Humidity Temperature Meteorological Probe

with HygroClip plug-in module and fast response temperature probe

MP100H / MP400H

HYGROCLIP ®

- Reliable data acquisition and long term calibration-free operation

- Well proven ROTRONIC HYGROMER™ humidity sensor resists condensation and contaminants

- Temperature measurement with separate precision RTD probe provides fast response and high accuracy

- Linear voltage or current output signals for transmission over long distances

- Fully interchangeable HygroClip module is quickly replaced in the field with no loss of accuracy and no calibration

- Direct digital output from HygroClip facilitates humidity computations such as dew/frost point

QUALITY
ISO 9001
rotronic ag
MANAGEMENT

SWISS
CALIBRATION

ROTRONIC - Your
SCS Calibration Laboratory
for Relative Humidity
Accred. Reg N°. 065

rotronic ®

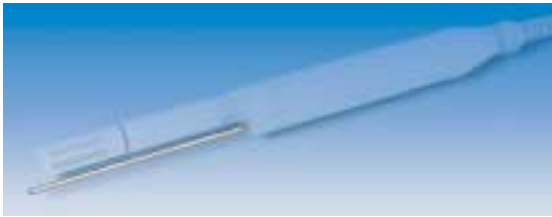**LEADING IN HUMIDITY MEASUREMENT**

MP100H / MP400H

The MP100H/400H is an advanced series of probes that offer high accuracy and fast response for meteorological applications.
In the standard units, humidity is measured with the plug-in HygroClip digital probe and temperature is measured by a separate fast response RTD probe. The MP100H has two linear voltage output signals.
A built-in cable length compensation permits error-free signal transmission over distances up to 100 m/300 ft. The MP400H has two linear currrent output signals and allows transmission over even greater distances. For applications where a separate RTD probe is not required, the temperature output signal is provided by the HygroClip using the $\frac{1}{3}$ DIN RTD located next to the humidity sensor.

All weather protected

The barrel of the MP100H/400H is designed to protect the internal electronics under all weather conditions. All connectors and cable entry points have special seals to prevent moisture entry.
The electronics are conformal coated for protection against high humidity conditions. Once the electronics have been factory adjusted and calibrated, there is never a need to open the barrel. Calibration of the HygroClip is fully digital (no potentiometers) and the separate RTD is extremely stable.

Separate temperature probe

The separate temperature probe consists of a Pt100 RTD protected by a stainless steel tube. This probe provides fast response and can easily be calibrated in a bath after removing the HygroClip.

The standard probe uses a $\frac{1}{3}$ DIN RTD with a maximum deviation of $\pm 0.1\,°C$ at $0\,°C$ from the DIN standard. As an option, $\frac{1}{5}$ DIN ($\pm 0.06\,°C$) and $\frac{1}{10}$ DIN ($\pm 0.03\,°C$) RTDs are also available.
The MP100H / MP400H can be ordered with a direct RTD connection: 2, 3 or 4-wire.

HygroClip-S3

The HygroClip-S3 digital humidity-temperature plug-in probe has two analog outputs signals and a one-wire digital output.
The operating range is 0…100%RH and -40…60°C. Standard factory calibration results in an accuracy of $\pm 1.5\,\%RH$ and $\pm 0.2°C$ at $23\,°C$.

The HygroClip offers true, 100% interchangeability. Unlike products that only feature a plug-in or interchangeable sensor, the HygroClip can be replaced in seconds without any calibration and without any loss of accuracy. Inside the HygroClip, a non-volatile memory retains the calibration data, sensor characteristics, serial number, etc. ROTRONIC offers easy-to-use software and accessories for in-house calibration. If you do not wish to calibrate, or if the HygroClip needs replacement, use the unique HygroClip exchange program. This plan is supported by the ROTRONIC worldwide distribution network. The fully calibrated replacement HygroClip-R3 always contains a new humidity sensor and a brand new filter.

Radiation shields

RS41004-7A natural aspitation shield. Optimum protection against rainfall and sunshine. Suitable for horizontally incident rain up to 68 km/h.

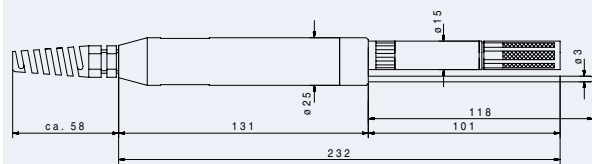VHTS1 compact, motor aspirated radiation.
Supply voltage 10…16 VDC or 24 VDC. Optimum protection in all weather conditions (mountain, sea, desert, etc.).
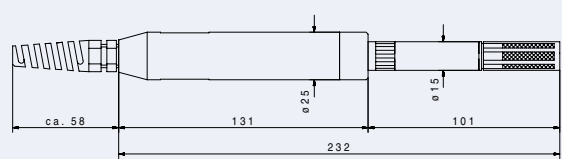Available with white or Ematal coating.

Technical data

	MP100H	MP400H
HygroClip S3 humidity temperature probe	HYGROMER™ C94 capacitive humidity sensor and 1/3 DIN RTD	
HygroClip sensor protection	Wire mesh filter (standard) / foam filter (optional)	
Separate temperature probe (T2)	Pt100 $\frac{1}{3}$ DIN (standard) 118 x 3 mm	
Operating / measuring range	- 40…+ 60 °C, 0…100 % RH	
Accuracy at 23°C	±1.5 % RH and ±0.2°C (valid for active temperature output)	
Voltage supply	3.6…35 V DC	5 V +(0,02 x load) 15 VDC max
Current consumption incl. HygroClip	10 mA	max. 45 mA
Output signal Humidity	0…1 V = 0…100 % RH	4…20 mA = 0…100 % RH
Temperature - active	Voltage output (see code list)	Current output (see code list)
Temperature - direct	2, 3 or 4-wire (see code list)	
Cable length compensation	effective up to 100 m/300ft	none, (current output)
Load (active analog outputs)	> 1000 Ohm	< 500 Ohm

Dimensional drawings (mm)

MP100H / MP400H / 1…4 (standard)

MP100H / MP400H / -0 (optional)
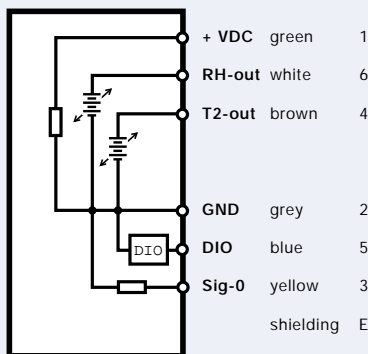
Electrical connections

Connecting cable
A PUR cable, white with 7 cores and shield is used for the standard probes. A 10-core cable is used for the optional direct RTD connection (additional temperature probe).
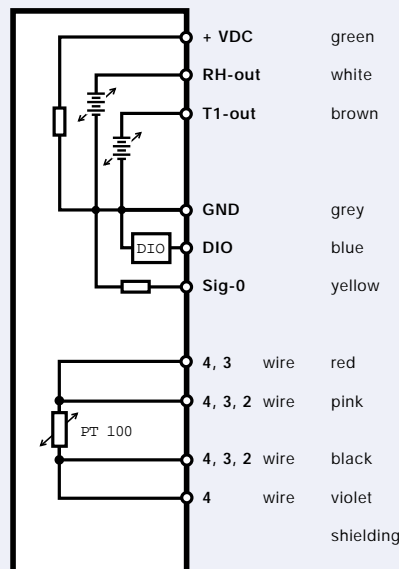
Cable compensation MP100H
The wire labelled **SIG 0** should be connected together with the GND wire at the end of the connecting cable.
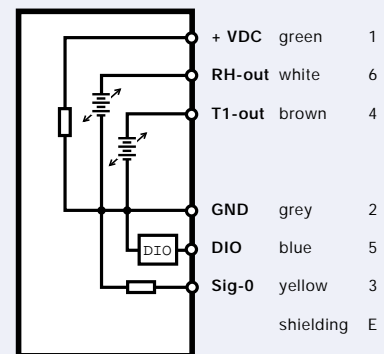
Digital output
The Digital output (DIO) transmits only the signals from the HygroClip. The DIO is well suited for further signal processing in a central unit. The maximum cable length for the DIO signal is 5 m (15 ft).

+ VDC	green	1
RH-out	white	6
T2-out	brown	4
GND	grey	2
DIO	blue	5
Sig-0	yellow	3
	shielding	E

with separate active temperature probe (standard)

+ VDC	green	
RH-out	white	
T1-out	brown	
GND	grey	
DIO	blue	
Sig-0	yellow	
4, 3	wire	red
4, 3, 2	wire	pink
4, 3, 2	wire	black
4	wire	violet
	shielding	

with separate passive temperature probe (option)

+ VDC	green	1
RH-out	white	6
T1-out	brown	4
GND	grey	2
DIO	blue	5
Sig-0	yellow	3
	shielding	E

without separate temperature probe (option)

Voltage output basic version	MP100H-
Current output basic version	MP400H-
Separate temperature probe	

without		0
with active output signal		1 (standard)
with passive output signal	2-wire	2
	3-wire	3
	4-wire	4

Signal output for MP100H	
0…1 V = 0…100 %RH, -0.4…+0.6 V = -40…60 °C	1 (compatible with MP101A)
0…1 V = 0…100 %RH, -30…70 °C	2
0…1 V = 0…100 %RH, -40…60 °C	3 (standard)

Output signal for MP400H	
4…20 mA = 0…100 %RH, 0…100 °C (max 60 °C)	7
4…20 mA = 0…100 %RH, -40…60 °C	8 (standard)
4…20 mA = 0…100 %RH, -30…70 °C	9

Connection cable PUR, standard 3 m (9 ft)		03
maximum 99 m		99
open cable with tinned ends		00 (standard)
Connector 7 pin for both versions		on request
Separate temperature probe	Pt100 ⅓ DIN	-03 (standard)
	Pt100 ⅕ DIN	-05
	Pt100 ⅒ DIN	-10

Ordering data for accessories

HygroClip R3	Replacement sensor module
RS41004-7A	Radiation shield (16 plates)
VHTS1-W-00	Ventilated radiation shield with white coating
VHTS1-EM-00	Ventilated radiation shield with Ematal coating
ET-7008/xx	PUR cable 7 core white (xx = number of meters)
ET-7012/xx	PUR cable 10 core white (xx = number of meters)
ER-15	Calibration device for HygroClip
EAxx-SCS	Certified humidity standards (box of 5)
	xx = 0, 5, 10, 20, 35, 50, 65, 80, 95 %RH
MOK-03-WIN	Calibration cable for HygroClip (plugs into the COM port of a PC)
HW3	HygroClip calibration software on CD ROM (Windows 95/98)