M1-Series

Humidity goes Digital

HYGROCLIP®

State-of-the-art HVAC Transmitter for Humidity and Temperature

- Fixed probe – fair priced transmitter
- Proven sensor technology for ±1.5 %rh / ±0.3 °C accuracy
- Long term stability better than 1 %rh per year
- On-site validation / calibration with HygroPalm 3 calibrator
- 2 wire loop power or 3/4 wire models available
- Duct, wall and space mount versions
- Swiss made

rotronic®

LEADING IN HUMIDITY MEASUREMENT

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The Digital Advantage

The M1-series transmitters use the very latest digital technology. Digital signal processing significantly benefits humidity and temperature measurement in the following key areas:

1. Measurement Accuracy

Digital processing of the sensor signals by the HygroClip probe and associated electronics provides more scope and greater flexibility when compensating sensor characteristics such as linearity and temperature coefficient. The ROTRONIC HYGROMER® capacitive humidity sensor has always been the leader both in precision and stability. With the application of digital technology, sensor performance is now further enhanced. The space version features a retractable probe, which ensures an even more accurate measurement

2. Maintenance and Calibration

Unique HygroClip digital technology virtually eliminates downtime during maintenance. When it is time for a scheduled calibration, the service engineer can check the transmitter with a portable HygroPalm calibrator while it is operating. Alternatively, the top cover containing the electronics may be exchanged without disconnecting the wiring. There is no need to remove the complete transmitter to a calibration laboratory or workshop.

Calibration and sensor data are retained permanently within each M1 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.

MAIN FEATURES:

- Software-based probe calibration
- Test connector for communication with the HygroPalm 3 for validation of the output signals

M12 The HygroClip M12 are 2-wire, 4-20 mA loop powered humidity and temperature transmitters. They feature also a digital input / output which is used during calibration. Digital signal processing maintains accurate measurements over the entire operating range.

M13 The HygroClip M13 are 3-wire humidity and temperature transmitters. Their microprocessor-based electronics allows an unparalleled accuracy, stability and versatility. The signal types (0...1V, 0...5V, 0...10V, 0...20mA, 4...20mA) are configurable by the end user. The range of the two analogue outputs can be adjusted by the end user via ROTRONIC HW3 software. The M13 space mount type is also available with an optional display.

ROTRONIC M1						M1						
Example						**M1**	**3**	**W**	**2**	**HT**	**1**	**D**
Supply type:												
2	2 wire	**3**	3 wire									
D	Duct	**W**	Wall	**S**	Space							
Output signal type												
1	0...20 mA	**2**	4...20 mA									
3	0...1 V	**4**	0...5 V									
5	0...10 V											
HT	Humidity and Temperature											
HX	Humidity only											
XT	Temperature only											
Temperature output range												
1	0...50 °C	**2**	10...40 °C									
3	-40...60 °C	**4**	-30...70 °C									
D	Digital display	**X**	no display			M13S type only!						

Installation:

The M-series transmitter feature the proven housing with base plate and cover. Advantage:

- Separation of base plate with wiring from electronics
- Installation of base plate during any phase of construction. The electronics module may just be plugged in after completion of construction works
- Electronics module may be removed without modification of wiring
- Existing base plates of FT/FH series are compatible

Service & Schematic diagrams

Field Service made easy with the M1-Series

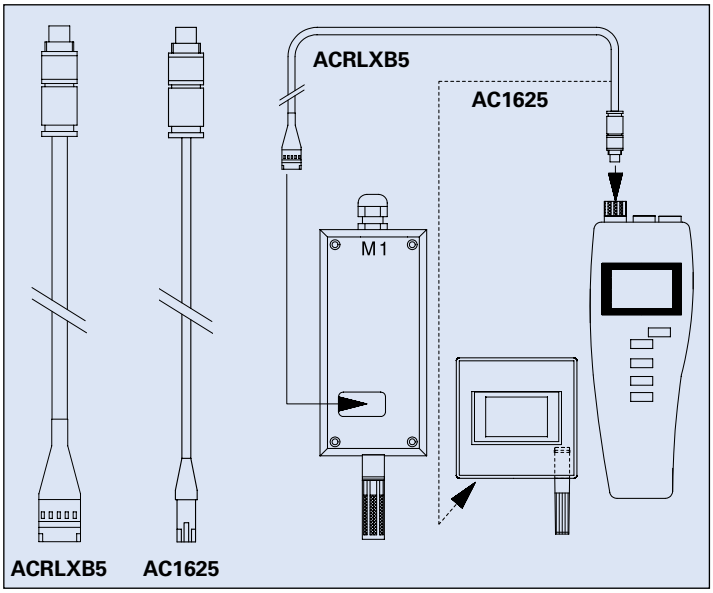
On-site validation and maintenance of sensors is made simple with the new M1-series transmitters.
The M-1 series offers the following capabilities for on-site maintenance:

- Display of relative humidity and temperature values directly from transmitter on the HygroPalm 3.
- Single point calibration of the M1 transmitter using a reference probe attached to the HygroPalm 3.
- Single and multipoint calibration of the M1 transmitter against a known reference environment using the HygroPalm 3.

SERVICE CABLE FOR THE M1-SERIES

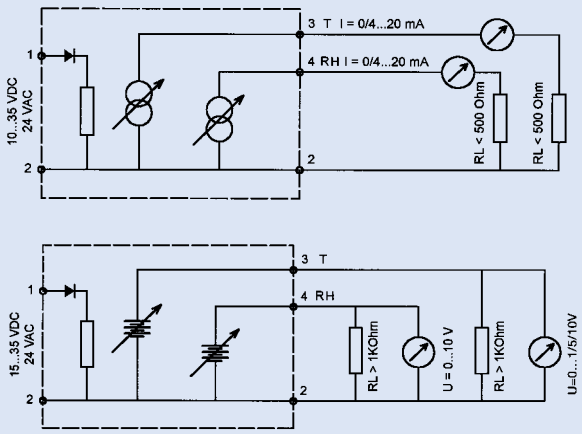
Cable Nr.	Type	Output signal	Connector	Description
ACRLXB5	M13	All signal types	B5/HE14-10	Allows for a single point adjustment against the reference probe on the HygroPalm 3. In addition it also allows single or multipoint adjustment against a reference environment.
AC1625	M12S M13S	All signal types	D-sub9/HE14-2	Allows for a single point adjustment against the reference probe on the HygroPalm 3. In addition it also allows single or multipoint adjustment against a reference environment.

Retractable probe for most accurate measurements.

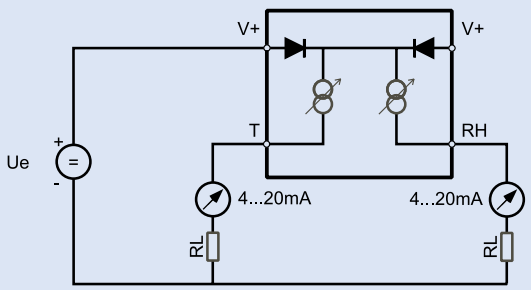


Schematic diagrams
Electrical connections

3/4 wire supply



2- or 2x2 wire supply



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HYGROCLIP®
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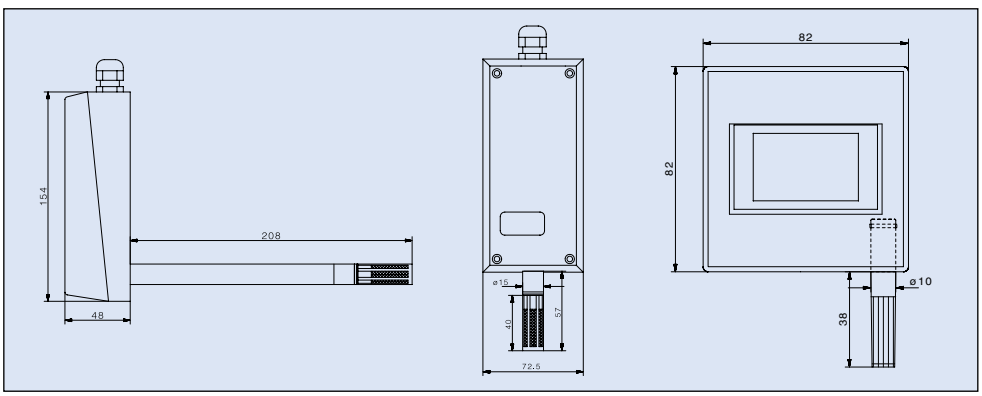
Specifications and order information

SPECIFICATIONS	M12	M13
Humidity Sensor	ROTRONIC HYGROMER® AC-1; thin film capacitive	
Temperature Sensor	Pt100 1/3 DIN	
Service interface RS232	Yes, by HygroPalm 3 handheld calibrator	
Circuit type	2-wire loop power	3 wire
Signal type	4...20mA	0...20 mA, 4...20 mA, 0...1 V, 0...5 V, 0...10 V
Operating limits	0...99 %rh non condensing, -40...60 °C,	0...99 %rh non condensing, -40...60 °C, with display -30...60 °C
Temperature output ranges	Max. -30...70 °C; (other ranges available, see order code page 2)	
Display option (M13 S only)	Not possible	LCD 2 line numeric, 1 line alphanumeric, resolution 0.1%rh / °C / °F
Accuracy (at 23 °C)	±1.5 %rh / ±0.3 °C	
Repeatability	Better than 0.3 %rh / 0.1°C	
Humidity Sensor Stability	Better than 1 %rh per year	
Power supply	10...28 VDC 2-wire loop power	12...35 VDC or 12...24 VAC
Maximum load current outputs	250 Ohm	250 Ohm
Minimum load voltage outputs	N/A	1000 Ohm
Electrical connections	M 16 cable grip and terminals	
Housing material	ABS	
Sensor protection	Type D15G, stainless steel wire mesh, PPS frame	
Protection grade	IP65 / NEMA4; S-type IP33	
Housing dimensions	(w/o probe) 154 x 72.5 x 48 mm	
Weight	Ca. 300 g	

ORDER NO.	DESCRIPTION
HW3	HW3 software on CD ROM, multilingual
HygroPalm 3	HygroPalm 3 Field calibrator
EAxx-SCS	Humidity standard, SCS certified, pack of 5 where xx = 00 (0 %rh), 05 (5 %rh), 10 (10 %rh), 11 (11 %rh), 20 (20 %rh), 35 (35 %rh), 50 (50 %rh), 65 (65 %rh), 75 (75 %rh), 80 (80 %rh), 95 (95 %rh)
ER-15	Calibration device for 15 mm probe
ER-10MS	Calibration device for space mount type

Dimensions



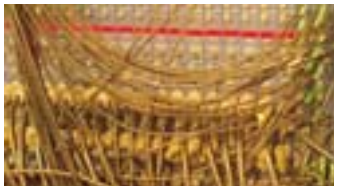

Shopping centers


Storage rooms


Museums


Railway stations


Greenhouses


Computer / Server rooms


Libraries


Schools and offices

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