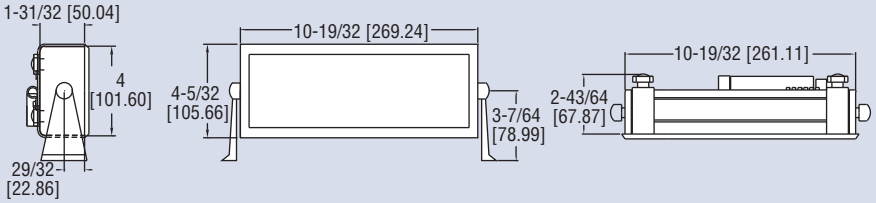
SPECIFICATIONS

Input: 4 to 20 mA.
Input Impedance: 300Ω nominal.
Accuracy: ±(0.1% FS + 2 count).
Power Supply: Powered by control loop.
Backlight Power Supply: 24 VDC @ 35 mA typical.
Span and Zero: Adjustable. (± 1999).
Display: 3-1/2 digits, 7 segments, 0.45″ (11.4 mm) H.
Decimal Points: 3-position, user selectable.
Engineering Units:
DPMW-XXX: °F, °C, %, psi;
DPMW-XXXP: V, A, KW, PF.
Polarity: Automatic, "-" displayed.
Operating Temperature: 32 to 122°F (0 to 50°C).
Storage Temperature: -4 to 158°F (-20 to 70°C).
Mounting: Window mount.
Connection: Screw terminals.
Conversion Rate: 3 per second.
Warm-Up: 10 minutes typical.
Weight: 2 oz (56.7 g).
Agency Approvals: RoHS.

Series DPMX

Extra Large Digital Panel Meter

3-1/2 Digit LED Display, 2.3" Segment Height, Process Inputs



The Series DPMX Digital Panel Meter can easily be viewed from across a room or in dark areas. The 2.3˝ LED segments are available in red, green, or blue. These panel meters come equipped with a universal power supply and user selectable process inputs to fit most applications. The Series DPMX includes a mounting bracket that can be adjusted up to 180°.

FEATURES

- Large display
- Inputs for most processes
- Protective metal casing

Model	Segments	Power Supply
DPMX-1	Blue	90 to 250 VAC
DPMX-2	Green	90 to 250 VAC
DPMX-3	Red	90 to 250 VAC
DPMX-1-LV	Blue	10.5 to 30 VAC/VDC
DPMX-2-LV	Green	10.5 to 30 VAC/VDC
DPMX-3-LV	Red	10.5 to 30 VAC/VDC

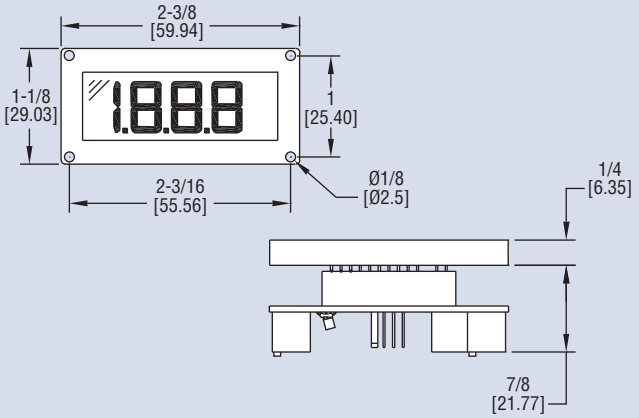
SPECIFICATIONS

Inputs:
Set voltage: ±200 mVDC, ±2 VDC, ±20 VDC;
Adjustable voltage: 200 mVDC, 5 VDC, 10 VDC;
Adjustable current: 0(4) to 20 mA DC.
Input Impedance:
Set voltage: >1 MΩ (>10 MΩ on 200 mV range);
Adjustable voltage: 392 kΩ;
Adjustable current: 300Ω nominal.
Accuracy: ±(1% F.S. + 1 count).
Power Supply: 90 to 250 VAC @ 12 VA or 10.5 to 30 VAC/DC @ 6VA (depending on model).
Display: 3-1/2 digits, 2.3˝ H, 7 segment LED.
Sampling Rate: 3 readings per second.
Operating Temperature: 14 to 122°F (-10 to 50°C).
Storage Range: -40 to 167°F (-40 to 75°C).
Warm Up: 10 minutes.
Mounting: 180° gimbal mounting with 30° stops or bezel mount.

Model DPMF

Flush Mount LCD Digital Panel Meter

3-1/2 Digit LCD, Surface Mount



The Model DPMF Flush Mount LCD Digital Panel Meter offers high performance and low cost in a compact package. This meter is designed with a 3-1/2 digit, high contrast LCD display. The unit is powered by a 4 to 20 mA DC control loop input. Standard features include adjustable span and zero, and field-selectable decimal point position. The flat pack of the panel meter allows for the instrument to be mounted to any flat surface.

Model DPMF, Flush Mount LCD Digital Panel Meter

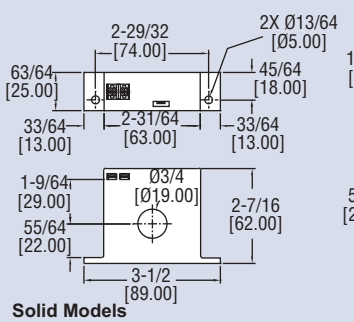
SPECIFICATIONS

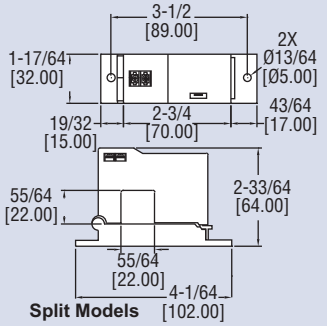
Input: 4 to 20 mA DC.
Input Impedance: 300 Ω nominal.
Accuracy: ±(0.1% FS + 2 count).
Power Supply: Powered by control loop.
Span and Zero: Adjustable (±1999 counts).
Display: 3-1/2 digits, 7 segments, 0.5˝ (12 mm) H.
Decimal Points: 3-position, user selectable.
Polarity: Automatic, "-" displayed.
Operating Temperature: 32 to 122°F (0 to 50°C).
Storage Temperature: -4 to 158°F (-20 to 70°C).
Mounting: Surface mount.
Connection: Screw terminals.
Conversion Rate: 3 per second.
Warm-Up: 10 minutes typical.
Weight: 1.2 oz (34.5 g).
Agency Approvals: RoHS.

Series CCS

Current Switches

Solid or Split Core, LED Visual Confirmation, Fixed or Adjustable Set Point





The Series CCS Current Switches are ideal for monitoring the operating status of fans, pumps, and motors. These self-powered switches can be hung or tied directly to cables or wires. For use on existing installations, split core models can be installed without disconnecting cables. LED indicators provide a visual confirmation that the current is flowing through the core. Both fixed and adjustable set points are available. The adjustable models utilize a potentiometer to easily adjust the set point.

Model	Case	Set Point	Minimum Set Point	LED	Dry Contact Output
CCS-121050	Solid core	Fixed	0.50	Red	Yes
CCS-111100	Solid core	Adjustable	1.00	Red/Green	No
CCS-221100	Split core	Fixed	1.00	Red	Yes
CCS-211150	Split core	Adjustable	1.50	Red/Green	No
CCS-131100	Solid core	Adjustable	1.00	Red/Green	Yes
CCS-231150	Split core	Adjustable	1.50	Red/Green	Yes

SPECIFICATIONS
Amperage Range: 0 to 200 A AC.
Maximum Switch Rating:
For dry contact models: 0.3 A @ 135 VAC/DC;
For non-dry contact models: 1 A @ 240 VAC.
Power Requirements: None, self-powered.
Temperature Limits: -22 to 158°F (-30 to 70°C).
Humidity Limits: 0 to 95% (non-condensing).
Isolation Voltage: 2000 V.
Frequency: 40 to 400 Hz.
Enclosure Rating: UL, 94 V-O flammability rated, ABS plastic housing.
Approvals: CE, cUL, UL.

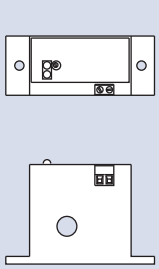
Series MCS

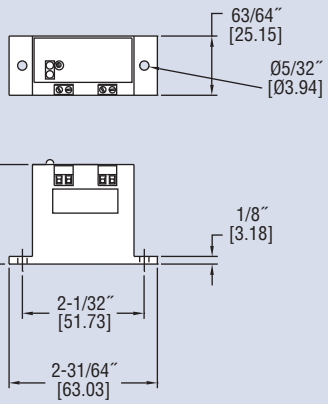
Miniature Current Switch

Low Cost, Solid or No Core, LED Confirmation, Adjustable Set Point

Solid Core

No Core





Solid Core

No Core

The Series MCS Miniature Current Switches are ideal for monitoring the current usage in fuse boxes and small control panels. Both models have adjustable set points and LED indication to show there is power to the unit and when the switch activates. Set points can be adjusted using the potentiometer next to the LED's. Due to the size of the switch, it is only offered in solid core and no core versions. The no core version has terminal blocks which can accept currents up to 1A directly into the unit.

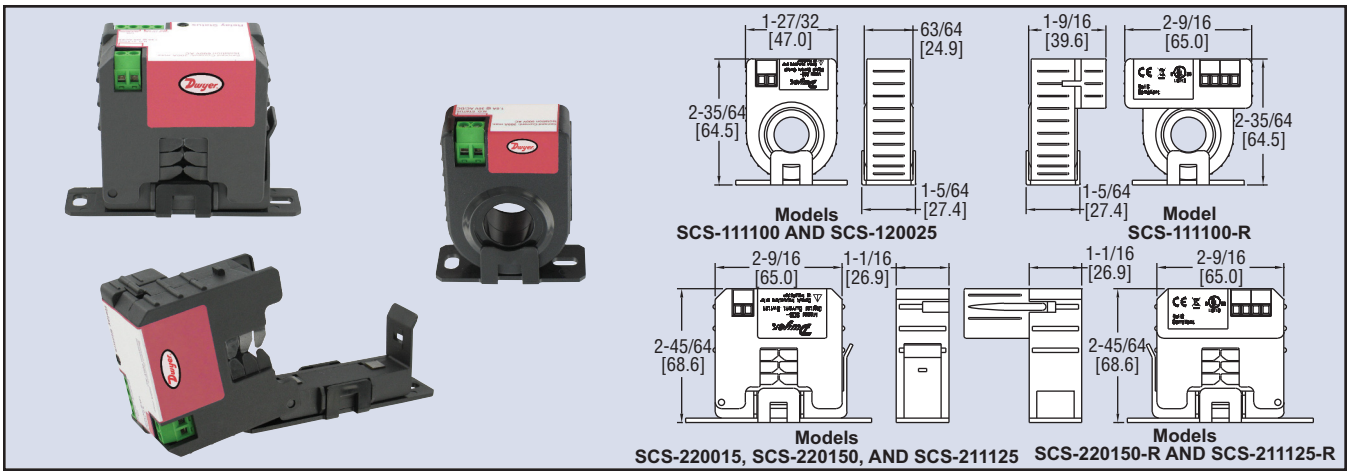
Model	Case	Set Point	Minimum Set Point	LED
MCS-111050	Solid Core	Adjustable	0.50	Red/Green
MCS-111001	No Core (Terminal Connection)	Adjustable	0.01	Red/Green

SPECIFICATIONS
Amperage Range:
MCS-111050: 0.5 to 50A continuous;
MCS-111001: 0.01 to 1A continuous.
Output Rating: Isolated, N.O. 0.3 A @ 130 V DC/AC.
Power Requirements: None, self-powered.
Hysteresis: 1%.
Response Time: <200 ms.
Temperature Limits: 32 to 122°F (0 to 50°C).
Humidity Limits: 10 to 95% RH (non-condensing).
Enclosure Rating: UL 94V-0 flammability rated ABS, insulation class 600 V.
Weight: 0.5 oz (14.5 g).
Agency Approvals: CE, RoHS, UL.

Series SCS

Current Switches

Optional Relay Output, Solid or Split Core Case



The Series SCS Low Cost Current Switches are ideal for monitoring whether fans, pumps, or motors are operating. The current flowing through the core of the device powers the circuit without an external power supply. All models have a built in solid state output and are easy to install. Optional LED's and 10 Amp relay modules are available. The Series SCS is available in both split and solid core configurations.

Model	Case	Amperage Range	Set Point	Switch Mode	Snap-on Relay
SCS-120025	Solid	.25 to 200 A	0.25 Fixed	Under	No
SCS-111100	Solid	1 to 135 A	Adjustable	Over/Under	No
SCS-111100-R	Solid	1 to 135 A	Adjustable	Over/Under	Yes
SCS-220015	Split	.15 to 200 A	0.15 Fixed	Under	No
SCS-220150	Split	1.5 to 200 A	1.5 Fixed	Under	No
SCS-211125	Split	1.25 to 135 A	Adjustable	Over/Under	No
SCS-220150-R	Split	1.5 to 200 A	1.5 Fixed	Under	Yes
SCS-211125-R	Split	1.25 to 135 A	Adjustable	Over/Under	Yes

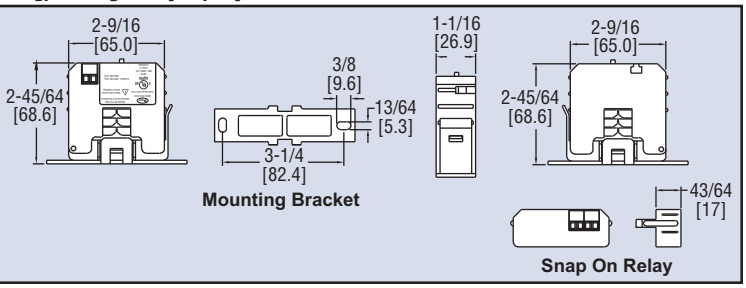
SPECIFICATIONS

Output: Isolated, 1A @ 30 VAC/DC max, NO.
External Relay: SPST N.O., 10A at 260 VAC (5A at 30 VDC).
Power Requirements: None, self-powered.
Temperature Limits: 5 to 140°F (-15 to 60°C).
Isolation Voltage: 600 VAC RMS.
Frequency: 50/60 Hz.
Enclosure Rating: UL, 94 V-O flammability rated, ABS plastic housing.
Agency Approvals: CE, RoHS, cUL, UL.

Series SCT

Current Transformer

Optional Auxillary, Relay Output, Split Core



The Series SCT Current Transformers continuously measure the current consumption of pumps, fans, boilers, solar panels and chillers for use in energy monitoring. Current or voltage outputs can be scaled using a slider switch to select between three factory set ranges. Split core configuration allows the current transformer to be installed on new and existing installations. Snap-on mounting bracket allows for quick installation of replacement transformers. An optional 10 A command relay can snap onto the current switch, which eliminates the need to mount an additional relay.

ACCESSORIES

SCT-RLY-12, 12 VAC Trigger Voltage Relay Module
SCT-RLY-24, 24 VAC Trigger Voltage Relay Module

SPECIFICATIONS

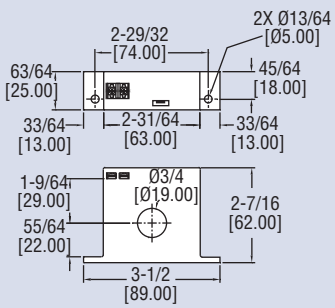
Amperage Range: 30/60/120 A or 20/100/150 A (depending on model).
Continuous Operating Current: 120 A or 150 A (depending on model).
Output: 4 to 20 mA, 0 to 5 VDC, 0 to 10 VDC (depending on model).
Optional relay NO SPST; 10 A @ 260 VAC, 5 A @ 30 VDC.
Power Requirements: Self-powered or 24 VDC (depending on model).
Accuracy: ±2% from 10 to 100% of selected range.
Temperature Limits: 5 to 140°F (-15 to 60°C).
Humidity Limits: 0 to 95% non-condensing.
Response Time: 2 s.
Isolation Voltage: 600 VAC RMS.
Frequency: 50/60 Hz.
Enclosure Rating: UL, V-O flammability rated, type 66 nylon.
Agency Approvals: CE, RoHS, cUL, UL.

Model	Range	Output	Power Requirements	Max. Continuous Operating Current
SCT10-100	30/60/120 A	4 to 20 mA	24 VDC	120 A
SCT10-102	30/60/120 A	0 to 5 VDC	Self-powered	120 A
SCT20-103	20/100/150 A	0 to 10 VDC	Self-powered	150 A

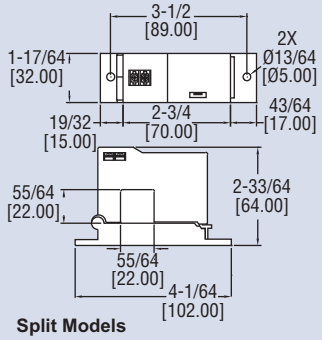
Series
CCT40/50

Current Transformers

Solid or Split Core, Field Selectable Range



Solid Models



Split Models

The Series CCT40/50 Current Transformers are a low cost alternative for measuring power and monitoring the operation of fans, pumps, or other equipment. For use on existing installations, split core models can be installed without disconnecting cables. Each model offers three jumper selectable ranges and a choice of three different outputs.

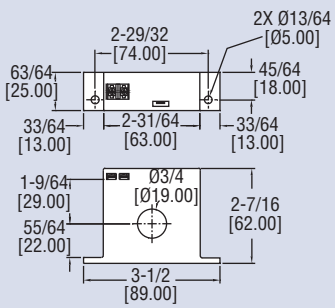
Model	Range	Output	Power Requirements	Case
CCT40-202	10/20/50 A	0 to 5 V	Self Powered	Solid core
CCT50-202	100/150/200 A	0 to 5 V	Self Powered	Solid core
CCT40-102	10/20/50 A	0 to 5 V	Self Powered	Split core
CCT50-102	100/150/200 A	0 to 5 V	Self Powered	Split core
CCT40-203	10/20/50 A	0 to 10 V	Self Powered	Solid core
CCT50-203	100/150/200 A	0 to 10 V	Self Powered	Solid core
CCT40-200	10/20/50 A	4 to 20 mA	15 to 42 VDC, Loop Powered	Solid core
CCT50-200	100/150/200 A	4 to 20 mA	15 to 42 VDC, Loop Powered	Solid core
CCT40-100	10/20/50 A	4 to 20 mA	15 to 42 VDC, Loop Powered	Split core
CCT50-100	100/150/200 A	4 to 20 mA	15 to 42 VDC, Loop Powered	Split core

SPECIFICATIONS
Amperage Range: Field selectable; up to 200 A (depending on model).
Output: 0 to 5 V, 0 to 10 V, or 4 to 20 mA (depending on model).
Power Requirements: Self powered or 15 to 42 VDC loop powered (depending on model).
Accuracy: 1%.
Temperature Limits: -22 to 158ºF (-30 to 70ºC).
Humidity Limits: 0 to 95% (non-condensing).
Response Time: 250 ms to 90%.
Isolation Voltage: 2000 V.
Frequency: 10 to 400 Hz.
Enclosure Rating: UL, 94 V-O flammability rated, ABS plastic housing.
Approvals: CE, cUL, UL.

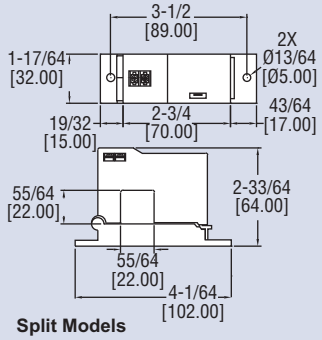
Series
CCT60/70

True RMS Current Transformers

Solid or Split Core, Field Selectable Range



Solid Models



Split Models

The Series CCT60/70 True RMS Current Transformers are a low cost alternative for providing true RMS outputs on distorted AC waveforms. True RMS outputs are ideal for nonlinear loads or noisy circuits. For existing installations, split core models can be installed without disconnecting cables. Each model offers three jumper selectable ranges to reduce the risk of ordering the wrong model.

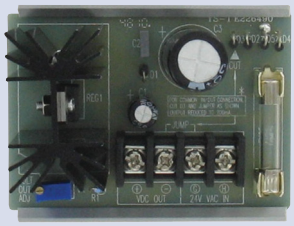
Model	Range	Case
CCT60-200	10/20/50 A	Solid core
CCT70-200	100/150/200 A	Solid core
CCT60-100	10/20/50 A	Split core
CCT70-100	100/150/200 A	Split core

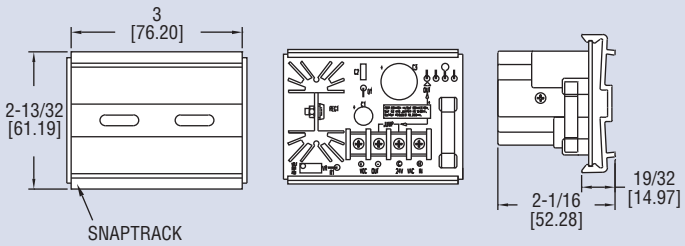
SPECIFICATIONS
Amperage Range: Up to 200 A (depending on model).
Output: 4 to 20 mA, true RMS.
Power Requirements: 24 VDC nominal.
Accuracy: 1%.
Temperature Limits: -22 to 158ºF (-30 to 70ºC).
Humidity Limits: 0 to 95% (non-condensing).
Response Time: 250 ms to 90%.
Isolation Voltage: 2000 V.
Frequency: 10 to 400 Hz.
Enclosure Rating: UL, 94 V-O flammability rated, ABS plastic housing.
Approvals: CE, cUL, UL.

Model
BPS-005

Low Cost DC Power Supply

Regulated 0.5 A, 1 A Fuse Protection





The Model BPS-005 Low Cost DC Power Supply is a regulated .5 A power supply that accepts 24 VAC input and provides an adjustable 1.5 to 29 VDC output. Output voltage adjustments are made using the on-board potentiometer while measuring the output with a multimeter. A compact snap track design allows the power supply to be surface mounted within a panel.

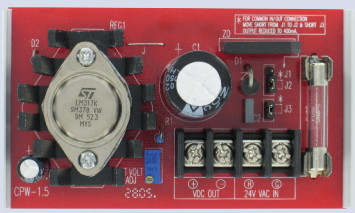
Model BPS-005, Low Cost DC Power Supply

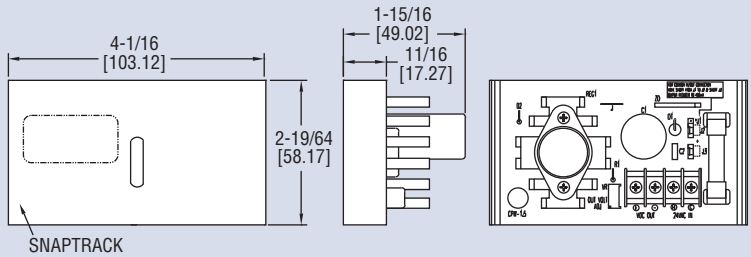
SPECIFICATIONS
Input: 24 VAC/VDC 50/60 Hz.
Output: 24 VDC (full wave rectified and regulated) adjustable 1.5 to 29 VDC, 0.5 A max.
Maximum Current Output: 0.5 A.
Over-Current Protection: 1 A fuse.
Operating Temperature: 32 to 130°F (0 to 55°C).
Humidity Limits: 95% (non-condensing).
Weight: 0.4 lb.
Agency Approval: RoHS.

Model
BPS-015

Low Cost DC Power Supply

1.5A, Fuse Protection





The Model BPS Building Automation Power Supply is used to convert 24 VAC to a regulated DC power source for transmitters with 4 to 20 mA outputs. The output voltage can be field adjusted from 1.5V to 27V using a potentiometer. The 3A fuse protects the power supply from over-current conditions. The snap-on bracket can be quickly surface mounted to any flat surface.

Model BPS-015, Power Supply

SPECIFICATIONS
Input: 24 VAC/VDC 50/60 Hz.
Output: 24 VDC (full wave rectified and regulated) adjustable 1.5 to 27 VDC.
Maximum Current Output: 1.5A (de-rated to 400 mA for non-isolated circuits).
Temperature Limits: 32 to 130°F (0 to 55°C).
Humidity Limits: 95% (non-condensing).
Weight: 0.4 lb.

Model
SCD-PS

DIN Rail Mount DC Power Supply

The Model SCD-PS DIN Rail DC Power Supply is a compact and economical solution for providing DC power to any Dwyer pressure, humidity, temperature, level or air velocity transmitters. Input voltage can range from 100 to 240 VAC, 50/60 Hz without any jumpers or dip switch selections. A plastic cover slides over the terminals in order to prevent shock from accidental touching of high voltage wires.

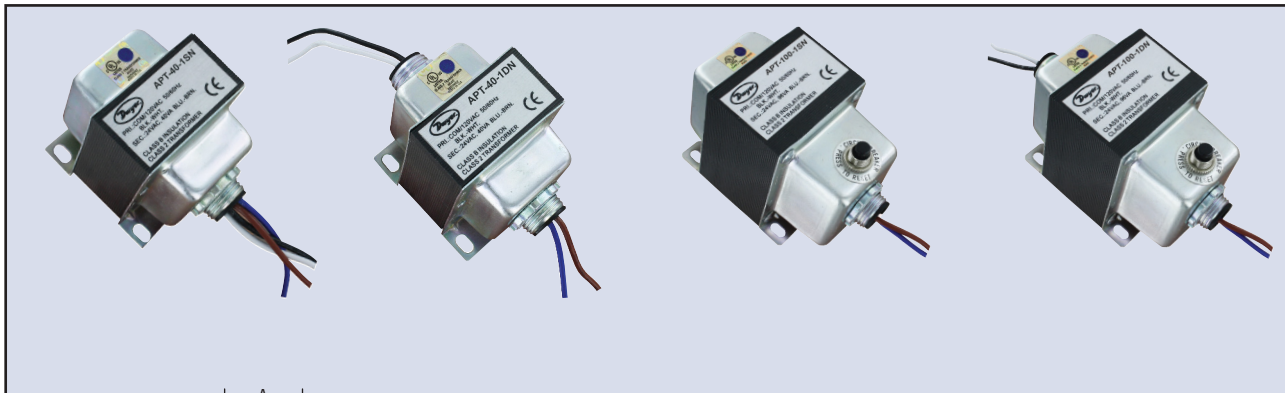
SPECIFICATIONS
AC Input: 100 to 240 VAC, 50/60 Hz.
DC Output: 24 VDC (±3% VDC).
Maximum Current Output: 1 A.
Noise: Under 100 mVp-p typical at full load.
Temperature Limits: 32 to 131°F (0 to 55°C).
Weight: 5.6 oz (158 g).
Agency Approvals: CE, UL.

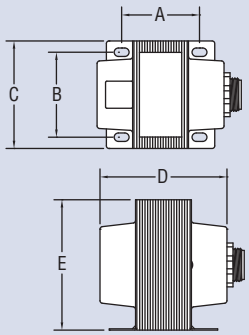
Model SCD-PS, DIN Rail DC Power Supply

Series APT

AC Power Transformers

40 VA to 100 VA, Single or Dual Hub, Circuit Breaker, UL Class 2





Model	A in (mm)	B in (mm)	C in (mm)	D in (mm)	E in (mm)
APT-40-0SN	1-61/64 (49.5)	1-25/32 (45.2)	2-11/64 (55.0)	2-43/64 (68.0)	2-7/8 (73.0)
APT-40-1SN	1-61/64 (49.5)	1-25/32 (45.2)	2-11/64 (55.0)	2-43/64 (68.0)	2-7/8 (73.0)
APT-40-1DN	1-61/64 (49.5)	1-25/32 (45.2)	2-11/64 (55.0)	2-43/64 (68.0)	2-7/8 (73.0)
APT-50-1SN	1-13/16 (46.0)	1-31/32 (50.2)	2-1/2 (63.5)	2-61/64 (75.0)	3-1/32 (77.0)
APT-50-1SB	1-13/16 (46.0)	3-31/64 (88.5)	2-1/2 (63.5)	2-61/64 (75.0)	3-1/32 (77.0)
APT-50-1DB	1-13/16 (46.0)	3-7/8 (98.5)	2-1/2 (63.5)	2-61/64 (75.0)	3-1/32 (77.0)
APT-75-1SB	2-13/64 (56.0)	4-5/64 (103.5)	2-1/2 (63.5)	8-43/64 (68.0)	3-1/32 (77.0)
APT-75-1DB	2-13/64 (56.0)	4-31/64 (88.5)	2-1/2 (63.5)	9-43/64 (68.0)	3-1/32 (77.0)
APT-100-1SB	2-13/32 (61.0)	4-7/8 (98.5)	2-1/2 (63.5)	10-43/64 (68.0)	3-1/32 (77.0)
APT-100-1DB	2-13/32 (61.0)	5-5/64 (103.5)	2-1/2 (63.5)	11-43/64 (68.0)	3-1/32 (77.0)

The Series APT AC Power Transformers provide isolated step-down to 24 VAC with models offering VA ratings of 40, 50, 75, or 96 VA's. These low-cost transformers are offered in single or dual 1/2″ NPT threaded hub mounts with 8/5″ 18 AWG wire leads, to meet the installation requirements of a variety of building automation and control panel applications. All models are UL Class 2 listed.

SPECIFICATIONS
Input Voltage: See table.
Input Frequency: 50/60 Hz.
Output Voltage: 24 VAC.
Output VA Rating: 40, 50, 75, or 96 VA.
Mounting: Slotted foot mount with single, or dual 1/2″ NPT hub.
Current Protection: See table.
Electrical Connections: 8.5″ (210 mm) 18 AWG leads.
Weight: See table.
Agency Approvals: CE, RoHS, cULus.

Model	Rating	Input Voltage	Mounting	Current Protection	Wiring	Weight
APT-40-0SN	40 VA	24 VAC	Foot Mount with Single Hub	Inherent	Diagram B	1.96 lb
APT-40-1SN	40 VA	120 VAC	Foot Mount with Single Hub	Inherent	Diagram A	1.98 lb
APT-40-1DN	40 VA	120 VAC	Foot Mount with Dual Hub	Inherent	Diagram A	2.03 lb
APT-50-1SN	50 VA	120 VAC	Foot Mount with Single Hub	Internal Fuse	Diagram A	2.43 lb
APT-50-1SB	50 VA	120 VAC	Foot Mount with Single Hub	Button Circuit Breaker	Diagram A	2.77 lb
APT-50-1DB	50 VA	120 VAC	Foot Mount with Dual Hub	Button Circuit Breaker	Diagram A	2.77 lb
APT-75-1SB	75 VA	120 VAC	Foot Mount with Single Hub	Button Circuit Breaker	Diagram A	3.53 lb
APT-75-1DB	75 VA	120 VAC	Foot Mount with Dual Hub	Button Circuit Breaker	Diagram A	3.57 lb
APT-100-1SB	96 VA	120 VAC	Foot Mount with Single Hub	Button Circuit Breaker	Diagram A	3.97 lb
APT-100-1DB	96 VA	120 VAC	Foot Mount with Dual Hub	Button Circuit Breaker	Diagram A	4.01 lb

Diagram A

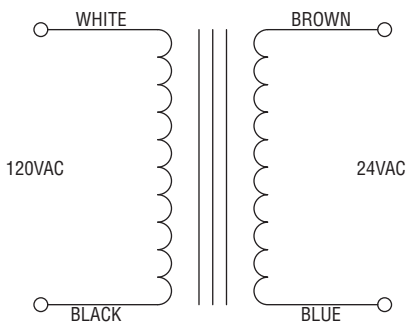
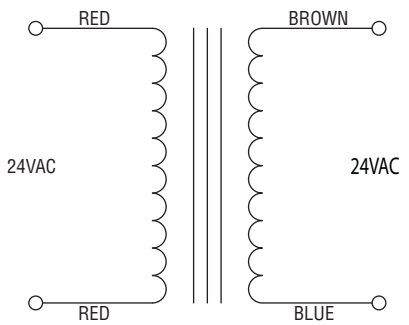


Diagram B

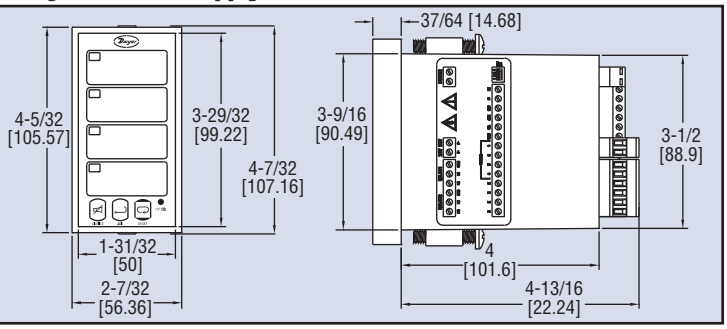


ELECTRICAL

Series AN2

Indicating Alarm Annunciator

Up to 8 Inputs, Integral Power Supply



The Series AN2 Indicating Alarm Annunciator provides visible and audible alarms for up to eight inputs. The annunciator also has two SPDT relay outputs that can be used to initiate external alarms, buzzers, or paging devices. The Integral 24 VDC power supply can power most level, temperature, pressure, and flow switches. Audible alarm conditions can be acknowledged, reset, or silenced either via the front panel push buttons or the rear terminal block. The Series AN2 can be set to any common ISA sequences including First-Out.

Model	Number of Outputs	Power Supply
AN24-1	4	85 to 265 VAC
AN24-2	4	12 to 36 VDC
AN28-1	8	85 to 265 VAC
AN28-2	8	12 to 36 VDC

SPECIFICATIONS

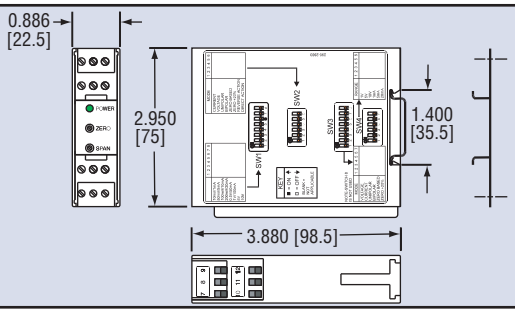
Inputs: NO or NC switches, open collector transistor (open circuit voltage = 3.3 VDC); Logic levels: LO = 0 to 0.9 VDC, HI = 2.4 to 28 VDC (100 KΩ input impedance).
Outputs: Two SPDT relay (3 A @ 250 VAC or 30 VDC, resistive; 1/14 HP @ 125/250 VAC, inductive).
Temperature Limits: -40 to 149°F (-40 to 65°C).

Power Requirements: 85 to 265 VAC 50/60 Hz, 90 to 265 VDC; 12 to 36 VDC, 12 to 24 VAC (depending on model).
Power Consumption: 20 W (6 W on low voltage models).
Mounting: 1/8 DIN.
Housing Material: UL rated 94V-0 high impact plastic.
Enclosure Rating: NEMA 4X (IP66) front panel.
Weight: 9.6 oz (272 g).
Agency Approvals: CE, UL.

Series SC4380

Iso Verter® II Signal Conditioning Modules

Accepts Virtually All Standard Process Signals



Linearized and isolated RTD and Thermocouple transmitters are part of the Series SC4000 Iso Verter® II Signal Conditioning Modules. These modules completely isolate the input from the output and from ground. Compatible with industry standard 35 mm DIN Rail mount transmitters and isolators, these modules are easily applied in new or existing installations.

The **SC4380 Process Signal Converter/Isolator** accepts virtually all standard process signals as an input, and isolates and retransmits the signal in either the same units or virtually any other standard process signal. The SC4380 can be field programmed for reverse or direct action and can receive and transmit single sided or bipolar* signals. Low Voltage units (SCL) are also available.

To Order Use Range Code as Suffix:
SC4380 & SCL4380 Operating Ranges

Inputs		Outputs	
Current	**Voltage**	**Current**	**Voltage**
0 to 5 mA	0 to 100 mV	0 to 1 mA	0 to 1 V
0 to 10 mA	0 to 200 mV	0 to 5 mA	0 to 5 V
0 to 10 mA	0 to 500 mV	0 to 20 mA	0 to 10 V
0 to 20 mA	0 to 1 V	1 to 5 mA	1 to 5 V
0 to 50 mA	0 to 5 V	4 to 20 mA	2 to 10 V
0 to 100 mA	0 to 10 V		
1 to 5 mA	1 to 5 V		
4 to 20 mA	2 to 10 V		
10 to 50 mA			

SPECIFICATIONS

Isolation: 1500 VAC RMS.
Linearity: 0.1% of full-scale.
Drift: ±0.02%/°C typical, ±0.05%/ °C maximum.
Power Supply: SC: 85 to 265 VDC/VAC 50 to 400 Hz; SCL: 12 to 24 VDC/VAC 50 to 400 Hz.
Output Loads: Current: 600 Ω max voltage: 500 Ω min (20 mA maximum).

Input Characteristics: SC4380: Voltage: 1 M Ω impedance; Current: 10 Ω; SC4151: RTD Search current < 500 µA; SC4130: 3 M Ω impedance.
Case Size: 0.866˝ W (22.5 mm) x 2.950˝ H (75.0 mm) 3 3.880˝ D (98.5 mm).
Mounting: Mounts on industry standard 35 mm DIN Rail (DIN EN50022-35).

SC4380 & SCL4380*, Iso Verter® II Process Signal Converter/Isolators
*SCL models are low voltage units.

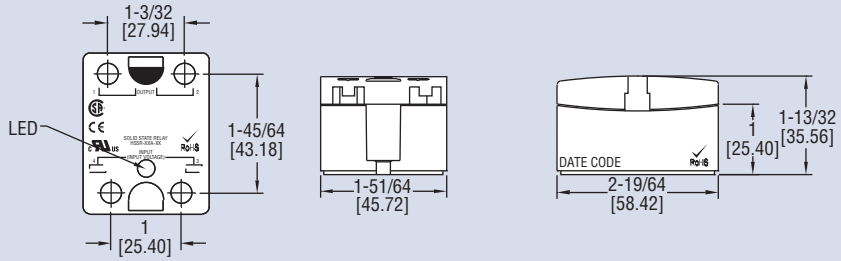
Note: The term "bipolar" refers to an input or output that crosses zero volts. Certain devices have ranges that run from minus to plus voltages (eg. -1 to +5 VDC, -10 to +10 VDC, etc.). The SC4380 Iso Verter® II can be set up to accept a bipolar signal input or provide a bipolar output.

ELECTRICAL

Series 62

Hockey Puck Solid State Relay

10 or 25 Amp, SPST-NO Operation



Series 62 Hockey Puck Style Solid State Relay features a terminal cover and LED status indicator. The optically coupled circuitry isolates the input terminals from the output terminals to give the relay 100% pure solid state performance.

AC Operated		
Model	**Input Voltage Range**	**Rated Current Load**
6210AXXSZS-AC90	90 to 280 VAC	10 amp
6225AXXSZS-AC90	90 to 280 VAC	25 amp
DC Operated		
Model	**Input Voltage Range**	**Rated Current Load**
6210AXXSZS-DC3	3 to 32 VDC	10 amp
6225AXXSZS-DC3	3 to 32 VDC	25 amp

SPECIFICATIONS

Operating and Load Voltage Range: 24 to 280 VAC.
Electrical Connection: Spade lug.
Switching Operation: SPST normally open.
Switching Type: Zero cross.
Temperature Limits: -40 to 176°F (-40 to 80°C).
Voltage Loss: 1.6 VAC max.
Output Leakage Current: 10 mA max.
Housing: Polyamide 6.
Weight: 3.5 oz.
Agency Approvals: CE, RoHS, cUL, UL.

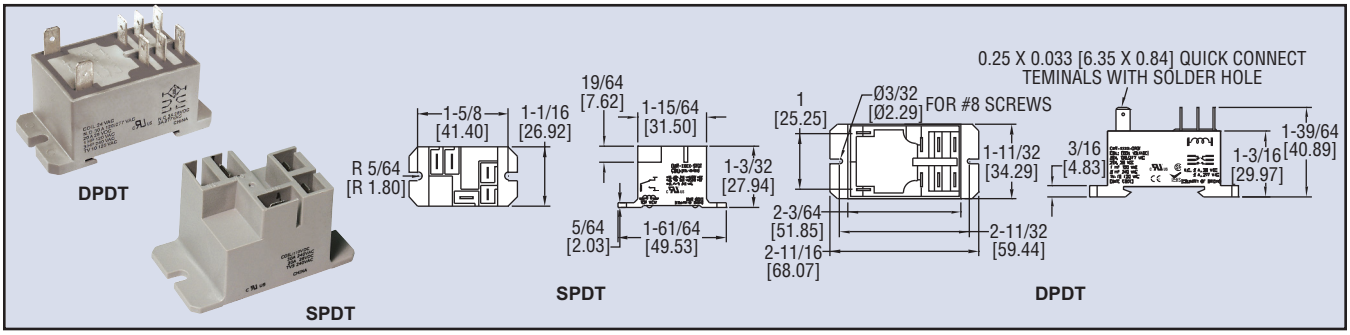
FEATURES

- Hockey puck design
- Finger-safe cover
- LED status indicator
- Optically coupled circuitry

Series 9

Electromechanical Relay

30 Amp, SPDT and DPDT Operation



The 9 Electromechanical Relay is small in size, features Class F insulation for a max coil temperature of 155°C, quick-connect terminals for simple connection, and is panel mountable. The relays are compact and impervious to shock and vibration. The EMR is perfect for motor control, power supplies, lighting, and compressor loads.

AC Operated Model	Input Voltage	Coil Resistance
9AS5A5224	24 VAC 50/60 Hz	500 Ω
9AS5A52120	120 VAC 50/60 Hz	3000 Ω
92S11A22D24	24 VAC 50/60 Hz	250 Ω
92S11A22D120	120 VAC 50/60 Hz	1600 Ω
DC Operated Model	**Input Voltage**	**Coil Resistance**
9AS5D5224	24 VDC	576 Ω
92S11D22D12	12 VDC	86 Ω
92S11D22D24	24 VDC	1600 Ω

ACCESSORIES

16-9ADIN1, Din Adaptor
A-360, Aluminum DIN Rail 1 m

SPECIFICATIONS

Operating and Load Voltage Range: 12-277 VAC; 5-110 VDC.
Electrical Connection: Quick-connect tab terminals. SPDT 0.187″ coil terminal/0.25″ contact terminal; DPDT 0.25″ coil terminal/0.25″ contact terminal.
Switching Operation: SPDT or DPDT.
Electrical Rating: SPDT: NO 30 A @ 240 VAC / 28 VDC; NC 10 A @ 240 VAC / 28 VDC; DPDT: 30 A @ 240 VAC 20 A @ 28 VDC.
Temperature Limits: Storage: -40 to 185°F (-40 to 85°C); Operation: -40 to 131°F (-40 to 55°C).
Voltage Loss: 2.5 VA (VAC); 1W (VDC).
Cycle Life: 100,000 cycles (electrical); 10,000,000 cycles (mechanical).
Housing: Polyester resin.
Weight: 1.16 oz (45 g) (SPDT); 3 oz (85 g) (DPDT).
Agency Approvals: CE, RoHS, cUL, UL, (EMR-XXXX-DPDT), cUR, UR (EMR-XXXX-SPDT).

FEATURES

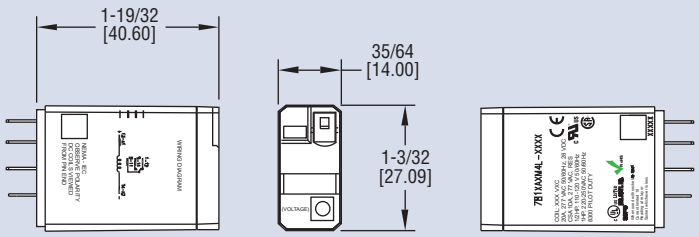
- Compact size
- 30 amp rating
- Quick-connect terminals
- Flange mounting

Series 781

SPDT Ice Cube Relays

20 Amp, SPDT Operation

Picture shown with socket accessory (sold separately)



The Series 781 Electromechanical Ice Cube Relay is a full-featured SPDT relay that can be used to handle loads up to 20 amps for AC or DC circuits. It features a flag status indicator and a LED status lamp to let the user know when the relay is activated. In order to differentiate between AC and DC actuated models, the push-to-test button is color-coded. For testing the operation, a removable lock-down lever holds the test button in place. The clear plastic housing gives a view of the contacts, and there is a removable I.D tag for labeling the circuit.

AC Operated Model	Input Voltage	Coil Resistance
781XAXM4L-24A	24 VAC 50/60 Hz	180 Ω
781XAXM4L-120A	120 VAC 50/60 Hz	4430 Ω
781XAXM4L-240A	240 VAC 50/60 Hz	15720 Ω
DC Operated Model	**Input Voltage**	**Coil Resistance**
781XAXM4L-24D	24 VDC	750 Ω

SPECIFICATIONS
Operating and Load Voltage Range: 24 to 240 VAC; 24 VDC.
Electrical Connection: Silver alloy plug-in contacts.
Switching Operation: SPDT.
Electrical Rating: 20 A @ 120 / 277 VAC (50/60Hz) or 28 VDC.
Temperature Limits:
Storage: -40 to 185°F (-40 to 85°C);
Operation: -40 to 131°F (-40 to 55°C).
Power Consumption: 0.9 VA; 0.7W.
Cycle Life: 100,000 cycles (electrical); 10,000,000 cycles (mechanical).
Housing: Plastic polycarbonate.
Weight: 1.02 oz (29 g).
Agency Approvals: CE, CSA, RoHS, cUL, UL, cUR, UR.

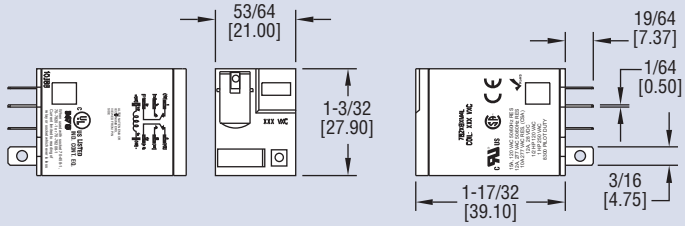
ACCESSORY
70-781D5-1A, Socket for 781 Series Relay

Series 782

DPDT Ice Cube Relays

15 Amp, DPDT Operation

Picture shown with socket accessory (sold separately)



The Series 782 Electromechanical Ice Cube Relay is a full-featured DPDT relay that can be used to switch two different devices with a single trigger. With a rating of 15 amps, the relay can be used to stop and start small fans, motors, and pumps directly. It features a flag status indicator and a LED status lamp to let the user know when the relay is activated. In order to differentiate between AC and DC actuated models, the push-to-test button is color-coded. For testing the operation, a removable lock-down lever holds the test button in place. The clear plastic housing gives a view of the contacts, and there is a removable I.D tag for labeling the circuit.

AC Operated Model	Input Voltage	Coil Resistance
782XBXM4L-24A	24 VAC 50/60 Hz	180 Ω
782XBXM4L-120A	120 VAC 50/60 Hz	4430 Ω
782XBXM4L-240A	240 VAC 50/60 Hz	15720 Ω
DC Operated Model	**Input Voltage**	**Coil Resistance**
782XBXM4L-24D	24 VDC	650 Ω

SPECIFICATIONS
Operating and Load Voltage Range: 24 to 240 VAC; 24 VDC.
Electrical Connection: Silver alloy plug-in contacts.
Switching Operation: DPDT.
Electrical Rating: 15 A @ 120 VAC 50/60Hz; 12 A @ 277 VAC 50/60 Hz or 28 VDC (UL); 10 A @ 277 VAC 50/60 Hz (CSA).
Temperature Limits:
Storage: -40 to 185°F (-40 to 85°C);
Operation: -40 to 131°F (-40 to 55°C).
Power Consumption: 1.2 VA; 0.9W.
Cycle Life: 100,000 cycles (electrical); 10,000,000 cycles (mechanical).
Housing: Plastic polycarbonate.
Weight: 1.3 oz (36 g).
Agency Approvals: CE, CSA, RoHS, cUL, UL, cUR, UR.

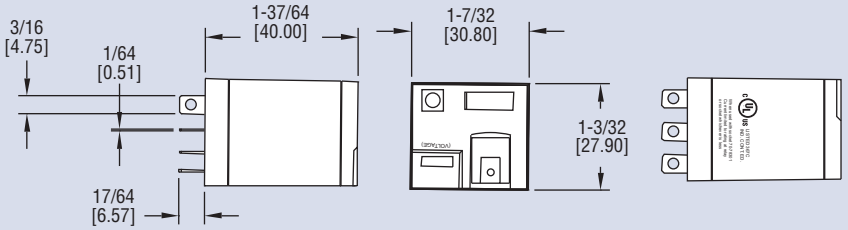
ACCESSORY
70-782D8-1A, Socket for 782 Series Relay

Series 783

3PDT Ice Cube Relays

15 Amp, 3PDT Operation

Picture shown with socket accessory (sold separately)



The Series 783 Electromechanical Ice Cube Relay is a full featured 3PDT relay that can control up to 3 devices with a single trigger. It features a flag status indicator and a LED status lamp to let the user know when the relay is activated. In order to differentiate between AC and DC actuated models, the push-to-test button is color-coded. For testing the operation, a removable lock-down lever holds the test button in place. The clear plastic housing gives a view of the contacts, and there is a removable I.D tag for labeling the circuit. The Series 783 can handle loads up to 15 amps.

AC Operated Model	Input Voltage	Coil Resistance
783XCXM4L-24A	24 VAC 50/60 Hz	103 Ω
783XCXM4L-120A	120 VAC 50/60 Hz	2770Ω
DC Operated Model	**Input Voltage**	**Coil Resistance**
783XCXM4L-24D	24 VDC	400 Ω

SPECIFICATIONS
Operating and Load Voltage Range: 24 to 120 VAC; 24 VDC.
Electrical Connection: Silver alloy plug-in contacts.
Switching Operation: 3PDT.
Electrical Rating: 15 A @ 120 VAC 50/60 Hz; 12 A @ 277 VAC 50/60 Hz or 28 VDC.
Temperature Limits: Storage: -40 to 185°F (-40 to 85°C); Operation: -40 to 131°F (-40 to 55°C).
Power Consumption: 1.5 VA; 1.4 W.
Cycle Life: 200,000 cycles (electrical); 10,000,000 cycles (mechanical).
Housing: Plastic polycarbonate.
Weight: 2.1 oz (60 g).
Agency Approvals: CE, CSA, RoHS, cUL, UL, cUR, UR.

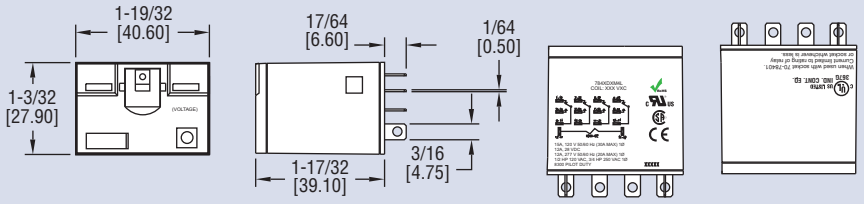
ACCESSORIES
70-783D11-1A, Socket for 783 Series Relay
70-ASMM-24, Protection Modules, MOV Suppressor, 24 VAC/VDC
70-ASMM-120, Protection Modules, MOV Suppressor,120 VAC/VDC
70-ASMD-250, Protection Modules, Protection Diode, 6 to 250 VDC
16-750/788CBJ-1, Coil Bus Jumpers

Series 784

4PDT Ice Cube Relays

15 Amp, 4PDT Operation

Picture shown with socket accessory (sold separately)



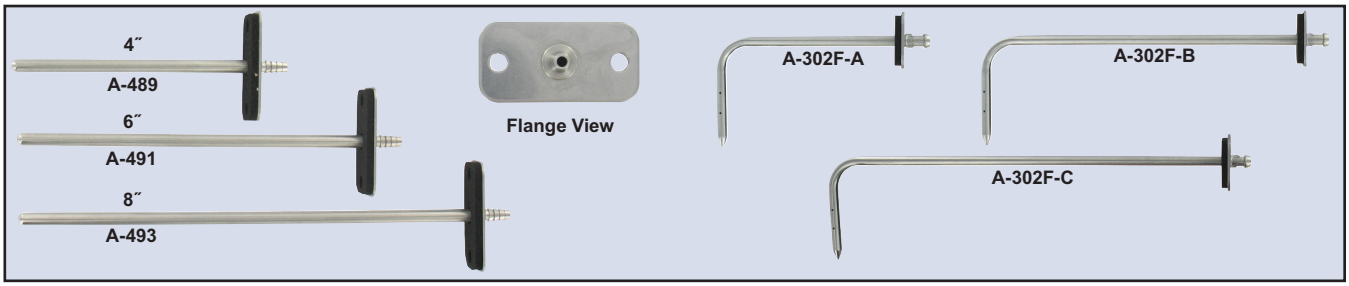
The Series 784 Electromechanical Ice Cube Relay is a full featured 4PDT relay that can be used to handle loads up to 15 amps for AC or DC circuits. Utilizing the same trigger, this relay can be used in underground parking garage applications to signal audible and visual alarms for high levels of carbon monoxide, while opening the dampers and starting the exhaust fans. It features a flag status indicator and a LED status lamp to let the user know when the relay is activated. In order to differentiate between AC and DC actuated models, the push-to-test button is color-coded. For testing the operation, a removable lock-down lever holds the test button in place. The clear plastic housing gives a view of the contacts and there is a removable I.D tag for labeling the circuit.

AC Operated Model	Input Voltage	Coil Resistance
784XDXM4L-24A	24 VAC 50/60 Hz	84.5 Ω
784XDXM4L-120A	120 VAC 50/60 Hz	2220 Ω
DC Operated Model	**Input Voltage**	**Coil Resistance**
784XDXM4L-24D	24 VDC	388 Ω

SPECIFICATIONS
Operating and Load Voltage Range: 24 to 120 VAC; 24 VDC.
Electrical Connection: Silver alloy plug-in contacts.
Switching Operation: 4PDT.
Electrical Rating: 15 A @ 120 VAC 50/60Hz; 12 A @ 277 VAC 50/60 Hz or 28 VDC.
Temperature Limits: Storage: -40 to 185°F (-40 to 85°C); Operation: -40 to 131°F (-40 to 55°C).
Power Consumption: 1.5 VA; 1.5 W.
Cycle Life: 200,000 cycles (electrical); 10,000,000 cycles (mechanical).
Housing: Plastic polycarbonate.
Weight: 2.8 oz (80 g).
Agency Approvals: CE, CSA, RoHS, cUL, UL, cUR, UR.

ACCESSORIES
70-784D14-1, Socket for 784 Series Relay
70-ASMM-24, Protection Modules, MOV Suppressor, 24 VAC/VDC
70-ASMM-120, Protection Modules, MOV Suppressor,120 VAC/VDC
70-ASMD-250, Protection Modules, Protection Diode, 6 to 250 VDC
16-750/788CBJ-1, Coil Bus Jumpers

Static Pressure Tips



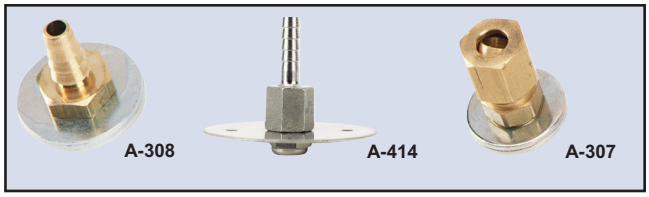
The Stainless Steel Static Pressure Tips are used to measure static pressures in ducts or rooms. They are to be connected to differential pressure switches and transmitters. Two static sensors are used in applications where differential pressure is required across a filter or coil. These sensors include a mounting flange with integral rubber gasket and two screws for simplifying mounting on a duct.

A-302F-A, 4″ Hook style SS Static Pressure Tip with mounting flange
A-302F-B, 6″ Hook style SS Static Pressure Tip with mounting flange
A-302F-C, 8″ Hook style SS Static Pressure Tip with mounting flange
A-489, 4″ Straight SS Static Pressure Tip with mounting flange
A-491, 6″ Straight SS Static Pressure Tip with mounting flange
A-493, 8″ Straight SS Static Pressure Tip with mounting flange

SPECIFICATIONS
Sizes: 4″ (101 mm), 6″ (152 mm), 8″ (203 mm).
Materials: 304 SS sensor tube, 303 SS hose barb, 430 SS flange.
Connection: Barb connection for use with 3/16″ ID tubing.

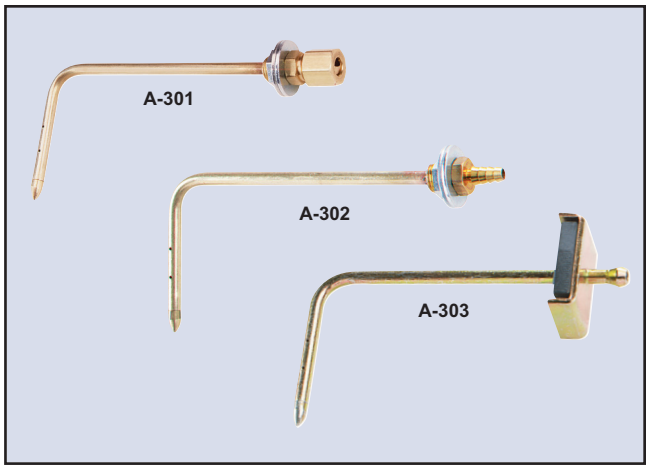
Designed for simplified installation, these are easy to install, inexpensive, and provides accurate static pressure sensing in smooth air at velocities up to 1500 FPM.

A-307, Static Pressure Fitting, for 1/4″ metal tubing connection
A-307-SS, same as above in Stainless Steel
A-308, Static Pressure Fitting, for 3/16″ and 1/8″ ID plastic or rubber tubing
A-414, SS Clean Room Pressure Sensor



These static pressure tips are ideal for applications such as sensing the static pressure drop across industrial air filters and refrigerant coils. Here the probability of air turbulence requires that the pressure sensing openings be located away from the duct walls to minimize impingement and aspiration, and thus ensure accurate readings. For a permanent installation of this type, the Dwyer No. A-301 or A-302 Static Pressure Tip is used. It senses static pressure through radially-drilled holes near the tip and can be used in air flow velocities up to 12,000 FPM. The angled tips shown have 4″ insertion depth. Each has four radially drilled .040″ sensing holes. All except Model A-303 mount in 3/8″ hole in duct. For portable use, a magnet holds No. A-303 in place.

A-301, Static Pressure Tip, for 1/4″ metal tubing connection
A-301-A, Static Pressure Tip, same as A-301 with 6″ insertion depth
A-301-B, Static Pressure Tip, same as A-301 with 8″ insertion depth
A-301-C, Static Pressure Tip, same as A-301 with 12″ insertion depth
A-301-SS, same as A-301 in Stainless Steel
A-302, Static Pressure Tip, for 3/16″ and 1/8″ ID plastic or rubber tubing
A-302-A, Static Pressure Tip, same as A-302 with 6″ insertion depth
A-303, Portable Static Pressure Tip, for 3/16″ ID rubber or plastic tubing with 4″ insertion



A-305 low resistance Static Pressure Tip is designed for use in dust-laden air and for rapid response applications. It is recommended where a very low actuation pressure is required for a pressure switch or indicating gage — or where response time is critical.

A-305, Static Pressure Tip, low resistance application, furnished with two (2) hex jam nuts and two (2) mounting washers for duct mounting and with 1/8″ NPT pipe thread for pressure connection
A-305-SS, same as A-305 in Stainless Steel
A-306, Outdoor static pressure sensor. Provides average outdoor pressure signal for reference in building pressurization applications. Includes sensor, 50′ vinyl tubing, mounting bracket and hardware. Red Sensor
A-306-A, Outdoor static pressure sensor. Provides average outdoor pressure signal for reference in building pressurization applications. Includes sensor, 50′ vinyl tubing, mounting bracket and hardware. Gray Sensor

Static Pressure Accessories

A-465

The A-465 Static Pressure Pick-Up provides a clean solution for sensing space pressure. The sensor can be mounted on sheetrock walls, single gang electrical boxes, or on ceiling tiles. Molded from ABS plastic, the A-465 provides an integral barb fitting and includes tubing, mounting screws and anchors.

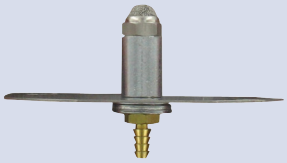
A-417A

Model A-417A, Static Pressure Pickup. For use in clean rooms, 60 micron filter picks up static pressure. Stainless steel wall plate fits 2″ x 4″ electrical box. Sealed with foam gasket, screws included. Barbed brass fitting holds 1/8″ to 3/16″ ID tubing.

A-418E

A-418N

Models A-418E & A-418N, Static Pressure Pickup. Room mount with plastic enclosure fits 2″ x 4″ electrical box. Fine mesh screen hides static pressure pickup port. Clean connection to 1/8″ to 3/16″ ID tubing and pressure sensor. Sealed with foam gasket, screws included.

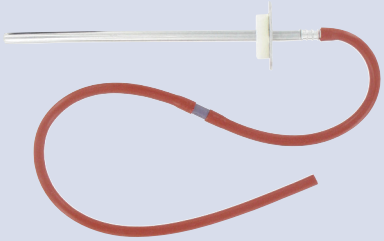


A-419A

Model A-419A, Static Pressure Pickup Ceiling Mount. Plate rests on top of standard 3/4″ thick ceiling tile while 60 micron filter faces down through 5/8″ hole in tile. Filter is barely noticeable in room being monitored. Unit mounts to junction box. Barbed brass fitting holds 1/8″ to 3/16″ ID tubing.

A-420A

Model A-420A, Static Pressure Pickup for Roof or Outside Mount. Reduces effects of wind gusts to keep pressure readings stable when plate is parallel to ground. Structure withstands harsh environmental elements. Structure is 3-1/4″ across and 2-3/8″ deep. EMT Conduit fitting is 1/2″. Pressure connection is brass barbed fitting for 1/8″ and 3/16″ ID tubing.

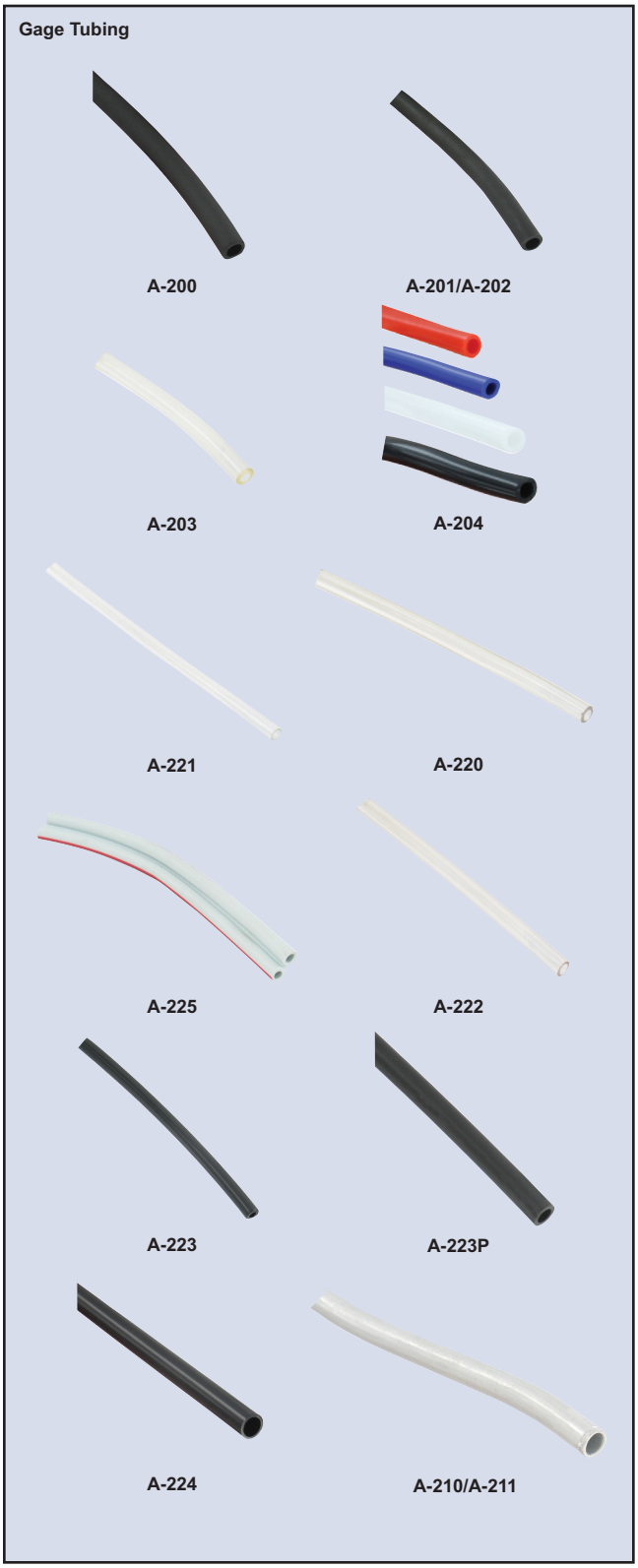


A-421

Surge Damper

Model A-421, Static Pressure Tip measures duct static air pressure. Assembly includes 6″ probe, silicon rubber hose, and screws. Built-in surge damper ensures stable readings on pressure sensor. Pressure spike reducer can be added to end of tube to further smooth over pressure fluctuations.

Gage Tubing Accessories



MODELS

A-200, Norprene® tubing is useful in a wide range of temperatures from -75 to 275°F (-60 to 135°C) and will not weaken after long term exposure to heat and ozone.
- **A-200-1,** 3/16″ ID x 5/16″ OD, 13 psi maximum pressure @ 73°F (90 kPa @ 23°C); 50´
- **A-200-2,** 1/4″ ID x 3/8″ OD, 10 psi maximum pressure @ 73°F (69 kPa @ 23°C); 50´

A-201, Rubber latex tubing has less tendency to kink in storage and occupies less space, thus is best for portable work. 3/16″ ID, 9´ length

A-202, Rubber latex tubing. 3/16″ ID, lengths to 50´

A-203, Clear PVC tubing is easily inspected and is therefore best for test applications where a possibility of fluid entering the tubing exists. 1/8″ ID x 1/4″ OD, lengths to 100´; 60 psi max. pressure @ 73°F (22°C)

A-221, Clear flexible vinyl tubing is easily inspected, and is therefore best for test applications where a possibility of fluid entering the tubing exists. 1/8″ ID x 3/16″ OD, lengths to 500´; 40 psi maximum pressure @ 165°F (276 kPa @ 74°C)

A-225, Flexible double column plastic tubing is used with Mark II manometers and the Wind Speed Indicator. Light gray with red color code stripe. 1/8″ ID, lengths to 750´

A-204, Flexible colored vinyl tubing is quickly distinguishable in applications where more than one line is required aiding installation. 3/16″ ID x 5/16″ OD, lengths to 500´; 45 psi maximum pressure @ 165°F (310 kPa @ 74°C)
- **A-204-A,** Opaque Red
- **A-204-B,** Opaque Blue
- **A-204-C,** Opaque White
- **A-204-D,** Opaque Black

A-220, Clear flexible vinyl tubing is easily inspected, and is therefore best for test applications where a possibility of fluid entering the tubing exists. 3/16″ ID x 5/16″ OD, lengths to 500´; 45 psi maximum pressure @ 73°F (310 kPa @ 23°C)

A-222, Clear flexible vinyl tubing is easily inspected, and is therefore best for test applications where a possibility of fluid entering the tubing exists. .240″ ID x .375″ OD, lengths to 500´; 35 psi maximum pressure @ 73°F (240 kPa @ 23°C)

A-223, Black polyethylene tubing offers long life, great stability and resistance to corrosion. 1/8″ ID x 1/4″ OD, 10´ length; 200 psi maximum @ 140°F (1379 kPa @ 60°C)

A-224, Black nylon tubing is recommended for high temperature and pressure applications. Lengths to 1312 ft; -40 to 248°F (-40 to 120°C).
- **A-224-A,** 0.23″ ID x 5/16″ OD; 362 psi (2500 kPa) working pressure
- **A-224-B,** 0.256″ ID x 3/8″ OD, 406 psi (2800 kPa) working pressure

A-223P, Black plenum fire retardent polyethylene tubing meets NFPA standard 90A for installation in air-conditioning and ventilating plenum spaces; also used in building automation systems. Lengths to 500´, 100 psig maximum pressure @ 75°F (689 kPa @ 24°C).
- **A-223P-1,** .17″ ID x .25″ OD
- **A-223P-2,** 1/4″ ID x 3/8″ OD

A-210, Aluminum tubing is recommended for permanent installations. 1/4″ OD, 5´ length, 500 psi maximum pressure @ 200°F (3447 kPa @ 93°C)

A-211, Aluminum tubing, 1/4″ OD, 50´ length, 500 psi maximum pressure @ 200°F (3447 kPa @ 93°C)

STANDARD **TERMS & CONDITIONS** OF SALE

Dwyer Instruments, Inc. - Standard Terms and Conditions of Sale

1. **Prices and Specifications** are subject to change without notice.
2. **Shipping dates** are approximate. They are dependent upon credit approval and subject to delays beyond our control.
3. **Terms:** Net 30 days to companies with established credit rating. In the event Buyer fails to fulfill previous terms of payment, or in case Seller shall have any doubt at any time as to Buyer's financial responsibility, Seller may decline to make further deliveries except upon receipt of cash in advance or other special arrangements.
4. **Point and Title:** All material is sold EXW Ex Works Dwyer Instruments, Inc. Title to all material sold shall pass to buyer upon delivery by Seller to carrier at shipping point.
5. **State and Local Taxes:** Any taxes which the Seller may be required to pay or collect upon or with respect to the sale, purchase, delivery, use or consumption of any of the material covered hereby shall be for the account of the Buyer and shall be added to the purchase price.
6. **Special tooling,** dies, silk screens and molds acquired specially to produce goods for Buyer remain the property of Dwyer Instruments, Inc., and may not be removed. They will be maintained in good condition for a minimum period of three years from the date of the original purchase order.
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