Operating instruction

Dew-point sensor
type FHA646DTC1

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1. Notes on safety

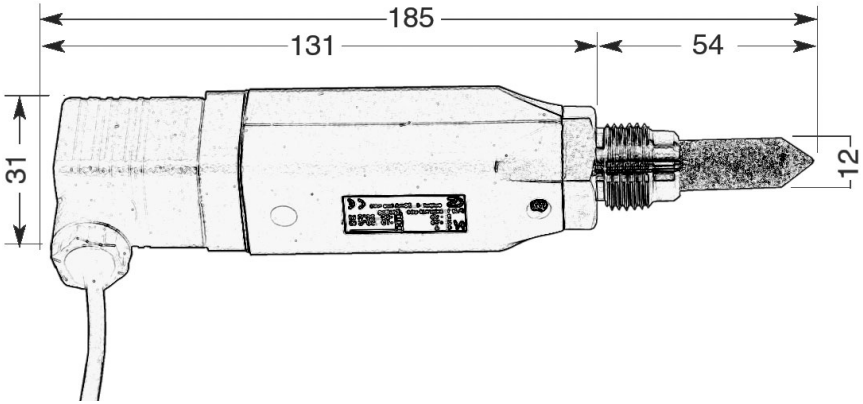
Please read prior to operation !

Warning: Do not exceed pressure range of > 50 bar with standard versions.
With special versions up to 350 bar.
Observe measuring ranges of sensor!
The probes are damaged if overheated.
Observe max. storage and transport temperature as well as max. operating temperature. (e. g. protect measuring instrument from direct sunlight).
Warranty claims no longer apply if the instrument is opened, in the case of inexpert handling or use of force.
Adjustments or calibrations should be carried out by qualified measurement and control engineering staff only.
Important: Before installation shortly trail the compressed air in order to remove condensate and particles. Prevents soiling the sensor. Standing air leads to long measuring times.

2. Description

- Especially suitable for dew-point measurement with high level precision and long-term stability
- Automatic calibration
- Digital transfer of measured values to the ALMEMO® display section (avoids risk of inaccuracy on the connecting lines or in the display section itself)
- High-level accuracy sustained down to -80 °C
- High-speed reaction time
- Displayed variables : temperature, rel. humidity, dew-point
- Process connection for high pressures (optionally up to 350 bar)

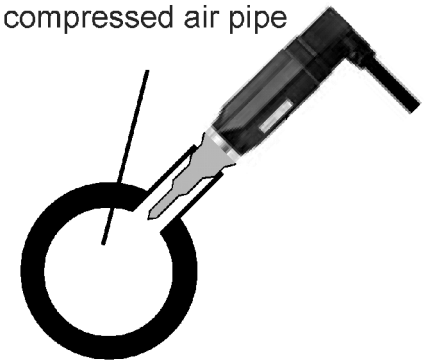
3. Dimensions (in mm)



4. Installation

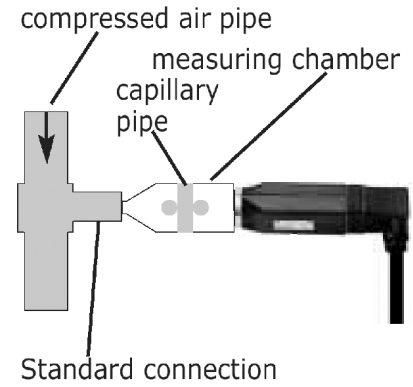
Please note: For safety we recommend the installation of a second measuring instrument with the option to monitor with a switch contact for especially critical and expensive productions.

Directly in the compressed air system



Screw in probe with G ½ " thread pressure-tight in the centre or in the compressed air pipe where the measurement is to take place.Ensure that the measurement is carried out close to the compressed air flow. U-bend pipes or non-flowing compressed air result in very slow reaction times for the moisture reading. Installation is recommended following drying of the compressed air and all bypass pipes or for critical compressed air users.

Indirectly in the compressed air system



Screw in probe with the G ½ " thread in the measuring chamber. Connect measuring chamber with the compressed air pipe using a ball valve and possibly a diffusion-tight connection pipe (max. 5m). In the case of compressed air containing oil and dirt particles, a 40µm pre-filter should be installed in front of the measuring chamber. Compressed air flows continuously (at 7 bar, approx. 1 l/min. expanded) in the capillary pipe of the measuring chamber. The reaction times for the humidity reading are shorter than when directly mounted.

Advantage: Easy mounting and dismounting of the probe, fast adaptation time.

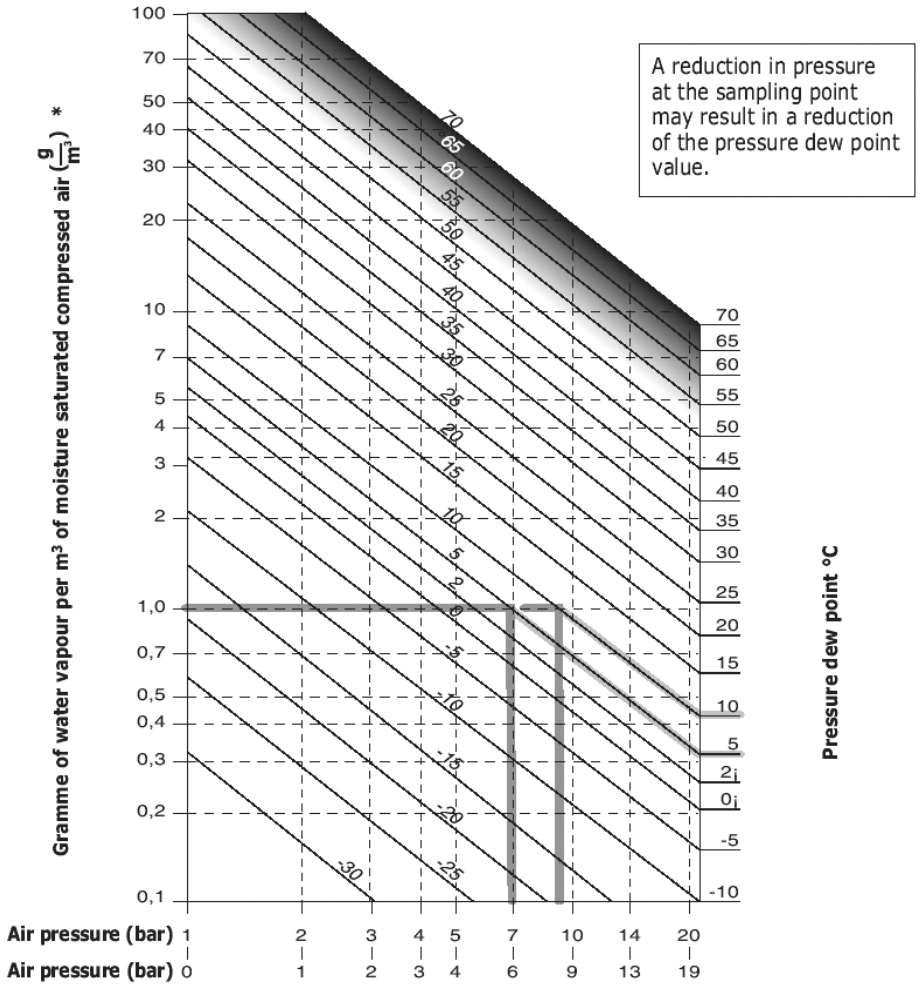
Measurable gases:
In general humidity can be measured in all non-corrosive active gases. For corrosive gases please query with Ahlborn Mess- und Regelungstechnik.

To enable accurate measurements in the low dew point range (–30 to –80 ° Ctd), the measuring temperature of the gas should, if possible, be that of room temperature (20 to 35 °C). With resin driers, for example, or other applications, the temperature of the measuring gas is often higher, e.g. 80 to 120 °C. In this case we recommend installing a "cooling tunnel" of impermeable material in front of the screw-on measuring chamber. A Teflon pipe or a copper pipe would be ideally suitable for this purpose, as the hot gas is cooled to ambient temperature over the length of the pipe, approx. 2 to 5 m.
Please do not use ordinary plastic tubes!
The dew point temperature in °Ctd does not change when cooled as it is an absolute humidity value, which, like other measured variables e.g. g/m3, is independent of temperature.

Installation recommendation
It is possible to mount the pressure dewpoint meters directly in the airflow.
We generally, however, recommend the use of a screw-on measuring chamber.

5. Dew point diagram for compressed air

The diagram provides information on the change in pressure dew point when there is a drop in pressure. Example: a drop in pressure from 8 bar to 6 bar working positive pressure is shown. In this case the pressure dew point drops from 10 °C to 5 °C.



6. Technical data

Measuring range	-80 to +20°C dew-point temperature (DT)
Measuring accuracy	± 0.5°C from -10 to +50 °C DT, typical ± 2°C at -40 °C DT
Operating temperature	-20 to +70 °C
Process connection	Screw thread G 1/2”, stainless steel
Pressure range	-1 to +50 bar standard
Storage temperature	+40 to +80 °C
Voltage supply	via ALMEMO® connector
Power consumption	5 mA
Output	ALMEMO® digital
available on request	4 to 20 mA in 2-wire technology Power consumption : 25 mA Load for analog output : < 500 W
Connection cable	1.5 meters with ALMEMO® connector
Housing	
Material	polycarbonate
Protection system	IP65

Types

Dew-point transmitter with connecting cable,
1.5 meters long, and ALMEMO® connector Order no. : FHA646DTC1

Option:

Dew-point sensor for process pressure up to 350 bar
Order no. : OA9646DTCP

Accessories :

Screw-on measuring chamber for connecting a dew-point transmitter
to compressed air pipes via a ball valve Order no. : ZB9646DTCK
Advantage : high-speed measuring without waiting for installation

7. Your contact