

## **1500-DC Battery Powered Portable Dew Point Hygrometer System**

**APPLICATION:** The **Model 1500** Battery Operated, portable Dew Point Hygrometer is an economical, precision hygrometer based on the chilled mirror sensor measurement technique. Because of the many sensor configurations available, the model 1500 may be used in many types of applications including performance testing of Dryers in the field, furnace monitoring, process troubleshooting, scientific study, HVAC test cells, engine test cells, pharmaceutical quality test labs, high purity welding, aeronautics, pharmaceutical fluid bed monitoring, Environmental chambers, and many more.



**DESCRIPTION:** The **Model 1500-DC** is most commonly paired with the S2SC flow through chilled mirror sensor, but can be matched with the DS2 insertion probe type sensor. The battery powered option makes this unit ideal for field use. Since the unit is limited by power capacity, it can only be paired with two stage chilled mirror sensors, the DS2 and the S2SC model.

\*\*If you need to measure lower dew points, choose the 1500-AC or the PDM75 paired with three stage sensors.

**Sampling Choices:** When using the S2SC sensor, the 1500DC can be configured for **positive pressure sampling** or **vacuum pump sampling**.

If you specify the cable mounted **DS2 probe**, sampling options include:

- Aspirator mount for the DS2: fan circulates the sample to the sensor for stagnant air conditions
- SC1 or SC sample head for the DS2 sensor: provides ¼ inch compression fitting ports

**Positive Pressure Sample Configuration:** This configuration is generally specified with the S2SC. Although the standard S2SC is rated to measure sample gas pressures up to 300psig, the 1500DC is equipped with a flowmeter which is rated to 150 psig. So the maximum sample gas pressure rating for the 1500AC with local mounted s-series sensor is 150 psig. If you choose the remote mount S2SC sensor, then there is no flowmeter and the sensor follows its rating (300 psig standard, optional 900 psig).

**Vacuum Pump Sample Configuration:** If the sample gas is ambient pressure, then you can choose the vacuum pump option when using the S2SC sensor. In this case, sample is extracted from the measuring point across the sensor, enters the flowmeter and then goes to the vacuum port of the pump. The pump is mounted onto the flowmeter. When choosing the vacuum pump option, the flow meter is equipped with a valve for control of sample flow to the S2SC sensor (approx. 2 scfh flow recommended).

The DS2 sensor probe is always mounted remote and typically configured for diffusion sampling (No vacuum pump or not for extractive sampling).

**Chemical Compatibility:** Since the DS2 and S series sensors are constructed of aluminum, they are typically coupled with our STD (standard) chrome mirror. You can choose to have EHN (SS) or MAX (Platinum) mirrors. The Dx probe wetted portion is constructed of Delrin.

**OPTIONS:** The 1500DC can also accommodate precision temperature probes and pressure transducers. Temperature measurement provides information required to calculate RH%, wet bulb and dry bulb units. Pressure measurement provides information required to calculate PPMv, PPMw, Gr/LB, Gr/Kg and other psychometric values but can only be specified with the S2SC sensor.

**1500-DC** Battery powered Dew Point System complete with: Measurements in °C or °F, 4-20mA or 0-5VDC outputs, Automatic Balance Control (ABC), battery charger with case, N.I.S.T certified +/- 0.25°C accuracy, integral flow meter, battery level indicator, black case, instruction manual and 1 year warranty. Because of power limitations, only S2SC or D-Probe Sensors are available for the 1500-DC unit.

**Chilled Mirror sensor selection required**

**TO ORDER THE Model 1500-DC:**

- a. Determine type of measurement: DewPoint, Relative Humidity, Pressure, Temperature. The AT temperature probe is required for Relative Humidity. If the sample pressure varies, you may want to consider the Pressure Transducer option that automatically converts Dew Point to PPMv (only available with the S2 sensor).
  - b. Determine the range of measurement and type of sensor: DS2-Probe or S2SC.
  - c. Determine if you need chemical resistance.
  - d. Your application determines whether to select local mounted sensor(s) or remote. The DS2 is only available remote.
  - e. For the S2SC sensor, determine if the sample gas is positive pressure or requires a vacuum pump to extract a sample.
1. Select Sensor/ Mirror Type- DS2 probe (remote mount) or S2SC (remote or local mount).  
Select Mirror Type: STD (Chrome standard), ENH (Stainless Steel), or MAX (Platinum)
  2. If choosing the D-Probe, then select standard 10' (3m) cable length "RK" or "RK#" where # = length of cable in feet. If choosing the S2SC flow through sensor, then select "RC" if you want the sensor to be remote mounted on a cable (a mounting bracket is also included). "RC#" to be used for cables longer than 10' (3m) where # = length of cable in feet.
  3. A. DS2 probe options: If you need special mounting considerations on the DS32 probe  
B. Select other Options such as temperature sensor, RS232 serial interface,..
  4. Select Country so that we can match up the proper power cord
  5. List as separate line items additional choices such as Accessories, Calibration Packages, and Ext Warranty.



**1500DC**      Battery Powered, includes charger **BASE PRICE, must add sensor & options....\$3,234**

For Ex: **1500DC-S2SC-ATDM-USA** would be a 1500 battery powered with S2SC fan cooled CM sensor w/ chrome mirror, air temperature probe, for use in the USA.      **\$3,234 + \$2,530 + \$231 = \$5,995.00**

**Notes:**

1. The S2SC chilled mirror sensor is flow through sampling and are equipped with 1/4inch Swagelok fittings. Aluminum construction is appropriate for most non-aggressive background gases.
2. The S-Series sensors are equipped with a liquid chill port for the flow of chilled liquid to aid in cooling the TEC to allow for lower dewpoint measurement.
3. The Standard DS2-Probe features air convection heat exchange.
4. Addition of the Pressure transducer option to the S2SC configuration allows the 1500 to be configured to display PPMv, pressure and other psychrometric values (Gr/Lb, Gr/KG,...)
5. The standard maximum pressure rating of the DS2 probe is 50 PSIG. Inquire for the special Hermetically sealed version that is rated up to 100 psig.
6. The standard S2SC sensor is rated to 300 psig. Adding the suffix "P" to the S2SC sensor modifies the sensor for special pressure rating of 900 psig.

**STEP 1: SELECT SENSOR / MIRROR TYPE:**
**Chilled Mirror Dew Point Sensors for the Model 1500-DC**

S-Type, Standard Duty		Description	Depression	Choose Mirror		
				STD	ENH	MAX
<b>S2SC</b>		Two Stage, Al Body, Fan Cooled, Flow Through Sampling	65C	\$2,530.00	\$2,780.00	\$2,970.00
<b>P</b>		S2SCP: High Pressure option 900 PSIG		S2SC:Add \$275.00		

DS2-Type, Insertion Probe		Description	Depression	Choose Mirror		
				STD	ENH	MAX
<b>DS2</b>		2 Stage, Insertion Probe, AL, Convection Air Cooled, Diffusion Sampling Includes 3m long sensor cable	50C	\$1,840	\$2,090.00	\$2,280.00


**DS2 Insertion Probe**

**S2SC fan cooled**
**STEP 1 cont... SELECT MIRROR TYPE:**

Applications CM Configuration	General Purpose Gases	Acids	Caustics	Salts	Organics	Nuclear Application	High Temperature
<b>STD Standard Chrome</b>	A	D	D	C	C	D	C
<b>EHN Enhanced 316 Stainless Steel</b>	A	B	B	B	B	C	B
<b>MAX Maximum Platinum</b>	A	A	A	A	A	A	A

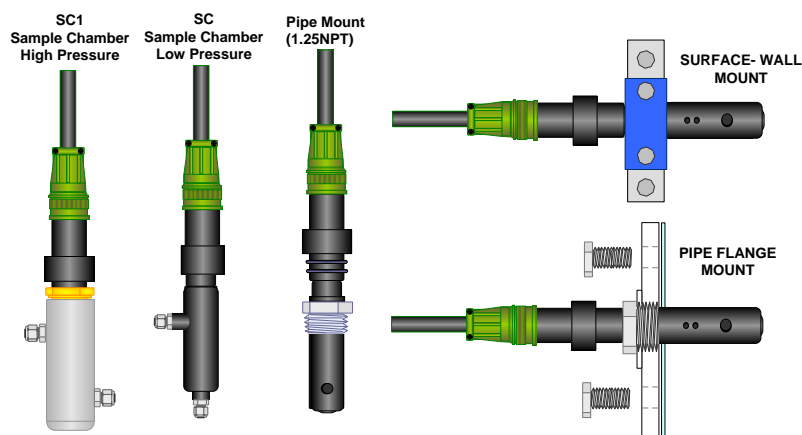
- A** Excellent
- B** Very Good
- C** Good
- D** Not recommended

**STEP 2: Choose Local or Remote Sensor (DS2 sensor always remote mounted):**
**NO DESIGNATION = LOCAL SENSOR MOUNTED ON 1500 (S2SC)- STANDARD CONFIGURATION**

<b>-RC2</b>	Remote Mounting Kit S2-type Sensor 10' Cable, additional lengths add \$4/ foot	\$550.00
<b>-RC3</b>	Remote Mounting Kit S2SC or S3 Sensors 10' Cable, additional lengths add \$8 foot	\$550.00
<b>-RK</b>	Remote Mounting Kit D-type Sensor 10' Cable, additional lengths add \$4/ foot	\$550.00

**STEP 3A: Choose Special Sensor Options for D-Probe:**

<b>-P</b>	Pipe Mount, mounts to the D-Probe and allows 1.25inch Male NPT port on the probe	\$ 150.00
<b>-FNG</b>	Pipe Flange Mount w/ Gasket, The D-Probe gets installed into a 4inch diameter PVC Flange/ gasket add seal, 4 bolt install. For use with Pipe Flanges, isolation chamber, and HVAC DUCT mounting	\$ 150.00
<b>-SM</b>	Surface Wall Mount, The D-Probe is retained between two polypropylene blocks w/ bracket	\$ 99.00
<b>-SC1</b>	Sample Chamber High Pressure (up to 100psig), Permanently connected to probe	\$ 578.00
<b>-SC</b>	Sample Chamber Low Pressure, same as -SC1, not permanent but is Slip-On	\$ 358.00


**STEP 3B: Choose Options such as PRESSURE TRANSDUCER, AIR TEMPERATURE SENSOR,...**

<b>-AT</b>	Air temperature probe, stainless steel sheath with 10ft cable and connector (add \$5/ft for additional)	\$ 660.00
<b>-PT</b>	Pressure Transducer, 0 to 25PSIA or 0-150PSIA, or 0-300PSIA automatic pressure compensation (add \$4/ft for remote)	\$1,485.00
<b>-RS</b>	RS-232 Serial Interface	\$ 275.00
<b>-VPDC</b>	Integrated Vacuum Pump extracts gas sample for DC battery Powered model	\$ 622.00
<b>-SA/.1</b>	0.1°C Special accuracy, traceable to NIST (Certified)	\$ 660.00
<b>-SA/.15</b>	0.15°C Special accuracy, traceable to NIST (Certified)	\$ 550.00

**LIST ACCESSORIES/ SPARE PARTS/ SPECIAL SERVICES AS SEPARATE LINE ITEMS:**

<b>511 SS Tag</b>	STAINLESS STEEL IDENTIFICATION TAG, can be riveted or wire connected to the instrument, CUSTOM ETCHED PER CUSTOMER REQUIREMENTS 1" High x 2" Wide x 16 gage SS Tag, Laser Etched, ¼ inch lettering, 3 lines Advanced Graphic Engraving (includes 2)	\$ 125.00
<b>FIL</b>	Filter kit: includes 1/4T SS compressions fittings & additional elements; 0.1 micron particulate	\$ 165.00
<b>DX</b>	Filter Element Kit, Qty 3	\$ 83.00
<b>SC/S</b>	Screw On Replacement Sensor Cap for the S-Series	\$ 66.00
<b>SC/O</b>	Slide on replacement cover for the D-probe sensor	\$ 248.00

**Extended Warranty/Calibration Options: Please list as separate line items:**

<b>3EXTW</b>	3 Year Extended Warranty includes repairs covered in the warranty statement	10% of TOTAL PRICE
<b>3YNIST1P</b>	3 NIST Traceable Calibrations for the price of 2 (1 Parameter)	\$ 1,210.00
<b>3YNIST2P</b>	3 NIST Traceable Calibrations for the price of 2 (2 Parameters)	\$ 1,430.00