HMM30C humidity module

GENERAL

The HMM30C humidity module is an open print, which is connected with two screws. Its small sensor head is separated from the circuit board with a cable. Mounting dimensions are shown in Figure 1.
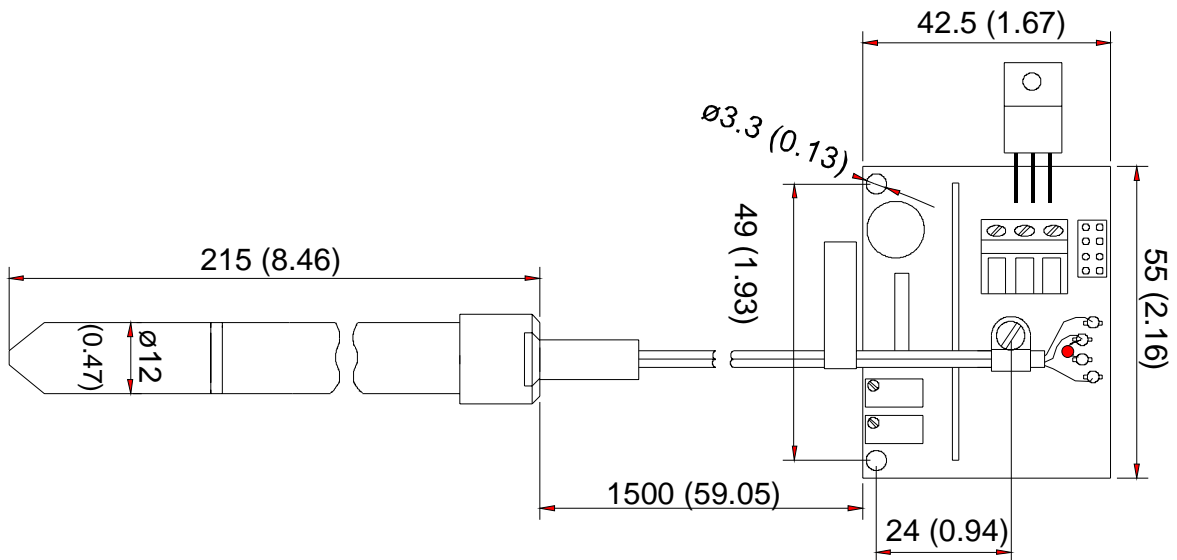
Figure 1   Mounting dimensions in mm (in inches)

ELECTRICAL CONNECTIONS

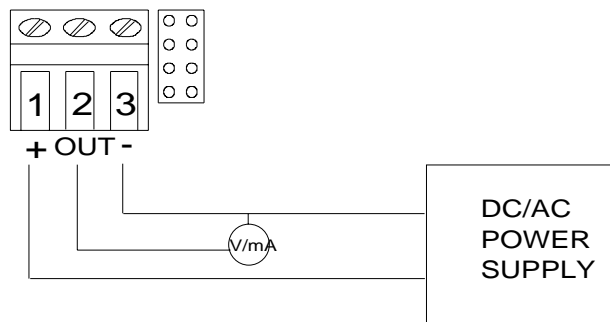Make connections according to Figure 2.

Figure 2   Electrical connections

NOTE

If the metal tube of the HMM30C is in contact with metal parts (e.g. chamber wall) that are in galvanic contact with the power supply ground, problems may occur in strongly condensing situations. If the condensed water forms a conductive path between the tube and the sensor legs, the generated currents in this path may cause electrochemical reactions and corrosion in the probe structure. Therefore, it is recommended to install the probe so that the metal tube is galvanically isolated from the chamber wall.

OPERATING THE MODULE

The desired output range is chosen with appropriate jumpers (see Figure 3). When the output has been chosen and the module has been connected to an external power supply, it is ready for use.
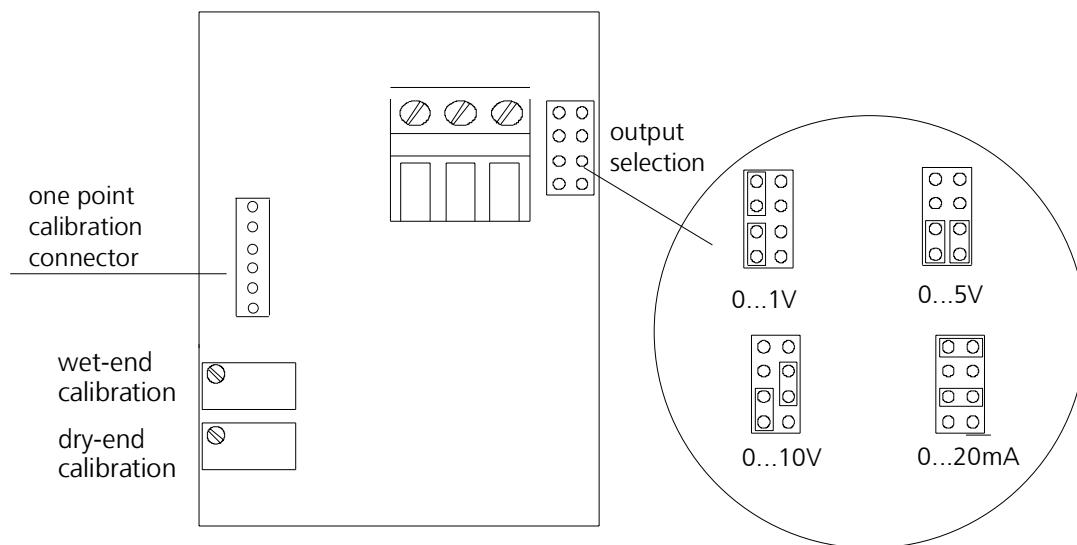

Figure 3   Output selections and calibration connectors and potentiometers

ONE POINT HUMIDITY CALIBRATION

The calibration can be checked with Vaisala's one point calibrator: the HMI41 indicator equipped with a suitable reference probe (e.g. HMP46) and the calibration cable 19165ZZ. Make the necessary adjustments with the dry-end calibration potentiometer. If a more accurate two point calibration is preferred, the HMK15 or the HMK13B calibrators with salt solutions are recommended. For detailed instructions, see the corresponding manuals.

The calibration interval depends on the surrounding conditions and the desired accuracy. It is recommended to perform a calibration at least once a year. However, long term exposure to certain chemicals and gases, e.g. some organic solvents, acids or bases may cause drift in the sensor response. If there is a reason to believe that such conditions exist, it is recommended to check the calibration at a shorter interval after taking the HMM30C into use. Make the first check/adjustment after 6 months and 12 months and later extend the interval to one year.

REPLACEMENT OF THE HUMICAP® SENSOR OR THE FILTER

If the sensor is damaged for some reason, remove it and insert a new one. Handle the sensor by the plastic socket. DO NOT TOUCH THE SENSOR PLATE. Check the output after sensor change. If it deviates too much from the reference value, recalibrate the module.

Replace or clean a dirty filter. The sensor can be cleaned with distilled water; if this does not help, replace the sensor. Do not use any mechanical methods.

TECHNICAL DATA

Relative humidity

Measurement range   0...100 %RH

Accuracy at +20 °C
(including calibration
inaccuracy, linearity and
repeatability):   ±2 %RH (0...90 %RH)
                                   ±3 %RH (90...100 %RH)

Temperature coefficient   ±0.04 %RH/°C (NOTE: after T compensation)

Humidity sensor   Vaisala HUMICAP® capacitive polymer sensor

Electronics

Output	Supply voltage	
DC	DC	AC
0...1 V	10...35 V	9...24 V
0...5 V	14...35 V	12...24 V
0...10 V	19...35 V	16...24 V
0...20 mA	10...35 V	9...24 V (R_L = 0 ohm)
0...20 mA	20...35 V	17...24 V(R_L = 500 ohm)

Recommended external
load for outputs $\geq$ 10 kohm

Current consumption   15 mA max.

Electrical connections   Screw terminals for wires 0.5...1.5 mm²
                                   (AWG 20...16)

Operating temperature
            electronics   -5...+55 ^{o}C (+23...+131 ^{o}F)
            sensor head   -40...+180 ^{o}C (-40...+350 ^{o}F)

Survival temperature range
            sensor head   -70...+180 ^{o}C (-94...+350 ^{o}F)

Long-term humidity range
(electronics)   0...85 %RH

Mechanics

Sensor protection   Sintered filter Ø 12 mm

PCB dimensions   55 x 42.5 x 23 mm

Weight   144 g

Cable length   1.5 m (5 ft.)

SPARE PARTS AND ACCESSORIES

Order code	Description
0195	sintered filter ⌀ 12 mm
HUMICAP K	HUMICAP® humidity sensor

GUARANTEE

Vaisala issues a guarantee for the material and workmanship of this product under normal operating conditions for one (1) year from the date of delivery. Exceptional operating conditions, damage due to careless handling or misapplication will void the guarantee.