

M2-Series

HYGROCLIP[®]

Humidity goes Digital



Advanced Transmitter for Humidity and Temperature

- Fully interchangeable probe eliminates maintenance downtime
- Proven sensor technology provides $\pm 1.5\%$ RH / $\pm 0.3^\circ$ C accuracy
- Long term stability of better than 1% RH per year
- Potentiometer free – digital calibration
- On-site validation and calibration with HygroPalm 3 calibrator
- 2-wire loop-powered or 3 wire versions
- Duct, wall, and remote mount configurations

rotronic[®]

LEADING IN HUMIDITY MEASUREMENT

M2-Series

The M2-series humidity and temperature 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 Digital Advantage

2. Maintenance and Calibration

Unique HygroClip™ digital technology virtually eliminates downtime during maintenance. When it is time for a scheduled calibration, the HygroClip probe can be 'hot swapped' in seconds with a calibrated replacement HygroClip probe. There is no need to remove the complete transmitter to a calibration laboratory or workshop.

Calibration and sensor data are retained permanently within each HygroClip probe. 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 which can:
 - Read and calibrate the HygroClip-S plug-in probe
 - Validate the output signals

M22 The HygroClip M22 are 2-wire, 4-20mA loop powered humidity and temperature transmitters. The M22 uses the HygroClip S plug-in probe. This probe has two analog outputs that are used by the M22 to read the probe data. The HygroClip S also features a digital input / output which is used during calibration. Digital signal processing within the HygroClip S maintains accurate measurements over the entire operating range

M23 The HygroClip M23 are 3-wire humidity and temperature transmitters. Humidity and temperature are measured with the HygroClip S digital plug-in probe. The digital output of the HygroClip is used by the microprocessor based electronics to provide the M23 with unparalleled accuracy, stability and versatility. Signal types (0...1V, 0...5V, 0...10V, 0...20mA, 4...20mA) are configurable by the end user. The range of the two analog outputs can be adjusted by the end user via Rotronic's HW3 software. The M23 is also available with an optional display.

Ordering a M2 Transmitter

Rotronic M2	M2					
Circuit type						
2 2 wire loop power						
3 3 wire						
D Duct mounting W Wall mounting						
D Digital display N No display Display is available only on M23						
Select output type and enter appropriate code						
1 4...20mA 3 0...1 VDC 5 0...10 VDC						
2 0...20mA 4 0...5 VDC						
options 2-5 are available only on the M23						
Select a temperature span from the following						
1 0...100°F 4 0...100°C						
2 0...200°F 5 0...50°C						
3 -50...150°F 6 -30...70°C						
For other temperature ranges enter an S and list as a separate line on PO.						



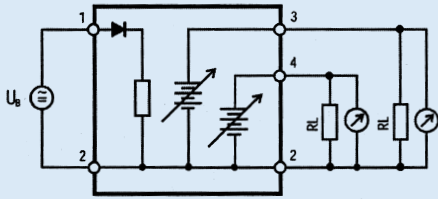
Field Service made easy with the M-Series

On-site validation and maintenance of sensors is made simple with the new M-series transmitters. In addition to the easy exchange of HygroClip probes for routine calibration requirements, the M-Series offers the following capabilities for on-site maintenance:

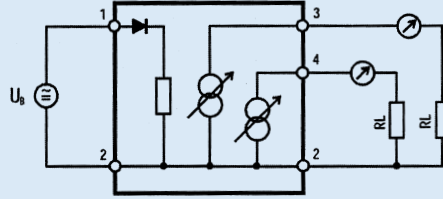
- Display of RH and Temperature values directly from HygroClip on the HygroPalm 3.
- Single point calibration of the HygroClip probe using a reference probe attached to the HygroPalm 3.
- Single and multipoint calibration of the HygroClip probe against a known reference environment using the HygroPalm 3.
- Fixed value HygroClip probes (example 35%RH, 25°C) can be used in place of a HygroClip S probe to provide a known value to the transmitter to verify the signal conversion of the transmitter and validate the entire measuring loop.

Service cables for the M2-Series

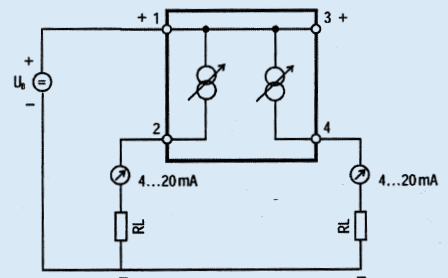
CABLE NUMBER	OUTPUT SIGNAL	CONNECTORS	DESCRIPTION
ACML232	All signal types	D-sub9/HE14-10	Scaling and calibration of the M23 using a PC and Rotronic's HW3 software
ACRLXB5	All signal types	B5/HE14-10	Used to connect the M2 transmitter to the HygroPalm 3. This allows for a single point adjustment against the reference probe on the HygroPalm. In addition it also allows single/multipoint adjustment against a reference environment.



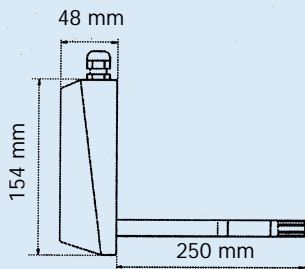
3 wire voltage outputs



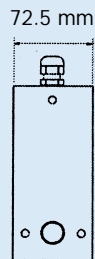
3 wire current outputs



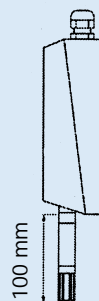
2 wire current outputs



M series Duct



M series Wall



Installation - The M-Series transmitters use Rotronic's proven enclosure which provides:

- Separation of wiring base plate and electronics module.
- Installation of base plate during any stage of construction. Electronics module is then simply plugged in after all construction is complete.
- Electronics module can be removed without any changes to transmitter wiring.

Specifications for M22 & M23

FEATURES	M22	M23
Probe type	HygroClip S	
Humidity Sensor	Rotronic™ C94 thin film capacitive	
Temperature Sensor	Pt100 RTD	
OUTPUTS	M22	M23
Circuit type	2 wire loop powered	3 wire
Signal type	4...20mA	0...20mA, 4...20mA, 0..1V, 0...5V, 0...10V (user selectable)
Temperature output ranges	0...100°F (other optional ranges available, see order matrix on page 2)	
Display option	No	Yes, LCD 2 line numeric, 1 line Alphanumeric, 1/4 character height, resolution 0.1%RH/°C/°F
SPECIFICATIONS	M22	M23
Operating limits at Transmitter	0...99%RH non condensing, -40...60°C, with display -30...60°C	
Operating limits at probe	0-100% RH, -40...85°C (-40...185°F)	
Accuracy (at 23°C)	±1.5 %RH / ±0.3°C	
Repeatability	Better than 0.3%RH / 0.1°C (0.2°F)	
Humidity Sensor Stability	Better than 1% RH per year	
Power supply	10...35 VDC, 10 + 0.02 x load, 2 x 20mA	12...35VDC (65 mA max) or 12...24VAC
Maximum load for current outputs	250 Ohm	
Minimum load for voltage outputs	n/a	1000 Ohm
Electrical connections	Cable grip and terminals	
Housing material	ABS	
Sensor protection	Type D15G, stainless steel wire mesh, PPS frame	
Protection grade	IP65/NEMA4	
Housing dimensions (w/o probe)	154 x 72.5 x 48 mm (6.06 x 2.86 x 1.89")	
Weight	ca 300 g	

Accessories

ORDER CODE	DESCRIPTION
HW3	HW3 software (CD ROM)
HygroPalm 3	Handheld calibrator, single or multipoint adjustment
HygroClip S	Replacement probe for M series transmitter, probe for HygroPalm 3
MOK-xx-DAT05	Probe extension cable for M22W, M23W, or HygroPalm 3 calibrator (xx = 2 or 5 meter)
MOKX-03-WIN	Calibration cable for HygroClip probe. Use with HW3 software and a PC. Cable length 3 meter (9.8 ft).
HygroClip Sxx/yy	HygroClip S probe simulator where xx = relative humidity in %RH and yy = temperature in °C (fixed values). Standard values are 35%RH/25°C, 50%RH/25°C, 80%RH/25°C
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 HygroClip S probe