

# HC2A-IC/IM/IE



HC2A-IC Series  
HC2A-IC-A Series



HC2A-IM-M Series



HC2A-IE Series

## ADVANTAGES

- Measures relative humidity and high temperatures up to 200 °C
- Built in Hygromer HT-1 sensor with advanced housing and construction
- High accuracy measurement, repeatability and long-term stability
- Hot swapable: Fast exchange without readjustment

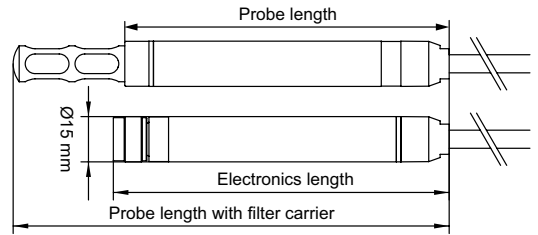
## APPLICATIONS

- Production environment
- Industrial Manufacturing
- Drying processes
- Climate chambers



## Industrial Cable Probe HC2A-IC Series

- Application range: 0...100 %RH, -100...200 °C<sup>1</sup>
- Accuracy: ±0.8 %RH, ±0.1 K @ 23°C
- Humidity sensor: HYGROMER HT-1
- Materials: PPS, stainless steel 1.4301



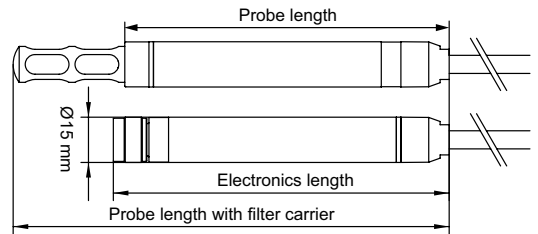
| Order Code | Probe diameter | Probe length | Probe length with filter carrier | Electronic length | Cable length             |
|------------|----------------|--------------|----------------------------------|-------------------|--------------------------|
| HC2A-IC102 | Ø 15 mm        | 100 mm       | 144 mm                           | 111 mm            | 2000 mm (1920 - 2000 mm) |
| HC2A-IC105 |                |              |                                  |                   | 5000 mm (4850 - 5000 mm) |
| HC2A-IC302 |                | 250 mm       | 294 mm                           |                   | 2000 mm (1920 - 2000 mm) |



Delivery package: With Filter carrier (SPA-SS), without Filter. Filters must be purchased additionally.

## Steel Industrial Cable Probe HC2A-IM Series

- Application range: 0...100 %RH, -100...200 °C<sup>1</sup>
- Accuracy: ±0.8 %RH, ±0.1 K @ 23°C
- Humidity sensor: HYGROMER HT-1
- Materials: stainless steel 1.4301



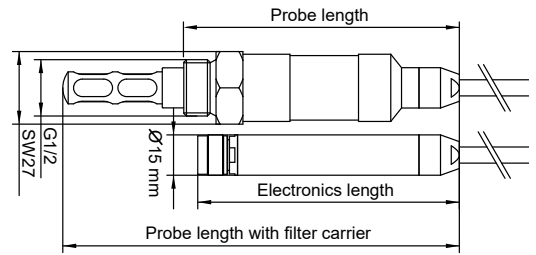
| Order Code   | Probe diameter | Probe length | Probe length with filter carrier | Electronic length | Cable length             |
|--------------|----------------|--------------|----------------------------------|-------------------|--------------------------|
| HC2A-IM102-M | 15 mm          | 86 mm        | 130 mm                           | 97 mm             | 2000 mm (1920 - 2000 mm) |
| HC2A-IM302-M |                | 236 mm       | 280 mm                           |                   | 2000 mm (1920 - 2000 mm) |
| HC2A-IM305-M |                |              |                                  |                   | 5000 mm (4850 - 5000 mm) |



Delivery package: With Filter carrier (SPA-SS), without Filter. Filters must be purchased additionally.

## Screw-in Probe HC2A-IE Series

- Application range: 0...100 %RH, -100...200 °C<sup>1</sup>
- Accuracy: ±0.8 %RH, ±0.1 K @ 23°C
- Humidity sensor: HYGROMER HT-1
- Pressure resistant to 100 bar / 1450 PSI
- Materials: stainless steel 1.4301



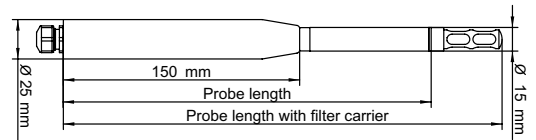
| Order Code    | Thread   | Probe length | Probe length with filter carrier | Electronic length | Cable length             |
|---------------|----------|--------------|----------------------------------|-------------------|--------------------------|
| HC2A-IE02-G   | 1/2" G   | 104 mm       | 148 mm                           | 97 mm             | 2000 mm (1920 - 2000 mm) |
| HC2A-IE02-NPT | 1/2" NPT |              |                                  |                   |                          |



Delivery package: With Filter carrier (SPA-SS), without Filter. Filters must be purchased additionally.

## Industrial Cable Probe HC2A-IC-A Series Coming soon

- Application range: 0...100 %RH, -100...200 °C<sup>1</sup>
- Accuracy: ±0.8 %RH, ±0.1 K @ 23°C
- Humidity sensor: HYGROMER HT-1
- Materials: stainless steel 1.4301



| Order Code   | Probe diameter | Probe length | Probe length with filter carrier | Electronic length | Cable length             |
|--------------|----------------|--------------|----------------------------------|-------------------|--------------------------|
| HC2A-IC402-A | Ø 15/25 mm     | 384 mm       | 428 mm                           | 111 mm            | 2000 mm (1920 - 2000 mm) |
| HC2A-IC702-A |                | 684 mm       | 728 mm                           |                   |                          |



Delivery package: With Filter carrier (SPA-SS), without Filter. Filters must be purchased additionally.

## Filters for HC2A-IC / IM / IE

| Order Code   | Filter carrier                              | Filter Element      | Pore size | Application Range |
|--------------|---|---------------------|-----------|-------------------|
| SPA-PCB-PE   | Polycarbonate, black                        | Polyethylene, white | 40-50 µm  | -50...100°C       |
| SPA-PCB-PTFE |   | PTFE, white         | 10 µm     |                   |
| SPA-PCB-WM   |   | Wire mesh 1.4401    | 10 µm     |                   |
| SPA-PCW-PE   | Polycarbonate, white                        | Polyethylene, white | 40-50 µm  |                   |
| SPA-PCW-PTFE |   | PTFE, white         | 10 µm     |                   |
| SPA-PCW-WM   |   | Wire mesh 1.4401    | 10 µm     |                   |
| SPA-PE       | No filter carrier, only filter              | Polyethylene        | 40-50 µm  | -100...200 °C     |
| SPA-PTFE     |   | PTFE, white         | 10 µm     |                   |
| SPA-WM       |   | Wire mesh 1.4401    | 10 µm     |                   |
| SPA-SS-WM    | 1,4301                                      |                     |           |                   |
| SPA-SSS      | Sintered steel, 1.4404 (Carrier and filter) |                     | 25 µm     |                   |
| SPA-SS-PFTE  | Stainless steel, 1.4301                     | Teflon              | 10 µm     |                   |
| SPA-SS       |   | No filter           | -         |                   |

Standard: SPA-SS without Filter

## Compatibility

HF5, HF8, HP32, HP23

HC2A-IC102 in combination with the HF5 transmitter (most popular application).



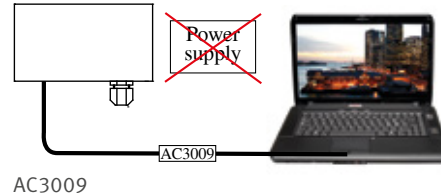
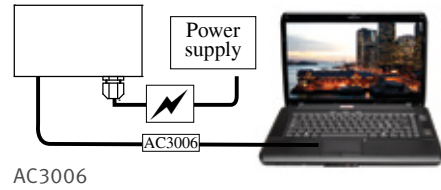
## Service Cables

FOR HF, HP21 / 22, HL-20

### Features

- Connects Rotronic instruments via their service interface (UART) to a USB interface
- Requires HW4 software
- For programming (settings, scaling, firmware update, etc.)
- Two different types:
  - AC3006, the instrument must be supplied with power.
  - AC3009, the instrument is supplied with power via the USB interface.

AC3006 in combination with a 2-wire type: with all 2-wire types (HF320, HF420, HF520, HF620, HF720) ensure that the computer or laptop is galvanically isolated from the main power supply.

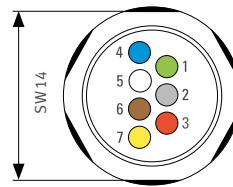


## Technical Information

### Technical Data for HC2A-IC / IM / IE

|                             |   |
|-----------------------------|---|
| Humidity sensor             | HYGROMER HT-1   |
| Temperature sensor          | PT100 1/3 class B   |
| Response time sensor        | $\tau_{63}$ : <15 s without filter, (temperature and humidity)  |
| Max. air velocity (m/s)     | 3.5 without filter  |
| Operating humidity          | 0...100 %RH   |
| Operating temperature       | -50...+100 °C <sup>2</sup> Electronics<br>-100...200 °C <sup>1</sup> Measuring head   |
| Accuracy @ 23 °C            | ±0,8 %RH ±0,1 K   |
| Factory adjustment          | @23°C and 10, 35, 80 %rH  |
| Long-term stability         | < 1 %RH / year  |
| Supply voltage              | 3.3...5 VDC   |
| Current consumption         | Approx. 5 mA (adjusted at 3.3 VDC)  |
| Protection rating           | IP65 (except the sensor area)   |
| Digital communication       | UART (19200 baud fixed)   |
| Protocols                   | RoAscii (default)<br>MODBUS (setting with HW4)  |
| Analogue outputs            | 2x 0...1 VDC  |
| Analogue outputs parameters | <ul style="list-style-type: none"> <li>• Humidity (default)</li> <li>• Temperature (default)</li> <li>• Dew point (setting with HW4)</li> <li>• Frost point (setting with HW4)</li> </ul> |
| Analog output scaling       | <ul style="list-style-type: none"> <li>• Humidity (0...100 %RH = 0...1 V)</li> <li>• Temperature (-40...60 °C = 0...1 V)</li> <li>• Freely settable with HW4</li> </ul>                   |
| Timing                      | 1st measurement after 1.5 s<br>Measurement interval 1 s   |
| Air Chip 3000               | Saves adjustment data so that probes can be interchanged without re-adjusting   |
| Compatible devices          | HF5, HF8, HP32, HP23, HL-NT   |
| Delivery package            | <ul style="list-style-type: none"> <li>• Probe</li> <li>• Certificate</li> <li>• Filter holder, filter itself is not included</li> </ul>  |

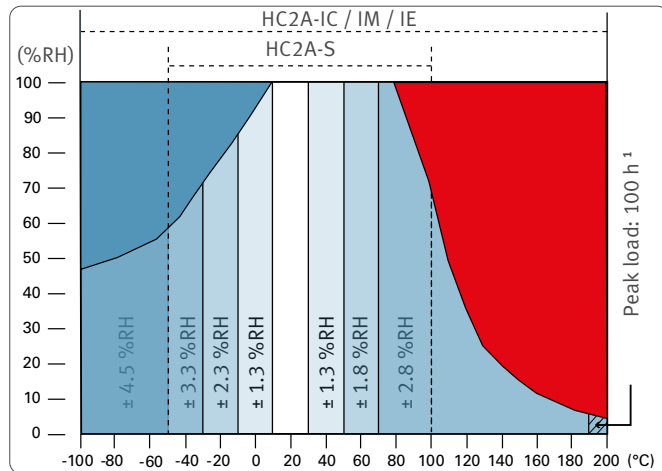
### Connector pin-out



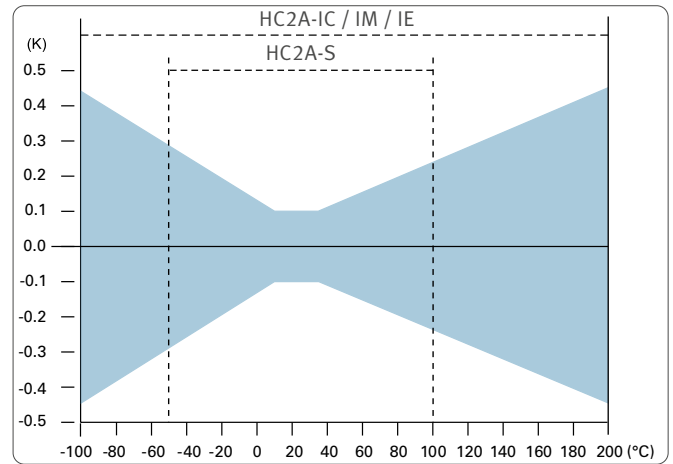
- 1 ● V+
- 2 ● GND (digital and supply)
- 3 ● RXD (UART)
- 4 ● TXD (UART)
- 5 ○ Analog signal humidity (0...100 %RH = 0...1 V)
- 6 ● Analog signal temperature (-40...60 °C = 0...1 V)
- 7 ● AGND (analog ground)

## Accuracy of HC2 Probes

### Humidity Window



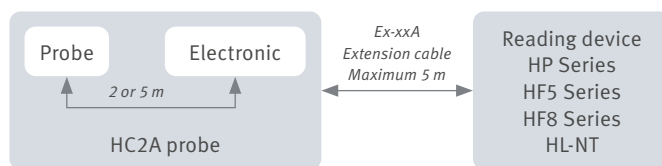
### Temperature Window



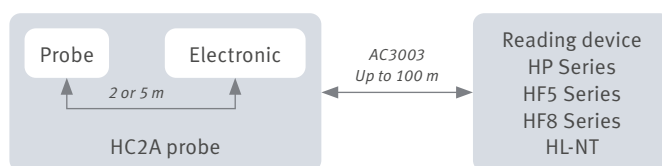
## Possible Extension Cables

It is possible to extend the distance between the probe and its reading device with extension cable.

- Passive connection are possible up to 5m (see table below for possible options).
- An amplifier cable (AC3003) allows connections up to 100m.



| Order Code | Cable Length        | Color |
|------------|---------------------|-------|
| E2-01A     | 1 m (0.95 - 1.05 m) | Black |
| E2-02A     | 2 m (1.92 - 2.08 m) |       |
| E2-05A     | 5 m (4.85 - 5.15 m) |       |
| E3-01A     | 1 m (0.95 - 1.05 m) | White |
| E3-02A     | 2 m (1.92 - 2.08 m) |       |
| E3-05A     | 5 m (4.85 - 5.15 m) |       |



| Order Code | Description  | Cable Length        |
|------------|--|---------------------|
| AC3003     | Signal amplifier, probe and instrument side with luster terminal | Self assembly       |
| AC3003/10  | AC3003 with luster terminal and pre-assembled Cat. 5 cable       | 10 m (9.8 - 10.2 m) |
| AC3003/50  |  | 50 m                |

Subject to technical change without notice. Printing and other errors reserved.

<sup>1</sup> Peak load: 100h. Maximal permissible continuous load: 190°C.

<sup>2</sup> Temperatures above 40 °C can have an influence on the accuracy.