

# Introduction

ROTRONIC humidity and temperature transmitters are world renowned for their excellent precision, long term stability and reliability. Today our transmitter range offers an unrivalled range of innovative features to complement the core ROTRONIC abilities of measurement accuracy, reliability and long term stability.

Transmitters are measuring instruments for fixed installation with an electronic signal output; primarily used for process monitoring and control. In climate control applications, ROTRONIC transmitters are used to optimise energy use and create a comfortable environment. Key features are accuracy, long term stability, simple installation, and easy maintenance; they will easily outperform low cost products typically used in commercial BMS/HVAC systems.

Typical applications include building management systems, office buildings, warehouses, clean rooms, hospitals, computer rooms, and telecommunications centres. ROTRONIC industrial transmitters are robust, high quality products designed specifically for demanding commercial and industrial applications. They tolerate exposure to wide temperature variations, condensation and high levels of chemical pollution thanks to the unique properties of the Hygromer® humidity sensor, which ensures excellent long term stability in even the most demanding applications. High precision over a wide operating range (-50...200 °C) is achieved with dynamic temperature compensation

The new generation of HygroClip industrial transmitters is based on the latest digital flash technology so probes can be interchanged with no effect on system accuracy. The modular probe concept means on-site calibration and maintenance is virtually eliminated. State of the art features also include calculation of a wide range of humidity parameters such as dewpoint & absolute humidity, user programmable scaling of output signals and networkable digital communications. Typical applications include process monitoring and optimisation, test cells, drying processes up to 200 °C, climatic chambers, and high value product environments such as the pharmaceutical and semiconductor industries.

## Key features

- Excellent long term stability <1 %rh per year
- High accuracy ±1 %rh (±0.6 %rh option)
- Dynamic temperature compensation
- Chemically resistant humidity sensor
- Robust housings
- Modular construction
- Wide range of probe configurations
- Digital humidity measurement technology
- Interchangeable digital probes
- User programmable
- RS485 networking

## Your benefits

- Stable measurements and low maintenance
- Precise measurements
- Precision over full operating temperature range
- Suitable for harsh industrial applications
- IP65 protection
- Easy and safe installation
- Suitable for any application
- High stability electronics, precision and flexibility
- Simple low cost maintenance and minimum down time
- Outputs and measurement values can be rescaled
- Up to 32 instruments can be connected together

## Section contents



### HygroFlex Industrial Transmitters

32-39

- Interchangeable industrial probes
- Intrinsically safe option
- 0...100 %rh, -50...200 °C
- HygroClip Alarm Control module



### M120 / M130 Light Industrial Transmitters

52-53

- Duct- and wall-mount types
- 0...150 °C



### M-Series/Roline L-Series Transmitters

54-62

- Wide range of options to suit any application
- 0...100 %rh, -40...100 °C



### HygroClip S and accessories

64-71

- HygroClip S probes
- Ethernet & wireless LAN TCP/IP Interfaces
- Accessories for HygroClip S

## M100 – Light Industrial, M-Series and Roline L-Series Transmitters

The measurement and control of humidity in light industrial applications is becoming more demanding and widespread. Occupant comfort and energy saving benefits are recognised by today's commercial and industrial markets.

Heating, air conditioning and ventilation are increasingly sophisticated; cooled ceilings provide an agreeable atmosphere, hardly any air movement may be felt, controlled humidity maintains comfortable conditions and minimises energy use. Air changes in buildings are reduced to an absolute minimum in order to save energy, so temperature and humidity values are controlled within ever smaller margins.

The accuracy of measurement instruments must meet these increasing demands, and ROTRONIC has developed a completely new range of instruments to suit. The M100 light industrial series replace the old I-1000 transmitters and are fully backwards compatible.

The HVAC transmitters of the M-Series represent the latest development in digital humidity measurement. Their excellent capabilities of high precision and long-term stability are well known. By making best use of digital technology, they also offer a range of useful and convenient features to further improve measurement performance and handling. For example, it is now possible to rescale the measurement output range to suit the control application (e.g. 40...60 %rh = 4...20 mA) improving resolution, and ultimately control.

The L-Series represents a new direction for Rotronic into the lower cost HVAC market segment. Our design engineers have developed a product that combines ROTRONIC's core values of long-term stability, precision and fast response, but which at the same time is extremely cost effective.

### Key features

- Compact, modern instruments
- Optional display with good contrast
- Accuracy and long term stability
- Interchangeable sensor module
- Scaleable output signals
- All standard signals available
- Aesthetic housing
- Psychrometric calculations

### Your benefits

- Easy to handle and flexible
- Easy observation of measured values
- Reliable data and reduced maintenance
- Easy calibration and maintenance
- Better resolution, more precise control
- One instrument for all types of control systems
- Suitable to office environments
- Dew point, wet bulb, enthalpy etc. measurement

### This sub-section contains



#### M100 Light Industrial Transmitters

52-53

- Integrated probes
- Duct- and cable-mount probes
- Scaleable output signals
- Digital signal processing and adjustment
- High accuracy

#### M-Series

54-59

- Interchangeable probes
- Optional display
- Scaleable output signals
- Psychrometric calculations
- High accuracy
- Remote adjustment with handheld

#### Roline L Series

60-62

- Best price/performance ratio
- Fixed probe
- 2x2 wire technology
- Humidity or temperature only versions
- Remote adjustment with handheld

## Applications



Green houses



Libraries



Computer/Server rooms



Climate control in office buildings



Snow guns



Storage rooms



Cold stores



Museums



Railway stations

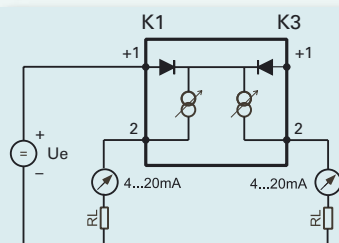


# M100-Series Light Industrial Transmitters

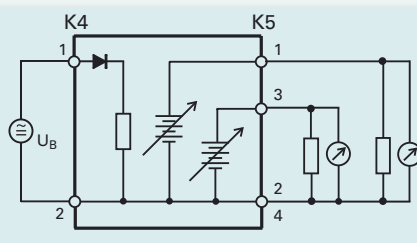
## Technical Data M100-Series

Specification	M120	M130	M132
Humidity sensor	Capacitive Rotronic Hygromer® IN1 sensor		
Temperature sensor	Pt100 RTD Class B 1/3 DIN		
Circuit type	2-wire loop powered 4...20 mA	3-wires	
Output signals	4...20 mA	0...1 V, 0...5V, 0...10 V, 0...20 mA, 4...20 mA	
Operating range at the probe	-30...150 °C / 100 %rh up to 85 °C / 90 %rh at 90 °C / 50 %rh at 120 °C		
Operating range electronics	0...99 %rh, non-condensing / -40...60 °C		
Standard output ranges	0...100 %rh / 0...100 °C / -30...70 °C		
Accuracy at 23 ±5 °C	± 1 %rh and ± 0.3 K		
Repeatability	± 0.3 %rh and better than ±0.1 K		
Long term stability humidity sensor	better than 1 %rh per year		
Response time (without filter)	10 seconds (%rh and temperature)		
On-site adjustment	Requires HygroPalm 3 calibrator and service cable ACRLXB5		
Power supply	10...28VDC Min. 10 V+ (0.02 x Load*) * Load in Ohms	12...35VDC / 12...24 VAC (min. 15 VDC for 10 V and current signals)	90...250 VAC , 3.5 VA
Power consumption	20 mA per output	< 50 mA	
Max. load current outputs	250 Ω	250 Ω	
Min. load voltage outputs	N/A	1000 Ω	
Electrical connections	Terminals and cable glands		
Sensor protection (Standard)	Metal slotted cap SP-MSB15		
V max. at probe	20 m /s		
Housing material	ABS		
Protection ratings	IP65 / NEMA 4 / UL-94 HB compliant		
Dimensions			
Housing:	160 (L) x 80 (W) x 55 (H) mm		
Probe:	Ø 15 or 15 /25 x 250 mm (standard)    Ø 15 x 100 mm(optional)		
Probe cable:	2m (M120C / M130C / M132 C)		
Weight	370 to 560 g, depending on model and probe configuration		
CE Conformance	EN61000-6-2:2001, EN61000-6-4:2001		

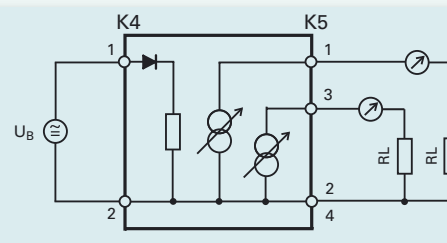
## Schematic



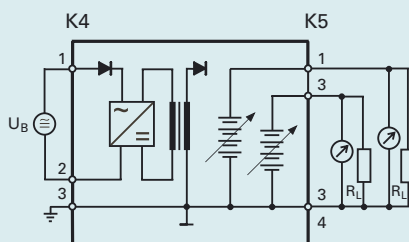
M120 2 x 2-wires  
4...20 mA current signals



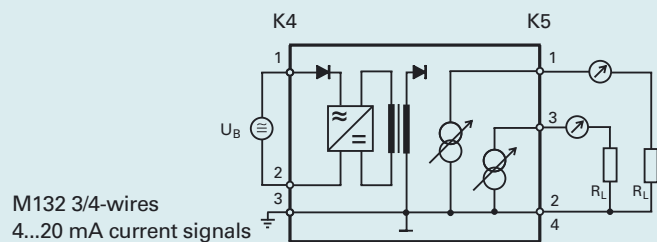
M130 3/4-wires  
0...10 V voltage signals



M130 3/4-wires  
0(4)...20 mA current signals

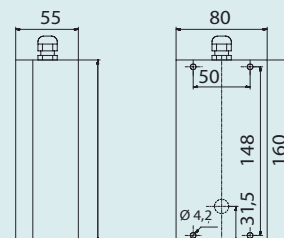
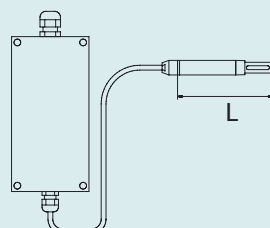
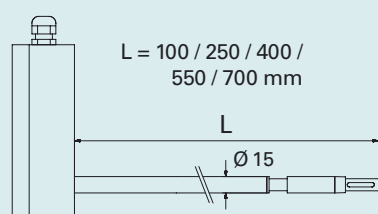


M132 3/4-wires  
0...10V voltage signals



M132 3/4-wires  
4...20 mA current signals

## Dimensional diagrams



# ROTRONIC M-Series Transmitter

## General Description

The new ROTRONIC M-Series transmitters are the latest development of combined humidity / temperature transmitters, based on HygroClip technology. Output signals of 0...1 V, 0...5 V, 0...10 V, 0...20 mA or 4...20 mA are available. The M-Series consists of three models, each offering different features to suit the application requirement, with the facility for most units to be reprogrammed by the customer or reseller. The main features of the three M-Series are as follows:

- M1** Humidity and temperature transmitters with fixed probe, with electronics based on digital technology
- M2** Humidity and temperature transmitter with interchangeable HygroClip probes
- M3** Humidity, calculated humidity (e.g. dew point, enthalpy) and temperature transmitter with interchangeable HygroClip probes



### M1

#### Key features

- High accuracy and excellent long term stability
- Wall, space and duct mount versions with fixed probe
- Compatible with FT/FH-Series base plate (except M1xS types)
- Retractable probe on space mount versions
- Combined relative humidity and temperature measurement
- Humidity or temperature only versions available
- Digital technology
- Wide measuring range 0...100 %rh, -40...70 °C
- Diagnosis and calibration with handheld instrument
- Industry standard output signals (current / voltage)
- Wire mesh filter provides sensor protection against dust and high air velocity.
- IP65 housing; IP20 for space version
- Optional display (space version only)

## Ordering Information - Standard M1 with fixed probes

M1 Specification	Description	1	2	3	4	5	6	7	8	9	10
<b>Probe Type</b>	Integrated probe	M	1								
<b>Electrical Connection</b>	2 wire 4...20 mA			2							X
*15 V for 0...10 V & current signals	12(15)*...35 VDC /12...24 VAC, 3/4 wires			3							
<b>Mounting type</b>	Duct				D						X
	Wall				W						X
	Space				S						
<b>Output signal</b>	0...20 mA					1					
	4...20 mA					2					
	0...1 V					3					
	0...5 V					4					
	0...10 V					5					
<b>Output parameters</b>	Humidity and temperature						H	T			
	Humidity only						H	X			
	Temperature only						X	T			
<b>Output range</b>	0... 50 °C / 0...100 %rh								-	1	
(Scaling of the output signal)	10... 40 °C / 0...100 %rh									2	
Temperature and humidity	-40... 60 °C / 0...100 %rh									3	
	-30... 70 °C / 0...100 %rh									4	
	-40... 85 °C / 0...100 %rh									5	
	0...100 °F / 0...100 %rh									6	
<b>Option</b>	LC Display (only M13S )										D
	No display										X

The probe length of all duct mount transmitters is 207 mm; 52 mm for wall mount.

### Note:

Space mount transmitters of the M-series with current output signals inevitably suffer from a degree of 'self heating' as a result of the proximity of measurement sensors to the electronics. The effect has been minimised by careful design of the enclosure, pcb and probes. In addition, an active compensation system is now integrated into the circuit design, but for this to function correctly the transmitter should be allowed to equilibrate in its installation position for 30-60 minutes (depends on ambient temperature) before the most precise values are obtained.



# ROTRONIC M-Series Transmitters

## M22 / M23

Humidity and temperature transmitters for interchangeable HygroClip S probes.

### Key features

- Probe interchangeable within seconds
- Wall and duct mounting types
- Compatible with FT/FH-Series base plate
- Measures humidity and temperature simultaneously
- Use of digital technology
- Wide measuring range
- High accuracy  $\pm 1$  %rh, 0.3 K and excellent long term stability
- Optional display
- Diagnosis and calibration with hand-held instrument
- Temperature range -40...70 °C / -30...60 °C with integrated display
- Wire mesh filter provides sensor protection against dust and high air velocity.
- IP65 housing

By means of simulators, the entire measuring section can be validated.  
Simulators create a defined value both for humidity and temperature. See page 118.



### Ordering Information - Standard M2 for interchangeable probes

Specification		1	2	3	4	5	6	7	8	9	10
<b>Probe type</b>	Interchangeable HygroClip probe	M	2								
<b>Electrical connection</b>	2 wire 4...20mA (no display possible)			2							X
*15 V for 0...10 V & current signals	12(15)*...35 VDC /12...24 VAC, 3/4 wires			3							
<b>Mounting type</b>	Duct				D						
	Wall				W						
<b>Output signal</b>	0...20 mA					1					
	4...20 mA					2					
	0...1 V					3					
	0...5 V					4					
	0...10 V					5					
<b>Output parameters</b>	Humidity and temperature						H	T			
	Humidity only (M22 only)			2			H	X			
	Temperature only (M22 only)			2			X	T			
<b>Output range</b>	0...50 °C / 0...100 %rh								-	1	
(Scaling of the output signals)	10...40 °C / 0...100 %rh									2	
Humidity and temperature	-40...60 °C / 0...100 %rh									3	
	-30...70 °C / 0...100 %rh									4	
	-40...85 °C / 0...100 %rh									5	
	0...100 °F / 0...100 %rh									6	
<b>Options</b>	LC Display (not for M22)										D
	No display										X

The probe length of all M2 standard duct-type transmitters is 250 mm; 100 mm for wall mount types.  
Standard versions are defined in the price list.

### HygroClip Probe for M2-Series transmitters

#### HygroClip S

Standard sensor module for humidity and temperature.

A wire mesh filter provides sensor protection against dust and high air velocity.

Dimensions: Ø15 x 100 mm.

IP rating: IP65

Measurement range: -40...85 °C, 0...100 %rh

Accuracy:  $\pm 1$  %rh,  $\pm 0.3$  K (at 23  $\pm 5$  °C)

#### Order code:

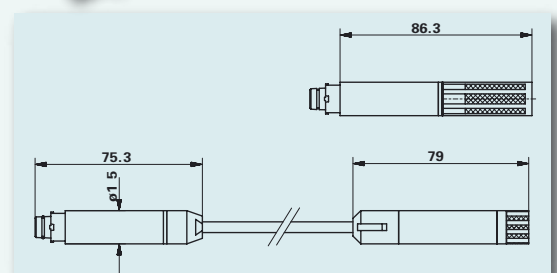
HygroClip S

#### Probe extension cables

To connect HygroClip S probes to the M2-Series transmitters

#### Order code:

MOK-01-DAT05 1 m length  
MOK-02-DAT05 2 m length  
MOK-05-DAT05 5 m length



## ROTRONIC M-Series Transmitters



### M33

M3 transmitters use the interchangeable HygroClip S probe, and provide outputs of humidity, temperature and calculated parameters such as dew point, wet bulb temperature and enthalpy.

#### Key Features

- Psychrometric calculations (dew point, enthalpy etc.)
- Probe interchangeable within seconds
- Wall- and duct-mounting types
- Compatible with DPT-Series base plate
- Measures humidity and temperature simultaneously
- Use of digital technology
- Large measuring range
- Excellent long term stability
- High accuracy
- Optional display with trend indicator
- Remote diagnosis with handheld instrument
- Temperature range -40...60 °C; -30...60 °C with display
- Wire mesh filter provides sensor protection against dust and high air velocity.
- IP65 housing
- The M33 transmitters can be networked via RS485

By means of simulators, the entire measuring section can be validated. Simulators create a defined value both for humidity and temperature. See page 118.

Order codes for standard M3-Series (other custom types can be defined on page 57)

Order code**	Description	Electrical specification	Application
M33D2TC-4XW02	Duct mount, dew point calculation & output -30...70 °C, 0...25 °C Dp= 4...20 mA	12(15)*...35 VDC /12...24 VAC, 3/4-wire  *15 V for 0...10 V and current signals	Snow guns Drying processes
M33D2TC-4XW09	Duct mount, dew point calculation & output -30...70 °C, -25...25 °C dew point = 4...20 mA		
M33D2TC-4XW54	Duct mount, mixing ratio calculation & output -30...70 °C, 0...100 g/kg / =4...20 mA		
M33W2TC-4XW0B	Wall mount, dew point calculation & output -30...70 °C, -50...50 °C Dp =4...20 mA		
M33D2TC-4DW02	Duct mount, dew point calculation & output, LC display -30...70 °C, 0...25 °C Dp =4...20 mA		

The probe length of all M3 standard duct-type transmitters is 250 mm; 100 mm for wall mount types.

\*\* Probes must be ordered separately, see below.



### HygroClip Probes for M-Series transmitters

#### HygroClip S

Standard sensor module for humidity and temperature.  
A wire mesh filter provides sensor protection against dust and high air velocity.

Dimensions: Ø15 x 100 mm.  
IP rating: IP65  
Measurement range: -40...85 °C, 0...100 %rh  
Accuracy: ±1 %rh, ±0.3 K (at 23 ±5 °C)

#### Order code:

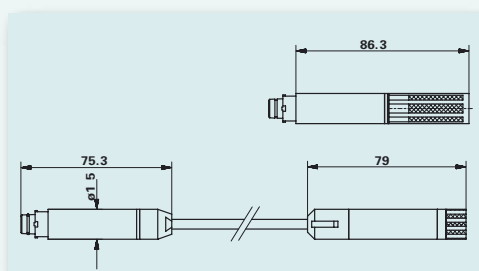
HygroClip S

### Probe extension cables

To connect HygroClip S probes to the M2-Series transmitters

#### Order code:

MOK-01-DAT05	1 m
MOK-02-DAT05	2 m
MOK-05-DAT05	5 m



# ROTRONIC M-Series Transmitters

**Order Codes M33 types with calculations** (standard versions are defined in the price list)

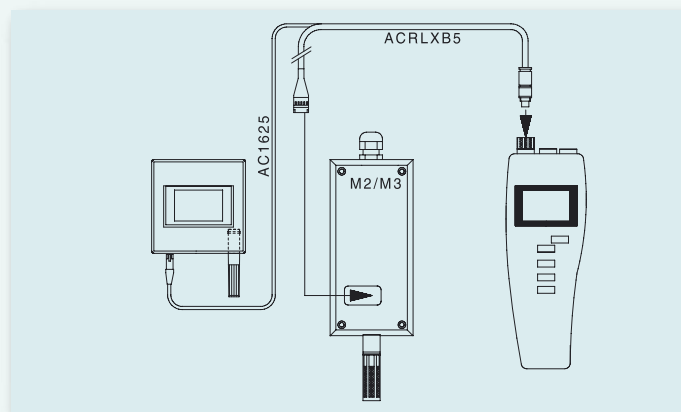
Specification		1	2	3	4	5	6	7	8	9	10	11	12	13
<b>Example:</b>		M	3	3	D	2	H	C	-	X	D	W	0	1
<b>M3</b>		M	3											
<b>Electrical connections</b>	12(15)*...35 VDC/12...24 VAC, 3/4 wires *15 V for 0...10 V and current signals			3										
<b>Mounting type</b>	Duct Wall				D W									
<b>Output signal</b>	0...20 mA 4...20 mA 0...1 V 0...5 V 0...10 V					1 2 3 4 5								
<b>Output parameters</b>	Humidity and calculated parameter Temperature and calculated parameter Humidity and temperature						H T H	C C T	-	X				
<b>Output range</b>														
(Scaling of the temperature output signal) Humidity output signal is always 0...100 %rh	No temperature output signal 0...50 °C 10...40 °C -40...60 °C -30...70 °C -40...85 °C 0...100 °F 0...200 °F								- -     6 7	X 1 2 3 4 5				
<b>Option</b>	Display No display										D X	W W		
<b>Calculated parameter</b>	Dewpoint Dp in °C Wetbulb temperature Tw in °C Enthalpy H in kJ/kg Specific humidity Q in g/kg Vapour concentration Dv in g/m <sup>3</sup> Mixing ratio R in g/kg Saturation vapour pressure Dvs Partial water vapour pressure E in hPa Water vapour saturation pressure Ew in hPa												0 1 2 3 4 5 6 7 8	
<b>Output scaling – calculated value</b>	0...20 0...25 0...50 0...100 0...200 0...500 0...1000 -20...20 -25...25 -40...40 -50...50 -Others on request												1 2 3 4 5 6 7 8 9 A B	

## Note:

Output assignment: On M33 transmitters with calculated parameters, output 1 is always assigned to the calculated parameter or, if no such parameter is configured, to the humidity signal. The temperature signal is always assigned to output 2.

## Adjustment:

The transmitters of the M-Series can be adjusted easily by the handheld HygroPalm instrument.





## Technical Data M-Series

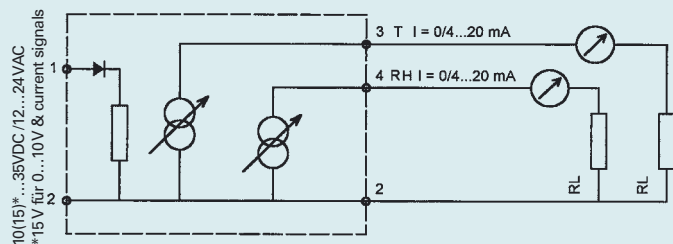
Specification	M1xD & M1xW	M1xS	M22x	M23x	M33x
Humidity sensor	Hygromer® AC-1				
Temperature sensor	Pt100 1/3 DIN				
Probe connection	Integrated probe (%rh/ °C)		1 for HygroClip probe (%rh/ °C)		
Service Interface	DIO / Via HygroPalm PC direct RS232				
Display	No display option	Option	No display option	Option	
Display units	%rh, °C, °F				%rh, °C, °F, calculated value
Display resolution	N/A	0.1 %rh / 0.1 °C	N/A	0.1 %rh / 0.1 °C; 0.01 calculated value	
Output signal	0...1/5/10 V, 0...20 mA, 4...20 mA		4...20 mA	0...1/5/10 V, 0...20 mA, 4...20 mA	
Trend indication	No	Yes on display	No	Yes on display	
RS485 interface	No				Yes
Serial number in EEPROM	Yes				
Scaleable output signal	Yes, with HW3 software and HygroPalm		No	Yes, with HW3 software	
Electronics operating range	-40...60 °C, versions with display -30...60 °C				
Measurement range (probe)					
Humidity	0...100%rh				
Temperature	Probe dependant max. -40...100 °C				
Output scaling (humidity)	Scaleable		0...100%rh	Scaleable	
Output scaling (temperature)	Scaleable between -50...200 °C		-40...60 °C or -30...70 °C	Scaleable between -50...200 °C	
Accuracy at 23 °C	±1.5 %rh / ±0.3 K			Probe dependant	
With probe extended	N/A	±1.5 %rh/± 0.3 K	N/A		
Reproducibility	Probe dependant				
Long term stability	< 1 %rh /Year				
Adjustment functions					
1 point %rh, °C	Yes, with HygroPalm				HW3 or
4 point %rh, 2 point °C	Yes, with HygroPalm				HygroPalm
Against reference probe	Yes, with HygroPalm				
Calculations and constants					
Psychrometric calculation	No computations possible				Yes
Pressure compensation of calcualted value	N/A				Possible with HW3 software
Default pressure constant	N/A				1013.25 hPa
Transmitter remote functions with HygroPalm 3					
Transmitter/probe adjustment	Multi-point adjustments				
Adjustment against reference	Yes, one point adjustment against reference probe on HygroPalm 3				
Measurement display	Yes				
Transmitter status	Yes				
Electrical specifications					
Power supply					
2-wire types	2-wire 4...20 mA, 10... 28 VDC, min. 10 +(0.02 x load)			N/A	
3/4-wire types	12(15)*...35 VDC /12...24 VAC *15 V for 0...10 V and current signals		N/A	12(15)*...35 VDC /12...24 VAC *15 V for 0...10 V and current signals	
Maximum load	Current output: ≤ 250 Ω; 2-wire at 24 V 500 Ω; Voltage output ≥ 1000 Ω				
Automatic load compensation	No			Yes	
Electrical connections	Terminals on mounting base plate / M16 cable gland				
Mechanical Data					
Enclosure rating	IP65	IP20	IP65		
Sensor protection	Type SP-W15	Plastic cage	Wire mesh filter, stainless steel		
Maximum air velocity	20 m/s	3 m/s	20 m/s		
Housing material	ABS				
Probe length/diameter for duct mount types	207 x 15 mmØ	N/A	250 x 15 mmØ		
Probe length/diameter for wall mount types	52 x 15 mmØ	38 x 10 mmØ	100 x 15 mmØ		
Dimensions	154 x 73 x 48 mm	82 x 82 x 27 mm	154 x 73 x 48 mm		
Weight	Approx. 300 g	Approx. 170 g	Approx. 300 g		

### Note:

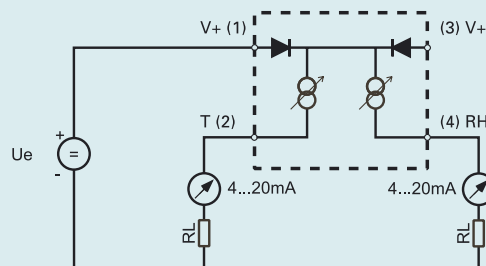
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# M-Series Schematic and Dimensional Diagrams

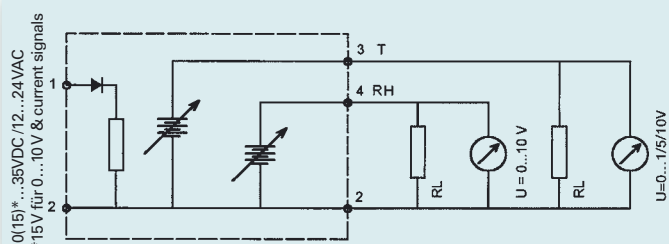
## 3 / 4 wire supply current signal 0/4...20 mA



## 2 or 2 x 2 wire supply 4...20 mA



## 3 / 4 wire supply voltage signal

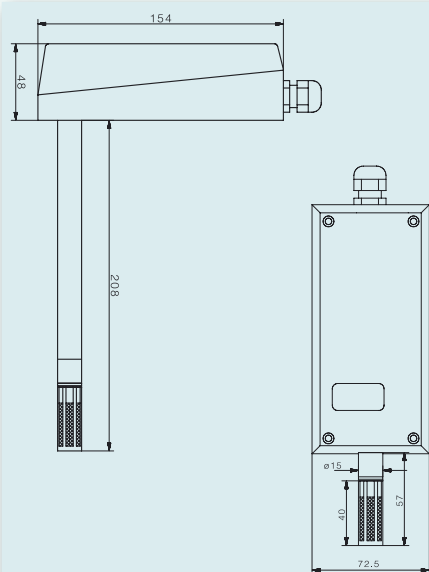


Terminal	Term	Detail
1 +	Supply	max. 35 V DC, 24 V AC
2 -	GND	Common ground
3 +	Temperature	Temperature value as voltage or current signal
4 +	Humidity	Humidity value as voltage or current signal (M33 only)
5 +	+ RS485	RS485 Positive Signal (only M33)
6 -	- RS485	RS485 Negative Signal (only M33)

**Only 2- wire and 2 x 2 wire types:**

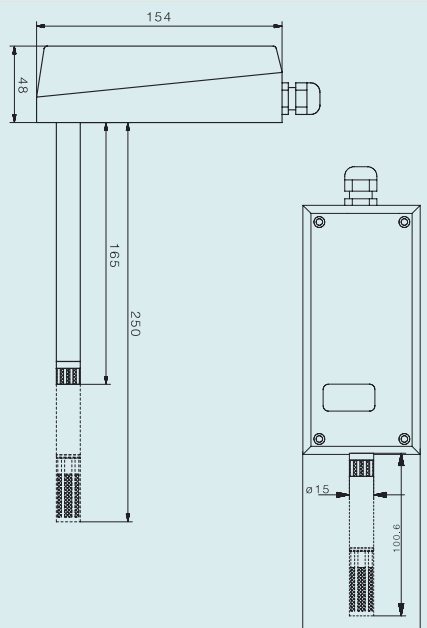
1/3	Supply	Supply 15...28 VDC, 2- resp. 2 x 2 wire
2	Temperature	Temperature signal 4...20 mA
4	Humidity	Humidity signal 4...20 mA

## M1 series

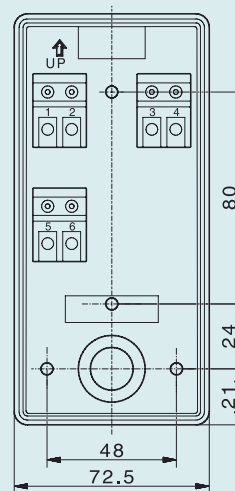


M16 Cable gland

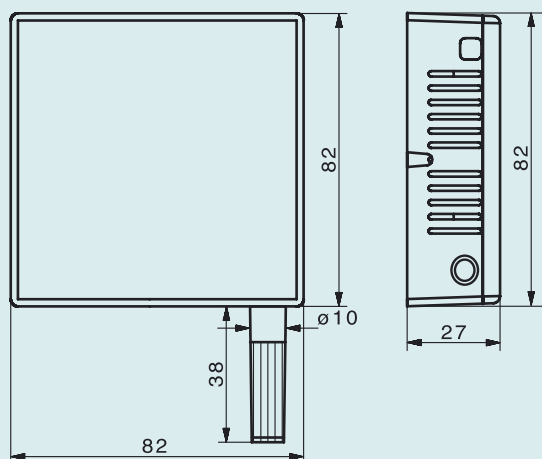
## M2 / M3 series



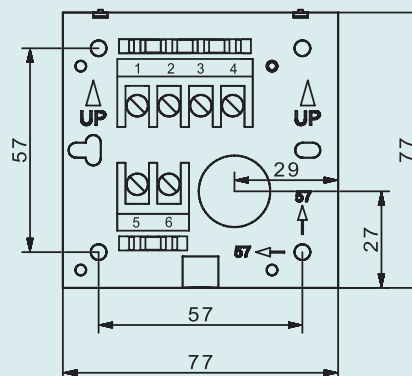
## Base plate M- series (compatible with F/T series)



## M1xS instruments



## Base plate M1xS



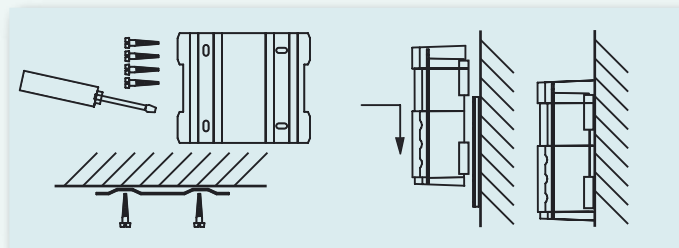
**Note:**  
Terminal 5 & 6 are reserved for direct Pt100 connection.

Installation of ROTRONIC transmitters is simple. The various models are fixed either using a mounting plate onto which the whole transmitter is fixed, or by a connection base plate which is screwed onto the wall or duct, or by direct mounting onto a duct by fixing the probe with an AGRO fitting. Some models feature screw holes inside the enclosure, which are sealed against the electronics.

## Mounting

### HygroFlex

HygroFlex transmitters can be mounted by a separate mounting plate. The plate is screwed onto the wall, and the transmitter enclosure hooked in.

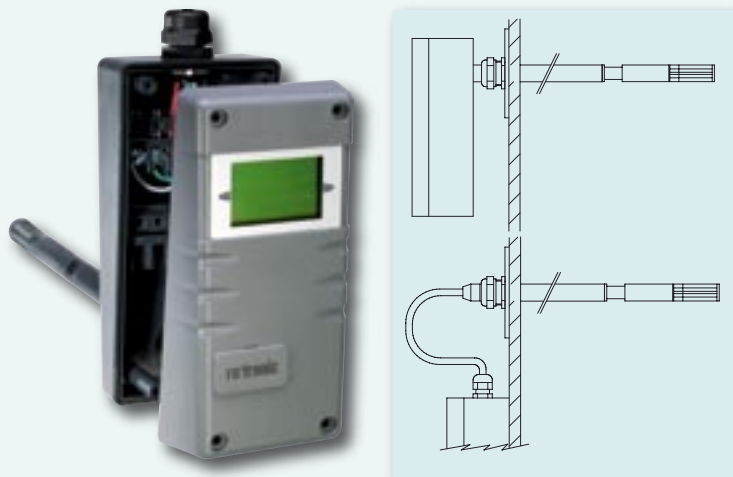


### M120 / M130

M120 / M130 transmitters can be fixed onto a wall or duct by 4 screws through interior holes. Duct mount probes are fixed by a compression fitting and a flange.

### M-Series

The connection base plate of the M-Series is used for mounting. It may be mounted and wired during construction. Once the construction works are completed the electronics can just be plugged in and secured.



### Roline L

Roline L-Series transmitters are fixed onto a duct or wall directly with the screw tags. Duct mount probes may also be fixed by a compression fitting and a flange.

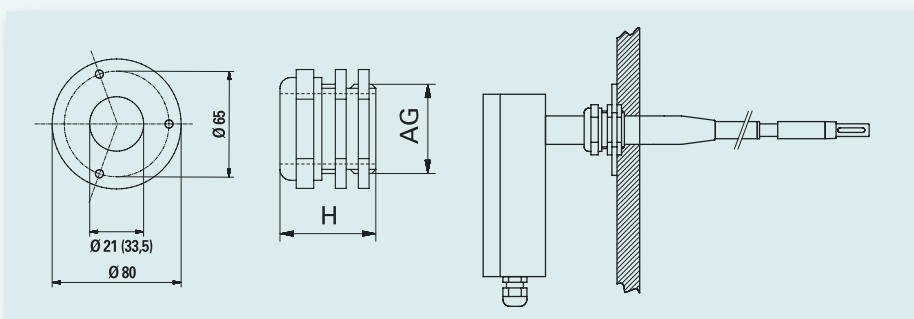
## Maintenance

ROTRONIC transmitters require hardly any maintenance. Due to excellent long term stability, a calibration interval of one year will be sufficient in most cases. However, in some applications, for example where pollutants are present, it may be advisable to perform calibrations more often. For detailed calibration information, please refer to the later chapter on calibration. In dusty and polluted environments, the sensor protection filters require some maintenance. We recommend that a spare filter is available and to exchange it on site. The replaced filter may be cleaned in the workshop with soap and water. Ultrasonic cleaners may also be used. Let the filter dry thoroughly before re-use.



## Installation accessories for all 15 and 25mm diameter probes.

If the transmitter electronics are mounted directly onto a wall or duct, no further mounting hardware is needed. If just the probe is installed in a duct, an AGRO compression fitting and flange are used. The flange is used only if the AGRO compression fitting cannot be fastened directly to the duct.



Order code	Gasket	Probe Ø	T max.	Thread AG	H (mm)	Flange
AC1301-M	Perbunan	15 mm	100 °C	M 20 x 1.5	26	AC 1305
AC1302-M	Perbunan	25 mm	100 °C	M 32 x 1.5	31.5	AC 1306
AC1303-M	Viton D	15 mm	200 °C	M 20 x 1.5	26	AC 1305
AC1304-M	Viton	25 mm	200 °C	M 32 x 1.5	31.5	AC 1306

1/2" G thread on request

Filters: Suitable filters may be found in the chapter Accessories (pages 114/115)