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. Liability 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. Discount: Terms, discounts and conditions of sale for purchase orders originating or for shipment to final destinations outside the U.S.A. will be furnished upon request.

7. Export Orders: Terms, discounts and conditions of sale for purchase orders originating or for shipment to final destinations outside the U.S.A. will be furnished upon request.

8. Limited Warranty: The Seller warrants all Dwyer instruments and equipment to be free from defects in workmanship or material under normal use and service for a period of one year from date of shipment. Liability under this warranty is limited to repair or replacement EXW Ex Works Dwyer Instruments, Inc of any parts which prove to be defective within that time or repayment of the purchase price at the Seller’s option provided the instruments have been returned, transportation prepaid, within one year from date of purchase. All technical advice, recommendations and services are based on technical data and information which the Seller believes to be reliable and are intended for use by persons having skill and knowledge of the business, and no warranty is Seller liable beyond replacement of equipment EXW Ex Works Dwyer Instruments, Inc or the full purchase price. This warranty does not apply if the maximum ratings label is removed or if the instrument or equipment is abused, altered, used at ratings above the maximum specified, or otherwise misused in any way.

9. Buyer’s Remedies: The Buyer, upon notice given to the Seller, may settle for an adjustment or take any action that the Buyer believes to be appropriate in the event of non-conforming or defective material. The Seller’s option provided the instruments have been returned, transportation prepaid, within one year from date of purchase. 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.

10. Acceptance: All orders shall be subject to the terms and conditions contained or referred to in the Seller’s quotation, acknowledgment, and to no others whatsoever. No waiver, alteration or modification of these terms and conditions shall be binding unless in writing and signed by an executive officer of the Seller. All orders are subject to written acceptance by Dwyer Instruments, Inc., Michigan City, Indiana, U.S.A.
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HEATING & COOLING APPLICATION
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OUTDOOR & PARKING GARAGE APPLICATION
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 (0.3%/°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=1000Ω max.; AC=1200Ω 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.

### Table: Model and Range

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

**Note:** For field selectable 0 to 10 / 0 to 5 volt output models, add -V to end of model. Ex: 616KD-01-V.
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 take either a current or voltage output to their building controller and have a local test board dip switches. Dual current and voltage outputs allow users to simultaneously remote display tool, both Metric and English engineering units can be selected via on

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 Upgradable 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

Modbus® is a registered trademark of Schneider Automation, Inc.
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.

- **Removeable Terminal Block.** Ease installation by allowing for the wiring to be done outside of the housing where the installer has more room.

- **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 m³/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.

- **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.
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; engineering units; K-factor for use with flow sensors; rectangular or circular duct for inputting area in flow applications; setting of 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.
*DH3-012 | 0.25-0.5 in w.c.
*DH3-014 | 0.5-1.0 in w.c.
*DH3-015 | 1-0-1.5 in w.c.
*DH3-016 | 2.5-5.0 in w.c.
*DH3-017 | 5-0-10 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:** Available via keypad on face.

**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. (784 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%

Our most popular series combines advanced design and precision construction to make our switches able to perform many of the tasks of larger, costlier units. Designed for air conditioning service, they also serve many fluids, 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 1900 Switches

Operating Ranges, Deadbands

<table>
<thead>
<tr>
<th>Model</th>
<th>Operating Range, Approximate</th>
<th>Set Point</th>
<th>Max. Set Point</th>
</tr>
</thead>
<tbody>
<tr>
<td>1900-0</td>
<td>0.07 to 0.10</td>
<td>0.04</td>
<td>0.04</td>
</tr>
<tr>
<td>1900-1</td>
<td>0.10 to 1.00</td>
<td>0.10</td>
<td>0.10</td>
</tr>
<tr>
<td>1900-2</td>
<td>0.15 to 1.50</td>
<td>0.15</td>
<td>0.15</td>
</tr>
<tr>
<td>1900-3</td>
<td>0.20 to 2.00</td>
<td>0.20</td>
<td>0.20</td>
</tr>
<tr>
<td>1900-4</td>
<td>0.25 to 2.50</td>
<td>0.25</td>
<td>0.25</td>
</tr>
<tr>
<td>1900-5</td>
<td>0.30 to 3.00</td>
<td>0.30</td>
<td>0.30</td>
</tr>
<tr>
<td>1900-6</td>
<td>0.35 to 4.00</td>
<td>0.35</td>
<td>0.35</td>
</tr>
<tr>
<td>1900-7</td>
<td>0.40 to 6.00</td>
<td>0.40</td>
<td>0.40</td>
</tr>
<tr>
<td>1900-8</td>
<td>0.45 to 7.00</td>
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<tr>
<td>1900-9</td>
<td>0.50 to 9.00</td>
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<tr>
<td>1900-10</td>
<td>0.55 to 10.00</td>
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<tr>
<td>1900-11</td>
<td>0.60 to 12.00</td>
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<tr>
<td>1900-12</td>
<td>0.65 to 15.00</td>
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<td>0.65</td>
</tr>
<tr>
<td>1900-13</td>
<td>0.70 to 20.00</td>
<td>0.70</td>
<td>0.70</td>
</tr>
</tbody>
</table>

**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.

**Series 1831**

**DPDT Low Differential Pressure Switches**

Manual Reset, No Power Required

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-388, 4” Straight Static Pressure Tip with Flange
- A-491, 6” Straight Static Pressure Tip with Flange
- A-302F-B, 303 SS Static Pressure Tip with mounting flange. For 3/16” ID rubber or plastic tubing. 4” 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: 45 in w. c. (11.2 kPa) continuous, 10 psig (69.95 kPa) surge.
- Switch Type: Single-pole double-throw (SPDT).
- Repeatability: ±3%
- Electrical Rating: 15 A @ 120/240 VAC, 60 Hz. Resistive 1/8 HP @ 125 VAC, 60 Hz. Derate to 10 A for operation at high cycle rates.

**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 switch.
- 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

**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-491, 6” Straight Static Pressure Tip with Flange
- A-302F-B, 303 SS Static Pressure Tip with mounting flange. For 3/16” ID rubber or plastic tubing. 4” 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: 45 in w. c. (11.2 kPa) continuous, 10 psig (69.95 kPa) surge.
- Switch Type: Single-pole double-throw (SPDT).
- Repeatability: ±3%
- Electrical Rating: 15 A @ 120/240 VAC, 60 Hz. Resistive 1/8 HP @ 125 VAC, 60 Hz. Derate to 10 A for operation at high cycle rates.

**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 switch.
- 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

**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.**
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

**SPECIFICATIONS**
- Service: Air and non-combustible, compatible gases.
- Wetted Materials:
  - ADPS: Diaphragm material: Silicone; Housing material: POM; Switch body: PA 6.6; Cover: Polystyrene; Materials UL94 V-0 rated.
  - 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 106 switching operations.
- Weight: 5.6 oz (160 g).
- Agency Approvals: CE, ETL approved to UL508 and CSA C22.2#14 (EDPS only), RoHS.

**ADPS**

<table>
<thead>
<tr>
<th>Model</th>
<th>Set Point Range in w.c. (Pa)</th>
<th>Approx. Dead Band @ Min Set Point in w.c. (Pa)</th>
<th>Approx. Dead Band @ Max Set Point in w.c. (Pa)</th>
</tr>
</thead>
<tbody>
<tr>
<td>ADPS-08-2-N</td>
<td>0.05 to 1.20 (20-300)</td>
<td>0.06 (15)</td>
<td>0.09 (23)</td>
</tr>
<tr>
<td>ADPS-04-2-N</td>
<td>0.05 to 1.20 (30-400)</td>
<td>0.06 (15)</td>
<td>0.09 (23)</td>
</tr>
<tr>
<td>ADPS-03-2-N</td>
<td>0.05 to 1.20 (50-500)</td>
<td>0.06 (15)</td>
<td>0.09 (23)</td>
</tr>
<tr>
<td>ADPS-05-2-N</td>
<td>0.05 to 1.20 (80-2000)</td>
<td>0.06 (150)</td>
<td>0.30 (200)</td>
</tr>
<tr>
<td>ADPS-06-2-N</td>
<td>0.05 to 1.20 (100-5000)</td>
<td>1.0 (250)</td>
<td>1.4 (350)</td>
</tr>
</tbody>
</table>

**EDPS**

<table>
<thead>
<tr>
<th>Model</th>
<th>Set Point Range in w.c. (Pa)</th>
<th>Approx. Dead Band @ Min Set Point in w.c. (Pa)</th>
<th>Approx. Dead Band @ Max Set Point in w.c. (Pa)</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDPS-08-1-N</td>
<td>0.08 to 1.20 (20-300)</td>
<td>0.04 (10)</td>
<td>0.08 (23)</td>
</tr>
<tr>
<td>EDPS-04-1-N</td>
<td>0.08 to 1.20 (30-400)</td>
<td>0.04 (10)</td>
<td>0.08 (23)</td>
</tr>
<tr>
<td>EDPS-03-1-N</td>
<td>0.08 to 1.20 (50-500)</td>
<td>0.04 (10)</td>
<td>0.08 (23)</td>
</tr>
<tr>
<td>EDPS-05-1-N</td>
<td>0.08 to 1.20 (80-2000)</td>
<td>0.04 (100)</td>
<td>0.5 (130)</td>
</tr>
<tr>
<td>EDPS-06-1-N</td>
<td>0.08 to 1.20 (100-5000)</td>
<td>0.6 (150)</td>
<td>0.8 (200)</td>
</tr>
<tr>
<td>EDPS-07-1-N</td>
<td>0.08 to 1.20 (100-5000)</td>
<td>1.0 (250)</td>
<td>1.4 (350)</td>
</tr>
</tbody>
</table>

**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.

See page 68 for process tubing options.
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 (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

**Series DX, Differential Pressure Switch**

**Model | Adjustable Differential Range (on increase) (in. H2O) | Fixed Deadband (in. H2O) | At Low Set Point | At High Set Point**
--- | --- | --- | --- | ---
DXW-11-153-1 | 12.5 to 60 (0.17 to 0.69) | 1.5 | 1.5 | 1.5
DXW-11-153-2 | 25 to 125 (0.36 to 1.72) | 3.5 | 3.5 | 3.5
DXW-11-153-3 | 50 to 250 (0.74 to 3.45) | 7.0 | 7.0 | 7.0

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

**SPECSIFICATIONS**

**Service:** Compatible gases and liquids.

**Wetted Materials:** Connection: Brass; Diaphragm: Fluoroelastomer.

**Temperature Limits:** -30 to 140°F (-30 to 60°C).

**Pressure Limits:** 200 psig (13.8 bar). Continuous single side only pressure should not exceed 1.25 x pressure rating.

**Enclosure Rating:** Weatherproof UL type 4X (IP65).

**Set point Repeats:** After a 15 Gs, 10 ms vibration and shock test.

**Optional 3-Valve Manifold Assembly**

**SPECSIFICATIONS**

**Service:** Compatible gases and liquids.

**Wetted Materials:** Connection: Stainless steel, 300 Series stainless steel, fluoroelastomer and silicone.

**Temperature Limits:** Operating: 0 to 175°F (-18 to 79°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°F, 30 to 150°F (-1 to 65°C).

**Power Requirements:** 11 to 30 VDC.
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

<table>
<thead>
<tr>
<th>Model</th>
<th>Range (psid)</th>
<th>Working Pressure (psi)</th>
<th>Over Pressure (psi)</th>
</tr>
</thead>
<tbody>
<tr>
<td>629-02-CH-P2-ES-S1</td>
<td>10</td>
<td>20</td>
<td>100</td>
</tr>
<tr>
<td>629-03-CH-P2-ES-S1</td>
<td>25</td>
<td>50</td>
<td>250</td>
</tr>
<tr>
<td>629-04-CH-P2-ES-S1</td>
<td>50</td>
<td>100</td>
<td>250</td>
</tr>
<tr>
<td>629-05-CH-P2-ES-S1</td>
<td>100</td>
<td>200</td>
<td>500</td>
</tr>
</tbody>
</table>

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

3-Way Valve Manifold Assembly

<table>
<thead>
<tr>
<th>Model</th>
<th>Range (psid)</th>
<th>Working Pressure (psi)</th>
<th>Over Pressure (psi)</th>
</tr>
</thead>
<tbody>
<tr>
<td>629-02-CH-P2-ES-S1-3V</td>
<td>10</td>
<td>20</td>
<td>100</td>
</tr>
<tr>
<td>629-03-CH-P2-ES-S1-3V</td>
<td>25</td>
<td>50</td>
<td>250</td>
</tr>
<tr>
<td>629-04-CH-P2-ES-S1-3V</td>
<td>50</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>629-05-CH-P2-ES-S1-3V</td>
<td>100</td>
<td>100</td>
<td>100</td>
</tr>
</tbody>
</table>

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
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 transmitter software.

FEATURES
• Configurable using zero/span buttons (no calibrator required)
• Rangeability (100:1)
• Selectable engineering units

APPLICATIONS
• Critical process monitoring
• Fail-mode process function
• High accuracy (±0.075%)
• Rangeability (100:1)
• Configurable using zero/span buttons (no calibrator required)

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 240°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: 10000 psi.
Rangeability: 0.125% span/32°F.
Display: Optional 5 digit LCD.
Enclosure Rating: NEMA 4X (IP66) and explosion-proof for Class I, Div. 1, Groups A, B, C and D.
Weight: 8.6 lb (3.9 kg).
Agency Approvals: CE, FM, ATEX.

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 | 7.5 kPa | No |
3100D-3-FM-1-1 | 1.5 to 150 in w.c. | 0.373 to 186.5 kPa | 186.5 kPa | No |
3100D-4-FM-1-1 | 7.5 to 750 in w.c. | 1.865 to 1865 kPa | 1865 kPa | No |
3100D-5-FM-1-1 | 1 to 100 psi | 6.9 to 690 kPa | 690 kPa | No |
3100D-6-FM-1-1 | 3 to 300 psi | 20.68 to 2068 kPa | 2068 kPa | No |
3100D-2-FM-1-LCD | 0.6 to 30 in w.c. | 0.15 to 7.5 kPa | 7.5 kPa | Yes |
3100D-3-FM-1-LCD | 1.5 to 150 in w.c. | 0.373 to 186.5 kPa | 186.5 kPa | Yes |
3100D-4-FM-1-LCD | 7.5 to 750 in w.c. | 1.865 to 1865 kPa | 1865 kPa | Yes |
3100D-5-FM-1-LCD | 1 to 100 psi | 6.9 to 690 kPa | 690 kPa | Yes |
3100D-6-FM-1-LCD | 3 to 300 psi | 20.68 to 2068 kPa | 2068 kPa | Yes |

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 | 7.5 kPa | No |
3100MP-3-FM-1-1 | 1.5 to 150 in w.c. | 0.373 to 186.5 kPa | 186.5 kPa | No |
3100MP-4-FM-1-1 | 7.5 to 750 in w.c. | 1.865 to 1865 kPa | 1865 kPa | No |
3100MP-6-FM-1-1 | 1 to 100 psi | 6.9 to 690 kPa | 690 kPa | No |
3100MP-2-FM-1-LCD | 0.6 to 30 in w.c. | 0.15 to 7.5 kPa | 7.5 kPa | Yes |
3100MP-3-FM-1-LCD | 1.5 to 150 in w.c. | 0.373 to 186.5 kPa | 186.5 kPa | Yes |
3100MP-4-FM-1-LCD | 7.5 to 750 in w.c. | 1.865 to 1865 kPa | 1865 kPa | Yes |
3100MP-6-FM-1-LCD | 1 to 100 psi | 6.9 to 690 kPa | 690 kPa | Yes |
3100MP-2-FM-1-LCD | 0.6 to 30 in w.c. | 0.15 to 7.5 kPa | 7.5 kPa | Yes |
3100MP-3-FM-1-LCD | 1.5 to 150 in w.c. | 0.373 to 186.5 kPa | 186.5 kPa | Yes |
3100MP-4-FM-1-LCD | 7.5 to 750 in w.c. | 1.865 to 1865 kPa | 1865 kPa | Yes |
3100MP-6-FM-1-LCD | 1 to 100 psi | 6.9 to 690 kPa | 690 kPa | Yes |

Consult factory for custom calibration.

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.

Mercoid® is a registered trademark of Hart Communication Foundation.

HART® is a registered trademark of Hart Communication Foundation.

CONTACT US | U.S. 219/879-8000 | U.K. (+44) (0)1494-461707 | A.U. (+61) (0) 2 4272 2055 | China +852-23181007
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.;
- 628: 1.0% F.S.;
- 626 Absolute Ranges: 0.5% F.S.;
- 626 Absolute Ranges: 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,
- 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;
- 1/2˝ female NPT Conduit;
- M-12 4 Pin Connector.

**Mounting Orientation:** Mount in any position.

**Weight:** 10 oz (283 g).

**Agency Approvals:** CE.

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

---

**Ordering Chart**

<table>
<thead>
<tr>
<th>Accuracy</th>
<th>Range</th>
<th>Output Options</th>
</tr>
</thead>
<tbody>
<tr>
<td>626</td>
<td></td>
<td>0.25% Full-Scale Accuracy</td>
</tr>
<tr>
<td>628</td>
<td></td>
<td>1.0% Full-Scale Accuracy</td>
</tr>
<tr>
<td></td>
<td>0-15 psia</td>
<td></td>
</tr>
<tr>
<td></td>
<td>0-30 psia</td>
<td></td>
</tr>
<tr>
<td></td>
<td>0-50 psia</td>
<td></td>
</tr>
<tr>
<td></td>
<td>0-100 psia</td>
<td></td>
</tr>
<tr>
<td></td>
<td>0-200 psia</td>
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<td></td>
<td>0-300 psia</td>
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<td></td>
<td>0-5 psi</td>
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<td></td>
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<td></td>
<td>0-500 psi</td>
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<tr>
<td></td>
<td>0-1500 psi</td>
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</tr>
<tr>
<td></td>
<td>0-5000 psi</td>
<td></td>
</tr>
<tr>
<td></td>
<td>0-8000 psi</td>
<td></td>
</tr>
<tr>
<td></td>
<td>0-0.5 bar</td>
<td></td>
</tr>
<tr>
<td></td>
<td>0-2.5 bar</td>
<td></td>
</tr>
<tr>
<td></td>
<td>0-10 bar</td>
<td></td>
</tr>
<tr>
<td></td>
<td>0-40 bar</td>
<td></td>
</tr>
</tbody>
</table>

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*Please see our website for dimensional drawings.*
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.

<table>
<thead>
<tr>
<th>Model</th>
<th>Range</th>
<th>Output</th>
<th>Accuracy</th>
</tr>
</thead>
<tbody>
<tr>
<td>AVU-1-A</td>
<td>0 to 785 fpm (0 to 4 m/s)</td>
<td>4 to 20 mA</td>
<td>5%</td>
</tr>
<tr>
<td>AVU-2-A</td>
<td>0 to 1575 fpm (0 to 8 m/s)</td>
<td>4 to 20 mA</td>
<td>5%</td>
</tr>
<tr>
<td>AVU-3-A</td>
<td>0 to 3150 fpm (0 to 16 m/s)</td>
<td>4 to 20 mA</td>
<td>5%</td>
</tr>
<tr>
<td>AVU-1-V</td>
<td>0 to 785 fpm (0 to 4 m/s)</td>
<td>0 to 10 VDC</td>
<td>5%</td>
</tr>
<tr>
<td>AVU-2-V</td>
<td>0 to 1575 fpm (0 to 8 m/s)</td>
<td>0 to 10 VDC</td>
<td>5%</td>
</tr>
<tr>
<td>AVU-3-V</td>
<td>0 to 3150 fpm (0 to 16 m/s)</td>
<td>0 to 10 VDC</td>
<td>5%</td>
</tr>
<tr>
<td>AVUB-1-V</td>
<td>0 to 785 fpm (0 to 4 m/s)</td>
<td>0 to 10 VDC</td>
<td>8%</td>
</tr>
<tr>
<td>AVUB-2-V</td>
<td>0 to 1575 fpm (0 to 8 m/s)</td>
<td>0 to 10 VDC</td>
<td>8%</td>
</tr>
<tr>
<td>AVUB-3-V</td>
<td>0 to 3150 fpm (0 to 16 m/s)</td>
<td>0 to 10 VDC</td>
<td>8%</td>
</tr>
</tbody>
</table>
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).

**Adjustable Air Flow Paddle Switch**

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

**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).
- **Accuracy**: ±5%.
- **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).

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**Series AFG**

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. True 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.

**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.

**Specifications**

- **Service**: Monitor air or compatible gas flow.
- **Wetted Materials**: 304 SS, PVC, polyurethane, acetyl plastics, and neoprene rubber.
- **Accuracy**: ±5%.
- **Maximum Temperature**: 178°F (80°C).
- **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.

**Table:**

<table>
<thead>
<tr>
<th>Model</th>
<th>Diameter Tube &quot;A&quot;</th>
<th>Length &quot;B&quot;</th>
</tr>
</thead>
<tbody>
<tr>
<td>AFG-1</td>
<td>5/16” (8 mm)</td>
<td>27” (688 mm)</td>
</tr>
<tr>
<td>AFG-2</td>
<td>5/8” (16 mm)</td>
<td>59-4/5” (1518 mm)</td>
</tr>
</tbody>
</table>
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.

**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.

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

**FOAM GASKET** 1/8 THK [6.35 THK]

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 Comparison
- **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 | 23-28/32˝ (60.72 cm)
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.

---

**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.

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.

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.
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.

### 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.

### Short Duct Dimensions

<table>
<thead>
<tr>
<th>Number of Probes</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
</tr>
</thead>
<tbody>
<tr>
<td>Short Duct Diameter</td>
<td>&lt;12</td>
<td>12” to 23”</td>
<td>24” to 35”</td>
<td>36” to 59”</td>
<td>60” to 89”</td>
<td>&gt;89”</td>
</tr>
</tbody>
</table>

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

CONTACT US   |   U.S. 219/879-8000   |   U.K. (+44) (0)1494-461707   |   A.U. (+61) (0) 2 4272 2055   |   China +852-23181007   |   19
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).
- 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
  - R - Rectangular
  - O - Oval
  - Height (in) x Width (in)
  - 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.
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.

### 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.

### 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, 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, 34, 36, 40, 44, 48, 52, 56, 60, 66, 72, 78, 84, 90, 96, 102, 108, 114 or 120.

### OTHER INFORMATION
- **Integral Flow Straightener:** Ideal for turbulent measuring conditions.
- **Process Connections:** 1/4" compression fittings.
The Series RHP-EN Wall Mount Humidity/Temperature/Dew Point Transmitter is the most versatile room transmitter on the market. The stylish housing is well-ventilated 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 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 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.

### Options

<table>
<thead>
<tr>
<th>Example</th>
<th>RHP</th>
<th>N</th>
<th>4</th>
<th>LCD</th>
<th>RHP-3NA-LCD</th>
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</thead>
<tbody>
<tr>
<td>Series</td>
<td>3</td>
<td>4</td>
<td>4</td>
<td>North American</td>
<td>European</td>
</tr>
<tr>
<td>Accuracy</td>
<td>0.1%</td>
<td>1%</td>
<td>2%</td>
<td>3%</td>
<td>5%</td>
</tr>
<tr>
<td>Housing</td>
<td>North American</td>
<td>European Wall Mount</td>
<td>North American Wall Mount</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Humidity/Dew Point Output</td>
<td>20mA/0-10 VDC</td>
<td>4-20mA/0-5 VDC</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Temperature Output</td>
<td>4-20mA/0-5 VDC</td>
<td>0-10 VDC</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Power Requirements</td>
<td>10-35 VDC</td>
<td>15-29 VAC</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Storage</td>
<td>-40 to 176°F (-40 to 80°C)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Operating</td>
<td>-40 to 140°F (-40 to 60°C)</td>
<td></td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>

### 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) for solid state band gap temperature sensors.
- 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 (±0.5°C @ 25°C).
- **Hysteresis**: ±1%.
- **Repeatability**: ±0.1% typical.
- **Temperature Limitations**: 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 load: 5 mA max., 2 channels for humidity/solid state temperature sensors (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 sensors. 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.

**ACCESSORIES**

- A-449, Remote LCD Display allows remote indication of select Dwyer Wall Mount Transmitters for validation or certification purposes.
- SCD-PS, 100-240 VAC/VDC to 24 VDC Power Supply.

LEED® is a registered trademark of US Green Building Council.
The Series RHP Temperature and Humidity Transmitter combines 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 alphanumeric LCD display. The Series RHP is available with interchangeable filter options as well as replaceable sensors.

### 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 (±0.3°F @ 77°F).
**Accuracy, RTD Temp Sensor:** DIN Class B; ±0.3°C @ 0°C (±0.5°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).
**Response Time:** 15 seconds.
**Electrical Connections:** Removable screw terminal block.
**Connections:** 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.
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, 8 Plate Radiation Shield
Model RHRS-10, 10 Plate Radiation Shield

*Only sintered filter OSA models of Series RHP are compatible with the shield.
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 ideal for environmental chambers, rubber bladder burst detection and air filter. It can be mounted up to 16 feet away from the weatherproof base.

### Series WHT

**Weather-Resistant Humidity/Temperature Transmitter**

**Compact Housing, Sintered Filter**

**Models:**
- WHT-310
- WHT-320
- WHT-330
- WHT-31A
- WHT-32A

**Accuracy:**
- WHT-310: ±5%
- WHT-320: ±5%
- WHT-330: ±5%
- WHT-31A: ±3%
- WHT-32A: ±3%

**RH Output:**
- 4 to 20 mA
- 0 to 10 VDC
- 0 to 5 VDC

**Temperature Output:**
- 4 to 20 mA

**Agency Approvals:**
- CE

**Enclosure Rating:**
- Polycarbonate, aluminum enclosure.

**Temperature Range:**
- -40 to 176°F (-40 to 80°C)

**Storage Temperature:**
- -40 to 140°F (-40 to 60°C)

**Humidity Range:**
- 0 to 100% RH

**Drift:**
- <1% RH/year

**Drift, RH:**
- ±1% RH/year

**Passive Thermistor Temp Sensor:**
- ±0.3°F @ 77°F (±0.2°C @ 25°C)

**Response Time:**
- 15 seconds

**Response Time, RH:**
- Less than 15 seconds

**Response Time, Temp:**
- Less than 15 seconds

**Cable Length:**
- Up to 16 ft

**Agency Approvals:**
- CE

**Contact Us:**
- U.S. 219/879-8000
- U.K. (+44) (0)1494-461707
- A.U. (+61) (0) 2 4272 2055
- China +852-23181007

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** SPECIFICATIONS **

**Relative Humidity Range:**
- 0 to 100% RH

**Temperature Range:**
- -40 to 140°F (-40 to 60°C)

**Accuracy, RH:**
- ±3% at 20% RH, ±4% at 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:**
- ±0.3°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)

**Compensated Temperature Range, RH:**
- -4 to 140°F (-20 to 60°C)

**Compensated Temperature Range, Temp Models with 4 to 20 mA Loop Powered Models:**
- Power requirements: 10 to 35 VDC; Output signal: 4 to 20 mA

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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.

### Series RH-R

**Humidity/Temperature Transmitter**

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

**Models:**
- RHU-R008
- RHU-R012
- RHU-R016
- RHT-R004
- RHT-R008
- RHT-R012
- RHT-R016
- RHU-R104
- RHU-R108
- RHU-R112
- RHU-R116

**Description:**
- Humidity
- Humidity/Temperature

**Output:**
- Current
- Voltage

**Agency Approvals:**
- CE
GAS SENSING

Series CDT-2

Carbon Dioxide/Temperature Transmitter

NDIR Sensor, Universal Outputs, Optional Relay

**Series CDT Carbon Dioxide and Temperature Transmitters** accurately monitor the CO₂ 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 CO₂ 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-A can plug into the miniature connector port on the transmitter. The display can be configured to display temperature only, CO₂ only, CO₂ and temperature together. Push buttons are standard on all configurations of the transmitter 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 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.

GC-K200CC-2000CCO₂, Calibration Gas Kit includes a 99.99% Nitrogen gas cylinder for calibrating the zero point and a 200 PPM CO₂ / 2000 PPM CO₂ gas cylinder for calibrating the span point on Dwyer’s gas sensing transmitters.

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**SPECIFICATIONS**

**Sensor:** Single beam, dual-wavelength NDIR.

**Range:**
- CO₂: 0 to 2000 or 0 to 5000 ppm (depending on model);
- Temperature: 32 to 122°F (0 to 50°C).

**Accuracy:**
- CO₂: ±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.

**Configuration Options**

<table>
<thead>
<tr>
<th>Series</th>
<th>CDT-2</th>
<th>4</th>
<th>LCD</th>
<th>Example: CDT-2N44-LCD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Range</td>
<td>2</td>
<td>5</td>
<td></td>
<td>0 to 2000 ppm CO₂ range</td>
</tr>
<tr>
<td>Range</td>
<td>5</td>
<td>4</td>
<td></td>
<td>0 to 5000 ppm CO₂ range</td>
</tr>
<tr>
<td>Configuration</td>
<td>North American Wall Mount</td>
<td>European Wall Mount</td>
<td>Duct Mount</td>
<td></td>
</tr>
<tr>
<td>CO₂ Output</td>
<td>4</td>
<td>2</td>
<td>0 to 20 mA / 0 to (5 or 10) VDC</td>
<td></td>
</tr>
<tr>
<td>Temperature Output</td>
<td>4</td>
<td>2</td>
<td>0 to 20 mA / 0 to (5 or 10) VDC</td>
<td></td>
</tr>
<tr>
<td>Options</td>
<td>LCD</td>
<td>RLY</td>
<td>NBC</td>
<td>LCD display (wall only)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Relay</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>No buttons (wall only)</td>
</tr>
</tbody>
</table>

**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.

LEED® is a registered trademark of the U.S. Green Building Council.
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 CO2 gas cylinder for calibrating the span point on Dwyer’s gas sensing transmitters.

Like our popular Series CDTR 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 CO2 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 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.

The display can be configured to display temperature only, relative humidity only, CO2 only, CO2 and humidity, or CO2 and temperature. Push buttons on the transmitter. The display can be configured to display temperature only, relative humidity only, CO2 only, and humidity, or CO2 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 CO2 gas cylinder for calibrating the span point on Dwyer’s gas sensing transmitters.

Series CDTR Carbon Dioxide, Relative Humidity and Temperature Transmitters reduce the number of sensors mounted on a wall or in a duct. By combining CO2, RH, and temperature in one device, system integrators are able to lower installation time of mounting multiple housings, whilst 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 CO2 transmitter.

SPECIFICATIONS
Range:
  CO2: 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 (CO2); ±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.

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.
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 CO₂ 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 CO₂ sensor
- Replaceable humidity/temperature sensor
- Physical hardware lockout
- Optional remote display tool

**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 CO₂ 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

**SPECIFICATIONS**
- **Sensor (CO₂):** Single-beam, dual-wavelength NDIR;
- **Humidity:** Capacitive polymer;
- **Temperature:** 10KΩ thermistor.

**Range:**
- CO₂: 0 to 2000 or 5000 PPM CO₂ (depending on model);
- Humidity: 0 to 100% RH;
- Temperature: 32 to 122°F (0 to 50°C).

**Accuracy:**
- CO₂: ±40 ppm ±3% of reading;
- RH: ±2% (10 to 90% RH);
- Temperature: ±1°C @ 25°C.

**Temperature Dependence (CO₂):** ±8 ppm / °C at 1100 ppm.

**Non-Linearity (CO₂):** 16 ppm.

**Pressure Dependence (CO₂):** 0.13% of reading per mm of Hg.

**Response Time (CO₂):** 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.
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.

<table>
<thead>
<tr>
<th>Model</th>
<th>Gas Sensed</th>
<th>Mounting</th>
</tr>
</thead>
<tbody>
<tr>
<td>GSTA-C</td>
<td>CO</td>
<td>Wall</td>
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<tr>
<td>GSTA-N</td>
<td>NO₂</td>
<td>Wall</td>
</tr>
<tr>
<td>GSTA-D</td>
<td>CO</td>
<td>Duct</td>
</tr>
<tr>
<td>GSTA-D</td>
<td>NO₂</td>
<td>Duct</td>
</tr>
</tbody>
</table>

A-449, Remote LCD Display
A-505, CO Replacement Sensor
A-506, NO₂ 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; NO₂: 10 ppm.
- **Output Drift:** <5% per year in air.
- **Coverage Area:** 5000 to 7500 sq. ft. typical.
- **Accuracy:** CO=2% of reading, NO₂=3% of reading at the time of calibration.
- **Resolution:** CO=1 ppm; NO₂ = 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% NO₂.
- **Power Requirements:** 18 to 28 VDC/VAC, reverse polarity protected. Switch selectable normal or reverse output.
- **Current output=10 mA (loop powered), or 0 to 5 V/0 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 (0.45 kg).
- **Agency Approval:** CE, RoHS.

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 onboard span and zero potentiometers.

**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 glass filled polycarbonate.
- **Output:** Jumper 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 Requirements:** Current output=10 to 35 VDC; Voltage output=15 to 35 VDC or 15 to 29 VAC.
- **Electrical Connection:** Removable terminal block, includes two PG11 conduit fitting.
- **Weight:** 0.28 lb (0.11 kg).
- **Agency Approval:** CE, RoHS.
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.

**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.

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.

**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.
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**

<table>
<thead>
<tr>
<th>Pipe Diameter (inch)</th>
<th>Blade Vane Length in (mm)</th>
<th>Approximate Actuation and Deactuation Flow Rates for Water</th>
<th>Minimum Setting GPM (LPM)</th>
<th>Maximum Setting GPM (LPM)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Actuate</td>
<td>Deactuate</td>
<td>Actuate</td>
</tr>
<tr>
<td>1-1/4</td>
<td>1.34 (34)</td>
<td>4.0 (15.0)</td>
<td>1.8 (7.0)</td>
<td>0.8 (33.3)</td>
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<tr>
<td>1-1/2</td>
<td>2.24 (57)</td>
<td>7.0 (28.7)</td>
<td>4.0 (15.0)</td>
<td>14.5 (55.0)</td>
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<tr>
<td>2</td>
<td>2.24 (57)</td>
<td>14.1 (53.3)</td>
<td>7.0 (28.7)</td>
<td>11.4 (43.3)</td>
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<tr>
<td>2-1/2</td>
<td>3.46 (88)</td>
<td>16.5 (65.0)</td>
<td>15.4 (58.3)</td>
<td>35.2 (133.3)</td>
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<tr>
<td>3</td>
<td>3.46 (88)</td>
<td>27.7 (105.0)</td>
<td>25.1 (95.0)</td>
<td>52.8 (200.0)</td>
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<tr>
<td>4</td>
<td>3.46 (88)</td>
<td>39.4 (152.0)</td>
<td>28.0 (105.0)</td>
<td>123.3 (466.7)</td>
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<td>5</td>
<td>6.57 (167)</td>
<td>52.8 (200.0)</td>
<td>39.6 (150.0)</td>
<td>132.1 (480.0)</td>
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<tr>
<td>6</td>
<td>6.57 (167)</td>
<td>57.5 (226.7)</td>
<td>52.8 (200.0)</td>
<td>154.1 (563.3)</td>
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<tr>
<td>8</td>
<td>6.57 (167)</td>
<td>184.3 (705.0)</td>
<td>158.5 (600.0)</td>
<td>374.2 (1416.7)</td>
</tr>
</tbody>
</table>

**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 liquids.  
**Wetted Materials**: Bellow: Tin-bronze; Vane: SS; Body: Forged brass.  
**Temperature Limit**: 230°F (110°C).  
**Pressure Limit**: 145 psig (10 bar).  
**Enclosure Rating**: NEMA 4 (IP65).  
**Switch Type**: SPDT snap switch.  
**Electrical Rating**: 10A res, 3A ind, 5 mA/°C above 23°C.  
**Switching Current**: 400 mA, derate 9 to 24 VDC.  
**Response Time**: Approx. 8 s.  
**Power Requirement**: 5 to 24 VDC.  
**Switching Current**: 400 mA, derate 5 mA/°C above 23°C.

**Agency Approvals**: CE, RoHS.

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

**CONTACT US**  
**U.S.**: 219/879-8000  
**U.K.**: (+44) (0)1494-461707  
**A.U.**: (+61) (0) 2 4272 2055  
**China**: +852-23181007

**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 setpoint, red when the flow is below setpoint.

The TDFS uses an impromptu 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 as the probe will remain in the fluid.

**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).  
**Pressure Limits**: 500 psig (34.47 bar).  
**Storage**: -40 to 185°F (-40 to 85°C).  
**Ambient**: 5 to 167°F (-15 to 75°C).  
**Temperature Limits**: 230ºF (110ºC).  
**Response Time**: Approximately 8 s.  
**Power Requirement**: 5 to 24 VDC.  
**Switching Current**: 400 mA, derate 5 mA/°C above 23°C.

**Agency Approvals**: CE, RoHS.

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**China**: +852-23181007

**SPECIFICATIONS**

**Switch Type**: SPDT snap switch.  
**Electrical Connection**: 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, polysulphone, 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.
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 PTLT 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.

<table>
<thead>
<tr>
<th>Model</th>
<th>Body Material</th>
<th>Output</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>PFT-IAN-B111-S</td>
<td>Brass</td>
<td>4 to 20 mA</td>
<td>1-1/2˝ NPT connection, FKM seals, tungsten-carbide shaft, PTFE bearing, 20' of cable</td>
</tr>
<tr>
<td>PFT-IAN-S111-S</td>
<td>316 SS</td>
<td>4 to 20 mA</td>
<td>1-1/2˝ NPT connection, FKM seals, tungsten-carbide shaft, PTFE bearing, 20' of cable</td>
</tr>
<tr>
<td>PFT-IDN-B111-S</td>
<td>Brass</td>
<td>Pulse</td>
<td>1-1/2˝ NPT connection, FKM seals, tungsten-carbide shaft, PTFE bearing, 20' of cable</td>
</tr>
<tr>
<td>PFT-IDN-S111-S</td>
<td>316 SS</td>
<td>Pulse</td>
<td>1-1/2˝ NPT connection, FKM seals, tungsten-carbide shaft, PTFE bearing, 20' of cable</td>
</tr>
</tbody>
</table>

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.
Multi-Jet Water Meter with Pulsed Output
Economical, Brass Body, Dry Dial

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 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 PLCs, 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;
Coupings: 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.

<table>
<thead>
<tr>
<th>Model</th>
<th>Coupling Size</th>
<th>Max Flow (Gallons Per Minute)</th>
<th>Nominal Flow Range</th>
<th>Transitional Flow</th>
<th>Display Max</th>
<th>Pulse Rate (Gal./Pulse)</th>
</tr>
</thead>
<tbody>
<tr>
<td>WMT2-A-C-01</td>
<td>1/2&quot; NPT</td>
<td>20</td>
<td>1 to 10</td>
<td>0.25</td>
<td>9,999.999.99</td>
<td>0.1</td>
</tr>
<tr>
<td>WMT2-A-C-02</td>
<td>3/4&quot; NPT</td>
<td>30</td>
<td>2 to 20</td>
<td>0.25</td>
<td>9,999.999.99</td>
<td>0.1</td>
</tr>
<tr>
<td>WMT2-A-C-03</td>
<td>3/4&quot; NPT</td>
<td>50</td>
<td>3 to 50</td>
<td>0.75</td>
<td>9,999.999.99</td>
<td>0.1</td>
</tr>
<tr>
<td>WMT2-A-C-04</td>
<td>1&quot; NPT</td>
<td>100</td>
<td>5 to 100</td>
<td>1.5</td>
<td>99,999,999.99</td>
<td>10</td>
</tr>
<tr>
<td>WMT2-A-C-05</td>
<td>1/2&quot; NPT</td>
<td>20</td>
<td>1 to 10</td>
<td>0.25</td>
<td>9,999.999.99</td>
<td>0.1</td>
</tr>
<tr>
<td>WMT2-A-C-06</td>
<td>3/4&quot; NPT</td>
<td>30</td>
<td>2 to 20</td>
<td>0.25</td>
<td>9,999.999.99</td>
<td>0.1</td>
</tr>
<tr>
<td>WMT2-A-C-07</td>
<td>1&quot; NPT</td>
<td>50</td>
<td>3 to 50</td>
<td>0.75</td>
<td>9,999.999.99</td>
<td>0.1</td>
</tr>
<tr>
<td>WMT2-A-C-08</td>
<td>1&quot; NPT</td>
<td>100</td>
<td>5 to 100</td>
<td>1.5</td>
<td>99,999,999.99</td>
<td>10</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Model</th>
<th>Coupling Size</th>
<th>Max Flow (Gallons Per Minute)</th>
<th>Nominal Flow Range</th>
<th>Transitional Flow</th>
<th>Display Max</th>
<th>Pulse Rate (Gal./Pulse)</th>
</tr>
</thead>
<tbody>
<tr>
<td>WM2-A-C-01</td>
<td>5/8 x 1/2&quot;</td>
<td>20</td>
<td>1 to 10</td>
<td>0.25</td>
<td>9,999.999.99</td>
<td>0.1</td>
</tr>
<tr>
<td>WM2-A-C-02</td>
<td>3/4&quot; NPT</td>
<td>30</td>
<td>2 to 20</td>
<td>0.25</td>
<td>9,999.999.99</td>
<td>0.1</td>
</tr>
<tr>
<td>WM2-A-C-03</td>
<td>3/4&quot; NPT</td>
<td>50</td>
<td>3 to 50</td>
<td>0.75</td>
<td>9,999.999.99</td>
<td>0.1</td>
</tr>
<tr>
<td>WM2-A-C-04</td>
<td>1&quot; NPT</td>
<td>100</td>
<td>5 to 100</td>
<td>1.5</td>
<td>99,999,999.99</td>
<td>10</td>
</tr>
<tr>
<td>WM2-A-C-05</td>
<td>1&quot; NPT</td>
<td>150</td>
<td>7 to 70</td>
<td>3.5</td>
<td>99,999,999.99</td>
<td>15</td>
</tr>
<tr>
<td>WM2-A-C-06</td>
<td>1-1/2&quot; NPT</td>
<td>200</td>
<td>10 to 100</td>
<td>5</td>
<td>99,999,999.99</td>
<td>20</td>
</tr>
</tbody>
</table>

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

**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).
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

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:** Removable 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.
**Insertion Electromagnetic Flow Sensor**

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

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**

<table>
<thead>
<tr>
<th>Series IEFS</th>
<th>IEFS</th>
<th>BAF</th>
<th>IEFS-DSB-BAT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Size/Material</td>
<td>Material</td>
<td>Options</td>
<td></td>
</tr>
<tr>
<td>3 to 10˝ Silicon-</td>
<td>Brass</td>
<td>SAF 2˝ SS Adapter Fittings (IEFS-0XX only)</td>
<td></td>
</tr>
<tr>
<td>10 to 48˝ Silicon-</td>
<td>Brass</td>
<td>SAF 2˝ SS Adapter Fittings (IEFS-0XX only)</td>
<td></td>
</tr>
<tr>
<td>10 to 48˝ Stainless-</td>
<td>SS</td>
<td>SAF 316 SS Valve Assembly (IEFS-1XX only)</td>
<td></td>
</tr>
<tr>
<td>10 to 48˝ Stainless-</td>
<td>SS</td>
<td>SAF No Valve Assembly (deduct price) (IEFS-1XX only)</td>
<td></td>
</tr>
<tr>
<td>10 to 48˝ Stainless-</td>
<td>SS</td>
<td>SAF Reverse Flow Output</td>
<td></td>
</tr>
<tr>
<td>10 to 48˝ Stainless-</td>
<td>SS</td>
<td>SAF 1-1/2˝ Brass BPT Adapter (2 piece) (IEFS-0XX only)</td>
<td></td>
</tr>
<tr>
<td>10 to 48˝ Stainless-</td>
<td>SS</td>
<td>SAF 1-1/2˝ SS BPT Adapter (2 piece) (IEFS-0XX only)</td>
<td></td>
</tr>
<tr>
<td>10 to 48˝ Stainless-</td>
<td>SS</td>
<td>SAF Immersible (Urethane potted electrical components)</td>
<td></td>
</tr>
<tr>
<td>10 to 48˝ Stainless-</td>
<td>SS</td>
<td>SAF Low Power (12 to 25 VDC @ 40 mA)</td>
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</tr>
<tr>
<td>10 to 48˝ Stainless-</td>
<td>SS</td>
<td>SAF 12˝ Extension (IEFS-XLX only)</td>
<td></td>
</tr>
</tbody>
</table>

**Hastelloy®** is a registered trademark of Hanes International.
**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.

<table>
<thead>
<tr>
<th>Model</th>
<th>Sensor Type</th>
<th>Model</th>
<th>Sensor Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>TE-WSS-A</td>
<td>10K Ω Type III Thermistor</td>
<td>TE-END-A</td>
<td>10K Ω Type III Thermistor</td>
</tr>
<tr>
<td>TE-WSS-B</td>
<td>10K Ω Type II Thermistor</td>
<td>TE-END-B</td>
<td>10K Ω Type II Thermistor</td>
</tr>
<tr>
<td>TE-WSS-C</td>
<td>3K Ω Thermistor</td>
<td>TE-END-C</td>
<td>3K Ω Thermistor</td>
</tr>
<tr>
<td>TE-WSS-D</td>
<td>Pt100 Ω RTD</td>
<td>TE-END-D</td>
<td>Pt100 Ω RTD</td>
</tr>
<tr>
<td>TE-WSS-E</td>
<td>Pt1000 Ω RTD</td>
<td>TE-END-E</td>
<td>Pt1000 Ω RTD</td>
</tr>
<tr>
<td>TE-WSS-F</td>
<td>20K Ω Thermistor</td>
<td>TE-END-F</td>
<td>20K Ω Thermistor</td>
</tr>
</tbody>
</table>

**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).

**Temperature Limits:** Operating -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.
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.

**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

<table>
<thead>
<tr>
<th>Model</th>
<th>Length</th>
<th>Connection (Internal/External) (NPT)</th>
</tr>
</thead>
<tbody>
<tr>
<td>TE-TNS-N044N-14</td>
<td>4&quot;</td>
<td>1/4&quot; / 1/2&quot;</td>
</tr>
<tr>
<td>TE-TNS-N064N-12</td>
<td>6&quot;</td>
<td>1/2&quot; / 3/4&quot;</td>
</tr>
<tr>
<td>TE-TNS-N064N-14</td>
<td>6&quot;</td>
<td>1/2&quot; / 3/4&quot;</td>
</tr>
<tr>
<td>TE-TNS-N094N-12</td>
<td>9&quot;</td>
<td>1/2&quot; / 3/4&quot;</td>
</tr>
<tr>
<td>TE-TNS-N124N-14</td>
<td>12&quot;</td>
<td>1/2&quot; / 3/4&quot;</td>
</tr>
<tr>
<td>TE-TNS-N124N-12</td>
<td>12&quot;</td>
<td>1/2&quot; / 3/4&quot;</td>
</tr>
</tbody>
</table>

**Note:** R-T temperature curves are on page 46.
Air/Duct Temperature Sensors are available in precision platinum, nickel, or balsa 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. Engaged 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'.

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

### SENSOR TYPE
- 1 – Flange mount 3˝ (175 mm) wire leads
- 2 – Flange mount 6˝ (1.8 m) cable
- 5 – Flange mount with NEMA 4X housing

### INSTALLATION
- AD

### 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.

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.
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 ensures 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).

---

<table>
<thead>
<tr>
<th>Example</th>
<th>TE</th>
<th>ITG</th>
<th>A</th>
<th>25</th>
<th>4</th>
<th>00</th>
<th>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.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Series</td>
<td>TE</td>
<td>ITG</td>
<td>ITW</td>
<td>Immersion in General Purpose Housing</td>
<td>Immersion in NEMA 4X Housing</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sensor Type</td>
<td>A</td>
<td>B</td>
<td>C</td>
<td>D</td>
<td>E</td>
<td>F</td>
<td>10K Type 3 Thermistor</td>
</tr>
<tr>
<td>Probe Length</td>
<td>25</td>
<td>04</td>
<td>06</td>
<td>08</td>
<td>12</td>
<td>18</td>
<td>2.5”</td>
</tr>
<tr>
<td>Probe Diameter</td>
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<td>1/4”</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cable Configuration</td>
<td>4</td>
<td>4” Flying Leads Terminal Block</td>
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<td></td>
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<td></td>
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<tr>
<td>Connection Size</td>
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<td>No Options</td>
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</table>

<table>
<thead>
<tr>
<th>Thermowell Model</th>
<th>Material</th>
<th>Insertion Length</th>
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</thead>
<tbody>
<tr>
<td>TE-TNS-N253N-00</td>
<td>304 SS</td>
<td>2.5”</td>
</tr>
<tr>
<td>TE-TNS-N043N-00</td>
<td>304 SS</td>
<td>4”</td>
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<tr>
<td>TE-TNS-N063N-00</td>
<td>304 SS</td>
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</tr>
<tr>
<td>TE-TNS-N083N-00</td>
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<td>8”</td>
</tr>
<tr>
<td>TE-TNS-N123N-00</td>
<td>304 SS</td>
<td>12”</td>
</tr>
<tr>
<td>TE-TNS-N183N-00</td>
<td>304 SS</td>
<td>18”</td>
</tr>
</tbody>
</table>
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.

**Model**
- I2-23062
- I2-24062
- I2-27062
- I2-28062
- I2-2A062
- I2-23042
- I2-24042
- I2-27042
- I2-28042
- I2-2A042

**Sensor Type**
- Ni1000ΩRTD
- Balco1000ΩRTD
- 5KΩThermistor
- 100KΩThermistor
- 2252ΩThermistor
- Ni1000ΩRTD
- Balco1000ΩRTD
- 5KΩThermistor
- 100KΩThermistor
- 2252ΩThermistor

**Thermowells**
- IW2-262
- IW2-242

**Material**
- 304SS
- 304SS

**Insertion Length**
- 6”
- 6”

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

---

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.

**Model**
- I2-41062
- I2-42062
- I2-43062
- I2-44062
- I2-45062
- I2-46062
- I2-47062
- I2-48062
- I2-49062
- I2-4A062
- I2-4B062

**Sensor Type**
- Pt100ΩRTD
- PT1000ΩRTD
- Ni1000ΩRTD
- Balco1000ΩRTD
- 10KΩTypeIIThermistor
- 3KΩThermistor
- 5KΩThermistor
- 100KΩThermistor
- 20KΩThermistor
- 2252ΩThermistor
- 10KΩTypeIIIThermistor

**Thermowells**
- IW2-262
- IW2-242

**Material**
- 304SS
- 304SS

**Insertion Length**
- 6”
- 6”

**Note:** A Series IW2 Thermowell must be used on pressurized air and water lines to prevent leakage around the probe.
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 (±0.5°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).

---

**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.

<table>
<thead>
<tr>
<th>Model</th>
<th>Color</th>
</tr>
</thead>
<tbody>
<tr>
<td>CC1-N</td>
<td>Natural</td>
</tr>
<tr>
<td>CC1-B</td>
<td>Beige</td>
</tr>
<tr>
<td>CC1-GY</td>
<td>Grey</td>
</tr>
</tbody>
</table>

(sold individually)
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 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% 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.

### Models

<table>
<thead>
<tr>
<th>Model</th>
<th>Sensor Type</th>
<th>Capillary Length</th>
<th>Model</th>
<th>Sensor Type</th>
<th>Capillary Length</th>
</tr>
</thead>
<tbody>
<tr>
<td>AVG-2112</td>
<td>Pt 100 Ω RTD</td>
<td>12’</td>
<td>AVG-2124</td>
<td>Pt 100 Ω RTD</td>
<td>24’</td>
</tr>
<tr>
<td>AVG-2211</td>
<td>Pt 1000 Ω RTD</td>
<td>12’</td>
<td>AVG-2224</td>
<td>Pt 1000 Ω RTD</td>
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<tr>
<td>AVG-2312</td>
<td>Ni 1000 Ω RTD</td>
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<td>AVG-2324</td>
<td>Ni 1000 Ω RTD</td>
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<td>AVG-2412</td>
<td>Balco 1000 Ω RTD</td>
<td>12’</td>
<td>AVG-2424</td>
<td>Balco 1000 Ω RTD</td>
<td>24’</td>
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<tr>
<td>AVG-2512</td>
<td>10K Ω Type II Thermistor</td>
<td>12’</td>
<td>AVG-2524</td>
<td>10K Ω Type II Thermistor</td>
<td>24’</td>
</tr>
<tr>
<td>AVG-2612</td>
<td>3K Ω Thermistor</td>
<td>12’</td>
<td>AVG-2624</td>
<td>3K Ω Thermistor</td>
<td>24’</td>
</tr>
<tr>
<td>AVG-2712</td>
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<td>24’</td>
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<td>AVG-2812</td>
<td>100K Ω Thermistor</td>
<td>12’</td>
<td>AVG-2824</td>
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<td>AVG-3B12</td>
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<td>12’</td>
<td>AVG-3B24</td>
<td>10K Ω Type III Thermistor</td>
<td>24’</td>
</tr>
</tbody>
</table>

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 25” stranded etched Teflon® leads.

### 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

Balco® is a registered trademark of CRS Holdings, Inc.

Teflon® is a registered trademark of E.I. DuPont De Nemours and Company
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 can be ordered with a choice of 11 output options that allow it to communicate to any standard building control system.

<table>
<thead>
<tr>
<th>Model</th>
<th>Sensor Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>S2-23</td>
<td>Ni 1000 Ω RTD</td>
</tr>
<tr>
<td>S2-24</td>
<td>Balco 1000 Ω RTD</td>
</tr>
<tr>
<td>S2-27</td>
<td>5K Ω Thermistor</td>
</tr>
<tr>
<td>S2-28</td>
<td>100K Ω Thermistor</td>
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<tr>
<td>S2-2A</td>
<td>2252 Ω Thermistor</td>
</tr>
</tbody>
</table>

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: ±0.3°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).

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.

<table>
<thead>
<tr>
<th>Model</th>
<th>Sensor Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>S2-41</td>
<td>Pt 100 Ω RTD</td>
</tr>
<tr>
<td>S2-42</td>
<td>PT 1000 Ω RTD</td>
</tr>
<tr>
<td>S2-43</td>
<td>Ni 1000 Ω RTD</td>
</tr>
<tr>
<td>S2-44</td>
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<td>S2-45</td>
<td>10K Ω Type II Thermistor</td>
</tr>
<tr>
<td>S2-46</td>
<td>3K Ω Thermistor</td>
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</table>

<table>
<thead>
<tr>
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</tr>
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<td>S2-4A</td>
<td>2252 Ω Thermistor</td>
</tr>
<tr>
<td>S2-4B</td>
<td>10K Ω Type III Thermistor</td>
</tr>
</tbody>
</table>

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: ±0.3°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).
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.

### 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).

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.

### 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).
Resistance vs. Temperature Table

<table>
<thead>
<tr>
<th>Temperature (°C)</th>
<th>Resistance (Ω)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>1058.5</td>
</tr>
<tr>
<td>1</td>
<td>1019.5</td>
</tr>
<tr>
<td>2</td>
<td>1000.0</td>
</tr>
<tr>
<td>3</td>
<td>980.0</td>
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<td>4</td>
<td>960.0</td>
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<td>5</td>
<td>940.0</td>
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<td>780.0</td>
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<td>660.0</td>
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<td>620.0</td>
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<tr>
<td>50</td>
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<tr>
<td>95</td>
<td>220.0</td>
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<tr>
<td>100</td>
<td>180.0</td>
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</table>

SPECSIFICATIONS

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).
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.

**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).

**Series IT Industrial Thermometer Thermowells**

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

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.

**OPTION**

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

**CONTACT US**

- **U.S.** 219/879-8000
- **U.K.** (+44) (0)1494-461707
- **A.U.** (+61) (0) 2 4272 2055
- **China** +852-23181007

**TABLE 1**

<table>
<thead>
<tr>
<th>Model</th>
<th>Range</th>
<th>Model</th>
<th>Range</th>
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<tbody>
<tr>
<td>ITA9351D</td>
<td>-40 to 110°F (-40 to 40°C)</td>
<td>ITA9361D</td>
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<td>ITA9352D</td>
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<td>ITA9353D</td>
<td>0 to 160°F (-15 to 70°C)</td>
<td>ITA9603D</td>
<td>0 to 160°F (-15 to 70°C)</td>
</tr>
<tr>
<td>ITA9354D</td>
<td>30 to 180°F (0 to 80°C)</td>
<td>ITA9604D</td>
<td>30 to 180°F (0 to 80°C)</td>
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<tr>
<td>ITA9355D</td>
<td>30 to 240°F (0 to 115°C)</td>
<td>ITA9605D</td>
<td>30 to 240°F (0 to 115°C)</td>
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<td>ITA9356D</td>
<td>30 to 300°F (0 to 150°C)</td>
<td>ITA9606D</td>
<td>30 to 300°F (0 to 150°C)</td>
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<td>ITA9357D</td>
<td>50 to 400°F (10 to 205°C)</td>
<td>ITA9607D</td>
<td>50 to 400°F (10 to 205°C)</td>
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<tr>
<td>ITA9358D</td>
<td>100 to 550°F (40 to 300°C)</td>
<td>ITA9608D</td>
<td>100 to 550°F (40 to 300°C)</td>
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**TABLE 2**

<table>
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<td>Brass</td>
<td>2-1/2˝</td>
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</tr>
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<td>304 SS</td>
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<tr>
<td>IT-W21</td>
<td>316 SS</td>
<td>2-1/2˝</td>
<td>N/A</td>
</tr>
<tr>
<td>IT-W4</td>
<td>Brass</td>
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</tr>
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<td>IT-W14</td>
<td>304 SS</td>
<td>5˝</td>
<td>N/A</td>
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<td>IT-W24</td>
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</tr>
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<td>IT-W7</td>
<td>Brass</td>
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<tr>
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<td>304 SS</td>
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<td>2-1/2˝</td>
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<td>IT-W27</td>
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**TABLE 3**

<table>
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</tr>
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<td>IT-W21</td>
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<td>N/A</td>
</tr>
<tr>
<td>IT-W14</td>
<td>304 SS</td>
<td>5˝</td>
<td>N/A</td>
</tr>
<tr>
<td>IT-W24</td>
<td>316 SS</td>
<td>5˝</td>
<td>N/A</td>
</tr>
<tr>
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<td>2-1/2˝</td>
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<tr>
<td>IT-W17</td>
<td>304 SS</td>
<td>2-1/2˝</td>
<td>2-1/2˝</td>
</tr>
<tr>
<td>IT-W27</td>
<td>316 SS</td>
<td>2-1/2˝</td>
<td>2-1/2˝</td>
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</table>

**TABLE 4**

<table>
<thead>
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<td>2-1/2˝</td>
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<td>IT-W21</td>
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<td>IT-W4</td>
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<td>IT-W7</td>
<td>Brass</td>
<td>2-1/2˝</td>
<td>2-1/2˝</td>
</tr>
<tr>
<td>IT-W17</td>
<td>304 SS</td>
<td>2-1/2˝</td>
<td>2-1/2˝</td>
</tr>
<tr>
<td>IT-W27</td>
<td>316 SS</td>
<td>2-1/2˝</td>
<td>2-1/2˝</td>
</tr>
</tbody>
</table>
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 18” 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.

**ACCESSORIES**

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

---

The Series LVT Digital Programmable Indoor Thermostats with Heat Pump control 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.

**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.

**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.

**ACCESSORIES**

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

---

### 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.
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 using the attached adhesive strips or mounting screws.

**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 Models: 1A @ 24 VAC/DC; Outside Powered Model: 1 A @ 24 VDC; External Powered Model: Pilot duty rating 250 mA @ 24 VDC.

**Battery Life:** 5 years steady state / 48 hours during alarm condition.

**Battery:** Inside battery cell, installed functional, user replaceable; External Powered Models: NEMA 6P (IP 68) submersible.

**Weight:** 4.85 oz (137.5 g).

**Agency Approvals:** CE, RoHS.

**Enclosure Material:** ABS and polycarbonate with flammability classification UL 94 V-0.

**Enclosure:** Water-tight up to 3/4 of the body height; Non-Audible Alarm Models: Water-tight up to 3/4 of the body height; Non-Audible Alarm Models: NEMA 6P (IP 68) submersible.

**Model Description**

<table>
<thead>
<tr>
<th>Model</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>WD</td>
<td>Water Module</td>
</tr>
<tr>
<td>TP05</td>
<td>5” (1.27 m) Tape</td>
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<tr>
<td>TP10</td>
<td>10’ (3.05 m) Tape</td>
</tr>
<tr>
<td>TP15</td>
<td>15’ (4.57 m) Tape</td>
</tr>
<tr>
<td>TP25</td>
<td>25’ (7.62 m) Tape</td>
</tr>
</tbody>
</table>

**Tap Sensor:**

- **ACCESSORY**
  - A-WD3-BRK, Replacement Mounting Bracket

**Water Detector and Sensor Tape**

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.
Series ULT Ultrasonic Level Transmitter

The Series ULT Ultrasonic Level Transmitter provides reliable, accurate, noncontact measurement of liquid levels. Ultrasonic non-contact technology offers 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 a 10 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.

Cable Float Switch

The Series CFS2 Cable Float Switch is a mechanically actuated float 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 safety. 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 fluids. Not for use with powder and bulk solids.
Ranges: 24.6’ (7.5 m), 32.8’ (10 m).
Accuracy: ±2.0% of max range.
Resolution: 0.079” (2 mm).
Blind Zone: Under 6” (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°F). 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.
Condit 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 for last signal.
Memory: Non-volatile.
Display: 8 character LCD units.
Memory: Non-volatile.
Programming: 4 button.
Weight: 4.0 lb (1.8 kg).
Agency Approvals: CE, FM.

ACCESSORIES

A-457, 3-1/4” (84.53) diameter stainless steel clamping collar.
A-459, 3-1/2” (99.21) diameter stainless steel clamping collar.

Contact Us | U.S. 219/879-8000 | U.K. (+44) (0)1494-461707 | A.U. (+61) (0) 2 4272 2055 | China +852-23181007
**PBLT2 Submersible Level Transmitters**

**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, Desiccant 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

---

**SBLT2 Submersible Level Transmitters**

**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, Desiccant 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**

**Series SBLT2**

**Power Requirement:** 13 to 30 VDC
- **Output Signal:** 4 to 20 mA DC, 2-wire.
- **Response Time:** 50 ms.
- **Max. Loop Resistance:** 900 Ω.
- **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.

---

**Series PBLT2**

**Power Requirement:** 2X full-scale.
- **Output Signal:** 4 to 20 mA DC, 2-wire.
- **Response Time:** 50 ms.
- **Max. Loop Resistance:** 900 Ω.
- **Electrical Connections:** Wire pigtail.
- **Mounting Orientation:** Suspended in tank below level being measured.
- **Weight:** 4.3 lb (2.0 kg).
- **Electrical Protection:** Lightning and surge protection.
The Series SPPM Smart Programmable Panel Meter is a configurable, full-color touchscreen 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).

**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:**

**Weight:**
- 2.8 oz (79.4 g).

**Approvals:**
- CE, RoHS.
### Series DPMA Adjustable LCD Digital Panel Meter

**LCD Digital Panel Meters**

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

**DECISION AIDS**

- **Series DPMA-40X(P):** 0 to 20 mA; DPMA-5XX(P): 0 to 200 mVDC, 0 to 5 VDC, or 0 to 20 VDC inputs.
- **Series DPMA-5XX(P):** 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.

**APPLICATIONS**

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

**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): 250KΩ 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 (85 mA typical).
- **Span and Zero:** Adjustable (±19999 counts).
- **Display:** 3-1/2 digits, 7 segments, 1" (25.4 mm) H.

**ACCESSORIES**

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

### Series DPML LCD Digital Panel Meters

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

**Decentralized Controllers**

- **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 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 backlight.

**APPLICATIONS**

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

**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): 250KΩ nominal; DPML-5XX(P): 390KΩ 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.

**ACCESSORIES**

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

---

**Table 1: Engineering Units for DPMA-40X(P)**

<table>
<thead>
<tr>
<th>Model</th>
<th>Input</th>
<th>Segments</th>
<th>Engineering Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>DPMA-401</td>
<td>Current</td>
<td>Amber Segments</td>
<td>°F, °C, %, PSI</td>
</tr>
<tr>
<td>DPMA-402</td>
<td>Current</td>
<td>Green Segments</td>
<td>°F, °C, %, PSI</td>
</tr>
<tr>
<td>DPMA-404</td>
<td>Current</td>
<td>Red Segments</td>
<td>°F, °C, %, PSI</td>
</tr>
<tr>
<td>DPMA-501</td>
<td>Voltage</td>
<td>Amber Segments</td>
<td>°F, °C, %, PSI</td>
</tr>
<tr>
<td>DPMA-502</td>
<td>Voltage</td>
<td>Green Segments</td>
<td>°F, °C, %, PSI</td>
</tr>
<tr>
<td>DPMA-504</td>
<td>Voltage</td>
<td>Red Segments</td>
<td>°F, °C, %, PSI</td>
</tr>
<tr>
<td>DPMA-401P</td>
<td>Current</td>
<td>Amber Segments</td>
<td>V, A, KW, PF</td>
</tr>
<tr>
<td>DPMA-402P</td>
<td>Current</td>
<td>Red Segments</td>
<td>V, A, KW, PF</td>
</tr>
<tr>
<td>DPMA-404P</td>
<td>Current</td>
<td>Green Segments</td>
<td>V, A, KW, PF</td>
</tr>
<tr>
<td>DPMA-501P</td>
<td>Voltage</td>
<td>Amber Segments</td>
<td>V, A, KW, PF</td>
</tr>
<tr>
<td>DPMA-502P</td>
<td>Voltage</td>
<td>Green Segments</td>
<td>V, A, KW, PF</td>
</tr>
<tr>
<td>DPMA-504P</td>
<td>Voltage</td>
<td>Red Segments</td>
<td>V, A, KW, PF</td>
</tr>
</tbody>
</table>

**Table 2: Engineering Units for DPML-5XX(P)**

<table>
<thead>
<tr>
<th>Model</th>
<th>Input</th>
<th>Segments</th>
<th>Engineering Units</th>
</tr>
</thead>
<tbody>
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<td>DPML-401</td>
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<td>°F, °C, %, PSI</td>
</tr>
<tr>
<td>DPML-402</td>
<td>Current</td>
<td>Green Segments</td>
<td>°F, °C, %, PSI</td>
</tr>
<tr>
<td>DPML-404</td>
<td>Current</td>
<td>Red Segments</td>
<td>°F, °C, %, PSI</td>
</tr>
<tr>
<td>DPML-501</td>
<td>Voltage</td>
<td>Amber Segments</td>
<td>°F, °C, %, PSI</td>
</tr>
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<td>Red Segments</td>
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<td>Current</td>
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<td>V, A, KW, PF</td>
</tr>
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<td>V, A, KW, PF</td>
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</tr>
</tbody>
</table>
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.

<table>
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<td>Current</td>
<td>Red Segments</td>
<td>°F, °C, %, PSI</td>
</tr>
<tr>
<td>DPMP-403</td>
<td>Voltage</td>
<td>Red Segments</td>
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<td>Voltage</td>
<td>Red Segments</td>
<td>°F, °C, %, PSI</td>
</tr>
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<td>Green Segments</td>
<td>V, A, KW, PF</td>
</tr>
<tr>
<td>DPMP-403P</td>
<td>Current</td>
<td>Green Segments</td>
<td>V, A, KW, PF</td>
</tr>
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<td>Green Segments</td>
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<td>Voltage</td>
<td>Green Segments</td>
<td>V, A, KW, PF</td>
</tr>
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The 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.

<table>
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<tr>
<th>Model</th>
<th>Segments</th>
<th>Engineering Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>DPMPW-401</td>
<td>Amber Segments</td>
<td>°F, °C, %, PSI</td>
</tr>
<tr>
<td>DPMPW-402</td>
<td>Green Segments</td>
<td>°F, °C, %, PSI</td>
</tr>
<tr>
<td>DPMPW-403</td>
<td>Red Segments</td>
<td>°F, °C, %, PSI</td>
</tr>
<tr>
<td>DPMPW-401P</td>
<td>Amber Segments</td>
<td>V, A, KW, PF</td>
</tr>
<tr>
<td>DPMPW-402P</td>
<td>Green Segments</td>
<td>V, A, KW, PF</td>
</tr>
<tr>
<td>DPMPW-403P</td>
<td>Red Segments</td>
<td>V, A, KW, PF</td>
</tr>
</tbody>
</table>

The Series DPMP LCD Digital Panel Meters
3-1/2 Digit, User Selectable Engineering Units, Panel 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.

<table>
<thead>
<tr>
<th>Model</th>
<th>Engineering Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>DPMW-401</td>
<td>°F, °C, %, PSI</td>
</tr>
<tr>
<td>DPMW-402</td>
<td>°F, °C, %, PSI</td>
</tr>
<tr>
<td>DPMW-403</td>
<td>°F, °C, %, PSI</td>
</tr>
<tr>
<td>DPMW-401P</td>
<td>V, A, KW, PF</td>
</tr>
<tr>
<td>DPMW-402P</td>
<td>V, A, KW, PF</td>
</tr>
<tr>
<td>DPMW-403P</td>
<td>V, A, KW, PF</td>
</tr>
</tbody>
</table>

The Series DPMW LCD Digital Panel Meters
3-1/2 Digit, 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.

<table>
<thead>
<tr>
<th>Model</th>
<th>Engineering Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>DPMW-401</td>
<td>°F, °C, %, PSI</td>
</tr>
<tr>
<td>DPMW-402</td>
<td>°F, °C, %, PSI</td>
</tr>
<tr>
<td>DPMW-403</td>
<td>°F, °C, %, PSI</td>
</tr>
<tr>
<td>DPMW-401P</td>
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</tr>
<tr>
<td>DPMW-402P</td>
<td>V, A, KW, PF</td>
</tr>
<tr>
<td>DPMW-403P</td>
<td>V, A, KW, PF</td>
</tr>
</tbody>
</table>
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

### 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**

This meter offers high performance and low cost in a compact package. It 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.

### SPECIFICATIONS

**Input:**
- 4 to 20 mA DC.

**Input Impedance:**
- 300Ω nominal.

**Accuracy:**
- ±(0.1% FS + 2 count).

**Power Supply:**
- Powered by control loop.

**Span and Zero:**
- Adjustable (±1999 counts).

**Display:**
- 3-1/2 digits, 2.3˝ H, 7 segment LED.

**Decimal Points:**
- 3-position, user selectable.

**Polarity:**
- Automatic, “-” displayed.

**Operating Temperature:**
- 32 to 122°F (0 to 50°C).

**Storage Temperature:**
- -40 to 158°F (-40 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.
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.

### 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

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. 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.

### 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.
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.

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

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.

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.

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

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).
- 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.
Series CCT40/50

Current Transformers
Solid or Split Core, Field Selectable Range

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.

**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 158°F (-30 to 70°C).
- **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.

<table>
<thead>
<tr>
<th>Model</th>
<th>Range</th>
<th>Output</th>
<th>Power Requirements</th>
<th>Case</th>
</tr>
</thead>
<tbody>
<tr>
<td>CCT40-200</td>
<td>10/20/50 A</td>
<td>0 to 5 V</td>
<td>Self Powered</td>
<td>Solid core</td>
</tr>
<tr>
<td>CCT50-200</td>
<td>100/150/200 A</td>
<td>0 to 5 V</td>
<td>Self Powered</td>
<td>Solid core</td>
</tr>
<tr>
<td>CCT40-100</td>
<td>10/20/50 A</td>
<td>0 to 10 V</td>
<td>Self Powered</td>
<td>Solid core</td>
</tr>
<tr>
<td>CCT50-100</td>
<td>100/150/200 A</td>
<td>0 to 10 V</td>
<td>Self Powered</td>
<td>Solid core</td>
</tr>
<tr>
<td>CCT40-200</td>
<td>10/20/50 A</td>
<td>10 to 20 mA</td>
<td>15 to 42 VDC, Loop Powered</td>
<td>Solid core</td>
</tr>
<tr>
<td>CCT50-200</td>
<td>100/150/200 A</td>
<td>10 to 20 mA</td>
<td>15 to 42 VDC, Loop Powered</td>
<td>Solid core</td>
</tr>
<tr>
<td>CCT40-100</td>
<td>10/20/50 A</td>
<td>20 to 40 mA</td>
<td>15 to 42 VDC, Loop Powered</td>
<td>Solid core</td>
</tr>
<tr>
<td>CCT50-100</td>
<td>100/150/200 A</td>
<td>20 to 40 mA</td>
<td>15 to 42 VDC, Loop Powered</td>
<td>Solid core</td>
</tr>
</tbody>
</table>

---

Series CCT60/70

True RMS Current Transformers
Solid or Split Core, Field Selectable Range

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.

**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 158°F (-30 to 70°C).
- **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.

<table>
<thead>
<tr>
<th>Model</th>
<th>Range</th>
<th>Case</th>
</tr>
</thead>
<tbody>
<tr>
<td>CCT60-200</td>
<td>10/20/50 A</td>
<td>Solid core</td>
</tr>
<tr>
<td>CCT70-200</td>
<td>100/150/200 A</td>
<td>Solid core</td>
</tr>
<tr>
<td>CCT60-100</td>
<td>10/20/50 A</td>
<td>Split core</td>
</tr>
<tr>
<td>CCT70-100</td>
<td>100/150/200 A</td>
<td>Split core</td>
</tr>
</tbody>
</table>
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.

**Weight:** 0.4 lb.

**Agency Approval:** RoHS.

**Model BPS-005, Low Cost DC Power Supply**

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.

**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, Power Supply**

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.

**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:** 1.5 A (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.

**Agency Approval:** RoHS.

**Model SCD-PS, DIN Rail 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**
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.

<table>
<thead>
<tr>
<th>Model</th>
<th>Rating</th>
<th>Input Voltage</th>
<th>Mounting</th>
<th>Current Protection</th>
<th>Wiring</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>APT-40-0SN</td>
<td>40 VA</td>
<td>24 VAC</td>
<td>Foot Mount with Single Hub</td>
<td>Inherent</td>
<td>Diagram B</td>
<td>1.96 lb</td>
</tr>
<tr>
<td>APT-40-1SN</td>
<td>40 VA</td>
<td>120 VAC</td>
<td>Foot Mount with Single Hub</td>
<td>Inherent</td>
<td>Diagram A</td>
<td>1.98 lb</td>
</tr>
<tr>
<td>APT-40-1DN</td>
<td>40 VA</td>
<td>120 VAC</td>
<td>Foot Mount with Dual Hub</td>
<td>Inherent</td>
<td>Diagram A</td>
<td>2.03 lb</td>
</tr>
<tr>
<td>APT-50-1SN</td>
<td>50 VA</td>
<td>120 VAC</td>
<td>Foot Mount with Single Hub</td>
<td>Internal Fuse</td>
<td>Diagram A</td>
<td>2.43 lb</td>
</tr>
<tr>
<td>APT-50-1SB</td>
<td>50 VA</td>
<td>120 VAC</td>
<td>Foot Mount with Single Hub</td>
<td>Button Circuit Breaker</td>
<td>Diagram A</td>
<td>2.77 lb</td>
</tr>
<tr>
<td>APT-50-1DB</td>
<td>50 VA</td>
<td>120 VAC</td>
<td>Foot Mount with Dual Hub</td>
<td>Button Circuit Breaker</td>
<td>Diagram A</td>
<td>2.77 lb</td>
</tr>
<tr>
<td>APT-75-1SB</td>
<td>75 VA</td>
<td>120 VAC</td>
<td>Foot Mount with Single Hub</td>
<td>Button Circuit Breaker</td>
<td>Diagram A</td>
<td>3.53 lb</td>
</tr>
<tr>
<td>APT-75-1DB</td>
<td>75 VA</td>
<td>120 VAC</td>
<td>Foot Mount with Dual Hub</td>
<td>Button Circuit Breaker</td>
<td>Diagram A</td>
<td>3.57 lb</td>
</tr>
<tr>
<td>APT-100-1SB</td>
<td>90 VA</td>
<td>120 VAC</td>
<td>Foot Mount with Single Hub</td>
<td>Button Circuit Breaker</td>
<td>Diagram A</td>
<td>3.97 lb</td>
</tr>
<tr>
<td>APT-100-1DB</td>
<td>90 VA</td>
<td>120 VAC</td>
<td>Foot Mount with Dual Hub</td>
<td>Button Circuit Breaker</td>
<td>Diagram A</td>
<td>4.01 lb</td>
</tr>
</tbody>
</table>

**Diagram A**

- WHITE 120VAC
- BROWN 24VAC
- BLACK 24VAC
- BLUE 24VAC

**Diagram B**

- RED 24VAC
- BROWN 24VAC
- BLUE 24VAC
- RED 24VAC
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.

### 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.

### To Order Use Range Code as Suffix:
- **SC4380 & SCL4380**

### ISO VERTER® II Signal Conditioning Modules

**Series SC4380**

**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**

**Input Characteristics:**
- **SC4380:** Voltage: 1 MΩ impedance; Current: 10 Ω; SC4380: 100 Ω max voltage: 500 Ω min (20 mA maximum).
- **SC4380 & SCL4380:** Iso VERTER® II Process Signal Converter/Isolators
  - *SCL models are low voltage units.*

**Case Size:** 0.866“ W (22.5 mm) x 2.950” H (75.0 mm) x 3.880” D (98.5 mm).

**Mounting:** Mounts on industry standard 35 mm DIN Rail (DIN EN50022-35).

**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.
Series 62 Hockey Puck Style Solid State Relay

10 or 25 Amp, SPST -NO Operation

**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.

**AC Operated**

<table>
<thead>
<tr>
<th>Model</th>
<th>Input Voltage Range</th>
<th>Rated Current Load</th>
</tr>
</thead>
<tbody>
<tr>
<td>6210AXXSZS-AC90</td>
<td>80 to 280 VAC</td>
<td>10 amp</td>
</tr>
<tr>
<td>6225AXXSZS-AC90</td>
<td>80 to 280 VAC</td>
<td>25 amp</td>
</tr>
</tbody>
</table>

**DC Operated**

<table>
<thead>
<tr>
<th>Model</th>
<th>Input Voltage Range</th>
<th>Rated Current Load</th>
</tr>
</thead>
<tbody>
<tr>
<td>6210AXXSZS-DC3</td>
<td>3 to 32 VDC</td>
<td>10 amp</td>
</tr>
<tr>
<td>6225AXXSZS-DC3</td>
<td>3 to 32 VDC</td>
<td>25 amp</td>
</tr>
</tbody>
</table>

**FEATURES**

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

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Series 9 Electromechanical Relay

30 Amp, SPDT and DPDT Operation

**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.
- **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-SPDT).

**FEATURES**

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

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CONTACT US   |   U.S. 219/879-8000   |   U.K. (+44) (0)1494-461707   |   A.U. (+61) (0) 2 4272 2055   |   China +852-23181007
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.

### 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

70-781DS-1A, Socket for Series 781 Relay

### AC Operated Models

<table>
<thead>
<tr>
<th>Model</th>
<th>Voltage</th>
<th>Coil Resistance</th>
</tr>
</thead>
<tbody>
<tr>
<td>781XAXM4L-24A</td>
<td>24 VAC 50/60 Hz</td>
<td>190Ω</td>
</tr>
<tr>
<td>781XAXM4L-120A</td>
<td>120 VAC 50/60 Hz</td>
<td>4430Ω</td>
</tr>
<tr>
<td>781XAXM4L-240A</td>
<td>240 VAC 50/60 Hz</td>
<td>15720Ω</td>
</tr>
</tbody>
</table>

### DC Operated Model

<table>
<thead>
<tr>
<th>Model</th>
<th>Voltage</th>
<th>Coil Resistance</th>
</tr>
</thead>
<tbody>
<tr>
<td>781XAXM4L-24D</td>
<td>24 VDC</td>
<td>750Ω</td>
</tr>
</tbody>
</table>

---

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.

### 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 50/60 Hz;
- 12 A @ 277 VAC 50/60 Hz;
- 10 A @ 277 VAC 50/60 Hz (CSA);
- 12 A @ 28 VDC;
- 1/2 HP @ 120 VAC;
- 1 HP @ 250 VAC.

**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

70-782DS-1A, Socket for Series 782 Relay

### AC Operated Models

<table>
<thead>
<tr>
<th>Model</th>
<th>Voltage</th>
<th>Coil Resistance</th>
</tr>
</thead>
<tbody>
<tr>
<td>782XBM4L-24A</td>
<td>24 VAC 50/60 Hz</td>
<td>180Ω</td>
</tr>
<tr>
<td>782XBM4L-120A</td>
<td>120 VAC 50/60 Hz</td>
<td>4430Ω</td>
</tr>
<tr>
<td>782XBM4L-240A</td>
<td>240 VAC 50/60 Hz</td>
<td>15720Ω</td>
</tr>
</tbody>
</table>

### DC Operated Model

<table>
<thead>
<tr>
<th>Model</th>
<th>Voltage</th>
<th>Coil Resistance</th>
</tr>
</thead>
<tbody>
<tr>
<td>782XBM4L-24D</td>
<td>24 VDC</td>
<td>650Ω</td>
</tr>
</tbody>
</table>
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.

<table>
<thead>
<tr>
<th>AC Operated Model</th>
<th>Input Voltage</th>
<th>Coil Resistance</th>
</tr>
</thead>
<tbody>
<tr>
<td>783XCXM4L-24A</td>
<td>24 VAC 50/60 Hz</td>
<td>103 Ω</td>
</tr>
<tr>
<td>783XCXM4L-120A</td>
<td>120 VAC 50/60 Hz</td>
<td>2770 Ω</td>
</tr>
<tr>
<td>DC Operated Model</td>
<td>Input Voltage</td>
<td>Coil Resistance</td>
</tr>
<tr>
<td>783XCXM4L-24D</td>
<td>24 VDC</td>
<td>400 Ω</td>
</tr>
</tbody>
</table>

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.

<table>
<thead>
<tr>
<th>AC Operated Model</th>
<th>Input Voltage</th>
<th>Coil Resistance</th>
</tr>
</thead>
<tbody>
<tr>
<td>784XDXM4L-24A</td>
<td>24 VAC 50/60 Hz</td>
<td>84.5 Ω</td>
</tr>
<tr>
<td>784XDXM4L-120A</td>
<td>120 VAC 50/60 Hz</td>
<td>2220 Ω</td>
</tr>
<tr>
<td>DC Operated Model</td>
<td>Input Voltage</td>
<td>Coil Resistance</td>
</tr>
<tr>
<td>784X0XM4L-24D</td>
<td>24 VDC</td>
<td>388 Ω</td>
</tr>
</tbody>
</table>
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

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-302-B, Static Pressure Tip, same as A-302 with 8" insertion depth
A-302-C, Static Pressure Tip, same as A-302 with 12" 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
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.

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.

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.

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.

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.

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 retardant 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**: 1/8” 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)

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