TRANSMITTERS FOR HUMIDITY AND TEMPERATURE

XB OEM-SERIES

AIR CHIP TECHNOLOGY

THE OEM TRANSMITTER.

INTRODUCING AIRCHIP DIGITAL TECHNOLOGY.

IMPROVED PERFORMANCE IN ENVIRONMENTAL CHAMBERS, INCUBATORS AND DRYERS

- Relative humidity and temperature measurement
- Outstanding accuracy and repeatability
- Wide choice of probes to satisfy every application
- Various analog outputs available
- Freely scalable analog signals
- Simulator mode
- Automatic humidity sensor test and drift compensation
- Pt100 RTD direct 4-wire connection option available
- 2.000 point data recording

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BUILD YOUR OWN OEM TRANSMITTER
XB OEM TRANSMITTER ADVANTAGES.

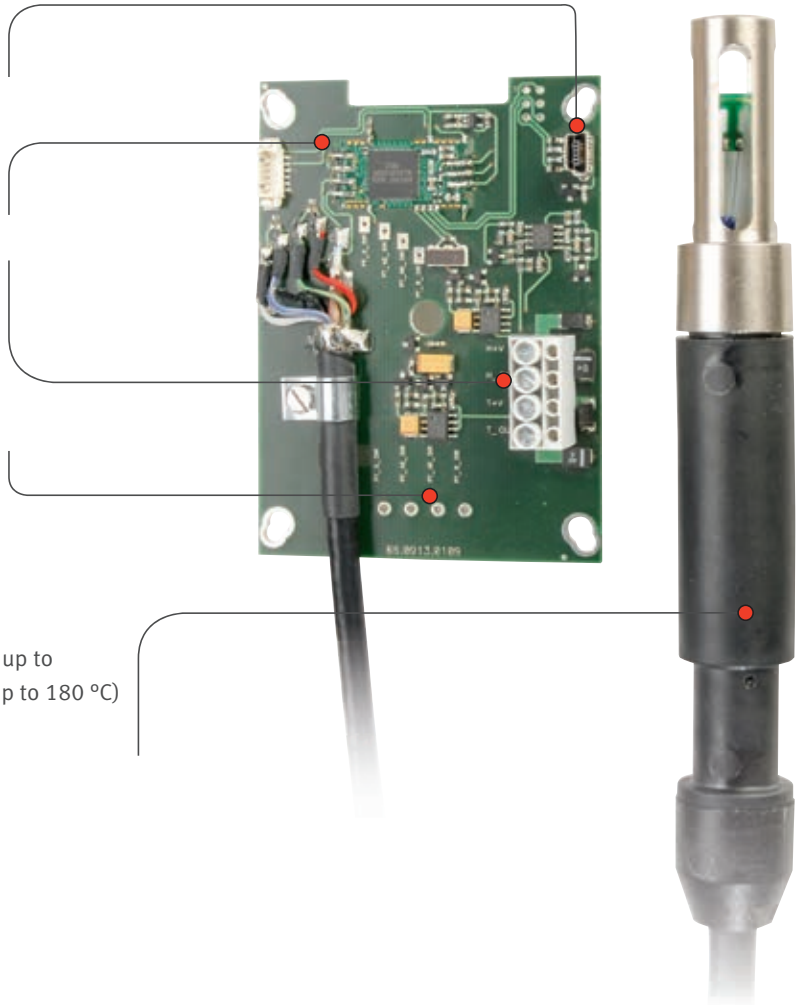
The ROTRONIC XB OEM-Series is the latest development in transmitters for humidity, temperature and dew point. One outstanding feature of this innovative product is the ability to configure the transmitter to meet the requirements of the application. Choose from a wide range of signal output types, probes, sensors and cable length.

Service-Interface
- UART (Mini-USB)

Board
- Compact size
- Easy to install

Outputs
- Two freely scalable analog outputs
- Available as 2-wire (XB20) or 3/4-wire (XB3x)
- UART service-interface

Pt100 RTD output
- Direct 4-wire connection optional available



Wide selection of probes
- PEEK and steel probes with a temperature range up to 200° C available (With Hygromer HH-1R sensor up to 180 °C)
- 15mm and 25/15mm probe diameter available
- Probe lengths up to 700 mm

AIR CHIP TECHNOLOGY

AirChip3000
- Compensates humidity and temperature over 30,000 reference points
- 2,000 data point memory
- Dew/frost point calculation
- Sensor auto-diagnostics and automatic correction
- Active alarming and information
- ASIC (Application Specific Integrated Circuit), micro-controller and EEPROM on one chip

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APPLICATIONS

The ROTRONIC XB OEM-Series of temperature and humidity transmitters is designed exclusively for the OEM market using the latest AIRCHIP3000 technology. Digital signal processing significantly benefits humidity measurement in the following key areas:

Environmental Chambers

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

Industrial Process Monitoring

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

Environmental Test

Every product from mobile telephones to automobiles are today subjected to thorough environmental testing to ensure 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.

Measurement accuracy

Digital processing of the sensor signals by the XB OEM transmitters provides more scope and greater flexibility when compensating sensor characteristics such as linearity and temperature compensation. The ROTRONIC HYGROMER® capacitive sensors have 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 XB OEM 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 XB OEM-series are primarily used in environmental chamber applications that require highly accurate humidity measurement.

Field Service made easy with the XB OEM-Series

On-site validation and maintenance of the sensors is made simple with the XB OEM transmitters.
Use a Hygropalm handheld HP22/HP23 instrument and service cable to perform the following:

- Display of the % Relative Humidity reading from the transmitter on the Hygropalm HP22/HP23
- Single point calibration of the transmitter using a reference probe attached to the HP22/HP23
- Single and multipoint calibration of the transmitter against a known reference environment

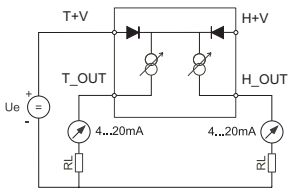
Applications

Many manufacturers of environmental chambers have chosen the ROTRONIC XB OEM transmitters. Additional applications are dryer cabinets for clothes, complex climate controls in pasta machines, process-drying and many more.

THE OUPUTS OF THE XB OEM TRANSMITTER SERIES

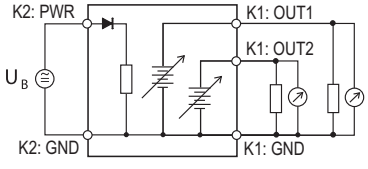
The high flexibility of the XB OEM transmitter allows customer using ROTRONIC HW4 software to choose the output signal (0...1V, 0...5V, 0...10V, 0...20 mA, 4...20mA) and freely scale it with the HW4 ROTRONIC software, to any value up to the probe limits. Dew-/frost point, Pt100 RTD direct outputs optional available.

XB20-Series

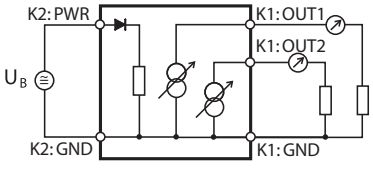


2-wire, loop powered transmitter

XB3-Series



3-wire transmitter voltage signal



3-wire transmitter current signal

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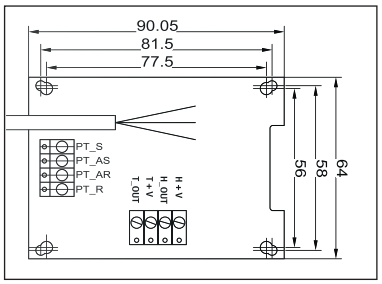
XB OEM-SERIES

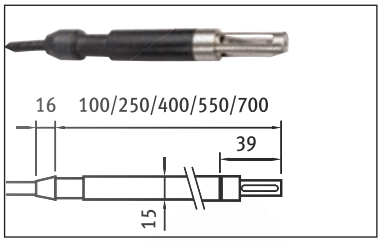
TECHNICAL INFORMATION.

Dimension of the board

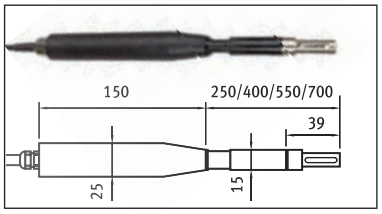


Probe dimension

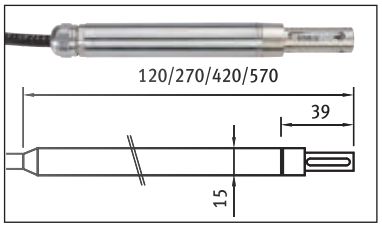
PEEK probe Ø15mm



PEEK probe Ø25/15mm



Steel probe Ø15mm



Specification	XB20	XB3
Power supply / Connections		
Circuit type	2-wire loop powered	3-wire
Supply voltage VDC	10...28 VDC , V min = 10 V + (0.02 x Load*) *Load resistance in ohms	XB31 15...40 VDC / 12...28 VAC XB32 15...40 VDC / 12...28 VAC XB33 5...40 VDC / 5...28 VAC XB34 10...40 VDC / 8...28 VAC XB35 15...40 VDC / 12...28 VAC
Output signal type	4...20 mA	XB31 0...20 mA XB32 4...20 mA XB33 0...1 V XB34 0...5 V XB35 0...10 V
Nominal current consumption	2 x 20 mA	‹ 50 mA
Electrical connections	Terminal block	
Polarity protection	Protective diode on V+	
Humidity measurement		
Sensor	Hygromer® IN-1	
Measurement range	0...100 %rh	
Measurement accuracy at 23 °C	±1.0 %rh	
Repeatability	0.3 %rh	
Long term stability	‹ 1 %rh / year	
Temperature measurement		
Sensor (Standard)	Pt100 RTD, IEC 751 1/3 class B	
Measuring range	-100...200 °C (see also environmental limits)	
Measurement accuracy at 23 °C	±0.2 °C	
Repeatability	0.05 °C	
Long term stability	‹ 0.1 °C / year	
Calculated parameters		
Psychrometric calculations	Dew or frost point (user configurable option)	
Environmental limits		
Storage and transit	-50...+70 °C, 0...100 %rh, non condensing	
Operating limits at electronics	-40... +85 °C, 0...100 %rh, non condensing	
Maxi. humidity /temperature at sensor	100 %RH up to 80 °C / 70 %RH at 100 °C (212 °F) 30 %RH at 125 °C (260 °F) / 15 %RH at 150 °C (302 °F) 8 %RH at 175 °C (347 °F) / 4 %RH at 200 °C (392 °F)	
Maximum air velocity at probe	40 m/s (7,870 ft /min) – depends on dust filter type	
Digital interface (service connector)		
Interface type	UART (Universal Asynchronous Receiver Transmitter)	
Maximum service cable length	5 m (16.4 ft)	
Firmware update	Via service connector, requires HW4 software	
Start-up time and data refresh rate		
Start-up time	3.4s (typical)	1.9s (typical)
Data refresh rate	3.4s (typical)	1.7s (typical)
Conformity with standards		
CE / EMC immunity	EMC Directive 2004/108/EG: EN 61000-6-1: 2001 EN 61000-6-2: 2005 EN 61000-6-3: 2005, EN 61000-6-4: 2001 + A11	
Solder type	Lead free (RoHS directive)	
FDA / GAMP directives	compatible	

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