

# HYGROFLEX 1

# HYGROCLIP®

Humidity goes Digital



Optional metal enclosure

## Industrial Humidity Temperature Transmitter

- Unique HygroClip® technology for superior performance
- Durable, field proven humidity and temperature sensors
- Interchangeable probe design eliminates maintenance downtime
- Wide range of probes to satisfy every application
- Optional display and keypad
- Available with a metal enclosure

# rotronic®

LEADING IN HUMIDITY MEASUREMENT

## HygroFlex Probe Selection Guide

### Standard Probes



L. 145mm (5.7") Dia. 15mm (0.6")



Tube L. 250mm (9.8") Dia. 15mm (0.6") Cable: 2m (6.5ft)



Tube L. 100mm (3.9") Dia. 15mm (0.6") Cable: 2m (6.5ft)



Cable: 2m (6.5ft)



### Special Probes



Tube L. 270mm (10.6") Dia. 15mm (0.6") Cable: 2m (6.5ft)



Tube L. 120mm (4.7/10.6") Dia. 15mm (0.6") Cable: 2m (6.5ft)



Dia. 5mm (0.2") Cable: 2m (6.5ft)

Note: we also offer intrinsically safe probes for use in hazardous areas.

### Installation of probes type IC and IM

**IC-3 and IM-3 probes** (long probe body): the QMA-15 adapter is convenient both for installing and servicing the probe. The adapter is comprised of a compression fitting and a 3" flange. The probe should be immersed as much as possible in the process to be measured, especially when temperature is not the same on both sides of the wall.

**IC-1 and IM-1 probes** (short probe body): the probe and its cable should be fully immersed in the environment to be measured (leave the probe connector outside). In a duct of small cross section, install the probe axially. Attach the probe with a clip, a tie or a bracket at a well ventilated location (such as a vent). Do not install the probe through or against a wall, unless temperature is the same on both sides of the wall: insufficient probe immersion will result both in a temperature and a humidity error.

### HygroClip IW

Area monitoring (wall mounted transmitter) wire mesh filter. Min: -40°C (-40°F), max 85°C (185°F)

### HygroClip IC-3

Recommended for the measurement of most processes, this probe is easily installed through a wall (see installation below). For high RH% and high temperature process see IM-3

PPS body, wire mesh filter  
Probe and probe cable: min. -50°C (-58°F), max. 200°C (392°F)  
Probe connector: min. -40°C (-40°F), max. 85°C (185°F)

### HygroClip IC-1

Similar to the IC-3, but with a short body, this probe can be installed well inside the process to be measured. The IC-1 is also used for measuring inside ducts with a small cross section. In both cases, the probe should be fully immersed in the environment to be measured.

PPS body, wire mesh filter  
Temperature limits: same as IC-3

### HygroClip IE-3

Measurement in compressed air. This probe has a 1/2" NPT thread and can be used at pressures up to 50 bar/725 PSI. Not suitable in applications where there is a temperature difference across the mounting wall.

min. -40°C (-40°F), max 85°C (185°F) sintered steel filter  
Also available with 1/2"G thread (model IE-1)

### AC1616 Probe Extension Cable

Suitable for use with all probes - built in signal booster.  
Cable length 6 to 656 ft (2 to 200m)  
min. -40°C (-40°F), max. 85°C (185°F)

### HygroClip IM-3

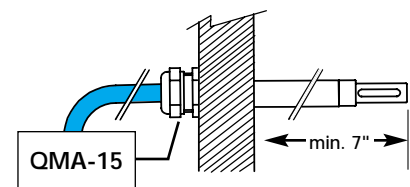
Similar to the IC-3, this probe should be selected for use in processes that combine high humidity and moderate to high temperature such as pasta dryers, environmental chambers, etc. - Stainless steel body, wire mesh filter  
Temperature limits: same as IC-3

### HygroClip IM-1

Similar to IC-1 - recommended for high humidity applications - stainless steel body, wire mesh filter  
Temperature limits: same as IC-3

### HygroClip IC-05

5mm (0.2") diameter for measurement in tight spaces  
min. -50°C (-58°F), max. 100°C (212°F)





The HygroFlex® industrial humidity and temperature transmitter uses the very latest digital technology. Digital signal processing significantly benefits humidity and temperature measurement in the following key areas:

## 1. Measurement Accuracy

The digital circuits used both in the HygroFlex and associated probe are inherently more stable and consistent than conventional analog circuits. Digital processing of the sensor signals by the probe also provides more scope and greater flexibility when compensating sensor 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 improved.

## 2. Maintenance and Calibration

Unique HygroClip® digital technology virtually eliminates downtime during maintenance. When it is time for a scheduled calibration, the interchangeable probe can be 'hot swapped' in seconds with a calibrated replacement probe. There is no need

## The Digital Advantage

to remove the complete transmitter to a calibration laboratory and there is practically no interruption of the measurement data.

The HygroClip probe can be directly calibrated while connected to the HygroFlex (requires the optional display and keypad), or it can be calibrated separately using either a PC or the HygroPalm portable calibrator. Calibration and sensor data are retained permanently within each HygroClip probe. Software-based calibration is both simple and precise; there are no hard-to-reach, hard-to-adjust potentiometers. Multiple calibration points can be selected across the full measuring range.

On-site performance verification is equally easy. Each HygroFlex has a test connector for use with a portable HygroPalm calibrator. The HygroPalm can display the signals from the HygroFlex without interrupting operation and a comparison can be made with the readings of the probe connected to the HygroPalm.

## Product Summary & Technical Data

Specifications (including probe):	
Number of probe inputs	1
Probe type	Digital humidity - temperature probe (HygroClip)
Analog outputs	2
Analog output types	4...20mA or 0...20mA , 0...1V, 0...5V, 0...10V (jumper selectable)
Load limit for analog outputs	Current outputs ≤ 500 ohm, voltage outputs ≥ 1000 ohm
RS232 connector	Internal service connector used for transmitter configuration
Test connector	Allows reading the measurement data and probe calibration with HygroPalm 3 indicator
Direct probe calibration	requires display/keypad option (probe can also be calibrated separately)
Transmitter Measuring range	0...100%RH, -50...+200°C (-58...+392°F)
Temperature limits at probe	see Probe Selection Guide
Accuracy (at 23°C/73°F)	± 1.0%RH and ± 0.2°C (0.4°F)
Repeatability	±0.3%RH and better than 0.1°C (0.2°F)
Sensors	Hygromer® C94 capacitive humidity sensor, Pt100 1/3 DIN RTD
Transmitter operating limits	0...99%RH non-condensing, -40...+60°C (-40...140°F), -30...+60°C with display
Optional display and keypad	LCD 2 line numeric, 1 line alphanumeric, 1/4" character height, membrane keypad
Resolution of optional display	0.1%RH/°C/°F
Power	12...35VDC (300mA max.) / 12...24VAC or 90...264VAC
Electrical connections	Standard: PG9 cable grips, (7mm/0.275" cable), optional 1/2" conduit adapters
connection terminals	18 AWG
Housing	Standard ABS housing: 207 x 150 x 59mm (8.15 x 5.90 x 2.32"), 310g (0.7 lb) Optional aluminum housing: 245 x 135 x 75mm (9.65 x 5.32 x 2.95"), 1300g (2.86 lb)
Protection grade	IP65/NEMA4
CE Conformity	EN580081-2, EN50082-2



## Ordering A HygroFlex



HTS1											HygroFlex1	Notes	
	1											1 12...35 VDC / 12...24 VAC Powered	
	2											2 90...250 VAC 50-60Hz Powered	
		A										A ABS enclosure	
		M										M Aluminum enclosure – <b>conduit only</b>	
			G									G = Cable grips	
			C									C = 1/2" conduit fittings	
				D								D Digital display and keypad	
				N								N No digital display	
					1							1 %RH and temperature to be displayed	
					N							N No digital display	
												Select output type and enter appropriate code	1
												1 4...20mA    3 0...1 VDC    5 0...10 VDC	
												2 0...20mA    4 0...5 VDC	
												Select a temperature span from the following	2
												1 0...100°F    3 0...300°F    5 0...200°C	
												2 0...200°F    4 0...100°C    6 -50...150°C	
								X				Option available only on HygroFlex2 and HygroFlex3	
												Select probe to be used.	
												1 IW    3 IC-3    5 IM-3    7 IC-05	
												2 IC-1    4 IM-1    6 IE-3	
									E			Extension cable – max. length is 656 feet	
									X			X = No extension cable	
												Enter length of extension cable in feet	
HTS1												<b>Enter ordering code to left</b>	

### Notes

- Output is jumper selectable and can easily be changed in the field without any required calibration. The range of the output signal (for example 0...300°F) is not affected.
- The range of all outputs (%RH, Temperature) can be changed using the Rotronic HW3 software.

ACCESSORIES			
Order code:	Description:	Order code:	Description:
HW3	HW3 configuration software	ERV-15	Calibration device for type 'IW' probes
AC1623	HygroFlex configuration cable	ER-15	Calibration device for 15mm diameter probes
T7-03-WIN	Calibration cable HygroClip Probe to PC	ER-05	Calibration device for 5mm diameter probes
HygroPalm 3	HygroPalm, calibrator for HygroFlex	EM-G	Calibration device for type 'IE' probes
AC1620	Cable HygroPalm 3 to HygroFlex	EAxx-SCS	Cal. standard, SCS Certificate, pack 5 xx = 00, 05, 10, 20, 35, 50, 65, 80 or 95 (%RH). use EA35 and EA80 for minimum calibration
QMA-15	Probe adapter for HygroClip IC-3 and IM-3		
AC1618/XX	Probe simulator, fixed values xx = 35%, 50%, 80%RH: 25°C/77°F		

EQUIVALENCE TABLE		
Previous Models	Configuration	HygroFlex and Probe
HT205W, HT220W, HT225W, I-2100W	Wall mount	HygroFlex 1 + IW probe
HT205D, HT220D, HT225D, I-2100D	Duct mount	HygroFlex 1 + IC-3 probe+ QMA-15 adapter
HT205R, HT220R, HT225R, HT250R, I-2100C	remote probe	
HT255D, HT260D, I-2200D, I-2300D	Duct mount	HygroFlex 1 + IM3 probe + QMA-15 adapter
HT255R, HT260R, HT420R, I-2200C, I-2200S, I-2300C	remote probe	
I-2100P	Compressed air	HygroFlex 1 + IE-3 probe
I-155C, I-155CI	Tight spaces	HygroFlex 1 + IC-05 probe