

## Instruction to the Installation of BEKA Dew-Point Sensor

### 1. General

The dew point sensor is built into the cooling ceiling to avoid condensation. It works by the principle of changing resistances of an electrical conductor, which is printed onto it in a thin layer. At the danger of condensation, the resistance sinks rapidly. The change in resistance is computed by the converter M.K.2 or by the room temperature control M.R2/3 and is transmitted as switch signal. The switch signal can be used to switch-off the cooling ceiling or for starting of an alarm signal set-off. Up to 20 dew point sensors can be connected to the converter M.K.2.

To the room temperature control unit 5 dew point sensors can be connected.

3 variations of dew point sensors are available

1. Dew point sensor for metal ceiling boards  
→ M.TM.1
2. Dew point sensor for plaster ceilings  
→ M.TP.2
3. Dew point sensor for plasterboards  
→ M.TG.2

The connecting cable for the dew point sensor may be extended to 100 m without problems (minimum sectional area of  $2 \times 0.14 \text{ mm}^2$ ) The connection of the extension must be good conductive (soldering connection or securely clamped together)

### 2. BEKA Dew Point Sensor for Metal Ceilings

The dew point sensor M.TM.1 has a gold plated conductor plate at one side and is equipped with an adhesive surface on the other side. The soldered connection cable has a length of 10 m.

#### 2.1 Installation

The dew point sensor is positioned at the coolest spot on the ceiling. The position of the dew point sensor must be near to the in-

feed for the capillary tube mats. The dew point sensor can best be positioned directly below the collector pipe or between the collector pipe and the first row of the spacers diagonal to the capillary tubes (see illustration). The dew point sensor is connected with its connecting cable to the converter M.K.2 or to the room temperature control unit M.R2/3. The connecting cable can be installed in the ceiling cavity, in plaster or in electrical tubing

#### Installation Steps

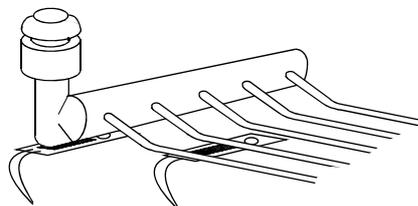
The dew point sensor M.TM.1 is electrically connected and placed closely to the final installation position. Until the final positioning the dew point sensors is kept in its protective cover.

The installation of the dew point sensor can be done together with the installation of the supply lines (Z.EM or Z.ES).

Together with the arrangement of the ceiling boards with the applied BEKA heating- and cooling mats to the hanger of the row-type grid profile also the dew point sensors are fixed. The dew point sensors are best positioned directly below the collector pipe or between the collector pipe and the first row of the spacers diagonal to the capillary tubes. The protecting cover is taken from the conductor plate, the protective foil for the adhesive is removed and the dew point sensor is glued to its pre-determined installation position.

#### Illustration:

Arrangement of the dew point sensor for metal ceilings below the BEKA heating- and cooling mat



### 3. BEKA Dew point Sensor for Plaster Ceilings

The dew point sensor for plaster ceilings M.TP.2 consists of a gold plated conductor plate, and is glued to a plastic housing. A snuffing hose is connected to the plastic housing. A connecting cable (length 10 m) is soldered to the conductor plate.

#### 3.1 Installation

The dew point sensor is installed at the coolest spot of the cooling ceiling. The dew point sensor is best positioned between the collecting pipe and the first row of the spacers diagonal to the capillary tubes (see illustration).

The dew point sensor M.TP.2 is fixed to its position before plastering! The sensor is connected to the converter or to the room temperature control unit by its connecting cable. The connecting cable with its length of 10 m can be installed in the ceiling cavity, plaster or in electric tubing.

#### Installation Steps

1. The dew point sensor M.TP.2 is electrically connected and placed closely near to its final position. Until its final positioning the dew point sensor is kept in its protective cover.
2. After fixing of the BEKA mat at the raw ceiling a plaster spot or another appropriate means of fastening is placed at the installation position of the dew point sensor (see illustration)
3. The self-sticking backside of the gold plated conductor plate of the dew point sensor for plaster ceilings is positioned diagonal to the capillary tubes. Then the ceiling is plastered
4. After paintwork is done the sniffing hose is shortened even to the ceiling surface. Care must be taken, that the openings of the snuffing hose will not closed.

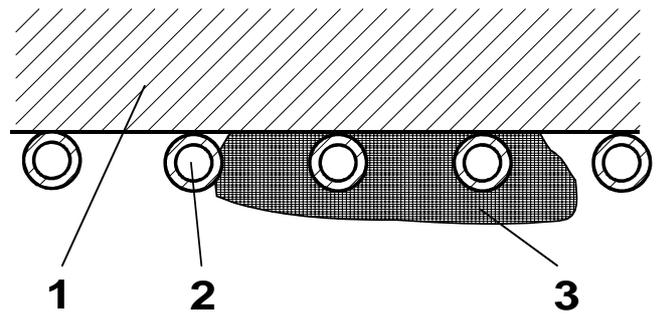


Illustration 1: Placing the plaster spot

- 1 Raw ceiling
- 2 Capillary tube
- 3 Plaster spot

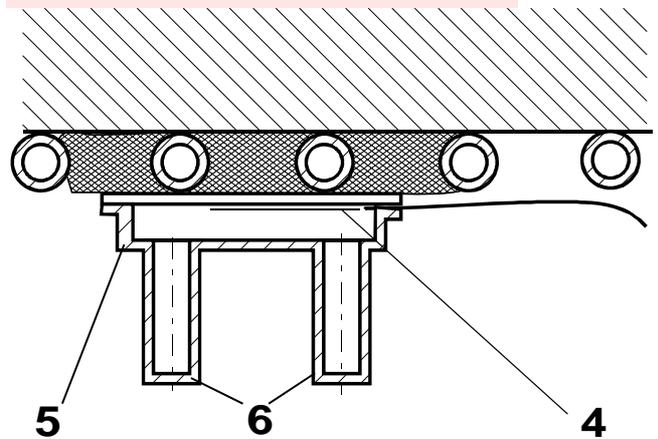


Illustration 2: Positioning of the Dew point sensor :

- 4 Gold-plated conductor plate
- 5 Plastic housing
- 6 Snuffing hose

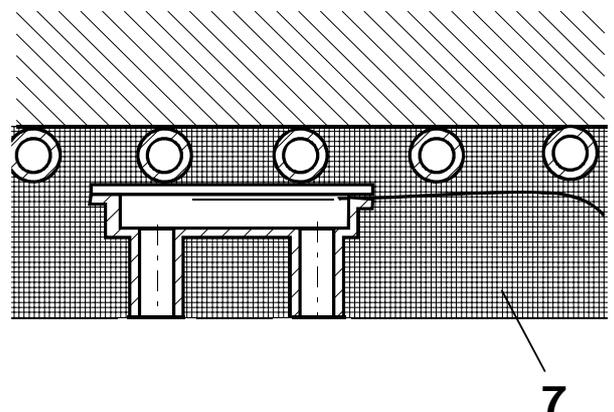


Illustration 3: Plastered Dew point sensor  
7 Plaster

#### 4. BEKA Dew Point Sensor for Plaster Ceilings

The dew point sensor for the plaster ceilings M.TG.2 consists of a gold plated conductor plate, which is glued to a plastic housing. A snuffing hose is connected with the conductor plate. A cable of 10 m length is soldered to the conductor plate.

##### 4.1 Installation

The dew point sensor is located at the coolest spot at the ceiling. The dew point sensor is best positioned between the collector pipe and the first row of spacers, diagonal to the capillary tubes. Depending on the type of ceiling cavities various dew point sensors are utilised.

##### Open ceiling cavity

For open ceiling cavities, these are ceiling cavities which are in connection with the room air, the dew point sensor M.TM.1 for metal ceilings is utilised..

The dew point sensor is positioned best between the collector pipe and the first row of the spacers diagonal to the capillary tubes.

##### Installation Steps

The dew point sensor is electrically connected and positioned closed to its final installation position. Until the final positioning the dew point sensor is kept in its protective cover

The installation of the dew point sensor can be done together with the supply lines (parts : Z.EM or Z.ES).

Together with the arrangement of the plasterboard ceiling at the ceiling construction also the dew point sensor is fixed. The dew point sensor is best located between the collector pipe and the first row of the spacer, diagonal to the capillary tubes. The protective cover is taken from the conductor plate and the protective foil from the dew point sensor and is then glued to the pre-determined installation position.

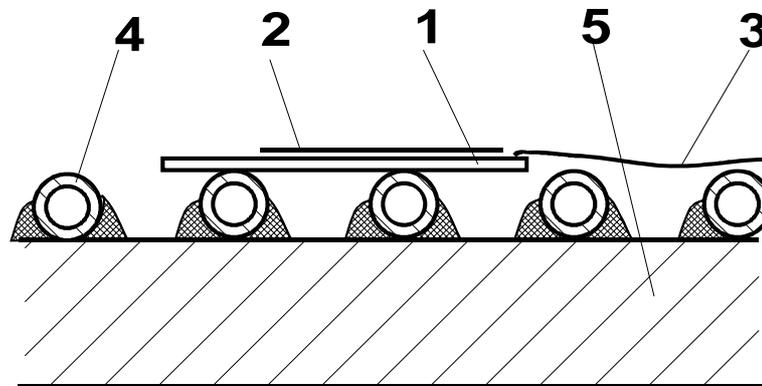


Illustration 4: Arrangement of the dew point sensor inside the open ceiling cavity

- 1 Dew point sensor
- 2 Connector plate
- 3 Supply line
- 4 Capillary tube
- 5 Plaster board ceiling

### Closed ceiling cavity

For closed ceiling cavities, these are ceiling cavities which have no air connection to the room, the dew point sensor for plasterboards M.TG.2 is utilised. The dew point sensor is best positioned between the collector pipe and the first row of spacers, diagonal to the capillary.

### Installation Steps

The dew point sensor is electrically connected and positioned near the final installation position. Until the final positioning the dew point sensor is kept in its protection cover.

Installation of the dew point sensor can be done with the supply lines (parts: Z.EM or Z.ES).

Drilling of the hole for the snuffing hose. For the preparation of the final installation position of the dew point sensor a hole of 6 mm must be drilled for the snuffing hose.

Together with the fixing of the plaster board ceiling also the dew point sensor is fixed. The dew point sensor is best positioned between the connecting pipe and the first row of spacers, diagonal to the capillary tubes. The adhesive protection tape for conductor plate is taken off and the dew point sensor is brought to its final position.

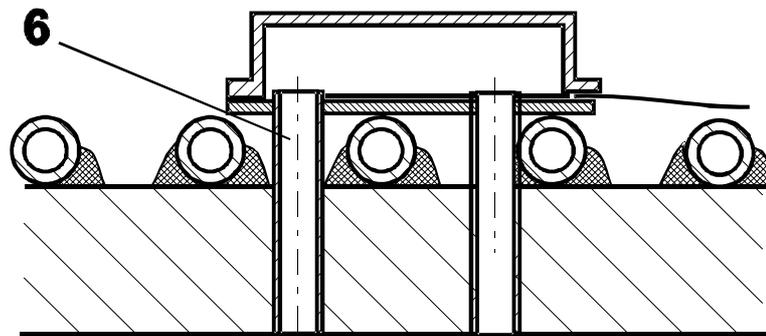


Illustration 5: Arrangement of the dew point sensor in a closed ceiling cavity

- 6 Snuffing hose shortened even to the ceiling surface.