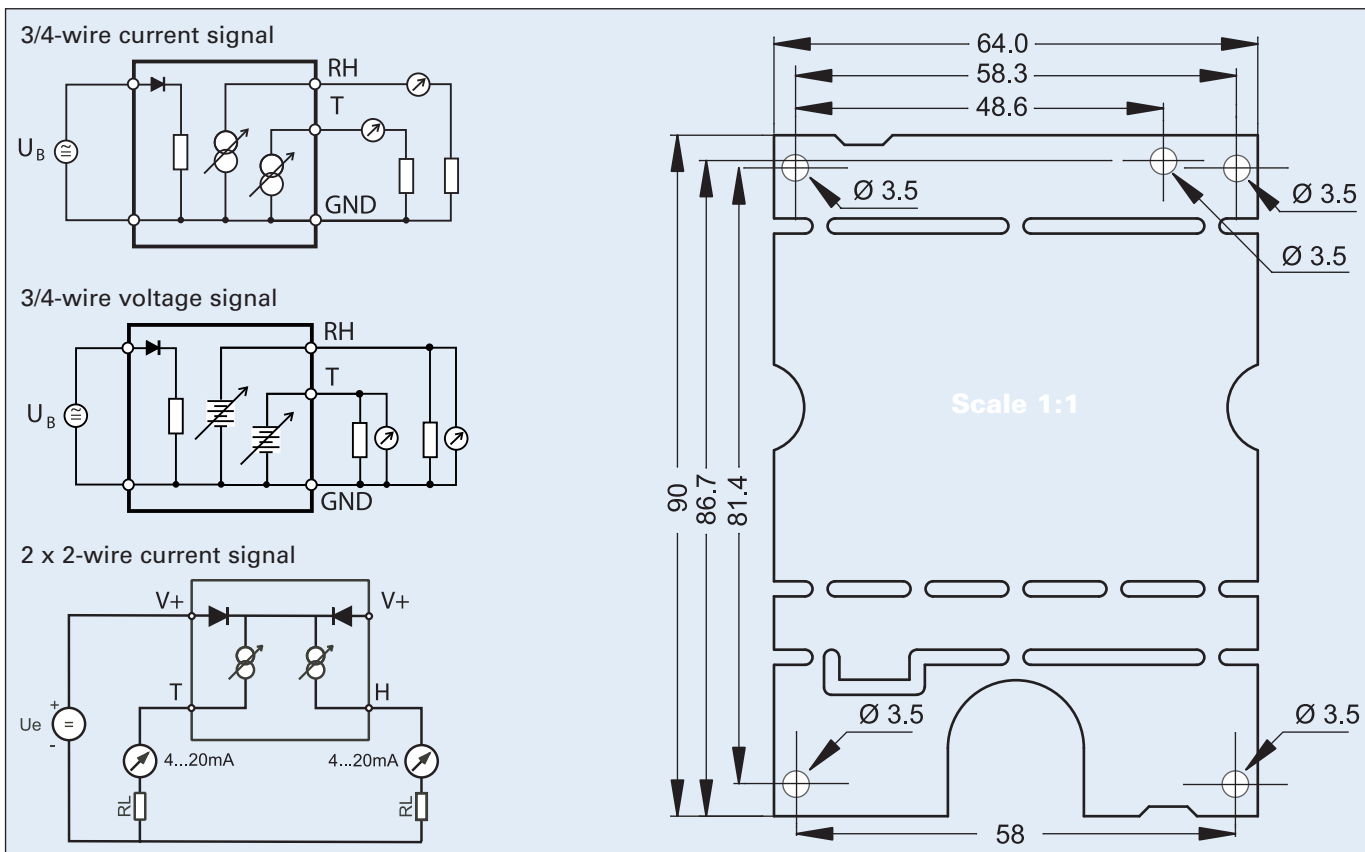


Specifications & Technical Data



SPECIFICATIONS	H290D-2	H290D-3
Humidity sensor	ROTRONIC Hygromer® IN-1 thin film capacitive	
Temperature sensor	Pt100 1/3 DIN	
Circuit type	2-wire, loop powered	3/4-wire
Output signal type	4...20 mA	0...1 V, 0...5 V, 0...10 V 0...20 mA, 4...20 mA
Operating limits at probe	-75...200°C, 100 %rh bis zu 80 °C, 90 %rh bei 90 °C 50 %rh bei 120 °C, 20% rh bei 150 °C, 10% bei 200 °C	
Operating limits at probe	0...99 %rh non condensing and -40...60 °C	
Standard output range	0...100 %rh/ temperature range selecteable	
Accuracy at 23 ±5 °C	±1,5 %rh	
Repeatability	±0,3 %rh	
Humidity sensor stability	better than 1 %rh over a year	
Response time (without filter)	10 seconds (%rh and temperature)	
Field calibration	requires HygroPalm 3 indicator and service cable	
Supply voltage	VDC = 10 V + (0.02 x load*) Maximum: 28 VDC * load in Ohm	10...35 VDC / 12...24 VAC Minimum: 15 VDC for current signals
Current consumption	20 mA / Signal	< 50 mA
Max. load current outputs	250 Ω	250 Ω
Min. load voltage output	-	1000 Ω
Electrical connections	Terminals 12 AWG	
Max air velocity at probe	20 m/s with wire mesh insert	
Dimensions	PCB: 90 x 64 mm Probe length: 100 mm, 250 mm Probe diameter: 15 mm; Probe cable: 2m	
Probe material	PPS	
Weight	225 g	
Conformance	EN61000-6-2:2001, EN61000-6-4:2001	

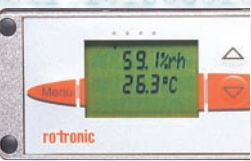
Schematics and dimensional diagrams



H290 Digital

HYGROCLIP[®]

Humidity goes Digital



Humidity Transmitter for OEM Applications

Improved performance in environmental chambers, incubators and dryers

- Accuracy at 23°C : ± 1.5 %rh from 0...100 %rh
- Probe survival limits: -75 °C to 200°C
- Temperature compensated humidity signal
- Potentiometer free - digital calibration
- On-site loop validation and calibration with HygroPalm 3 calibrator

rotronic

LEADING IN HUMIDITY MEASUREMENT

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The Digital Advantage

The H290D is a series of humidity transmitters designed exclusively for the OEM market using the very latest digital technology. Digital signal process significantly benefits humidity measurement in the following key areas:

Measurement accuracy

Digital processing of the sensor signals by the H290D transmitters provides more scope and greater flexibility when compensating sensor characteristics such as linearity and temperature compensation. The ROTRONIC HYGROMER® capacitive sensor has always been the leader in both precision and stability. With the application of digital technology, sensor performance is now further enhanced.

Calibration

Calibration and sensor data are retained permanently within each H290D transmitter. Software-based calibration is simple and precise; there are no hard to reach, hard to adjust potentiometers. Multiple calibration points can be selected across the full measurement range. Transmitters of the H290D series are primarily used in Environmental chamber applications that require highly accurate humidity measurement.

Field Service made easy with the H290D series

On-site validation and maintenance of the sensors is made simple with the H290D transmitters. Use a HygroPalm 3 and service cable to perform the following:

- Display of the rh reading from the transmitter on the HygroPalm 3.
- Single point calibration of the transmitter using a reference probe attached to the HygroPalm 3
- Single and multipoint calibration of the transmitter against a known reference environment.

Applications

Many manufacturers of climatic chambers have chosen the H290 transmitters. Further applications are dryer cabinets for clothes, complex climate controls in pasta machines, process-drying and many more.



Climatic Test Cabinets

Many products are tested over a variety of climatic conditions. The exceptionally wide measuring range of the ROTRONIC handheld units means these test conditions can be easily checked.



Industrial Process Monitoring

The maximum measurement temperature of 200 °C and the robust design of our probes means that even the most difficult process application can be checked with a ROTRONIC handheld.



Environmental Test

Every product from mobile telephones to a car is today subjected to thorough climatic testing to establish and maintain reliability. Humidity and temperature conditions are a critical part of this process.



Drying processes

Monitoring and control of any industrial drying process can have significant benefits in terms of product quality, energy use and productivity.

Advantage of capacitive measurement versus wet- and dry bulb technique

While the measurement of humidity by the wet- and dry bulb technique is built on a steady theoretical base and basically delivers a correct image of the humidity, the accuracy of such measurements is defined with 2...5 %rh according to the ASTM Standard E 337-84. The problem is not the measurement principle, but the correct handling and maintenance of the instruments. The measurement of relative humidity with capacitive sensors features a number of advantages compared to the still widespread measurement by the wet- and dry bulb technique:

- higher accuracy (± 1.5 %rh as opposed to 2 to 5 %rh with wet- and dry bulb technique)
- practically maintenance-free operation (no change of sleeves, no water replenishing, no forming of algae)
- no influence of the measurement by adding water to the environment
- no pressure correction necessary



Customise your transmitter according to your requirements!

Using the table below, you can customize your transmitter. Should you not find a required option, please contact us. We shall be glad to advise you.

Order codes

Type	H	2	9	0	D	-												
Circuit type																		
2-wires (4..20mA) signal only																		2
3- wires, 10...35 VDC supply																		3
Output signal																		
0...20 mA																		1
4...20 mA																		2
0...1 V																		3
0...5 V																		4
0...10 V																		5
Mounting																		
Cable type, no housing															X			X X
Probe type																		
1 m probe cable length																	0 1	
2 m probe cable length																	0 2	
100 mm probe length																	P 1	
250 mm probe length																	P 3	
400 mm probe length																	P 4	
Sensor protection																		
Wire mesh filter in PPS cage																		W
Metal-slotted cap for industrial filters																		C
Industrial wire mesh filter mounted																		M
Temperature measurement																		
No temperature signal																		X
Active temperature signal (max. -50... 200 °C)																		T
Passive Pt100 on terminal (3-wire to -75 °C)																		P
3rd party temperature sensor on terminal (to -75 °C)																		S
Electrical connections																		
Terminals 12 AWG																		X X
Temperature range active signal																		
0...100 °F / 0...100 %rh																		6
0...200 °F / 0...100 %rh																		7
0...300 °F / 0...100 %rh																		8
0...100 °C / 0...100 %rh																		A 3
0...150 °C / 0...100 %rh																		D 6
0...200 °C / 0...100 %rh																		D 7
-50...150 °C / 0...100 %rh																		C 4
-50...200 °C / 0...100 %rh																		C 7
Further temperature ranges on request																		

ORDER CODE	DESCRIPTION
HygroPalm 3	Handheld calibrator, requires HygroClip S rh and Temp probe
HygroClip S	Relative humidity and temperature probe for the HygroPalm 3
MOK-01-B5	Used to connect the HygroClip S to the HygroPalm 3
ACRLXB5	Service cable used to connect the transmitter to HygroPalm 3 for field calibration and loop validation.
ER-15	Calibration device for use with the EA XX standard
EAXX	SCS certified humidity standards (5 per box) Xx = 00, 05, 10, 11, 20, 35, 50, 65, 75, 80, 95% rh

