

Dwyer®

Manufacturing Excellence Since 1931

pressure • temperature • test & data • air quality

flow • level • process control • valves



2021

dwyer-inst.com

KEY MARKETS



HVAC

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

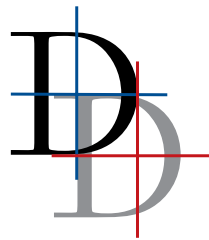
PROCESS AUTOMATION

- 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



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

Series 160F Pitot Tube

Model TAC-L Portable Digital Tachometer

Series 477AV Handheld Digital Manometer

Series 471B Thermo-Anemometer

Series WNT Multi-Jet NSF Certified Water Meter

Series WMH Multi-Jet Hot Water Meter

Series TUF Ultrasonic Energy Meter

Series IEFB Insertion Thermal Energy Meter

BUILDING BALANCING

Series 160G & DP3 Air Flow Grid & Differential Pressure Module

Series SAH SMART Air Hood® Balancing Instrument & Application Software

Mobile Meter® HVAC Software App

Series 160F Pitot Tube

Series PUB Portable Ultrasonic Flowmeter Kit

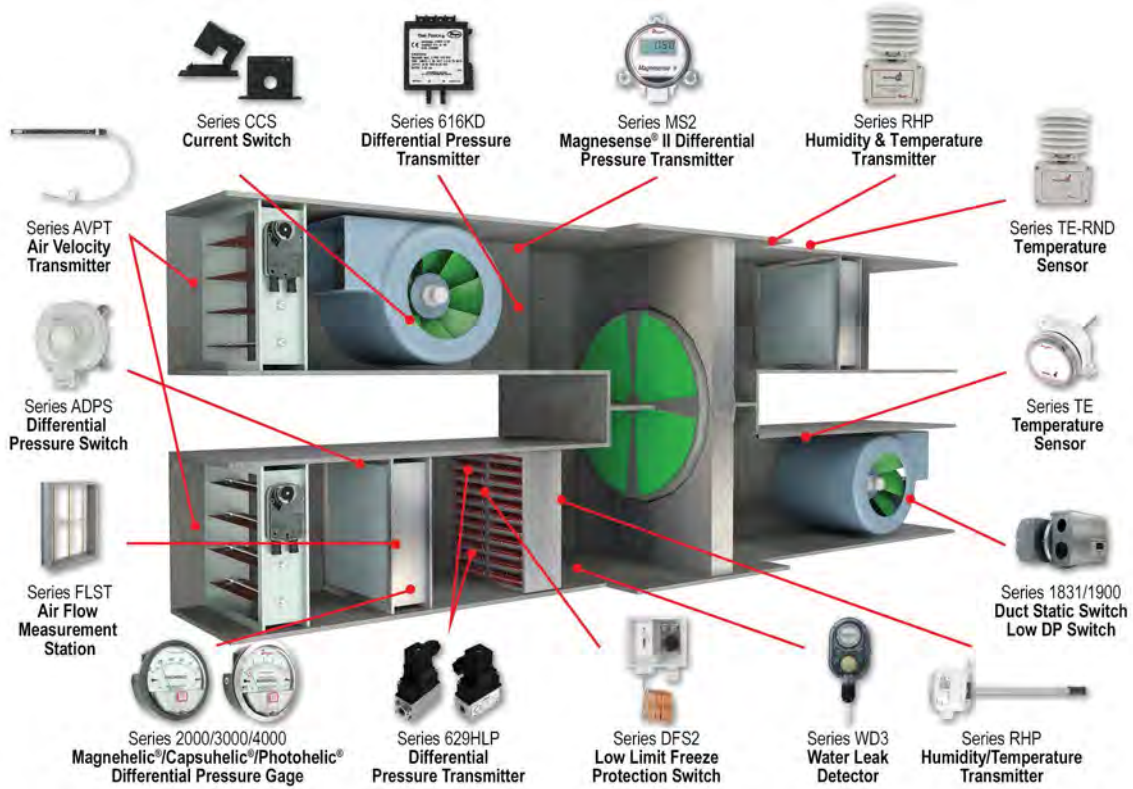
Model TAC-L Portable Digital Tachometer

Series 490W Hydronic Differential Pressure Manometer

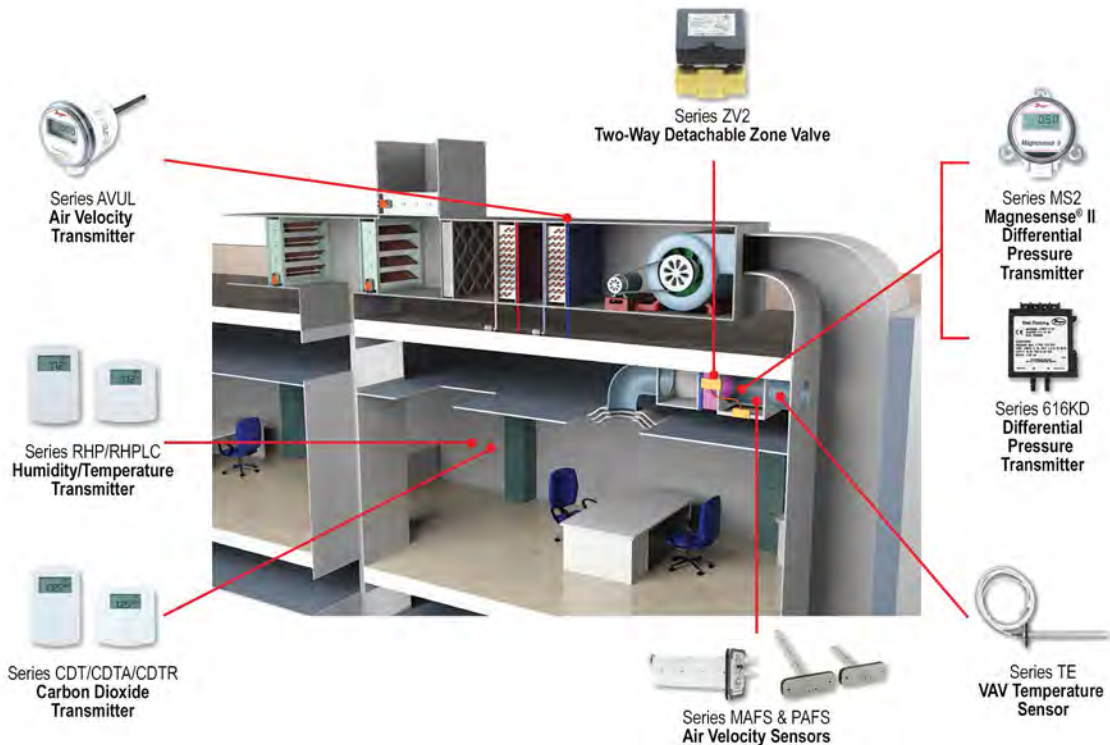
Series 477AV Digital Manometer

Series 478A Digital Manometer

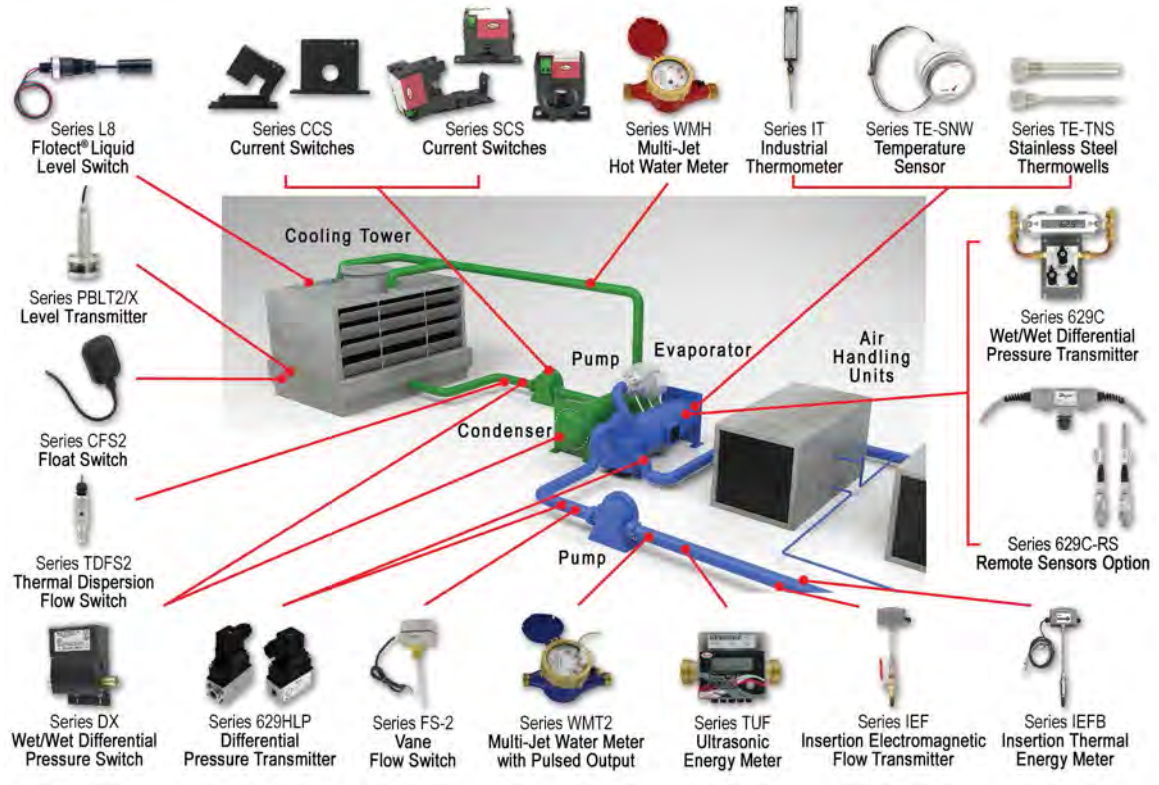
AIR HANDLER



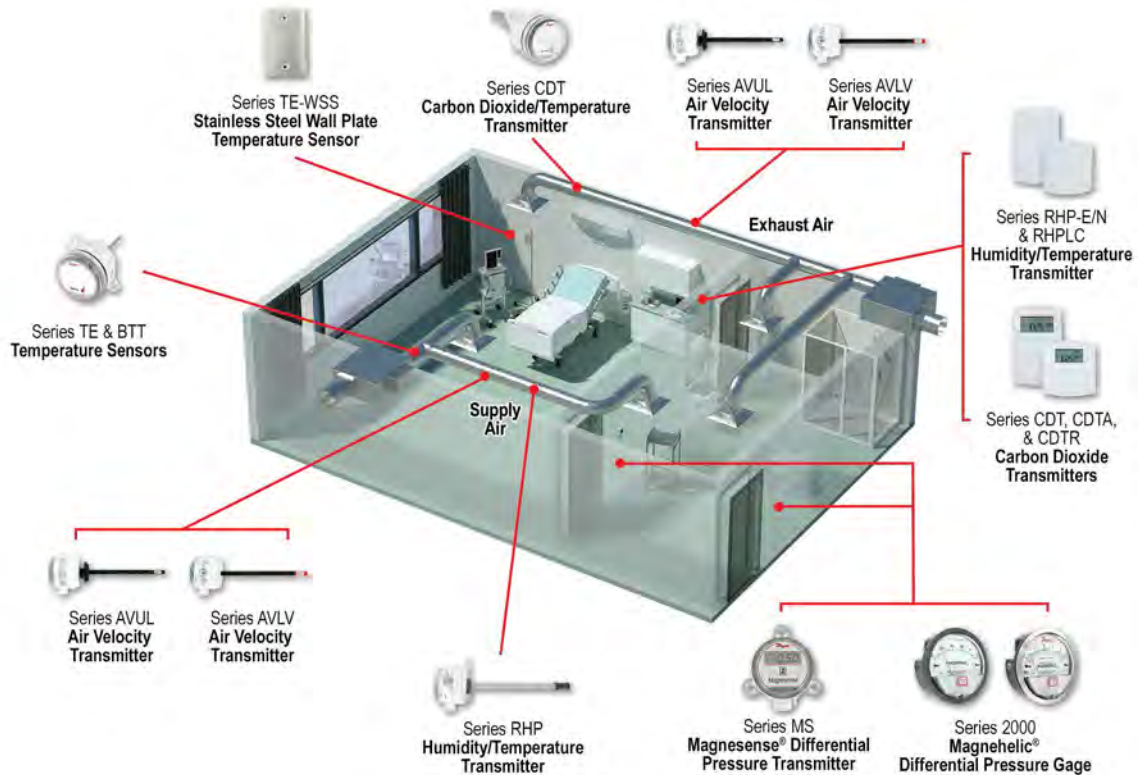
TERMINAL UNIT



CHILLER PLANT



ISOLATION ROOM



CONTAINMENT CHAMBER/BOX

Series AVUL Air Velocity Transmitter

Series RHP Humidity/Temperature Transmitter

Series SPPM Smart Programmable Panel Meter

Series SPPM2 Graphical User Interface Panel Meter

Series THC Temperature/Humidity Switch

Series 2000 Magnehelic® Differential Pressure Gage

Series DM-2000 Differential Pressure Transmitter

Series 616WL Differential Pressure Transmitter

Series DH3 Differential Pressure Controller

Series VF Visi-Float® Flowmeter

CLEAN ROOM

Series ADPS Differential Pressure Switch

Series RHP-M Humidity/Temperature Transmitter

Series AVLV Air Velocity Transmitter

Series 641 Air Velocity Transmitter

Series 605 Magnehelic® Differential Pressure Indicating Transmitter

Series SPPM2 Graphical User Interface Panel Meter

Series RSM Room Status Monitor

Model 670 Fume Hood Monitor

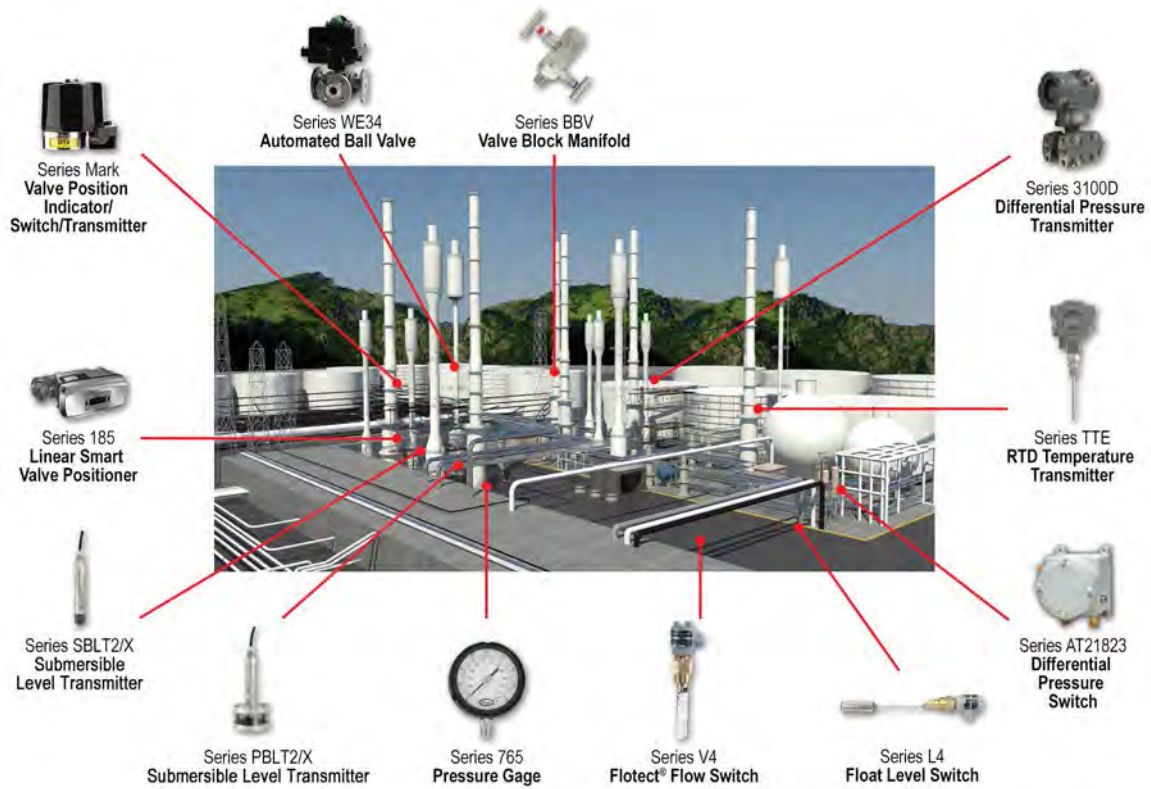
Series TE-E/N Wall Mount Temperature Sensor

Series TE-WSS Stainless Steel Wall Plate Temperature Sensor

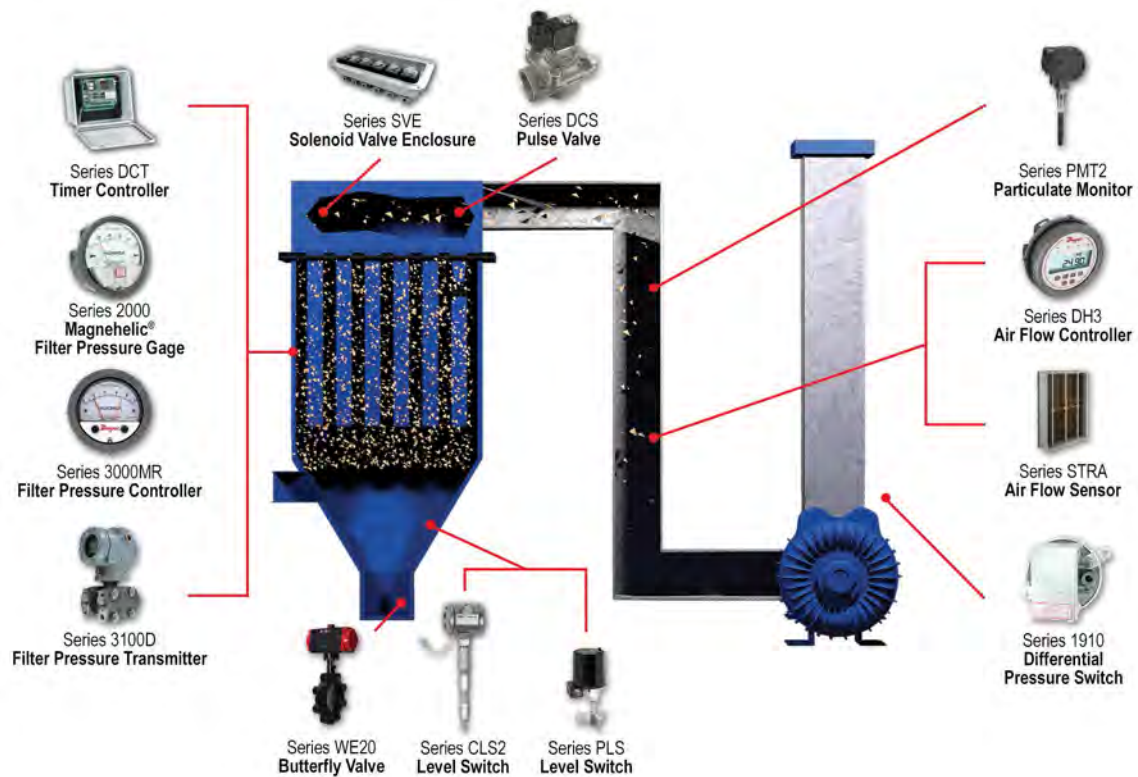
Series 4B-33-986/U Temperature/Process Controller

Series 2000 Magnehelic® Differential Pressure Gage

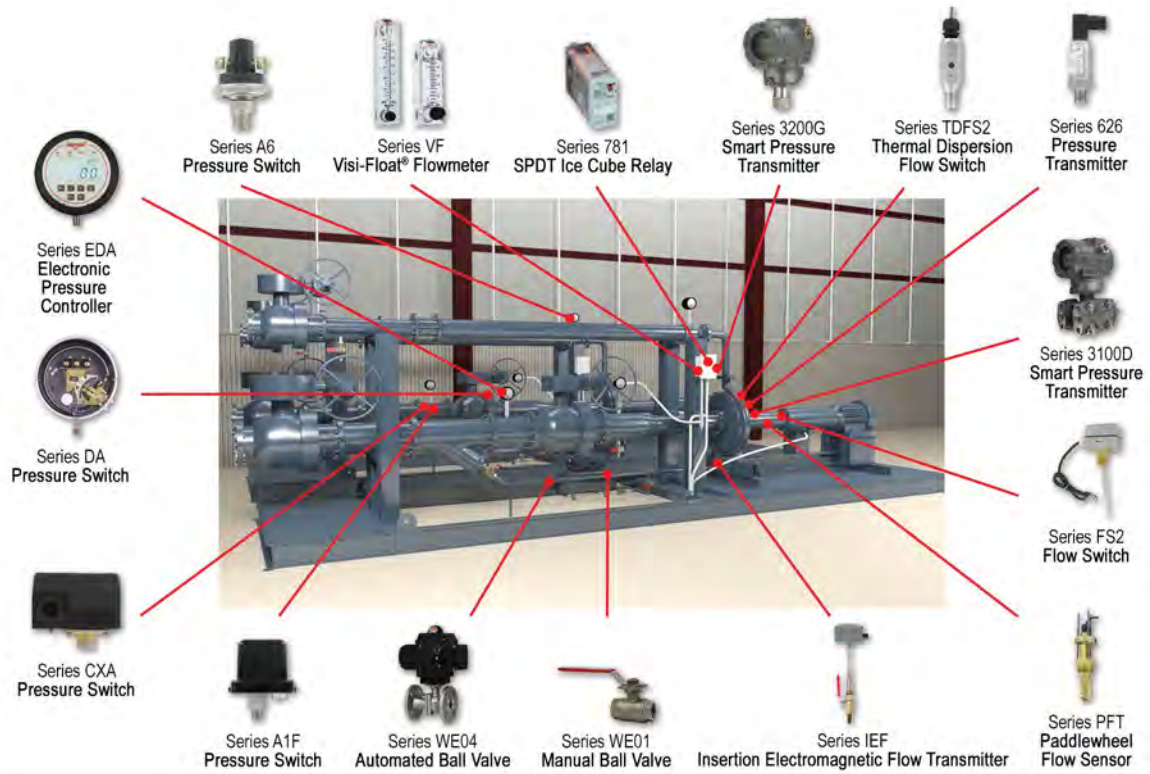
MIDSTREAM REFINERY/CHEM PLANT



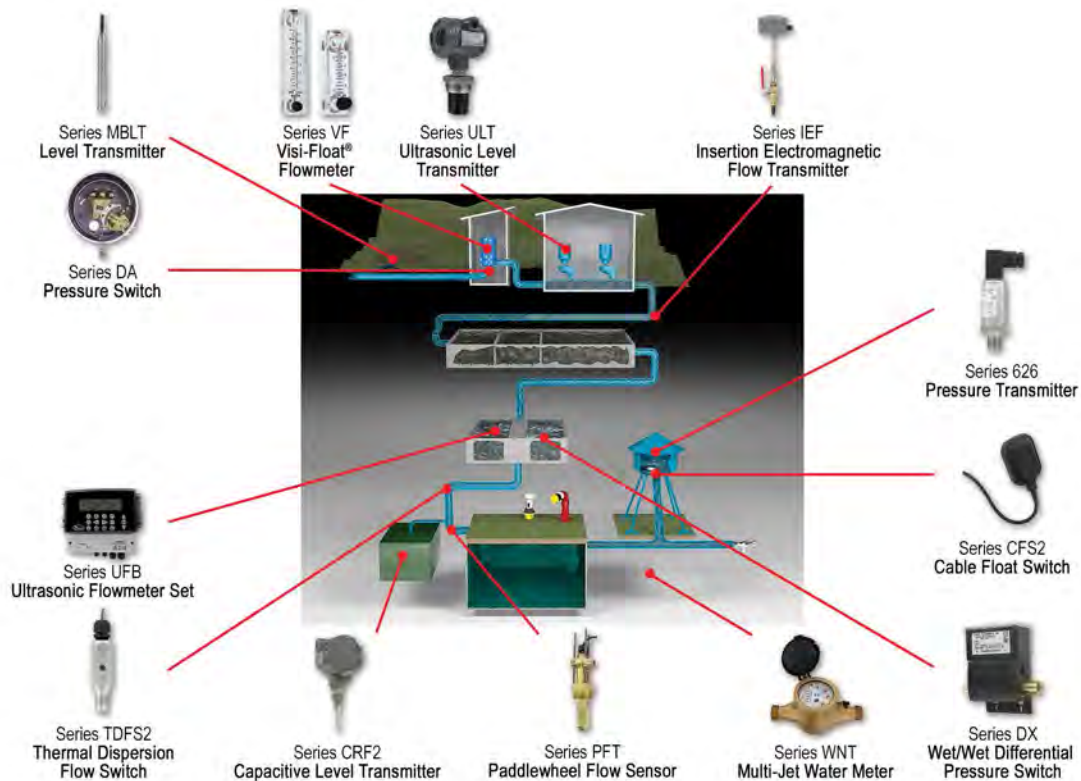
DUST COLLECTOR



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

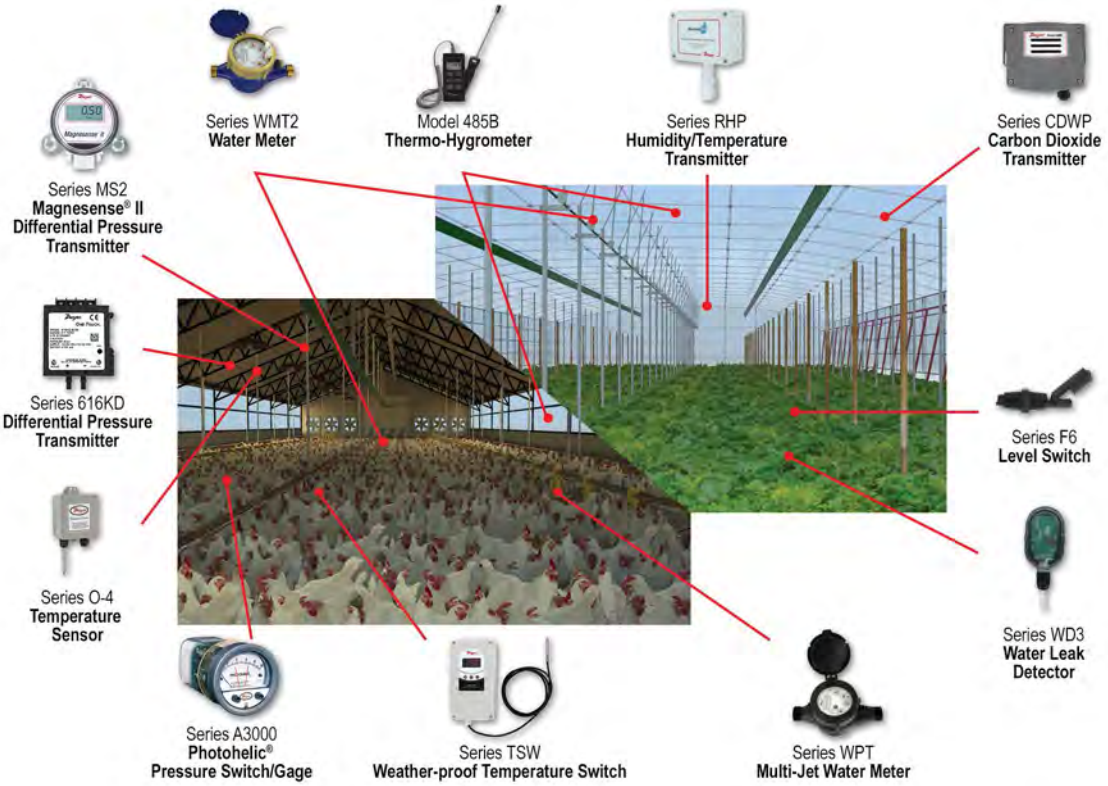
Series WM2 Water Meter

Series MBLT Level Transmitter

Series V10 Flow Switch

PRODUCT APPLICATIONS

POULTRY/HOG/GREENHOUSES



RECENT INNOVATIONS



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

PAGE 163



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

PAGE 164



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

PAGE 165



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

PAGE 216



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

PAGE 217

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

RECENT INNOVATIONS



CARBON DIOXIDE TRANSMITTER SERIES CDWP

- Single beam dual wavelength NDIR CO₂ 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 CO₂ based refrigerants

PAGE 226



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

PAGE 232



INSERTION ELECTROMAGNETIC FLOW TRANSMITTER SERIES IEF

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



PAGE 292



ULTRASONIC ENERGY METERS SERIES TUF

- Manufactured to comply with EN1434-1 requirements
- Compact energy monitoring
- BACnet or Modbus[®] communication outputs

PAGE 293



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

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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Particulate (Dust or Broken Bag) Transmitters
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Control Enclosures
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FEATURED PRODUCTS

GRAPHICAL USER INTERFACE PANEL METER SERIES SPPM2 | page 348



- Large touch screen display allows for easy visibility and setup
- Free design software allows seamless drag and drop functionality to quickly develop unique interface

PARTICULATE TRANSMITTER SERIES PMT2 | page 372



- Non-stick PTFE coated probe to prevent false readings from moist and conductive dusts, condensate, and dust buildup
- Simple 2-wire installation for PLC and control panels

PANEL METERS

Displays



SERIES	SPPM2 - page 348	SPPM - page 349	DPM - page 350	DPMX - page 351
Display	Graphical full color TFT	Graphical full color TFT	3-1/2 digit, or 4-1/2 digit, 7 segment backlit LCD (amber, green or red)	3-1/2 digit, 7 segment backlit LCD (red)
Panel Size	4.3" diag.	2.4", 2.8", 3.5" diag.	2-3/8" by 1-1/8"	10-19/32" by 4-5/32"
Display Units	User defined	User defined	None, °F, °C, %, psi, V, A, KW, PF	None
Input Signal	4 analog (0-50 mA, or 0-40 VDC), 8 digital I/O	0-50 mA, or 0-40 VDC	4-20 mA, 0-200 mVDC, 0-5 VDC, 0-10 VDC	4-20 mA, 0-200 mVDC, 0-5 VDC, 0-10 VDC
Output	2 digital I/O, 4 PWM	None	None	None

SWITCHES AND TRANSFORMERS

Current Sensors






SERIES	SCS - page 356	MCS - page 357	CCS - page 357	MSCS - page 358
Type	Current switch	Miniature switch	Current switch	Miniature switch
Case	Solid or split core	Solid core or terminal	Solid or split core	Split core
Range	0.15 A to 200 A	0.5 to 50 A or 0.01 to 1 A	0.5 to 200 A	0.15 to 60 A (0.15 A fixed set point)
Output	1 A @ 30 VAC/DC NO solid state output; Optional 10 A @ 260 VAC (5 A @ 30 VDC) SPST relay	0.3 A @ 130 VAC/DC NO output	0.3 A @ 135 VAC/DC NO output or 1 A @ 240 VAC NO output	1 A @ 30 VAC/DC NO solid state output

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




PANEL METERS

Displays

			
SERIES	LCI132 - page 351	PM - page 352	LPI - page 353
Display	4 digit, 7 segment LED (red)	2 - 6 digit, 7 segment LED (red)	4 digit LCD or LED
Panel Size	1/32 DIN	1/8 DIN	Stand alone
Display Units	None	User defined	None
Input Signal	V (DC), mA (DC) or V (AC), A (AC/DC)	mA, V DC, pulse, open collector, NPN, PNP, switch contact	4-20 mA, Thermocouple, or RTD
Output	None	None, 4-20mA, or Relay	None

SWITCHES AND TRANSFORMERS

Current Sensors

			
SERIES	SSCS - page 358	CCT40/50 - page 359	CCT60/70 - page 359
Type	Current switch with set point based on motor HP	Current transformer	Current transformer
Case	Split core	Solid or split core	Solid or split core
Range	1 to 100 HP	10/20/50 A or 100/150/200 A	10/20/50 A or 100/150/200 A
Output	1 A @ 30 VAC/DC NO solid state output; Optional 10 A @ 260 VAC (5 A @ 30 VDC) SPST relay	0-5 VDC, 0-10 VDC, or 4-20 mA	4-20 mA, true RMS

POWER SUPPLIES AND TRANSFORMERS

Power Converters



SERIES	APT - page 360	A-700 - page 361	BPS - page 362	SCD-PS - page 362
Input Voltage	24 VAC, 120 VAC, 240 VAC, 120/208/240/277 VAC, 120/208/240/277/480 VAC, 50/60 Hz	100/120/220/230/240 VAC $\pm 10\%$. 47 to 63 Hz	24 VAC/VDC 50/60 Hz	120 to 240 VAC/VDC, 50/60 Hz
Output Voltage	24 VAC	24-28 VDC regulated	1.5-27 VDC (full wave rectified and regulated) adjustable 1.5-29 VDC	24 VDC $\pm 3\%$
Output Current	20, 40, 75, 100, 150 VA	Options from 0.5 A to 4.8 A	0.5 A or 1.5 A	1 A

POWDER, BULK, DUST COLLECTION, AND PNEUMATIC CONVEYING SENSORS







Particulate Sensors



SERIES	PMT2 - page 372	PMS - page 374
Wetted Materials	316L SS, silicone, and PTFE	316 SS and PFA or 316 SS and ceramic
Process Temperature Limit	-40 to 248°F (-40 to 120°C)	250°F (121°C), 450°F (232°C), 800°F (426°C), or 1200°F (649°C)
Pressure Limit	30 psi	10 or 100 psi
Output	4-20 mA	pA

DUST COLLECTOR PULSE VALVE CONTROLLERS

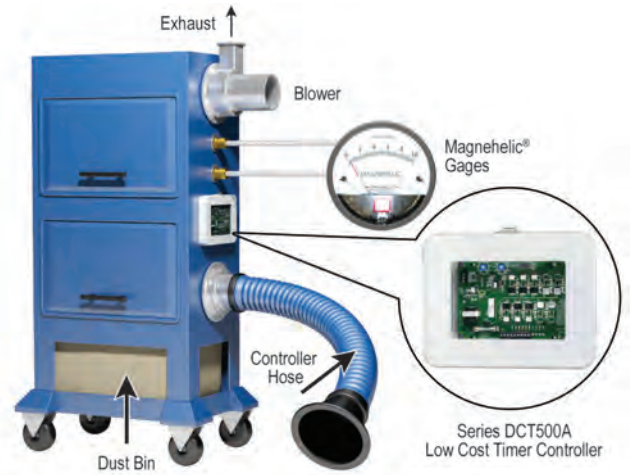
Timers

						
SERIES	SVT - page 367	DCT500A - page 368	DCT500ADC - page 368	DCT600 - page 369	DCT1000 - page 370	DCT1000DC - page 371
Output Channels	2, 3, 4, 5, or 6; up to 60 with expansion board. Housing includes pilot solenoid valves	4, 6, or 10	4, 6, or 10	4, 6, 10, 22, or 32	6, 10, or 22; up to 255 with expansion board	6, 10, or 22; up to 255 with expansion board
Input	Dry contact	Dry contact	Dry contact	Dry contact	Dry contact or integral pressure sensor	Dry contact or integral pressure sensor
Power	90-240 VAC or 24 VAC/DC	102-132 VAC	10-35 VDC	85-270 VAC	85-270 VAC	10-30 VDC
Size	See catalog page	4-7/8" by 6-3/4"	4-7/8" by 6-3/4"	4-7/8" by 6-3/4" or 6-7/8" by 8-3/4"	6-7/8" by 8-3/4"	6-7/8" by 8-3/4"
Approvals	CE	CE, cULus	CE	CE, cULus	cULus	CE



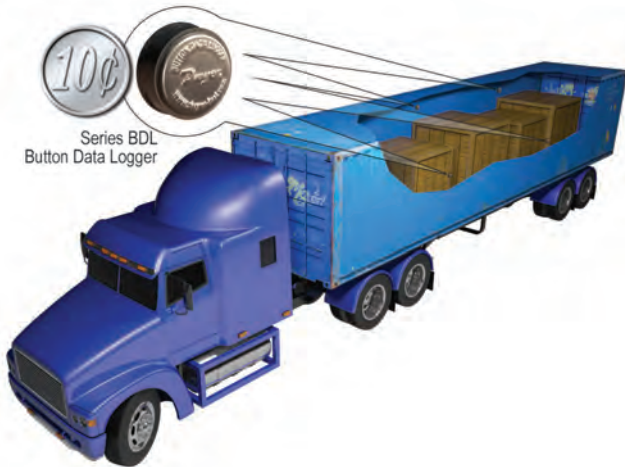
Monitor the test environment for accurate laboratory tests

The Love Controls® Model LCR20 dual pen circular chart recorder can be used to monitor the humidity and temperature in an environmental chamber. The 10" chart size makes it easy to see the blue and red pen markings on the chart paper. The recorder takes in most common thermocouples and process inputs for both channels. It is recommended that the LCR20 be used with a Dwyer® RHP series humidity / temperature transmitter for best results.



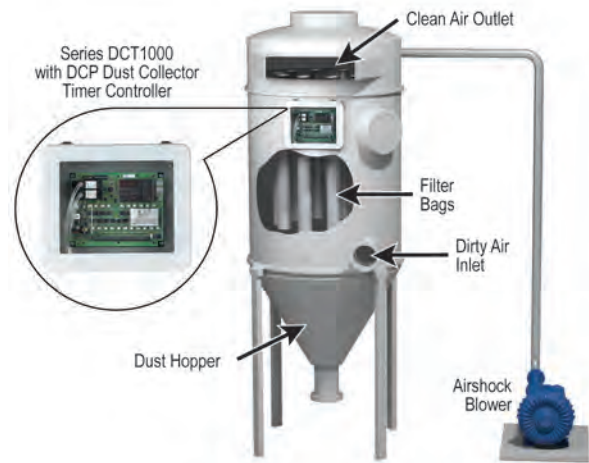
Dust Collector Timer Controller shows filter condition in dust collector

This portable dust collector can be rolled from job to job in an industrial building. An operator places the large diameter collection hose where it is needed and dust is collected by filters located inside the access doors on the units side. The top mounted blower draws air through the filters. To monitor the pressure drop across the filters, the manufacturer supplies a Magnehelic® differential pressure gage. When the pressure drop due to dust build up on the filter indicates that cleaning is necessary, the DCT500A dust collector timer controller is manually activated to initiate a cleaning cycle which involves solenoid valves releasing pulses of air. This process removes the dust from the filters where it drops into a storage bin. A Dwyer® Minihelic® differential pressure gage can be used instead of the Magnehelic® gage, and, if automatic cleaning is required, a Photohelic® differential pressure switch/gage can provide the electrical contact to actuate the cleaning cycle when the pressure drop reaches the preset limit.



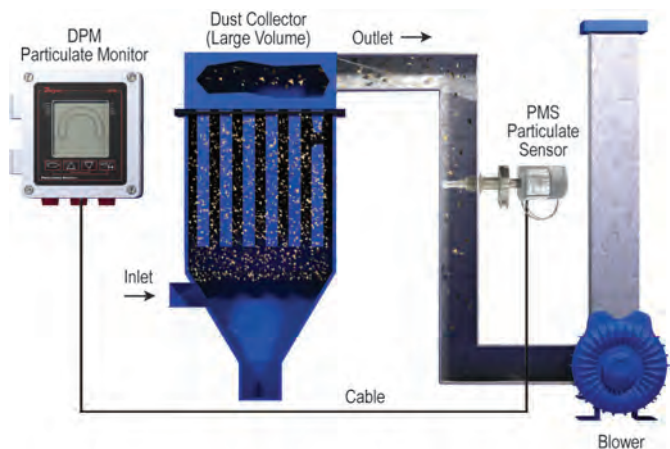
Button Data Logger monitors food and beverage temperature in refrigerated transport vehicles

When transporting temperature-sensitive products such as meat, produce, beer and wine over long distances, it is necessary to verify that the storage compartment has not exceeded the critical preservation temperature at any time. Dwyer® BDL button data loggers offer a low cost way to measure and record storage temperatures throughout transport. By placing several "buttons" throughout the storage compartment and setting an appropriate measurement interval, transportation services can retrieve data at the completion of delivery to assure their customers of adequate preservation temperatures.



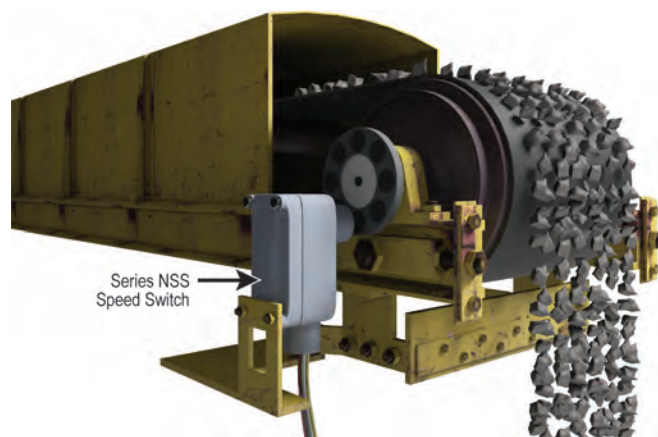
Bag house cleaning system uses Dust Collector Timer Controller to initiate optimum cleaning cycle

A Dwyer® DCT1000 dust collector timer controller with attachable DCP pressure sensing module monitors and controls the dust levels and corresponding pressure drop across the filter bags. The DCT1000/DCP control automatically activates the cleaning cycle when the DCT1000's pre-programmed set points have been exceeded. This on-demand control system alleviates excessive air compressor usage by preventing unnecessary cleaning which lowers energy and maintenance costs.



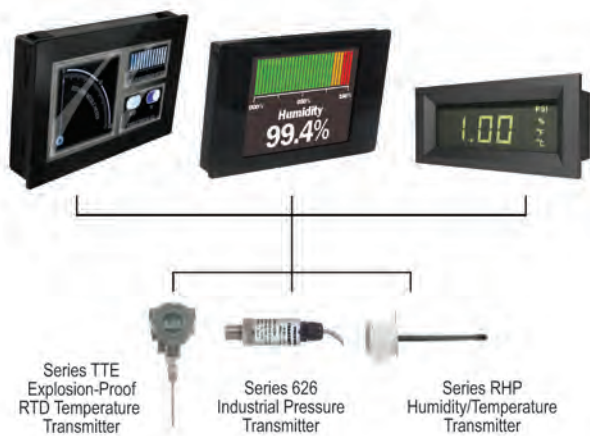
Detect broken filters in dust collectors

The Dwyer® Series DPM particulate monitor and PMS particulate sensor combine to make a particulate monitoring system for the exhaust stream of dust collectors. The amount of particulate leaking out of the dust collector is measured using low maintenance induction technology and shown on a display for easy viewing. The DPM has programmable thresholds of leakage for switch output indication of dust collector problems such as broken or leaking filters. Proper use of the system will allow the user to catch breaking filters early. Advantages of the system are maintaining regulatory compliance, maximizing product recovery, optimizing filtration efficiency, preventing fines and plant shutdowns, and reducing the amount of pollutants released.



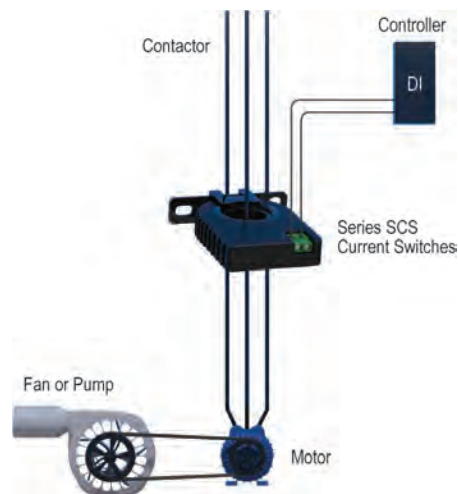
Monitoring belt conveyor for proper operation

A Proximity® Series NSS speed switch is used to monitor the speed of a product belt conveyor indicating proper operation. Common applications include grain, feed, aggregate, mining, and textiles. Belt slippage or a slowdown in belt speed indicates problems that could lead to product waste or could generate sparks leading to a fire or explosion. The belt's speed is monitored via the rotational speed of the shaft at the end of the belt. The NSS is a non-contact magnetic actuated system allowing easy installation and long operational life. A magnetic disc is installed on the rotating shaft and the sensor is mounted across from it. The sensor picks up the rotation of the disc to detect the rotational speed of the belt. Inside the sensor is a programmable switch that can be set for any speed. In this application as the speed decreases and hits the set point the switch is activated for indication of a problem. Proper usage of an NSS can help with predictive maintenance and decrease down-time.



Providing remote indication of pressure, humidity or temperature

The Series DPML, DPMP, and DPMW digital LCD panel meters as well as the SPPM and SPPM2 HMI panel meters provide remote indication in the designated engineering units for pressure, humidity, temperature as well as customizable measurement units. The panel meters can take a voltage or current input signal from transmitters such as the Dwyer® TTE, Series 626 or Series RHP.



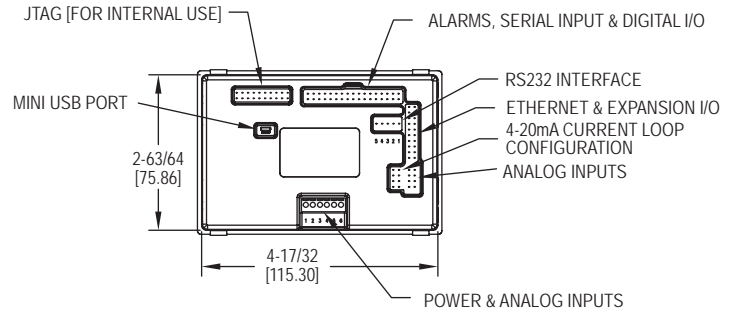
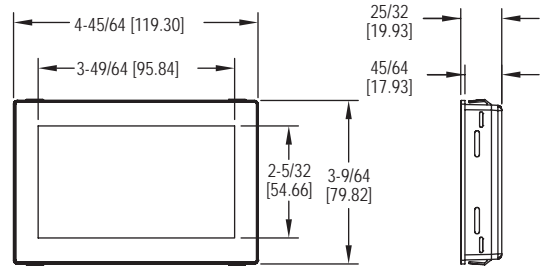
Monitor the status of your fan or pump

The Dwyer® Series SCS current switches monitor the input current into a fan or pump motor starter in order to monitor the status of the equipment. As the current passes through the core of the switches, it generates enough energy to power up the switch eliminating the need for extra power wires. The solid core models are typically used on new installations, while the split core models are able to mount on existing or new installations.

Typical Applications

GRAPHICAL USER INTERFACE PANEL METER

4.3" (109 mm) Touch Screen Display, Fully Customizable



The **Series SPPM2 Graphical User Interface Panel Meter** is a configurable, full-color 4.3" (109 mm) touch screen display that can be used in a variety of applications. By using the free Windows® based Interface Panel Design Studio software, users can personalize the display with buttons, switches, and analog and digital scales to suit their needs. A development kit is also available, which includes a development board with buttons, dials, LEDs, and screw terminals to test the functionality of all inputs and outputs.

FEATURES/BENEFITS

- Large 4.3" touch screen display can be powered from USB or 5-30 VDC supply
- Free design software allows users to drag and drop elements onto the screen to quickly develop their specific interface
- Accepts up to 4 analog inputs, 8 digital I/O, 4 PWM outputs, and 2 open collector alarm outputs

APPLICATIONS

- Lift station pump control
- Room condition monitoring display
- Walk-in refrigeration/freezer control

MODEL CHART	
Model	Description
SPPM2-43	4.3" interface panel
SPPM2-43-D	4.3" interface panel with development board

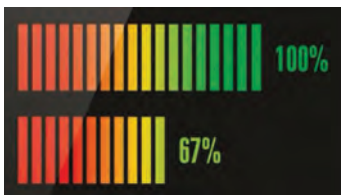
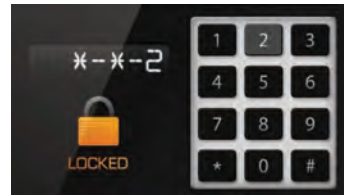
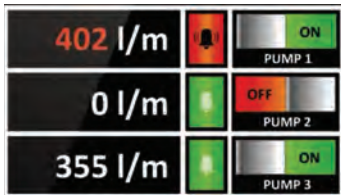
SPECIFICATIONS

Inputs: Mini-USB, 6-line screw terminal analog, 4 x ±40 V, or 4-20 mA, 8 x digital I/O.
Outputs: 4 x PWM, 2 x alarms (open collector).
Accuracy: ±0.05% ±0.1 mV (typ).
Resolution: 0.04 mV (max) or 4 decimal places.
Power Supply: USB port or 5-30 VDC.
Current Consumption: 400 mA at 5 VDC.
Display: 4.3" (10.9 cm) TFT LCD with 262k colors.
Display Resolution: 480 x 272 pixels.
Sampling Rate: 10 samples/s.
Temperature Limits: 32 to 104°F (0 to 40°C).
Warm Up: 15 s.
Mounting: Panel mount.
Electrical Connection: Multi-pin DIL's, 1 mini-USB, and 1 RS232.
Software Requirements: Compatible with Windows® 7, Windows® 8 and Windows® 10.
Weight: 6.7 oz (181 g).
Approvals: CE.

DEVELOPMENT BOARD SPECIFICATIONS

Inputs: 4 x ±5 VDC.
Outputs: 8 x digital I/O's, 4 x PWM outputs.
Serial Communication: RS232.
Power Supply: USB port or 5-30 VDC.
Weight: 19.7 oz (560 g).

Panel Meters/
Indicators



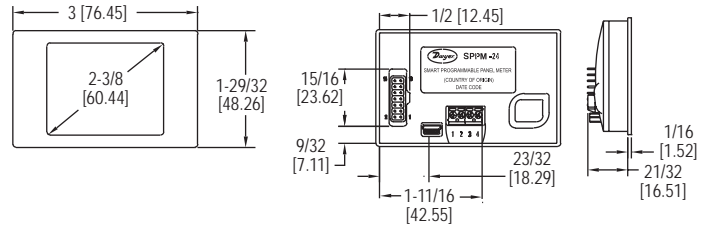
Windows® is a registered trademark of Microsoft Corporation.

SMART PROGRAMMABLE PANEL METERS

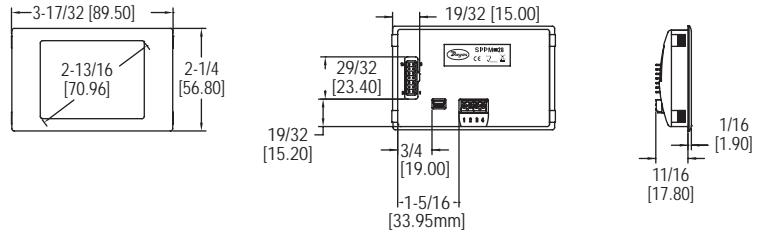
Fully Field Configurable, 16-Bit Color Touch Screen Display



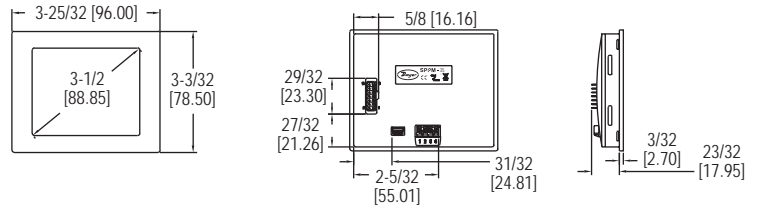
SPPM-HSG



SPPM-24 and SPPM-24-C



SPPM-28 and SPPM-28-C



SPPM-35 and SPPM-35-C



The Series SPPM Smart Programmable Panel Meters are configurable full-color touch screen displays that can be used in a variety of applications. By using a USB connection, the panel meter can be configured with downloadable software for any computer running Windows® based software. The display features remarkable graphics that can easily be customized to read and/or graph pressure, temperature, humidity, gas concentration, or many other parameters.

FEATURES/BENEFITS

- Available with 2.4", 2.8", or 3.5" color touch screen display
- Free downloadable Windows® software allows the unit to be customized to specific applications

APPLICATIONS

- Tank level
- Power monitoring
- Room pressurization condition
- Indoor air quality conditions

SAMPLE PROGRAMMABLE DISPLAY CONFIGURATIONS



SPECIFICATIONS

SPPM SPECIFICATIONS

Inputs: Current: 0-50 mA, scalable (factory set from 4-20 mA); Voltage: 0-40 VDC, scalable (factory set from 0-10 V).
Accuracy: 0.1%.
Resolution: 0.3 to 9.8 mV (depending on input range).
Power Supply: 4-30 VDC max or via USB.
Current Consumption: 190 mA max.
Display: 2.4", 2.8" or 3.5" TFT full color touch screen.
Display Resolution: 320 x 240 pixels.
Sampling Rate: 3 samples/s.
Temperature Limits: 32 to 104°F (0 to 40°C).
Warm Up: 30 s.
Mounting: Panel mount.
Electrical Connection: Screw terminals, pin connection, or USB.
Computer Requirements: Compatible with Windows® 7, Windows® 8 and Windows® 10.
Weight: 2.8 oz (79.4 g).
Agency Approvals: CE.

SPPM-HSG SPECIFICATIONS

Service: Indoor or outdoor.
Material: Painted aluminum or glass.
Enclosure Rating: NEMA 4X (IP66).
A-SPPM-TC SPECIFICATIONS
Probe Measurement Range:
 K-type: -328 to 2462°F (-200 to 1350°C);
 J-type: -328 to 2174°F (-200 to 1190°C);
 T-type: -328 to 734°F (-200 to 390°C).
Temperature Limits: 14 to 104°F (-10 to 40°C).
Resolution: 1.0°F (0.5°C).
Power Requirements: Powered by USB port through SPPM panel meter.
Accuracy: ±2.0°F (±1.0°C).
Weight: 0.9 oz (25.5 g).
Agency Approvals: CE.

MODEL CHART

Model	Display	Input
SPPM-24	2.4"	Voltage
SPPM-28	2.8"	Voltage
SPPM-35	3.5"	Voltage
SPPM-24-C	2.4"	Current
SPPM-28-C	2.8"	Current
SPPM-35-C	3.5"	Current

ACCESSORIES

Model	Description
A-SPPM-TC	Thermocouple input board
SPPM-CA	Mini USB to full USB cable
SPPM-HSG24	2.4" display housing
SPPM-HSG28	2.8" display housing

Note: Additional configurations available via online software.

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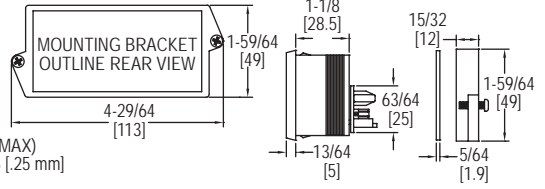
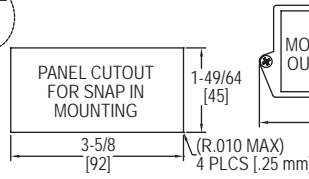
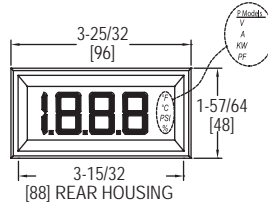
SERIES DPMA, DPMW, DPMP, & DPML

LCD DIGITAL PANEL METERS

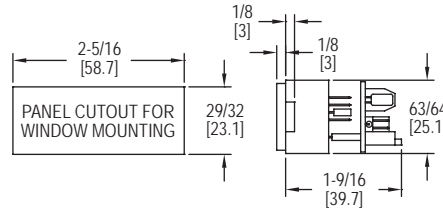
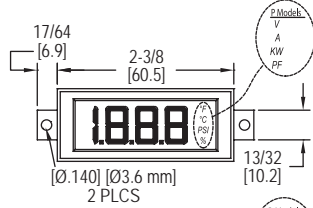
3-1/2 & 4-1/2 Digit LCD, User Selectable Engineering Units, Panel Mount



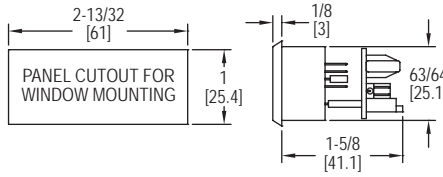
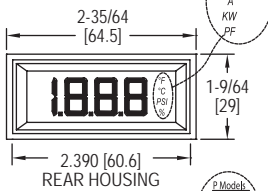
DPMA



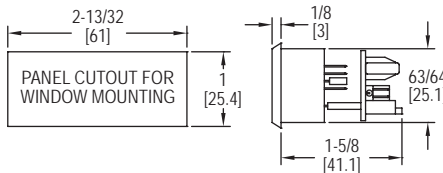
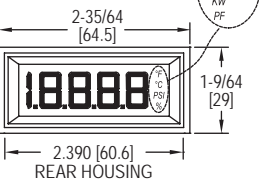
DPMW



DPMP



DPML



The Series DPMA, DPMW, DPMP, & DPML LCD Digital Panel Meters provide easy viewing on the 3-1/2 or 4-1/2 digit LCD display. On the DPMP and DPML the snap-in bezel mount eliminates mounting hardware for quick installation. The DPMA has a high contrast display for easy viewing in a standard 1/8 DIN package. The DPMW window mounts using two screws to sit flush within the panel cutout. This series can accept 4-20 mA, 0-200 mVDC, 0-5 VDC, or 0-10 VDC input signal and requires a 24 VDC power supply to illuminate the colored segments.

FEATURES/BENEFITS

- Panel mount for quick installation
- 3-1/2 or 4-1/2 digit with 0.45" or 1" segments
- Colored segments available in black, red, amber, green, or blue
- Jumper selectable engineering units and decimal point positions

APPLICATIONS

- Display process values from pressure, humidity, temperature, voltage, current, watt, or power factor transmitters

ACCESSORIES

Model	Description
DPM-12P	Regulated 120 VAC to 12 VDC power supply
DPM-24P	Regulated 120 VAC to 24 VDC power supply

SPECIFICATIONS

Input: DPMX-4XX(P): 4-20 mA; DPMX-5XX(P): 0-200 mVDC, 0-5 VDC, or 0-10 VDC.
Input Impedance: DPMX-4XX(P): 300Ω nominal; DPMX-5XX(P): 390Ω nominal.
Accuracy: DPMA: ±(0.05% FS + 1 count); DPMW/P/L: ±(0.1% FS + 2 count).
Power Supply: DPMX-4XX(P): Powered by control loop; DPMX-5XX(P): 12 VDC or 24 VDC.
Backlight Power Supply: 24 VDC @ 35 mA typical.
Span and Zero: Adjustable (±1999 counts).
Display: DPMA: 3-1/2 digits, 7 segments, 1" (25.4 mm) H; DPMP/W: 3-1/2 digits, 7 segments, 0.45" (11.4 mm) H; DPML: 4-1/2 digits, 7 segments, 0.45" (11.4 mm) H.

Decimal Points: DPMA/W/P: 3-position, user selectable; DPML: 4-position, user selectable.
Polarity: Automatic, "-" displayed.
Operating Temperature: 32 to 122°F (0 to 50°C).
Storage Temperature: -4 to 158°F (-20 to 70°C).
Mounting: DPMA: Snap-in panel mount or clamp (gasket included); DPMW: Window mount; DPMP/L: Snap-in bezel mount.
Connection: Screw terminals.
Conversion Rate: 3 per s.
Warm-Up: 10 minutes typical.
Weight: DPMA: 4 oz (113.4 g); DPMW/P/L: 2 oz (56.7 g).

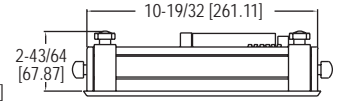
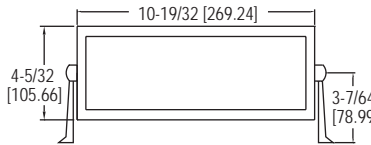
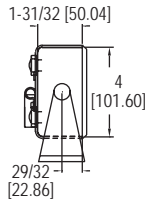
MODEL CHART

Model	Input	Segments	Engineering Units	Digit	Model	Input	Segments	Engineering Units	Digit
DPMA-401	Current	Amber	°F, °C, %, psi	3-1/2"	DPMW-401P	Current	Amber	V, A, KW, PF	3-1/2"
DPMA-402	Current	Red	°F, °C, %, psi	3-1/2"	DPMW-402P	Current	Green	V, A, KW, PF	3-1/2"
DPMA-404	Current	Green	°F, °C, %, psi	3-1/2"	DPMW-403P	Current	Red	V, A, KW, PF	3-1/2"
DPMA-501	Voltage	Amber	°F, °C, %, psi	3-1/2"	DPMP-401*	Current	Amber	°F, °C, %, psi	3-1/2"
DPMA-502	Voltage	Red	°F, °C, %, psi	3-1/2"	DPMP-402*	Current	Green	°F, °C, %, psi	3-1/2"
DPMA-504	Voltage	Green	°F, °C, %, psi	3-1/2"	DPMP-403*	Current	Red	°F, °C, %, psi	3-1/2"
DPMA-401P	Current	Amber	V, A, KW, PF	3-1/2"	DPMP-501*	Voltage	Amber	°F, °C, %, psi	3-1/2"
DPMA-402P	Current	Red	V, A, KW, PF	3-1/2"	DPMP-502*	Voltage	Green	°F, °C, %, psi	3-1/2"
DPMA-404P	Current	Green	V, A, KW, PF	3-1/2"	DPMP-503*	Voltage	Red	°F, °C, %, psi	3-1/2"
DPMA-501P	Voltage	Amber	V, A, KW, PF	3-1/2"	DPMP-401P*	Current	Amber	V, A, KW, PF	3-1/2"
DPMA-502P	Voltage	Red	V, A, KW, PF	3-1/2"	DPMP-402P*	Current	Green	V, A, KW, PF	3-1/2"
DPMA-504P	Voltage	Green	V, A, KW, PF	3-1/2"	DPMP-403P*	Current	Red	V, A, KW, PF	3-1/2"
DPMW-401	Current	Amber	°F, °C, %, psi	3-1/2"	DPMP-501P*	Voltage	Amber	V, A, KW, PF	3-1/2"
DPMW-402	Current	Green	°F, °C, %, psi	3-1/2"	DPMP-502P*	Voltage	Green	V, A, KW, PF	3-1/2"
DPMW-403	Current	Red	°F, °C, %, psi	3-1/2"	DPMP-503P*	Voltage	Red	V, A, KW, PF	3-1/2"

*For 4-1/2 digit display, change DPMP to DPML. Example: DPML-401

EXTRA LARGE DIGITAL PANEL METER

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



The **Series DPMX Extra Large Digital Panel Meter** can be easily viewed from across a room or in dark areas. The 2.3" LED segments are available in red, green, or blue. These panel meters come equipped with a universal power supply and user selectable process inputs to fit most applications.

FEATURES/BENEFITS

- Large 10.6" (269.2 mm) x 4.2" (105.7 mm) backlit display
- Protective metal casing with adjustable mounting bracket

APPLICATIONS

- Display process values from various transmitters

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

SPECIFICATIONS

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

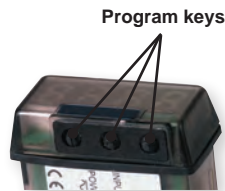
SERIES LCI132

COMPACT PROCESS INDICATOR

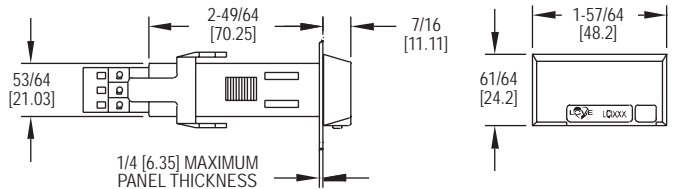
1/32 DIN, Fully Programmable



Process display



Program keys



The **Series LCI132 Compact Process Indicator** offers flexibility and value in a low cost, compact 1/32 DIN package. The shallow depth of these full size panel meters allows installation in panels only 2.76" (70 mm) deep with room to spare.

FEATURES/BENEFITS

- Fits in 1/32 DIN panel cutouts
- IP65 (NEMA 4X) front housing
- Fully programmable
- Various voltage and current inputs fit most processes

APPLICATIONS

- Display process values from various transmitters

MODEL CHART		
Model	Input	Supply Voltage
LCI132-00	± 100 VDC; ± 20 VDC; ± 10 VDC; ± 200 VDC; ± 20 mA DC	120/240 VAC
LCI132-01	± 100 VDC; ± 20 VDC; ± 10 VDC; ± 200 VDC; ± 20 mA DC	24/48 VAC
LCI132-10	± 100 VAC; 600 VAC; 5 A (DC) 1A (AC); -199.9 to +600 VDC; ± 100 VDC -1.999 to 5 A (DC) ± 1 A (DC)	120/240 VAC
LCI132-11	± 100 VAC; 600 VAC; 5 A (DC) 1A (AC); -199.9 to +600 VDC; ± 100 VDC -1.999 to 5 A (DC) ± 1 A (DC)	24/48 VAC

SPECIFICATIONS

LCI132-0X
Range: Input volts (DC): ± 200 V, ± 20 V, ± 10 V; Input amperes: ± 100 mV, ± 20 mA.
Resolution: Input volts (DC): 0.1 V, 0.01 V, 1 mV; Input amperes: 0.1 mV, 0.01 mA;
 Input impedance: Volts: 1 M Ω , mV: 100 M Ω , mA: 12.1 Ω .
LCI132-1X
Range AC: Input volts: 600.0, 100.0; Input amperes: 5.000, 1.000.
Range DC: Input volts: -199.9, ± 600.0 , ± 100.0 ; Input amperes: -1.999, +5.000, ± 1.000 .
Resolution: Input volts: 0.1 V; Input amperes: 1 mA; Input impedance: Volts: 3 M Ω (106), Amps: 12 m Ω (10-3).
Accuracy at 23°C $\pm 5^\circ$ C: 100/600 VDC 1/5 A DC; 600 V/5 AAC: $\pm(0.2\%$ reading + 3 digits). 100 V / 1 A AC: $\pm(0.4\%$ reading + 4 digits).
Temperature Coefficient: 100 PPM/ $^\circ$ C.
Warm Up: 5 minutes.
Power Supply and Fuses (DIN 41661) (Not supplied): LCI132-X0: 85–265 VAC 50/60 Hz and 100-300 VDC: Fuse: 0.1 A/ 250 V; LCI132-X1: 21-53 VAC 50/60 Hz and 10.5-70 VDC: Fuse 0.5 A/ 250 V.
DISPLAY
Range: -1999 to 9999 (DC) 0 to 9999 (AC).
Type: 4 red digits 10 mm.
Reading Rate: 4/s.
Overflow Indication: OVR.
ENVIRONMENTAL
Operating Temperature: 14 to 140°F (-10 to 60°C).
Storage Temperature: -13 to 185°F (-25 to 85°C).
Relative Humidity (non condensed): < 95% @ 40°C.
Panel Sealing: NEMA 4X (IP66).

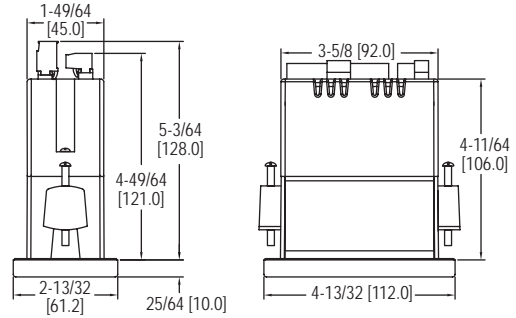


SERIES APM, MPM & PPM



DUAL LINE CONFIGURABLE PANEL METERS

1/8 DIN Process and Flow / Rate Totalizers



These 1/8 DIN digital panel meters accept signals from various transmitters and flowmeters and displays them on a six-digit, dual line display in engineering units. These meters will also provide power to the field device and include a NEMA 4X front panel. Free, USB based programmig software is resident on the meter. Options include up to four relays and a 4-20 mA output.

The **Series MPM Dual Line Configurable Panel Meter** is a general purpose process meter that is field selectable for a 4-20 mA or 0-10 V input signal. It provides 24 VDC to power the transmitter. The dual line display can display the process variable on the upper line and engineering units on the lower line. Or, in dual scale mode, the process variable can be displayed in one units (like height) on the upper display and another (like volume) on the lower display. The meter also has an automatic Round Horizontal Tank function a well as 32 point linearization.

The **Series APM Dual Line Configurable Panel Meter** and **Series PPM Dual Line Configurable Panel Meter** are flow / rate totalizers for analog or pulse inputs. The most useful feature of these products is their dual line display which allows rate and total to be displayed at the same time. A non-resetable grand total can also be programmed. Total can be reset either from the front panel or by connecting a remote switch to the F4 terminal at the rear of the meter.

The **Series APM** accepts either a 4-20 mA or 0-10 V input signal and provides the 24 VDC to power the flowmeter. Other features of the APM include square root extraction for DP flow, and programmable exponents for open channel flow.

The **Series PPM** accepts a pulse input signal and provides either 5, 10 or 24 VDC to power the flowmeter. Adding the 4-20 mA output option converts the pulse into a signal that can be run long distances to a PLC or other device.

FEATURES/BENEFITS

- NEMA 4X / IP65 front panel
- Powers the transmitter / flowmeter
- Dual line 6 digit display
- Free USB based programming software
- Display rate and total at the same time
- Two or four relays and isolated 4-20 mA output options

APPLICATIONS

- Level monitoring
- Pump control
- Flow rate indication
- Flow totalization
- Open channel flow monitoring
- Process control

MODEL CHART					
Model	Model	Model	Power	Output 1	Output 2
APM-100	MPM-100	PPM-100	85-265 VAC	None	None
APM-101	MPM-101	PPM-101	85-265 VAC	None	4-20 mA
APM-120	MPM-120	PPM-120	85-265 VAC	2 relays	None
APM-121	MPM-121	PPM-121	85-265 VAC	2 relays	4-20 mA
APM-140	MPM-140	PPM-140	85-265 VAC	4 relays	None
APM-141	MPM-141	PPM-141	85-265 VAC	4 relays	4-20 mA
APM-200	MPM-200	PPM-200	12-24 VDC	None	None
APM-201	MPM-201	PPM-201	12-24 VDC	None	4-20 mA
APM-220	MPM-220	PPM-220	12-24 VDC	2 relays	None
APM-221	MPM-221	PPM-221	12-24 VDC	2 relays	4-20 mA
APM-240	MPM-240	PPM-240	12-24 VDC	4 relays	None
APM-241	MPM-241	PPM-241	12-24 VDC	4 relays	4-20 mA

SPECIFICATIONS

Input: APM and MPM: 0-20 mA, 4-20 mA, 0-5 V, or ± 10 V inputs; PPM: Field selectable: Pulse or square wave 0-5 V, 0-12 V, or 0-24 V @ 30 kHz; TTL; open collector 4.7 k Ω pull-up to 5 V @ 30 kHz; NPN or PNP transistor, switch contract 4.7 k Ω pull-up to 5 V @ 40 Hz. Input impedance: 50 to 100 Ω .

Accuracy: $\pm 0.03\%$ of calibrated span ± 1 count.

Display: Red LED, Dual-line 6-digit display, 0.60 in and 0.46 in.

Transmitter / Flowmeter Power: 85-265 VAC models: 200 mA @ 24 VDC; 12-24 VDC models: 100 mA @ 24 VDC; Second supply with 4-20 mA output models: 40 mA @ 24 VDC.

Power Requirements: 85-265 VAC 50/60 Hz, 90-265 VDC, 20 W max or 12-24 VDC $\pm 10\%$, 15 W max.

Temperature Limits: Operating: -40 to 149°F (-40 to 65°C); Storage: -40 to 185°F (-40 to 85°C).

Front Panel: NEMA 4X, IP65 front.

Output Signal (option): Isolated 4-20 mA.

Switch Rating (option): 2 or 4 SPDT (Form C) internal and/or 4 SPST (Form A) external; rated 3 A @ 30 VDC and 125/250 VAC resistive load; 1/14 HP @ 125/250 VAC for inductive loads.

Time Delay: 0 to 999.9 s, on and off relay time delays; programmable and independent for each relay.

Shipping Weight: 9.5 oz (269 g).

Agency Approvals: CE, UL.

Programming Software: Free, USB based. Resident on meter, nothing to download.

FREE USB PROGRAMMING SOFTWARE AND CABLE

The PM Series meters come preloaded with free programming software that connects and installs directly to your PC with a standard USB cable, also provided free with each instrument. This eliminates the need to insert CDs, install drivers, or download software from the internet. The software will allow you to configure, monitor, and datalog a PM Series meter using your PC. Just simply connect the meter to your PC with the USB cable and within seconds you will be programming it.

UNIQUE LEVEL MONITORING CAPABILITIES

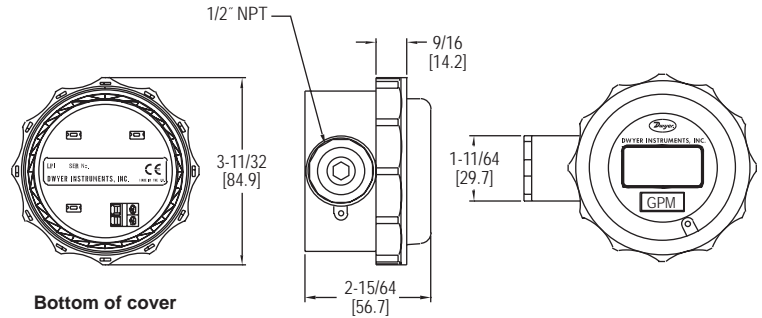
The MPM meter is particularly well suited for level monitoring, controlling and alarming applications. For instance, the meter can be programmed to display any two of these parameters on its dual line display: height, volume or percent full. Its six digit display allows it to display volumes up to 999,999 gallons, liters, or any other volume. The meter also has a Round Horizontal Tank function which requires the user to enter only the height and length of a round horizontal tank and the meter will display in volume. Up to four relays are available for alarm and control applications, and the relays can even be programmed to alternate for pump control applications.

ACCESSORIES

Model	Description
PMA-01	RS-232 serial adapter
PMA-03	RS-422/485 serial adapter
PMA-04	RS-232 to RS-422/485 isolated converter
PMA-05	RS-232 to RS-422/485 non-isolated converter
PMA-06	USB to RS-232 non-isolated converter
PMA-07	USB to RS-422/485 isolated converter
PMA-08	USB to RS-422/485 non-isolated converter
PMA-09	Snubber
PMA-10	DIN rail mounting kit for two modules
PMA-11	4 relay expansion module
PMA-12	4 digital inputs and 4 digital outputs module

LOOP POWERED PROCESS INDICATOR

Square Root Function and User Defined Curves 4-Digit LED



The **Model LPI Loop Powered Process Indicator** accepts a 4-20 mA input signal and displays the associated process variable such as pressure, level, flow, temperature, or relative humidity. The indicator is housed in a NEMA 4X (IP66) polycarbonate enclosure with a 1/2" female NPT side port. Users can quickly modify the instrument configuration via three push-buttons on the front of the unit.

FEATURES/BENEFITS

- NEMA 4X (IP66) enclosure for outdoor applications
- Programmable input/output scaling, engineering units, offset, decimal point position, and password protection
- Bright red four-digit LED

APPLICATIONS

- Displays process values from various transmitters

SPECIFICATIONS @ 68°F (20°C)

Input: 4-20 mA.
Maximum Input Current: 100 mA for 1 minute.
Accuracy: ±0.02% FS.
Stability: Zero: 0.002%/°C; Span: 100 PPM/°C.
Power Requirements: 2-wire 4-20 mA loop powered.
Display: 4-digit, 7.6 mm (high) red LED.
Maximum Display Range: -1999 to 9999.
Ambient Operating Temperature: -4 to 167°F (-20 to 75°C).
Storage Temperatures: -58 to 185°F (-50 to 85°C).
Weight: 6.0 oz (170 g).
Front Panel Protection: NEMA 4X (IP66).
Agency Approvals: CE.

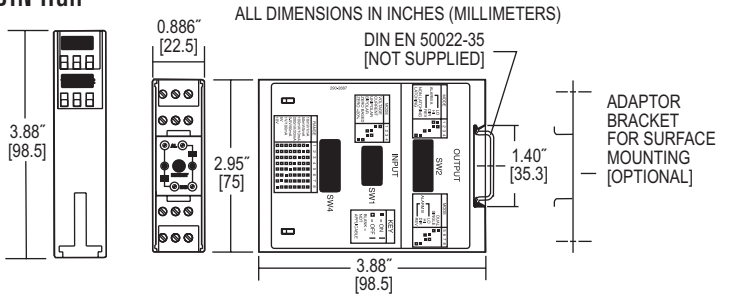
MODEL CHART	
Model	Description
LPI-111	Loop powered indicator with plastic enclosure



SERIES SC1

PROCESS/TEMPERATURE ALARM SWITCH MODULE

Two Form C (SPDT) Switches, Small Size, Mounts Easily on 35 mm DIN Rail



The **Series SC1 Process/Temperature Alarm Switch Module** is an on-off or limit switch with selectable process signal. Each unit has two form C (SPDT) relays which can operate independently, or be logically connected to operate as a DPDT output.

FEATURES/BENEFITS

- Accepts current, voltage, thermocouple, or RTD inputs
- Mounts on standard 35 mm DIN rail
- Two color LED indicator to indicate the status of each output relay
- Programmable input type, scale range, output action, and output type

APPLICATIONS

- Stand alone CO monitoring in parking garage
- Industrial processing equipment

MODEL CHART		
Model	Description	Power Supply
SC1090	4-20 mA, 10-50 mA, 0-20 mA, 0-10 V, -10-10 mV	85-265 VDC/VAC
SC1290	Thermocouple type J, K, R, S, T, E RTD Pt1000	85-265 VDC/VAC
SC1490	Ni100, Ni120, Cu10, Ni-Fe1000, Ni-Fe2000	85-265 VDC/VAC
SCL1090	4-20 mA, 10-50 mA, 0-20 mA, 0-10 V, -10 to 10 mV	12-24 VDC/VAC
SCL1290	Thermocouple type J, K, R, S, T, E	12-24 VDC/VAC
SCL1490	RTD Pt1000 Ni100, Ni120, Cu10, Ni-Fe1000, N-Fe2000	12-24 VDC/VAC

SPECIFICATIONS

Input: See table.
Power Supply: SC models: 85-265 VDC/VAC, 50 to 400 Hz; SCL models: 12-24 VDC/VAC, 50 to 400 Hz.
Isolation: 1500V rms between outputs, input, and power.
Set Points: Adjustable 0 to 100% of span.
Deadband: Adjustable 0.25% to 100% of span.
Drift: ±0.02%/°C typical ±0.05%/°C maximum.
Ambient Temperature Range: Operating: 32 to 131°F (0 to 55°C); Storage: -40 to 176°F (-40 to 80°C).
Excitation Current: (SC1490) Cu10 Ω = 5 mA; Pt1 100 Ω, Ni 100 Ω, Ni 120 Ω = 500 μA; Pt1 500 Ω, NiFe 1000 Ω = 100 μA; Pt1 1000 Ω = 50 μA.

Lead Compensation Error: (SC1490) ≈ 0.02%/Ω.
Open Lead Protection: (SC1490) upscale only.
Input Impedance: SC1090: Voltage input = 1 MΩ, current input = 10 Ω; SC1290: 3 MΩ.
Sensor Burnout Protection: Selectable.
Relay Output: Form C, SPDT, one per set point, 5A @ 250 VAC, resistive.
Latch Circuit Reset: Automatic at power up. Manual with reset switch on front of module.
Indicators: One dual color LED per set point. Red = relay on, green = relay off.
Wiring Terminals: Screw driven compression type.

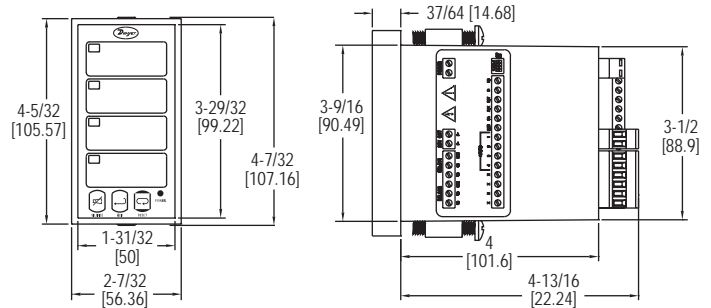
ACCESSORIES

Model	Description
A-360	Aluminum DIN rail 1 m

SERIES AN2

INDICATING ALARM ANNUNCIATOR

Up to 8 Inputs, Integral Power Supply



The **Series AN2 Indicating Alarm Annunciator** provides visible and audible alarms for up to eight inputs. Audible alarm conditions can be acknowledged, reset, or silenced either via the front panel push-buttons or the rear terminal block. The annunciator also has two SPDT relay outputs that can be used to initiate external alarms, buzzers, or paging devices.

FEATURES/BENEFITS

- Includes integral 24 VDC power supply to power most switches
- Can be set to any common ISA sequences

APPLICATIONS

- Water and wastewater panels
- Tank level monitoring
- Temperature monitoring process

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

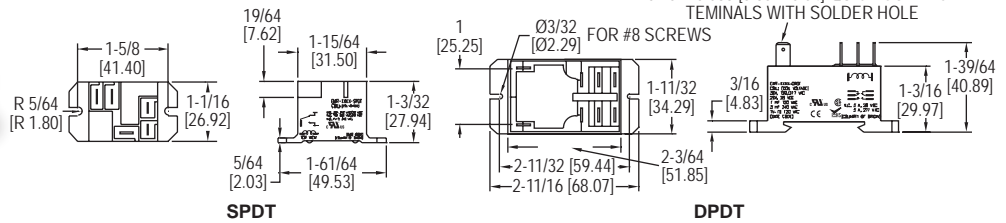
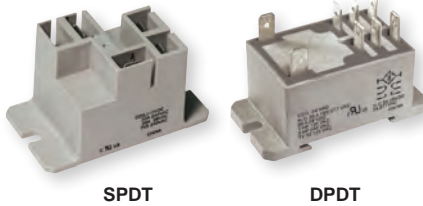
SPECIFICATIONS

Inputs: NO or NC switches, open collector transistor (open circuit voltage = 3.3 VDC); Logic levels: LO = 0-0.9 VDC, HI = 2.4-28 VDC (100 KΩ input impedance).
Outputs: Two SPDT relay (3 A @ 250 VAC or 30 VDC, resistive; 1/14 HP @ 125/250 VAC, inductive).
Temperature Limits: -40 to 149°F (-40 to 65°C).
Power Requirements: 85-265 VAC 50/60 Hz, 90-265 VDC; 12-36 VDC, 12-24 VAC (depending on model).
Power Consumption: 20 W (6 W on low voltage models).
Mounting: 1/8 DIN.
Housing Material: UL rated 94V-0 high impact plastic.
Enclosure Rating: NEMA 4X (IP66) front panel.
Weight: 9.6 oz (272 g).
Agency Approvals: CE, UL.



ELECTROMECHANICAL RELAYS

30 Amp, SPDT and DPDT Operation



The **Series 9 Electromechanical Relays** are small in size, features Class F insulation for a max coil temperature of 155°C, quick-connect terminals for simple connection, and is panel mountable. The relays are compact and impervious to shock and vibration.

FEATURES/BENEFITS

- Compact size for flange mounting
- Quick-connect terminals to allow for easy installation

APPLICATIONS

- Motor control
- Lighting control
- Refrigeration compressor systems

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

SPECIFICATIONS

Operating and Load Voltage Range: 12-277 VAC; 5-110 VDC.

Electrical Connection: Quick-connect tab terminals. SPDT 0.187" coil terminal/0.25" contact terminal; DPDT 0.25" coil terminal/0.25" contact terminal.

Switching Operation: SPDT or DPDT.

Electrical Rating: SPDT: NO 30 A @ 240 VAC / 28 VDC; NC 10 A @ 240 VAC / 28 VDC; DPDT: 30 A @ 240 VAC 20 A @ 28 VDC.

Temperature Limits: Storage: -40 to 185°F (-40 to 85°C); Operation: -40 to 131°F (-40 to 55°C).

Voltage Loss: 2.5 VA (VAC); 1W (VDC).
Cycle Life: 100,000 cycles (electrical); 10,000,000 cycles (mechanical).

Housing: Polyester resin.

Weight: 1.16 oz (45 g) (SPDT); 3 oz (85 g) (DPDT).

Agency Approvals: CE, cULus, (EMR-XXXX-DPDT), cURus (EMR-XXXX-SPDT).

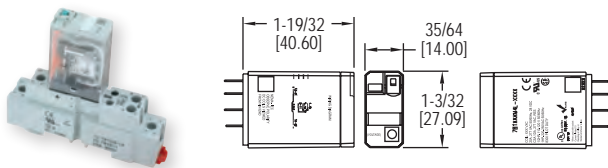
ACCESSORIES

Model	Description
16-9ADIN1	Din adaptor
A-360	Aluminum DIN rail 1 m

SERIES 781 & 782

ICE CUBE RELAYS

SPDT or DPDT Operation



781

Pictures shown with socket accessory (sold separately)

782

The **Series 781 & 782 Ice Cube Relays** are full-featured relays that can be used to handle loads up to 15 amps for AC or DC circuits. It features a flag status indicator and a LED status lamp to let the user know when the relay is activated. In order to differentiate between AC and DC actuated models, the push-to-test button is color coded and a removable lock-down lever holds the test button in place.

FEATURES/BENEFITS

- Clear plastic housing to easily view the contacts
- Flag and LED status indicators for visual confirmation of relay state
- Socket mounted for quick installation/replacement

APPLICATIONS

- Refrigeration compressor systems
- HVAC motor controls
- Water/wastewater pump control

SPECIFICATIONS

Operating and Load Voltage Range: 24-240 VAC; 24 VDC.

Electrical Connection: Silver alloy plug-in contacts.

Switching Operation: SPDT or DPDT.

Electrical Rating: Depends on model, see model chart.

Temperature Limits: Storage: -40 to 185°F (-40 to 85°C); Operation: -40 to 131°F (-40 to 55°C).

Power Consumption: 781: 0.9 VA; 0.7W; 782: 1.2 VA; 0.9W.

Cycle Life: 100,000 cycles (electrical); 10,000,000 cycles (mechanical).

Housing: Plastic polycarbonate.

Weight: 781: 1.02 oz (29 g); 782: 1.3 oz (36 g).

Agency Approvals: CE, CSA, cULus, cURus.

ACCESSORIES

Model	Description
70-781D5-1A	Socket for 781 series relay
70-782D8-1A	Socket for 782 series relay

Model	Operation	Input Voltage	Coil Resistance	Electrical Rating
781XAXRM4L-24A	AC	24 VAC 50/60 Hz	180 Ω	15 A @ 277 VAC (50/60 Hz) or 28 VDC
781XAXRM4L-120A	AC	120 VAC 50/60 Hz	4430 Ω	15 A @ 277 VAC (50/60 Hz) or 28 VDC
781XAXRM4L-240A	AC	240 VAC 50/60 Hz	15720 Ω	15 A @ 277 VAC (50/60 Hz) or 28 VDC
781XAXRM4L-24D	DC	24 VDC	750 Ω	15 A @ 277 VAC (50/60 Hz) or 28 VDC
782XBXM4L-24A	AC	24 VAC 50/60 Hz	180 Ω	15 A @ 120 VAC 50/60 Hz; 12 A @ 277 VAC 50/60 Hz or 28 VDC (UL); 10 A @ 277 VAC 50/60 Hz (CSA)
782XBXM4L-120A	AC	120 VAC 50/60 Hz	4430 Ω	15 A @ 120 VAC 50/60 Hz; 12 A @ 277 VAC 50/60 Hz or 28 VDC (UL); 10 A @ 277 VAC 50/60 Hz (CSA)
782XBXM4L-240A	AC	240 VAC 50/60 Hz	15720 Ω	15 A @ 120 VAC 50/60 Hz; 12 A @ 277 VAC 50/60 Hz or 28 VDC (UL); 10 A @ 277 VAC 50/60 Hz (CSA)
782XBXM4L-24D	DC	24 VDC	650 Ω	15 A @ 120 VAC 50/60 Hz; 12 A @ 277 VAC 50/60 Hz or 28 VDC (UL); 10 A @ 277 VAC 50/60 Hz (CSA)

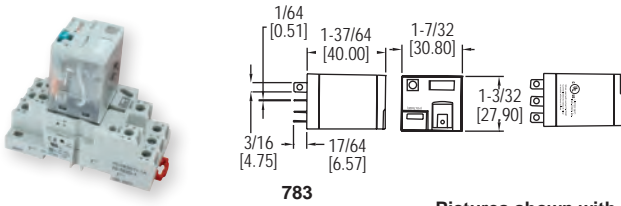


SERIES 783 & 784

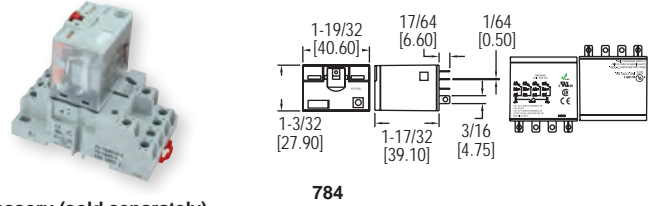


ICE CUBE RELAYS

3PDT or 4PDT Operation



783



784

Pictures shown with socket accessory (sold separately)

The Series 783 & 784 Ice Cube Relays are full-featured relays that can be used to handle loads up to 15 amps for AC or DC circuits. It features a flag status indicator and a LED status lamp to let the user know when the relay is activated. In order to differentiate between AC and DC actuated models, the push-to-test button is color coded and a removable lock-down lever holds the test button in place.

FEATURES/BENEFITS

- Clear plastic housing to easily view the contacts
- Flag and LED status indicators for visual confirmation of relay state
- Socket mounted for quick installation/replacement

APPLICATIONS

- Refrigeration compressor systems
- HVAC motor controls
- Water/wastewater pump control

SPECIFICATIONS

Operating and Load Voltage Range: 24-240 VAC; 24 VDC.
Electrical Connection: Silver alloy plug-in contacts.
Switching Operation: 3PDT or 4PDT.
Electrical Rating: 15 A @ 120 VAC 50/60 Hz; 12 A @ 277 VAC 50/60 Hz or 28 VDC.
Temperature Limits: Storage: -40 to 185°F (-40 to 85°C); Operation: -40 to 131°F (-40 to 55°C).
Power Consumption: 783: 1.5 VA; 1.4 W; 784: 1.5 VA; 1.5 W.
Cycle Life: 100,000 cycles (electrical); 10,000,000 cycles (mechanical).
Housing: Plastic polycarbonate.
Weight: 783: 2.1 oz (60 g); 784: 2.8 oz (80 g).
Agency Approvals: CE, CSA, cULus, cURus.

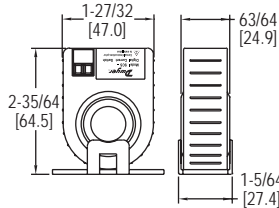
MODEL CHART			
Model	Operation	Input Voltage	Coil Resistance
783CXM4L-24A	AC	24 VAC 50/60 Hz	103 Ω
783CXM4L-120A	AC	120 VAC 50/60 Hz	2770 Ω
783CXM4L-24D	DC	24 VDC	400 Ω
784DXM4L-24A	AC	24 VAC 50/60 Hz	84.5 Ω
784DXM4L-120A	AC	120 VAC 50/60 Hz	2220 Ω
784DXM4L-24D	DC	24 VDC	388 Ω

ACCESSORIES	
Model	Description
70-783D11-1A	Socket for 783 series relay
70-784D14-1	Socket for 784 series relay
70-ASMM-24	Protection modules, MOV suppressor, 24 VAC/VDC
70-ASMM-120	Protection modules, MOV suppressor, 120 VAC/VDC
70-ASMD-250	Protection modules, protection diode, 6 to 250 VDC
16-750/788CBJ-1	Coil bus jumpers

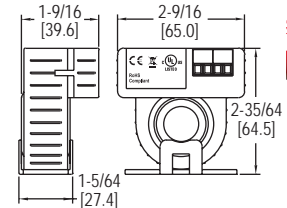
SERIES SCS

CURRENT SWITCHES

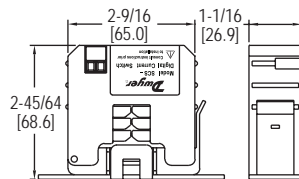
Optional Relay Output, Solid or Split Core Case



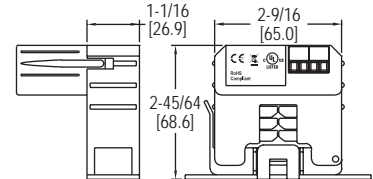
SCS-111100 and SCS-120025



SCS-111100-R



SCS-220015, SCS-220150, and SCS-211125



SCS-220150-R and SCS-211125-R

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

FEATURES/BENEFITS

- Integral mounting flange for quick installation
- Solid core or split core configurations

APPLICATIONS

- BAS
- HVAC

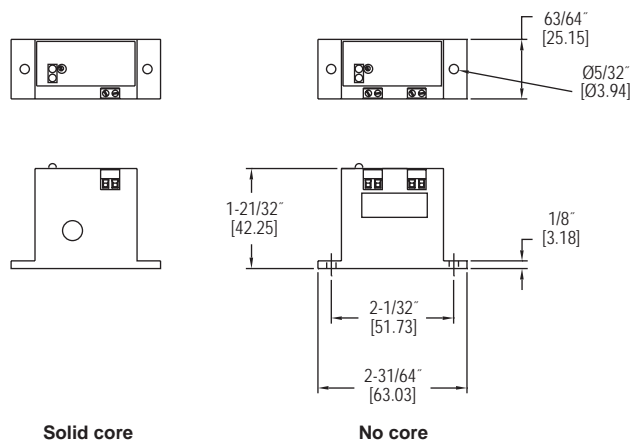
SPECIFICATIONS

Output: Isolated, 1 A @ 30 VAC/DC max, NO.
External Relay: SPST N.O., 10 A at 260 VAC (5 A at 30 VDC).
Power Requirements: None, self-powered.
Temperature Limits: 5 to 140°F (-15 to 60°C).
Isolation Voltage: 600 VAC RMS.
Frequency: 50/60 Hz.
Enclosure Rating: UL, 94 V-0 flammability rated, ABS plastic housing.
Agency Approvals: CE, cULus.

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

MINIATURE CURRENT SWITCHES

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



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

FEATURES/BENEFITS

- Integral mounting flange for quick installation
- Compact size fits in any space

APPLICATIONS

- BAS
- HVAC

SPECIFICATIONS

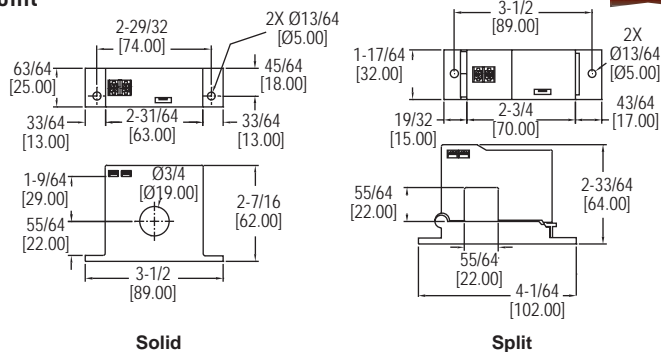
Amperage Range: MCS-111050: 0.5 to 50 A AC continuous; MCS-111001: 0.01 to 1 A AC continuous.
Output Rating: Isolated, N.O. 0.3 A @ 130 V DC/AC.
Power Requirements: None, self-powered.
Hysteresis: 1%.
Response Time: <200 ms.
Temperature Limits: 32 to 122°F (0 to 50°C).
Humidity Limits: 10 to 95% RH (non-condensing).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

MODEL CHART				
Model	Case	Set Point	Minimum Set Point	LED
MCS-111050	Solid core	Adjustable	0.50	Red/geen
MCS-111001	No core (terminal connection)	Adjustable	0.01	Red/geen

SERIES CCS

CURRENT SWITCHES

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



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

FEATURES/BENEFITS

- Integral mounting flange for quick installation
- Solid core or split core configurations
- LED Indicator

APPLICATIONS

- BAS
- HVAC

SPECIFICATIONS

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

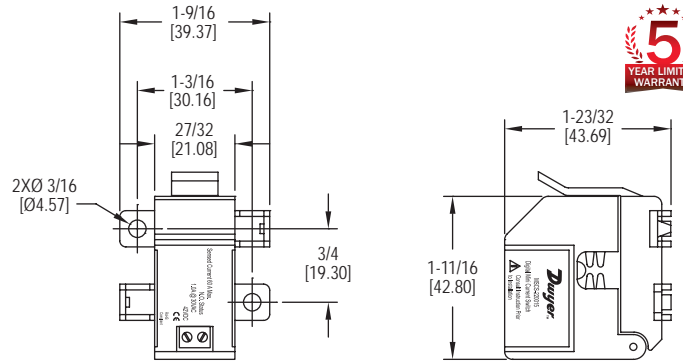
MODEL CHART					
Model	Case	Set Point	Minimum Set Point (A)	LED	Dry Contact Output
CCS-121050	Solid core	Fixed	0.50 (±0.2)	Red	Yes
CCS-111100	Solid core	Adjustable	1.00 (±0.2)	Red/green	No
CCS-221100	Split core	Fixed	1.00 (±0.2)	Red	Yes
CCS-211150	Split core	Adjustable	1.50 (±0.2)	Red/green	No
CCS-131100	Solid core	Adjustable	1.00 (±0.2)	Red/green	Yes
CCS-231150	Split core	Adjustable	1.50 (±0.2)	Red/green	Yes



MODEL MSCS

MINIATURE CURRENT SWITCHES

Split Core, Integral Mounting Tabs



The **Model MSCS Miniature Current Switches** are low cost solutions for monitoring on and off status of light to medium current loads in compact spaces. This unit has a split core design and has a fixed set point of 0.15 amps. It is designed to detect changes in operating current to prevent motor belt loss, slippage, or mechanical failure.

FEATURES/BENEFITS

- Integral mounting flange for quick installation
- Compact size fits in any space

APPLICATIONS

- BAS
- HVAC
- Small industrial motors

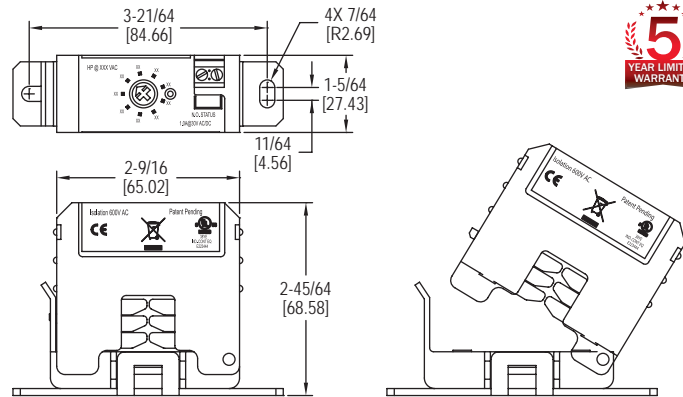
MODEL CHART	
Model	Motor Application
MSCS-220015	Miniature split core current switch

SPECIFICATIONS	
Amperage Range:	0.15 to 60 A.
Output:	NO.
Power Requirements:	None, self-powered.
Temperature Limits:	5 to 140°F (-15 to 60°C).
Humidity Limits:	0 to 95%, non-condensing.
Isolation Voltage:	300 VAC RMS.
Frequency:	50/60 Hz.
Enclosure Rating:	UL 94 V-0 flammability rated, ABS plastic housing.
Agency Approvals:	CE, cULus.

SERIES SSCS

SURE-SET CURRENT SWITCHES

Split Core, Adjustable Set Point



The **Series SSCS Sure-Set Current Switches** provide a unique approach to calibration and installing current sensors in a low cost, fast, and accurate design. Selecting the set point has never been easier, with each model having 9 pre-configured adjustable HP set points. This feature eliminates the need to work within a live enclosure, reducing the risk of arc flash on installation.

FEATURES/BENEFITS

- Models for 230 VAC or 480 VAC applications
- Low and high motor HP ranges available
- 9 pre-set HP set points for faster installation

APPLICATIONS

- BAS
- HVAC
- Industrial motors

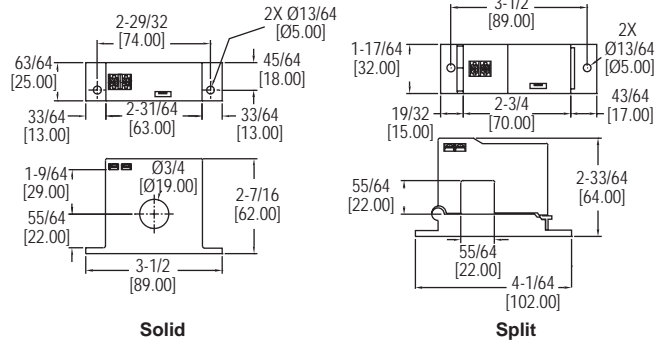
MODEL CHART			
Model	Case	Motor HP Range	Motor Application
SSCS-211100-230	Split	1, 2, 3, 5, 7.5, 10, 15, 20, 25	230 VAC
SSCS-211200-480	Split	2, 3, 5, 7.5, 10, 15, 20, 25, 30	480 VAC
SSCS-211500-230	Split	5, 7.5, 10, 15, 20, 25, 30, 40, 50	230 VAC
SSCS-211150-480	Split	15, 20, 25, 30, 40, 50, 60, 75, 100	480 VAC

SPECIFICATIONS	
Output:	Isolated, NO.
Power Requirements:	None, self-powered.
Temperature Limits:	5 to 140°F (-15 to 60°C).
Humidity Limits:	0 to 95%, non-condensing.
Isolation Voltage:	600 VAC RMS.
Frequency:	50/60 Hz.
Enclosure Rating:	UL 94 V-0 flammability rated, ABS plastic housing.
Agency Approvals:	CE, cULus.

ACCESSORIES	
Model	Description
SCT-RLY-12	12 VAC trigger voltage relay module

CURRENT TRANSFORMERS

Solid or Split Core, Field Selectable Range



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

FEATURES/BENEFITS

- Integral mounting flange for quick installation
- Solid core or split core configurations
- Jumper selectable range

APPLICATIONS

- BAS
- HVAC

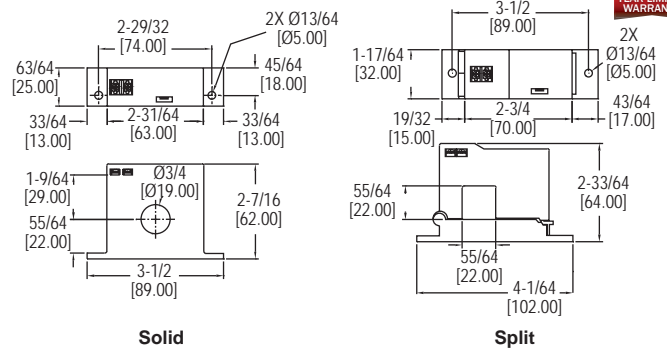
Model	Range	Output	Power Requirements	Case
CCT40-202	10/20/50 A	0-5 V	Self-powered	Solid core
CCT50-202	100/150/200 A	0-5 V	Self-powered	Solid core
CCT40-102	10/20/50 A	0-5 V	Self-powered	Split core
CCT50-102	100/150/200 A	0-5 V	Self-powered	Split core
CCT40-203	10/20/50 A	0-10 V	Self-powered	Solid core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

SPECIFICATIONS

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

TRUE RMS CURRENT TRANSFORMERS

Solid or Split Core, Field Selectable Range



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

FEATURES/BENEFITS

- Integral mounting flange for quick installation
- Solid core or split core configurations
- Jumper selectable range
- True RMS

APPLICATIONS

- BAS
- HVAC

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

SPECIFICATIONS

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

AC POWER TRANSFORMERS

20 VA to 150 VA, Single or Dual Hub, Circuit Breaker, UL Class 2



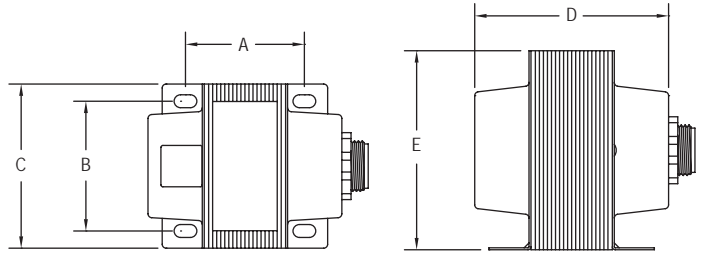
APT-40-3SN



APT-50-5DB



APT-50-5SB



Model	Dimensions in [mm]				
	A	B	C	D	E
APT-20-0SN	1-31/64 (37.6)	1-21/32 (41.9)	1-7/8 (47.5)	2-17/64 (57.4)	2-39/64 (66.2)
APT-20-1SN	1-31/64 (37.6)	1-21/32 (41.9)	1-7/8 (47.5)	2-17/64 (57.4)	2-39/64 (66.2)
APT-40-3SN	1-61/64 (49.5)	1-25/32 (45.2)	2-11/64 (55.0)	2-43/64 (68.0)	2-7/8 (73.0)
APT-40-5DN	1-61/64 (49.5)	1-25/32 (45.2)	2-11/64 (55.0)	2-3/4 (70.0)	2-7/8 (73.0)
APT-50-5SB	1-13/16 (46.0)	1-31/32 (50.2)	2-1/2 (63.5)	3-7/16 (87.1)	3-1/32 (77.0)
APT-50-5DB	1-13/16 (46.0)	1-31/32 (50.2)	2-1/2 (63.5)	3-7/16 (87.1)	3-1/32 (77.0)
APT-75-5SB	2-13/64 (56.0)	1-31/32 (50.2)	2-1/2 (63.5)	3-53/64 (97.1)	3-1/32 (77.0)
APT-75-5DB	2-13/64 (56.0)	1-31/32 (50.2)	2-1/2 (63.5)	3-53/64 (97.1)	3-1/32 (77.0)
APT-100-5SB	2-39/64 (66.0)	1-31/32 (50.2)	2-1/2 (63.5)	4-1/4 (107.1)	3-1/32 (77.0)
APT-100-5DB	2-39/64 (66.0)	1-31/32 (50.2)	2-1/2 (63.5)	4-1/4 (107.1)	3-1/32 (77.0)
APT-150-1DB	2-33/64 (64.0)	1-31/32 (50.2)	2-1/2 (63.5)	3-9/16 (90.5)	3-1/32 (77.0)

The **Series APT AC Power Transformers** provide isolated step-down to 24 VAC with models offering VA ratings of 20, 40, 50, 75, 96, or 150 VA's. These cost efficient transformers are offered in single or dual 1/2" NPT threaded hub mounts with 8-1/2" 18 AWG wire leads, to meet the installation requirements of a variety of building automation and control panel applications in HVAC. All models are UL Class 2 listed.

FEATURES/BENEFITS

- Single or dual 1/2" NPT
- Universal supply voltage input
- With or without integral circuit breaker

APPLICATIONS

- BAS
- HVAC

SPECIFICATIONS

Input Voltage: See model chart.
Input Frequency: 50/60 Hz.
Output Voltage: See model chart.
Output VA Rating: 20, 40, 50, 75, 96, or 150 VA.
Mounting: Slotted foot mount with single, or dual 1/2" NPT hub.
Current Protection: See model chart.
Electrical Connections: Models ending in -20: 20" (508 mm) 18 AWG leads; All other models: 8.5" (210 mm) 18 AWG leads.
Weight: See model chart.
Agency Approvals: CE, cULus.

MODEL CHART

Model	Rating	Input Voltage	Output Voltage	Mounting	Current Protection	Wiring	Weight
APT-20-0SN	20 VA	24 VAC	24 VAC	Foot mount with single hub	Inherent	Diagram B	1.25 lb (0.57 kg)
APT-20-1SN	20 VA	120 VAC	24 VAC	Foot mount with single hub	Inherent	Diagram A	1.29 lb (0.59 kg)
APT-40-3SN	40 VA	120/208/240/277 VAC	24 VAC	Foot mount with single hub	Internal fuse	Diagram D	2.07 lb (0.94 kg)
APT-40-5DN	40 VA	120/208/240/277/480 VAC	24 VAC	Foot mount with dual hub	Internal fuse	Diagram C	2.29 lb (1.04 kg)
APT-50-5SB	50 VA	120/208/240/277/480 VAC	24 VAC	Foot mount with single hub	Button circuit breaker	Diagram C	2.69 lb (1.22 kg)
APT-50-5DB	50 VA	120/208/240/277/480 VAC	24 VAC	Foot mount with dual hub	Button circuit breaker	Diagram C	2.73 lb (1.24 kg)
APT-75-5SB	75 VA	120/208/240/277/480 VAC	24 VAC	Foot mount with single hub	Button circuit breaker	Diagram C	3.60 lb (1.63 kg)
APT-75-5DB	75 VA	120/208/240/277/480 VAC	24 VAC	Foot mount with dual hub	Button circuit breaker	Diagram C	3.62 lb (1.64 kg)
APT-100-5SB	100 VA	120/208/240/277/480 VAC	24 VAC	Foot mount with single hub	Button circuit breaker	Diagram C	4.03 lb (1.83 kg)
APT-100-5DB	100 VA	120/208/240/277/480 VAC	24 VAC	Foot mount with dual hub	Button circuit breaker	Diagram C	4.05 lb (1.84 kg)
APT-150-1DB	150 VA	120 VAC	24 VAC	Foot mount with dual hub	Button circuit breaker	Diagram A	4.98 lb (2.26 kg)

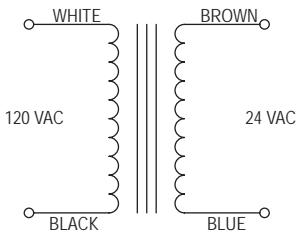


Diagram A

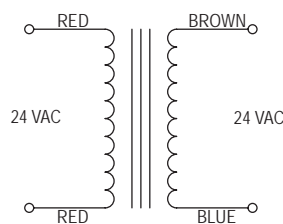


Diagram B

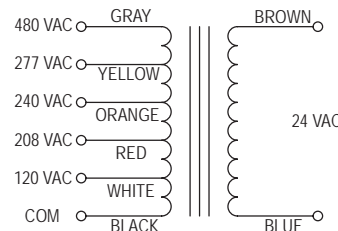


Diagram C

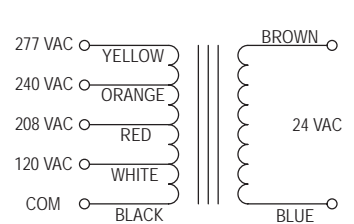
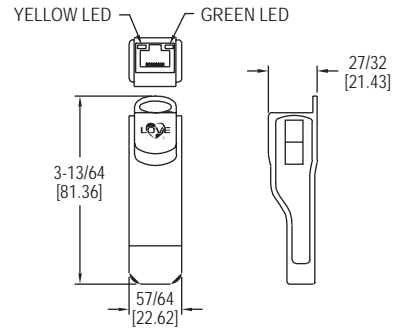


Diagram D

MINI-NODE™ COMMUNICATION SIGNAL CONVERTER

Converts RS-485 to USB, Integral USB Connector, No External Power



The **Model MN-1 Mini-Node™ Communication Signal Converter** is a low cost device that converts half duplex RS-485 serial communications signals into a signal that can be read by any computer with a USB port. The integral USB connector and RJ-45 connector reduces set up time by eliminating extra wiring. The Model MN-1 is powered via the USB connection which eliminates the need for an external power source. The compact size is great for field installation, control panels, and lab testing.

FEATURES/BENEFITS

- Converts half duplex RS-485 via USB port
- Reduces set up time of process controllers

APPLICATIONS

- Oven, boiler, or chiller control
- Hot plates/melt pots
- Packaging equipment
- Environmental chambers
- Medical equipment
- Food service equipment

SPECIFICATIONS

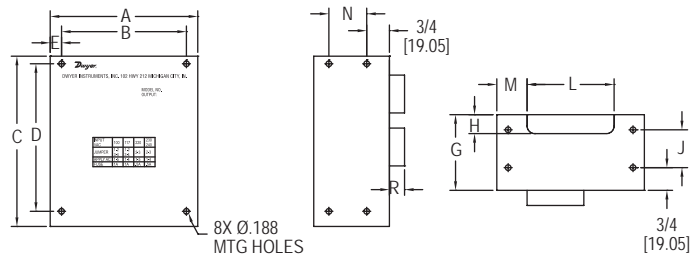
Power Requirements: No external power required.
Power Consumption: 0.4 W.
Isolated Voltage: 3000 VDC.
Input Impedance: 96 kΩ.
USB Connector: B-type (female).
RS-485 Connector: RJ-45.
Baud Rate: 75, 150, 300, 600, 1200, 2400, 4800, 9600, 19200, 38400, 57600, and 115200 bps.
Compatibility: Full compliance with USB V.2.0 specification.
Agency Approvals: CE.

MODEL CHART

Model	Description
MN-1	Mini-Node™ USB to RS-485 converter

SERIES A-700

POWER SUPPLY



Dim.	0.5 amp	2.4 amp	4.8 amp	Dim.	0.5 amp	2.4 amp	4.8 amp	Dim.	0.5 amp	2.4 amp	4.8 amp
A	4 [101.6]	4-7/8 [123.83]	9 [228.6]	E	25/64 [9.92]	1/4 [6.35]	1/2 [12.7]	L	17/64 [14.68]	2-55/64 [72.63]	-
B	3-3/8 [85.73]	4-1/8 [104.78]	8 [203.2]	G	1-5/8 [41.28]	2-1/2 [63.5]	2-3/4 [69.85]	M	51/64 [20.24]	1-1/32 [26.19]	-
C	4-7/8 [123.84]	5-5/8 [142.88]	4-7/8 [123.83]	H	37/64 [14.68]	43/64 [17.07]	-	N	-	1-1/4 [31.75]	1-1/4 [31.75]
D	4-1/8 [104.78]	4-7/8 [123.83]	4-1/8 [104.78]	J	-	1-1/4 [31.75]	1-1/4 [31.75]	R	29/64 [11.51]	29.64 [11.51]	17/32 [13.49]

The economical and reliable **Series A-700 Power Supply** is suitable for powering all Dwyer pressure, temperature or air velocity transmitters. Inexpensive, open-frame design allows convenient access to input/output solder terminals. Auxiliary inputs are selectable for operation from power sources found worldwide. Compact size eases enclosure installations.

FEATURES/BENEFITS

- Universal supply voltage input
- Compact size

APPLICATIONS

- BAS
- HVAC

SPECIFICATIONS

AC Input: 100/120/220/230-240 VAC ±10%, 47-63 Hz.
DC Output: 24-28 VDC regulated.
Maximum Current Output: A-700: 0.5 A @ 60 Hz, 0.45 A @ 50 Hz; A-700-2: 2 A @ 60 Hz, 1.8 A @ 50 Hz; A-700-3: 4.8 A @ 60 Hz, 4.5 A @ 50 Hz.
Operating Temperature: 32 to 122°F (0 to 50°C).
External Fuse Required: 0.5 A for 100-120 VAC, 0.25 A for 220-240 VAC.
Dimensions: 4-7/8"H x 4"W x 1-5/8"D.
Weight: 2 lb.

MODEL CHART

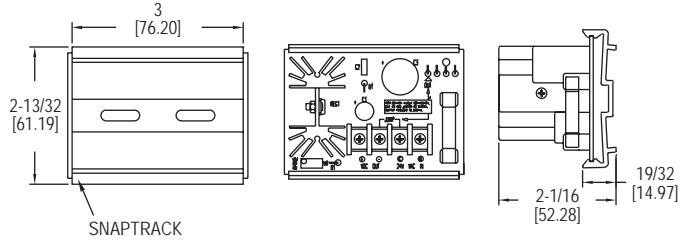
Model	Description
A-700	0.5 A
A-700-2	2 A
A-700-4	4.8 A



MODEL BPS-005

LOW COST DC POWER SUPPLY

Regulated 0.5 A, 1 A Fuse Protection



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

FEATURES/BENEFITS

- Snap track design allowing for easy panel installation
- Regulated 0.5 Amp

APPLICATIONS

- BAS
- HVAC

SPECIFICATIONS

Input: 24 VAC/VDC 50/60 Hz.
Output: 24 VDC (full wave rectified and regulated) adjustable 1.5-29 VDC, 0.5 A max.
Maximum Current Output: 0.5 A.
Over-Current Protection: 1 A fuse.
Operating Temperature: 32 to 130°F (0 to 55°C).

Humidity Limits: 95% (non-condensing).
Weight: 0.4 lb.
Agency Approvals: Meets the technical requirements of EU Directive 2011/65/ EU (RoHS II).

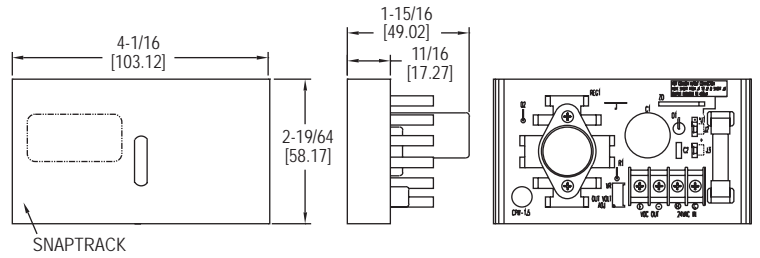
MODEL CHART

Model	Description
BPS-005	Low cost DC power supply

MODEL BPS-015

LOW COST DC POWER SUPPLY

Regulated 1.5 A, 3 A Fuse Protection



The **Model BPS-015 Low Cost DS Power Supply** is used to convert 24 VAC to a regulated DC power source for transmitters with 4-20 mA outputs. The output voltage can be field adjusted from 1.5-27 V using a potentiometer. The 3 A fuse protects the power supply from over-current conditions. The snap-on bracket can be quickly surface mounted to any flat surface.

FEATURES/BENEFITS

- Snap track design allowing for easy panel installation
- Regulated 1.5 Amp

APPLICATIONS

- BAS
- HVAC

SPECIFICATIONS

Input: 24 VAC/VDC 50/60 Hz.
Output: 24 VDC (full wave rectified and regulated) adjustable 1.5-27 VDC.
Maximum Current Output: 1.5 A (de-rated to 400 mA for non-isolated circuits).

Temperature Limits: 32 to 130°F (0 to 55°C).
Humidity Limits: 95% (non-condensing).
Weight: 0.4 lb.

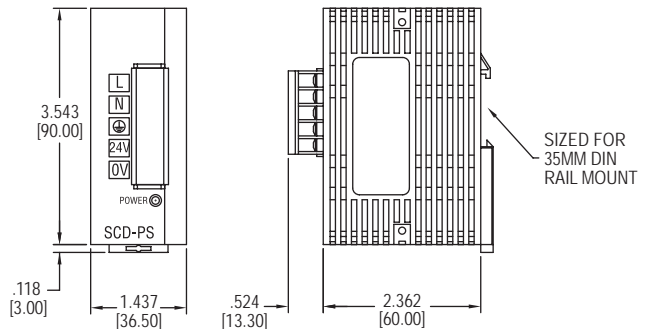
MODEL CHART

Model	Description
BPS-015	Power supply

MODEL SCD-PS

DIN RAIL MOUNT DC POWER SUPPLY

Regulated 1 A, 24 VDC Output



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

FEATURES/BENEFITS

- DIN rail mount
- Universal supply voltage input

APPLICATIONS

- BAS
- HVAC

SPECIFICATIONS

AC Input: 100-240 VAC, 50/60 Hz.
DC Output: 24 VDC (±3% VDC).
Maximum Current Output: 1 A.
Noise: Under 100 mVp-p typical at full load.

Temperature Limits: 32 to 131°F (0 to 55°C).
Weight: 5.6 oz (158 g).
Agency Approvals: CE, cULus.

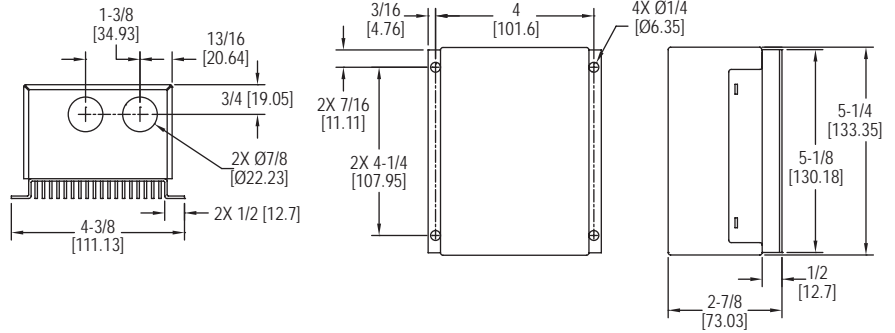
MODEL CHART

Model	Description
SCD-PS	DIN rail DC power supply



ELECTRONIC FAN SPEED CONTROL

Low Cost, 0-10 VDC Input, Selectable Hard Start



The **Model FC-1000 Electronic Fan Speed Control** provides precise speed modulation of small AC motors. Popular 0-10 VDC input works with most process controllers, eliminating the need for more expensive dampers, damper actuators, and linkages while improving overall energy efficiency of the system. This inexpensive unit enables variable control ventilation fans, condenser fans, and interfacing with VAV box controllers.

FEATURES/BENEFITS

- Compact design allows for use in most areas
- Improves energy efficiency in systems

APPLICATIONS

- Monitoring fans and motors

MODEL CHART	
Model	Description
FC-1000	Electronic fan speed control

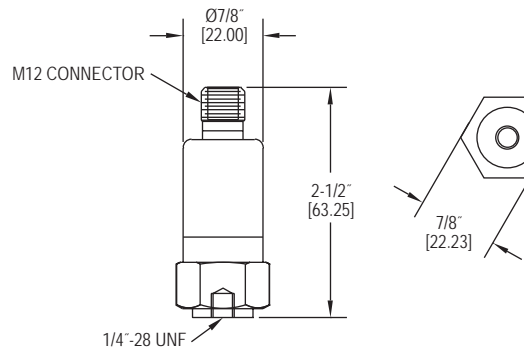
SPECIFICATIONS

Line Voltage Range: 120-277 VAC, 60 Hz.
Input Signal Voltage: 0-10 VDC.
Low Voltage Input: 24 VAC, class 2.
Input Signal Impedance: 10K Ω.
Full Load Amp Rating: 9.8 @ 120 VAC, 9.3 @ 208 VAC, 8.0 @ 240 VAC, 6.9 @ 277 VAC.
Locked Rotor Amp Rating: 24.0.
Temperature Limits: -40 to 131°F (-40 to 55°C).
Electrical Connections: Line voltage: 10-32 screw terminals. Signal and low voltage input: 1/4" quick connects.
Transient Protection: 320 V surge suppression. Exceeds IEEE C62.41 standards.
Housing Materials: Cold rolled steel.
Enclosure Rating: NEMA 1.
Mounting: Vertical only; four holes provided for #10 screws.
Weight: 1 lb 11 oz (.77 kg).
Agency Approvals: UR.

MODEL VBT-1

VIBRATION TRANSMITTER

Continuous 4-20 mA Output Signal



The **Model VBT-1 Vibration Transmitter** continuously detects the vibration in a system and monitors for unusual operating conditions and potential failure. The vibration is converted into an analog signal at the current output. The 2-wire loop power operation, combined with standard M12 micro cable connector and interchangeable mounting studs, make for a fast and reliable installation.

FEATURES/BENEFITS

- Easy set-up and operating concept
- Stainless steel housing
- No software required

APPLICATIONS

Vibration monitoring for:

- Motors
- Pumps
- Fans
- Engines
- Compressors
- Gear boxes

SPECIFICATIONS

Housing Material: 316 SS.
Temperature Limit: -22 to 221°F (-30 to 105°C).
Accuracy: < ±3%.
Connections: M12 connector.
Enclosure Rating: NEMA 6 (IP68).
Electrical Rating: 9.6-32 VDC.
Mounting Orientation: Any position.
Nonlinearity: < ±0.25% of span.
Frequency Range: 10 to 1000 Hz.
Output Signal: 4-20 mA.
Repeatability: < 0.5%.
Weight: 0.28 lb (0.125 kg).
Agency Approvals: CE.

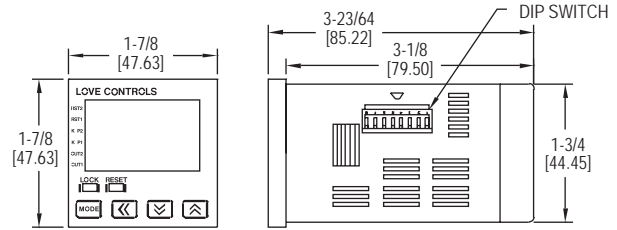
MODEL CHART	
Model	Description
VBT-1	Vibration transmitter

ACCESSORIES	
Model	Description
A-283	4 wire connector



DIGITAL TIMER/TACHOMETER/COUNTER

3 Controls in 1 Device, DIP Switch Configuration



The **Series LCT216 Digital Timer/Tachometer/Counter** combines a versatile timer, counter, and tachometer all in one device. The bright, easy-to-read display shows the desired set point and the current process value as well as the operating mode that the control is functioning in. For quick set up, many of the programming parameters can be set with external dip switches located on the side of the unit.

FEATURES/BENEFITS

- Fourteen pre-programmed timer functions
- One stage, two stage, batch, total, and dual counting modes

APPLICATIONS

- Industrial ovens
- Batch counting in conveyor systems
- Silk screening equipment

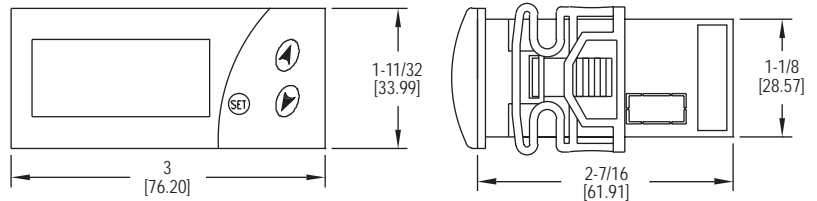
MODEL CHART	
Model	Output Type
LCT216-100	Transistor
LCT216-110	Relay

SPECIFICATIONS

Operating Temperature Range: 32 to 122°F (0 to 50°C).
Humidity Conditions: 35 to 85% RH (non-condensing).
Control Output Ratings: (Out 1) Relay: SPST 5 A at 250 VAC; Transistor: NPN open collector 100 mA / 30 VDC residual voltage = 1.5 VDC max; (Out 2) Relay: SPST 5 A at 250 VAC, Transistor: NPN open collector 100 mA / 30 VDC residual voltage = 1.5 VDC max.
Weight: 4 oz (114 g).
Reset Time: 0.001 s minimum.
Inputs: Dry contact, PNP, or NPN.
Timing Functions: 14 pre-programmed timing functions.
Supply Voltage: 100 to 240 VAC 50 / 60 Hz.
Power Consumption: Less than 10 VA.
Internal Power Supply: 12 VDC ±10%, 100 mA.
Display: Two-line 6 digit negative transmissive LCD display.
Agency Approvals: CE, cULus.

COUNT DOWN DIGITAL TIMER

Quick Installation, Digital Input, Audible Alarm



The **Series LCT316 Count Down Digital Timer** provides accurate countdown timing for a variety of applications. The timer can be triggered remotely using the digital input terminals or locally via the set button. Time intervals can be set up to 999 minutes or seconds and an internal buzzer will sound when the time interval has expired.

FEATURES/BENEFITS

- 1 second to 999 minute field set time interval
- Audible alarm for status indication

APPLICATIONS

- Commercial cooking equipment
- Commercial dish washers and refrigeration equipment

MODEL CHART	
Model	Supply Power
LCT316-100	115 VAC
LCT316-200	230 VAC
LCT316-300	12 VAC/DC
LCT316-400	24 VAC/DC

SPECIFICATIONS

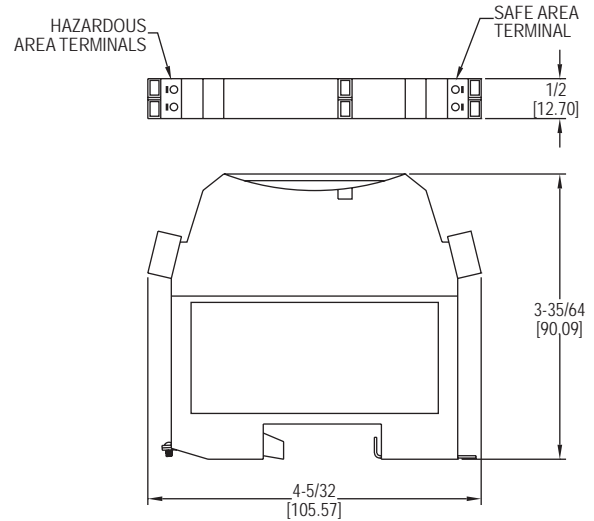
Operating Temperature Range: 32 to 158°F (0 to 70°C).
Control Output Ratings: Relay, SPST NO, 16 A at 250 VAC resistive.
Weight: 5.6 oz (158.8 g).
Status Light: LED shows time and operation.
Inputs: Digital input for start and reset.
Supply Voltage: 115 VAC, 230 VAC, 12 VAC/DC, 24 VAC/DC depending on model.
Power Consumption: 4 VA.
Agency Approvals: CE, cURus.

ZENER BARRIERS

Intrinsically Safe Barriers for Hazardous Locations



MTL7787



The **Series MTL7706/7787 Zener Barriers** are an intrinsically safe shunt-diode barrier that can be used to communicate with and provide isolations for certain Dwyer® transmitters approved for use in hazardous areas. These barriers limit the amount of energy allowed to pass into the hazardous area, which inhibit ignition in flammable atmospheres.

FEATURES/BENEFITS

- Approved for use in hazardous areas

APPLICATIONS

- Electrically isolates pressure and level transmitters from unregulated circuits for intrinsically safe applications

SPECIFICATIONS	
Transmitter Voltage:	16.2 V at 20 mA with 250 Ω load (negative w.r.t. earth); 11.0 V at 20 mA with 500 Ω load (negative w.r.t. earth).
Safe Area Output:	4-20 mA.
Load Resistance:	0 to 500 Ω.
Power Requirement:	20-35 VDC w.r.t. earth.
Accuracy:	±2 μA under all conditions.
LED Indicator:	Green: Power indication.
Temperature Limits:	Operating: -4 to 140°F (-20 to 60°C); Storage: -40 to 176°F (-40 to 80°C).
Humidity:	5 to 95% RH.
Terminals:	Accommodate up to 2.5 mm ² stranded or single-core.
Safety Description:	28 μV, 300 Ω, 93 mA.
Weight:	4.9 oz (140 g).
Agency Approvals:	See table.

COMPATIBLE MODELS: 637, 608, SBLTX, PBLTX, IS626		
Model	Approval	Dwyer Series
MTL7706	UL for class I; div. 1 groups A, B, C, D CL II; div. 1 groups E, F, G; CL III div. 1	IS626, SBLTX, PBLTX
MTL7706	FM for class I, II, III; div. 1 groups B, C, D, E, F, G	637
MTL7706	FM for class I, II, III; div. 1 groups A, B, C, D, E, F, G	608
Note: Compatible models: 637, 608, SBLTX, PBLTX, IS626		

MODEL CHART	
Model	Description
MTL7706	Zener barrier
MTL7787	Zener barrier

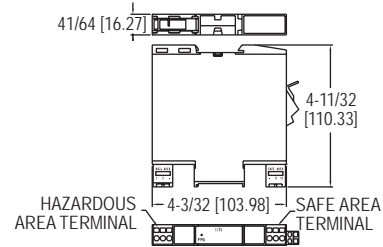
ACCESSORIES	
Model	Description
A-360	Aluminum DIN rail 1 m

MODEL CHART						
Model	FM			BASEEFA (ATEX)		
	Group	μF	mH	Group	μF	mH
MTL7706	A & B	0.083	4.2	IIC	0.083	4.2
MTL7787	A & B	0.083	3.05	IIC	0.083	3.05

Region (Authority)	Standard	Approved For	Certificate/File no.
USA (FM) (UL)	3600, 3610 entity 3611, 3810 UL698, UL913 UL1604	AIS/I,II,III/1/Entity ABCDEFG- SCI-942; NI/II/@/ABCD/T4 [I/O] AEx[ia]IIC-SCI-942 Entity; NI/1/2/IIC/T4; Ta=140°F (60°C)	3010737
Canada (CSA)	CAN/CSA E60070, IEC60079, C22.2	Class I, Div.2, Gps A, B, C, D; Ex nA [iA] IIC T4 Class I, Xone 2, Aex nA IIC T4	1345550
UK (BASEEFA)	EN 50014, EN 50020	EEx ia IIC	BAS01ATEX7217
UK (BASEEFA) Systems	EN 50039	EEx ia IIC	Ex01E2219

GALVANIC BARRIER

Intrinsically Safe Isolators for Hazardous Locations



The **Series MTL5541 Galvanic Barrier** provides intrinsically safe isolation for communication with Dwyer® transmitters approved for use in hazardous areas. This galvanic barrier eliminates the need for a high integrity earth ground required when using shunt type diode type safety barriers. DIN rail mounting and plug-in signal and power connectors simplify installation and maintenance.

FEATURES/BENEFITS

- Designed to mount on most standard DIN rails
- Approved for use in hazardous areas

APPLICATIONS

- Electrically isolates pressure and level transmitters from unregulated circuits for intrinsically safe applications

MODEL CHART		ACCESSORIES	
Model	Description	Model	Description
MTL5541	Galvanic barrier	A-360	Aluminum DIN rail 1 m

COMPATIBLE MODELS: 608, SBLTX, PBLTX, IS626		
Model	Approval	Dwyer Series
MTL 5541	UL for class I; div. 1 groups A, B, C, D class II div. 1 groups E, F, G class III div. 1	IS626, SBLTX, PBLTX
MTL 5541	FM for class I, II, III; div. 1 groups A, B, C, D, E, F, G	608

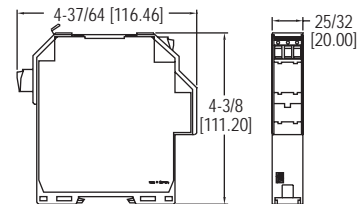
SPECIFICATIONS	
<p>Hazardous Area Input: Signal range: 0-24 mA (including over-range); Transmitter voltage: 16.5 V at 20 mA.</p> <p>Safe Area Output: Signal range: 4-20 mA; Under/over-range: 0-24 mA; Load resistance: 0 to 360Ω @ 24 mA, or 0 to 450Ω @ 20 mA; Current sink: 600Ω max.; Maximum voltage source: 24 VDC; Output resistance: > 1 MΩ.</p> <p>Power Requirement: 20-35 VDC</p> <p>Response Time: Settles to within 10% of final value within 50 μs.</p> <p>Current Consumption (20 mA signal): 51 mA @ 24V.</p> <p>Maximum Power Dissipation (20 mA signal): 0.7 W @ 24 VDC, 1.0 W @ 24 VDC.</p>	<p>Isolation: 250 V RMS, tested at 1500 V RMS minimum, between safe- and hazardous-area terminals; 50 V between safe-area circuits and power supply.</p> <p>Transfer Accuracy at 68°F (20°C): Better than 15 μA.</p> <p>LED Indicator: Green: Power indication.</p> <p>Temperature Limits: Operating: -6 to 140°F (-20 to 60°C); Storage: -40 to 176°F (-40 to 80°C).</p> <p>Temperature Drift: < 0.8μA/°C.</p> <p>Humidity: 5 to 95% RH.</p> <p>Mounting: T-section 35mm DIN rail (7.5 or 15mm) to EN 50022.</p> <p>Terminals: Accommodate up to 2.5 mm2 stranded or single-core.</p> <p>Safety Description: Vo= 28 V, Io= 93 mA, Po= 651mW, Um= 253 RMS or DC.</p> <p>Weight: 150 g.</p> <p>Agency Approvals: See table.</p>

Certifying Authority	Standard	Approved For	Certificate/File no.
FM (USA)	FM3600, FM3610, FM3810	Associated Apparatus providing intrinsically safe circuits for Class I, II, III, Division 1, Groups A, B, C, D, E, F, and G when installed per the control drawing SCI-1028; Non-incendive for Class I, Division 2, Groups A, B, C, and D T4; Intrinsic safety for AEx [ia] IIC when installed per the control drawing SCI-1028; Non sparking for Class I, Zone 2, AExnA IIC T4 Gc hazardous (classified) locations with an ambient temperature rating of -200C to +600C	3025815
Canada (CSA)	CSA-C22.2 No. 157-M1992, CSA-C22.2 No. 213-M1987		
UL	UL61010-1 Edition 3 UL913 Edition 8 UL60079-0 Edition 6 UL60079-11 Edition 6	Associated Apparatus for use in Unclassified Locations or Class I, Division 2, Groups A, B, C, D	E120058
CSA	C22.2 No. 142-M1987 C22.2 No. 157-M1992 C22.2 No. 213-M1987 CAN/CSA E60079-0:07 CAN/CSA E60079-11:02 CAN/CSA E60079-15:02	Class I, Division 2, Groups A, B, C, D; Class I, Zone 2, Group IIC; Ex nA [ia] IIC; Ex nC [ia] IIC	LR 36637
ATEX	EN 60079-0:2012 EN 60079-15:2010	Ex nA IIC T4 Gc	Baseefa07ATEX0213 MTL08ATEX5541X BAS01ATEX7217
IECEx (Type 'n')	IEC 60079-0:2011 Edition 6 IEC 60079-15:2010 Edition 4	EX nA IIC T4 Gc	IECEx BAS 15.0119X
IECEx (Intrinsic Safety)	IEC 60079-0:2011 Edition 4 IEC 60079-11:2011 Edition 6	[Ex ia Ga] IIC, [Ex ia Da] IIIC, [Ex ia Ma] I	IECEx BAS 07.0069
IECEx ([Ex ia] I/II/III)	IEC 60079-0:2004 Edition 4 IEC 60079-11:2006 Edition 1 IEC 60079-0:2004 Edition 1 IEC 60079-11:2005 Edition 1	[Ex ia] I/II/III, IECEx ITA 08.0009X	IECEx ITA 08.0009X

MODEL KFD0

GALVANIC BARRIER

Loop Powered, Intrinsically Safe Isolators



The **Model KFD0 Galvanic Barrier** provides complete isolation for communication with Dwyer® intrinsically safe transmitters approved for use in hazardous areas. This galvanic barrier eliminates the need for a high integrity earth ground required when using shunt type diode type safety barriers. Unlike most other isolators, the Model KFD0-SCSEX1.55 does not require external power and has a low current draw.

FEATURES/BENEFITS

- Designed to mount on most standard DIN rails
- Approved for use in hazardous areas

APPLICATIONS

- Used to isolate voltages for intrinsically safe applications for HHT series

SPECIFICATIONS	
<p>Hazardous Area Input: Signal range: 4-20 mA (linear transmission 1-22 mA); Available transmitter voltage: ≥ 16 V for supply voltage > 21 V.</p> <p>Safe Area Output: Signal range: 4-20 mA; Transmitter voltage: ≤ 30 VDC.</p> <p>Response Time: ≤ 20 μs at 0, and ≤ 600 μs at 800 load.</p>	<p>Maximum Power Dissipation: 150 mW @ 20 mA and V < 24 V.</p> <p>Temperature Limits: -4 to 140°F (-20 to 60°C).</p> <p>Temperature Drift: ≤ 0.5 μA/°C.</p> <p>Weight: 4.2 oz (120 g).</p> <p>Agency Approvals: CE, FM.</p>

ACCESSORIES	
Model	Description
A-360	Aluminum DIN rail 1 m

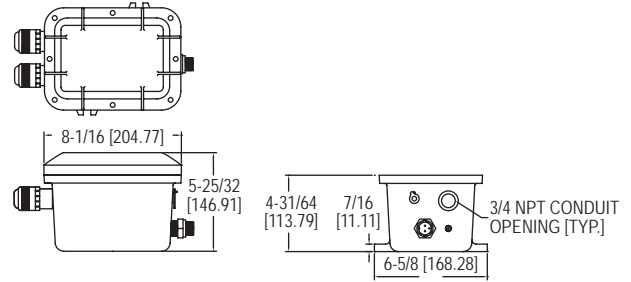
MODEL CHART								
Model	Description	Approval	Dwyer Series	Vo (V)	Io (mA)	Group	μF	mH
KFD0-SCS-EX1.55	Loop powered galvanic barrier	FM for class I, zone 1, groups IIC, IIB, IIA; class I, II, III, div. 2, groups A, B, C, D, F, G	HHT-IX	23.1	38.2	IIC (A, B), IIB (C), IIA (D, F, G)	0.042, 0.267, 0.267	0.5, 2.5, 2.5

SAFE-T-GROUND

Explosion-Proof, Intrinsically Safe, Ground Continuity Control



TR-7L



The Series TR-7 Safe-T-Ground provides continuous monitoring of a truck's ground connection throughout loading operations. The TR-7 instantly stops loading operations if a tank truck loses its ground. To safeguard loading operations, the Safe-T-Ground circuit can be wired into your pump control, and to an audible alarm or signal light.

FEATURES/BENEFITS

- Explosion-proof housing
- Audible alarm and LED status indicators

APPLICATIONS

- Chemical
- Oil and gas

MODEL CHART				
Example	TR-7	-B	L	TR-7-BL
Construction	TR-7			Explosion-proof and intrinsically safe
Power Supply Option		-U		120 VAC (standard) 220/240 VAC
Cable Connection		-B		Stud (standard) Battery (alligator) clamp
Cable Length			-X	36" coiled, extends to 16' (standard) 72" coiled, extends to 32'
Options			L	Red and green indicating lights

SPECIFICATIONS

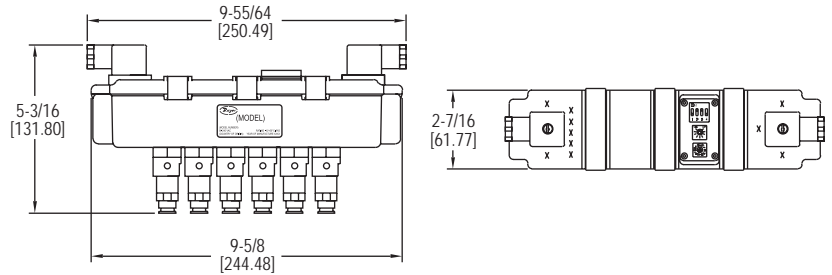
Housing: 356-T6 cast aluminum alloy (copper-free), explosion-proof – Class I, Group D.
Size: 6-5/8" W x 10-3/8" H x 5-5/8" D.
Power Requirements: 105-125 VAC, 60 Hz. 7.75 watts - with light, 1.75 watts - without lights. Optional 220-240 VAC, 50/60 Hz.
Electrical Rating, Relay: DPDT, 10 A, 125 VAC, 60 Hz contact rating.
Wiring: Terminal strip.
Conduit Connection: 3/4" NPT.
Installation: 7/16" mounting lugs, integrally cast.
Contact: (Grounding clamp) molded polyethylene with beryllium copper contact clips. 16-2 type SO coiled cable; retracts to 3', extends to 16'.
Grounding Studs: 2 supplied. Order a pair for each truck.
Shipping Weight: 20 lb with contactor and cord.
Agency Approvals: UL.
Options: Integral pilot lights; 30' coiled cable; Temporary contactor assemblies, clamp connectors, and other supply voltages.

MODEL CHART	
Model	Description
TR-7	Safe-T-Ground
TR-7-L	Safe-T-Ground with integral pilot lights

SERIES SVT

SOLENOID VALVE ENCLOSURE WITH TIMER

Compact Size, NEMA 4X Enclosure



The Series SVT Solenoid Valve Enclosure with Timer is a compact, reliable, and economic package that combines a timer board and solenoid valve enclosure into one package. Each model is available with 2, 4, or 6 valves, but expansion modules can easily be daisy chained for a maximum of 60 outputs.

FEATURES/BENEFITS

- Compact, all-in-one package eliminates the need for separate wiring and enclosures
- Universal power requirements for both domestic and overseas use
- Field selectable cleaning functions and on/off settings to personalize for any need

APPLICATIONS

- Dust collection
- Pneumatic conveying
- Industrial vacuums

MODEL CHART							
Model	Description	Number of Solenoids	Supply Voltage	Model	Description	Number of Solenoids	Supply Voltage
SVT-2	Solenoid valve enclosure with timer	2	90-240 VAC	SVT-4-DC	Solenoid valve enclosure with timer	4	24 VDC/VAC
SVT-3	Solenoid valve enclosure with timer	3	90-240 VAC	SVT-6-DC	Solenoid valve enclosure with timer	6	24 VDC/VAC
SVT-4	Solenoid valve enclosure with timer	4	90-240 VAC	SVTE-3	Expansion module	3	Any
SVT-6	Solenoid valve enclosure with timer	6	90-240 VAC	SVTE-4	Expansion module	4	Any
SVT-2-DC	Solenoid valve enclosure with timer	2	24 VDC/VAC	SVTE-6	Expansion module	6	Any
SVT-3-DC	Solenoid valve enclosure with timer	3	24 VDC/VAC				

Note: SVTE modules are powered from the main enclosure and can be used with either the 90 to 240 VAC or the 24 VDC/VAC SVT models.

SPECIFICATIONS

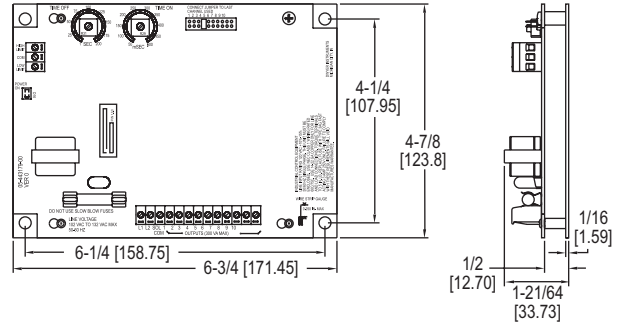
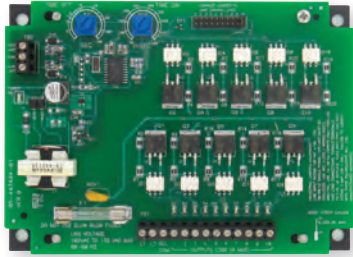
Service: Compatible gases, filtered and oil free.
Wetted Materials: Pilot body: Brass; Spring: 302 SS; O-ring: NBR.
Temperature Limits: 14 to 140°F (-10 to 60°C).
Pressure Limit: 145 psi (10 bar).
Power Requirements: 90-240 VAC, 50 or 60 Hz or 24 VAC/VDC ±10%.
Power Consumption: 25 VA.
Fuse: 0.5 A delayed.
Electrical Connection: 2 DIN A 43652 connectors.
Enclosure Rating: NEMA 4X (IP66).
Enclosure Material: Polyamide with carbon fiber, polycarbonate, TPE rubber.
Process Connection: 1/4" OD push to connect.
Mounting Orientation: Any position.
On-Time: 150 ms to 700 ms.
Off-Time: 4 s to 210 s.
Agency Approvals: CE.

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



LOW COST TIMER CONTROLLER

Compact, Easy to Use, 4, 6 or 10 Channels



The **Series DCT500A Low Cost Timer Controller** is designed to provide continuous or on-demand cleaning for receivers and pulse jet systems. It is available in either 4, 6, or 10 channels, and each unit is the same size, minimizing enclosure space and reducing overall system installation cost. For added safety, the control circuitry including the control inputs are isolated from the line voltage.

FEATURES/BENEFITS

- Simple and easy to use design
- Optional weatherproof enclosure available

APPLICATIONS

- Dust collection
- Pneumatic conveying
- Cement batch plants

MODEL CHART		
Model	Description	No. of Channels
DCT504A	Timer controller	4
DCT506A	Timer controller	6
DCT510A	Timer controller	10

SPECIFICATIONS*

<p>Output Channels: 4, 6, and 10 channels.</p> <p>Power Requirements: 102-132 VAC 50 or 60 Hz.</p> <p>Power Consumption: 2.5 W.</p> <p>Solenoid Supply: 3 A max per channel.</p> <p>Fuse: Type 3 AG, 3 A @ 250 VAC.</p> <p>Temperature Limits: -40 to 140°F (-40 to 60°C).</p>	<p>Storage Temperature Limits: -40 to 176°F (-40 to 80°C).</p> <p>On Time: 50 ms to 500 ms.</p> <p>On Time Accuracy: ±10 ms.</p> <p>On Time Stability: ±1 ms.</p> <p>Off Time: 1 second to 180 seconds.</p> <p>Off Time Accuracy: ±5% of setting.</p> <p>Weight: 9 oz (255 g).</p> <p>Agency Approvals: CE, cULus.</p>
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*Additional specifications on IOM.

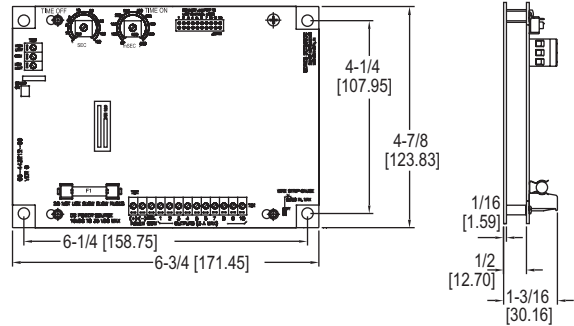
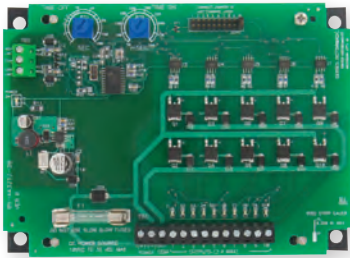
OPTIONS

To order add suffix:	Description
-L	Mounting bracket for field retrofits: 8-1/4" x 6-1/4" (209.55 mm x 158.75 mm)
-WP	Weatherproof housing: standard models Weatherproof housing: with option -L mounting bracket

SERIES DCT500ADC

LOW COST TIMER CONTROLLER

For Low Voltage Applications



The **Series DCT500ADC Low Cost Timer Controller** is designed to provide continuous or on-demand cleaning for 10-35 V powered receivers and pulse jet systems. It is available in either 4, 6, or 10 channels, and each unit is the same size, minimizing enclosure space and reducing overall system installation cost. For added safety, the control circuitry including the control inputs are isolated from the line voltage.

FEATURES/BENEFITS

- Ideal for low voltage applications
- Simple and easy to use design
- Optional weatherproof enclosure available

APPLICATIONS

- Dust collection
- Pneumatic conveying
- Cement batch plants

MODEL CHART		
Model	Description	No. of Channels
DCT504ADC	Timer controller	4
DCT506ADC	Timer controller	6
DCT510ADC	Timer controller	10

SPECIFICATIONS*

<p>Output Channels: 4, 6, and 10 channels.</p> <p>Power Requirements: 10-35 VDC.</p> <p>Power Consumption: 0.6 W.</p> <p>Solenoid Supply: 3 A max per channel.</p> <p>Fuse: Type 3 AG, 3 A @ 250 VAC.</p> <p>Temperature Limits: -40 to 140°F (-40 to 60°C).</p>	<p>Storage Temperature Limits: -40 to 176°F (-40 to 80°C).</p> <p>On Time: 50 ms to 500 ms.</p> <p>On Time Accuracy: ±10 ms.</p> <p>On Time Stability: < ±1 ms.</p> <p>Off Time: 1 s to 180 s.</p> <p>Off Time Accuracy: ±5% of setting.</p> <p>Weight: 9 oz (255 g).</p> <p>Agency Approvals: CE.</p>
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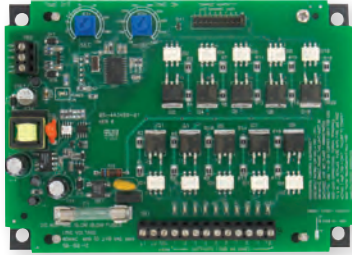
*Additional specifications on IOM.

OPTIONS

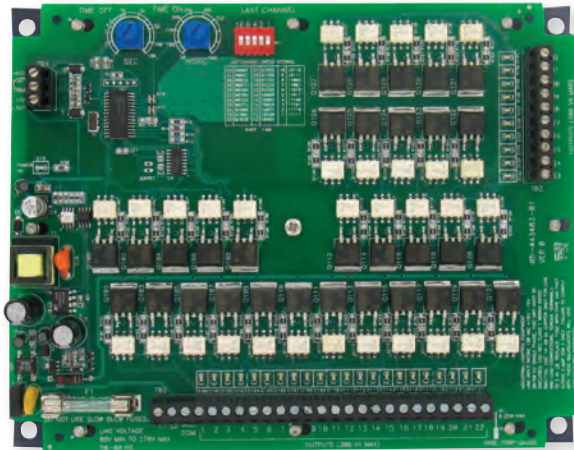
To order add suffix:	Description
-L	Mounting bracket for field retrofits: 8-1/4" x 6-1/4" (209.55 mm x 158.75 mm)
-WP	Weatherproof housing: standard models Weatherproof housing: with option -L mounting bracket

TIMER CONTROLLERS

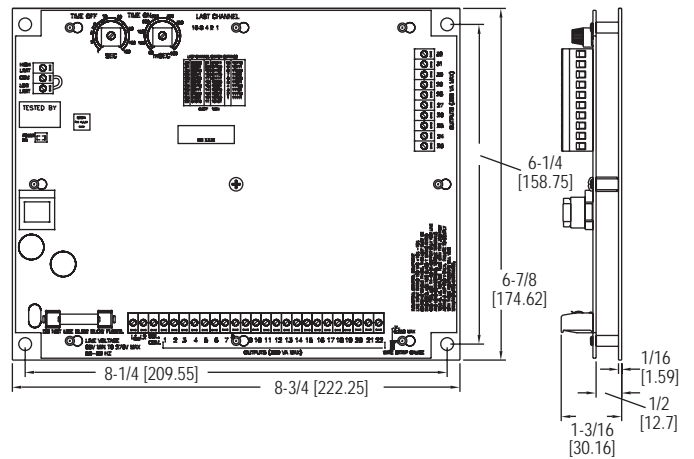
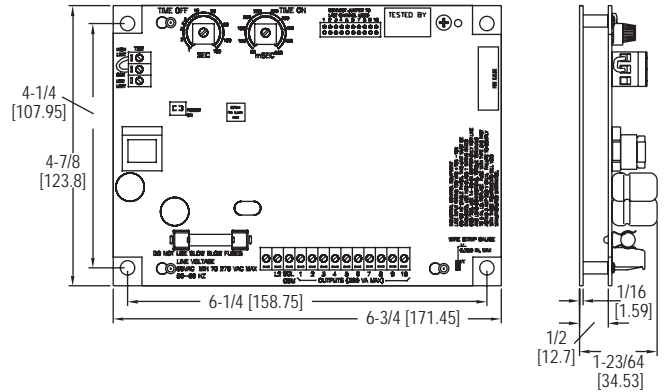
With Universal Power For Both 120 and 220 VAC



4 thru 10 channel board



22 and 32 channel board



The **Series DCT600 Timer Controllers** are timing systems for pulse-jet type dust collectors or pneumatic conveying systems in either continuous or on-demand cleaning applications. It provides either 4, 6, 10, 22, or 32 channels, and if fewer channels are required than is available on the board, a shorting plug or dip switch allows selection of the last used channel. The new enhanced board circuitry of the DCT600 synchronizes the on-time pulse to the power line to achieve a pulse stability of ± 1 msec.

FEATURES/BENEFITS

- Better synchronized on-time pulse to the power line for better pulse stability
- Adjustable potentiometers to select time-on and time-off settings
- Simple and easy to use design

APPLICATIONS

- Dust collection
- Pneumatic conveying

SPECIFICATIONS*

Output Channels: 4, 6, 10, 22 and 32 channels available.
Power Requirements: 85-270 VAC.
Power Consumption: 1.2 W.
Solenoid Supply: 300 VA.
Fuse: Type 3 AG, 3 A @ 250 VAC.
Temperature Limits: -40 to 140°F (-40 to 60°C).
Storage Temperature Limits: -40 to 176°F (-40 to 80°C).
On Time: 50 ms to 500 ms.
On Time Accuracy: $\pm 5\%$ of setting.
On Time Stability: ± 1 ms.
Off Time: 1 s to 180 s.
Off Time Accuracy: 5% of setting.
Weight: 9 oz (255 g).
Agency Approvals: CE, cULus.

*Additional specifications on IOM.

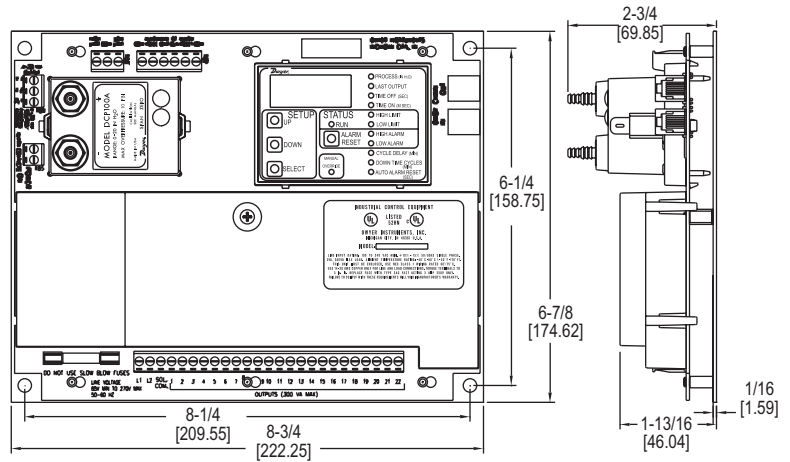
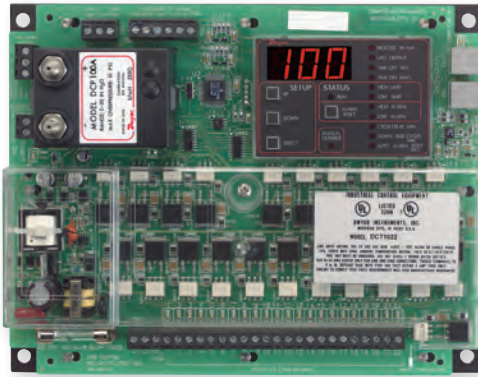
MODEL CHART		
Model	Description	No. of Channels
DCT604	Timer controller	4
DCT606	Timer controller	6
DCT610	Timer controller	10
DCT622	Timer controller	22
DCT632	Timer controller	32

OPTIONS	
To order add suffix:	Description
-L	Mounting bracket for field retrofits: 8-1/4" x 6-1/4" (209.55 mm x 158.75 mm)
-WP	Weatherproof housing: 4 thru 10 channel only Weatherproof housing: 22 & 32 channels

Note: L mounting bracket available with 4, 6, or 10 channel models only.

DUST COLLECTOR TIMER CONTROLLER

Modular Design, User Friendly, Up to 22 Channels



The **Series DCT1000 Dust Controller Timer Controller** simplifies on-demand cleaning requirements by eliminating the need for external devices such as pressure switches, relays, and timers. The modular design allows for use as a continuous cleaning control or on-demand cleaning control using the optional plug-in pressure module. The DCT1000 is the same size for 6, 10, and 22 channels, allowing one board size to be the standard on one enclosure.

FEATURES/BENEFITS

- Universal power requirements for both domestic and overseas use
- Standard mounting holes to other dust collector controllers for use in existing installations
- Able to automatically detect any channel expander connected

APPLICATIONS

- Dust collection
- Pneumatic conveying

MODEL CHART			
Model	Description	No. of Channels	D.P. Range
DCT1022	Master controller	22	-
DCT1010	Master controller	10	-
DCT1006	Master controller	6	-
DCT1122	Channel expander	22	-
DCT1110	Channel expander	10	-
DCP200A	Pressure module	-	20 in w.c.
DCP100A	Pressure module	-	10 in w.c.

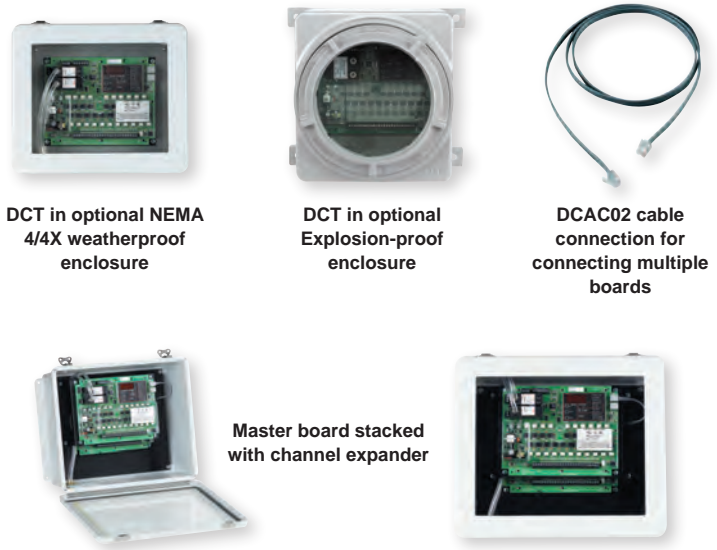
OPTIONS	
To order add suffix:	Description
-WP	Weatherproof housing only
-WPP	Weatherproof housing with pressure ports
-WPPS	Weatherproof housing with pressure ports, three position rotary switch installed
-EXPL	Explosion-proof housing

Note: Multiple boards stacked in enclosure.

ACCESSORIES	
Model	Description
DPMA-402	Process indicator

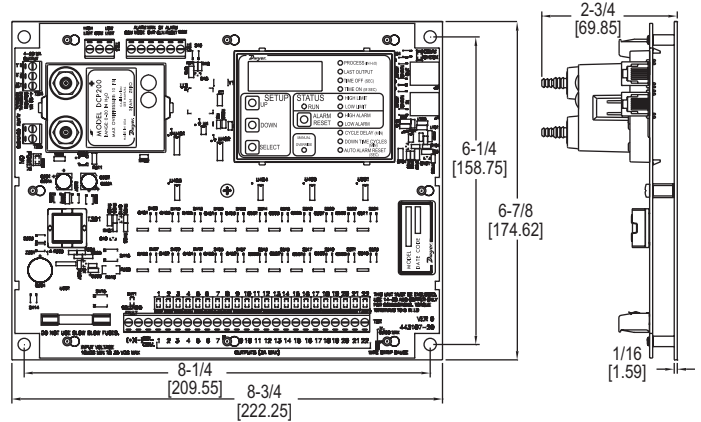
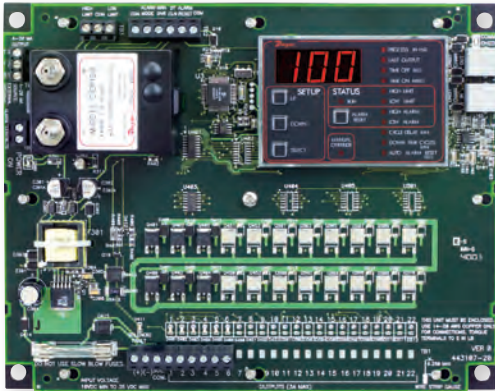
Note: DCA channel expander cable available in 1 ft, 2 ft, and 4 ft lengths.

SPECIFICATIONS	
<p>DCT1000 TIMER CONTROLLER Output Channels: 6, 10, and 22 channels. Expandable to 255 channels using DCT1122 & DCT1110 channel expander boards. Power Requirements: 85-270 VAC, 50 or 60 Hz. Power Consumption: 5 W. Solenoid Supply: 3 A max per channel. Fuse: 3 A @ 250 VAC. Low voltage control circuitry is isolated from the line voltage for system safety. Temperature Limits: -40 to 140°F (-40 to 60°C). Storage Temperature Limits: -40 to 176°F (-40 to 80°C). On Time: 10 ms to 600 ms, 10 ms steps. On Time Accuracy: ±10 ms. Off Time: 1 s to 255 s, 1 s steps. Off Time Accuracy: ±1% of the value or ±50 ms, whichever is greater. Weight: 1 lb 3.0 oz (538.6 g). Agency Approvals: cULus.</p>	<p>DCP PRESSURE MODULE Pressure Ranges: 10 in w.c. or 20 in w.c. Temperature Limits: -40 to 140°F (-40 to 60°C). Pressure Limit: 10 psi (68.95 kPa). Pressure limit (differential): 10 psi (68.95 kPa). Accuracy: ±1.5% FS @ 73°F (22.8°C). Output Signal: 4-20 mA. Alarm Contacts: 1.5 A inductive load, 3 A resistive load @ 30 VAC or 40 VDC. Process Connections: Two barbed connections for use with 1/8" (3.18 mm) or 3/16" (4.76 mm) ID tubing. Weight: 5.5 oz (155.9 g).</p>



DUST COLLECTOR TIMER CONTROLLER

For Low Voltage Applications



The **Series DCT1000DC Dust Collector Timer Controller** simplifies on-demand cleaning requirements in low voltage applications by eliminating the need for external devices such as pressure switches, relays, and timers. The modular design allows for use as a continuous cleaning control or on-demand cleaning control using the optional plug-in pressure module. The DCT1000 is the same size for 6, 10, and 22 channels, allowing one board size to be the standard on one enclosure.

FEATURES/BENEFITS

- 10-30 VDC power requirement for low voltage applications
- Standard mounting holes to other dust collector controllers for use in existing installations
- Able to automatically detect any channel expander connected

APPLICATIONS

- Dust collection
- Pneumatic conveying

MODEL CHART			
Model	Description	No. of Channels	D.P. Range
DCT1022DC	Master controller	22	-
DCT1010DC	Master controller	10	-
DCT1006DC	Master controller	6	-
DCP200A	Pressure module	-	20 in w.c.
DCP100A	Pressure module	-	10 in w.c.

OPTIONS	
To order add suffix:	Description
-WP	Weatherproof housing only
-WPP	Weatherproof housing with pressure ports
-WPPS	Weatherproof housing with pressure ports, three position rotary switch installed
-EXPL	Explosion-proof housing

ACCESSORIES	
Model	Description
DPMA-402	Process indicator

SPECIFICATIONS

DCT1000DC TIMER CONTROLLER
Output Channels: 6, 10, and 22 channels.
Power Requirements: 10-30 VDC.
Solenoid Supply: 3 A maximum per channel.
Fuse: 3 A @ 250 VAC.
Temperature Limits: -40 to 140°F (-40 to 60°C).
Storage Temperature Limits: -40 to 176°F (-40 to 80°C).
On Time: 10 ms to 600 ms, 10 ms steps.
On Time Accuracy: ±10 ms.
Off Time: 1 s to 255 s, 1 s steps.
Off Time Accuracy: ±1% of the value or ±50 ms, whichever is greater.
Weight: 1 lb 3.0 oz (538.6 g).

DCP PRESSURE MODULE
Pressure Ranges: 10 in w.c. or 20 in w.c.
Temperature Limits: -40 to 140°F (-40 to 60°C).
Pressure Limit: 10 psi (68.95 kPa).
Pressure Limit (differential): 10 psi (68.95 kPa).
Accuracy: ±1.5% FS @ 73°F (22.8°C).
Output Signal: 4-20 mA.
Alarm Contacts: 1.5 A inductive load, 3 A resistive load @ 30 VAC or 40 VDC.
Process Connections: Two barbed connections for use with 1/8" (3.18 mm) or 3/16" (4.76 mm) ID tubing.
Weight: 5.5 oz (155.9 g).
Agency Approvals: CE.



DCT in optional NEMA 4/4X weatherproof enclosure



DCT in optional Explosion-proof enclosure

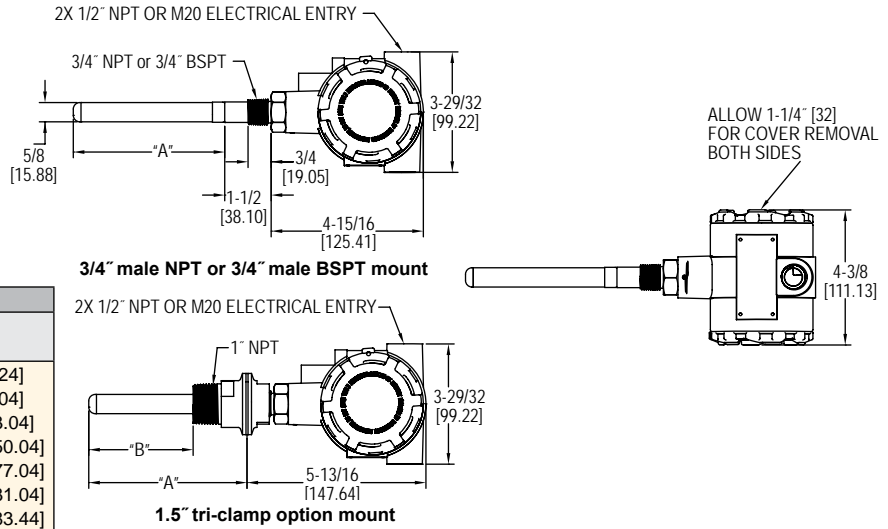
PARTICULATE TRANSMITTER

Digital Damping, Non-Stick Probe, For Broken Bag Detection



THREADED MOUNT	
Probe Length	A in [mm]
3"	3 [76.20]
5"	5 [127.00]
10"	10 [254.00]
15"	15 [381.00]
20"	20 [508.00]
30"	30 [762.00]
36"	36 [914.40]

1.5" TRI-CLAMP MOUNT		
Probe Length	A in [mm]	B in [mm]
3"	3-1/2 [88.90]	1-25/32 [45.24]
5"	5-1/2 [139.70]	3-25/32 [96.04]
10"	10-1/2 [266.70]	8-25/32 [223.04]
15"	15-1/2 [393.70]	13-25/32 [350.04]
20"	20-1/2 [520.70]	18-25/32 [477.04]
30"	30-1/2 [744.70]	28-25/32 [731.04]
36"	36-1/2 [927.10]	34-25/32 [883.44]



The **Series PMT2 Particulate Transmitter** is designed to measure particulate emission levels from dust collector discharge. Using DC coupled electrostatic induction sensing technology, the transmitter monitors a pA current that is generated as particulate passes near the probe; a 4-20 mA signal will vary based on the particulate level. The PMT2 offers 6 sensitivity ranges allowing the user to choose the range that will best fit the application. The range and test selector switch can also be set to output a 4 mA or 20 mA signal to assist with set up or trouble shooting. Averaging time setting can be used to dampen the signal if desired.

FEATURES/BENEFITS

- Simple 2-wire installation for PLC and control panels
- Non-stick PTFE coated probe to prevent false readings from moist and conductive dusts, condensate, and dust buildup
- Remote zero calibration helps to decrease maintenance time

APPLICATIONS

- Emissions monitoring
- Broken bag detection in dust collectors
- Filter leak or wear detection
- Bin vent monitoring

MODEL CHART					
Example	PMT2	-05	-A	-U2	PMT2-05-A-U2
Series	PMT2				Particulate transmitter
Probe Length		03 05 10 15 20 30 36			3" probe length 5" probe length 10" probe length 15" probe length 20" probe length 30" probe length 36" probe length
Process Connection			A B C		3/4" male NPT 1.5" tri-clamp kit with 1" male NPT 3/4" male BSPT
Enclosure Rating				A2 U2	ATEX and IECEx (IS) UL (IS)*
Options				ST M2	Stainless steel tag Female M20 electrical entries (female 1/2" NPT standard)

*Options that do not have ATEX or IECEx.
Attention: Units without the A2 suffix are not Directive 2014/34/EU (ATEX) compliant. These Units are not intended for use in potentially hazardous atmospheres in the EU. These units may be CE marked for other Directives of the EU.

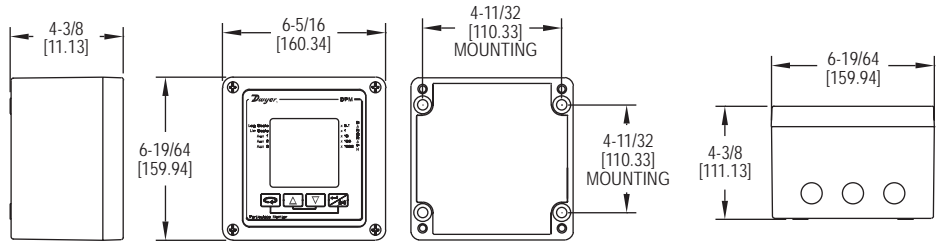
SPECIFICATIONS

Service: Air and compatible gases, any type of particulate conductive or non-conductive.
Wetted Materials: 316L SS, silicone, and PTFE.
Enclosure: Powder coated aluminum.
Accuracy: ±5% of reading.
Particulate Size: 0.3 microns and higher.
Detection Range: 5 to 5000 pA (6 selectable range options).
Temperature Limits: Ambient: -40 to 145°F (-40 to 63°C); Process: -40 to 248°F (-40 to 120°C).
Pressure Limit: 30 psi (2 bar).
Output Signal: 4-20 mA.
Power Requirements: 12-28 VDC (≡).
Electrical Connection: Two 1/2" female NPT electrical entries or two M20 electrical entries (A2 suffix only).
Terminal Block: Removable (16 to 20 AWG wire).
Process Connection: See model chart. BSPT process connections are not UL listed.
Probe Lengths: See model chart.
Enclosure Rating: UL Type 4 (IP66) ATEX/IECEx IP65.
Mounting Orientation: Any.
Averaging Time: 1 to 360 s (10 selectable options).
Weight: Varies with length of probe and type of mount.
Agency Approvals: CE, cULus; ATEX Compliant: **CE** 2813 **Ex** II 1 G Ex ia IIB T4 Ga (-40°C ≤ Tamb ≤ 63°C) (-40°C ≤ T_{Process} ≤ 120°C) / II 1 D Ex ia IIIC T120°C Da (-40°C ≤ Tamb ≤ 63°C) (-40°C ≤ T_{Process} ≤ 120°C). Type Certificate No.: DEMKO 16ATEX1768 X. ATEX Standards: EN 60079-0:2012/A11:2013; EN 60079-11:2012. IECEx Certified: Ex ia IIB T4 Ga (-40°C ≤ Tamb ≤ 63°C) (-40°C ≤ T_{Process} ≤ 120°C) / Ex ia IIIC T120°C Da (-40°C ≤ Tamb ≤ 63°C) (-40°C ≤ T_{Process} ≤ 120°C). Certificate of Conformity: IECEx UL 16.013X. IECEx Standards: IEC 60079-0: 2011; IEC 60079-11: 2011. UL Listed Intrinsically Safe for Class I, Groups C and D; Class II, Groups E, F and G; Class III; Class I Zone 0 AEx ia IIB T4 Ga; Class I Zone 0 Ex ia IIB T4 Ga.

ACCESSORIES	
Model	Description
A-PMT2-FLG	2" flange with 3/4" NPT female connection, 316 SS
A-PMT2-M20	1/2" NPT to M20 conduit adaptor

PARTICULATE MONITOR AND CONTROL

Real-Time Leak Gage, Adjustable Alarm Points



The **Series DPM Particulate Monitor and Control** and Series PMS particulate sensor combine to provide a basic baghouse and cartridge filter leak detector designed for general maintenance planning and process protection. Leakage is gauged in real-time, on-the-spot, without prior baseline data and without signal tuning and displayed on the digital readout in a bar graph and an absolute digital readout. An alarm point can be set by simply moving an indicator up and down the gauge with the key pad.

FEATURES/BENEFITS

- Rugged cast aluminum housing with lockable membrane keypad
- Programmable alarm points
- Large LCD to display readouts digitally

APPLICATIONS

- Baghouses
- Bin vents
- Cartridge filters

MODEL CHART			
Model	System Rating	Range	Input Power
DPM-A111	Weatherproof/NEMA 4X (IP66)	5.0-5000 pA	115 VAC 50/60 Hz
DPM-A112	Weatherproof/NEMA 4X (IP66)	5.0-5000 pA	230 VAC 50/60 Hz
DPM-A113	Weatherproof/NEMA 4X (IP66)	5.0-5000 pA	24 VDC
DPM-A121	Weatherproof/NEMA 4X (IP66)	0.5-5000 pA	115 VAC 50/60 Hz
DPM-A122	Weatherproof/NEMA 4X (IP66)	0.5-5000 pA	230 VAC 50/60 Hz
DPM-A123	Weatherproof/NEMA 4X (IP66)	0.5-5000 pA	24 VDC
DPM-AHZ111	Intrinsically safe*	5.0-5000 pA	115 VAC 50/60 Hz
DPM-AHZ112	Intrinsically safe*	5.0-5000 pA	230 VAC 50/60 Hz
DPM-AHZ113	Intrinsically safe*	5.0-5000 pA	24 VDC
DPM-AHZ121	Intrinsically safe*	0.5-5000 pA	115 VAC 50/60 Hz
DPM-AHZ122	Intrinsically safe*	0.5-5000 pA	230 VAC 50/60 Hz
DPM-AHZ123	Intrinsically safe*	0.5-5000 pA	24 VDC

*DPM models listed intrinsically safe are to be used with corresponding intrinsically safe PMS models making an intrinsically safe control loop. The PMS model can then be installed in a hazardous location according to approval ratings listed. The DPM itself is not intrinsically safe and must be installed outside the hazardous location.

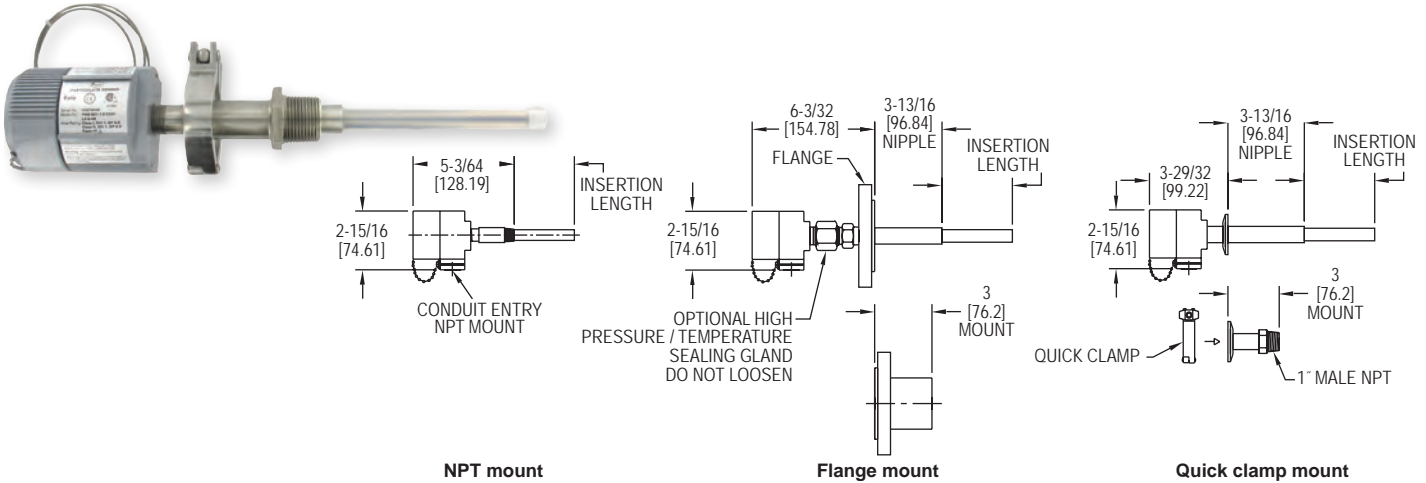
OPTIONS	
To order add suffix:	Description
-RC	Analog output (4-20 mA)

SPECIFICATIONS

Inputs: From PMS sensor.
Output Ratings: Alarm relays: 2 form A (SPST) rated 5 A @ 240 V res. (must provide an 8 A (max) fuse in series with relay load); Analog: 4-20 mA (option RC).
Power Requirements: 115 VAC 50/60 Hz, 230 VAC 50/60 Hz, or 24 VDC.
Power Consumption: 6 W max.
Accuracy: Standard: ±5% of range, Optional: ±1% of range.
Display: LCD.
Display Resolution: Standard: 5 pA; Optional: 0.5 pA.
Memory Backup: For set point storage only.
Temperature Limits: -13 to 160°F (-25 to 70°C).
Weight: 4.5 lb (2.0 kg).
Enclosure: Cast aluminum, weatherproof, NEMA 4X (IP66).
Loop Power Supply (Isolated): 17 VDC loop supply provided by DPM control unit for PMS sensor.
Agency Approvals: CE & CSA.*
 *DPM models listed intrinsically safe are to be used with corresponding intrinsically safe PMS models making an intrinsically safe control loop. The PMS model can then be installed in a hazardous location according to approval ratings listed. The DPM itself is not intrinsically safe and must be installed outside the hazardous location.

PARTICULATE SENSOR

Reliable Operation, Minimal Maintenance



The **Series PMS Particulate Sensor** employs a field-proven combination of passive-induction and protected-probe technologies. As particles flow near and around the probe, the signal is processed into an absolute output that can be sent to a Series DPM Particulate Monitor. Protective layers over the probe work in combination with induction-sensing to ensure reliable operation with all types of particulate including moist powders and highly conductive dusts.

FEATURES/BENEFITS

- Durable housing that is free of electronics
- Minimal maintenance needed

APPLICATIONS

- Baghouses
- Bin vents
- Cartridge filters

SPECIFICATIONS	
Service:	Air and compatible gases, any type particulate.
Wetted Materials:	T1 and T2: 316 SS and PFA; T3 and T4: 316 SS and ceramic.
Temperature Limits:	Ambient: Maximum -40 to 392°F (-40 to 200°C) (max must be calculated for each application); Process: See model chart.
Pressure Limits:	Standard: Full vacuum to 10 psi (0.69 bar); Optional: 100 psi (6.89 bar).
Output Signal:	pA.
Electrical Connection:	Low noise coaxial.
Process Connection:	See model chart.
Enclosure:	Standard: Painted cast aluminum, weatherproof, NEMA 4X (IP66); Optional: Intrinsically safe, CSA (must use with proper DPM model).
Weight:	Varies depending on length of probe and type of mount.
Agency Approvals:	CE, CSA.

Particulate (Dust or Broken Bag) Sensors

MODEL CHART							
Example	PMS	-A1	1	T1	P1	-L1.5	PMS-A11T1P1-L1.5
Series	PMS						Particulate sensor
Enclosure Rating		A1 AHZ1					Weatherproof, NEMA 4X (IP66) Intrinsically safe, CSA & CEA approvals, class I, II, and III; division I & II, all groups, NEMA 4X (requires quick clamp connection or flange mount)
Process Connection			1 2 3 4				1/2" NPT 1" NPT with 1.5" quick clamp connection 2" 150# ANSI flange 2" 150# ANSI flange with process mating flange and installation kit
Maximum Process Temperature				T1 T2 T3 T4			250°F (121°C) 450°F (232°C) 800°F (426°C) - requires flange mount 1200°F (649°C) - requires flange mount
Maximum Process Pressure					P1 P2		10 psi 100 psi - requires flange mount
Insertion Length*						L1.5 L03 L05 L10 L15 L20 L30 L36 L48 L60 L72	1.5" probe 3" probe 5" probe 10" probe 15" probe 20" probe 30" probe 36" probe 48" probe 60" probe 72" probe

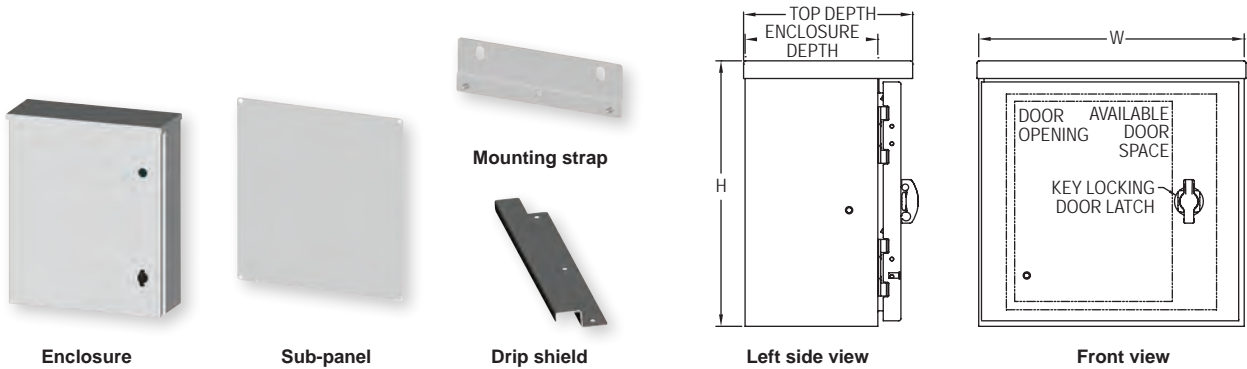
*Recommended at least 1/2 duct diameter

MODEL CHART			
Model	Description	Model	Description
CAB-10	10 foot sensor cable	CAB-30	30 foot sensor cable
CAB-20	20 foot sensor cable	CAB-40	40 foot sensor cable

Note: Consult factory for custom cable lengths up to 300 feet.

GALVANNEALED STEEL ENCLOSURES

Wall Mounted, NEMA 3R, UL Approved



The **Series CSE-3R Galvannealed Steel Enclosures** are spot-welded, wall mounted enclosures designed to house electrical controls, instruments, and components in an outdoor environment. These units are made of carbon steel, NEMA 3R outdoor environment rated and carry a UL approval.

FEATURES/BENEFITS

- Concealed hinges that allow 180° of rotation for easy instrumentation access
- Quarter turn latch that can be opened/closed with a screwdriver, and ground studs on the door and body
- Mounting holes on the back of the enclosure allow for versatile mounting and standoffs provide easy installation of optional sub-panels. A rain cap and an oil resistant door gasket will protect instruments from rain, sleet, and snow. Each unit includes a 3/8-16 grounding kit and has the option of including a sub-panel, mounting strap, and/or a drip shield. This series is the perfect accessory for a variety of instrumentation in need of outdoor protection

APPLICATIONS

- HVAC indoor applications
- Housing general controls and gages

SPECIFICATIONS

Materials: Galvannealed steel enclosure; All other components: Carbon steel.
Rating: NEMA 3R (IP32).
Dimensions: See chart for enclosure dimensions; Sub-panel height = enclosure height - 3" (76 mm); Sub-panel width = enclosure width - 3" (76 mm); Mounting strap width = enclosure width - 4" (102 mm); Drip shield width = enclosure width.
Thickness: 0.048" (1.22 mm) for drip shields; 0.060" (1.52 mm) for enclosures < 24" wide; 0.075" (1.91 mm) for enclosures ≥ 24" wide; 0.125" (3.18 mm) for sub-panels; 0.078" (1.98 mm) for mounting straps.
Weight: See chart.
Agency Approvals: CSA, cULus. (Meets the technical requirements of EU Directive 2011/65/EU (RoHS II)).

MODEL CHART										
Enclosure* Model	Height in (cm)	Width in (cm)	Depth in (cm)	Weight lb (kg)	Sub Panel* Model	Weight lb (kg)	Mounting Strap* Model	Weight lb (kg)	Drip Shield* Model	Weight lb (kg)
CSE-3R-121206	12 (30)	12 (30)	6 (15)	15 (7)	A-SSE-P-1212	3 (1.4)	A-CSE-3M-12	2 (0.9)	A-CSE-D-12	2 (0.9)
CSE-3R-161206	16 (41)	12 (30)	6 (15)	16 (7)	A-SSE-P-1612	4 (1.8)	A-CSE-3M-16	2 (0.9)	A-CSE-D-16	2 (0.9)
CSE-3R-201606	20 (51)	16 (41)	6 (15)	25 (11)	A-SSE-P-2016	8 (3.6)	A-CSE-3M-20	3 (1.4)	A-CSE-D-20	3 (1.4)
CSE-3R-242006	24 (61)	20 (51)	6 (15)	32 (15)	A-SSE-P-2420	14 (6.4)	A-CSE-3M-24	4 (1.8)	A-CSE-D-24	4 (1.8)
CSE-3R-302408	30 (76)	24 (61)	8 (20)	60 (27)	A-SSE-P-3024	22 (10)			A-CSE-D-30	4 (1.8)
CSE-3R-362408	36 (91)	24 (61)	8 (20)	62 (28)	A-SSE-P-3624	27 (12.2)				
CSE-3R-363008	36 (91)	30 (76)	8 (20)	70 (32)	A-SSE-P-3630	34 (15.4)				

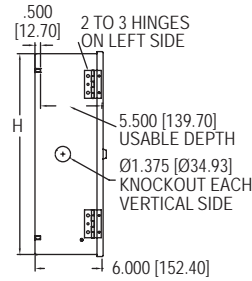
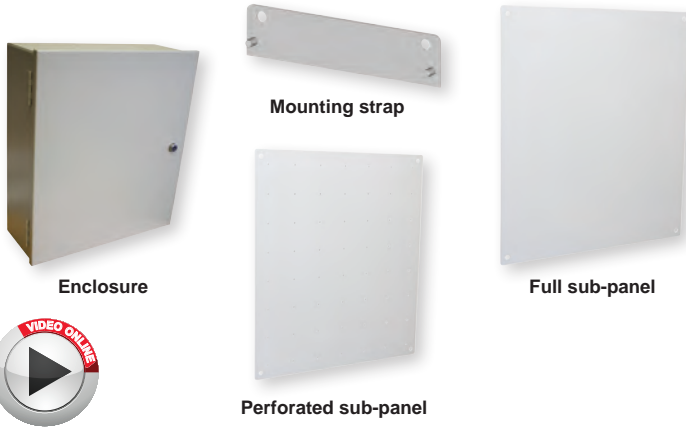
*For additional sizes contact factory.

ACCESSORIES	
Model	Description
A-CSE-L	Keylocking wing knob door latch, Includes 1 lock and 2 keys
A-CSE-K	Replacement keys, includes 2 keys

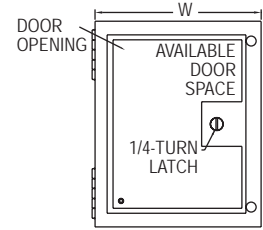


CARBON STEEL ENCLOSURES

Wall Mounted, General Purpose Enclosure, UL Approved



Left side view



Front view

The Series CSE-KN Carbon Steel Enclosures are spot-welded, wall mounted, general purpose enclosures designed to house electrical controls, instruments, and components in general purpose areas. The Series CSE-KN also includes knockouts to allow cords to pass easily into the unit.

FEATURES/BENEFITS

- The door features hinges that allow 180° of rotation for easy instrumentation access
- Quarter turn latch can easily opened or closed with a screwdriver
- Included ground stud for easy electrical grounding
- Mounting holes included on the back of the enclosure allow for versatile mounting and standoffs provide easy installation of optional sub-panels
- Each unit offers optional solid or perforated sub-panel and mounting straps for easy instrument mounting
- The CSE-KN series includes a sub-panel with a 2" x 2" (50.8 mm x 50.8 mm) mounting grid mounted on standoffs and lock with keys

APPLICATIONS

- HVAC indoor applications
- Housing general controls and gages
- Securing instrumentation and avoiding tampering

MODEL CHART		
Mounting Strap* Model	Width in (cm)	Weight lb (kg)
A-CSE-1M-08	7.1 (18)	1 (0.5)
A-CSE-1M-10	9.1 (23)	1 (0.5)
A-CSE-1M-12	11.1 (28)	1 (0.5)
A-CSE-1M-16	15.1 (38)	2 (0.9)
A-CSE-1M-20	19.1 (49)	2 (0.9)
A-CSE-1M-24	23.1 (59)	3 (1.4)

*For additional sizes contact factory.

MODEL CHART							
Enclosure Model	Height in (cm)	Width in (cm)	Depth in (cm)	Weight lb (kg)	Mounting Strap Model	Width in (cm)	Weight lb (kg)
CSE-KN-181606	18 (46)	16 (41)	6 (15)	22 (10)	A-CSE-1M-16	15.1 (38)	2 (0.9)
CSE-KN-242006	24 (61)	20 (51)	6 (15)	35 (16)	A-CSE-1M-20	19.1 (49)	2 (0.9)
CSE-KN-362406	36 (91)	24 (61)	6 (15)	58 (26)	A-CSE-1M-24	23.1 (59)	3 (1.4)

ACCESSORIES	
Model	Description
A-CSE-L	Keylocking wing knob door latch, includes 1 lock and 2 keys
A-CSE-K	Replacement keys, includes 2 keys

SPECIFICATIONS
Materials: Carbon steel.
Rating: NEMA 1.
Dimensions: See chart.
Thickness: 0.060" (1.52 mm) for enclosures <24" wide; 0.075" (1.91 mm) for enclosures ≥ 24" wide; 0.060" (1.52 mm) for perforated sub-panels; 0.075" (1.91 mm) for solid sub-panels; 0.078" (1.98 mm) for mounting straps.
Weight: See chart.
Agency Approvals: CSA, cULus. (Meets the technical requirements of EU Directive 2011/65/EU (RoHS II).



A-CSE-L

PRESSURE CONVERSION CHART

in./H ₂ O	P.S.I.	in/Hg	mm/H ₂ O	mm/Hg	kg/cm ²	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 ₂ O	in/Hg	mm/H ₂ O	mm/Hg	kg/cm ²	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	1124.8	82.74	.1125	.1103	110.3	11030	11.03
1.7	47.06	3.461	1195.1	87.92	.1195	.1172	117.2	11720	11.72
1.8	49.82	3.665	1265.4	93.09	.1266	.1241	124.1	12410	12.41
1.9	52.59	3.868	1335.7	98.26	.1336	.1310	131.0	13100	13.10
2.0	55.36	4.072	1406.0	103.43	.1406	.1379	137.9	13790	13.79
2.1	58.13	4.276	1476.3	108.6	.1476	.1448	144.8	14480	14.48
2.2	60.90	4.479	1546.6	113.8	.1547	.1517	151.7	15170	15.17
2.3	63.67	4.683	1616.9	118.9	.1617	.1586	158.6	15860	15.86
2.4	66.43	4.886	1687.2	124.1	.1687	.1655	165.5	16550	16.55
2.5	69.20	5.090	1757.5	129.3	.1758	.1724	172.4	17240	17.24
2.6	71.97	5.294	1827.8	134.5	.				

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