

# EX-PROTECTED HUMIDITY AND TEMPERATURE TRANSMITTER



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## RELIABLE MEASUREMENTS UNDER EXTREME CONDITIONS.

- Measurement of relative humidity and temperature, optional output of dew point and other calculated parameters
- Safe operation in areas with explosion risk
- Intrinsically safe probes
- Interchangeable stainless steel probes
- Robust aluminium housing



**rotronic**  
MEASUREMENT SOLUTIONS

## TAKE A CLOSE LOOK: THE MAIN ADVANTAGES AT A GLANCE.

The new HygroFlex5-EX series is the latest development in two-channel transmitters for the exact measurement of humidity and temperature in explosive atmospheres. This device conforms to the latest international standards.

The HF5-EX series consists of a robust aluminium transmitter with or without display. The attached probes are cast into a stainless steel tube, and are certified for operation in Zone 0/20. The transmitter itself is certified for Zone 1/21.

### Functional display

- Measurement values with trend indicators
- Configuration via keypad possible

### Proven housing

- Robust, reliable aluminium housing
- Protection class IP66
- Wall or duct mount possible

### Power supply

- 10...28 VDC

### Outputs

- The two analogue outputs can be freely selected and scaled
- 2-wire (2 x 4...20 mA)

### Interchangeable probes

- Different probes can be connected to suit the application
- Easy calibration of the probes outside the explosive zone

### Explosion protection classes (gas and dust)

#### • Transmitter:

- Ex II 2(1) G Ex eb mb [ia Ga] IIC T5 Gb
- Ex II 2(1) D Ex tb [ia Da] IIIC T80 °C Db

#### • Probes:

HC2-SM-EX

- Ex II 1/2 G Ex ia IIC T5 Ga/Gb
- Ex II 1/2 D Ex ia IIIC T80 °C Da/Db

HC2-IM-EX / HC2-IE-EX

- Ex II 1/2 G Ex ia IIC T5-T4 Ga/Gb
- Ex II 1/2 D Ex ia IIIC T80 °C...110 °C Da/Db

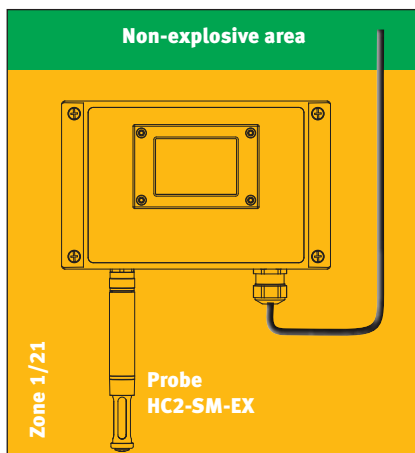


### Easy configuration

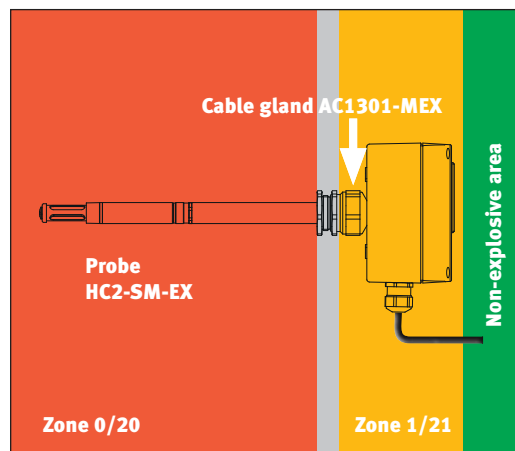
- The configuration can be specified directly when ordering
- Configuration on site is also possible, using the HW4 software

## INTERCHANGEABLE STAINLESS STEEL PROBES.

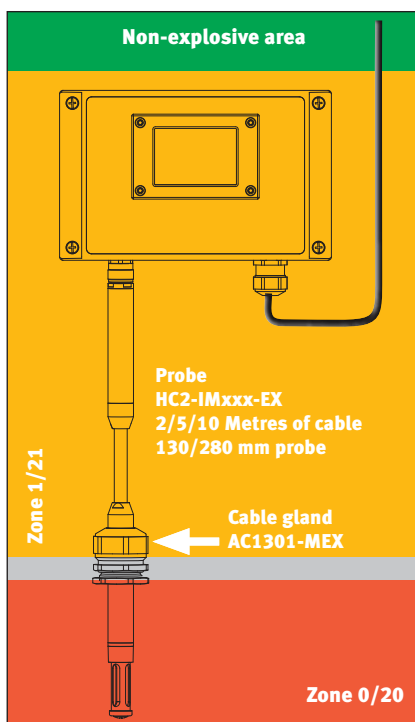
Wall mounting



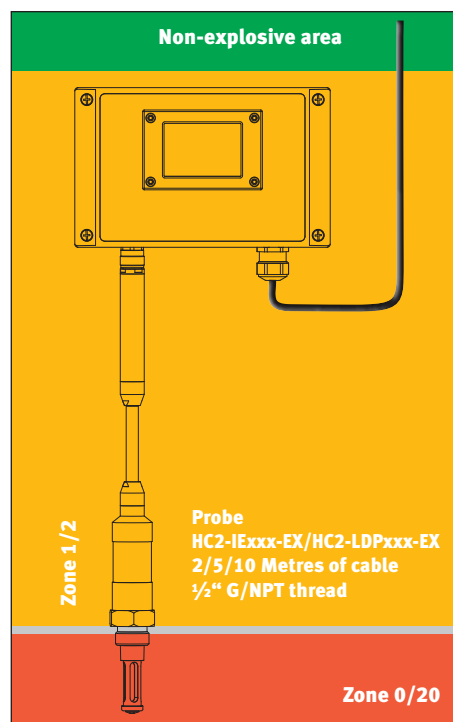
Duct mounting



Cable probe for flexible installation



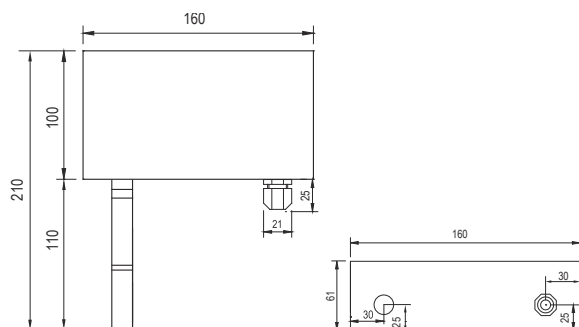
Screw-in cable probe for pressure pipe or low dew point



# TECHNICAL INFORMATION.

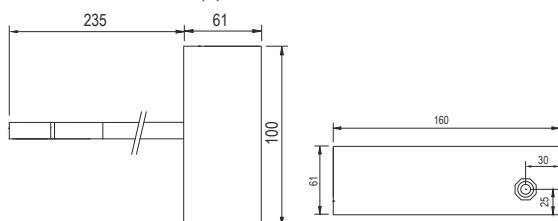
## HF520-EX-W

Wall mounted version (W)

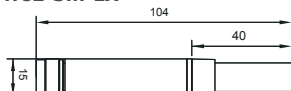


## HF520-EX-D

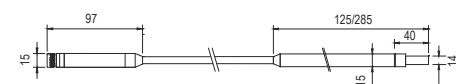
Duct mounted version (D)



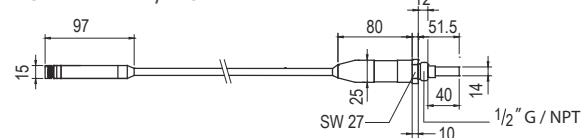
## HC2-SM-EX



## HC2-IMxxx-EX



## HC2-IExxx-EX / HC2-LDPxxx-EX



### Identification EX North America

Class I, Div 1/2, Groups ABCD T5...T4,  
Class II, Div 1/2, Groups EFG T80 °C...T110 °C  
Ex e mb [ia Ga] IIC T5...T4 Ga/Gb  
Ex tb [ia Da] IIIC T80 °C...T110 °C Da/Db  
Class I, Zone 0/1, AEx e mb [ia Ga] IIC T5...T4 Ga/Gb  
Class II, Zone 20/21, AEx tb [ia Da] IIIC T80 °C...T110 °C Da/Db

## HF520-EX

| General                       |  |
|-------------------------------|--|
| Parameters                    | Humidity and temperature   |
| Calculated parameters         | All psychrometric parameters available   |
| Housing material / Protection | Aluminium (DIN EN 1706 EN AC-AISI 12 (Fe)) / IP66  |
| Weight                        | Wall mounted version: 1030 g<br>Duct mounted version: 1140 g   |
| Start-up time                 | Standard cold <60 s / warm <30 s   |
| Measurement interval          | 20...240 s   |
| Display                       | Optional, LCD without backlight  |
| Electrical connections        | Connections: Ex-e terminals (0.2...2.5 mm <sup>2</sup> )<br>Cable gland: 16 x 1.5 (Ø cable 4.5...7 mm) |
| Power supply                  | 10...28 VDC  |
| Current Consumption           | 2x24 mA start up / 2x20 mA operation   |
| Application temperature       | -40...60 °C without display  |
| Housing / electronics         | -10...60 °C with display   |
| Service interface             | UART internal service interface<br>(only to be used outside the explosive zone)                        |
| CE / EMC compatibility        | EMC Directive 2014/30/EU   |
| ATEX directives               | 2014/34/EU (ATEX) CSA22.2, UL 508  |
| Identification EX             | ⚠ II 2(1) G Ex eb mb [ia Ga] IIC T5 Gb<br>⚠ II 2(1) D Ex tb [ia Da] IIIC T80 °C Db                     |
| Analogue output               |  |
| Number                        | 2  |
| Current                       | 4...20 mA, two-wire  |
| Galvanic isolation            | Yes  |
| Maximum load                  | 500 Ohms   |
| Accuracy at 23 °C             | <20 uA   |

## HC2-SM-EX / HC2-IM-EX / HC2-IE-EX / HC2-LDP-EX

| General                       |   |
|-------------------------------|---|
| Parameters                    | Humidity and temperature  |
| Housing material / Protection | Stainless steel / IP66  |
| Cable lengths                 | 2/5/10 metres   |
| Identification EX             | ⚠ II 1/2 G Ex ia IIC T5...T4 Ga/Gb<br>⚠ II 1/2 D Ex ia IIIC T80 °C ...T110 °C Da/Db |
| Humidity measurement          |   |
| Sensor                        | HC2-SM/IM/IE-EX: ROTRONIC HYGROMER® IN-1<br>HC2-LDP-EX: ROTRONIC HYGROMER® LDP-1    |
| Adjustment                    | Not via device menu<br>(only outside the explosive zone with HW4 + AC3001)          |
| Measurement range             | 0...100 %RH   |
| Accuracy at 23 °C             | 0.8 %RH   |
| Temperature measurement       |   |
| Sensor                        | HC2-SM/IM/IE-EX: Pt100 Class A<br>HC2-LDP-EX: Pt1000 1/3 Class B                    |
| Measurement range             | -40...60 °C or -40...85 °C  |
| Accuracy at 23 °C             | 0.1 K   |

## Accessories

|             |  |
|-------------|--|
| Filters     | Steel sinter filter, SP-FN15                       |
| Cable gland | AC1301-MEX for duct mounting and cable probes (IM) |

Would you like more information (special applications, ordering codes, etc.)? You will always find an up-to-date overview of the HygroFlex5-EX series on our Internet site at [www.rotronic.com](http://www.rotronic.com).



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