

HUMIMAP 20 Series

Multi-channel measuring system for measurement of relative humidity, temperature, dew point, absolute humidity...

Accurate monitoring of the humidity and temperature profile in a climatic chamber is increasingly important for quality assurance systems becoming more and more stringent. The multi-channel measuring system HUMIMAP 20 is an optimal solution to comply with these requirements.

The modular design of the system can easily be customized and warrants a cost effective solution to monitor the humidity and temperature profile and the occurring changes over time.

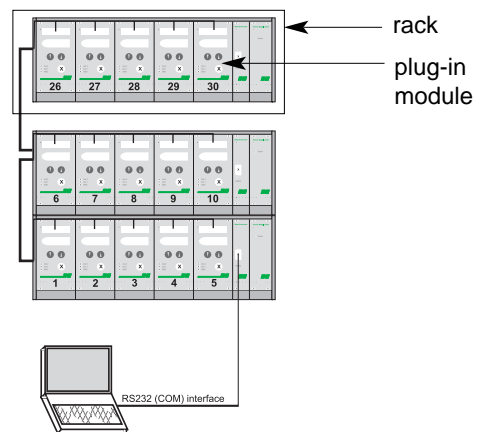
In addition to the relative humidity and temperature the HUMIMAP 20 can calculate and output related psychrometric values, like dew point temperature, mixing ratio, absolute humidity etc.



HUMIMAP 20

Modular design

HUMIMAP 20 consists of single plug-in modules, which can be grouped together (max. 5 modules) in a 19" rack. The modules are networked, even with modules in several other racks, to allow building a system for processing up to max. 32 measurement channels.



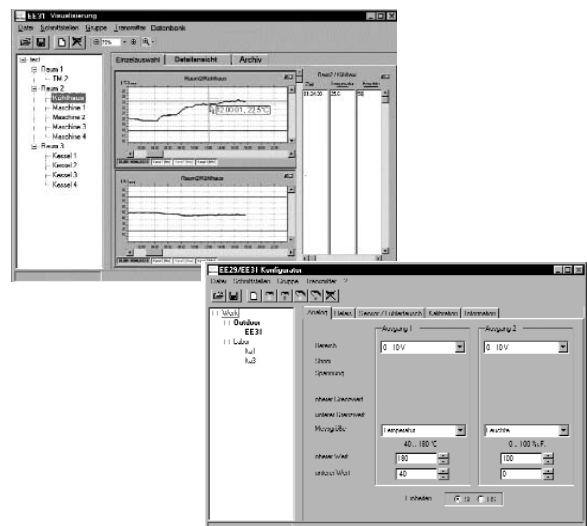
Software

Configuration software:

The user friendly configuration software is included in the scope of supply. It allows easy setup and customizing of the measurement system, such as the number of channels, assignment and scaling of analogue outputs, calibration, sensor and probe exchange etc.

Data logging and analysis software:

Measurement data can be saved and processed by using the optional data logging und visualisation software. Data can be displayed in graphs or tables, alarm levels set and alarm signals sent by email or SMS.



Functions HUMIMAP 20

measurement of relative humidity and temperature
calculated values h , r , dv , T_w , T_d , T_f , e
expandable up to 32 channels (also later on)
two freely scaleable and configurable analogue outputs per plug-in module
remote sensing probe up to 20m (66ft), interchangeable
on-site adjustment for relative humidity and temperature
LED indication of status
local displays, selectable measurand incl. MIN/MAX indication
configuration and data output via RS232 interface
configuration software
optional data logging and analysis software

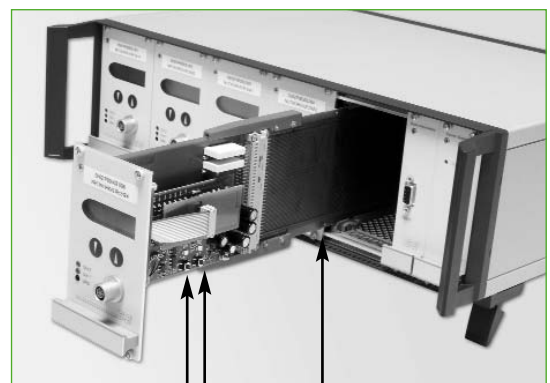
Interchangeable sensing probe

The HUMIMAP 20 sensing probes have a maximum cable length of 20m (66ft) and a quick connector. The configuration software allows easy probe replacement without the need of recalibration. A metal grid filter, specially designed for high humidity (even condensation) and high temperature, protects the sensor elements against mechanical stress and pollution.



Calibration and adjustment of plug-in modules

An optional adapter PCB allows easy calibration of an entire measurement loop (sensing probe, plug-in module, rack, data logging and analysis software) without interruption. Using push buttons on the plug-in module the user can easily perform an one or two point adjustment of humidity and temperature. The adjustment can be done by using the standard configuration software.



push-buttons for
humidity / temperature
calibration

optional adapter
PCB

Technical Data

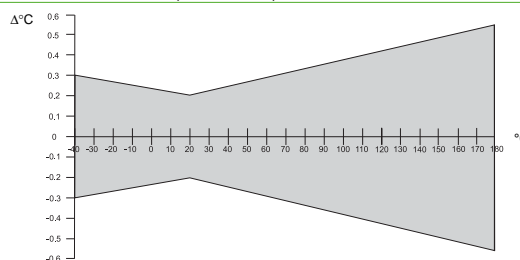
Measuring values

Relative humidity

Humidity sensor ¹⁾	HC1000-400		
Working range ¹⁾	0...100% RH		
Accuracy including hysteresis and non-linearity			
- special calibration against certified standards	± 1% RH (0...90% RH)	± 2% RH (90...100% RH)	
- standard calibration	± 2% RH (0...90% RH)	± 3% RH (90...100% RH)	
Temperature dependence of electronics	typ. ± 0.01% RH/°C		
Temperature dependence of sensing probe	typ. ± (0.002 + 0.0002 x RH[%]) x ΔT [°C]	ΔT = T - 20°C	
Response time with metal grid filter 20°C (68°F) / t ₉₀	< 15s		

Temperature

Temperature sensor element	Pt1000 (Tolerance class A, DIN EN 60751)
Working range sensing head	-40...180°C (-40...356°F)
Accuracy (typ.)	



Temperature dependence of electronics	typ. ± 0.005°C/°C
---------------------------------------	-------------------

Outputs²⁾

Two freely selectable and scaleable analogue outputs	0 - 5V	-1mA < I _L < 1mA
	0 - 10V	-1mA < I _L < 1mA
	4 - 20mA	R _L < 500 Ohm
	0 - 20mA	R _L < 500 Ohm

Max. adjustable measurement range²⁾³⁾

		from	up to	units
Humidity	RH	0	100	% RH
Temperature	T	-40 (-40)	180 (356)	°C (°F)
Dew point temperature	Td	-80 (-112)	100 (212)	°C (°F)
Frost point temperature	Tf	-80 (-112)	0 (32)	°C (°F)
Wet bulb temperature	Tw	0 (32)	100 (212)	°C (°F)
Water vapour partial pressure	e	0 (0)	1100 (15)	mbar (psi)
Mixture ratio	r	0 (0)	999 (9999)	g/kg (gr/lb)
Absolute humidity	dv	0 (0)	700 (300)	g/m ³ (gr/f ³)
Specific enthalpy	h	0 (0)	2800 (999999)	kJ/kg (lbf/lb)

General

Supply voltage	90...250V AC (50/60 Hz)	
System requirements for software	WINDOWS 98 or later; serial interface	
Sensor protection	metal grid filter up to 180°C (356°F)	
Operating temperature range of electronics	-20...+50°C (-4...122°F)	
Storage temperature range	-40...+60°C (-40...140°F)	
Electromagnetic compatibility according to	EN61000-6-2	EN61000-6-3
Display	graphical LC display (128x32 pixels), with integrated push-buttons for selecting parameters and MIN/MAX function	
Dimensions	463 x 145 x 360mm (18 x 6 x 14") (w x h x d)	

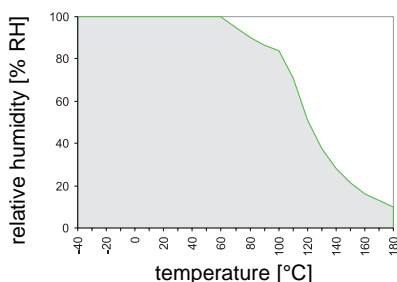


¹⁾ Refer to working range of the humidity sensor!

²⁾ Can be easily changed by software.

³⁾ Refer to accuracies of calculated values.

Working range humidity sensor



The grey area shows the allowed measurement range for the humidity sensor.

Operating points outside of this range do not lead to destruction of the element, but the specified measurement accuracy cannot be guaranteed.

Ordering Guide

		HUMIMAP 20			
Hardware Configuration					
Number of plug-in modules	1 piece	01			
	2 pieces	02			
	3 pieces	03			
			
	up to 32 pieces	32			
Analogue outputs plugable on backside of HUMIMAP 20		CA09			
Filter	metal grid filter (up to 180°C/356°F)	9			
Cable length	2m (7ft)	02			
	5m (16ft)	05			
	10m (33ft)	10			
	20m (66ft)	20			
	50mm (2")	2			
Probe length	200mm (8")	5			
	Software Configuration				
Physical parameters of outputs	Relative Humidity	RH [%] (A)	output 1	select according to ordering guide (A - H,J)	
	Temperature	T [°C] (B)	output 2		select according to ordering guide (A - H,J)
	Dew point temperature	Td [°C] (C)			
	Frost point temperature	Tf [°C] (D)			
	Wet bulb temperature	Tw [°C] (E)			
	Water vapour partial pressure	e [mbar] (F)			
	Mixture ratio	r [g/kg] (G)			
	Absolute humidity	dv [g/m ³] (H)			
	Specific enthalpy	h [kJ/kg] (J)			
	Type of output signals	0-5V			
0-10V		3			
0-20mA		5			
4-20mA		6			
Measured value units	metric / SI		E01		
	non metric / US				
Scaling of T-output	-40...60 (T02)	-20...100 (T14)	output T	select according to ordering guide (Txx)	
	-10...50 (T03)	+20...120 (T15)			
Scaling of Td-output	0...50 (T04)	0...120 (T16)	output Td	select according to ordering guide (Tdxx)	
	0...100 (T05)	0...80 (T21)			
	0...60 (T07)	-40...80 (T22)			
	-30...70 (T08)	-20...80 (T24)			
	-30...120 (T09)	-40...160 (T33)			
	-20...120 (T10)	+20...180 (T40)			
	-40...120 (T12)	-40...180 (T52)			
	Other T and Td-scaling refer to page 11				

Accessories / Replacement Parts

(For further information, see data sheet "Accessories")

- | | | | |
|---------------------|---------------|--------------------|------------|
| - filter caps | (HA0101xx) | - adapter PCB | (HA060101) |
| - replacement probe | (Pxx) | - 1% calibration | (EE90/3H) |
| - humidity sensor | (FE09 / FE10) | - OEKD-certificate | |

Order Example

HUMIMAP20-059052/BC2-T07-Td03

Multi-channel measuring system

Number of plug-in modules: 5 pieces
 Filter: metal grid filter
 Cable length: 5m
 Probe length: 50mm

Output 1: T
 Output 2: Td
 Output signal: 0-5V
 Measured value units: metric
 Scaling of T-output: 0...60°C
 Scaling of Td-output: -10...50°C

Contact

E+E ELEKTRONIK
 Langwiesen 7
 A-4209 Engerwitzdorf
 Austria

Tel: +43 7235 605 0
 Fax: +43 7235 605 8
 info@epluse.at
 www.epluse.com