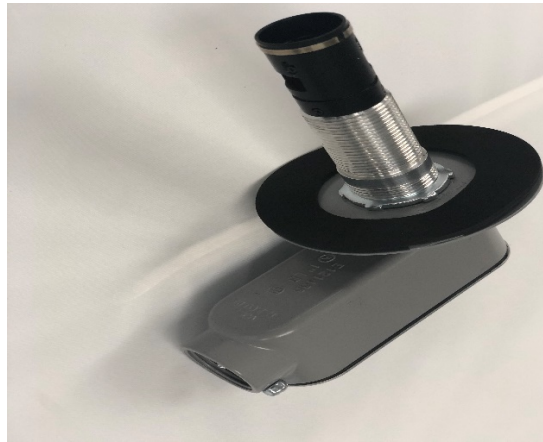




## CM10 Instructional Guide



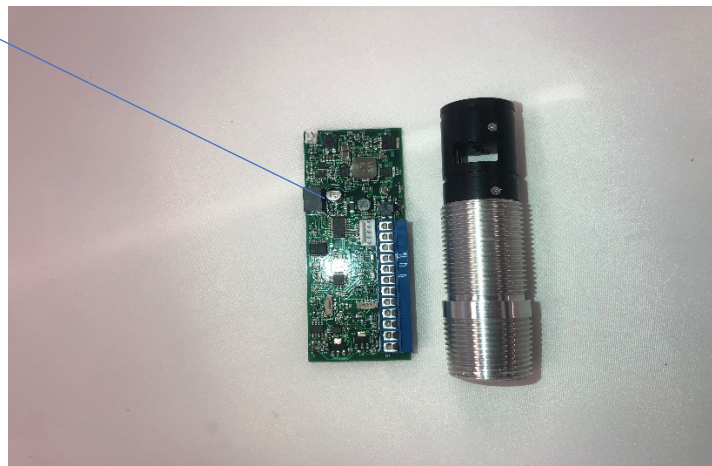
The CM-10 is a single stage chilled mirror hygrometer configured for duct mount, wall mount and OEM application. For Pipe Mount applications please consult factory. The CM-10 requires 24VDC @1 A for power. It has two 4-20mA outputs factory scaled for -40C to 60C. The unit also has a RS232 communication connection that can be accessed using either the Hyper terminal or TeraTerm program which is available on most computers.

Distributed by IOThriftly  
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Notes: Even though the unit is scaled from -40C to 60C, the unit can only measure to -20C dew point at ambient temperature conditions (25C). If the dew point is lower than -20C, the user will have to cool the body of the sensor to a lower temperature. The unit has depression capability of 45C (meaning if at ambient (25C), subtract 45 from 25C and that will be your lowest dew point (-20C). So, lowering the temperature of the sensor will get you to lower measurable dew points.

#### Wiring instructions for the CM10

Terminal Block



All wiring is done to the 12-pin terminal block located on the PCB

Pin 1 Tx (RS232)

Pin 2 Rx (RS232)

Pin 3 (+) 4-20mA output

Pin 4 Grnd

Pin 5 (+) 4-20mA output

Pin 6 (-) common for 4-20mA outputs

Pin 7 (-) Air temperature probe

Pin 8 (-) Air temperature probe

Pin 9 (+) Air temperature probe

Pin 10 (+) Air temperature probe

Pin 11 Rtn

Pin 12 24Vdc (@1A)

Protocol setup to run or program the CM-10.

No special software is needed. User can use either the TeraTerm program or the HyperTerminal program on their PC. Connect the RS232 connection from the Dew Tran and using a USB converter connect to your PC.

Protocol configuration: Baud rate 19.2K, 8 Bits, 1 stop Bit, No parity

To access the menu, hit the "esc"

The Cap lock key must be on when selecting commands.

### Calibrating Current Outputs

There are 2 methods for calibrating the 4-20 mA. outputs. Method 1 uses a digital ammeter, capable of 1 uA. Resolution. The second method uses high precision (.005%) Resistor(s), In range of 10 – 750 ohms. The factory Calibration is done using 100.00 ohm resistors.

for output 1, connect Ammeter across BLACK Wire and RETURN. From normal operation, enter following keystrokes:

<ESC> <C>hange <O>utputs <C>alibrate <C>urrent.

at the "Sense Resistor Value (Y/N) OHMS?" Prompt, enter <N>

Enter<1> for Current output 1. The prompt "4 mA. = ?", enter the value displayed on Ammeter, as mA's

Continue for the next 2 prompts (12 mA. and 20 mA.)

the prompt "4 mA. = 1XXXX" is displayed, check Ammeter for 4.00 mA. reading. Press <CR> to sequence (8, 12, 16 ,20 mA.) Values, with corresponding Ammeter Readings. If calibrated values good, at "Save Calibration (Y/N)?, enter<Y>.

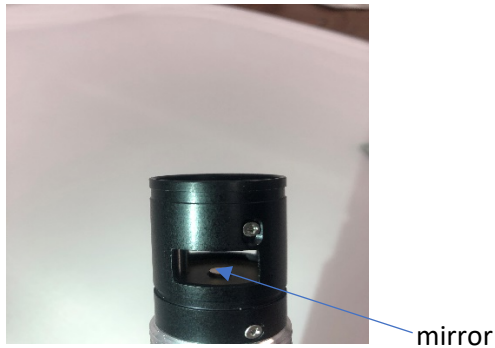
### Operations

There are two ways to determine if the sensor is operating/properly functioning.

Reminder: When the unit is first powered on, the unit will take 3-5 minutes to control. Typically, the unit goes through what we call an ARC condition. Which is a balancing cycle, the unit initial heats up, then goes into an acquiring mode (hunting for the dew point) and then the control mode.

- 1) If you are using the RS232, output you can view the data via your computer to see if the unit is in control. The data will be streamlined on your PCs and you will see the word "control" at the end of each line.
- 2) Another method is by viewing the red light on the PCB. If the red light is in a steady state (always on), the unit is in control.
- 3) If the red light is blinking, the unit is most likely in one of these three states.
  - a. The unit was just powered on and is going through its ARC cycle for 3-5minutes.
  - b. The mirror is dirty (has contaminants on it) and it needs to be cleaned. Refer to the clean mirror procedure.
  - c. If the above 2 steps do not remove the blinking red light condition, the unit could be out of range to measure that dew point/frost point. (Ex: if your ambient condition is 25C and your dew points is below -20C, the unit can not measure that dew point (red light will blink). A way to correct that is to lower the body temperature of the sensor to a point where the dew point is measurable with this unit.

### Clean Mirror

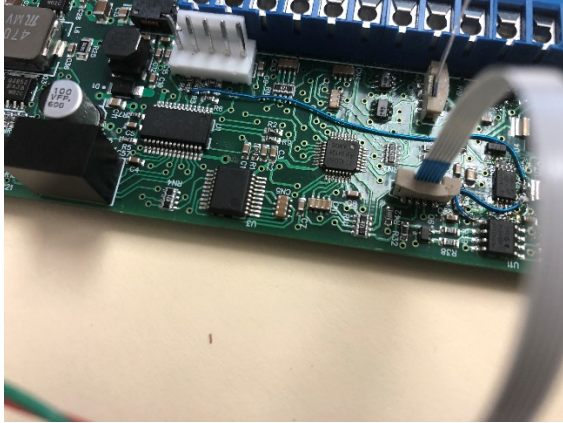


- 1) Power down
- 2) Gain access to the mirror
- 3) Clean mirror with a wetted (using isopropyl alcohol) cotton swab.
- 4) Dry the mirror surface with a dry cotton swab.
- 5) Reinstall sensor shield if applicable.
- 6) Power the CM10 on
- 7) Also, the mirror can be cleaned during the ARC (when red light is blinking) by following the above steps 2-5

### OEM Cable connections for the CM10

- 1) Longest cable is connected to the connector closes to the blue terminal block.
- 2) The pins on the cable from the sensor should be facing the outside of the connector, blue section of cable should be facing the wider side (top side) of the connector.

- 3) Shorter cable gets connected to the connector furthest from the blue terminal block.
- 4) terminal block.
- 5) The pins on the cable from the sensor should be facing the outside of the connector, blue section of cable should be facing the wider side (top side) of the connector.
- 6) 2 pin white connector with the prongs on the connector facing into the mating connector on board.



Short cable orientation (notice blue side of connector)



Long cable connection (notice blue side of cable orientation)