

# Dwyer®

**Manufacturing Excellence Since 1931**

pressure • temperature • test & data • air quality

flow • level • process control • valves



# 2021

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[dwyer-inst.com](http://dwyer-inst.com)

## KEY MARKETS

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### HVAC

- Building Automation
- Test Equipment
- Critical Environments
- Original Equipment  
(Chillers, Boilers, Air Handlers, Cooling Towers)
- Valve Automation

### PROCESS AUTOMATION

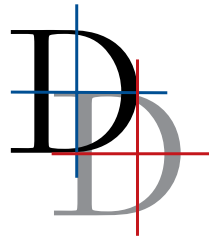
- Water and Wastewater
- Pharmaceutical
- Agriculture and Livestock
- Powder and Bulk
- Industrial Process
- Mining and Heavy Earth Moving
- Oil, Gas and Petrochemical
- Power
- Valve Automation

## INNOVATION AWARDS

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Wireless Hydronic Balancing Kit  
Series 490W



*The ACHR News is the leading trade magazine in the heating, ventilating, air conditioning, and refrigeration industries.*

### GOLD

- HVAC Mobile Meter® Software Test Instrument App
- PredictAir™ Application Software
- Air Velocity Transmitter | [Series AVUL](#)

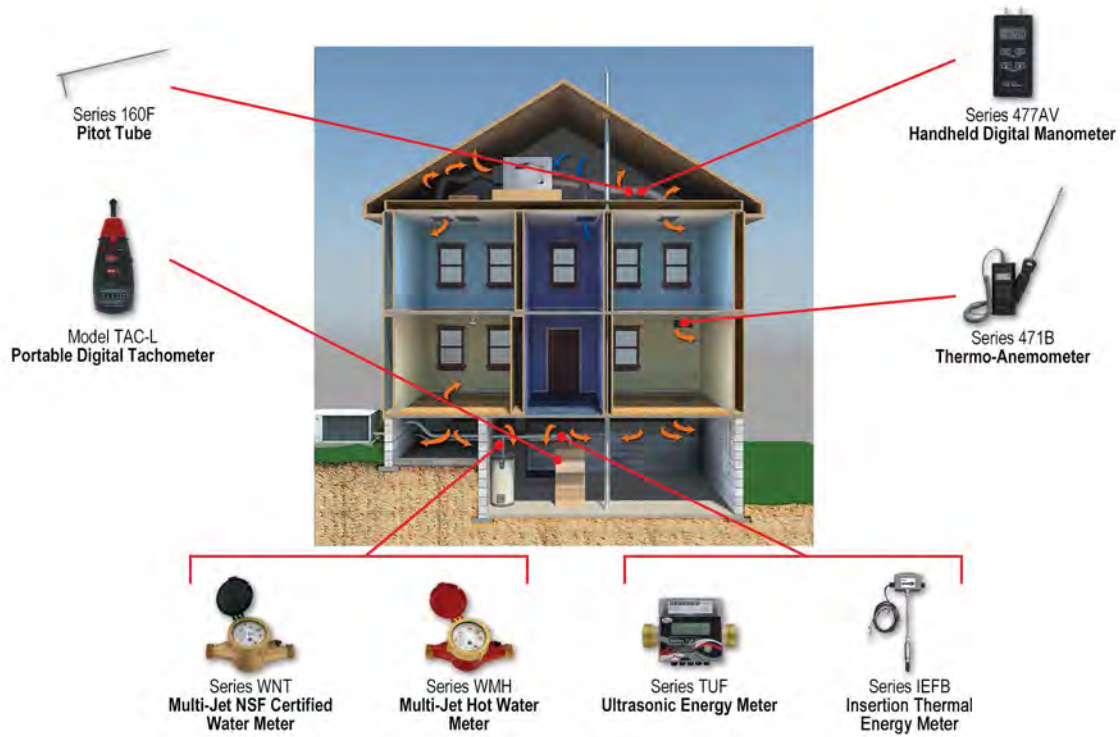
### SILVER

- Universal Handheld Test Instrument | [Model UHH2](#)
- Wireless Hydronic Balancing Kit | [Series 490W](#)
- Hydronic Application Software

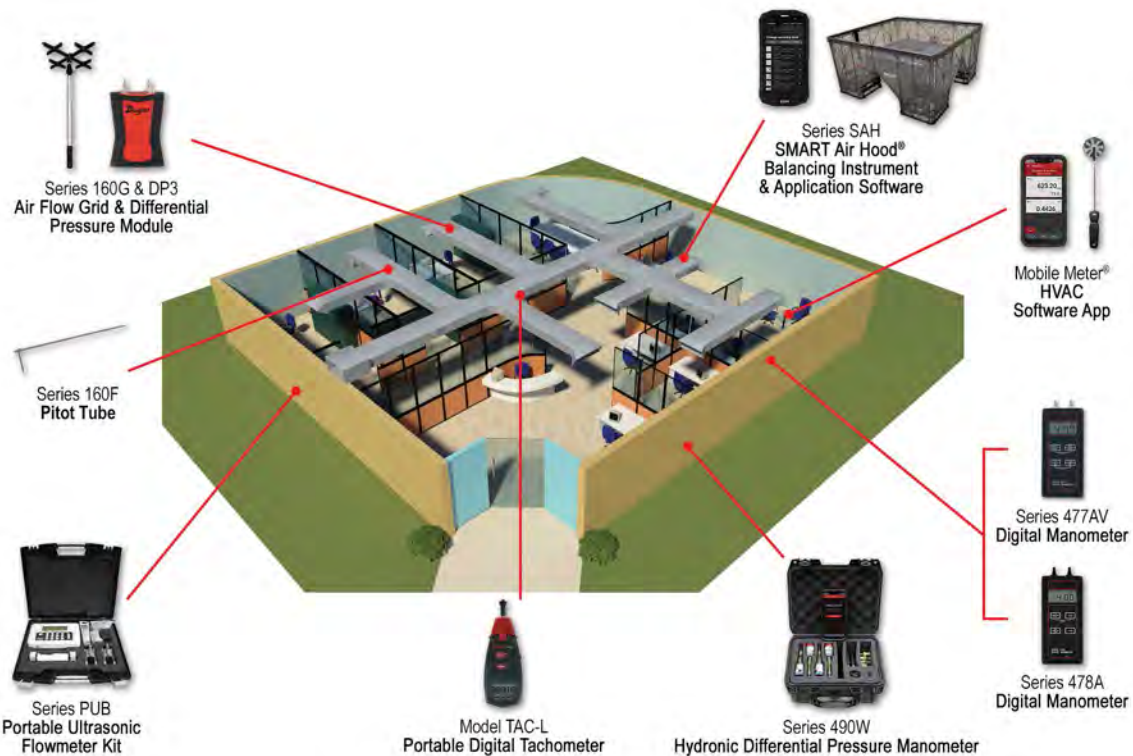
### BRONZE

- SMART Air Hood® Balancing Instrument | [Series SAH](#)
- Hydronic Differential Pressure Manometer | [Series 490A](#)
- Insertion Electromagnetic Flow Transmitter | [Series IEF](#)

# HVAC TESTING

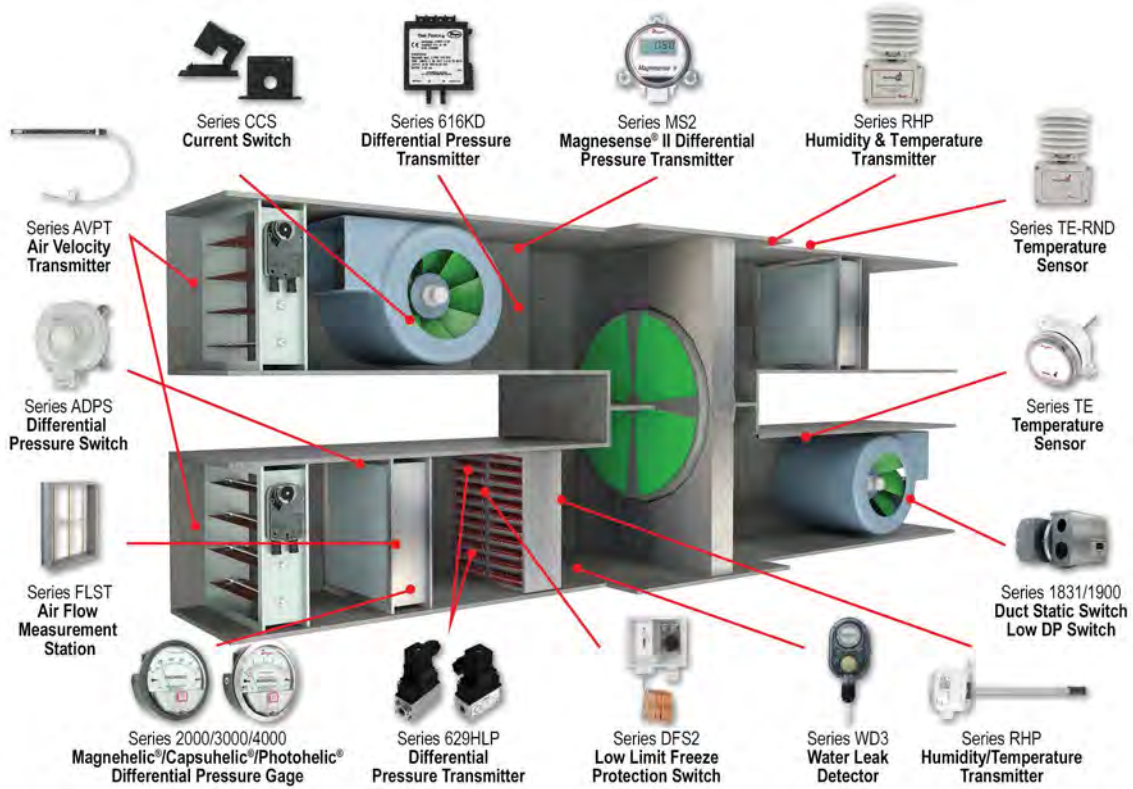


# BUILDING BALANCING

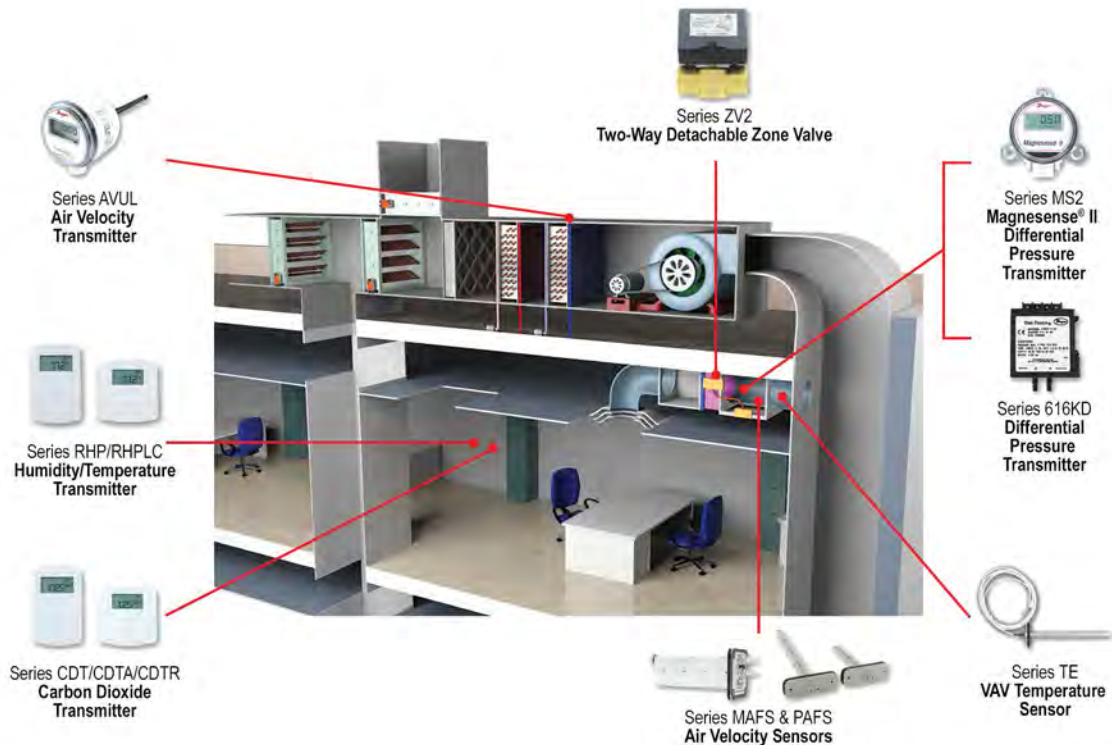




## AIR HANDLER

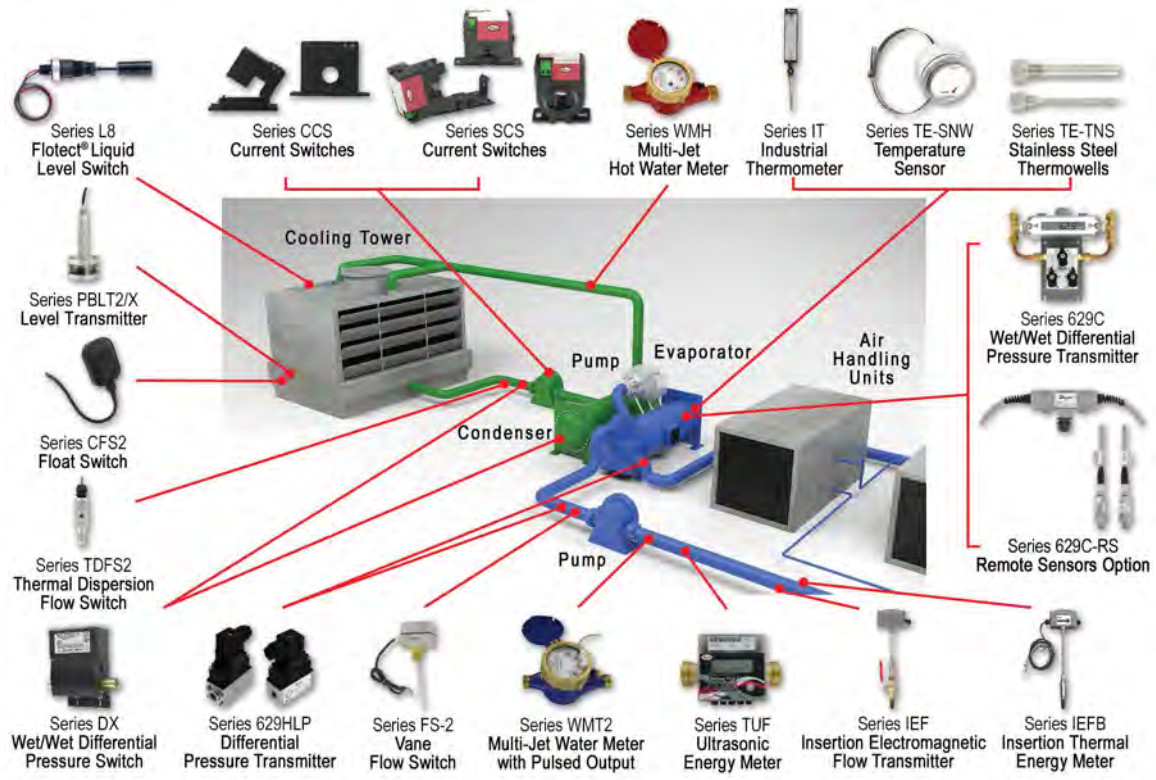


## TERMINAL UNIT

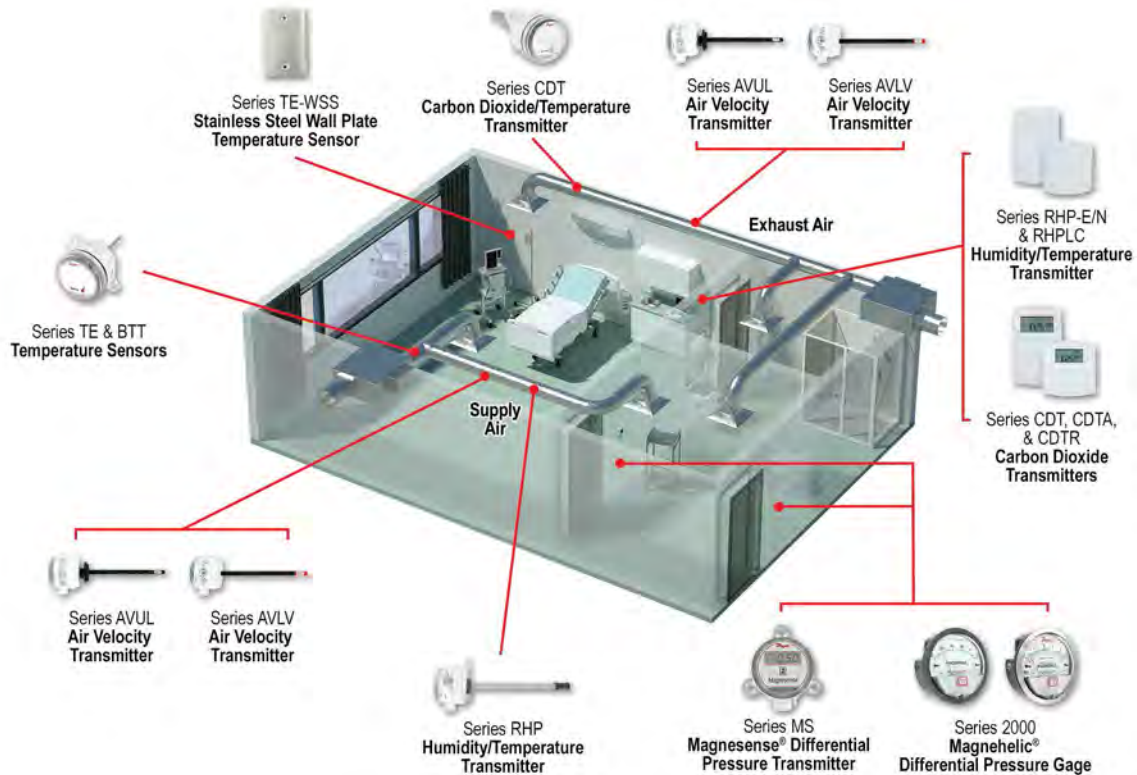




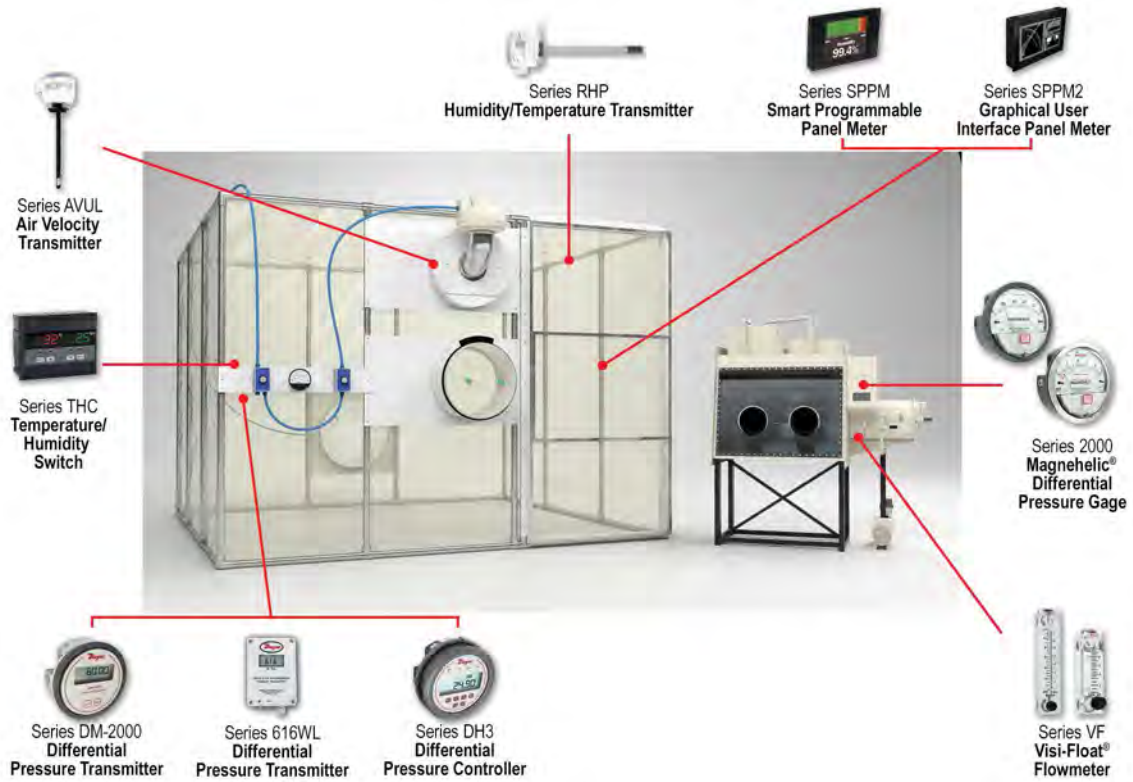
## CHILLER PLANT



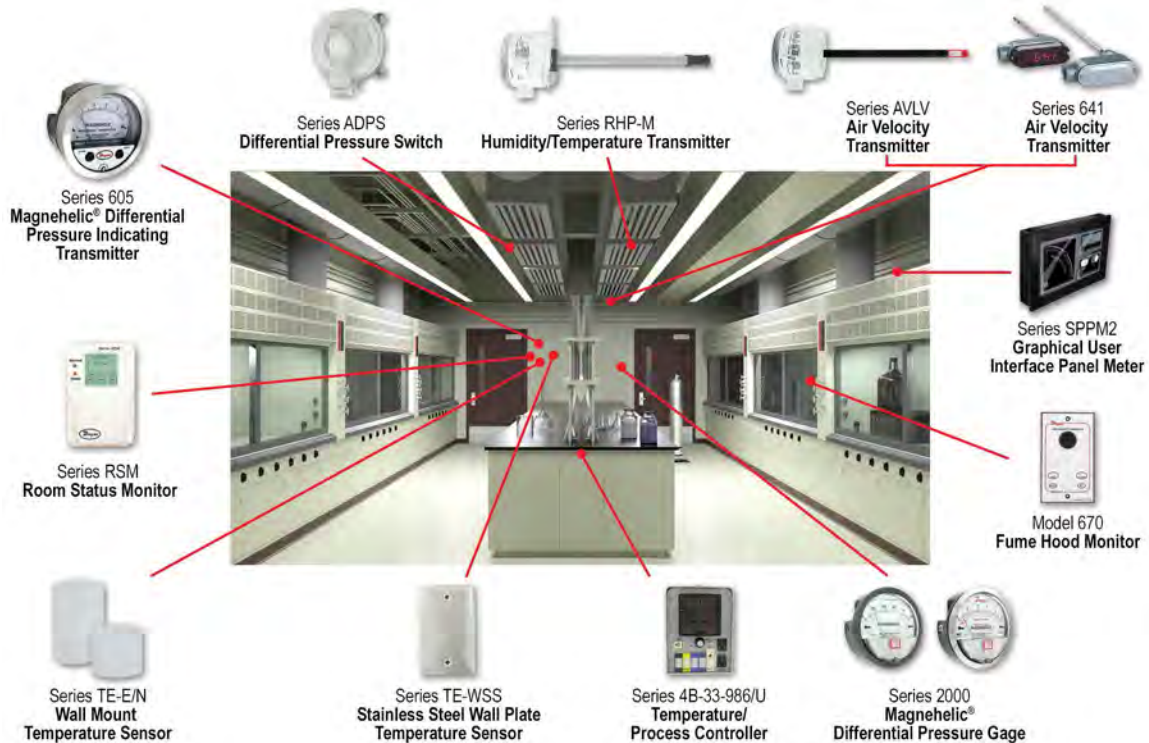
## ISOLATION ROOM



## CONTAINMENT CHAMBER/BOX

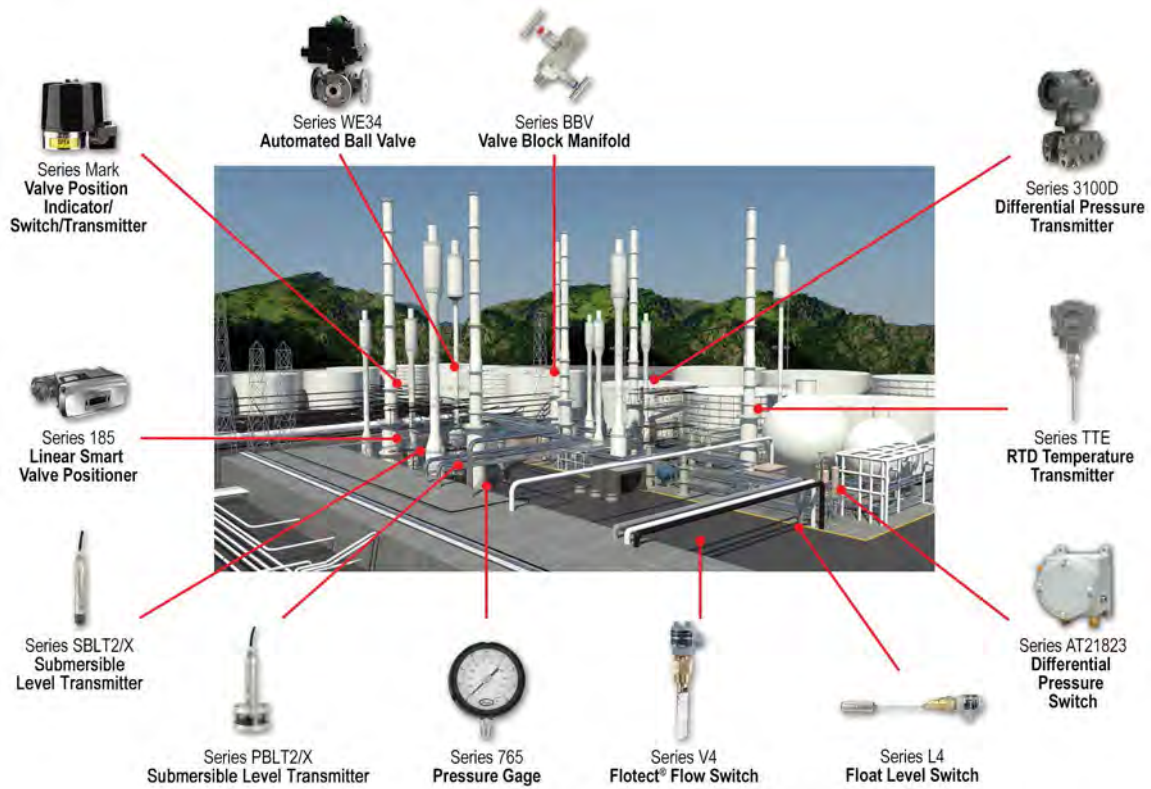


## CLEAN ROOM

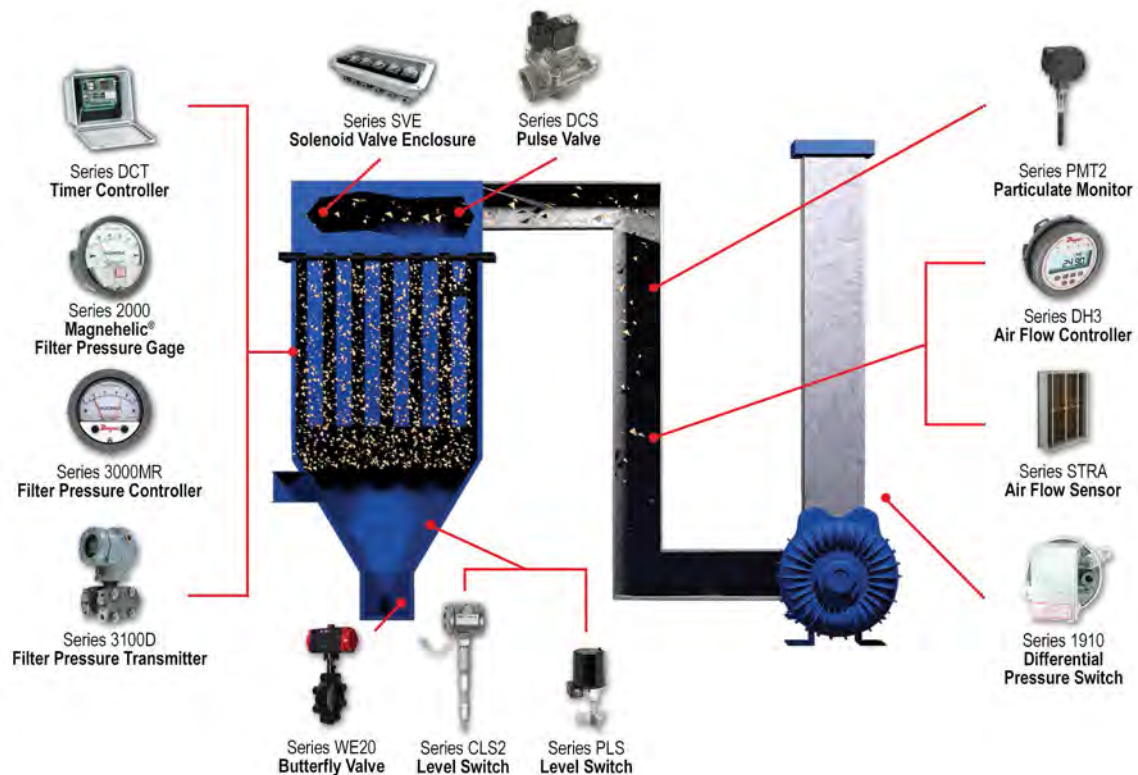




# MIDSTREAM REFINERY/CHEM PLANT

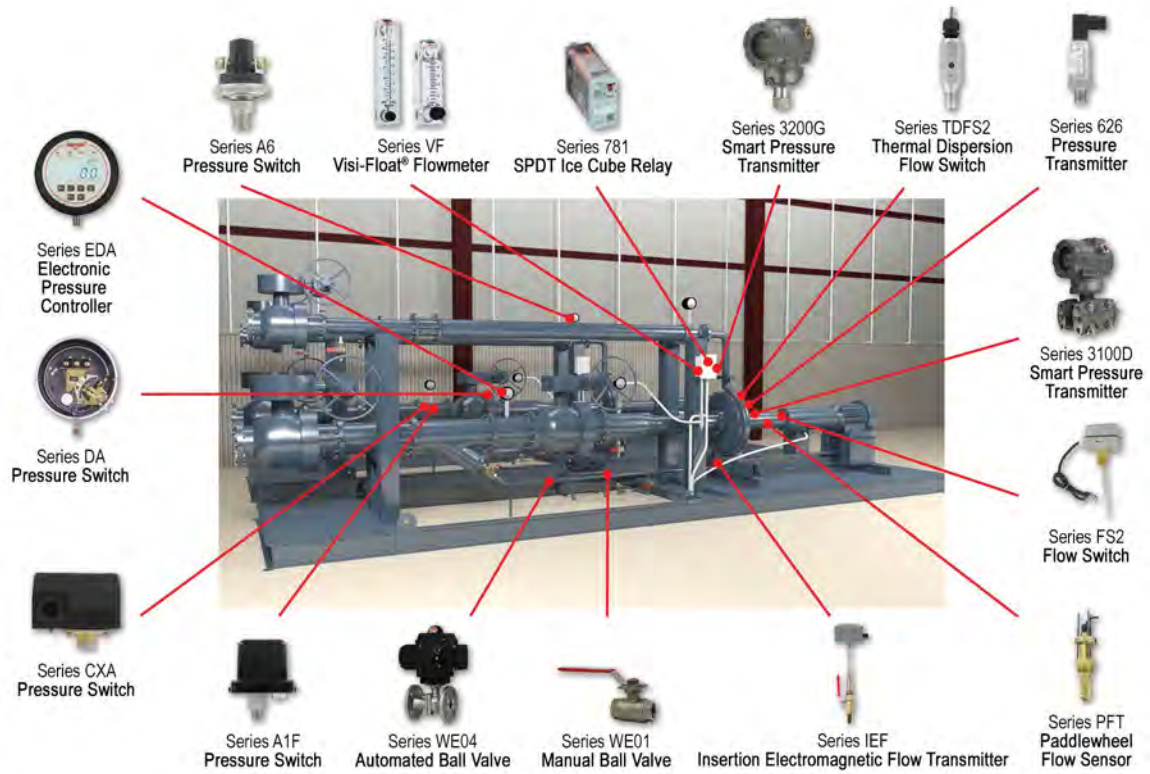


# DUST COLLECTOR

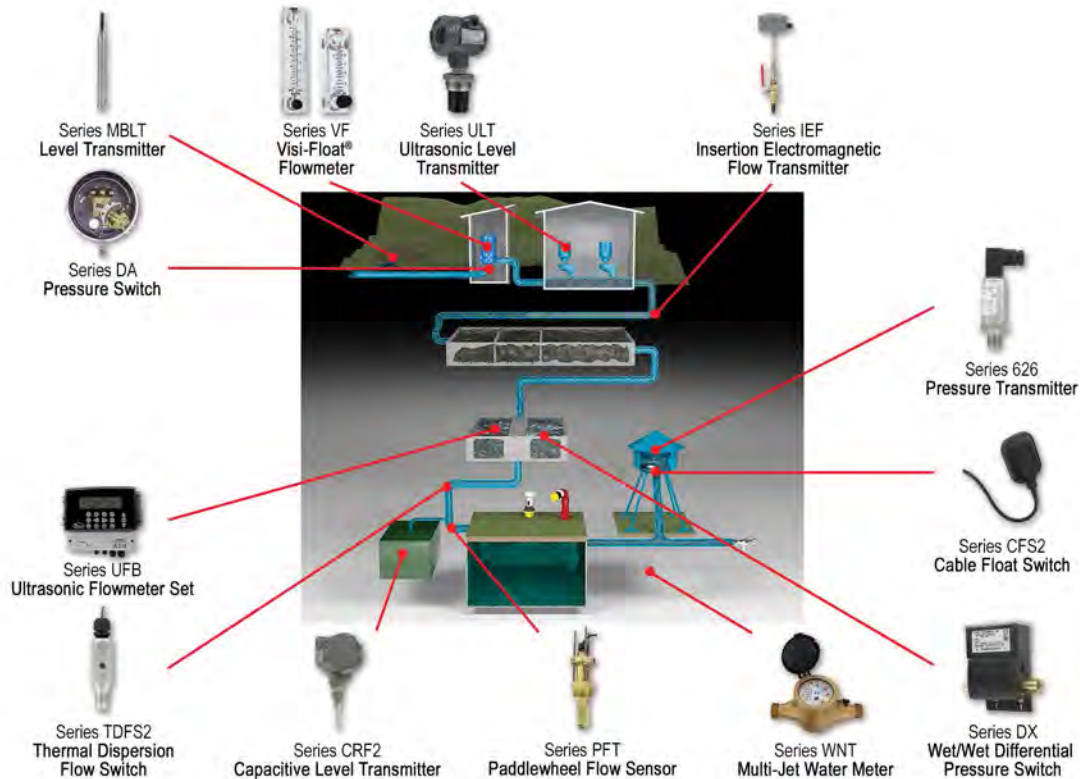




## PUMP SKID



## CLEAN WATER



# WASTEWATER

Series DA & EDA Pressure Switch & Controller

Series L4 Float Level Switch

Series L6 Float Level Switch

Series TTE Temperature Transmitter

Series VF Visi-Float® Flowmeter

Series WE Control Valve

Series 2000 Magnehelic® Differential Pressure Gage

Series DX Pressure Switch

Series UFB Ultrasonic Flowmeter Set

Series 3100D & 3200G Process Pressure Transmitters

Series IEF Insertion Electromagnetic Flow Transmitter

Series ULT Ultrasonic Level Transmitter

Series PUB Portable Ultrasonic Flowmeter Kit

Series 626/628 Pump Transmitter

Series FBLT Level Transmitter

Series PBLT2/X Level Transmitter

# IRRIGATION

Series DX Differential Pressure Switch

Series 626/628 Pressure Transmitter

Series PFT Paddlewheel Flow Sensor

Series TDFS2 Thermal Dispersion Flow Switch

Series WE31 Automated Ball Valve

Series WE01 Manual Ball Valve

Series WMT2 Water Meter

Series WPT Multi-Jet Water Meter

Series SBSV-B Solenoid Valve

Series PDWS Flow Sensor

Series WM2 Water Meter

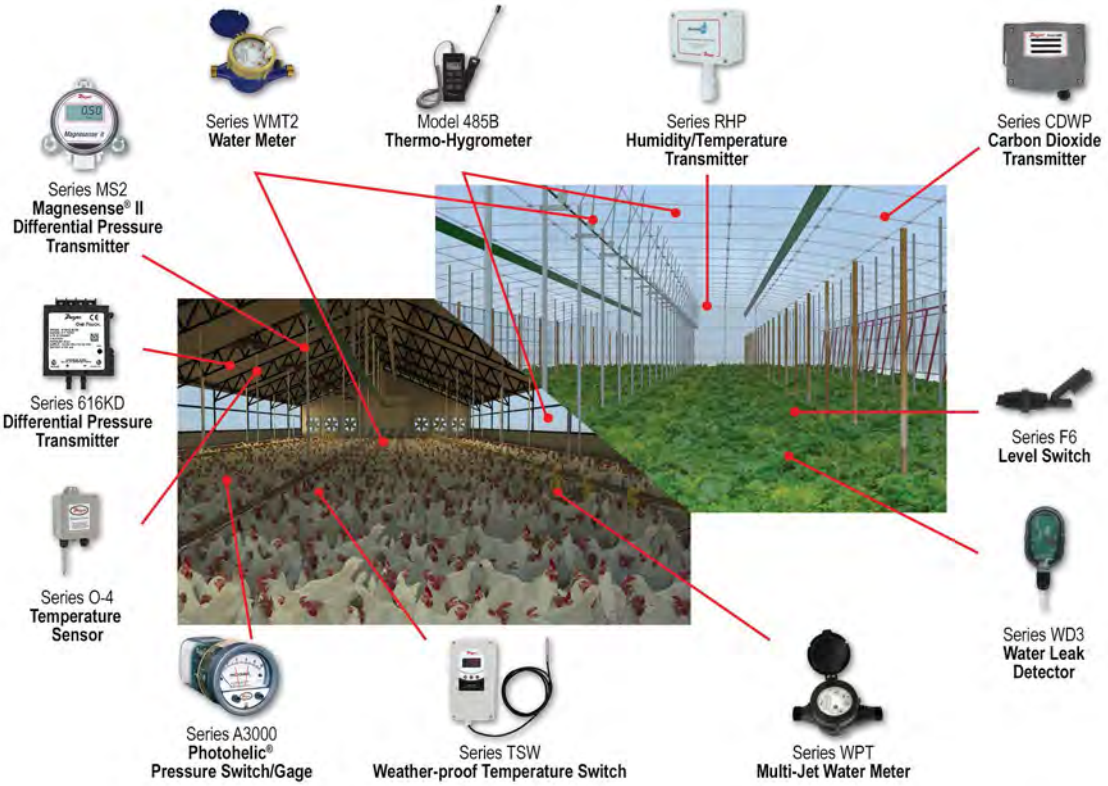
Series MBLT Level Transmitter

Series V10 Flow Switch

PRODUCT APPLICATIONS



# POULTRY/HOG/GREENHOUSES





# RECENT INNOVATIONS

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## TEST, ADJUST, AND BALANCE KIT SERIES TABKIT

- Everything a balancing technician needs in a single case
- Durability, repeatability, and reliability in every instrument
- Save time by sending everything back to us, we can recalibrate all equipment in the kit

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## THERMO-HYGROMETER PROBE, THERMO-ANEMOMETER PROBE & 100 MM VANE THERMO-ANEMOMETER PROBE SERIES RP3/AP3/VP3

- New Bluetooth wireless probes
- Wirelessly connect directly to your mobile device
- Used in conjunction with the Dwyer® Mobile Meter® app

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## WIRELESS DIFFERENTIAL PRESSURE MODULE SERIES DP3

- Auto-ranging differential pressure module
- Highly accurate and ideal for low flow applications
- Used in conjunction with the Dwyer® Mobile Meter® app

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## PENCIL STYLE AIR VELOCITY TRANSMITTER SERIES AVPT

- Air velocity ranges from 1000 to 4000 FPM (5 to 20 m/s)
- Insertion lengths of 6 or 12 inches
- Low temperature functionality for outdoor air flow measurement

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## AIR VELOCITY TRANSMITTER SERIES AVLV

- Air velocity ranges from 100 to 400 FPM (0.5 to 2 m/s)
- High accuracy 1 or 2% air velocity measurement device for critical environments
- Analog or BACnet/Modbus® communications simplify device setup

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

# RECENT INNOVATIONS

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## CARBON DIOXIDE TRANSMITTER SERIES CDWP

- Single beam dual wavelength NDIR CO<sub>2</sub> sensor automatically corrects for aging effects
- Durable and rugged aluminum housing designed to withstand 168 hour salt spray test
- Ranges include 2,000, 5,000, and 10,000 PPM allowing for use in animal husbandry as well as mechanical rooms utilizing CO<sub>2</sub> based refrigerants

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## CARBON MONOXIDE TRANSMITTER AND SWITCH SERIES CMS300

- Field selectable current or voltage analog outputs
- Integral SPDT relay contact for low or high alarm
- Jumper selectable alarm set points of 25, 60, or 150 PPM

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## INSERTION ELECTROMAGNETIC FLOW TRANSMITTER SERIES IEF

- Field configurable
- Integral or remote displays allow for ultimate flexibility
- Multiple display configurations with a single unit



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## ULTRASONIC ENERGY METERS SERIES TUF

- Manufactured to comply with EN1434-1 requirements
- Compact energy monitoring
- BACnet or Modbus<sup>®</sup> communication outputs

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## INSERTION THERMAL ENERGY METER SERIES IEFB

- Field configurable
- Integral or remote display for ultimate flexibility
- Complies with high accuracy requirements of EN 1434-1, ASTM E3137, CSA C900.1-13 for accurate heat measurement

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# STANDARD TERMS & CONDITIONS OF SALE

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## DWYER INSTRUMENTS, INC. - TERMS AND CONDITIONS OF SALE – MARCH 15, 2017

1. **Prices and Specifications** are subject to change without notice.
2. **Shipping dates** are approximate. They are dependent upon credit approval and subject to delays beyond our control.
3. **Terms:** Net 30 days to companies with established credit rating. In the event Buyer fails to fulfill previous terms of payment, or in case Seller shall have any doubt at any time as to Buyer's financial responsibility, Seller may decline to make further deliveries except upon receipt of cash in advance or other special arrangements.
4. **Point and Title:** All material is sold EXW Ex Works Dwyer Instruments, Inc. Title to all material sold shall pass to buyer upon delivery by Seller to carrier at shipping point.
5. **State and Local Taxes:** Any taxes which the Seller may be required to pay or collect upon or with respect to the sale, purchase, delivery, use or consumption of any of the material covered hereby shall be for the account of the Buyer and shall be added to the purchase price.
6. **Special tooling,** dies, silk screens and molds acquired specially to produce goods for Buyer remain the property of Dwyer Instruments, Inc., and may not be removed. They will be maintained in good condition for a minimum period of three years from the date of the original purchase order.
7. **Trade Compliance:** Buyer acknowledges that the products, software, and technology, including technical information and documents (collectively "Items"), of Dwyer Instruments, Inc., are subject to regulation by agencies of the U.S. government including, but not limited to, the U.S. Department of Commerce. Buyer shall comply with the Export Administration Regulations (EAR) and all applicable U.S. laws and regulations regarding the sale, delivery and transfer of said Items. Buyer shall not, without first obtaining the required licenses, authorizations or approvals from the appropriate U.S. government agency; (i) export, re-export, transfer or divert any Item directly or indirectly to any country or national resident thereof, or any person, entity or country that has restrictions imposed upon them by the U.S. government, (ii) engage in, or knowingly sell to any party engaged in activity related to the development, production, use, testing, or maintenance of Weapons of Mass Destruction, including uses related to nuclear, missile, chemical or biological warfare, or (iii) engage in, or knowingly sell to any party engaged in activity related to the development, production, use, or maintenance of any safeguarded or unsafeguarded nuclear fuel facility or components for such facilities. Buyer shall fully cooperate with Seller, without charge, in any official audit or inspection by an authorized agent, official, employee, or accredited representative of the U.S. government. Buyer shall indemnify and hold Seller harmless from, or in connection with, any violation of this Section by Buyer, its employees, consultants, agents, or customers. The obligations, requirements and claims described herein shall survive the expiration of any business relationship with Dwyer Instruments, Inc., including its divisions, subsidiaries and affiliated companies.
8. **Distribution:** Products sold to any entity located in the U.S. must remain in the U.S. unless a Global Distribution Agreement is in force with said entity. OEM's are excluded from this requirement. Those who violate this term are subject to a reduction of discount, loss of discount, or exclusion from purchasing future products. If you want to be a Global Distributor, please contact your Global Sales Manager in your region.
9. **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. Products qualifying for an extended warranty period will have the extended warranty as expressly indicated on the catalog page, web page, IOM, or will be covered by a specific written agreement that is (i) approved by an officer of Dwyer Instruments, Inc. and (ii) defines the warranty period. If no express statement of extended warranty is made, then the standard 1 year warranty applies. The Extended Limited Warranty only applies to products manufactured after April 1, 2017. The Warranty period extends from the date of shipment to the initial customer and not the project installation date or use.

Specific warranty exclusions include, but are not limited to:

- Specific product components not covered by the extended warranty:
  - o Humidity Sensors
  - o Batteries
  - o Electro-Chemical Gas Sensors
  - o Snap Switches
  - o Any component which exceed its normal life cycle
  - o Other Specific items added as required.
- Normal or excessive wear and tear is not cause for warranty replacement.
- Products not properly maintained, operated, installed, or use in an application not suited for the product.
- Modifications, alterations, changes, or additions outside those which are required for normal operation.
- Failure to notify Dwyer of any defect within a reasonable time.
- Damage which the customer has not taken timely action to minimize or mitigate.
- Products on which the labels, markings, nameplates, etc. have been tampered with.
- Products which contain broken factory seals or have been tampered with shall void warranty.

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. All products must be returned to the Seller, transportation prepaid, unless other arrangements have been pre-approved by Seller. 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, at their own discretion. In no case 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.

THIS EXPRESS LIMITED WARRANTY IS IN LIEU OF AND EXCLUDES ALL OTHER REPRESENTATIONS MADE BY ADVERTISEMENTS OR BY AGENTS AND ALL OTHER WARRANTIES, BOTH EXPRESS AND IMPLIED. THERE ARE NO IMPLIED WARRANTIES OF MERCHANTABILITY OR OF FITNESS FOR A PARTICULAR PURPOSE FOR GOODS COVERED HEREUNDER.

10. **Buyer's Remedies:** THE BUYER'S EXCLUSIVE AND SOLE REMEDY ON ACCOUNT OF OR IN RESPECT TO THE FURNISHING OF NON-CONFORMING OR DEFECTIVE MATERIAL SHALL BE TO SECURE REPLACEMENT THEREOF AS AFORESAID. THE SELLER SHALL NOT IN ANY EVENT BE LIABLE FOR THE COST OF ANY LABOR EXPENDED ON ANY SUCH MATERIAL OR FOR ANY SPECIAL, DIRECT, INDIRECT, CONSEQUENTIAL OR INCIDENTAL DAMAGES TO ANYONE BY REASON OF THE FACT THAT IT SHALL HAVE BEEN NON-CONFORMING OR DEFECTIVE.
11. **Acceptance:** All orders shall be subject to the terms and conditions contained or referred to in the Seller's quotation, acknowledgment, and to those listed here and to no others whatsoever. By placing an order you accept our terms and conditions. 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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## FEATURED PRODUCTS

**AIR VELOCITY TRANSMITTER**

**SERIES AVLV** | page 217



- Field selectable ranges from 0 to 400 FPM (0 to 2 m/s).
- 1% or 2% accuracy
- Optional BACnet MS/TP or Modbus® RTU/ASCII communication protocol

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







**CARBON MONOXIDE TRANSMITTER AND SWITCH**

**SERIES CMS300** | page 232








- Field selectable current or voltage analog outputs
- Integral SPDT relay contact for low or high alarm
- Jumper selectable alarm set points of 25, 60, or 150 PPM

# AIR VELOCITY Transmitters

						
<b>SERIES</b>	<b>AVUL</b> - page 215	<b>AVPT</b> - page 216	<b>AVLV</b> - page 217	<b>641</b> - page 218	<b>641RM</b> - page 219	<b>641B</b> - page 219
<b>Service</b>	Clean air	Clean air	Clean air	Clean air	Clean air	Clean air
<b>Range</b>	1,000 to 4,000 FPM (5 to 20 MPS)	1,000 to 4,000 FPM (5 to 20 m/s)	100 to 400 FPM (0.5 to 2 m/s)	250 to 15000 FPM (1.25 to 75 MPS)	250 to 2000 FPM (1.25 to 10 MPS)	250 to 2000 FPM (1.25 to 10 MPS)
<b>Accuracy</b>	±3 or 5% of reading	±3 or 5% of reading	±1 or 2% of reading	±3 to 4% FS	±3 to 4% FS	±5 to 6% FS
<b>Mounting</b>	Duct mount	Duct mount	Duct mount	Duct mount	Remote mount	Duct mount
<b>Probe Length</b>	7-41/64"	6" or 12"	7-41/64"	6 to 36" (152 to 915 mm)	6 to 36" (152 to 915 mm)	4-1/4" (108 mm)
<b>Output</b>	4-20 mA, 0-5 VDC, or 0-10 VDC selectable	0-5 VDC or 0-10 VDC	4-20mA, 0-5 VDC, or 0-10 VDC selectable	4-20 mA	4-20 mA	4-20 mA
<b>Display</b>	Optional LCD	None	Optional LCD	Optional LED	Optional LED	Optional LED
<b>Process Temperature Limits</b>	32 to 122°F (0 to 50°C)	-4 to 140°F (-20 to 60°C)	-32 to 122°F (0 to 50°C)	-40 to 212°F (-40 to 100°C)	-40 to 212°F (-40 to 100°C)	-40 to 176°F (-40 to 80°C)

# HUMIDITY & HUMIDITY/TEMPERATURE Transmitters

					
<b>SERIES</b>	<b>RHP-E/N</b> - page 221	<b>RHPLC</b> - page 222	<b>RHP</b> - page 223	<b>RHP with Shield</b> - page 224	<b>WHT</b> - page 224
<b>Service</b>	Room	Room	Duct or outdoor	Outdoor	Room or outdoor
<b>Accuracy</b>	±2, 3, or 5% FS	± 2 or 3% FS	±2, 3, or 5% FS	±2, 3, or 5% FS	±3% FS
<b>RH Output</b>	4-20 mA, 0-5 VDC, 0-10 VDC	4-20mA, 0-5 VDC, 0-10 VDC	4-20 mA, 0-5 VDC, 0-10 VDC	4-20 mA, 0-5 VDC, 0-10 VDC	4-20 mA, 0-5 VDC, 0-10 VDC
<b>Temperature Output Options</b>	None, passive sensor, 4-20 mA, 0-5 VDC, 0-10 VDC	None, passive sensor, 4-20mA, 0-5 VDC, 0-10 VDC	None, passive sensor, 4-20 mA, 0-5 VDC, 0-10 VDC	None, passive sensor, 4-20 mA, 0-5 VDC, 0-10 VDC	None, passive sensor, 4-20 mA, 0-5 VDC, 0-10 VDC
<b>Display</b>	Optional LCD	None	None	None	None

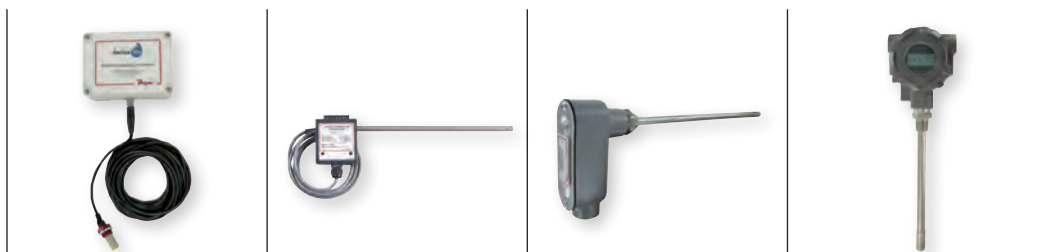
These Selection Guides are for quick comparison of similar products. Please refer to the catalog page number referenced for complete product information and specifications.

# CARBON MONOXIDE Sensors



SERIES	GSTA - page 231	GSTC - page 231	CMT200 - page 232	CMS300 - page 232
Service	Carbon monoxide or nitrogen dioxide	Carbon monoxide or nitrogen dioxide	Carbon monoxide	Carbon monoxide
Range	0 to 500 PPM CO or 0 to 10 PPM NO <sub>2</sub>	0 to 500 PPM CO or 0 to 10 PPM NO <sub>2</sub>	0 to 200 PPM CO	0 to 300 PPM CO
Housing	Space or duct	Space or duct	Space	Space
Output	4-20 mA, 0-5 VDC, 1-5 VDC, 0-10 VDC, 2-10 VDC	BACnet MS/TP, Modbus® RTU, Modbus® ASCII	4-20 mA, 2-10 VDC	4-20 mA, 2-10 VDC
Relay	None	N/A	N/A	(1) SPDT
Display	Optional LCD	Optional LCD	N/A	N/A

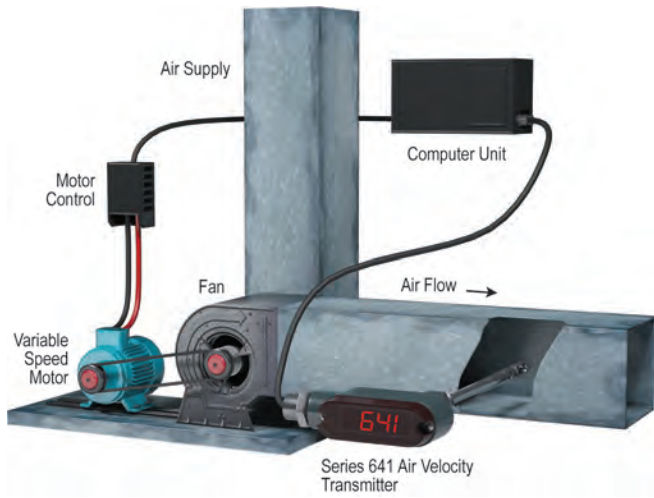
# HUMIDITY & HUMIDITY/TEMPERATURE Transmitters



SERIES	RH-R - page 225	657 - page 225	657C - page 225	HHT - page 226
Service	Duct or process	Duct	Duct	Room or outdoor
Accuracy	±2% FS	±2% FS	±2% FS	±2% FS
RH Output	4-20 mA	4-20 mA	4-20 mA	4-20 mA
Temperature Output	None, 4-20 mA	4-20 mA	4-20 mA	None, 4-20 mA
Options				
Display	None	None	None	Optional LCD

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

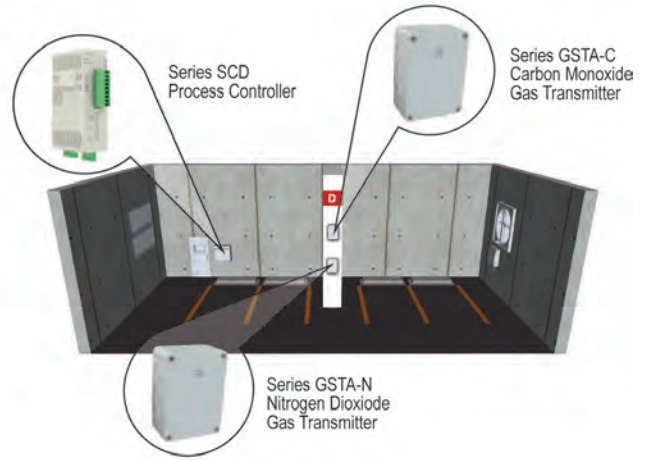
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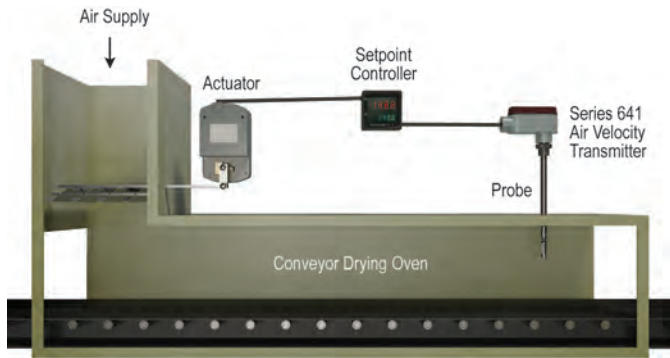
**Dwyer® transmitter signals precise air velocity adjustments to computer-controlled variable-speed fan motor**

In variable air volume (VAV) HVAC systems, a computerized control provides precise adjustment of air volume to meet changing system needs with maximum energy efficiency. The Dwyer® Series 641 has an optional LED display for local indication of air flow. The LED display provides a quick, visual acknowledgment of proper system performance. The computer reacts to any change in velocity by signaling the motor control to increase or decrease fan speed to maintain the required velocity. The computer, taking inputs from other ambient condition sensors, will establish a new required air velocity and signal an appropriate adjustment in fan speed.

**Automate your garage ventilation**



Carbon monoxide and Nitrogen Dioxide are by-products released in the exhaust from gasoline and diesel powered vehicles. These gases can build up in parking garages and loading dock areas where vehicles are concentrated, creating a potentially harmful environment. Ventilation is required to purge these gasses, but running fans non-stop increases building operating costs. The Dwyer® Series GSTA and GSTC can help to offer a more efficient solution to garage ventilation by transmitting CO or NO<sub>2</sub> concentrations via an analog output signal or digital BACnet/Modbus® communication. This signal is sent to the Building Management System and the ventilation processes can then be automated to run only when the gases are present in dangerous concentrations. For stand-alone systems, the analog signal can be sent to a Series SCD process controller to provide a closed loop control system running the ventilation fans. Using the Dwyer® Series GSTA or GSTC transmitter, ventilation will occur only when needed, reducing the cost of maintaining air quality standards.



**Air velocity transmitter controls drying oven air flow**

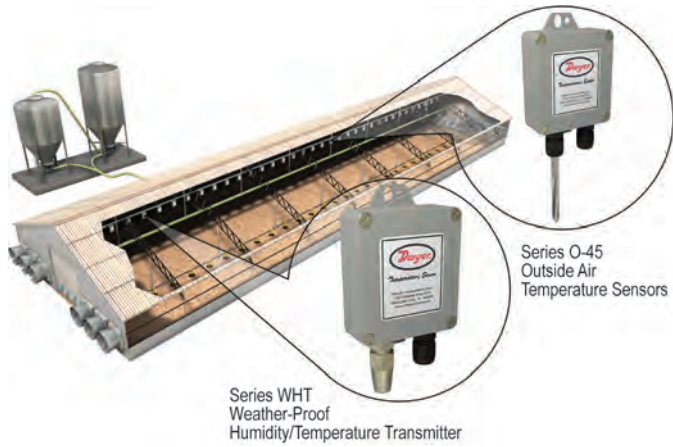
The flow of heated air is held to a constant predetermined velocity in this carefully controlled low temperature process drying oven. The constant temperature air supply is modulated by a set of inlet louvers operated by a servo-driven actuator. A Dwyer® Series 641 air velocity transmitter has an optional LED display for local indication of air flow. The LED display provides a quick, visual acknowledgment of proper system performance. The controller compares the Series 641's signal to the set point in the controller and continuously signals appropriate louver adjustments to the actuator.



**Eliminate the need for Pitot tubes, orifice plates, differential pressure sensors and temperature sensors with a Series AVUL**

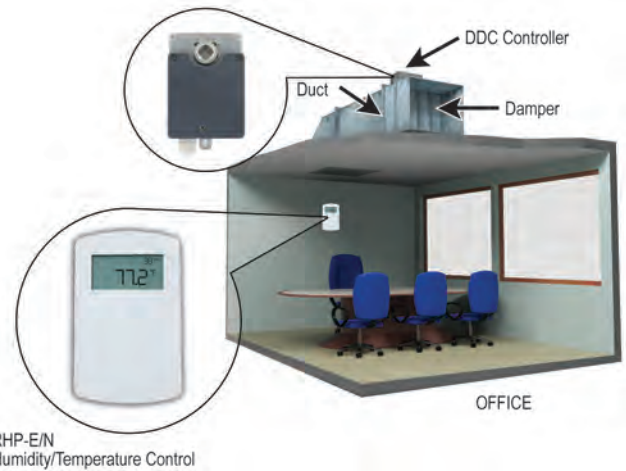
Installing air velocity measurement systems can be a burdensome process – specifying Pitot tubes, static pressure tips, orifice plates, differential pressure transmitters, etc. Dwyer offers the Series AVUL air velocity transmitter to consolidate these components into one convenient instrument. The Series AVUL can be easily installed into the duct or air stream to accurately measure air flow while providing local indication as well as linear analog output. Microprocessor-based technology ensures accurate, repeatable results. The Series AVUL combines these features for simple, reliable airflow measurement without the problems associated with complex, traditional systems.





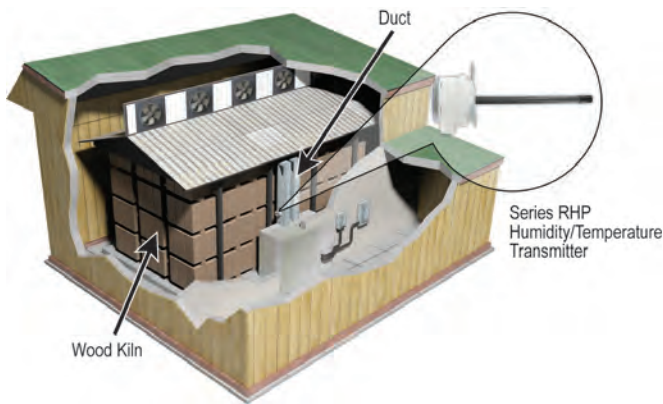
**Temperature and humidity measurements used to optimize the growth of hogs and poultry**

The Dwyer® Series WHT humidity transmitter and Series O-4 temperature sensors are used to control the environmental conditions on hog and poultry farms. The amount the animals eat is linked to how comfortable the environmental conditions are. Thus the temperature, humidity, amount of light and other ambient conditions are tightly controlled to insure optimal animal growth.



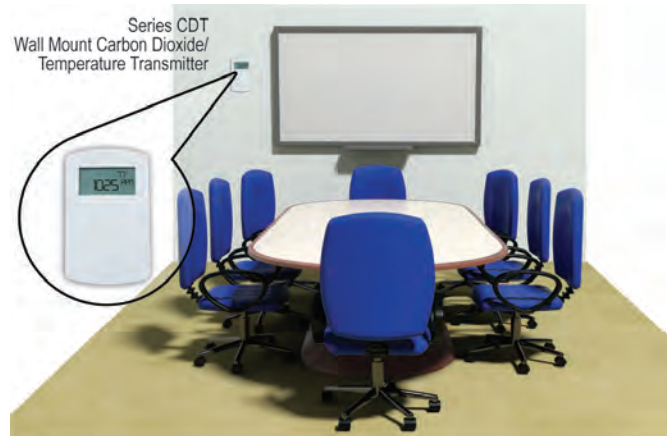
**Accurately measure and control the humidity and temperature in office buildings**

The Dwyer® Series RHP-E/N wall mount humidity and temperature transmitter can be combined with a DDC controller and a damper to provide comfortable working conditions in an office building. The amount of air flow entering the room is varied based on the temperature and humidity readings of the Series RHP-E/N. The compact size and mounting configuration allow this transmitter to be discretely mounted in any room.



**Greatly reduce the time it takes to dry wood**

The Dwyer® Series RHP monitors the humidity and temperature in the return air ducts in wood dehumidification rooms. Large fans are used to circulate air across the room. As dry conditioned air moves across the wood, it absorbs moisture from the wood. The humidity level of the air in the return air duct is representative of how much moisture is in the wood. When the humidity in the duct declines, it signifies that less dry conditioned air is needed to be supplied to the room.



**Demand control ventilation**

Since the number of people in a conference room or classroom varies throughout the day, the amount of conditioned air needed to properly ventilate the room varies as well. As the number of people in a room increase, the concentration of carbon dioxide in the room will also increase. The Dwyer® Series CDT, CDTR, CDTV, and CDTA carbon dioxide transmitters measures the amount of carbon dioxide that is emitted so that the VAV control system can supply enough fresh air into the space to return the concentration of carbon dioxide in the room to normal levels.



# DUCT MOUNTED AIRFLOW MEASUREMENT STATIONS

Rectangular, Oval or Circular Configurations

MODEL CHART - SERIES FLST RECTANGULAR OR OVAL															
Size	8"	10"	12"	14"	16"	18"	20"	22"	24"	26"	28"	30"	32"	34"	36"
8"	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
10"		X	X	X	X	X	X	X	X	X	X	X	X	X	X
12"			X	X	X	X	X	X	X	X	X	X	X	X	X
14"				X	X	X	X	X	X	X	X	X	X	X	X
16"					X	X	X	X	X	X	X	X	X	X	X
18"						X	X	X	X	X	X	X	X	X	X
20"							X	X	X	X	X	X	X	X	X
22"								X	X	X	X	X	X	X	X
24"									X	X	X	X	X	X	X
26"										X	X	X	X	X	X
28"											X	X	X	X	X
30"												X	X	X	X
32"													X	X	X
34"														X	X
36"															X

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

MODEL CHART - SERIES FLST RECTANGULAR OR OVAL																
Size	40"	44"	48"	52"	56"	60"	66"	72"	78"	84"	90"	96"	102"	108"	114"	120"
8"	X	X	X	X	X	X	X	X	X	X	X	X	X			
10"	X	X	X	X	X	X	X	X	X	X	X	X	X			
12"	X	X	X	X	X	X	X	X	X	X	X	X	X	X		
14"	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
16"	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
18"	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
20"	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
22"	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
24"	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
26"	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
28"	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
30"	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
32"	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
34"	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
36"	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
40"	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
44"		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
48"			X	X	X	X	X	X	X	X	X	X	X	X	X	X
52"				X	X	X	X	X	X	X	X	X	X	X	X	X
56"					X	X	X	X	X	X	X	X	X	X	X	X
60"						X	X	X	X	X	X	X	X	X	X	X
66"							X	X	X	X	X	X	X	X	X	X
72"								X	X	X	X	X	X	X	X	X
78"									X	X	X	X	X	X	X	X
84"										X	X	X	X	X	X	X
90"											X	X	X	X	X	X
96"												X	X	X	X	X
102"													X	X	X	X
108"														X	X	X
114"															X	X
120"																X

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

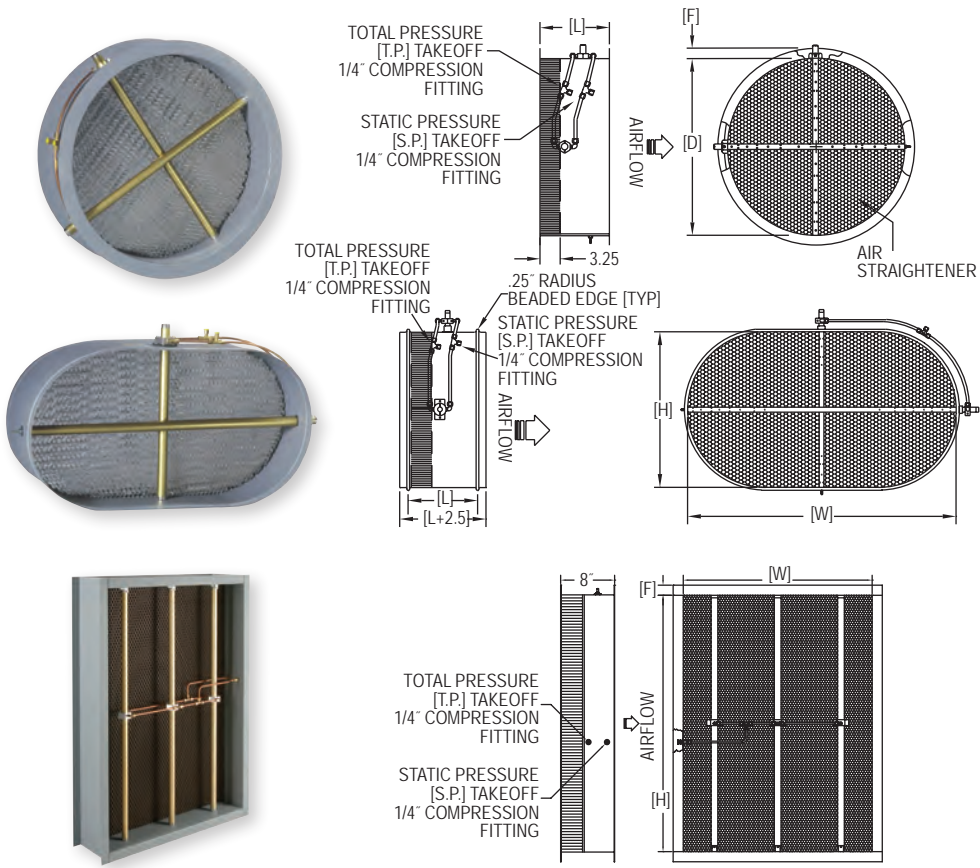
OPTIONS	
To order add suffix:	Description
-IM	Internal pressure connections (rectangular stations only)
-F	Flange (oval stations only)
-SS1	316 SS elements with 16 GA galvanized casing
-SS2	316 SS elements with 16 GA 304 SS casing
-SS3	316 SS elements with 16 GA 316 SS casing

MODEL CHART - SERIES FLST CIRCULAR														
Size	8"	10"	12"	14"	16"	18"	20"	22"	24"	26"	28"	32"	36"	40"
	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Size	44"	48"	54"	60"	66"	72"	78"	84"	90"	96"	102"	108"	114"	120"
	X	X	X	X	X	X	X	X	X	X	X	X	X	X



# DUCT MOUNTED AIRFLOW MEASUREMENT STATIONS

Integral Flow Straightener, Ideal for Turbulent Measuring Conditions



DIMENSIONS - CIRCULAR FLANGE			
Station Size "D"	Flange Thickness	Flange Size "F"	Casing Length "L"
8" - 15"	.064"	1"	8"
16" - 44"	.064"	1-1/2"	8"
45" - 72"	.188"	1-1/2"	10"
73" and over	.188"	2"	12"

DIMENSIONS - OVAL FLANGE (OPTIONAL)			
Station Width "W"	Flange Thickness	Flange Size "F"	*Casing Length "L"
Up to 44"	.064"	1-1/2"	8"
Over 44"	.188"	1-1/2"	10"

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

DIMENSIONS - RECTANGULAR FLANGE	
Station Size "H" or "W"	Flange Size "F"
8" - 72"	1-1/2"
73" and over	2"

The **Series STRA Duct Mounted Airflow Measurement Stations** utilize an airflow averaging element generating a velocity pressure signal similar to the orifice, venturi, and other primary elements. Single or multiple airflow elements are factory mounted and pre-piped in a casing designed for flanged connection to the ductwork. Multiple elements are joined together for connection to a differential measurement device (gauge, transmitter, etc.) for flow measurement and indication purposes. It has been developed with a honeycomb airflow straightening section for use in duct systems having highly turbulent conditions at the point of measurement.

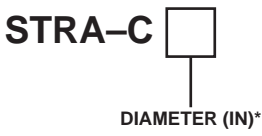
**FEATURES/BENEFITS**

- Honeycomb airflow straightening section with 1/2 opening by 3" depth
- Low signal-to-noise ratio
- Factory mounted and pre-piped in a flanged duct section (casing)
- 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

**APPLICATIONS**

- Building air intake and exhaust flow rate measurement
- HVAC air flow measurement

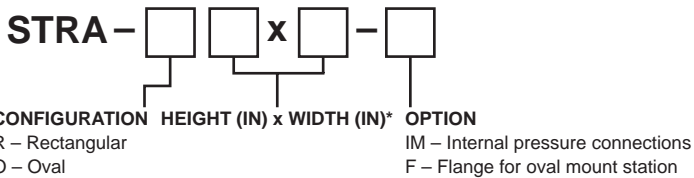
**Circular Models**



**SPECIFICATIONS**

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

**Rectangular or Oval Models**



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

\*Metric dimensions available upon request.

# DUCT MOUNTED AIRFLOW MEASUREMENT STATION

Integral Flow Straightener, Ideal for Turbulent Measuring Conditions

MODEL CHART - SERIES STRA RECTANGULAR OR OVAL															
Size	8"	10"	12"	14"	16"	18"	20"	22"	24"	26"	28"	30"	32"	34"	36"
8"	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
10"		X	X	X	X	X	X	X	X	X	X	X	X	X	X
12"			X	X	X	X	X	X	X	X	X	X	X	X	X
14"				X	X	X	X	X	X	X	X	X	X	X	X
16"					X	X	X	X	X	X	X	X	X	X	X
18"						X	X	X	X	X	X	X	X	X	X
20"							X	X	X	X	X	X	X	X	X
22"								X	X	X	X	X	X	X	X
24"									X	X	X	X	X	X	X
26"										X	X	X	X	X	X
28"											X	X	X	X	X
30"												X	X	X	X
32"													X	X	X
34"														X	X
36"															X

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

MODEL CHART - SERIES STRA RECTANGULAR OR OVAL																
Size	40"	44"	48"	52"	56"	60"	66"	72"	78"	84"	90"	96"	102"	108"	114"	120"
8"	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
10"	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
12"	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
14"	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
16"	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
18"	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
20"	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
22"	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
24"	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
26"	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
28"	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
30"	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
32"	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
34"	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
36"	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
40"	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
44"		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
48"			X	X	X	X	X	X	X	X	X	X	X	X	X	X
52"				X	X	X	X	X	X	X	X	X	X	X	X	X
56"					X	X	X	X	X	X	X	X	X	X	X	X
60"						X	X	X	X	X	X	X	X	X	X	X
66"							X	X	X	X	X	X	X	X	X	X
72"								X	X	X	X	X	X	X	X	X
78"									X	X	X	X	X	X	X	X
84"										X	X	X	X	X	X	X
90"											X	X	X	X	X	X
96"												X	X	X	X	X
102"													X	X	X	X
108"														X	X	X
114"															X	X
120"																X

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

OPTIONS	
To order add suffix:	Description
-IM	Internal pressure connections (rectangular stations only)
-F	Flange (oval stations only)

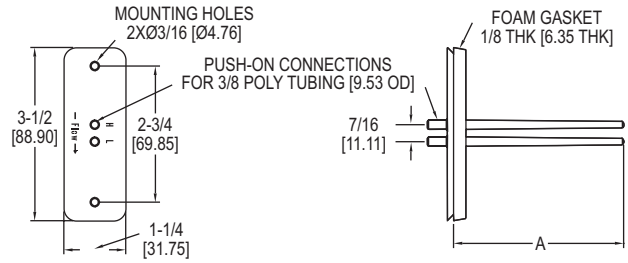
MODEL CHART - SERIES STRA CIRCULAR														
Size	8"	10"	12"	14"	16"	18"	20"	22"	24"	26"	28"	32"	36"	40"
	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Size	44"	48"	54"	60"	66"	72"	78"	84"	90"	96"	102"	108"	114"	120"
	X	X	X	X	X	X	X	X	X	X	X	X	X	X



SERIES PAFS-1000

# AVERAGING FLOW SENSORS

Ideal for Sensing Fan Flow Rates



The **Series PAFS-1000 Averaging Flow Sensors** are ideal for sensing velocity pressure in the inlet section of variable air volume terminal units and fan terminal units.

**FEATURES/BENEFITS**

- Simple mounting flange works with both round or rectangular ducts

**APPLICATIONS**

- Zone control in HVAC systems
- Retrofit HVAC air flow measurement

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

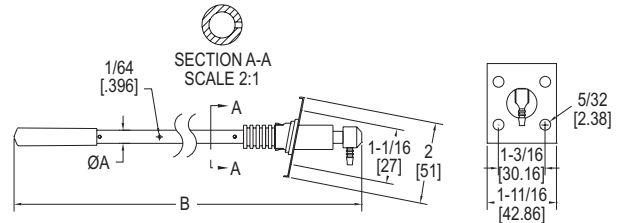
**SPECIFICATIONS**

**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).  
**Agency Approvals:** Meets the technical requirements of EU Directive 2011/65/EU (RoHS II).

SERIES AFG

# AVERAGING FLOW GRID

Cost Effective Air Flow Station for Ducts up to 60"



The **Series AFG Averaging Flow Grid** is a fundamental pressure-sensing device designed to sense velocity pressure in an air duct. When this output is connected to a suitable measuring instrument (i.e. manometer, pressure transducer, etc.) it may be used to determine air velocity or air flow rate.

**FEATURES/BENEFITS**

- Kit complete with 2 probes and installation hardware
- Trimmable length for any duct size up to 60"
- Alternative to costly air flow stations

**APPLICATIONS**

- 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

**SPECIFICATIONS**

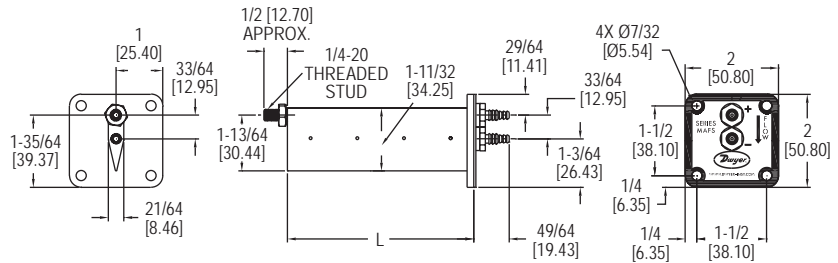
**Service:** Monitor air or compatible gas flow.  
**Wetted Materials:** 304 SS, PVC, polyurethane, acetyl plastics, and neoprene rubber.  
**Accuracy:** ±5%.  
**Maximum Temperature:** 176°F (80°C).  
**Velocity Range:** 295.2 ft/min to 5904 ft/min (1.5 to 30 m/s).  
**Diameter of Tubes:** 5/16" (8 mm) or 5/8" (16 mm).  
**Maximum Duct Diagonal:** 60.4" (153.4 cm).  
**Maximum 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).

MODEL CHART		
Model	Diameter Tube (Dim. A) in (mm)	Length (Dim. B) in (mm)
AFG-1	5/16 (8)	27 (688)
AFG-2	5/8 (16)	59-4/5 (1518)



# METAL AVERAGING FLOW SENSOR

Blade Profile Provides Enhanced Performance and Minimal Flow Disruption



The **Series MAFS Metal Averaging Flow Sensor** 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 velocity pressure in a duct.

**FEATURES/BENEFITS**

- Blade design limits disruption of air stream
- Lightweight aluminum construction
- Flange mount for rectangular or square ducts

**APPLICATIONS**

- VAV air flow measurement
- Fume hood exhaust flow verification
- HVAC retrofit air flow measurement

**SPECIFICATIONS**

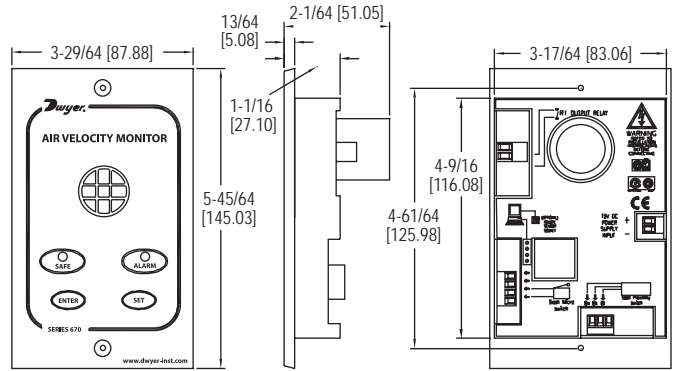
**Service:** Clean air.  
**Wetted Materials:** Aluminum AA6063.  
**Accuracy:** 400 to 9000 FPM (45.7 m/s); ±2% FS, ±3% FS for 6" (160 mm) and 48" (1200 mm) length models.  
**K-Factor:** 0.81, 0.80 for 6" (160 mm) and 48" (1200 mm) lengths, 4" (100 mm) length=0.82.  
**Maximum Temperature:** 400°F (204°C); Gasket: -31 to 230°F (-35 to 110°C).  
**Minimum Design Flow:** 400 FPM (2 m/s).  
**Maximum Design Flow:** 12,000 FPM (60.91 m/s).  
**Process Connections:** Dual barb for 3/16" or 1/4" ID tubing.  
**Straight Run Requirements:** 5 diameters or longest side dimensions.  
**Agency Approvals:** Meets the technical requirements of EU Directive 2011/65/EU (RoHS II).

MODEL CHART							
Model	Probe Length (in)	Model	Probe Length (in)	Model	Probe Length (mm)	Model	Probe Length (mm)
MAFS-4	4	MAFS-24	24	MAFS-100MM	100	MAFS-550MM	550
MAFS-6	6	MAFS-26	26	MAFS-125MM	125	MAFS-600MM	600
MAFS-8	8	MAFS-28	28	MAFS-160MM	160	MAFS-630MM	630
MAFS-10	10	MAFS-30	30	MAFS-200MM	200	MAFS-650MM	650
MAFS-12	12	MAFS-32	32	MAFS-250MM	250	MAFS-750MM	750
MAFS-14	14	MAFS-34	34	MAFS-300MM	300	MAFS-800MM	800
MAFS-16	16	MAFS-36	36	MAFS-315MM	315	MAFS-1000MM	1000
MAFS-18	18	MAFS-40	40	MAFS-400MM	400	MAFS-1500MM	1500
MAFS-20	20	MAFS-48	48	MAFS-450MM	450	MAFS-2000MM	2000
MAFS-22	22			MAFS-500MM	500		

**Dwyer**  
MODEL 670

# FUME HOOD MONITOR

Ensures Proper Fume Hood Performance



The **Model 670 Fume Hood Monitor** continuously senses air flow through the face of the fume hood, ensuring safe levels of fresh air are exhausting. The 670 provides a highly accurate hot wire sensor to detect very low flows common on fume hoods. The Model 670 comes with everything required to quickly install the unit including a mounting bracket, 24" of tubing for connecting to the inside of the hood wall and a 120 Volt AC power adapter.

**FEATURES/BENEFITS**

- Flexible surface or flush mounting
- LED safe and alarm status indicators
- Audible alarm
- Sash alarm input
- Night time set-back

**APPLICATIONS**

- Fume hood ventilation monitoring

MODEL CHART	
Model	Description
670	Fume hood monitor

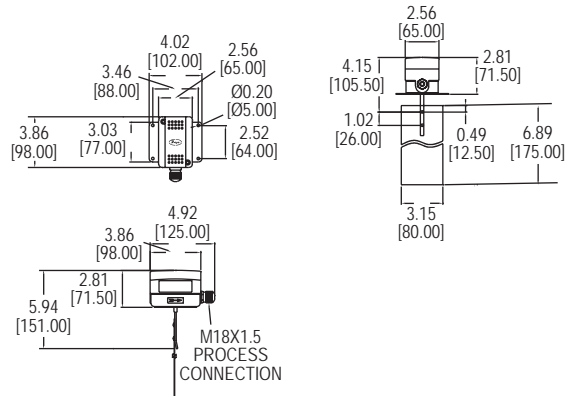
**SPECIFICATIONS**

**Service:** Fume hood face velocity air flow.  
**Alarm Range:** 30-400 FPM (0.15-2.0 m/s).  
**Alarm Indication:** Red LED and audible alarm.  
**Low Air Velocity Alarm Delay:** Fixed 5 s.  
**Visual LED Display:** Red: Alarm; Green: Normal.  
**Horn Silence:** Yes-temporary and permanent.  
**Accuracy:** Face velocity  $\pm 10\%$ .  
**Temperature Limits:** Operating temperature: 55 to 86°F (13 to 30°C); Storage temperature: -40 to 150°F (-40 to 65°C).  
**Power Requirement:** 15 VDC 500 mA; 120 VAC, 60 Hz power transformer included.  
**Relay Output Low Air Flow Alarm:** 5 A @ 250 VAC.  
**Relay Input For Night Setback:** 2 wire rated for 24 VDC usage.  
**Sash High Indication:** Using a two wire micro switch or 3 wire proximity switch input, rated for 24 VDC usage.  
**Mounting:** Semi flush, flush or surface mounted when using included bracket.  
**Weight:** 5.0 oz (141 g).

MODEL AAFS

# ADJUSTABLE AIR FLOW PADDLE SWITCH

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



The **Model AAFS Adjustable Air Flow Paddle Switch** is capable of detecting a wide range of air velocities with minimal user calibration. Quality features include a stainless steel vane, galvanized steel base, and ABS enclosure.

**FEATURES/BENEFITS**

- Adjustable air flow sensitivity from 200 to 1800 FPM
- High current (15 A) rated SPDT contact
- IP65 enclosure rating

**APPLICATIONS**

- Air flow proving in HVAC systems

MODEL CHART	
Model	Description
AAFS	Adjustable air flow paddle switch

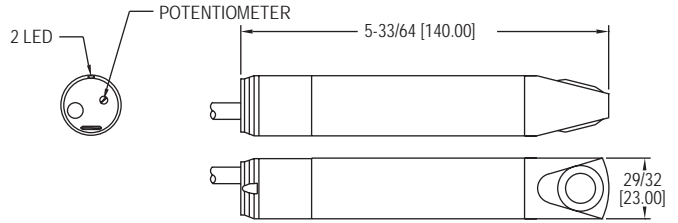
**SPECIFICATIONS**

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

USA: California Proposition 65  
 ⚠ WARNING: Cancer and Reproductive Harm - www.P65Warnings.ca.gov

# AIR FLOW SWITCH

Monitors Flow in Ducts with Contact Output and Local LED Indication



The **Series AVFS Air Flow Switch** is specifically designed to monitor air flow in ducts and provides a 3 A contact output to indicate a change or loss of flow. The AVFS provides a  $\pm 5\%$  set point repeatability across a full-scale range of 1-10 m/s (197-1969 fpm) and includes a mounting bracket for quick duct mounting.

**FEATURES/BENEFITS**

- Integral red/green air flow status LED's
- Flush sensor design limits issues due to dust or particulate in the air flow
- IP65 construction

**APPLICATIONS**

- Fan monitoring
- Filter monitoring
- Damper feedback
- Air handlers

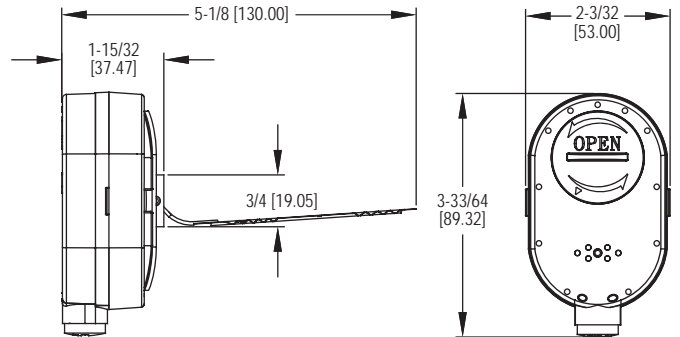
MODEL CHART	
Model	Description
AVFS-1	80-250 AC/DC power thermo air flow switch
AVFS-2	24 VDC power thermo air flow switch

**SPECIFICATIONS**

**Air Velocity Range:** 197-1969 FPM (1-10 m/s).  
**Temperature Limits:** 5 to 122°F (-10 to 50°C).  
**Humidity Limits:** 0-90% RH.  
**Wetted Materials:** PBT body, titanium sensor.  
**Pressure Limit:** 14.7 psig (1 bar).  
**Housing:** PBT.  
**Repeatability:**  $\pm 5\%$  FS.  
**Switch Type:** N.O. SPST.  
**Electrical Rating:** 3 A @ 30 VDC/250 VAC.  
**Response Time:** 3-60 seconds. Varies with flow and set point.  
**Power Requirement:** AVFS-1: 80 to 250 AC/DC (47 to 63 Hz AC); AVFS-2: 24 VDC  $\pm 25\%$ .  
**Power Consumption:** 3 VA.  
**Electrical Connection:** 6.5' (2 m) cable.  
**Enclosure Rating:** IP65.  
**Display:** 1 Red LED/1 Green LED.  
**Weight:** 7.2 oz (203 g).  
**Agency Approvals:** CE.

# AIR FLOW INDICATOR AND ALARM

For Air Flow Monitoring in 3" and 4" pipes



The **Series DAFA Air Flow Indicator and Alarm** alerts users of low or no air flow conditions in pipes utilizing a thin, field trimmable vane to sense the air flow rate. An 85 dB audible buzzer alternates with a bright red LED to alert users when the air flow rate drops, indicating low or no flow in the pipe. The DAFA is battery powered to provide versatility for where it can be installed, and offers a yellow LED to indicate a low battery. This device is ideal for monitoring radon mitigation systems by detecting a loss of air flow in the pipe and providing a signal to homeowners if the fan has stopped operating.

**FEATURES/BENEFITS**

- Simple and quick installation
- Field trimmable vane included to allow unit to be used in 3" and 4" pipes
- Audible and visual alarms
- Battery-operated with up to 5 year battery life and low battery warning

**APPLICATIONS**

- Radon mitigation systems
- Air flow monitoring in 3" and 4" pipes

MODEL CHART	
Model	Description
DAFA-1	Air flow indicator and alarm

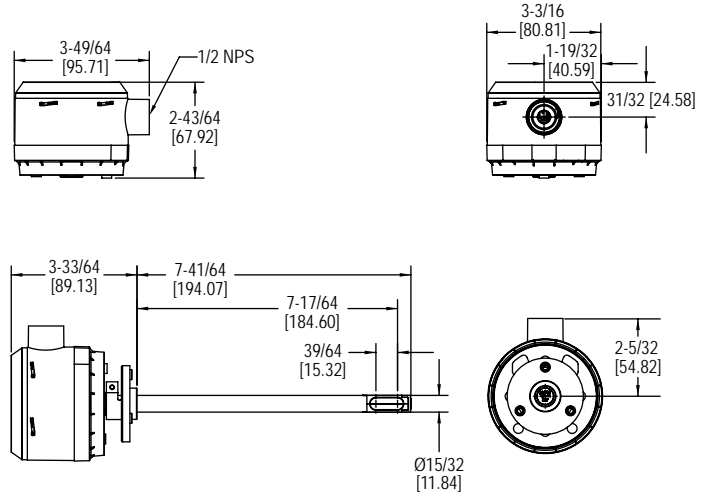
ACCESSORIES	
Model	Description
A-DAFA-VANE	Replacement trimmable vane
A-DAFA-BCOV	Replacement battery cover

SPECIFICATIONS
<b>Service:</b> Clean air.
<b>Actuation Point:</b> 15 CFM (4" pipe); 10 CFM (3" pipe) on decrease in flow.
<b>Audible Alarm:</b> At least 85 dB @ 1 foot distance.
<b>Visual Alarm:</b> Red LED for no flow alarm; Yellow LED for low battery.
<b>Wetted Materials:</b> ABS, polycarbonate, rare earth magnet.
<b>Power Requirements:</b> 3 V CR2450 lithium battery, included, user replaceable.
<b>Battery Life:</b> 5 years steady state; 48 hours during alarm state.
<b>Temperature Limits:</b> 32 to 122°F (0 to 50°C).
<b>Mounting Orientation:</b> Vertical.
<b>Weight:</b> 4 oz (113.4 g).
<b>Agency Approvals:</b> CE.



# AIR VELOCITY TRANSMITTERS

3% and 5% Models, Optional BACnet or Modbus® Communication Protocols



The **Series AVUL Air Velocity Transmitters** quickly and accurately measures air velocity or volumetric flow in imperial or metric units. Simultaneous current and voltage outputs on all models provide universal inputs to monitoring equipment while the output range, units, and 0 to 5/10 VDC output can be configured via local DIP switches. The optional integral display, or the portable remote display tool, provide a convenient way to locally monitor process values and configure the unit. Models are available in 3% and 5% accuracy models to suit a variety of needs, and the optional BACnet MS/TP or Modbus® RTU/ASCII communication protocol allows units to be daisy-chained while providing access to all of the velocity and flow data, as well as additional information such as air temperature.

### FEATURES/BENEFITS

- Sensing elements have been coated with an engineered conformal coating to ensure durability and longevity
- Field selectable ranges can be quickly configured without power to the unit

### APPLICATIONS

- VAV systems
- Building ducts

MODEL CHART						
Example	AVUL	-3	D	A1	-LCD	AVUL-3DA1-LCD
Model	AVUL					Air velocity transmitter
Accuracy		5				±(0.2 m/s + 5% of reading) @ standard conditions
		3				±(0.2 m/s + 3% of reading) @ standard conditions
Mounting			D			Duct mount
Output				A1		Analog universal (0-5 VDC, 0-10 VDC, 4-20 mA)
				B1		Analog + BACnet MS/TP
				M1		Analog + Modbus® RTU/ASCII
Options					LCD	LCD display
					FC	Factory calibration certificate
					NIST	NIST certificate
					GLD	Electrical cable gland
					SF	Silicone Free

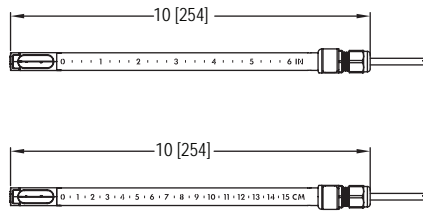
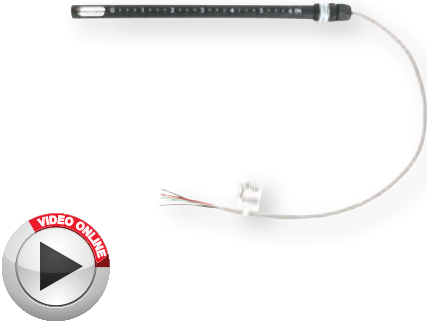
ACCESSORIES	
Model	Description
A-151	Cable gland for 5 to 10 mm diameter cable
A-435-A	Remote display tool
A-AVUL-LCD	Field upgradeable display
A-AVUL-MTG	Replacement mounting flange
SCD-PS	100-240 VAC/VDC to 24 VDC power supply

### SPECIFICATIONS

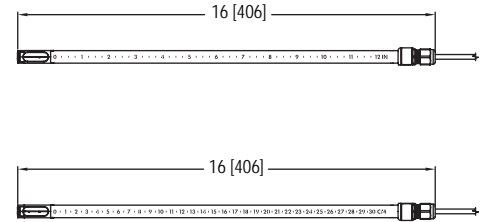
**Service:** Clean air and non-combustible, compatible gases.  
**Wetted Materials:** Consult factory.  
**Range:** 1000, 2000, 3000, 4000 FPM (5, 10, 15, 20 m/s); Field selectable.  
**Accuracy:** ±(5% of reading + 0.2 m/s) or ±(3% of reading + 0.2 m/s) @ standard conditions, depending on model.  
**Temperature Limits:** 32 to 122°F (0 to 50°C).  
**Power Requirements:** 24 VDC ±20% or 24 VAC ±20%.  
**Humidity Limits:** 5 to 95% RH, non-condensing.  
**Output Signals:** 4-20 mA, 0-5 VDC, 0-10 VDC.  
**Response Time (90%):** 10 s, typical.  
**Zero and Span Adjustments:** Digital push-buttons.  
**Output Load Resistance:** Current output: 0 to 1100 Ω max.; Voltage output: Minimum load resistance 1 k Ω.  
**Current Consumption:** 60 mA max.  
**Display (optional):** 5 digit LCD.  
**Electrical Connections (Analog):** Power and output: four wire removable European style terminal block for 16 to 26 AWG.  
**Communication (optional):** Connections: BACnet MS/TP or Modbus® RTU/ASCII: three wire removable European style terminal block for 16 to 26 AWG; Supported baud rates: 9600, 19200, 38400, 57600, 76800, 115200.  
**Device Load:** 1/8th unit load.  
**Electrical Entry:** 1/2" NPS thread. Accessory (A-151): Cable gland for 5 to 10 mm diameter cable.  
**Enclosure Rating:** NEMA 4X (IP66).  
**Mounting Orientation:** Flow direction must be parallel to the sensor tip.  
**Weight:** 6.0 oz (160 g).  
**Agency Approval:** BTL, CE.

# PENCIL STYLE AIR VELOCITY TRANSMITTER

## 3% and 5% Models, Optional BACnet Communication Protocols



6" probe length



12" probe length

The **Series AVPT Pencil Style Air Velocity Transmitter** uses thermal anemometer technology to provide high accuracy and stable air velocity measurements in imperial and metric units. The Series AVPT can be configured with either a voltage output or BACnet MS/TP communication to provide universal inputs to a variety of monitoring equipment. Models are available with fixed cable lengths of 20 or 78 inches with flying leads or a 5-pin M12 connector on a 24 inch cable. Probes are available in lengths of 6 or 12 inches. A mounting flange included with the product provides the ability to vary insertion depth.

Models are available in 3% or 5% accuracy to suit a variety of applications, while the optional BACnet MS/TP communication protocol allows units to be daisy-chained to provide access to all of the velocity and temperature measurements.

**FEATURES/BENEFITS**

- Sensing elements have been coated with an engineered conformal coating to ensure durability and longevity
- Varying lengths for easy installation
- Functionality at temperatures below freezing

**APPLICATIONS**

- VAV systems
- Building ducts

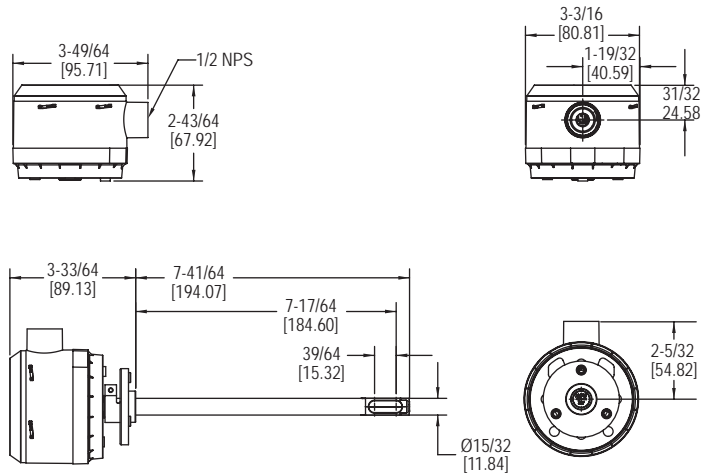
SPECIFICATIONS	
<b>Service:</b>	Clean air.
<b>Ranges:</b>	1000, 2000, 3000, or 4000 FPM (5, 10, 15, or 20 m/s); Model specific.
<b>Accuracy:</b>	Standard: ±(5% reading +40 FPM); High accuracy: ±(3% reading +40 FPM); Model specific.
<b>Power Requirements:</b>	24 VAC/VDC ±20%.
<b>Current Consumption:</b>	< 50 mA.
<b>Outputs:</b>	Analog: 0-10 V (0-5 V configurable).
<b>BACnet MS/TP:</b>	Selectable at time of order.
<b>Supported Baud Rate:</b>	9600, 19200, 38400, 57600, 76800, and 115200.
<b>Voltage Output Load Resistance:</b>	10k Ω minimum (10 V output with AC supply); 1k Ω minimum all other conditions.
<b>Electrical Connection:</b>	Cable: Plenum rated cable with 22 AWG conductors.
<b>5-Conductor Cable whip:</b>	20" (0.5 m) or 78" (2 m).
<b>5-pin M-12:</b>	24" (0.6 m); model specific.
<b>Response Time (90%):</b>	4 s, typical.
<b>Operational Temperature Limits:</b>	-4 to 140 °F (-20 to 60 °C).
<b>Storage Temperature Limits:</b>	-40 to 140°F (-40 to 60°C).
<b>Probe Length:</b>	6" or 12"; model specific.
<b>Enclosure Rating:</b>	NEMA 3.
<b>Mounting Orientation:</b>	Flow direction must be parallel to the sensor tip; See Installation section for details.
<b>Weight:</b>	1.4 oz (40 g); based on M12 connection with 12" probe length.
<b>Agency Approvals:</b>	CE, RCM, BTL, UL plenum rated (UL tested).

MODEL CHART									
Example	AVPT	-S	03	C1	A	06	-127	-FC	AVPT-S03C1A06-127-FC
Series	AVPT								Pencil style air velocity transmitter
Accuracy		S H							Standard ±5% of reading +40 FPM High accuracy ±3% of reading +40 FPM
Velocity Range			01 02 03 04 05 10 15 20						1000 FPM 2000 FPM 3000 FPM 4000 FPM 5 m/s 10 m/s 15 m/s 20 m/s
Electrical Connection				C1 C2 M1					Cable whip 20" (0.5 m) Cable whip 78" (2 m) M12 24" (0.6 m)
Output Type					A B				Analog 0-5 V and 0-10 V BACnet MS/TP
Probe Length						06 12			6" 12"
BACnet Address							127		000-127 whole integer with BACnet output
Options								FC NIST	Factory calibration certificate NIST traceable certificate

MODEL CHART	
Example	AVPT
SCD-PS	100-240 VAC/VDC to 24 VDC power supply
A-AVUL-MTG	Replacement mounting flange
A-AVUL-QFG	Quick fix cable gland for outside the duct installation

# AIR VELOCITY TRANSMITTER

1% and 2% Models, Optional BACnet MS/TP or Modbus®



The **Series AVLV Air Velocity Transmitter** quickly and accurately measures air velocity or volumetric flow in imperial or metric units. Simultaneous current and voltage outputs on all models provide universal inputs to monitoring equipment while the output range, units, and 0-5/10 VDC output can be configured via local DIP switches. The optional integral display, or the portable remote tool, provide a convenient way to local monitor process values and configure the unit.

Models are available in 1% and 2% accuracy models and low velocity ranges to suit a variety of needs, and the optional BACnet MS/TP or Modbus® RTU/ASCII communication protocol allows units to be daisy-chained while providing access to all of the velocity and flow data, as well as additional information such as air temperature. The lower ranges in these high accuracy units allow for applications in quality intensive environments, such as the pharmaceutical industry.

**FEATURES/BENEFITS**

- Sensing elements have been coated with an engineered conformal coating to ensure durability and longevity
- Field selectable ranges can be quickly configured without power to the unit

**APPLICATIONS**

- VAV systems
- Building ducts
- Clean room systems

MODEL CHART						
Example	AVLV	-2	D	A1	-LCD	AVLV-2DA1-LCD
Model	AVLV					Air velocity transmitter
Accuracy		2 1				± (2% of reading + 0.06 m/s) ± (1% of reading + 0.06 m/s)
Mounting			D			Duct mount
Output				A1 B1 M1		Analog universal (0-5 VDC, 0-10 VDC, 4-20 mA) Analog + BACnet MS/TP Analog + Modbus® RTU/ASCII
Options					LCD display FC NIST GLD	LCD display Factory calibration certificate NIST certificate Electrical cable gland

**SPECIFICATIONS**

**Service:** Clean air and non-combustible, compatible gases.  
**Wetted Materials:** Consult factory.  
**Range:** 100, 200, 300, 400 FPM (0.5, 1, 1.5, 2 m/s); field selectable.  
**Accuracy:** See chart.  
**Temperature Limits:** 32 to 122°F (0 to 50°C).  
**Power Requirements:** 24 VDC ±20% or 24 VAC ±20%.  
**Humidity Limits:** 5 to 95% RH, non-condensing.  
**Output Signals:** 4-20 mA, 0-5 VDC, 0-10 VDC.  
**Response Time (90%):** 4 s, typical; 1 s at constant temperature.  
**Zero and Span Adjustments:** Digital push buttons.  
**Output Load Resistance:** Current output: 0 to 1100 Ω max.; Voltage output: Minimum load resistance 1 kΩ.  
**Current Consumption:** 60 mA max.  
**Display:** 5 digit LCD (optional).  
**Electrical Connections:** Analog: Power and output: four wire removable European style terminal block for 16 to 26 AWG; Communication: Connections: BACnet MS/TP or Modbus® RTU/ASCII: three wire removable European style terminal block for 16 to 26 AWG.  
**Supported Communication Baud Rates:** 9600, 19200, 38400, 57600, 76800, 115200 (optional).  
**Device Load:** 1/8 unit load.  
**Electrical Entry:** 1/2" NPS thread; Accessory: Cable gland for 5 to 10 mm diameter cable, A-151.  
**Enclosure Rating:** NEMA 4X (IP66).  
**Mounting Orientation:** Flow direction must be parallel to the sensor tip.  
**Weight:** 6.0 oz (160 g).  
**Agency Approval:** BTL, CE.

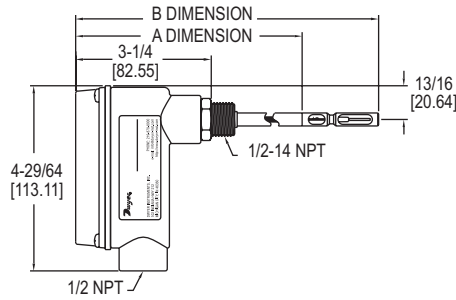
**ACCURACY CHART**

Velocity Range	Accuracy Rating*
20 to 100 FPM (0.15 to 0.5 m/s)	± (2% of reading + 0.04 m/s [7.9 FPM]) ± (1% of reading + 0.04 m/s [7.9 FPM])
20 to 200 FPM (0.15 to 1.0 m/s)	± (2% of reading + 0.04 m/s [7.9 FPM]) ± (1% of reading + 0.04 m/s [7.9 FPM])
20 to 300 FPM (0.15 to 1.5 m/s)	± (2% of reading + 0.05 m/s [9.8 FPM]) ± (1% of reading + 0.05 m/s [9.8 FPM])
20 to 400 FPM (0.15 to 2.0 m/s)	± (2% of reading + 0.06 m/s [11.8 FPM]) ± (1% of reading + 0.06 m/s [11.8 FPM])

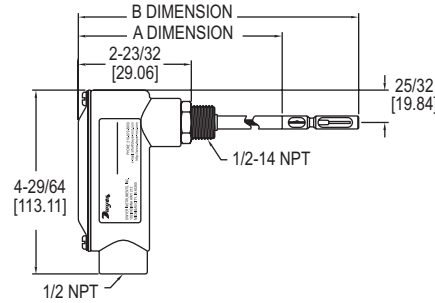
\*Accuracy dependent on model selected when ordering.

# AIR VELOCITY TRANSMITTERS

## High Accuracy, Field Selectable Ranges



641 AVT WITH DISPLAY OPTION	
A Dimension	B Dimension
7-63/64 [202.80]	9-13/16 [249.24]
13-63/64 [355.20]	15-13/16 [401.64]
19-63/64 [507.60]	21-13/16 [554.04]
26-63/64 [685.40]	28-13/16 [731.84]
32-63/64 [837.80]	34-13/16 [884.24]
37-63/64 [964.80]	39-13/16 [1011.24]



641 AVT WITHOUT DISPLAY OPTION	
A Dimension	B Dimension
7-7/16 [188.91]	9-9/32 [235.74]
13-7/16 [341.31]	15-9/32 [388.14]
19-7/16 [493.71]	21-9/32 [540.54]
26-7/16 [671.51]	28-9/32 [718.34]
29-7/16 [747.71]	34-9/32 [870.74]
37-7/16 [950.91]	39-9/32 [997.74]

The **Series 641 Air Velocity Transmitters** are the ideal instrument for monitoring air flow. This transmitter uses a heated mass flow sensor which allows for precise velocity measurements at various flow rates and temperatures. The 641's 16 field-selectable ranges provides it the versatility to be selected for several air flow applications. The optional LED produces a complete, low-cost solution for local indication of air flow.

### FEATURES/BENEFITS

- Ranges from 250 FPM (1.25 MPS) to 15,000 FPM (75 MPS)
- Optional bright LED display
- Easy push-button set-up
- Compact housing
- 4-20 mA output
- Digital filter for signal damping

### APPLICATIONS

- Exhaust stack flow monitoring
- Air control in drying processes
- HVAC air velocity measurements
- Fan supply and exhaust tracking
- Clean room ventilation monitoring

MODEL CHART	
Model	Probe Length*
641-6	6" (152.4 mm)
641-6-LED	6" (152.4 mm)
641-12	12" (304.8 mm)
641-12-LED	12" (304.8 mm)
641-18	18" (457.2 mm)
641-18-LED	18" (457.2 mm)
641-24	24" (609.6 mm)
641-24-LED	24" (609.6 mm)

\*Other probe lengths available contact factory.

OPTIONS	
To order add suffix:	Description
-NIST	NIST traceable calibration certificate

Example: 641-6-NIST

ACCESSORIES	
Model	Description
A-156	Universal mounting plate, 1/2" female NPT
A-158	Split flange mounting kit
A-159	Duct mounting gland
641-LED	Field-upgradeable LED

### SPECIFICATIONS

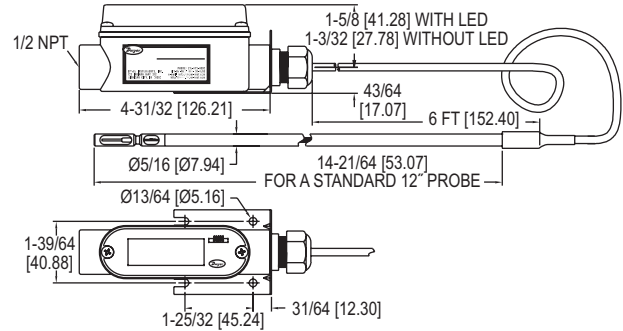
**Service:** Clean air and compatible, non-combustible gases.  
**Accuracy:** 3% FS process gas: 32 to 122°F (0 to 50°C); 4% FS process gas: -40 to 32°F & 122 to 212°F (-40 to 0°C & 50 to 100°C).  
**Response Time:** Flow: 1.5 s to 95% of final value (output filter set to minimum).  
**Temperature Limits:** Process: -40 to 212°F (-40 to 100°C); Ambient: 32 to 140°F (0 to 60°C).  
**Pressure Limit:** 100 psi (6.89 bar) maximum.  
**Humidity Limit:** Non-condensing.  
**Power Requirements:** 12-35 VDC, 10-16 VAC. 1.5 A rating required on supply due to initial power surge drawn by transmitter.  
**Output Signal:** 4-20 mA, isolated 24 V source, 3 or 4-wire connection.  
**Output Filter:** Selectable 0.5-15 (s).  
**Loop Resistance:** 600 Ω max.  
**Current Consumption:** 300 mA max.  
**Electrical Connections:** Screw terminal.  
**Process Connections:** 1/2" male NPT.  
**Enclosure Rating:** Designed to meet NEMA 4X (IP66) for non LED models only.  
**Mounting Orientation:** Unit not position sensitive. Probe must be aligned with airflow.  
**Weight:** 12.6 oz (357.2 g).  
**Agency Approval:** CE.

**OPTIONAL DISPLAY VERSION:**  
**Display:** 4-1/2 digit 1/2" red LED.  
**Resolution:** 1 FPM, 0.01 MPS (10 FPM @ 10,000 and 15,000 FPM ranges).  
**Weight:** 13.3 oz (377 g).



# AIR VELOCITY TRANSMITTER WITH REMOTE PROBE

For Remotely Mounting Electronic Enclosure



The **Series 641RM Air Velocity Transmitter with Remote Probe** features the same highly accurate heated mass flow sensor as the Series 641, with a remote probe construction. The units 6' cable which connects the sensing probe with the electronic enclosure allows the enclosure to be mounted where it can be more easily accessed.

**FEATURES/BENEFITS**

- Ranges from 250 FPM (1.25 MPS) to 15,000 FPM (75 MPS)
- Optional bright LED display
- Easy push-button set-up
- Compact housing
- 4-20 mA output
- Digital filter for signal damping

**APPLICATIONS**

- Exhaust stack flow monitoring
- Air control in drying processes
- HVAC air velocity measurements
- Fan supply and exhaust tracking
- Clean room ventilation monitoring

MODEL CHART	
Model	Description
641RM-12	Air velocity transmitter with 6' cable
641RM-12-LED	Air velocity transmitter with 6' cable with LED display

OPTIONS	
To order add suffix:	Description
-NIST	NIST traceable calibration certificate
Example: 641RM-12-NIST	

**SPECIFICATIONS**

**Service:** Clean air and compatible, non-combustible gases.  
**Accuracy:** 3% FS process gas: 32 to 122°F (0 to 50°C); 4% FS process gas: -40 to 32°F and 122 to 212°F (-40 to 0°C & 50 to 100°C).  
**Response Time:** Flow: 1.5 s to 95% of final value (output filter set to minimum).  
**Temperature Limits:** Process: -40 to 212°F (-40 to 100°C); Ambient: 32 to 140°F (0 to 60°C).  
**Pressure Limit:** 100 psi (6.89 bar) maximum.  
**Humidity Limit:** Non-condensing.  
**Power Requirements:** 12-35 VDC, 10-16 VAC. 1.5 A rating required on supply due to initial power surge drawn by transmitter.  
**Output Signal:** 4-20 mA, isolated 24 V source, 3 or 4-wire connection.

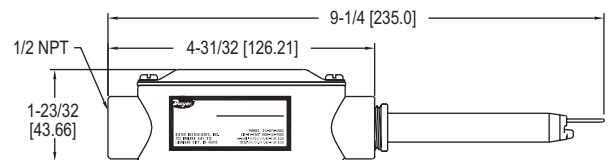
**Output Filter:** Selectable 0.5–15 (seconds).  
**Loop Resistance:** 600 Ω max.  
**Current Consumption:** 300 mA max.  
**Electrical Connections:** Screw terminal.  
**Mounting Orientation:** Unit not position sensitive. Probe must be aligned with airflow.  
**Weight:** 13.2 oz (374.26 g).  
**Cable Length:** 6' (1.82 m).  
**Probe Length:** 12" (30.48 cm) standard.  
**Probe Diameter:** 5/16" (0.79 cm).  
**OPTIONAL DISPLAY VERSION:**  
**Display:** 4-1/2 digit 1/2" red LED.  
**Resolution:** 1 FPM, 0.01 MPS (10 FPM @ 10,000 and 15,000 FPM ranges).  
**Weight:** 13.9 oz (394.16 g).

ACCESSORIES	
Model	Description
A-156	Universal mounting plate, 1/2" female NPT
A-158	Split flange mounting kit
A-159	Duct mounting gland
641-LED	Field-upgradeable LED

SERIES 641B

# AIR VELOCITY TRANSMITTER

Dirty Air Flow Applications



The **Series 641B Air Velocity Transmitter** uses a heated mass flow sensor suitable for dirty air flow applications. It has user-selectable ranges from 250 FPM (1.25 MPS) to 2000 FPM (10 MPS).

**FEATURES/BENEFITS**

- SS sensor suitable for dirty air flow measurement
- Ranges from 250 FPM (1.25 MPS) to 2000 FPM (10 MPS)
- 4-20 mA output
- Digital filter for signal damping

**APPLICATIONS**

- Exhaust stack flow monitoring
- Air control in drying processes
- HVAC air velocity measurements
- Fan supply and exhaust tracking
- Clean room ventilation monitoring

MODEL CHART	
Model	Description
641B-4	Air velocity transmitter
641B-4-LED	Air velocity transmitter with LED display

**SPECIFICATIONS**

**Service:** Air and compatible, non-combustible gases.  
**Accuracy:** 5% FS process gas: 32 to 122°F (0 to 50°C). 6% FS process gas: -40 to 32°F & 122 to 176°F (-40 to 0°C and 50 to 80°C).  
**Response Time:** Flow: 1.5 s to 95% of final value (output filter set to minimum).  
**Temperature Limits:** Process: -40 to 176°F (-40 to 80°C); Ambient: 32 to 140°F (0 to 60°C).  
**Humidity Limit:** Non-condensing.  
**Power Requirements:** 12-35 VDC, 10-16 VAC. 1.5 A rating required on supply due to initial power surge drawn by transmitter.

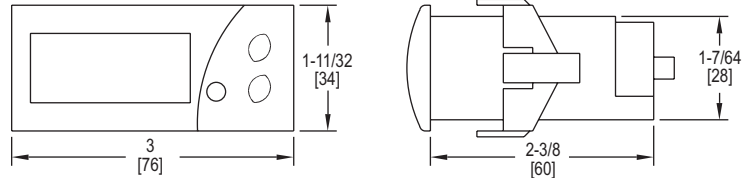
**Output Signal:** 4-20 mA, isolated 24 V source, 3- or 4-wire connection.  
**Output Filter:** Selectable 0.5 -15 (seconds).  
**Loop Resistance:** 600 Ω max.  
**Current Consumption:** 300 mA max\*.  
**Electrical Connections:** Screw terminal.  
**Enclosure Rating:** Designed to meet NEMA 4X (IP66) for non LED models only.  
**Mounting Orientation:** Unit not position sensitive.  
**Weight:** 12.6 oz (357.2 g).

\*A brief current transient exceeding 300 mA may be seen on startup

ACCESSORIES	
Model	Description
A-155	Mounting gland with 1/2" male NPT fitting
A-156	Flange mounting plate with 1/2" female NPT

# HUMIDITY SWITCH

Programmable, 8 A Relay, 3-Digit Display



Panel cutout 2-51/64" x 1-9/64" (71 x 29 mm)

The **Series HS Humidity Switch** provides control for humidifying or dehumidifying systems. Relative humidity, output status, and error messaging can be viewed on the bright green LED. Access to programming parameters can be locked for security purposes using the password protection feature.

**FEATURES/BENEFITS**

- Relative humidity display and control
- Parameter protection
- 0-1 V, 4-20 mA or 3 V (THC-P) input selection

**APPLICATIONS**

- Environmental chambers
- Beer and wine chillers
- Greenhouses

MODEL CHART	
Model	Supply Power
HS-311	115 VAC
HS-312	230 VAC

**SPECIFICATIONS**

<b>Relative Humidity Range:</b> 10 to 100% RH.	<b>Output:</b> 16 A SPDT relay @ 250 VAC resistive.
<b>Input:</b> 0-1 V, 3 V or 4-20 mA.	<b>Horsepower Rating (HP):</b> 1 HP.
<b>Accuracy:</b> THC-P: ±5% @ 20 to 90%; HS: ±1% RH.	<b>Control Type:</b> ON/OFF.
<b>Display:</b> 3-digit, green, 1/2" (12.7 mm) digits.	<b>Power Requirements:</b> 115 VAC or 230 VAC (depending on model).
<b>Resolution:</b> 1 digit.	<b>Memory Backup:</b> Nonvolatile memory.
<b>Temperature Limits:</b> 32 to 158°F (0 to 70°C).	<b>Weight:</b> 2.3 oz (65 g).
<b>Storage Temperature:</b> -4 to 176°F (-20 to 80°C).	<b>Front Panel Rating:</b> IP64.
	<b>Agency Approvals:</b> CE, cURus.

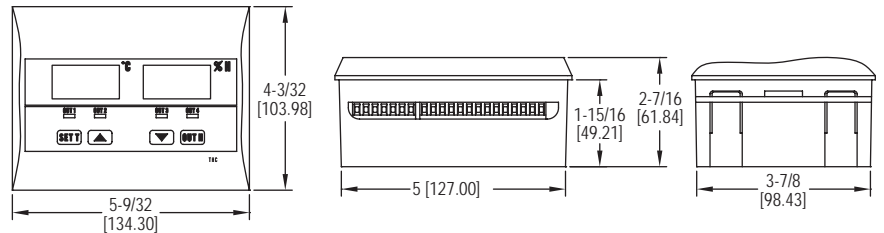
**ACCESSORIES**

Model	Description
THC-P	Humidity probe, 3 V output, 4' (1.2 m) cable

SERIES THC

# TEMPERATURE/HUMIDITY SWITCH

Independent Displays, 61 Programmable Parameters, 4 SPST Relays



The **Series THC Temperature/Humidity Switch** simultaneously measures and controls temperature and humidity. The unit offers a 3-digit red display for temperature indication and a 3-digit green display indicating humidity. The Series THC is equipped with four independent relays, two for temperature control and two relays for humidity control.

The THC Temperature/Humidity Switch accepts up to two temperature probe inputs (sold separately) and a humidity sensor. A humidity sensor with 0-1 V, 3 V (THC-P sold separately), or 4-20 mA output can be used with the Series THC.

**FEATURES/BENEFITS**

- Temperature and humidity control in one device
- Password protected parameter settings
- Selectable fail safe status of relay outputs

**APPLICATIONS**

- Isolation chambers
- Environmental chambers
- Greenhouses
- Beer and wine chillers

MODEL CHART		
Model	Supply Power	Unit
THC-10	115 VAC	°F
THC-11	115 VAC	°C
THC-20	230 VAC	°F
THC-21	230 VAC	°C

**SPECIFICATIONS**

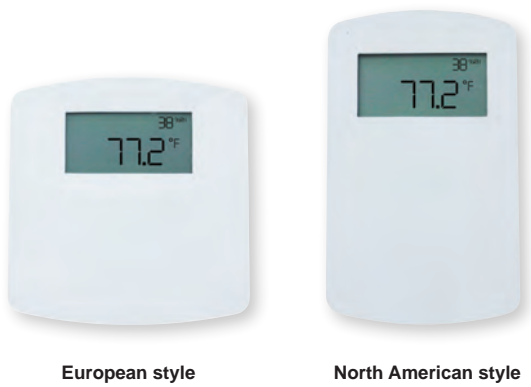
<b>Measurement Range:</b> Temperature: -58 to 302°F (-50 to 150°C); Humidity: 0 to 100% RH.	<b>Display:</b> Two 3-digit displays. 1/2" digits.
<b>Input:</b> Up to 2 thermistors and 1 humidity sensor.	<b>Resolution:</b> 0.1°.
<b>Output:</b> 4 SPST, 8 A relays @ 250 VAC.	<b>Memory Backup:</b> Nonvolatile memory.
<b>Horsepower Rating (HP):</b> 1/3 HP.	<b>Ambient Operating Temperature:</b> 32 to 158°F (0 to 70°C).
<b>Control Type:</b> ON/OFF direction, direct or reverse acting, neutral.	<b>Storage Temperature:</b> -4 to 176°F (-20 to 80°C).
<b>Power Requirements:</b> 110 or 230 VAC (depending on model).	<b>Weight:</b> 1.17 lb (530 g).
<b>Accuracy:</b> Temperature ±0.5% of probe range; Humidity: 20 to 90%.	<b>Panel Cutout:</b> 5.15" x 3.97" (131 x 101 mm).
	<b>Front Panel Protection:</b> IP64.
	<b>Agency Approvals:</b> CE.

**ACCESSORIES**

Model	Description
THC-P	Humidity probe, 3 V output, 4 ft (1.2 m) cable
TS-5	Temperature probe, PVC with 5 ft (1.5 m) cable
TS-6	Temperature probe, metal with 5 ft (1.5 m) cable
TS-51	Temperature probe, PVC with 10 ft (3 m) cable
TS-61	Temperature probe, metal with 10 ft (3 m) cable

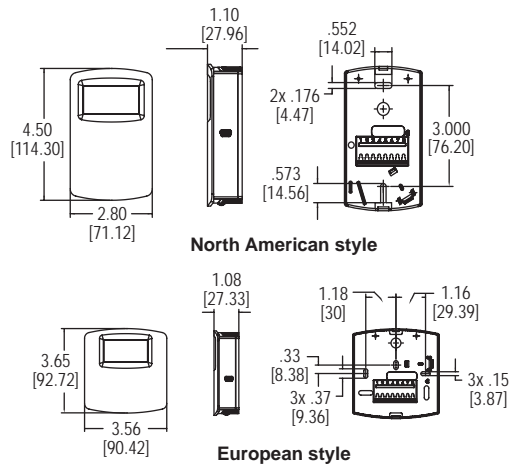
# WALL MOUNT HUMIDITY/TEMPERATURE/DEW POINT TRANSMITTERS

Optional LCD Display



European style

North American style



North American style

European style

The Series RHP-E/N Wall Mount Humidity/Temperature/Dew Point Transmitters are the most versatile room transmitter on the market. The stylish housing is well vented to provide air flow across the sensor to improve measurement accuracy. The humidity and the dew point are measured using a capacitive polymer sensor. The humidity and dew point can have either a current or voltage output, while the optional temperature output can be a current, voltage, RTD or thermistor. For models with current or voltage for the temperature output, the temperature range is field selectable.

**FEATURES/BENEFITS**

- Field selectable relative humidity or dew point output
- Universal analog outputs
- Integral or service tool LCD display options
- Two housing designs to match North American and European aesthetics

**APPLICATIONS**

- Air economizers
- Room comfort monitoring
- Greenhouse monitoring

**SPECIFICATIONS**

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

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

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

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

**Hysteresis:** ±0.8%.

**Repeatability:** ±0.1% typical.

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

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

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

**0-5/10V Outputs:** Power requirements: 15-35 VDC or 15-29 VAC; Output load: 5 mA max., 2 channels for humidity/solid state temperature sensor models. Switch selectable 0-10 V/2-10 V or 0-5 V/1-5 V 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:** 8 s.

**Electrical Connections:** Screw terminal block.

**Drift:** <0.25% RH/year.

**RH Sensor:** Capacitance polymer.

**Enclosure Material:** Polycarbonate.

**Enclosure Rating:** IP20.

**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.

MODEL CHART						
Example	RHP	-3	N	4	A	-LCD RHP-3N4A-LCD
Series	RHP					Humidity/temperature dew point transmitter
Accuracy		2 3 5				2% accuracy 3% accuracy 5% accuracy
Housing			E N			European style wall mount North American style wall mount
Humidity/Dew Point Output				4		4-20 mA/0-5 VDC/0-10 VDC
Temperature Output					0 4 A B C D E F	None 4-20 mA/0-5 VDC/0-10 VDC 10K Ω @ 25°C thermistor type III 10K Ω @ 25°C thermistor type II 3K Ω @ 25°C thermistor 100 Ω RTD DIN 385 1K Ω RTD DIN 385 20K Ω @ 25°C thermistor
Options					LCD NIST	LCD display NIST traceable calibration certificate

ACCESSORIES	
Model	Description
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

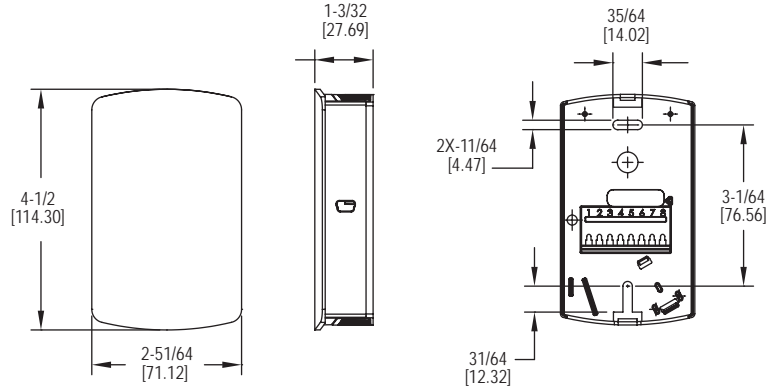


A-449

Humidity/Temperature Transmitters

# WALL MOUNT HUMIDITY/TEMPERATURE TRANSMITTER

2% or 3% Humidity Sensor, Passive Temperature Outputs



The Series RHPLC Wall Mount Humidity/Temperature Transmitter is a compact economical sensor for the building automation marketplace. The stylish housing is well vented to provide air flow across the sensor to improve measurement accuracy. Each unit utilizes a capacitive polymer sensing element to deliver a proportional analog output. A combination humidity and temperature model can be configured with current, voltage, RTD, or thermistor output. A wide selection of passive RTD or thermistor temperature sensors are available in this series.

**FEATURES/BENEFITS**

- 2% or 3% accuracy models
- Humidity only or temperature and humidity combo
- Wide selection of passive thermistor or RTD temperature sensors

**APPLICATIONS**

- Air economizers
- Room comfort monitoring

**SPECIFICATIONS**

**Sensor:** Capacitive polymer.  
**Relative Humidity Range:** 0-100% RH.  
**RH Accuracy:** ±2% 10 to 90% RH @ 25°C for 2% accuracy units; ±3% 20 to 80% RH @ 25°C for 3% accuracy units.  
**RH Hysteresis:** ±0.8%.  
**RH Repeatability:** ±0.1% typical.  
**Temperature Output Range:** -40 to 140°F (-40 to 60°C).  
**Passive Thermistor Temperature Sensor Accuracy:** ±0.36°F @ 77°F (±0.2°C @ 25°C).  
**Accuracy RTD Temp Sensor:** DIN Class B; ±0.3°C @ 0°C (±0.54°F @ 77°F).  
**Accuracy Current/Voltage Temperature Output:** ±0.9°F @ 72°F (±0.3°C @ 25°C).  
**Temperature Limits:** Operating: -40 to 140°F (-40 to 60°C); Storage: -40 to 176°F (-40 to 80°C).  
**Power Requirements:** 10-35 VDC for 4-20 mA or 0-5 VDC output; 15-35 VDC for 0-10 VDC output; 10-29 VAC for 0-5 VDC output; 15-29 VAC for 0-10 VDC output.  
**Response Time:** 8 s (τ<sub>63</sub>).  
**Electrical Connections:** Screw terminal block.  
**Drift:** <0.25% RH/year.  
**Enclosure Material:** Polycarbonate.  
**Weight:** 4.4 oz (125 g).  
**Agency Approvals:** CE.

MODEL CHART							
Example	RHPLC	-3	N	2	A	-FC	RHPLC-3N2A-FC
Series	RHPLC						Humidity/temperature transmitter
Accuracy		2					2% accuracy
		3					3% accuracy
Housing			N				North American style wall mount
Humidity Output				1			Current 4-20 mA
				2			Voltage 0-10 VDC
				3			Voltage 0-5 VDC
Temperature Output					0		None
					1		Current 4-20 mA
					2		Voltage 0-10 VDC
					3		Voltage 0-5 VDC
					A		10K Ω @ 25°C thermistor type III
					B		10K Ω @ 25°C thermistor type II
					C		3K Ω @ 25°C thermistor
				D		100 Ω RTD DIN 385	
				E		1K Ω RTD DIN 385	
				F		20K Ω @ 25°C thermistor	
Options						FC	Factory calibration certificate (3% accuracy units)

ACCESSORIES	
Model	Description
SCD-PS	100-240 VAC/VDC to 24 VDC power supply
APT-40-5DN	AC power transformer, 120/208/240/277/480 VAC input, 24 VAC isolated output, 40 VA, dual hub

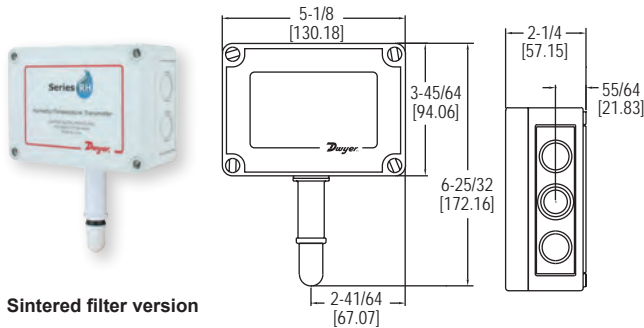


# HUMIDITY/TEMPERATURE TRANSMITTERS

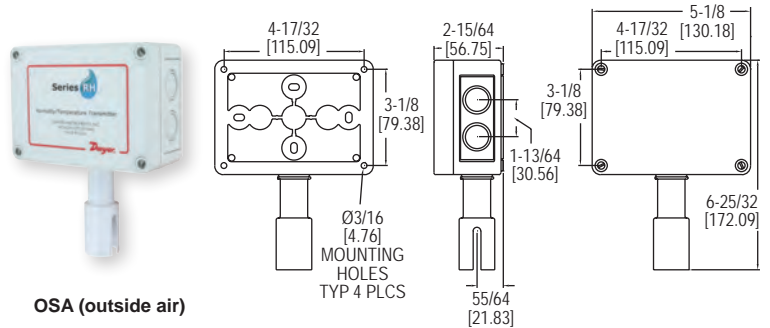
Passive Temperature Outputs, Sintered Filter Options



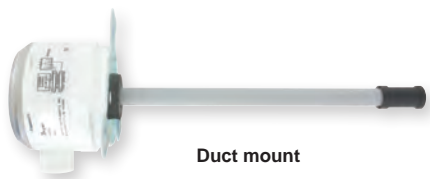
AIR QUALITY



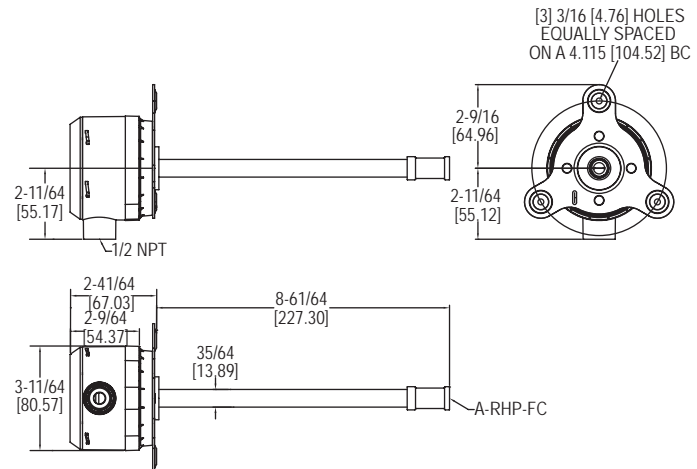
Sintered filter version



OSA (outside air)



Duct mount



The Series RHP Humidity/Temperature Transmitters combine the voltage or current humidity transmitter output with a passive temperature thermistor or RTD output. Featuring polymer capacitance humidity sensors, models are available with 2%, 3% or 5% accuracies. Duct mounted transmitters are available with an optional two-line alpha numeric LCD display.

**FEATURES/BENEFITS**

- 2%, 3%, or 5% accuracy models
- Optional LCD display on duct mount models
- Radiation shield option for outdoor installation in direct sunlight

**APPLICATIONS**

- Air economizers
- Outdoor temperature and relative humidity reference
- Pool room humidity monitoring

MODEL CHART						
Example	RHP	-2	D	1	A	-LCD RHP-2D1A-LCD
Series	RHP					RH/passive temperature sensor transmitter
Accuracy		2 3 5				2% accuracy 3% accuracy 5% accuracy
Housing Type			D O S R			Duct mount with plastic hydrophobic filter OSA (outside air) OSA with sintered filter* Radiation shield
RH Output				1 2 3		4-20 mA 0-10 V 0-5 VDC
Temperature Sensor					0 1 2 3 A B C D E F	None 4-20 mA 0-10 VDC 0-5 VDC 10K @ 25°C thermistor type III 10K @ 25°C thermistor type II 3K @ 25°C thermistor 100 Ω RTD DIN 385 1K Ω RTD DIN 385 20K Ω @ 25°C thermistor
Options						LCD display NIST traceable calibration certificate

\*Use OSA with sintered filter models when purchasing Series RHRS radiation shield separately.

**SPECIFICATIONS**

**Relative Humidity Range:** 0 to 100% RH.  
**Temperature Range:** -40 to 140°F (-40 to 60°C).  
**Accuracy, RH:** RHP-2XXX ±2% 10-90% RH @ 25°C; RHP-3XXX ±3% 20-80% RH @ 25°C; RHP-5XXX ±5% 20-80% RH @ 25°C.  
**Accuracy, Thermistor Temp Sensor:** ±0.2°C @ 25°C (±0.36°F @ 77°F).  
**Accuracy, RTD Temp Sensor:** DIN Class B; ±0.3°C @ 0°C (±0.54°F @ 32°F).  
**Accuracy, Solid State Band Gap:** ±0.9°F @ 77°F (±0.3°C @ 25°C).  
**Hysteresis:** ±1%.  
**Repeatability:** ±0.1% typical.  
**Temperature Limits:** -40 to 140°F (-40 to 60°C).  
**Storage Temperature:** -40 to 176°F (-40 to 80°C).  
**Compensated Temperature Range:** -4 to 140°F (-20 to 60°C).  
**4-20 mA Loop Powered Models:** Power requirements: 10-35 VDC; Output signal: 4-20 mA.  
**0-5/10 V Output Models:** Power requirements: 15-35 VDC or 15-29 VAC; Output signal: 0-10 V @ 5 mA max.  
**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 s.  
**Electrical Connections:** Removable screw terminal block.  
**Conduit Connection:** Duct mount: 1/2" NPS; OSA: 1/2" (22.3 mm).  
**Drift:** < 1% RH/year.  
**RH Sensor:** Capacitance polymer.  
**Temperature Sensor:** Types 1, 2, 3: Solid state band gap; Curves A, B, C: Thermistor; Curves D, E: Platinum RTD DIN 385.  
**Enclosure:** Duct mount: PBT; OSA: Polycarbonate.  
**Enclosure Rating:** Duct mount: NEMA 4X (IP66) for housing only; OSA: NEMA 4X (IP66).  
**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.

**ACCESSORIES**

Model	Description
A-RHP-FC	Replacement plastic hydrophobic filter
A-RHP-RT	Retrofit tool for fitting O-ring on RHP-D/M models for new filter
A-RHP-FC	A-RHP-FC

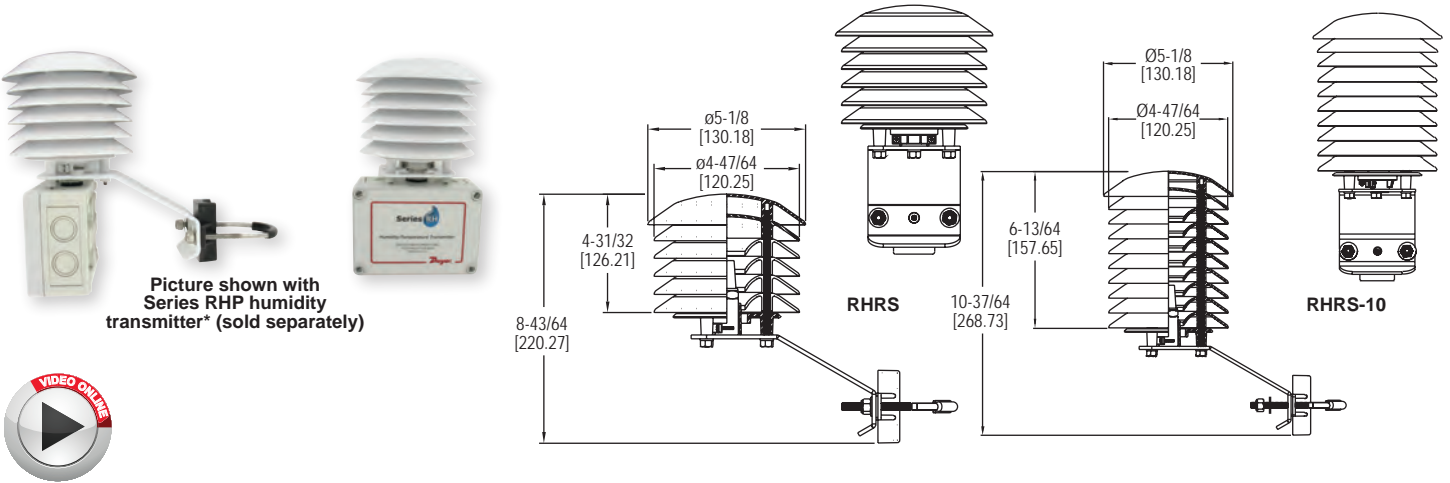
Humidity/Temperature Transmitters



**SERIES RHRS**

# OUTSIDE AIR HUMIDITY RADIATION SHIELDS

6 or 10 Plate Design, Integral Pipe Mounting Kit



Picture shown with Series RHP humidity transmitter\* (sold separately)



The Series RHRS Outside Air Humidity Radiation Shields 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.

**FEATURES/BENEFITS**

- Adjustable sensor mounting collar works with Dwyer RHP sintered filter outdoor air humidity transmitters or other RH devices
- Universal mount fits 3/4" to 1-1/2" pipe or flat surfaces

**APPLICATIONS**

- Building outside air reference
- Weather stations

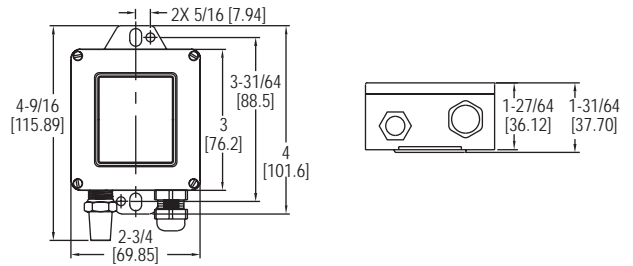
MODEL CHART	
Model	Description
RHRS	6 plate radiation shield
RHRS-10	10 plate radiation shield

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

**SERIES WHT**

# WEATHER-RESISTANT HUMIDITY/TEMPERATURE TRANSMITTER

Compact Housing, Sintered Filter



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

**FEATURES/BENEFITS**

- RH or RH and temperature outputs
- Compact NEMA 3S construction

**APPLICATIONS**

- Air handling economizers
- Air environment monitoring in agriculture or livestock cultivation houses

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

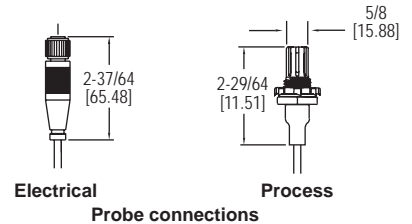
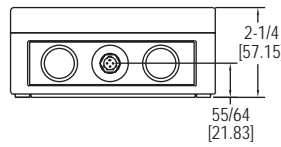
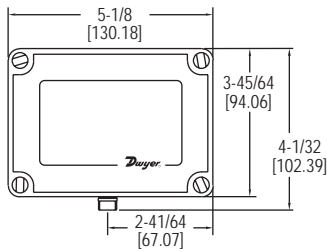
**Note:** For 2% accuracy, change the leading 3 to a 2.  
**Example:** WHT-210.

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



# HUMIDITY/TEMPERATURE TRANSMITTER

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



The **Series RH-R Humidity and Temperature 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.

**FEATURES/BENEFITS**

- Cable lengths from 4 to 16'
- Remote housing allows for flexibility sensing where space may be limited

**APPLICATIONS**

- Process system monitoring
- Environmental chambers
- Air economizers

**SPECIFICATIONS**

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

**MODEL CHART**

Model	Cable Length	Description	Output	Model	Cable Length	Description	Output
RHU-R004	4'	Humidity	Current	RHT-R004	4'	Humidity/temperature	Current
RHU-R008	8'	Humidity	Current	RHT-R008	8'	Humidity/temperature	Current
RHU-R012	12'	Humidity	Current	RHT-R012	12'	Humidity/temperature	Current
RHU-R016	16'	Humidity	Current	RHT-R016	16'	Humidity/temperature	Current

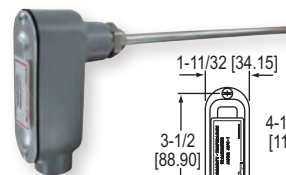
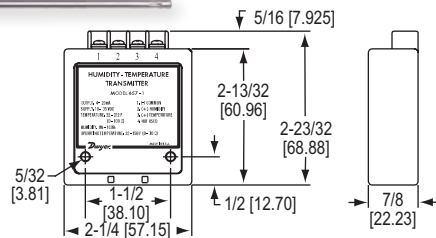
**SERIES 657**

# RELATIVE HUMIDITY/TEMPERATURE TRANSMITTERS

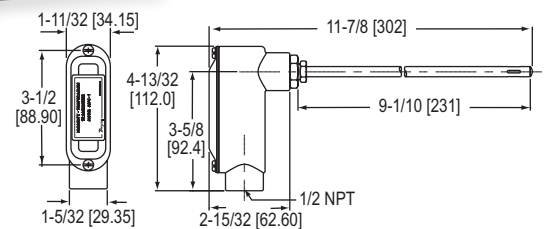
Dual Channel Design for Simultaneous 4-20 mA Output Signals



657



657C



The **Series 657 Relative Humidity/Temperature Transmitters** provide two 4-20 mA channels to produce separate output signals for both relative humidity and temperature. These devices deliver ±2% accuracy for humidity and ±1°F for temperature measurements. Stainless steel probe can be easily mounted to most ductwork using either of the two optional kits below.

**FEATURES/BENEFITS**

- Polymer film humidity and thin film RTD temperature sensors offer highly reliable and stable measurements.
- Remote mount housing offers installation flexibility (657-1)
- Rugged die-cast aluminum housing is great for industrial applications (657C-1)

**APPLICATIONS**

- Cleanroom monitoring
- HVAC/building control monitoring

**MODEL CHART**

Model	Description
657-1	RH/temperature transmitter
657C-1	RH/temperature transmitter - conduit housing

**ACCESSORIES**

Model	Description
A-158	Split flange
A-159	Mounting gland



**SPECIFICATIONS**

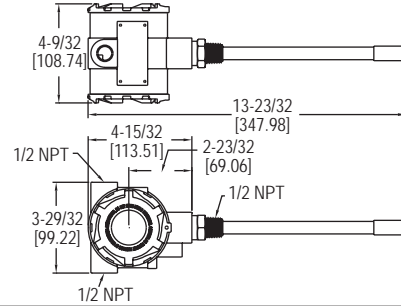
**Service:** Dry clean air.  
**Range:** Relative humidity: 0 to 100%; Temperature: 32 to 212°F (0 to 100°C).  
**Accuracy:** Relative humidity: ±2% (10 to 90% RH), ±3% (0 to 10% and 90 to 100% RH); Temperature ±1°F (0.5°C).  
**Temperature Limits:** 32 to 140°F (0 to 60°C).  
**Pressure Limits:** 1 psi (.07 bar).  
**Compensated Temperature Range:** 32 to 140°F (0 to 60°C).  
**Power Requirements:** 10-35 VDC.  
**Output Signal:** 2 channels each 4-20 mA. Loop powered on the RH channel.  
**Electrical Connections:** 4 screw type terminals.  
**Mounting Orientation:** Mount in any position.  
**Probe:** 657-1: Stainless steel 5/16" x 10" (0.8 x 25.4 cm); 657C-1: 5/16" x 9-1/10" (0.8 x 23.1 cm).  
**Weight:** 657-1: 5.5 oz (156 g); 657C-1: 10 oz (284 g).

**OPTIONS**

To order add suffix:	Description
-NIST	NIST traceable humidity calibration certificate
<b>Example:</b> 657C-1-NIST	

# HAZARDOUS AREA HUMIDITY/TEMPERATURE TRANSMITTER

Intrinsically Safe or Explosion-Proof Models



The **Series HHT Hazardous Area Humidity/Temperature Transmitter** takes accurate measurements in the harshest of environments. The explosion-proof model is offered with 4-20 mA output for humidity only. The intrinsically safe version is offered with 4-20 mA output for humidity and temperature, and do require an intrinsically safe barrier to meet hazardous area approvals.

**FEATURES/BENEFITS**

- FM approved explosion-proof and intrinsically safe models
- Integral LCD option
- Dual temperature and relative humidity output models

**APPLICATIONS**

- Process monitoring
- Offshore HVAC monitoring
- Dust and grain handling

MODEL CHART			
Model	Protection	Description	Display
HHT-EU	Explosion-proof	Humidity	No
HHT-IU	Intrinsically safe	Humidity	No
HHT-IT	Intrinsically safe	Humidity/temperature	No
HHT-EU-LCD	Explosion-proof	Humidity	Yes
HHT-IT-LCD	Intrinsically safe	Humidity/temperature	Yes

ACCESSORIES	
Model	Description
KFD0-SCS-EX1.55 A-287	Loop powered galvanic isolator Mounting bracket for pipe or surface mounting (Includes bracket and two 2" U-bolts)
A-450	Replacement sintered filter

**SPECIFICATIONS**

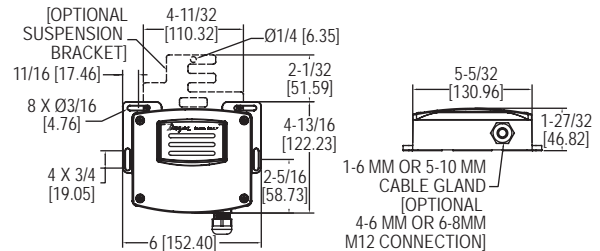
**Relative Humidity Range:** 0 to 100% RH.  
**Temperature Range:** -40 to 140°F (-40 to 60°C).  
**Accuracy:** ±2% 10 to 90% RH, ±0.9°F at 72°F (±0.3°C at 25°C).  
**Hysteresis:** ±1%.  
**Repeatability:** ±0.1% typical.  
**Temperature Limits:** -40 to 140°F (-40 to 60°C).  
**Storage Temperature:** -40 to 176°F (-40 to 80°C).  
**Compensated Temperature:** -40 to 140°F (-40 to 60°C).  
**Power Requirements:** For intrinsically safe models HHT-IX, 9.5-28 VDC. For explosion-proof models HHT-EX, 16.5-28 VDC.  
**Output Signal:** 4-20 mA, 2 channels for humidity/temperature models (loop power on RH).  
**Response Time:** 15 s.  
**Electrical Connections:** Screw terminal block.  
**Conduit Connection:** 1/2 female NPT.  
**Drift:** < 1% RH/year.  
**RH Sensor:** Capacitance polymer.  
**Temperature Sensor:** Solid state band gap.  
**Housing Material:** Aluminum.  
**Display:** Optional 2 line alpha numeric, 8 characters/line. Temperature display is °F/°C selectable.  
**Display Resolution:** RH: 0.1%; Temperature: 0.1°F (0.1°C).  
**Weight:** 2 lb 8 oz (1134 g).  
**Enclosure Rating:** NEMA 4X (IP66). Models HHT-EX: FM Explosion- Proof, Class I Div. 1 Group B, C, D, Class II Div. 1 Group E, F, G, Class III Div. 1; Models HHT-IX: FM Intrinsically Safe, Class I Div. 1 Group A, B, C, D, Class II Div. 1 Group E, F, G, Class III Div. 1 T4.  
**Agency Approvals:** CE, FM.

See page 366 (Model KFD0)

SERIES CDWP

# CARBON DIOXIDE TRANSMITTER

NDIR CO<sub>2</sub> Sensor with Universal Outputs in an Industrial Housing



The **Series CDWP Carbon Dioxide Transmitter** accurately monitors the CO<sub>2</sub> concentration in industrial and indoor environments to help achieve energy savings. For increased sensor life and accuracy, a single-beam dual-wavelength non-dispersive infrared (NDIR) sensor is used to eliminate light source aging effects. This sensing technology provides the highest level of accuracy compared to Automatic Baseline Correction methods, which can unintentionally shift the calibration based on CO<sub>2</sub> levels and barometric pressure conditions.

MODEL CHART						
Example	CDWP	-05	W	-M4	-FC	CDWP-05W-M4
<b>Series</b>	CDWP					Carbon dioxide transmitter
<b>Range</b>		02 05 10				2000 PPM 5000 PPM 10000 PPM
<b>Mounting</b>			W H			Wall mount Suspended mount
<b>Electrical Connection</b>				C1 C5 M4 M6		Cable gland 1 to 6 mm cable Cable gland 5 to 10 mm cable M12 connection 4 to 6 mm cable M12 connection 6 to 8 mm cable
<b>Option</b>					FC	Factory calibration certificate

ACCESSORIES	
Model	Description
A-CDWP-L	Replacement lid with filter material
A-CDWP-H	Suspended mount bracket

**SPECIFICATIONS**

**Sensor:** Single beam, dual-wavelength NDIR.  
**Range:** CO<sub>2</sub>: 0 to 2000, 0 to 5000, or 0 to 10000 PPM (depending on model).  
**Accuracy:** CO<sub>2</sub>: ± 40 PPM ±3% of reading.  
**Temperature Dependence:** ±8 PPM/°C at 1100 PPM.  
**Non-Linearity:** 16 PPM.  
**Pressure Dependence:** 0.13% of reading per mm of Hg.  
**Response Time:** 300 s (T<sub>63</sub>).  
**Temperature Limits:** 32 to 122°F (0 to 50°C).  
**Humidity Limits:** 10 to 95% RH (non-condensing).  
**Power Requirements:** 16-35 VDC or 19-28 VAC.  
**Power Consumption:** Average: 2 w; Peak: 3.75 w.  
**Output:** Current: 4-20 mA (max. 500 Ω); Voltage: 0-5 VDC or 0-10 VDC (min. 500 Ω).  
**Enclosure Rating:** IP54.  
**Mounting Orientation:** Vertically, with electrical connections points downward.  
**Weight:** 26.24 oz (744 g).  
**Agency Approvals:** CE.

**FEATURES/BENEFITS**

- IP54 aluminum housing
- Gray finish tested to withstand 168 hour salt spray test
- Single-beam dual-wavelength sensor automatically corrects for aging effects
- Measures unfiltered light intensity directly and eliminates error from incorrect assumptions of gas concentration in theoretical logic assumption methods
- Universal outputs to work with any building management system

**APPLICATIONS**

- Animal husbandry
- Mechanical room
- CO<sub>2</sub> refrigeration monitoring
- Greenhouses



# CARBON DIOXIDE/TEMPERATURE TRANSMITTERS

NDIR CO<sub>2</sub> Sensor, Universal Outputs, Optional Relay



AIR QUALITY

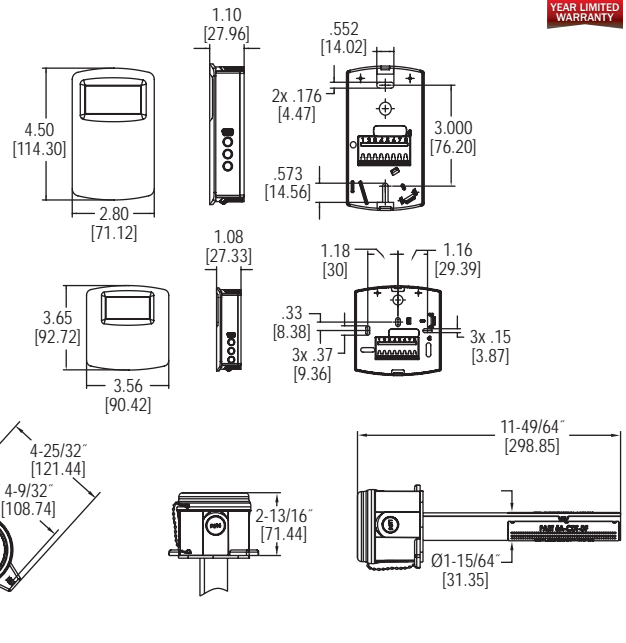


European style

North American style



Duct



The **Series CDT Carbon Dioxide and Temperature Transmitters** accurately monitor the CO<sub>2</sub> concentration and temperature in indoor environments to help achieve energy savings. For increased sensor accuracy, a single beam dual wavelength non-dispersive infrared (NDIR) sensor is used to automatically correct the measurement in both occupied\* and unoccupied buildings against light source aging effects. The single beam dual wavelength sensor technology provides the highest level of accuracy compared to Automatic Baseline Correction methods which can unintentionally shift the calibration based on CO<sub>2</sub> 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.

For applications that require visual indication, the wall mount configurations of the Series CDT can be ordered with an integral LCD display. Push-buttons are standard on all configurations of the transmitters for access to the menu structure, but wall mount configurations can be ordered without the buttons. To prevent tampering, the action of the buttons can be locked out using an internal dip switch selection.

### FEATURES/BENEFITS

- Single beam dual wavelength NDIR sensor eliminates draft due to light source aging
- Integral passive temperature outputs reduce number of devices mounted in the space
- Service display tool available for models without an integral LED
- Optional integral display and relay output

### APPLICATIONS

- Demand control ventilation in schools, office buildings, hospitals, and other indoor environments
- LEED® certification

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

### SPECIFICATIONS

**Sensor:** Single beam, dual wavelength NDIR.  
**Range:** CO<sub>2</sub>: 0 to 2000 or 0 to 5000 PPM (depending on model); Temperature: 32 to 122°F (0 to 50°C).  
**Accuracy:** CO<sub>2</sub>: ±40 PPM ±3% of reading; 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.  
**Duct Air Velocity Range:** 0-4000 FPM (20.32 m/s).  
**Temperature Limits:** 32 to 122°F (0 to 50°C).  
**Humidity Limits:** 10 to 95% RH (non-condensing).  
**Power Requirements:** 16-35 VDC or 19-28 VAC.  
**Power Consumption:** Average: 2 w; Peak: 3.75 w.  
**Output:** Current: 4-20 mA (max. 500 Ω); Voltage: 0-5 VDC or 0-10 VDC (min. 500 Ω); Relay: SPST NO rated 2 A @ 30 VDC.  
**Weight:** 4.4 oz (125 g).  
**Enclosure Rating:** Duct mount: NEMA 4X (IP66) for housing only; Wall mount: IP20.  
**Agency Approvals:** CE.

MODEL CHART						
Example	CDT	-2	N	4	4	-LCD CDT-2N44-LCD
Series	CDT					Carbon dioxide/temperature transmitter
Range		2 5				0 to 2000 PPM CO <sub>2</sub> range 0 to 5000 PPM CO <sub>2</sub> range
Configuration			N E D			North American style wall mount European style wall mount Duct mount
CO <sub>2</sub>				4		4-20 mA / 0 to (5 or 10) VDC
Temperature Output					0 4 A B C D E F	None 4-20 mA / 0 to (5 or 10) VDC 10 KΩ NTC thermistor type III 10 KΩ NTC thermistor type II 3 KΩ NTC thermistor Pt100 Ω RTD Pt1000 Ω RTD 20 KΩ NTC thermistor
Options						FC Factory calibration certificate LCD LCD display (wall only) RLY Relay NBC No buttons (wall only)

ACCESSORIES	
Model	Description
GCK-200CO-2000CO2	Calibration gas kit includes a 99.99% nitrogen gas cylinder for calibrating the zero point and a 200 PPM CO / 2000 PPM CO <sub>2</sub> 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
A-CDT-KIT	Accessory kit including terminal block and power supply



GCK-200CO-2000CO2



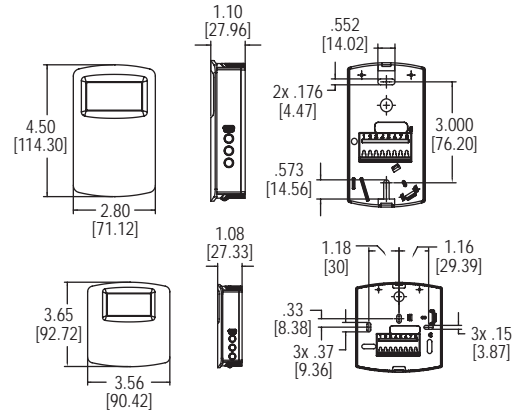
A-449

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Carbon Dioxide Transmitters

# COMMUNICATING CARBON DIOXIDE DETECTORS

Measures CO<sub>2</sub>, Humidity, Temperature, Temperature Set Point, and Override



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

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

Optional local and remote displays are available to display any of the parameters. For applications in which the building occupants aren't familiar with CO<sub>2</sub> concentrations, the LCD can be programmed to display temperature, humidity, or temperature set point instead.

### FEATURES/BENEFITS

- Digital Intelligent Temperature Compensation Algorithm (DITCA) corrects for errors due to self heating effects of combination wall sensors
- Field selectable Modbus® and BACnet communications reduces wiring
- Single beam dual wavelength CO<sub>2</sub> sensor
- Replaceable humidity/temperature sensor
- Physical hardware lockout
- Optional remote display tool

### APPLICATIONS

- Demand control ventilation in schools, office buildings, hospitals, and other indoor environments
- LEED® certification

MODEL CHART			
Model	CO <sub>2</sub> Concentration	Housing Style	Display
CDTA-2N000	2000 PPM	North American	No
CDTA-2N000-LCD	2000 PPM	North American	Yes
CDTA-2E000	2000 PPM	European	No
CDTA-2E000-LCD	2000 PPM	European	Yes
CDTA-5N000	5000 PPM	North American	No
CDTA-5N000-LCD	5000 PPM	North American	Yes
CDTA-5E000	5000 PPM	European	No
CDTA-5E000-LCD	5000 PPM	European	Yes

OPTIONS	
To order add suffix:	Description
-FC	Factory calibration certificate
<b>Example:</b> CDTA-2N000-FC	

### SPECIFICATIONS

**Sensor (CO<sub>2</sub>):** Single beam, dual wavelength NDIR; Humidity: Capacitive polymer; Temperature: 10K Ω thermistor.  
**Range:** CO<sub>2</sub>: 0 to 2000 or 5000 PPM CO<sub>2</sub> (depending on model); Humidity: 0 to 100% RH; Temperature: 32 to 122°F (0 to 50°C).  
**Accuracy:** CO<sub>2</sub>: ±40 PPM ±3% of reading; RH: ±2% (10 to 90% RH); Temperature: ±1°C @ 25°C.  
**Temperature Dependence (CO<sub>2</sub>):** ±8 PPM / °C at 1100 PPM.  
**Non-Linearity (CO<sub>2</sub>):** 16 PPM.  
**Pressure Dependence (CO<sub>2</sub>):** 0.13% of reading per mm of Hg.  
**Response Time (CO<sub>2</sub>):** 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:** 10-42 VDC / 10-30 VAC.  
**Power Consumption:** Average: 0.5 w; Peak: 1.2 w.  
**Output:** 2-wire RS-485, Modbus® RTU or BACnet MS/TP communication protocol.  
**Weight:** 4.4 oz (125 g).  
**Enclosure Rating:** IP20.  
**Agency Approvals:** BTL, CE.

### ACCESSORIES

Model	Description
<b>GCK-200CO-2000CO2</b>	Calibration gas kit includes a 99.99% nitrogen gas cylinder for calibrating the zero point and a 200 PPM CO / 2000 PPM CO <sub>2</sub> gas cylinder for calibrating the span point on Dwyer's gas sensing transmitters
<b>A-449</b>	Remote LCD display allows remote indication of select Dwyer® wall mount transmitters for validation or certification purposes
<b>A-CDT-KIT</b>	Accessory kit including terminal block and power supply



GCK-200CO-2000CO2

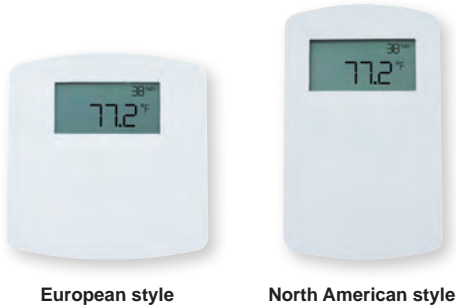


A-449

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

# CARBON DIOXIDE/RH/TEMPERATURE TRANSMITTERS

NDIR CO<sub>2</sub> Sensor, Universal CO<sub>2</sub>/RH Outputs, Optional Relay

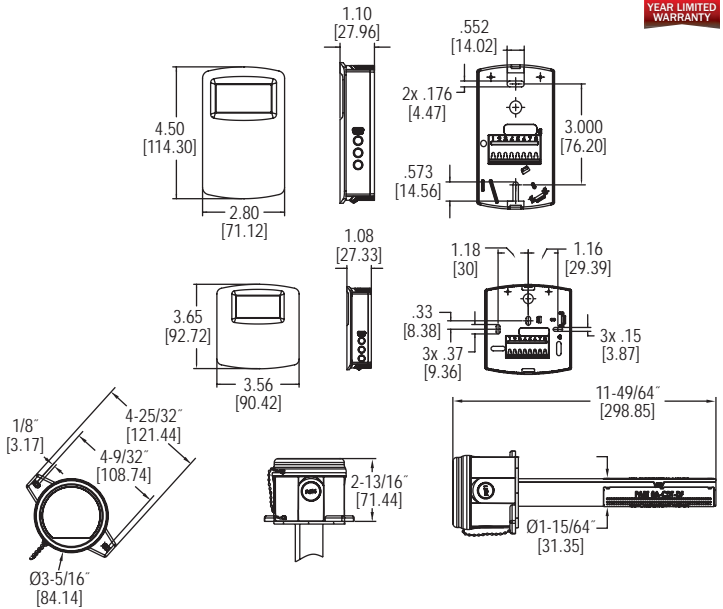


European style

North American style



Duct



The Series CDTR Carbon Dioxide, Relative Humidity and Temperature Transmitters reduce the number of sensors mounted on a wall or in a duct. By combining CO<sub>2</sub>, RH, and temperature in one device, system integrators are able to reduce installation time while lowering material cost at the same time. Like our popular Series CDT Carbon Dioxide Transmitter, a single beam dual wavelength non-dispersive infrared (NDIR) sensor is used to automatically correct the measurement in both occupied\* and unoccupied buildings against light source aging effects. 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 4-20 mA, 0-5 VDC, or 0-10 VDC to work with virtually any building management controller. Additionally, passive thermistor or RTD sensor can be ordered for a temperature output. For applications that require visual indication, the wall mount configurations of the Series CDTR can be ordered with an integral LCD display. The display can be configured to display temperature only, relative humidity only, CO<sub>2</sub> only, CO<sub>2</sub> and humidity, or CO<sub>2</sub> and temperature. Push-buttons are standard on all configurations of the transmitters for access to the menu structure. To prevent tampering, the action of the buttons can be locked out using an internal jumper selection.

## FEATURES/BENEFITS

- Digital Intelligence Temperature Compensation Algorithm (DITCA™) eliminates error due to the self heating effects of wall mount combination devices.
- Single beam dual wavelength NDIR CO<sub>2</sub> sensor
- Replaceable humidity/temperature sensors
- Physical hardware lockout
- Service display tool available for duct mount and wall mount units without an LCD
- Relay output option

## APPLICATIONS

- Demand control ventilation in schools, office buildings, hospitals, and other indoor environments
- LEED® certification

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

## SPECIFICATIONS

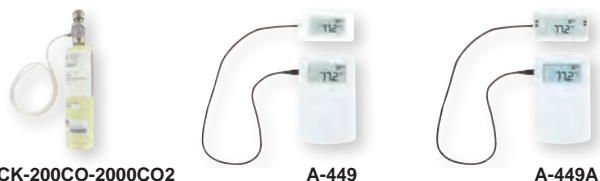
**Range:** CO<sub>2</sub>: 0 to 2000 or 0 to 5000 PPM (depending on model); Relative humidity: 0 to 100%; Temperature: 32 to 122°F (0 to 50°C).  
**Accuracy:** ±40 PPM + 3% of reading (CO<sub>2</sub>); ±2% (RH).  
**Temperature Dependence:** ±8 PPM / °C at 1100 PPM.  
**Non-Linearity:** 16 PPM.  
**Pressure 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).  
**Duct Air Velocity Range:** 0-4000 FPM (20.32 m/s)  
**Humidity Limits:** 10 to 95% RH (non-condensing).  
**Power Requirements:** 16-35 VDC / 19-28 VAC.  
**Power Consumption:** Average: 2 watts; Peak: 3.75 watts.  
**Sensor:** Single beam, dual wavelength NDIR.  
**Output:** Current: 4-20 mA (max 500 Ω); Voltage: 0-5 VDC or 0-10 VDC (min 500 Ω); Relay: SPST NO 2 A @ 30 VDC; RTD or thermistor per r-t curves (depending on model).  
**Weight:** 5.6 oz (158.8 g).  
**Enclosure Rating:** Duct mount: NEMA 4X (IP66) for housing only; Wall mount: IP20.  
**Agency Approvals:** CE.

## MODEL CHART

Example	CDTR	-2	N	4	A	4	-LCD	CDTR-2N4A4-LCD
<b>Series</b>	CDTR							Carbon dioxide/RH/temperature transmitter
<b>Range</b>		2 5						0 to 2000 PPM CO <sub>2</sub> range 0 to 5000 PPM CO <sub>2</sub> range
<b>Configuration</b>			N E D					North American style wall mount European style wall mount Duct mount
<b>CO<sub>2</sub> Output</b>				4				4-20 mA / 0 to (5 or 10) VDC
<b>Temperature Output</b>					0 A B C D E F			None 10K Ω NTC thermistor type III 10K Ω NTC thermistor type II 3K Ω NTC thermistor Pt100 Ω RTD Pt1000 Ω RTD 20K Ω NTC thermistor
<b>RH Output</b>						4		4-20 mA / 0 to (5 or 10) VDC
<b>Options</b>							FC LCD RLY Relay NBC	Factory calibration certificate LCD display (wall only) Relay No buttons (wall only)

## ACCESSORIES

Model	Description
<b>GCK-200CO-2000CO2</b>	Calibration gas kit includes a 99.99% nitrogen gas cylinder for calibrating the zero point and a 200 PPM CO / 2000 PPM CO <sub>2</sub> gas cylinder for calibrating the span point on Dwyer's gas sensing transmitters
<b>A-449</b>	Remote LCD display allows remote indication of select Dwyer® wall mount transmitters for validation or certification purposes
<b>A-449A</b>	Remote LCD display with buttons allows remote indication and calibration of select Dwyer® wall mount transmitters for validation and certification purposes
<b>A-CDT-KIT</b>	Accessory kit including terminal block and power supply



GCK-200CO-2000CO2

A-449

A-449A

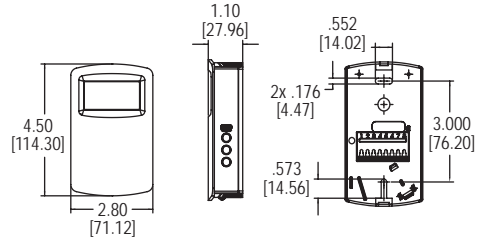
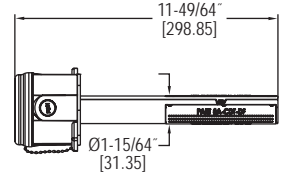
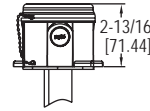
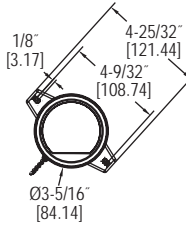
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# CARBON DIOXIDE/VOLATILE ORGANIC COMPOUND TRANSMITTERS

Simultaneously Outputs Both CO<sub>2</sub> / VOC



North American style



The **Series CDTV Carbon Dioxide/Volatile Organic Compound Transmitters** reduce energy cost in buildings by lowering the amount of conditioned air based on the occupancy of the space. By sensing both CO<sub>2</sub> and VOC, the transmitter can detect fumes that may need to be exhausted during lower occupancy periods.

**FEATURES/BENEFITS**

- Combination VOC and CO<sub>2</sub> outputs reduce labor and material costs
- Single beam dual wavelength NDIR CO<sub>2</sub> sensor allows for use in spaces that may be occupied 24 hours a day
- VOC output is correlated to be equivalent to CO<sub>2</sub> measurements
- Ventilate using ASHRAE's occupancy-based VRP Algorithm

**APPLICATIONS**

- HVAC applications in hospitals, schools, and commercial buildings
- Demand control ventilation
- Odor control
- Waiting rooms or other spaces that may be occupied 24 hours a day

**MODEL CHART**

Example	CDTV	-2	D	4	A	4	-RLY	CDTV-2D4A4-RLY
<b>Series</b>	CDTV							Carbon dioxide/VOC transmitter
<b>Range</b>		2 5						0 to 2000 PPM CO <sub>2</sub> range 0 to 5000 PPM CO <sub>2</sub> range
<b>Configuration</b>			D N					Duct North American style wall mount
<b>CO<sub>2</sub> Output</b>				4				4-20 mA / 0 to (5 or 10) VDC
<b>Temperature Output</b>					0 A B C D E F			None 10 KΩ NTC thermistor type III 10 KΩ NTC thermistor type II 3 KΩ NTC thermistor Pt100 Ω RTD Pt1000 Ω RTD 20 KΩ NTC thermistor
<b>VOC Output</b>						4		4-20 mA / 0 to (5 or 10) VDC
<b>Options</b>							RLY FC LCD COC	Relay Factory calibration certificate LCD display (wall only) Certificate of calibration

**SPECIFICATIONS**

**Range:** CO<sub>2</sub>: 0 to 2000 or 0 to 5000 PPM (depending on model); VOC: 0 to 2000 PPM CO<sub>2</sub> equivalent.  
**Accuracy:** CO<sub>2</sub>: ±40 PPM ±3% of reading.  
**Temperature Dependence:** ±8 PPM / °C at 1100 PPM.  
**Non-Linearity:** CO<sub>2</sub>: 16 PPM.  
**Pressure Dependence:** CO<sub>2</sub>: 0.13% of reading per mm of Hg.  
**Response Time:** CO<sub>2</sub>: 2 minutes for 99% step change; VOC: 5 minutes.  
**Temperature Limits:** 32 to 122°F (0 to 50°C).  
**Duct Air Velocity Range:** 0-4000 FPM (20.32 m/s).  
**Power Requirements:** 16-35 VDC / 19-28 VAC.  
**Power Consumption:** Average: 2 watts; Peak: 3.75 watts.  
**Sensor:** CO<sub>2</sub>: Single-beam, dual-wavelength NDIR; VOC: MEMS metal oxide semiconductor.  
**Output:** Current: 0-20 mA, 4-20 mA, 0-10 mA, or 2-10 mA (depending on selection jumper, max 500 Ω); Voltage: 0-10 VDC, 2-10 VDC, 0-5 VDC, or 1-5 VDC (depending on selection jumper, min 500 Ω); Relay: SPST NO 2A @ 30 VDC.  
**Weight:** 5.6 oz (158.8 g).  
**Enclosure Rating:** Duct mount: NEMA 4X (IP66) for housing only; Wall mount: IP20.  
**Agency Approvals:** CE.



# CARBON MONOXIDE/NITROGEN DIOXIDE GAS TRANSMITTERS

High Accuracy Electrochemical Sensor, Universal Output or BACnet or Modbus® Communication Protocol Options



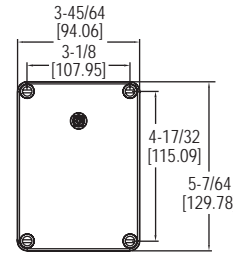
Wall mount with LCD



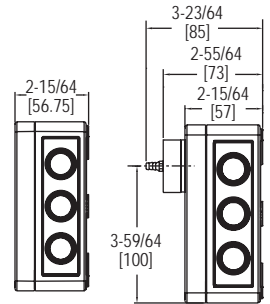
Wall mount without LCD



Duct mount



Wall mount



Duct mount



The Series GSTA & GSTC Carbon Monoxide/Nitrogen Dioxide Gas Transmitters monitor gas concentrations in mechanical rooms, underground parking garages and loading docks. The carbon monoxide transmitter is used to measure the exhaust of gasoline engines, while the nitrogen dioxide transmitter is used for diesel engines. The Series GSTA features field selectable current and voltage outputs while the Series GSTC features BACnet or Modbus® communication protocol, allowing gas sensing solutions that can be used with almost any building management controller.

**FEATURES/BENEFITS**

- Industrial grade replaceable CO or NO<sub>2</sub> sensors
- Field selectable current or voltage output on GSTA models, and field selectable BACnet or Modbus® communication on GSTC models
- Integral LCD display option
- Service display tool for set-up and calibration of models without a LCD

**APPLICATIONS**

- Garage or loading dock ventilation
- Mechanical room monitoring

MODEL CHART	
Model	Description
GSTA-C	Carbon monoxide transmitter with universal current/voltage outputs
GSTA-N	Nitrogen dioxide transmitter with universal current/voltage outputs
GSTA-C-LCD	Carbon monoxide transmitter with universal current/voltage outputs, LCD display
GSTA-N-LCD	Nitrogen dioxide transmitter with universal current/voltage outputs, LCD display
GSTA-C-D	Carbon monoxide duct mount transmitter with universal current/voltage outputs
GSTA-N-D	Nitrogen dioxide duct mount transmitter with universal current/voltage outputs
GSTC-C	Carbon monoxide transmitter with BACnet and Modbus® communication
GSTC-N	Nitrogen dioxide transmitter with BACnet and Modbus® communication
GSTC-C-LCD	Carbon monoxide transmitter with BACnet and Modbus® communication with integral LCD display
GSTC-N-LCD	Nitrogen dioxide transmitter with BACnet and Modbus® communication with integral LCD display

**SPECIFICATIONS**

**Sensor:** Field replaceable electrochemical, 4 years typical lifespan.  
**Range:** CO: 0 to 500 PPM, NO<sub>2</sub>: 10 PPM.  
**Output Drift:** <5% per year in air.  
**Coverage Area:** 5000 to 7500 sq ft typical.  
**Accuracy:** CO: 2% FS, NO<sub>2</sub>: 3% FS, at the time of calibration.  
**Resolution:** CO: 1 PPM; NO<sub>2</sub>: 0.1 PPM.  
**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 s to 90% CO, <25 s to 90% NO<sub>2</sub>.  
**Span and Zero Adjustment:** Via push-button, using optional A-449 display. Zero only via BACnet or Modbus® communication protocol.  
**Housing:** UV resistant glass filled polycarbonate.  
**Output Signals:** GSTA: Switch selectable 4-20 mA (loop powered), 0-5 V @ 5 mA, or 0-10 V @ 5 mA; Switch selectable 0-5 V / 1-5 V and 0-10 V / 2-10 V; Switch selectable normal or reverse output; GSTC: BACnet MS/TP, Modbus® RTU, or Modbus® ASCII (switch selectable) communication protocol.  
**Power Requirements:** GSTA: Current output: 10-35 VDC, Voltage output: 15-35 VDC or 15-29 VAC; GSTC: 10-36 VDC or isolated 21.6-33 VAC.  
**Electrical Connection:** Removable terminal block, knock outs for conduit fitting.  
**Calibration:** Via pushbuttons using A-449 auxiliary display. Span gas concentration is field selectable.  
**Enclosure Rating:** IP64.  
**Weight:** 1 lb (0.45 kg).  
**Agency Approvals:** CE.

ACCESSORIES	
Model	Description
A-GSTA-SE	Security enclosure
GCK-200CO-2000CO2	Calibration gas
A-449	Remote LCD display
A-505	CO replacement sensor
A-506	NO <sub>2</sub> replacement sensor
A-507	Calibration adapter



A-GSTA-SE



GCK-200CO-2000CO2



A-449



A-505



A-506



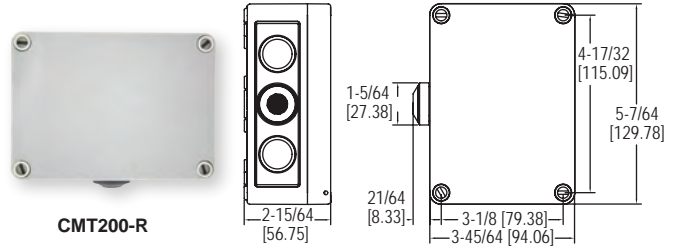
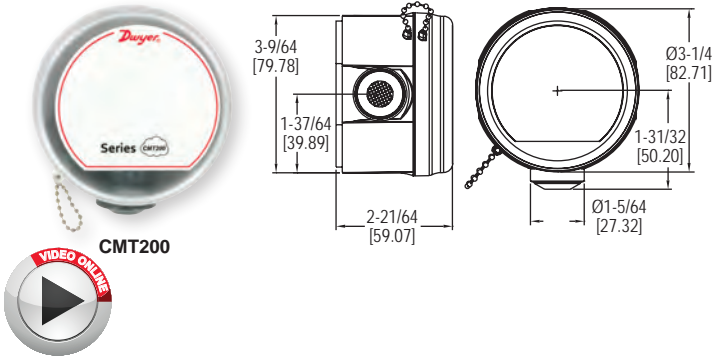
A-507

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**Dwyer**  
SERIES CMT200

# CARBON MONOXIDE TRANSMITTERS

Current/Voltage Selectable Output, 200 PPM Range



The Series CMT200 Carbon Monoxide Transmitters 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.

**FEATURES/BENEFITS**

- Field selectable current or voltage outputs
- Replaceable sensor
- Field calibration kits

**APPLICATIONS**

- Garage ventilation
- Mechanical room monitoring

MODEL CHART	
Model	Description
CMT200	Carbon monoxide transmitter
CMT200-R	Carbon monoxide transmitter with rugged housing

ACCESSORIES	
Model	Description
A-GSTA-SE	Security enclosure
GCK-200CO-2000CO2	Calibration gas
A-505	Replacement carbon monoxide sensor
A-507A	Calibration adaptor

**SPECIFICATIONS**

**Sensor:** Field replaceable electrochemical, 4 year typical lifespan.  
**Range:** 0 to 200 PPM.  
**Coverage Area:** 5000 to 7000 sq. ft. typical.  
**Accuracy:** ±2% FS at the time of calibration.  
**Output Drift:** <5% per year in air.  
**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 s to 90% of final value.  
**Calibration:** 15 turn span and zero adjustment potentiometers.  
**Housing:** UV resistant polycarbonate.  
**Output:** Jumper selectable 4-20 mA (loop powered) or 2-10 V (load must be >50 KΩ).  
**Power Requirements:** Current output: 18-28 VDC; Voltage output: 18-28 VDC/VAC, reverse polarity protected.  
**Electrical Connection:** Removable terminal block, includes two PG11 and one PG 16 knockouts for conduit fitting.  
**Weight:** 0.28 lb (0.11 kg).  
**Agency Approvals:** CE.

SERIES CMS300

# CARBON MONOXIDE TRANSMITTER AND SWITCH

Current/Voltage Selectable Output, Jumper Selectable SPDT Relay Contact



The Series CMS300 Carbon Monoxide Transmitter and Switch provides a field selectable current or voltage output that is proportional to the carbon monoxide concentration in underground parking garages, vehicle maintenance facilities, or mechanical rooms. An integral relay can be used for alarm conditions and is configured with preset jumper selectable ranges of 25, 60, or 150 PPM. Field calibration can be done by using Model GCK-200CO-2000CO2 calibration gas, Model A-507 calibration adapter, and the on board zero and span potentiometers.

**FEATURES/BENEFITS**

- Field selectable current or voltage analog outputs
- Integral SPDT relay contact for low or high alarm
- Jumper selectable alarm set points of 25, 60, or 150 PPM
- UL recognized carbon monoxide sensing element
- Field calibration kits

**APPLICATIONS**

- Garage or loading dock ventilation
- Vehicle maintenance facilities
- Mechanical room monitoring

MODEL CHART	
Model	Description
CMS300	Carbon monoxide transmitter and switch

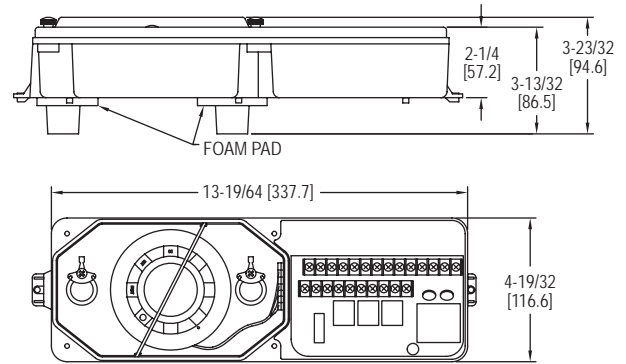
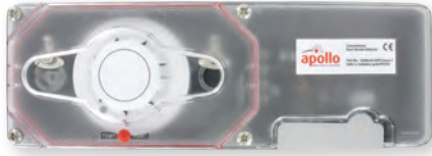
**SPECIFICATIONS**

**Sensor:** Electrochemical, 5 years typical lifespan.  
**Range:** 0-300 PPM.  
**Output Drift:** <5% per year in air.  
**Temperature Effect:** ±2% over range.  
**Coverage Area:** 7,500 ft<sup>2</sup> (700 m<sup>2</sup>) or 50 ft (15 m) radius.  
**Accuracy:** ±5 PPM or 5% of reading for 0-300 PPM (whichever is greater).  
**Resolution:** 1 PPM.  
**Temperature Range:** -4 to 122°F (-20 to 50°C).  
**Storage Temperature:** For best sensor life, 32°F to 68°F (0 to 20°C).  
**Humidity Range:** 15-90% RH constant; 0-99% RH intermittent.  
**Response Time:** <45 s to 90% of final value.  
**Calibration:** 15 turn span and zero adjustment potentiometers.  
**Housing:** UV resistant glass filled polycarbonate.  
**Analog Output:** Jumper selectable 4-20 mA (loop powered) or 2-10 V (max. load 2K Ω).  
**Enclosure Rating:** IP64.  
**Weight:** 1 lb (0.45 kg).  
**Switch Type:** Single-pole double-throw (SPDT).  
**Electrical Rating:** 30 VAC/VDC, N/O = 5 A, N/C = 3 A.  
**Set Point:** Jumper selectable 25, 60, or 150 PPM.  
**Set Point Differential/Hysteresis:** 3% of scale.  
**Relay Action:** Factory set for direct acting.  
**Agency Approvals:** Sensor is UL recognized component for ANSI/UL-2034, UL-2075, E340403, CE.

ACCESSORIES	
Model	Description
A-GSTA-SE	Security enclosure
GCK-200CO-2000CO2	Calibration gas
A-507	Calibration adaptor

# DUCT SMOKE DETECTOR

## Early Smoke Detection in HVAC Systems



The **Series SL-2000 Duct Smoke Detector** is crucial for early detection of smoke and products of combustion present within HVAC ductwork. This series can be utilized in many different types of applications including commercial, industrial, and residential. The unit is designed to not only alarm when smoke is detected, but will also utilize relays to disable fans and blowers. The series comes complete with technician friendly "No-Tools Required" features to make installation and servicing simple and efficient.

### FEATURES/BENEFITS

- Operates in air speeds of 100 to 4000 ft/min
- Transparent cover to view detector head LED
- Patented "No-Tools Required" front or rear loading and removing sampling/exhaust tubes
- Integrated smoke test port

### APPLICATIONS

- Early smoke detection in ductwork
- Commercial/Industrial/Residential HVAC
- BAS automation

### SPECIFICATIONS

**Sensor Type:** Photoelectric or Ionization.  
**Air Velocity Range:** 100 to 4000 ft/min.  
**Ambient Temperature:** SL-2000-N: 32°F to 158°F (0°C to 70°C); SL-2000-P: 32°F to 140°F (0°C to 60°C).  
**Humidity Limits:** 85 ±5 % RH (@32 ±2°C; 86 ±3.6°F) Non-condensing/Non-freezing.  
**Power Requirements:** Standby: 230 VAC (12 mA), 115 VAC (22 mA), 24 VAC (55 mA), or 24 VDC (14 mA); Alarm: 230 VAC (18 mA), 115 VAC (32mA), 24 VAC (190 mA), or 24 VDC (68 mA).  
**Electrical Rating:** Alarm contacts: 2 sets form "C" rated at 10 A resistive @ 115 VAC and 1 set form "A" rated at 2 A; Trouble contacts: 1 set form "C" rated at 10 A @ 115 VAC.  
**Electrical Connections:** Screw terminals.  
**Enclosure:** Grey plastic backbox, clear plastic cover (Makrolon 94V-0).  
**Enclosure Rating:** SL-2000: NEMA 1; WP-2000: NEMA 3R.  
**Radioactive Element:** For SL-2000-N (Ionization) americium 241; 0.9 Micro-curie; Do not expose to corrosive atmospheres.  
**Weight:** 2.5 lbs.  
**Approvals:** cULus (UL 268A) file # S2829, CSFM listed (3240-1004:105), MEA accepted (73-92-E; VOL. 27).

MODEL CHART	
Model	Sensor Type
SL-2000-N	Conventional, 4 wire, universal voltage, ionization duct smoke detector
SL-2000-P	Conventional, 4 wire, universal voltage, photoelectric duct smoke detector

ACCESSORIES	
Model	Sensor Type
FAST TUBE	Sectional, polycarbonate sampling tube, bag of (3) 24" tubes
TG-2500	Test gas for SL-2000 models
WP-2000	Weatherproof enclosure for SL-2000 models
55000-225APO	Ionization replacement sensor for SL-2000-N
55000-328APO	Photoelectric replacement sensor for SL-2000-P

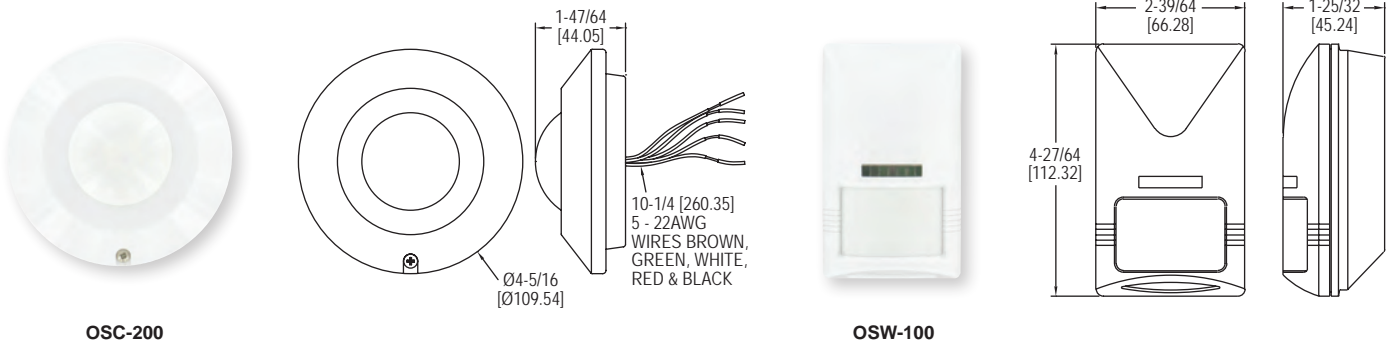


MODEL OSC-200 & OSW-100



# OCCUPANCY SENSORS

Wide Viewing Angle, Easy To Install



The **Model OSC-200 Occupancy Sensors** help to automate building control systems. A spherical Fresnel lens provides a 360° detection zone with the use of infrared technology.

The **Model OSW-100 Occupancy Sensor** is an infrared sensor designed to help automate building control systems. The Model OSW-100 has a wide 110° viewing angle to capture movement up to 49.2' (15 m) away.

**FEATURES/BENEFITS**

- Delay processor suppresses switch activation during momentary occupancy

**APPLICATIONS**

- Lighting control
- Building energy conservation

MODEL CHART	
Model	Description
OSC-200	Omnidirectional occupancy sensor
OSW-100	Wall mount occupancy sensor

**SPECIFICATIONS**

**Infrared Sensor:** Dual element.  
**Range:** OSC-200: 34.4' (10.5 m) diameter at 13.8' (4.2 m) mount height; OSW-100: 49.2' (15 m).  
**Detectable Speed:** 0.33 to 9.8 ft/s (0.1 to 3.0 m/s).  
**Control Output Rating:** SPDT, 0.2 A @ 30 VDC.  
**Ambient Operating Temperature:** -4 to 140°F (-20 to 60°C).  
**Power Consumption:** Standby: 5 mA; Operating: 18 mA.  
**Mounting Height:** OSC-200: 7.9 to 13.8' (2.4 to 4.2 m); OSW-100: 5.9 to 11.8' (1.8 to 3.6 m).  
**Power Requirements:** 22-26 VAC/DC.  
**Weight:** OSC-200: 2.4 oz (68 g); OSW-100: 3.2 oz (90.7 g).  
**Agency Approvals:** CE.



# PRESSURE CONVERSION CHART

in./H <sub>2</sub> O	P.S.I.	in/Hg	mm/H <sub>2</sub> O	mm/Hg	kg/cm <sup>2</sup>	bar	mbar	Pa	kPa
.1	.0036	.0073	2.534	.1863	.0002	.0002	.2482	24.82	.0248
.2	.0072	.0146	5.067	.3726	.0005	.0005	.4964	49.64	.0496
.4	.0144	.0293	10.13	.7452	.0010	.0010	.9928	99.28	.0993
6	.0216	.0440	15.20	1.118	.0015	.0015	1.489	148.9	.1489
.8	.0288	.0588	20.34	1.496	.0020	.0020	1.992	199.2	.1992
1.0	.0361	.0735	25.41	1.868	.0025	.0025	2.489	248.9	.2489
2	.0722	.1470	50.81	3.736	.0051	.0050	4.978	497.8	.4978
3	.1083	.2205	76.22	5.604	.0076	.0075	7.467	746.7	.7476
4	.1444	.2940	101.62	7.472	.0102	.0099	9.956	995.6	.9956
5	.1804	.3673	127.0	9.335	.0127	.0124	12.44	1244	1.244
6	.2165	.4408	152.4	11.203	.0152	.0149	14.93	1493	1.493
7	.2526	.5143	177.8	13.072	.0178	.0174	17.42	1742	1.742
8	.2887	.5878	203.2	14.940	.0203	.0199	19.90	1990	1.990
9	.3248	.6613	228.6	16.808	.0228	.0224	22.39	2239	2.239
10	.3609	.7348	254.0	18.676	.0254	.0249	24.88	2488	2.488
11	.3970	.8083	279.4	20.544	.0279	.0274	27.37	2737	2.737
12	.4331	.8818	304.8	22.412	.0304	.0299	29.86	2986	2.986
13	.4692	.9553	330.2	24.280	.0330	.0324	32.35	3235	3.235
14	.5053	1.029	355.6	26.148	.0355	.0348	34.84	3484	3.484
15	.5414	1.102	381.0	28.016	.0381	.0373	37.33	3733	3.733
16	.5774	1.176	406.4	29.879	.0406	.0398	39.81	3981	3.981
17	.6136	1.249	431.8	31.742	.0431	.0423	42.31	4231	4.231
18	.6496	1.322	457.2	33.616	.0457	.0448	44.79	4479	4.479
19	.6857	1.396	482.6	35.484	.0482	.0473	47.28	4728	4.728
20	.7218	1.470	508.0	37.352	.0507	.0498	49.77	4977	4.977
21	.7579	1.543	533.4	39.22	.0533	.0523	52.26	5226	5.226
22	.7940	1.616	558.8	41.09	.0558	.0547	54.74	5474	5.474
23	.8301	1.690	584.2	42.96	.0584	.0572	57.23	5723	5.723
24	.8662	1.764	609.6	44.82	.0609	.0597	59.72	5972	5.972
25	.9023	1.837	635.0	46.69	.0634	.0622	62.21	6221	6.221
26	.9384	1.910	660.4	48.56	.0660	.0647	64.70	6470	6.470
27	.9745	1.984	685.8	50.43	.0685	.0672	67.19	6719	6.719
28	1.010	2.056	710.8	52.26	.0710	.0696	69.64	6964	6.964
29	1.047	2.132	736.8	54.18	.0736	.0722	72.19	7219	7.219
30	1.083	2.205	762.2	56.04	.0761	.0747	74.67	7467	7.467
31	1.119	2.278	787.5	57.91	.0787	.0772	77.15	7715	7.715
32	1.155	2.352	812.8	59.77	.0812	.0796	79.63	7963	7.963
33	1.191	2.425	838.2	61.63	.0837	.0821	82.12	8212	8.212
34	1.227	2.498	863.5	63.49	.0862	.0846	84.60	8460	8.460
35	1.263	2.571	888.9	65.36	.0888	.0871	87.08	8708	8.708
36	1.299	2.645	914.2	67.22	.0913	.0896	89.56	8956	8.956
37	1.335	2.718	939.5	69.08	.0938	.0920	92.04	9204	9.204
38	1.371	2.791	964.9	70.95	.0964	.0945	94.53	9453	9.453
39	1.408	2.876	990.9	72.86	.0989	.0971	97.08	9708	9.708
40	1.444	2.949	1016	74.72	.1015	.0996	99.56	9956	9.956
41	1.480	3.013	1042	76.59	.1040	.1020	102.0	10204	10.20
42	1.516	3.086	1067	78.45	.1066	.1045	104.5	10452	10.45
43	1.552	3.160	1092	80.31	.1091	.1070	107.0	10701	10.70
44	1.588	3.233	1118	82.18	.1116	.1095	109.5	10949	10.95
45	1.624	3.306	1143	84.04	.1142	.1120	112.0	11197	11.20
46	1.660	3.378	1168	85.90	.1167	.1144	114.4	11445	11.44
47	1.696	3.453	1194	87.76	.1192	.1169	116.9	11694	11.69
48	1.732	3.526	1219	89.63	.1218	.1194	119.4	11942	11.94
49	1.768	3.600	1244	91.49	.1243	.1219	121.9	12190	12.19
50	1.804	3.673	1270	93.35	.1268	.1244	124.4	12438	12.44
51	1.841	3.748	1296	95.27	.1294	.1269	126.9	12693	12.69
52	1.877	3.822	1321	97.13	.1320	.1294	129.4	12941	12.94
53	1.913	3.895	1346	98.99	.1345	.1319	131.9	13190	13.19
54	1.949	3.968	1372	100.8	.1370	.1344	134.4	13438	13.44
55	1.985	4.041	1397	102.7	.1395	.1369	136.9	13686	13.69
56	2.021	4.115	1422	104.6	.1421	.1393	139.3	13934	13.93
57	2.057	4.188	1448	106.4	.1446	.1418	141.8	14182	14.18
58	2.093	4.261	1473	108.3	.1471	.1443	144.3	14431	14.43
59	2.129	4.335	1498	110.2	.1497	.1468	146.8	14679	14.68
60	2.165	4.408	1524	112.0	.1522	.1493	149.3	14927	14.93
61	2.202	4.483	1550	113.9	.1548	.1518	151.8	15182	15.18
62	2.238	4.556	1575	115.8	.1573	.1543	154.3	15430	15.43
63	2.274	4.630	1600	117.7	.1599	.1568	156.8	15679	15.68
64	2.310	4.703	1626	119.5	.1624	.1593	159.3	15927	15.93
65	2.346	4.776	1651	121.4	.1649	.1618	161.8	16175	16.18
66	2.382	4.850	1676	123.3	.1674	.1642	164.2	16423	16.42
67	2.418	4.923	1702	125.1	.1700	.1667	166.7	16672	16.67
68	2.454	4.996	1727	127.0	.1725	.1692	169.2	16920	16.92
69	2.490	5.070	1752	128.8	.1750	.1717	171.7	17168	17.17
70	2.526	5.143	1778	130.7	.1776	.1742	174.2	17416	17.42
71	2.562	5.216	1803	132.6	.1801	.1766	176.6	17664	17.66
72	2.598	5.290	1828	134.4	.1826	.1791	179.1	17912	17.91
73	2.635	5.365	1854	136.4	.1852	.1817	181.7	18168	18.17
74	2.671	5.438	1880	138.2	.1878	.1842	184.2	18416	18.42
75	2.707	5.511	1905	140.1	.1903	.1866	186.6	18664	18.66
76	2.743	5.585	1930	141.9	.1928	.1891	189.1	18912	18.91
77	2.779	5.658	1956	143.8	.1954	.1916	191.6	19160	19.16
78	2.815	5.731	1981	145.7	.1979	.1941	194.1	19409	19.41
79	2.851	5.805	2006	147.5	.2004	.1966	196.6	19657	19.66
80	2.887	5.878	2032	149.4	.2030	.1991	199.1	19905	19.90
81	2.923	5.951	2057	151.2	.2055	.2015	201.5	20153	20.15
82	2.959	6.024	2082	153.1	.2080	.2040	204.0	20402	20.40
83	2.996	6.100	2108	155.0	.2106	.2066	206.6	20657	20.66
84	3.032	6.173	2134	156.9	.2131	.2091	209.1	20905	20.90
85	3.068	6.246	2159	158.8	.2157	.2115	211.5	21153	21.15
86	3.104	6.320	2184	160.6	.2182	.2140	214.0	21401	21.40
87	3.140	6.393	2210	162.5	.2207	.2165	216.5	21650	21.65
88	3.176	6.466	2235	164.4	.2233	.2190	219.0	21900	21.90
89	3.212	6.540	2260	166.2	.2258	.2215	221.5	22146	22.15
90	3.248	6.613	2286	168.1	.2283	.2239	223.9	22394	22.39
91	3.284	6.686	2311	169.9	.2309	.2264	226.4	22642	22.64
92	3.320	6.760	2336	171.8	.2334	.2289	228.9	22890	22.89
93	3.356	6.833	2362	173.7	.2359	.2314	231.4	23139	23.14
94	3.392	6.906	2387	175.5	.2384	.2339	233.9	23387	23.39
95	3.429	6.981	2413	177.4	.2410	.2364	236.4	23642	23.64
96	3.465	7.055	2438	179.3	.2436	.2389	238.9	23890	23.89
97	3.501	7.128	2464	181.2	.2461	.2414	241.4	24138	24.14
98	3.537	7.201	2489	183.0	.2486	.2439	243.9	24387	24.39
99	3.573	7.275	2514	184.9	.2512	.2464	246.4	24635	24.64
100	3.609	7.348	2540	186.8	.2537	.2488	248.8	24883	24.88

P.S.I.	in./H <sub>2</sub> O	in/Hg	mm/H <sub>2</sub> O	mm/Hg	kg/cm <sup>2</sup>	bar	mbar	Pa	kPa
1.0	27.71	2.036	703.1	51.75	.0703	.0689	68.95	6895	6.895
1.1	30.45	2.240	773.4	56.89	.0773	.0758	75.84	7584	7.584
1.2	33.22	2.443	843.7	62.06	.0844	.0827	82.74	8274	8.274
1.3	35.98	2.647	914.0	67.23	.0914	.0896	89.63	8963	8.963
1.4	38.75	2.850	984.3	72.40	.0984	.0965	96.52	9652	9.652
1.5	41.52	3.054	1054.5	77.57	.1055	.1034	103.4	10340	10.34
1.6	44.29	3.258	1125	82.74	.1125	.1103	110.3	11030	11.03
1.7	47.06	3.461	1195	87.92	.1195	.1172	117.2	11720	11.72
1.8	49.82	3.665	1266	93.09	.1266	.1241	124.1	12410	12.41
1.9	52.59	3.868	1336	98.26	.1336	.1310	131.0	13100	13.10
2.0	55.36	4.072	1406	103.4	.1406	.1379	137.9	13790	13.79
2.1	58.13	4.276	1476	108.6	.1476	.1448	144.8	14480	14.48
2.2	60.90	4.479	1547	113.8	.1547	.1517	151.7	15170	15.17
2.3	63.67	4.683	1617	118.9	.1617	.1586	158.6	15860	15.86
2.4	66.43	4.886	1687	124.1	.1687	.1655	165.5	16550	16.55
2.5	69.20	5.090	1758	129.3	.1758	.1724	172.4	17240	17.24
2.6	71.97	5.294	1828	134.5	.1828	.1793	179.3		

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