

# INSTALLATION GUIDELINE | MSR

## DEW POINT SENSOR TF 3 G/M-22 AND TF 3 P/R-22



The Clina TF 3\_ dew-point sensor is designed for surface mounting in cooling ceilings as well as on cold water-carrying pipes and systems to protect against condensation. Two variants are available, which differ only in terms of housing shape:

The **TF 3 G/M-22** dew point sensor is suitable for

- gypsum board ceilings with applied capillary tube mat
- metal panel/metal tile ceilings with glued capillary tube mat

The **TF 3 P/R-22** dew point sensor is suitable for

- plaster ceilings with integrated capillary tube mat
- cold water-carrying pipes

### FUNCTION

The Clina dew point sensor registers any condensation that may occur on the cooling ceiling or on cold water-carrying pipes and changes its electrical resistance in the process. This resistance change in the sensor is detected by the room temperature controller TR 1 B, TR 2/3 or TR 2/3 F. This controller causes the control valve to close and thus effectively protects the chilled ceiling from damage by condensation. If a central control system is used, the TK 1-PF or TK 2-PF converter provides a switching signal at the risk of dew point.

### MEASUREMENT PRINCIPLE

The Clina dew point sensor consists of a circuit board with high electrical resistance. As air humidity increases, the conductivity of the sensor also increases respectively the resistance decreases. If the resistance reaches a value of approx. 8 MΩ due to an increase in humidity, the controller switches off cooling. It is switched on again when the resistance has increased to approx. 16 MΩ due to lower humidity.

### FUNCTIONAL TEST


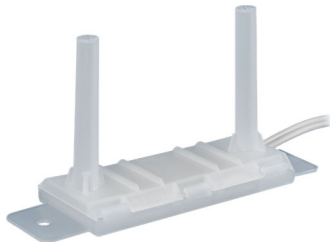
The only way to check the proper functioning of the dew point sensor is to moisten the sensor. To do so, you have to moisten the dew point sensor (in an electrically connected state) by spraying or breathing on it. This should have the effect that the cooling switches off. The electrical resistance is not a defined value and in a dry state the value is approx. 16 MΩ or even higher, depending on temperature and humidity. In any case, the decisive factor is the decrease of resistance and the related switching of the room temperature controller or converter in the event of a risk of condensation.

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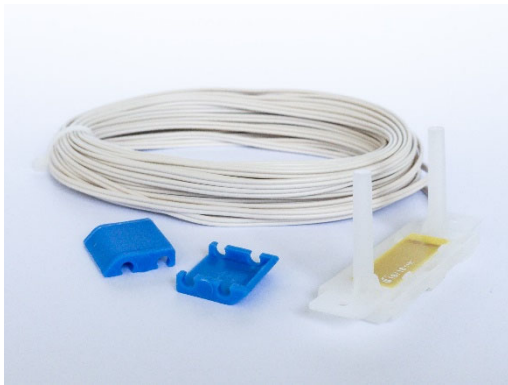
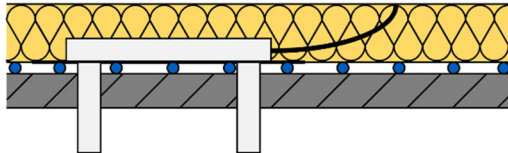
### TECHNICAL DATA

Designation	TF 3 G/M -22	TF 3 P/R-22
Field of application	gypsum board ceilings metal panel/metal tile ceilings	plaster ceilings pipes
Figure		
Material	housing: plastic circuit board: gold plated	housing: plastic circuit board: gold plated
Dimensions housing Length (L) Width (W) Height (H)	70 mm 20 mm 7 mm	70 mm 20 mm 7 mm
Connecting cable	2-core cable length 10 m, 2 x 0,14 mm <sup>2</sup> (extendable up to approx. 50 m with shielded cable), non-halo- gen	2-core cable length 10 m, 2 x 0,14 mm <sup>2</sup> (extendable up to approx. 50 m with shielded cable), non-halo- gen
Operating voltage	24 V AC/DC 50 Hz	24 V AC/DC 50 Hz
Allowed ambient temperature	0...50 °C	0...50 °C
Switching point for dew point	approx. 8 MΩ corresponds to approx. 95 % rel. humidity	approx. 8 MΩ corresponds to approx. 95 % rel. humidity

The dew point sensor is designed exclusively for direct connection to the room temperature controller TR 1 B, TR 2/3 or TR 2/3 F or for connection to a central control system via the converter TK 1-PF or TK 2-PF. The dew-point sensor obtains its supply voltage either from the room temperature controller or from the converter.

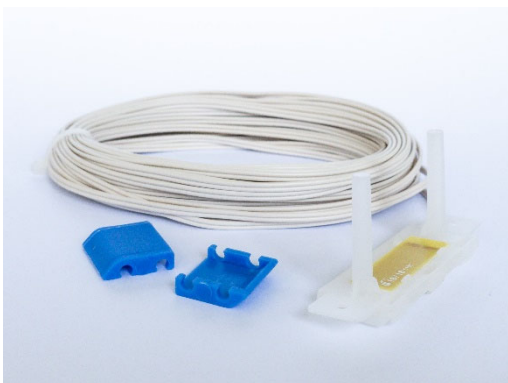
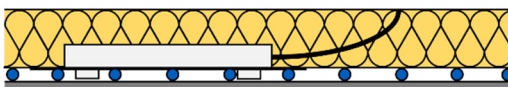
**FIELD OF APPLICATION AND INSTALLATION TF 3 G/M-22**

▪ **Gypsum board ceiling (cooling ceiling) with applied capillary tube mat**



- Before closing the ceiling, attach the dew point sensor to the flow of the capillary tube mat, this means as close as possible to the mat distributor pipe.  
  
For this purpose, fasten the dew point sensor from above on the capillary tube mat, with the circuit board on the capillary tube surface, with its two fastening tongues of the housing by means of the two supporting shoes.
- Connect the dew point sensor electrically.
- Guide the "sensor tubes" of the dew point sensor through the drywall ceiling in the area of the panel joint. The openings of the "sensor tubes" face the room.
- After filling or painting the ceiling, cut off the two "sensor tubes" of the sensor flush with the finished ceiling.
- The openings of the "sensor tubes" must neither be closed nor covered.

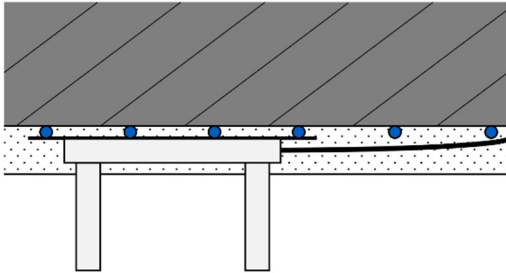
▪ **Metal panel ceiling/Metal tile ceiling (cooling ceiling) with glued capillary tube mat**



- Cut off the "sensor tubes" of the sensor flush with the dew point sensor housing before installation.
- Before closing the ceiling, attach the dew point sensor to the flow of the capillary tube mat, this means as close as possible to the mat distributor pipe.  
  
For this purpose, fasten the dew point sensor from above on the capillary tube mat, with the circuit board on the capillary tube surface, with its two fastening tongues of the housing by means of the two supporting shoes.
- Connect the dew point sensor electrically.
- The "sensor tubes"/openings face the room, this means face the metal tiles.
- The openings of the "sensor tubes" must neither be closed nor covered.

### FIELD OF APPLICATION AND INSTALLATION TF 3 P/R-22

#### ■ Plaster ceiling (cooling ceiling) with integrated capillary tube mat

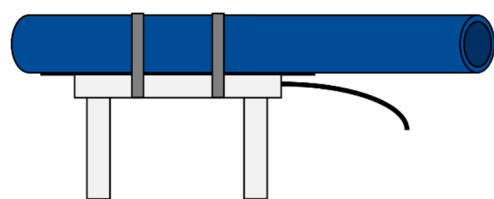


- Before plastering the ceiling, attach the dew point sensor to the flow of the capillary tube mat, this means as close as possible to the mat distributor pipe.

For this purpose, fasten the dew point sensor from above on the capillary tube mat, with the circuit board on the capillary tube surface, with its two fastening tongues of the housing by means of the two Omega clips.

- Connect the dew point sensor electrically.
- "Sensor tubes" of the dew point sensor are directed through the plaster facing the room.
- After finishing the plastering and painting work, cut off the two "sensor tubes" of the dew point sensor flush with the finished ceiling.
- The openings of the "sensor tubes" must neither be closed nor covered.

#### ■ Cold water-carrying pipes



- Cut off the "sensor tubes" of the sensor flush with the dew point sensor housing before installation.
- Fasten the dew point sensor with the circuit board to the cold water-carrying pipe using two cable ties.
- Connect the dew point sensor electrically.
- The "sensor tubes"/openings of the dew point sensor are directed outwards.
- The openings of the "sensor tubes" must neither be closed nor covered.