HYGROCLIP ⟨Ex⟩

HYGROCLIP®

Humidity Goes Digital

Intrinsically Safe Humidity and Temperature Measurement

- Rated Eex ia IIC T6 (I/II M1 1G/D) for Zone 0 hazardous areas
- Digital output of %rh and °C
- Compatible with HygroFlex Industrial Transmitter
- Operates as stand-alone 2 wire 4…20 mA humidity transmitter
- Hi grade stainless steel construction
- PTB 01 ATEX 2180

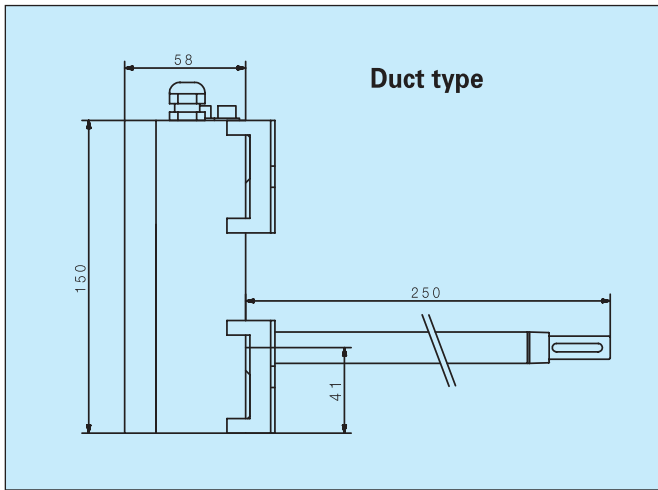## rotronic®

LEADING IN HUMIDITY MEASUREMENT

Digital Ex Humidity and
Temperature Measurement

HygroClip Ex is a series of probes for the measurement of humidity and temperature in hazardous areas, incorporating the latest digital signal processing and data transmission technology. Suitable for connection to the HygroFlex range of industrial transmitters, or for use as a stand alone 4…20 mA 2 wire transmitter, the HygroClip Ex probes offer wide measurement ranges and flexible installation options.

The Ex probes are based on ROTRONIC's innovative HygroClip technology, and feature a custom ASIC to provide the highest possible accuracy with features such as digital calibration and probe interchangeability. Each probe is constructed throughout from high grade stainless steel, with full IP65 protection, and can be fitted with up to 200 m of cable to the Zener Barrier. Probes feature a replaceable filter system which protects the sensors from high air velocity, dust, grease etc. To comply with hazardous area standards, a Zener Barrier is required between the HygroClip Ex probes and the HygroFlex, or when used as a 2 wire 4…20 mA transmitter, between the probe and the control or monitoring system.

All three probes measure over the range of 0…100 %rh thanks to the well proven Hygromer humidity sensor technology which has excellent long term stability, high tolerance to chemical contamination, and withstands exposure to condensation without any effect on calibration stability. Temperature range is dependent on the version used, with a maximum capability of -50…+200 °C.

Duct type

HygroClip ID-Ex
Suitable for duct or through-the-wall installation with a robust 250 x 15 mm stainless steel probe. Temperature measuring range is 0…100 °C, provided the electronics enclosure does not exceed the Ex temperature rating (-20…+40 °C).

HygroClip IW-Ex
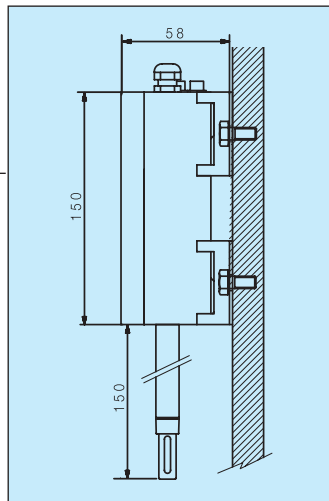For wall mounted applications with an external stainless probe (150 x 15mm Ø).
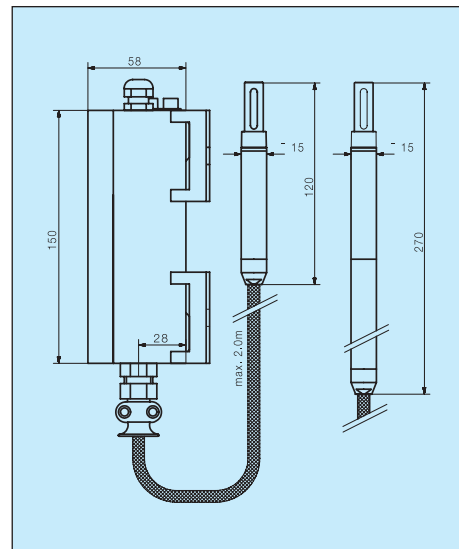
HygroClip IC-Ex
Cable mounted probe for use in applications with high or low temperatures (-50…+200 °C) or where installation flexibility is required.
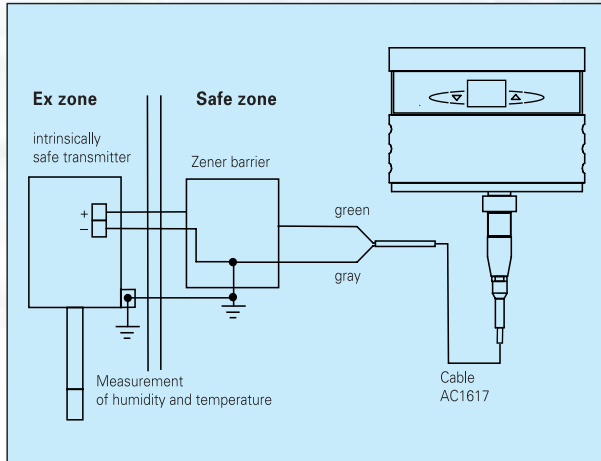
The robust stainless steel probe is available in two lengths, 120 and 270 mm, and both are fitted with a 2 m cable. Probe mounting is by a compression fitting, see ordering information (AC1301-MEX).

HygroClipEx
Configuration Options

Digital Ex
Humidity and
Temperature
Applications

Ex zone

intrinsically
safe transmitter

Safe zone

Zener barrier

green

gray

Measurement
of humidity and temperature

Cable
AC1617

**Combined Transmitter
for humidity temperature measurement**
HygroClip Ex used with the HygroFlex transmitter
(Factory standard configuration).

Ex zone

Safe zone

Earthing rod
(Potential balance)

+26V max.

U_A

4...20mA

0
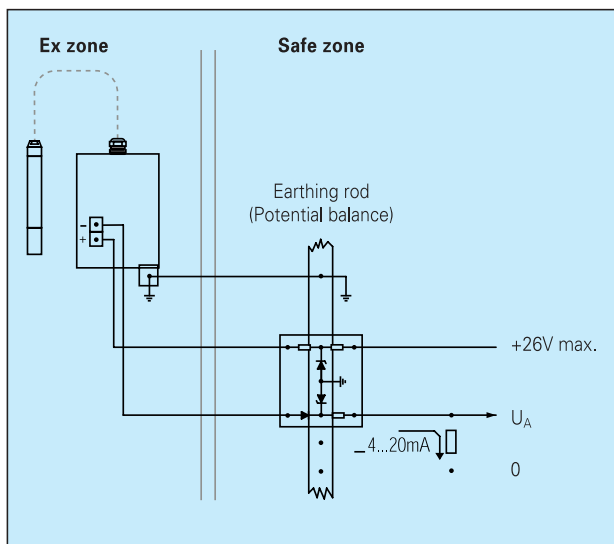
**Stand alone humidity or
temperature transmitter**
Operates on a 2 wire 4…20 mA
loop basis for %rh or °C
(Jumper configurable).

OIL & GAS

PETROCHEMICALS

MINING

SUBMARINES

WEAPONS STORES

**PHARMACEUTICAL
PRODUCTION**

SUGAR PROCESSING

- SEV: Eex ia IIC T6 (1/11 M1 1G/D)
- PTB 01 ATEX 2180
- II IG EEx ia IIC T5
- II IG EEx ia iic T6

HYGROCLIP Ex

Technical Specifications and ordering information

SPECIFICATIONS	HYGROCLIP ID-EX	HYGROCLIP IW-EX	HYGROCLIP IC-EX
Humidity measuring range	0…100 %rh		
Temperature measuring range	t = -30…100 °C*	t = -20…+40 °C	t = -50…+200 °C
Accuracy at 23 °C	±1.5 %rh, 0.3 K		
Repeatability	< 0.5 %rh, 0.1 °C		
Response time	<15 s at 1 ms-1 air velocity at 23 °C		
Long term stability	< 1 %rh, 0.1 °C per year		
Sensors	%rh - Hygromer C94, °C - Pt100 1/3 DIN		
Adjustment points	35, 80, 10 & 0 %rh, T0 & Tmax (digital)		
Electronics operating range	-20…+40 °C, 0…100 %rh		
Output signals	Digital 4…10 mA, Analogue 4…20 mA		
Load	Max 800 Ω at 26 VDC		
Power	Ui = 28 V, Ii = 195 mA, Pi = 830 mV, Ci = 11 nf		
Enclosure	IP65 Stainless steel, 150 x 100 x 58mm		
Probe dimensions	250 x 15 mmØ	150 x 15 mmØ	IC1 120 x 15 mmØ, 2 m cable
			IC2 270 x 15 mmØ, 2 m cable
Approvals	SEV: Eex ia IIC T6 (1/11 M1 1G/D), PTB 01 ATEX 2180, II IG EEx ia IIC T5, II IG EEx ia IIC T6		

* Subject to the electronics working within the range −20…+40 °C

ORDERING INFORMATION

| Order Code:	Description:
HygroClip ID-EX	Duct mount probe for Ex applications
HygroClip IW-EX	Wall mount probe for Ex applications
HygroClip IC1-EX	Cable mount probe for Ex applications, 120 mm
HygroClip IC3-EX	Cable mount probe for Ex applications, 270 mm
XXET-7018	Blue cable between HygroClip IC,IW,ID-EX and Zener barrier. XX = cable length
AC1301-MEX	Fitting for mounting of HygroClip IC-Ex (see dimensional diagram below)
HTS11D	HygroFlex Transmitter 4…20 mA, , 0…100 %rh / 0…100 °C, supply 24 V AC / DC, display
	For detailed information, see HygroFlex datasheet.
ZB1	Zener barrier, DIN rail mount
ZB1 420	Zener barrier, DIN rail mount , for 2 wire loop power applications.
ZB2	Zener barrier, with ZB housing (space for 4 ZB1 in total), one ZB1 include
ZB2 420	Zener barrier , with ZB housing (space for 4 ZB2 in total) one ZB2 included
ZB housing	Special enclosure for 4 Zener barriers
AC1617ZB005	5m connecting cable for Zener Barrier to HygroFlex
	(must be used in combination with HygroFlex)
SP-M15	Wire mesh filter element, fast response, ideal for high humidity
SP-S15	Sintered stainless steel filter for high air velocities up to 40ms-1
SP-T15	Teflon foam filter for the highest level of filtration
ER-15	Calibration device for all HygroClip Ex probes
EAxx-SCS	Pack 5 SCS certified humidity standards, where xx = 0,5,10,11,20,35,50,65,75,80 or 95 %rh

Fitting

Ø15 M 25 x 1.5

31
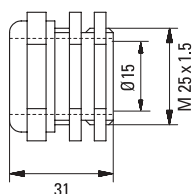
Filters

Filtre en acier fritté
Sintered stainless
steel filter
Vmax = 40 m/s
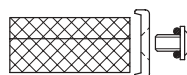
Filtre en grillage
Wire mesh filter
Vmax = 20 m/s
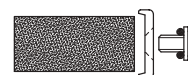
Filtre en téflon
Teflon filter
Vmax = 20 m/s