

Using the DPS Series Heated Dew Point/ Humidity Hygrometer

The DPS series of heated chilled mirror hygrometers are designed to extract a gas sample from a heated process and measure its dew point. The DPS is designed to measure dew point in the range of +95°C (203°F) to as low as -35°C (-31°F). Each model within the series consists of an optical chilled mirror hygrometer that is designed to continuously measure the moisture content of **heated** gases. The three models are the **DPS3** standard unit, the **DPS4** featuring the ability to measure and automatically compensate for pressure, and the **DPS5** deluxe unit that offers an advanced display, operational software and interface options.

Why use a heated Hygrometer?

When the dew point temperature of a sampled gas is at a higher temperature than that of the sensing system, a condition of saturation or 100% Relative Humidity will occur within the sensing system. This causes liquid water to form within the tubing and internal portions of the sensing system and ultimately causes a system failure. Under these conditions, reliable dew point readings are not possible. The solution to this problem is to heat all of the components of the sensing system to a temperature above the dew point temperature of the sampled gas.

The DPS series heated hygrometers have been specifically designed to solve this problem. The entire sampling system within each model including the chilled mirror sensor are heated. A heated sampling hose is provided to make connection to the process measuring point. The heated sensor allows the measurement of high dew points that are above ambient temperature. Without the heated system condensation would occur and measurements could not be taken.

The DPS series uses the chilled mirror (CM) dew point temperature condensation principle to determine the water vapor concentration in gas mixtures, and a precision platinum resistance thermometer to measure the mirror temperature. The CM uses a thermo-electric device to control the temperature of the mirror in determining dew point. Since it is a direct measurement of dew point and thus a Primary Standard Measurement Technique, the DPS is highly regarded by pharmaceutical companies for monitoring fluidized beds, gas analysis laboratories, fuel cell testing facilities, air separation equipment, furnace operations and manufacturing facilities for its accuracy, quick dry down, fast response in detecting upset conditions and long life characteristics.

APPLICATIONS

Wood Veneer Drying

Combustion Processes

Leakage testing: Nuclear Reactors

Fluidized Beds

Product Drying Chambers

Bakeries

Exothermic Process Chamber

Fuel Cell Testing

Furnace Applications

Pharmaceutical Powder Drying

Elevated Temp Process Chambers

Plastics/ Molding Process

Chemical Reactors

Heat Treat/ Annealing Ovens

Edgetech Instruments Inc.

An ISO 9001 Certified Company

399 River Road . Hudson . MA . 01749

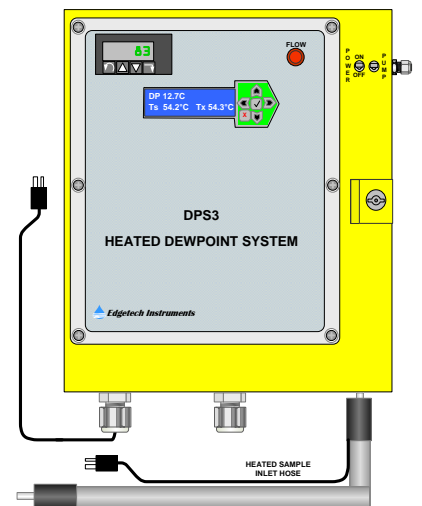
Main: +1 (508) 263-5900 . Fax: +1 (508) 486-9348

www.edgetechinstruments.com

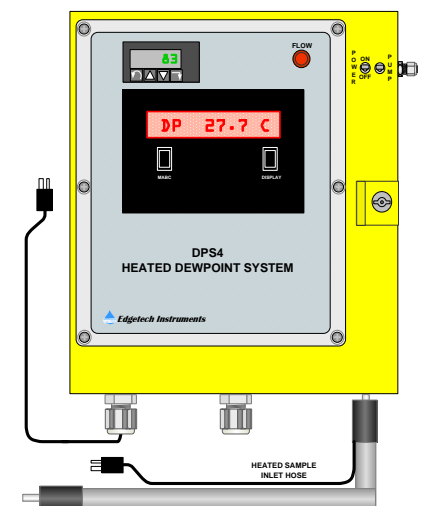
Common to all DPS Models: All standard Edgetech DPS models are designed for use with positive pressure sample gas. A vacuum pump option is available for sample extraction for near ambient pressure samples. The standard DPS heated sampler includes a sample flow meter/valve, SS/ TF tubing and fittings, integrated heater and emergency thermal shutoff circuit – all housed within an insulated NEMA 4 enclosure. A Power ON-OFF switch is located on the analyzer electronics enclosure. The sample inlet is equipped with an externally mounted VAC powered heated sample hose (1/4T) to ensure no vapors condense into the sampling lines. A sintered metal filter is provided within the heated enclosure to help prepare the sample gas for measurement. The NEMA 4 painted steel enclosure is heated by an internal heater system and maintains a temperature above that of the sampled gas

The temperature of the heated package is maintained by a control module located on the front panel of the electronics enclosure. The temperature may be adjusted via accessible buttons on the control module without the need to access the interior of the enclosure. An optional “Loss of Sample Flow” alarm is also available for all models to detect a clogged filter, malfunctioning pump or sample line blockage.

DPS3: The DPS3 *heated chilled mirror hygrometer* system includes an HTS2 heated 2 stage sensor. This integrated system consists of two enclosures. An IP65 plastic enclosure that includes a microprocessor based electronics is mounted to the door of the sampling system. Button access to the microprocessor electronics is available to enter the analyzer software setup. The door of the analyzer electronics enclosure must be opened to access the buttons. Changes may be The DPS3 is configured with the **HTS2** (2 stage chilled mirror) dew point sensor – designed for use in high temperature environments.



DPS4: Similar to the DPS3 except this unit also includes *pressure measurement and pressure-dew point compensation*. A pressure transducer (rated for the heated environment) is mounted within the sampling system downstream of the sensor. Pressure is displayed on the Digital Display and the option for automatic pressure compensation of Dew Point is available. The DPS4 also provides front panel button access to initiate an Automatic ABC to compensate for mirror contamination plus a display button to scroll through viewing of measured parameters. Other features of the DPS4 include analog outputs, relay alarm outputs, and serial interface. Sensor choices include the **HTS2x standard aluminum body** or the **HTX3 stainless steel body** (for use with chemically aggressive sample gases).



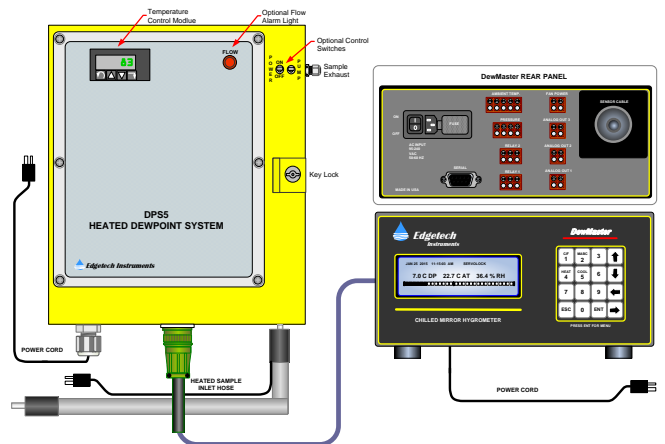
Edgetech Instruments Inc.

An ISO 9001 Certified Company

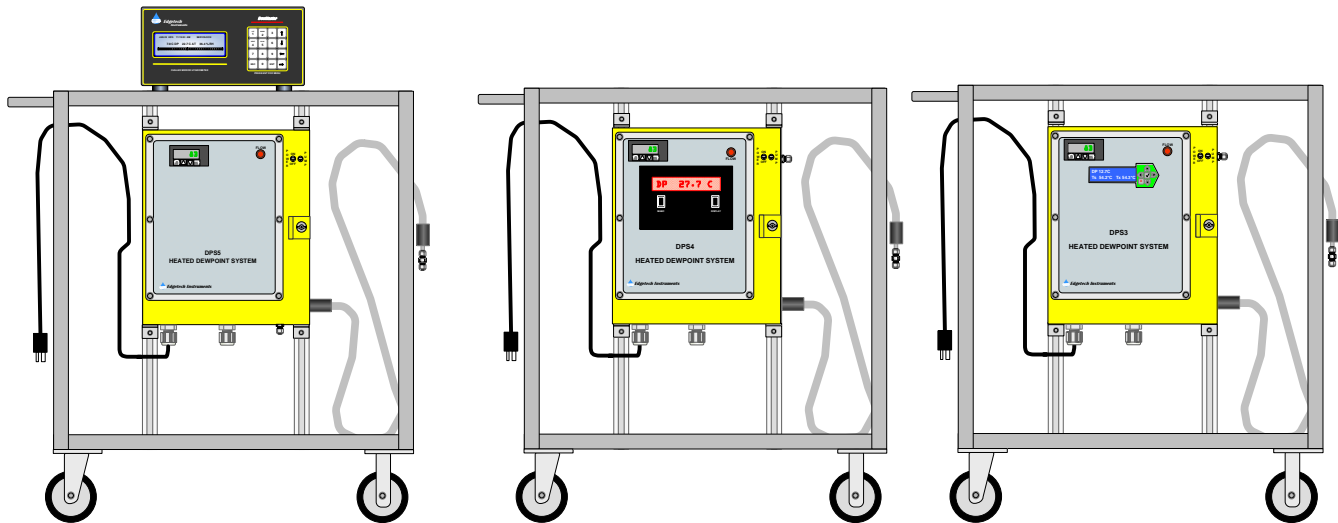
399 River Road . Hudson . MA . 01749

Main: +1 (508) 263-5900 . Fax: +1 (508) 486-9348 . www.edgetechinstruments.com

DPS5: Same as the DPS4 except the microprocessor system is replaced by an externally mounted DewMaster deluxe hygrometer. Pressure measurement and compensation is optional. The DewMaster offers many features including programmable alarms (2), analog outputs (2), RS-232 Serial Interface, a multi-line full feature display and keypad, troubleshooting and diagnostic control, as well as a full set of display functions. The DewMaster is connected to the sampling system via a 3-meter-long communications cable with a quick connection interface at the DewMaster. The DewMaster is standard as a table top unit or may be purchased in a NEMA4 enclosure. Sensor choices include the **HTS2x standard aluminum body** or the **HTX3 stainless steel body** (for use with chemically aggressive sample gases).



New, Cart Version: All three models in the DPS series are available in a transportable cart version. This allows the DPS model to be moved around within a facility to access a variety of process points. Includes portable steel frame cart with 10 foot (3m) heated sampling hose with ¼ inch connector and a 10 foot power cord. Mounting clips for the hose and power cord are supplied.

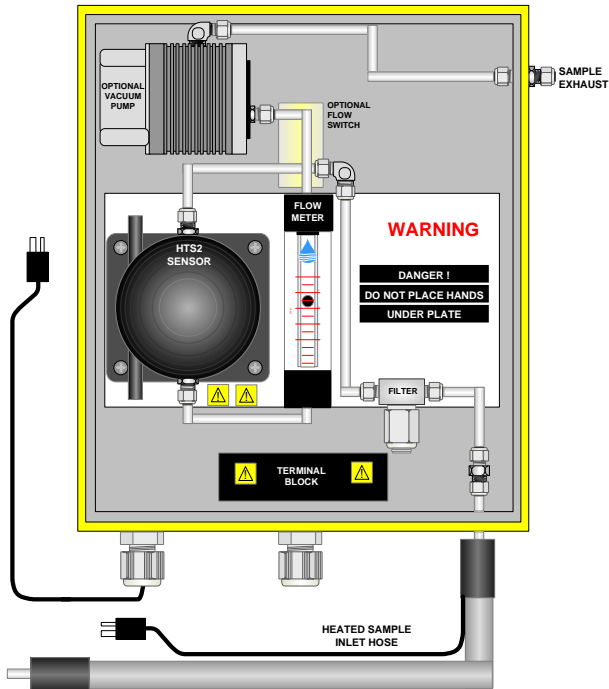


Edgetech Instruments Inc.

An ISO 9001 Certified Company

399 River Road . Hudson . MA . 01749

Main: +1 (508) 263-5900 . Fax: +1 (508) 486-9348 . www.edgetechinstruments.com



DPS STANDARD FEATURES

- Chilled mirror sensor
 - Sensor Temperature Range: 20 to 99°C (68 to 210°F)
 - Dew Point Range: -35 to 95°C (-31 to 203°F)
 - Measurement Accuracy: $\pm 0.2^{\circ}\text{C}$ ($\pm 0.4^{\circ}\text{F}$)
 - Microprocessor Controlled
 - Dew Point and Temperature Displays
 - User Programmable Temperature Controller
 - Automatic Balance Control
 - Integral Adjustable Flowmeter
 - Two Available Alarm Relays
 - Selectable Analog Outputs, Serial RS232 Output
 - Sample Connection: ¼ inch Compression Fitting
 - 3 foot Heated Hose Supplied for sample input
 - Sample Pressure: Up to 150psig
 - VAC Power: 110 or 220VAC, 50/60Hz, 250 Watts
- MUST SPECIFY VOLTAGE**

Model Specific Performance Features

- DPS3:** Window Protects Mode/ Adjustment Buttons and Display, RS-232 Serial access to menu
- DPS4:** Offers Pressure Dew Point Measurement, Button Access Manual ABC, and Viewing of Parameters from the front panel. Operation settings may be configured at dip switches within the analyzer
- DPS5:** Optional Pressure Dew Point Measurement and a Full Feature Alpha-Numeric Display and Keypad offers easy access to User Friendly operations menu

ADDITIONAL DPS OPTIONS

- Sample Flow Switch (Max temperature of enclosure is 50C)
- Sample Flow Alarm Lamp (Max temperature of enclosure is 50C)
- Vacuum Pump

BENEFITS of the Edgetech Instruments Chilled Mirror Sensor:

- **Eliminate DewPoint sensor failures** due to water condensation in sampling system
- Direct measurement method: recognized as a **Primary Standard Technique**
- **Improve Sensor Precision and Stability** with our customized heated sampling system
- **Robust and Long Life:** no moving parts, no consumable components

Edgetech Instruments Inc.

An ISO 9001 Certified Company

399 River Road . Hudson . MA . 01749

Main: +1 (508) 263-5900 . Fax:+1 (508) 486-9348 . www.edgetechinstruments.com

Sensor Mirror Choices

Chilled Mirror Compatibility Chart

Applications CM Configuration	General Purpose Gases	Acids	Caustics	Salts	Organics	Nuclear Application	High Temperature
Chrome Plated Copper	A	D	D	C	C	D	C
316 Stainless Steel	A	B	B	B	B	C	B
Platinum	A	A	A	A	A	A	A
Teflon Coated Chamber	A	A	A	A	A	D	D
High Pressure Chamber	A	NR	NR	NR	NR	NR	A

A	Excellent
B	Very Good
C	Good
D	Not recommended
NR	Not Rated

TO ORDER THE DPS series:

1. Select Base Model
2. Select Sensor Type: DPS3 only available with the **HTS2**. DPS4 and DPS5 available with **HTS2x standard aluminum body** or the **HTX3 stainless steel body** (for use with chemically aggressive sample gases).
3. Select Sensor Mirror Type- Chrome (standard), Stainless Steel, or Platinum. Platinum is generally recommended for aggressive environments and for nuclear applications.
4. Select Options such as Vacuum Pump. If you need to measure dew point at pressure, see the DPS4 or the DPS5
5. List as separate line items : Accessories, Calibration Packages, and Extended Warranty.

DPS3- HTS2 - - - -

SENSOR TYPE MIRROR TYPE OPTIONS POWER COUNTRY

DPS4- - - - -

SENSOR TYPE MIRROR TYPE OPTIONS POWER COUNTRY

DPS5- - - - -

SENSOR TYPE MIRROR TYPE OPTIONS POWER COUNTRY

Edgetech Instruments Inc.

An ISO 9001 Certified Company

399 River Road . Hudson . MA . 01749

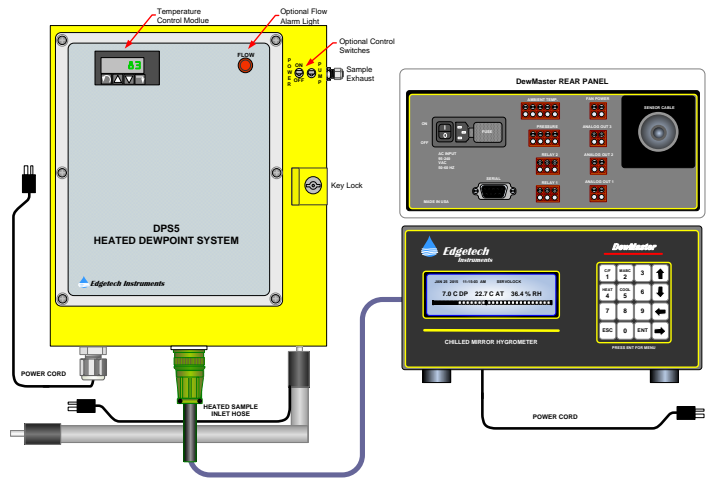
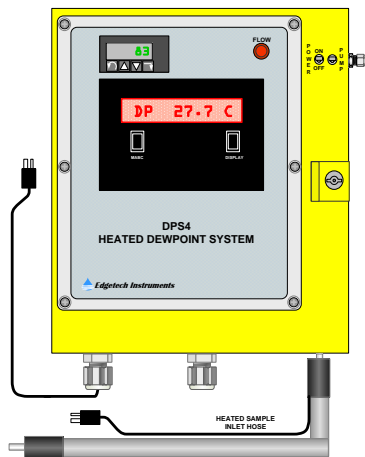
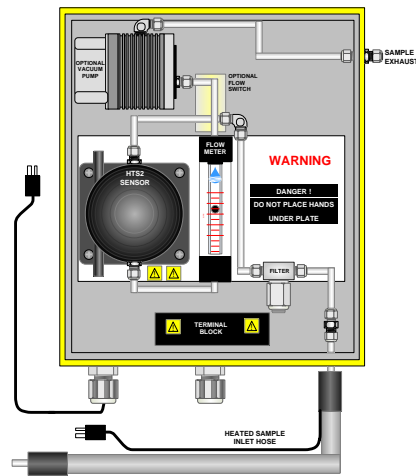
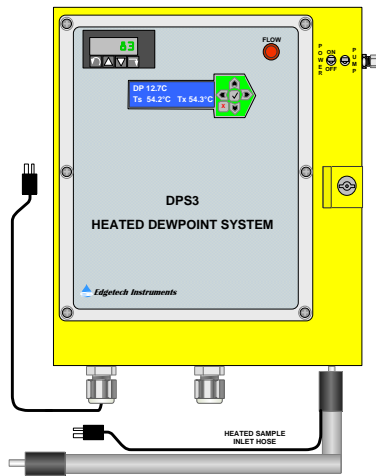
Main: +1 (508) 263-5900 . Fax:+1 (508) 486-9348 . www.edgetechinstruments.com

DPS OPTIONS

- FS Sample Flow Detection: Sample Flow Switch with SPST Dry Contacts
- FSL Sample Flow Detection: Sample Flow Switch Triggers Red Lamp Alarm
- VPH Vacuum Pump to extract sample flow from process to the sensor
- CART Cart Mount, specify model analyzer
- 10HOSE Extended length sample hose, 10 foot long

3YEW 3 Year Extended Warranty covers all repairs within the warranty statement

3YNIST1P 3 calibrations for the price of 2 (DewPoint)



Edgetech Instruments Inc.
An ISO 9001 Certified Company

399 River Road . Hudson . MA . 01749

Main: +1 (508) 263-5900 . Fax: +1 (508) 486-9348 . www.edgetechinstruments.com