GREYSTONE ENERGY SYSTEMS INC

OUTSIDE AIR DEWPOINT SENSOR DPOD Series

The DPOD Series outside 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)

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

PART NUMBER SELECTED

PRODUCT SELECTION INFORMATION:

MODEL	Product Description
DPOD	Outside Air

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.

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)

RoHS COMPLIANT

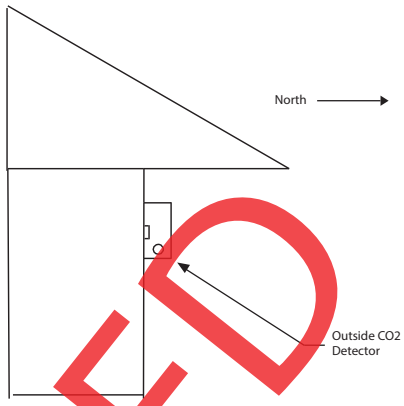
TYPICAL INSTALLATION:

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

The DPOD should be mounted on an outside North facing wall, under the eaves which will provide protection from direct sunlight and wind.

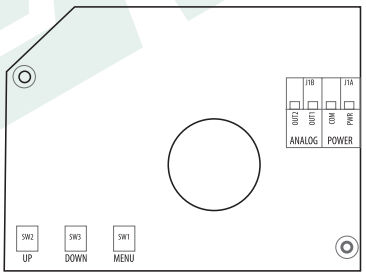
The DPOD can be mounted directly to buildings wall face using the provided mounting holes. There are 0.85" knockouts for conduit connection.

The DPOD has a screw block terminal provided for wiring connections to the Building Automation System.



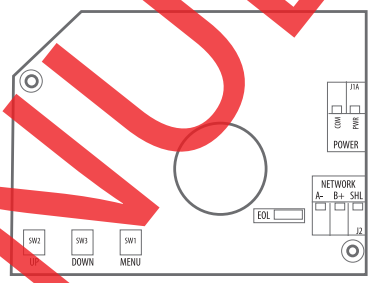
PCB/WIRING INFORMATION

Analog



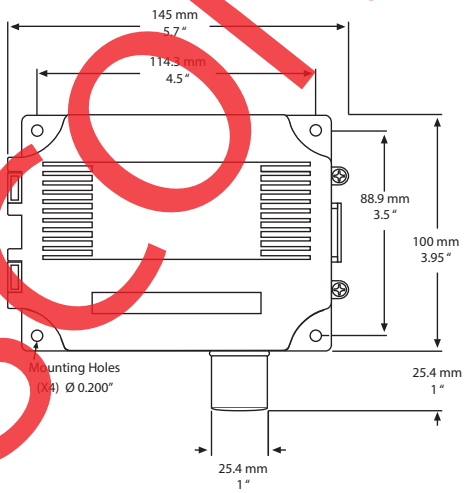
Terminal	Function
PWR	24 Vac/dc of controller or power supply
COM	To GND or COMMON of controller
OUT1	Analog Output 1
OUT2	Analog Output 2

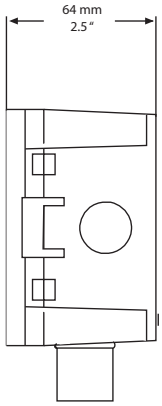
Network



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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RoHS COMPLIANT

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

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