Comfort Index Measurement



Technical features

- Thermal comfort and air-conditioning calculations using WinControl software with add-on module for comfort index measurement as per DIN ISO 7730 and DIN EN 13779 (formerly DIN 1946)
- Independent measuring sequence in real-time mode
- Various display and output options Real-time mode, memory access to offline measuring operations
- Graphical presentation of measured data and calculated data in a format with data export options
- Comprehensive, clear, meaningful evaluation.

Operative range

It is possible with this measuring setup to measure all the physical parameters needed for assessing and evaluating thermal comfort simultaneously on three levels. It reliably evaluates the performance of heating and ventilating systems. The data acquired from the series of measuring operations for operative temperature (globe temperature), room temperature, and room air flow and humidity, and the necessary input parameters (e.g. clothing factor, activity level, mechanical output) is used together to calculate the PMV (predicted mean vote) and PPD (predicted percent dissatisfied) values (as per DIN ISO 7730) and the degree of turbulence (as per DIN EN 13779, formerly DIN 1946 Part 2); these values are calculated either online or offline using the AMR WinControl software in conjunction with the add-on module for comfort index measurement.

The software

The averaging number is preset at 200 measuring points but this is variable and can be modified. The PMV and PPD values and the degree of turbulence can be displayed and documented in y/t or x/y diagrams either each one separately or together with other measurable variables. A software wizard is available to guide the user step-by-step through the various settings. If measuring is started online, the first value is indicated after completion of the first 200 measuring operations (as per DIN ISO 7730). These values continue to be calculated, updated, and displayed, and - optionally - also saved and / or exported. (see Chapter 05)

Types (sensor set for one level)	**Order no.**
Globe thermometer	**FPA805GTS**
Humidity / temperature sensor	**FHAD4641**
Thermo-anemometer, up to 1 m/s, without smoothing, response time 100 ms, including carry case	**FVA605TA1OU**
Stand for measuring operations at heights of 0.1 to 1.7 meters, including 1 set of instrument holders for 1 level (traverse including traverse holder and sensor fastening), including carry case	**ZB1001PPD**
Set of instrument holders for extra levels (as above)	**ZB1001MH**
optional for assessing air quality Digital carbon dioxide sensor to 10.000 ppm, with handle	**FYAD00CO2B10**
Device selection	
ALMEMO® 2690-8A (new variant) hand-held data logger, 5 inputs, including mains unit and data cable, USB can be used for 1 measuring level (see page 01.22)	**MA26908AKSU**
ALMEMO® 2890-9 hand-held data logger, 9 inputs, including mains unit, can be used for 3 measuring levels (see page 01.24)	**MA28909**
ALMEMO® data cable, USB, electrically insulated	**ZA1919DKU**
PC link via Ethernet, RS232, or wireless with Bluetooth see Chapter 04, ALMEMO® networking technology.	
Software:	
WinControl for 20 measuring points / 1 device	**SW5600WC1**
including additional module for comfort index measurement	**SW5600WCZM1**
Accessories:	
Carry case, universal, spacious, robust, for globe thermometer, humidity sensor, and data logger Exterior dimensions (WxHxD) approx. 51 x 35 x 30 cm	**ZB5600TK3**
DAkkS / DKD or factory calibration temperature, humidity, air flow, carbon dioxide for sensor (see chapter Calibration certificates)	

WBGT Measurement



Application Range
The wet bulb globe temperature (WBGT) is the decisive parameter for evaluating the work stress at heat-exposed working places and the operation and cool-off times involved. Temperature, radiation and relative humidity are determined by measuring the dry temperature, the natural humid temperature of a psychrometer and the globe temperature of a globe thermometer. These are all combined as WBGT.

Note:
For WBGT measurements the use of a psychrometer with a disengageable ventilator is compulsory

Technical Data

Accuracy:	Class B (DIN/IEC 751)
Sensor:	Pt100 4-conductor, arranged in the center
Globe thermometer:	matt black copper globe with suspension
Diameter:	approx. 150mm
Operating temperature:	–50 to 200°C
Cable length	3 m

Types	Order no.
Globe thermometer (Pt100 4L)	**FPA805GTS**
Psychrometer with disengageable ventilator	**FNA846WB**

DAkkS / DKD or factory calibration KT90xx temperature for sensor or measuring chain (sensor + device) (see chapter Calibration certificates)



On request:
Sound Level Meter MA 86193 with ALMEMO®- cable for measured value recording

NTC-sensor FNA 305



For Indoor air measurements

Meas. element	NTC
Measuring tip	Operative range -10 to +60 °C (non-condensing) Protective tube in stainless steel Diameter = 3.0mm, length = 50 mm mounted directly on ALMEMO® connector
T_{90}	8 s
L = 50 mm (No variants available)	**Order no. FNA305**

10/2013 • We reserve the right to make technical changes.