Overview

The CMH Series is a range of chilled mirror dew point hygrometers, designed to give a primary measurement of water vapour content of gases. These self contained dew point hygrometers combine the inherent accuracy, reliability and long term stability of optical chilled mirror technology with the convenience and ease of use demanded by Industry.

Applications

The Model CMH dewpoint hygrometers are designed for continuous monitoring applications where high accuracy and reliability are required. Typical applications include:

- Clean Rooms
- Laboratory Calibration Standards
- Process Dryers
- Environmental Chambers
- Emission Testing
- Annealing Furnaces
- Curing Ovens

Principle of Operation

Dewpoint temperature measurement is made using a direct measuring sensor utilising a Peltier-cooled mirror, automatically held at the dew point temperature by a condensate detecting optical system, incorporating an LED light source and photo-detector. The optical sensing bridge detects the change in light level when dew or frost forms on the mirror. Subsequent cycles of negative feedback controlled heating and cooling refine the result to a highly accurate constant reading of sample dew point.

The mirror temperature represents the true dew point temperature and is measured by an embedded precision platinum resistance thermometer. For dew points below 0°C, the instrument displays the frost point.
Specifications
Model CMH Dew Point Hygrometers

Measurement Performance

DEW POINT RANGE
-40°C (-40°F) to +60°C (+140°F) - S1 and DS1
-50°C (-58°F) to +100°C (+212°F) - S2 and DS2
-75°C (-103°F) to +100°C (+212°F) - S3
0 to 100 %Relative humidity
0 to 999,999 ppmV

ACCURACY
±0.2°C (±0.3°F ) Dew/Frost Point
±0.5% of Full Scale Pressure

DEW/FROST POINT TEMPERATURE SENSOR
3-wire Platinum Resistance Thermometer (PRT), 100 ohms at 0°C

DEPRESSION
45°C (81°F) - S1 and DS1
65°C (117°F) - S2 and DS2
95°C (171°F) - S3

DEPRESSION SLEW RATE
1.7°C (3°F)/second maximum, above 0°C

REMOTE SENSORS
Up to 75 meters (250 feet)

RESOLUTION
0.1°C or °F
0.01 psia
0.1 ppmV < 1000 ppmV
1 ppmV > 1000 ppmV

AUXILIARY COOLANT
Water (or other) - 2 l/min (0.5 gal/min) at 100 psig max. to augment depression capability of sensor when necessary.

SAMPLE PRESSURE
0 -20 kg/cm² (0 -300 psia) S1,S2 and S3

SAMPLE FLOW RATE
0.25 -2.4 l/min (0.5/5.0 SCFH)

OUTPUTS
4-20 mA, 0-5 VDC, RS232

TRACK AND HOLD
Outputs, analogue, digital, alarms can be set to track or hold while in Auto Balance or Programming mode.

General Features

ALARMS
Two form C, SPDT alarm relays rated for 3 amps at 24 VDC, 120 VAC
Alarm set points programmable from -99.99°C (-148°F) to +99.99°C (+212°F)
via keyboard or RS232
Alarm can be latched or unlatched.

DISPLAY
8 digit LED data display
0.6in high digits

WEIGHT
7.0 kg (15.5 lb)

MOUNTING
Bench-top (standard)

SENSOR SELECTIONS
S1 - Single stage flow-through dew point (DP) sensor
S2 - Two stage flow-through dewpoint (DP) sensor
S3 - Three stage flow through dewpoint (DP) sensor

Optional Features

- Remote Mounting Kit, 10 feet of cable (additional lengths available up to 250 feet - NIST certified with selected cable length)
- Panel/Rack mounting kit
- Explosion proof sensor housing
- NEMA-4 Wall mount enclosure - for industrial applications
- In-line particulate/coalescing filter
- Sampling Module - consists of a vacuum pump, 0.75-1.35 kg/cm² (10.7-19.2 psia) variable area flowmeter. Assembled in a weather tight enclosure with bulkhead fittings. Specify 115V or 230V AC, 50/60Hz.
- GR/LB, PPM, (Fixed pressure)

Dimensions

[Diagram of Specifications]

285mm (11.22")
387mm (15.24")
60mm (2.36")
135mm (5.312")