



DUCT DEWPOINT TRANSMITTER DPDD Series

The DPDD Series duct dewpoint sensors are designed for use in environmental monitoring and control systems where high performance and stability are demanded. It's state-of-the-art design combines digital linearization and temperature compensation with a highly accurate and reliable thermoset polymer based capacitance humidity sensor and curve-matched NTC thermistor temperature sensor for reliability and accuracy in the most critical applications.

The DP Series has four measurement variables which include dewpoint, dry-bulb temperature, wet-bulb temperature and enthalpy which are available by either an analog, BACnet® or Modbus signal to provide the most efficient monitoring and control solution.



SPECIFICATION:

Sensor Type.....Thermoset polymer based capacitive
 Power Supply.....20 – 27 Vdc, 16 – 27 Vac
 (non-isolated half-wave rectified)
 Consumption.....50 mA max @ 24 Vdc,
 1.5 VA max @ 24 Vac (current model)
 30 mA max @ 24 Vdc,
 1 VA max @ 24 Vac (voltage model)
 Operating Conditions -30 – 50 °C (-22 – 122 °F),
 0 – 95 %RH non-condensing
 Storage Conditions.....-40 – 70 °C (-40 – 158 °F),
 0 – 95 %RH non-condensing
 Wiring Connections.....14 – 22 AWG terminal block
 Enclosure.....Hinged, 145W x 100H x 64D mm
 (5.7W x 3.95H x 2.5D in)
 Enclosure Material.....Grey ABS, UL94-V0
 Duct Probe.....230 mm (9") long x 12.7 mm
 (1/2") diameter stainless steel
 with porous filter
 OSA Probe.....20 mm (0.8") long x 28 mm
 (1.1") diameter PVC hub with mesh filter
 Weight.....320 gm (11.3 oz)
 Approvals.....CE, RoHS

Measurement Range:

Relative Humidity.....0 - 100 %RH
 Dry Bulb Temperature.....-30 – 50 °C (-22 – 122 °F)

Calculated Values:

Dewpoint Temp.....-30 – 50 °C (-22 – 122 °F)
 Wet Bulb Temp.....-30 – 50 °C (-22 – 122 °F)
 Enthalpy.....0 – 340 kJ/kg (0 – 146 BTU/lb)

Interface:

BACnet Protocol.....MS/TP, 2-wire RS-485
 9600, 19200, 38400, 57600, 76800 or 115200 baud
 0-127 slave address range
 ModBus Protocol.....ModBus RTU, 2-wire RS-485
 300, 600, 1200, 2400, 4800, 9600, 19200 or 38400 baud
 1-255 slave address range

LCD Display Values:

Temperature.....-30.0 – 50.0 °C (0.5 °C resolution)
 or -22 – 122 °F (1 °F resolution)
 Dewpoint.....-30.0 – 50.0 °C Td (0.5 °C resolution)
 or -22 – 122 °F Td (1 °F res.)
 Wet Bulb.....-20.0 – 50.0 °C Tw (0.5 °C resolution)
 or -4 – 122 °F Tw (1 °F res.)
 Enthalpy.....0 – 340 kJ/kg (1 kJ/kg resolution)
 or 0 – 146 BTU/lb (1 BTU/lb resolution)

PART NUMBER SELECTED

PRODUCT SELECTION INFORMATION:

MODEL	Product Description
DPDD	Duct

CODE	Enclosure
I	4-20 mA outputs
V	0-5/0-10 Vdc outputs
B	BACnet communication
M	ModBus communication

Greystone Energy Systems, Inc. reserves the right to make design modifications without prior notice.

Accuracy:

Relative Humidity (RH).....± 2% RH, 10 – 90 %RH @ 25 °C
 Dry Bulb Temp.(T).....± 0.2 °C (± 0.4 °F) / 0 – 50 °C (32 – 122 °F)
 Dewpoint Temp.(Td).....± 1.0 °C (± 1.8 °F) @ 40 %RH / 25 °C
 Wet Bulb Temp.(Tw).....± 1.0 °C (± 1.8 °F) @ 50 %RH / 25 °C
 Enthalpy (En).....± 2 kJ/kg (± 1 BTU/lb) @ 50 %RH / 25 °C

Output:

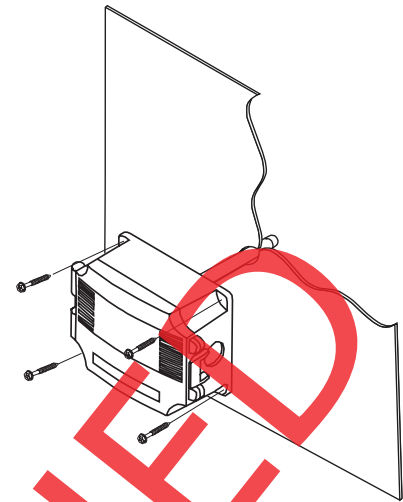
Output Signals (2X).....4 – 20 mA or 0-5/0-10 Vdc (factory set)
 Signal 1.....Dry Bulb Temperature (field selectable range)
 T Range 1 = -30 – 50 °C (-22 – 122 °F)
 T Range 2 = 0 – 50 °C (32 – 122 °F)
 Signal 2.....Dewpoint Temperature, Wet Bulb Temperature
 or Enthalpy (field selectable)
 Td Range 1 = -30 – 50 °C (-22 – 122 °F)
 Td Range 2 = -20 – 40 °C (-4 – 104 °F)
 Td Range 3 = 0 – 50 °C (32 – 122 °F)
 Tw Range 1 = -20 – 50 °C (-4 – 122 °F)
 (all field selectable)
 Tw Range 2 = 0 – 50 °C (32 – 122 °F)
 En Range 1 = 0 – 340 kJ/kg (0 – 146 BTU/lb)
 En Range 2 = 0 – 250 kJ/kg (0 – 107 BTU/lb)
 Output Impedance.....500 Ω max for current (@ 24 Vdc),
 10 KΩ min for voltage

TYPICAL INSTALLATION:

For complete installation and wiring details, please refer to the product installation instructions.

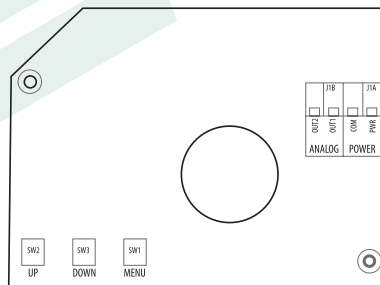
The duct type probes are installed through a hole in the side of the duct to monitor a single point humidity and temperature within the duct. Install the probe in a straight section of duct at a suitable distance downstream from any heating, cooling or humidification devices.

Mounting tabs on the outside of the enclosure for ease of installation. A terminal block connection is provided for connection to the Building Automation System.



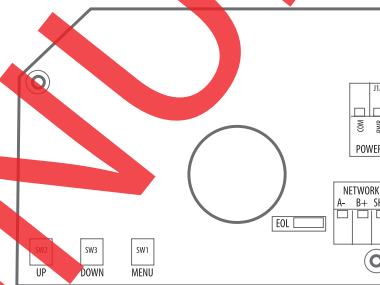
PCB/WIRING INFORMATION

Analog



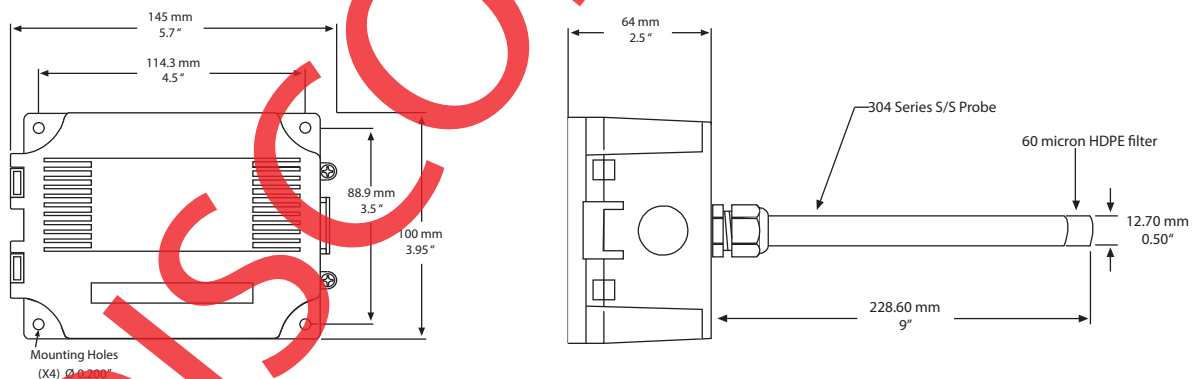
Terminal	Function
PWR	24 Vac/dc of controller or power supply
COM	To GND or COMMON of controller
OUT1	Analog Output 1
OUT2	Analog Output 2

Network



Terminal	Function
PWR	24 Vac/dc of controller or power supply
COM	To GND or COMMON of controller
SHL	To communications bus shield
B +	To + of communications bus
A -	To - of communications bus

DIMENSIONS:



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Greystone Energy Systems Inc. is one of North America's largest ISO registered manufacturers of HVAC/R sensors and transmitters for Building Automation Management Systems. We have conscientiously established a worldwide reputation as an industry leader by maintaining leading-edge design technology, prompt technical support, and a commitment to on-time deliveries. We take pride in our Quality Management System which is ISO 9001 certified, assuring our customers of consistent product reliability.

GREYSTONE HAS AN ISO 9001 REGISTERED QUALITY SYSTEM