**Psychrometer sensors type FEP**

to measure the psychrometric difference and air temperature to determine relative air humidity.

**Description**
The FEP psychrometer sensor unit consists of two or three Pt100 temperature sensors connected to a water tank and a humidifying wick. The sensors are arranged horizontally above the water tank filled with water. A cotton wick which covers the lowest temperature sensor rises up with its free end into the water tank, constantly absorbs water, and produces the moistening important for psychrometric measuring.

Psychrometric measuring is based on the principle that the surface of the temperature sensor (wet-bulb temperature) - which is kept moist - cools down by evaporation. Using the air temperature which is measured simultaneously (dry-bulb temperature), the partial pressure of the water vapour in the air can be calculated by applying the Sprung formula (see separate description).

Psychrometer tables or diagrams give information on the relative humidity.

**Ventilation**
Adequate ventilation of the humidity temperature sensor is an essential requirement for flawless psychrometric measuring. Ventilation at an air speed of more than 2 m/sec is sufficient. A higher air speed does not have any appreciable influence on the measuring result. An air speed below 2 m/sec can have a decisive influence on the measuring result as there is insufficient evaporation and therefore no latent heat at this air speed. The wet-bulb temperature is too great and the relative humidity is too high.

**Psychrometer wick**
The quality of the psychrometer wick is equally as important for a good measuring result. Ideally, distilled water should be used for the humidifying process. In a practical application, and particularly during continuous measuring or regulation, water is taken mainly from the mains using the flow-and-rinse principle. It should be noted, however, that calcareous water causes the wick to become incrusted, so that it loses its absorbent property and the measuring result becomes distorted.

**Technical data**

- **sensor** ...................................... resistance thermometer Pt100 in accordance with 1/3DIN EN 60751 cl.B
- **dry-temperature sensor** ......................... 1(2) x Pt100
- **wet-temperature sensor** .............................. 1 x Pt100
- **max. allowable power** ........................................... 3mA
- **connection** ........................................... screw terminals in the connection head
- **type of protection** .................................. IP54
- **housing** ........................................... complete fitting made of highgrade steel, item no. 1.4571
- **allowable ambient temperature** .................. -10...+100 °C
- **working temperature** .............................. -10...+100 °C

! from 0°C to -10°C employ the psychrometric constant of ice, see description psychrometer mounting position.

- **installation depth type FEP1** .......................... 130mm
- **type FEP2** ........................................... 210mm
- **wick** ........................................... absorbent cotton
- **weight** ..................................................... 0.8 kg

**EMC**
- **resistance to interference** ....................... ref. EN 50 082-2
- **interference emission** .............................. ref. EN 50 081-2

"subject to technical modifications"

**Connection diagram**
Front view
Vorderansicht

Back view
Rückansicht

Side view
Seitenansicht

Mounting drawing

Connection
Elektrischer Anschluß

Über Schraubklemmen im Anschlußkopf
screw terminals in the connection head