



# Optical Chilled Mirror Dew Point Transmitter With Optional Humidity Measurement

## RHCM-40 Series



Standard

- ✓ Wall, Duct and Pipe Mount Models
- ✓ Remote Type Models
- ✓ 4-Wire RTD Measurement for Dew Point
- ✓  $\pm 0.2^{\circ}\text{C}$  Accuracy for Both Dew Point and Temperature
- ✓ Long-Term Stability and Repeatability
- ✓ RS232, Bi-Directional, Serial Output
- ✓ Electronics Housed in IP65 Enclosure (Wall Mount)
- ✓ Aluminum Housing for Other Configurations
- ✓ 2 Analog Outputs (4 to 20 mA/0 to 5 Vdc to 0 to 10 Vdc Selectable)

### Optional Features

- ✓ Air Temperature and Humidity
- ✓ 2 Line LCD (Graphical Display with 3 Parameters Displayed at One Time)
- ✓ AC Universal Supply 85 to 230 Vac
- ✓ Flow-Through Sample Chamber
- ✓ High Pressure (20 bar)

The RHCM-40 Series dew point transmitter is an optical chilled mirror high performance hygrometer designed to continuously measure the moisture content in gases. The sensor provides accurate long term repeatability and high reliability performance for process control and energy management. The instrument is powered by 24 Vdc or optional AC universal supply 85 to 230 Vac.

The RHCM-40 series uses the chilled mirror dew point temperature condensation principle to determine the water vapor concentration in gas mixtures, and a platinum resistance RTD to accurately measure that temperature. Options include air temperature and humidity measurement. There are two selectable analog outputs which include 4 to 20 mA, 0 to 5 Vdc, or 0 to 10 Vdc and an RS232 serial port as well as electrically isolated relay contacts.

### Specifications

#### Range:

**Dew Point (Standard):**

-40 to 60°C (-40 to 140°F)

**Air Temperature (Optional):**

-40 to 60°C (-40 to 140°F)

**RH (Optional):** 1 to 95%

**Accuracy:**  $\pm 0.2^{\circ}\text{C}$  for both dew point and temperature

**Hysteresis:** Negligible

**Repeatability:**  $\pm 0.05^{\circ}\text{C}$

**Response:**  $1^{\circ}\text{C}/\text{second}$  not including settling time

**Flow Rate:** Static to 3000 linear feet/minute

**Pressure:** 100 psig maximum (higher pressure available on special order)

**Analog Outputs:** 2 analog outputs (4 to 20 mA/0 to 5 Vdc to 0 to 10 Vdc selectable)

#### Load:

**4 to 20 mA:** 0 to 250  $\Omega$

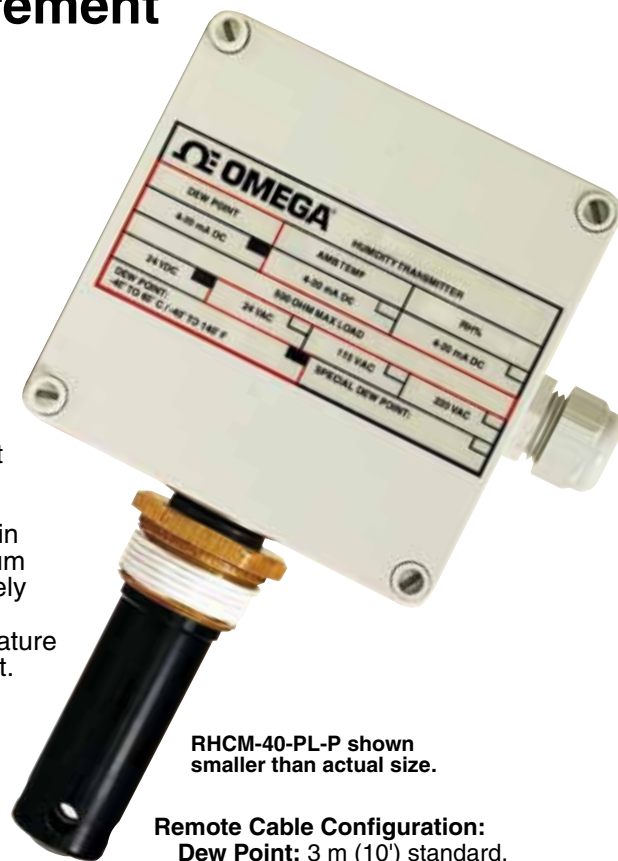
**0 to 5/10 Vdc:** 1 k $\Omega$  or higher

**Relay Outputs:** 2 programmable alarm relays

**K1:** Clean mirror/Alarm 1

**K2:** Servolock/Alarm 2

**Contact Rating:** Normally open (NO) 3 A at 25 Vac, or 30 Vdc



RHCM-40-PL-P shown smaller than actual size.

### Remote Cable Configuration:

**Dew Point:** 3 m (10') standard, 15.2 m (50') maximum

**Air Temperature (Optional):** 3 m (10') standard, 15.2 m (50') maximum

**For Dew Point:** 2 stages of cooling (TEC) with a depression of 60°C

### Mirror:

**Standard:** Chrome plated

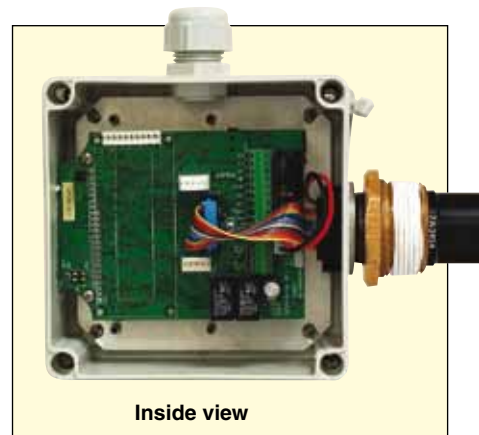
**Optional:** Gold or platinum

**Power Supply:** 24 Vdc  $\pm 20\%$ , 1 A maximum

**Weight:** 1.4 kg (3 lb)

**Electronics Module Outside**

**Dimensions:** 130 H x 130 W x 76 mm D (5.1 x 5.1 x 3")



Inside view



**To Order Visit [omega.com/rhcm-40](http://omega.com/rhcm-40) for Pricing and Details**

| Model No.           | Description                                                                                                                                                                                                                     |
|---------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>RHCM-40-PL-W</b> | Wall mount, dew point transmitter with an IP65 plastic enclosure, a 2-staged chilled mirror sensor, 2 programmable analog outputs, RS232, alarm relays                                                                          |
| <b>RHCM-40-AL-W</b> | Wall mount, dew point transmitter with an aluminum enclosure, a 2-staged chilled mirror sensor, 2 programmable analog outputs, RS232, alarm relays                                                                              |
| <b>RHCM-40-PL-D</b> | Duct mount, dew point transmitter with an IP65 plastic enclosure, a 2-staged chilled mirror sensor, 2 programmable analog outputs, RS232, duct mount flange kit, alarm relays                                                   |
| <b>RHCM-40-AL-D</b> | Duct mount dew point transmitter with an aluminum enclosure, a 2-staged chilled mirror sensor, 2 programmable analog outputs, RS232, alarm relays                                                                               |
| <b>RHCM-40-PL-R</b> | Remote mount dew point transmitter with an IP65 plastic enclosure, a 2-staged chilled mirror sensor, 2 programmable analog outputs, RS232, duct mount flange kit, 1.8 m (6') cable between sensor and electronics, alarm relays |
| <b>RHCM-40-AL-R</b> | Remote mount dew point transmitter with an aluminum enclosure, 3 m (10') cable between sensor and electronics                                                                                                                   |
| <b>RHCM-40-PL-P</b> | Pipe mount dew point transmitter with an IP65 enclosure, 1¼ NPT brass pipe fitting (100 psi maximum)                                                                                                                            |
| <b>RHCM-40-AL-P</b> | Pipe mount dew point transmitter with an aluminum enclosure, 1¼ NPT brass pipe fitting (100 psi maximum)                                                                                                                        |

**Options** (Choosing one of the following three options will include relative humidity)

| Suffix         | Description                                                                                             |
|----------------|---------------------------------------------------------------------------------------------------------|
| <b>-ATDT/R</b> | Remote mount air temperature 100Ω Pt RTD probe [3 m (10' cable)]                                        |
| <b>-ATDT/W</b> | Wall mount air temperature 100Ω Pt RTD probe (-W models only)                                           |
| <b>-ATDT/I</b> | Integrated air temperature 100Ω Pt RTD sensor embedded in the dew point sensor (-W, -D, -R models only) |

**Two Analog Outputs Selectable for Dew Point, Temperature or Humidity**

| Suffix       | Description                                                                      |
|--------------|----------------------------------------------------------------------------------|
| <b>-ACDT</b> | Universal power supply (85 to 230 Vac, 50/60 Hz)                                 |
| <b>-ECDT</b> | Additional cable length [up to 15.2 m (50')] for both AT and/or dew point sensor |
| <b>-RD</b>   | LCD (-PL models only)                                                            |
| <b>-RTD</b>  | Resistive (100Ω Platinum RTD) dew point output                                   |
| <b>-AR</b>   | Aspirator kit                                                                    |
| <b>-SC</b>   | Cover, flow through, low pressure sample chamber with fittings                   |
| <b>-SC1</b>  | Sample chamber flow through max pressure 100 psig                                |
| <b>-SMU</b>  | Sample module universal 115/230 Vac operation                                    |

**Note:** When ordering the “-RD” LCD option, all 3 parameters will be displayed but only 2 of the parameters can be assigned to the two analog outputs.

**Accessory**

| Suffix     | Description                                |
|------------|--------------------------------------------|
| <b>-D2</b> | Two stage chill mirror flow through sensor |

Comes complete with two stage chill mirror sensor (insertion probe style, 60°C depression), 24 Vdc input power, 2 selectable analog outputs, RS232 (bi-directional), two programmable alarm relays, operator's manual and NIST certificate.

**Ordering Example:** **RHCM-40-PL-W-ATDT/W**, wall mount, dew point transmitter with an IP65 plastic enclosure, a 2-staged chilled mirror sensor, 2 programmable analog outputs, RS232, alarm relays and wall mount temperature probe with relative humidity.

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