



hygrotest 650 – High performance humidity transmitters for A/C and process

W - Wall mounting



D - Duct mounting



P - Probe with cable



HP heated probe
Not shown

Wide selection of displays (optional, also for W/D versions)
Control menu via 3 external buttons

All hygrotest units are custom-configured.

From the options below, please select the solution that meets your requirements, for example, a hygrotest 650 with probe on cable, output signal 0 to 20 mA, 150mm long probe, 8 m long cable, measurement inaccuracy 1% RH, open metal protection cage, H6 display, Channel 1: 0 to 45 g/m³, Channel 2: 20 to 160 °C

This results in the following order code:

hygrotest 650 PHT -20/180 / B4 / C2 / 150 / D2 / 8000 / F2 / G4 / H6 / K2 / 0 / 45 / L5 / M2 / 20 / 160 / N1

0555 0650 hygrotest 650

Versions

Wall-mounted, output %RH + T	WHT -20/70
Duct-mounted, outputs %RH + T	DHT -20/120
Probe version, output %RH + T	PHT -40/80
Probe version, output %RH + T	PHT -40/120
Probe version, output %RH + T	PHT -20/180
Heated version, output %RH + T	HP -20/120

Analog outputs

4 to 20 mA (2-wire). (not with HP)	B1
0 to 1 V (4-wire)	B2
0 to 10 V (4-wire)	B3
0 to 20 mA (4-wire)	B4
4 to 20 mA (4-wire, only with HP)	B5

Probes and cable length

Standard probe length (W: 65mm, D/P/HP: 210mm)	C1
Special probe length (80 to 800mm, W/D/P versions)	C2
Standard cable length (only P and HP versions, 2 m)	D1
Special cable length (0.8 to 10 m, P versions)**	D2
Humidity adjustment 2% RH (not for HP)	F1
Humidity adjustment 1% RH (not for HP)	F2
Humidity adjustment 2.5% RH (only in HP)	F4

Sensor caps

Sintered stainless cap	G1
Wire mesh filter	G2
Teflon sintered filter	G3
Metal protection cap, open	G4

WHT DHT/PHT HP

Scaling, channel 2

M1	Standard scale, Channel 2 (min ..max = -20 ..70/120/180 °C)
M2	Special scale, Channel 2 (min ..max) * + N1°C N2°F (e.g. "M2 30 to 60 N2" for 30 to 60 °F)
	N3°Ctd N4°Ftd N5g/kg N6g/m ³ N7WB°C N8WB°F

WB = Wet bulb temperature

Scaling, channel 1

K1	Standard scale, channel 1 (min to max = 0 ..100 % RH)
K2	Special scale, channel 1 (min to max) * + L1 %RH L2 °Ctd (e.g. "K2 20..80 L1" for 20..80%RH)
	L3 °Ftd L4 g/kg L5 g/m ³ L6 WB°C L7 WB°F

WB = Wet bulb temperature

Display versions

	H1	H2	H3	H4	H5	H6
Transmitter-fed display	x		x			
External display supply		x		x	x	x
2x2 relay outputs					x	x
Analog outputs	x	x		x	x	x
RS 485			x	x	x	



hygrotest 650 is used successfully in numerous drying processes e.g. in textile, noodle, tobacco and ceramics drying

The industrial hygrotest 650 transmitter

The hygrotest 650 transmitter is available optionally with an accuracy of ± 1 %RH. The highly robust, easy-to-clean metal housing optimally protects the transmitter from environmental influences. The length of the cables and probes can be adapted to suit customer requirements. Probes and sensors are heat resistant up to temperatures of $+180$ °C. Various humidity variables such as dewpoint, absolute humidity, degree of humidity or wet bulb temperature can be calculated and displayed with the help of the integrated Mollier diagram. The easy-to-use operation menu (with optional display) can also be accessed via external buttons. The heated hygrotest 650 HP version is used in non-stop high humidity processes.

	Channel 1	Channel 2
Parameter	%RH	T
Range	°Ctd, g/kg, g/m ³ , WB	T
Output	% RH	°Ctd, g/kg, g/m ³ , WB
	0/4 to 20 mA	0/4 to 20 mA
	0 to 1/10 V	0 to 1/10 V
	Free scaling	Free scaling

The three possible combinations

Technical data hygrotest 650

Housing:	
Material/Colour:	Die-cast zinc, nickel-plated, burnished, varnished
Dimensions:	130 X 140 X 54 mm
Screw connections:	2 x M 16x1.5 stainless steel screw connection
Electrical connections:	2 x 4-pole screw connector in housing
Protection class:	IP 65
Operating temperature:	
Electronics (Housing):	-20 to +70 °C
Display:	-20 to +60 °C
Ambient conditions:	
Probe operating pressure range:	-1 to +10 bar
Storage temperature:	-40 to +80 °C
Probe flow resistance:	30 m/s, with sintered stainless steel filter
Sensor:	
Humidity:	Testo humidity sensor, inserted (soldered in HP)
Response time:	t90 10 to 20 sec.
Temperature:	Pt 1000 Class A
Measuring range:	
Humidity:	0 to 100% RH
Humidity calibration points:	11.3 %RH, 75.3 %RH at 25 °C
Temperature:	hygrotest 650 WHT -40 to +80 °C hygrotest 650 DHT -40 to +120°C hygrotest 650 PHT -40 to +180 °C hygrotest 650 HP -20 to +120 °C
Measurement inaccuracy:	
Humidity:	± 2 % RH, optional ± 1 % RH (betw. 10 to 90 %RH in range +15 to +30 °C) In 650 HP: ± 2.5 % RH
Temp. coefficient humidity:	± 0.05 %RH / K; (at temperatures deviating from 25 °C)
Temperature:	± 0.2 °C at +25 °C
Resolution (Display):	0.1 %RH and 0.1 °C
Outputs:	
Analog output:	4 to 20 mA (2-wire system) not with HP 0 to 20 mA, (4-wire system) 0 to 1 V, (4-wire system) 0 to 10 V, (4-wire system) 4 to 20 mA (4-wire system, only with HP)
Resolution:	5 μ A (0 to 20 mA); 4 to 20 mA) 250 μ V (0 to 1 V) 2.5 mV (0 to 10 V)
Drift (analog):	0.35 μ A / K (0 to 20 mA; 4 to 20 mA) 17.5 μ V / K (0 to 1 V) 175 μ V / K (0 to 10 V)
Zero shift:	30 μ A (0 to 20 mA) as well as HP versions (4 to 20 mA / 0 to 20 mA) (analog) 1.5 mV +0.1% of mv(0 to 1V) 15 mV +0.1% of mv(0 to 10V)
2 x 2 switch outputs:	Optional in combination with display H5 or H6
Digital output:	RS232 output RS485 output, optional in connection with display H3, H4 or H5
Power (except H1 display):	24 VDC (12 to 30 VDC) min. 14 VDC with 650 HP
Max. load without or with display H2/H4/H5/H6	500 Ohm (0 to 20 mA), at 24 VDC 500 Ohm (4 to 20 mA), at 24 VDC
Max. load with display H1	50 Ohm (0 to 20 mA); 50 Ohm (4 to 20 mA), at 20 VDC
Power (with display H1):	Power supply min. 20 VDC
Power consumption:	Max. 2 x 21 mA (4 to 20 mA) Max. 2 x 22 mA (0 to 20 mA; 0 to 1 V; 0 to 10V) 60 mA (Channel 1) + 50 mA (Channel 2) in 650 HP
EMC:	In accordance with guideline 89/336 EEC

All data relate to a nominal temperature of +25 °C.

Version	Material	Diameter	Length incl.	Sensor protection cap
Protection cap				
650 WHT -20/70	Stainless steel	12 mm	65 mm	Open stainless protective cap
650 DHT -20/120	Stainless steel	12 mm	200 mm	Sintered stainless steel filter
650 PHT -40/80	Stainless steel	12 mm	210 mm	Sintered stainless steel filter
650 PHT -40/120	Stainless steel	12 mm	210 mm	Sintered stainless steel filter
650 PHT -20/120	Stainless steel	12 mm	210 mm	Sintered stainless steel filter
650 HP -20/120	Stainless steel	12 mm	210 mm	Teflon filter
Temperature probe with hygrotest 650 HP: Stainless steel 1.4571 blank, 210 mm long, \varnothing 3 mm,				
**Probe cable length, 2 m standard or special cable length, 0.8 to 10 m (= length of probe cable and length of probe with filter)				