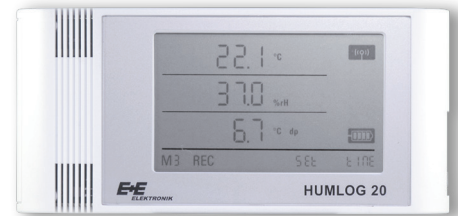


# Humlog 20

## Data logger for Humidity, Temperature, Air Pressure and CO<sub>2</sub>

The Humlog 20 facilitates exact and professional recordings for climatic measurements of humidity, temperature, air pressure and CO<sub>2</sub> concentration.

The long battery life and large memory allow for continuous data recording over long periods of time. The configuration of the data logger and the evaluation of the measurement data are simple and straightforward using SmartGraph3 software, which is included in the scope of supply. The built-in Ethernet interface makes the Humlog 20 Network capable, and ensures maximum reliability in data transmission. For various requirements in the application, the four models **THI**, **THIP**, **TCO** and **E** are available. The Model **E** offers the highest flexibility with analogue and digital interface for external sensors.



Humlog 20 THI



Humlog 20 THIP



Humlog 20 TCO



Humlog 20 E

| Measurement Categories                      | Model     |           |            |            |
|---|-----------|-----------|------------|------------|
|   | THI       | THIP      | TCO        | E          |
| Temperature (air)                           | ✓         | ✓         | ✓          |            |
| Relative humidity                           | ✓         | ✓         | ✓          |            |
| Absolute humidity                           | ✓         | ✓         | ✓          |            |
| Dew point temperature                       | ✓         | ✓         | ✓          |            |
| Barometric air pressure                     |           | ✓         |            |            |
| Relative air pressure                       |           | ✓         |            |            |
| CO <sub>2</sub> Concentration               |           |           | ✓          |            |
| External input - digital RH/T-Sensor        |           |           |            | ✓          |
| External input - Pt100, Thermocouple        |           |           |            | ✓          |
| Analogue input voltage 0 - 1 V              |           |           |            | ✓          |
| Analogue input current 0/4 - 20 mA          |           |           |            | ✓          |
| <b>Functions</b>                            |           |           |            |            |
| Power supply battery                        | ✓         | ✓         | ✓          | ✓          |
| Power supply USB                            | ✓         | ✓         | ✓          | ✓          |
| Measured data storage                       | 3 200 000 | 3 200 000 | 3 200 000  | 3 200 000  |
| Battery life, typ.                          | > 1 year  | > 1 year  | > 4 months | > 4 months |
| LC-display                                  | ✓         | ✓         | ✓          | ✓          |
| One-button operation                        | ✓         | ✓         | ✓          | ✓          |
| 1-point calibration by operator             | ✓         | ✓         | ✓          | ✓          |
| °C/°F switchable                            | ✓         | ✓         | ✓          | ✓          |
| Optical / acoustical alarm                  | ✓         | ✓         | ✓          | ✓          |
| Date / time                                 | ✓         | ✓         | ✓          | ✓          |
| Records MIN/MAX/AVG                         | ✓         | ✓         | ✓          | ✓          |
| SmartGraph3 evaluation software             | ✓         | ✓         | ✓          | ✓          |
| <b>Functions Software</b>                   |           |           |            |            |
| Graphical representation                    | ✓         | ✓         | ✓          | ✓          |
| Numerical data display                      | ✓         | ✓         | ✓          | ✓          |
| Print function                              | ✓         | ✓         | ✓          | ✓          |
| Export function (e.g. Excel)                | ✓         | ✓         | ✓          | ✓          |
| Gathered printouts of all measurement sites | ✓         | ✓         | ✓          | ✓          |
| User administration                         | ✓         | ✓         | ✓          | ✓          |
| Administration of up to 255 data logger     | ✓         | ✓         | ✓          | ✓          |

### Typical Applications

- Museums and exhibition spaces
- Clean rooms
- Warehouses
- Data centres
- Calibration laboratories

### Features

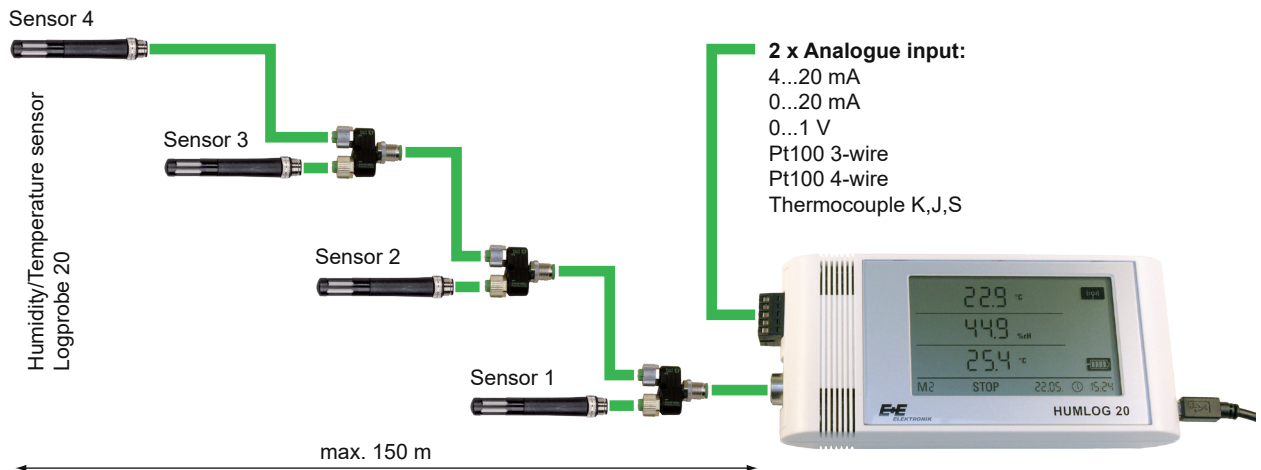
- Large data memory
- Large format display
- USB and Ethernet interface
- Network-capable
- Powerful software for data analysis

## Humlog 20 E Configuration Examples

The Humlog 20 E is equipped with a digital input, which allows the connection of up to four external humidity/temperature sensors.

Two additional analogue inputs for sensors with voltage or current output, Pt100 temperature sensors in 3 and 4 wire technology or Thermocouple J, K and S offer highest flexibility in the application.

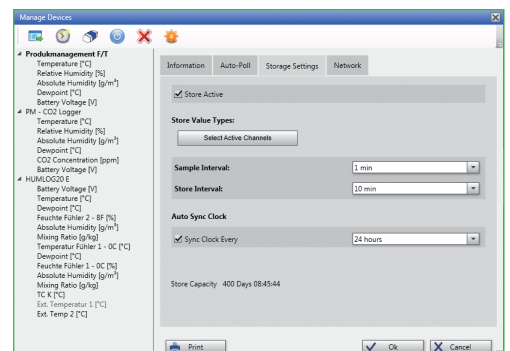
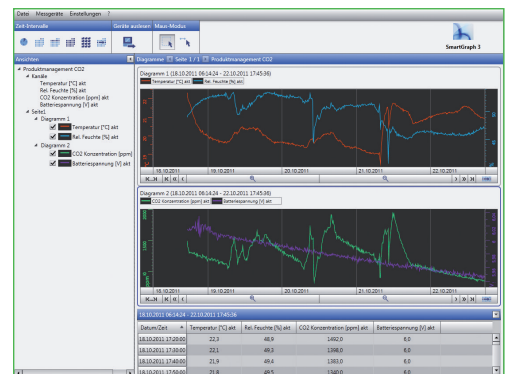
Each fully equipped Humlog 20 E is a 10 channel data logger that can record various data.



## Software SmartGraph3

With SmartGraph3 the gathering of measured data is simple and as intuitive as possible:

- A Humlog 20 data logger is automatically recognized and added as a "network device".
- In addition to its data-readout function, the software possesses a recording mode that enables parallel recording to be displayed on the computer.
- The data from any desired number of Humlog 20 devices can be read out simultaneously.
- The zoom function allows for quick analyses of critical time periods.
- The export of measured data in csv format enables further processing in EXCEL.
- The device configuration can be printed out in order to check installation parameters.
- Alarm limits - like the measured data - are chronologically managed at various times so that when changes in alarm limits occur, they can be retracted.
- Automatic data readout of all measured data is supported.



## Technical Data

### General

|                             |   |                             |
|-----------------------------|---|-----------------------------|
| Dimensions                  | Length 166 mm, width 78 mm, depth 32 mm                       |                             |
| Housing / protection rating | Plastic ABS / IP40  |                             |
| Battery lifetime            | THI, THIP:  | > 1 year                    |
|                             | TCO, E:   | > 4 months                  |
| Data storage                | 16 MB, 3 200 000 measured values                              |                             |
| LC-Display                  | Size 90x64 mm   |                             |
| Weight                      | Approx. 250 g (0.55 lbs)                                      |                             |
| Interface                   | USB, LAN (Ethernet)   |                             |
| Measurement rate            | 10/30 s, 1/10/12/15/30 min, 1/3/6/12/24 h                     |                             |
| Storage rate                | 1/10/12/15/30 min, 1/3/6/12/24 h                              |                             |
| Power supply                | Battery 4 x LRG AA Mignon (not in the scope of supply) or USB |                             |
| Working range               | Temperature:  | -20...50 °C (-4...120 °F)   |
|                             | Humidity:   | 0...95 %RH (non-condensing) |
| CE compatibility according  | EN 61000-6-2  | EN 55022                    |
|                             | EN 6100-4-2 to EN 6100-4-6                                    |                             |



### Measurements

#### Relative Humidity

|                   |             |
|-------------------|-------------|
| Sensor            | Capacitive  |
| Measurement range | 10...95 %RH |
| Accuracy at 20°C  | ±2 %RH      |
| Resolution        | 0.1 %RH     |

#### Temperature

|                   |   |
|-------------------|---|
| Sensor            | NTC   |
| Measurement range | -20...50 °C (-4...120 °F)                           |
| Accuracy          | ±0.3 °C (0...40 °C; 32...102 °F), otherwise ±0.5 °C |
| Resolution        | 0.1 °C  |

#### Air pressure (only Model THIP)

|                   |   |
|-------------------|---|
| Measurement range | 300...1300 hPa absolute                 |
| Accuracy at 25°C  | ±0.5 hPa in the range of 700...1100 hPa |
| Resolution        | 0.1 hPa                                 |

#### CO<sub>2</sub> (only Model TCO)

|                               |  |
|-------------------------------|--|
| Sensor                        | Dual wavelength NDIR operation principle   |
| Measurement range             | 0...5000 ppm   |
| Accuracy                      | ± (50 ppm +3 % of measured value)  |
| Resolution                    | 1 ppm  |
| Long-term stability           | 20 ppm/year  |
| Response time t <sub>90</sub> | < 195 s for measurement rate 10 s  |
| Temperature dependence, typ.  | 2 ppm CO <sub>2</sub> /°C (0...50 °C / 32...122 °F) different from 25 °C (77 °F) |

#### Voltage input 0-1V (only Model E)

|                   |                                    |
|-------------------|------------------------------------|
| Measurement range | 0...1 V                            |
| Accuracy          | ±(200 µV +0.1 % of measured value) |
| Resolution        | 500 µV                             |

#### Current input (only Model E)

|                   |  |
|-------------------|--|
| Measurement range | 2-wires: 4 - 20 mA<br>3-wires: 0 - 20 mA |
| Accuracy          | ±(4 µA +0.1 % of measured value)         |
| Resolution        | 5 µA                                     |
| Resistance        | Max. 50 Ohm                              |

#### Thermocouple K, J, S (only Model E)

|                   |              |                                  |
|-------------------|--------------|----------------------------------|
| Measurement range | K, J:        | -200...1200 °C                   |
|                   | S:           | -50...1700 °C                    |
| Accuracy          | -200...0 °C: | ±(1 °C +0.5 % of measured value) |
|                   | 0...1700 °C: | ±(1 °C +0.2 % of measured value) |
| Resolution        | 0.2 °C       |                                  |

#### Pt100 (only Model E)

|                   |                                    |
|-------------------|------------------------------------|
| Measurement range | -200...500 °C                      |
| Accuracy          | ±(0.2 °C +0.1 % of measured value) |
| Resolution        | 0.02 °C                            |

## Technical Data Logprobe 20

### General

|  |                            |                            |           |
|--|----------------------------|----------------------------|-----------|
| Enclosure / protection rating            | Plastic PC / IP65          |                            | <b>CE</b> |
| Working range                            | Temperature:               | -40...80 °C (-40...176 °F) |           |
|  | Humidity:                  | 0...100 %RH                |           |
| CE compatibility according <sup>1)</sup> | EN 61326-2-3<br>EN 61326-1 |                            |           |
| Maximum cable length                     | 150 m                      |                            |           |

### Measurements

#### Relative Humidity

|                   |                       |                            |
|-------------------|-----------------------|----------------------------|
| Sensor            | Capacitive            |                            |
| Measurement range | relative humidity     | 0...100 %                  |
|                   | absolute humidity     | 0...290 g/m <sup>3</sup>   |
|                   | mixing ratio          | 0...550 g/kg               |
|                   | dew point temperature | -40...80 °C (-40...176 °F) |
| Accuracy at 20°C  |                       | ±2 %RH (0...90 %RH)        |
|                   |                       | ±3 %RH (90...100 %RH)      |

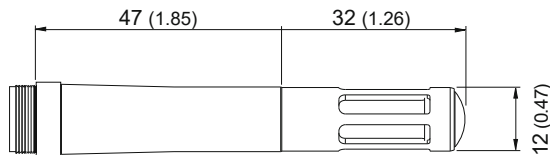
#### Temperature

|                   |                            |  |
|-------------------|----------------------------|--|
| Sensor            | Pt1000 DIN B               |  |
| Measurement range | -40...80 °C (-40...176 °F) |  |
| Accuracy          |                            | ±0.2 °C at 20 °C (68 °F); ±0.4 °C (-10...50 °C 14...122 °F); |
|                   |                            | ±0.6 (-40...80 °C -40...176 °F)                              |

1) is not protected against surge.

### Dimensions

Values in mm (inch)



### Ordering Guide

| DATA LOGGER                                      |                        | Accessories - Data logger             |                 |
|--|------------------------|---------------------------------------|-----------------|
| Temperature and relative humidity                | <b>HUMLOG20 THI</b>    | Power supply for Humlog 20            | <b>HA030106</b> |
| Temperature, rel. humidity, air pressure         | <b>HUMLOG20 THIP</b>   | Theft-proof installation kit          | <b>HA030104</b> |
| Temperature, rel. humidity, CO <sub>2</sub>      | <b>HUMLOG20 TCO</b>    |                                       |                 |
| External inputs                                  | <b>HUMLOG20 E</b>      |                                       |                 |
| HUMIDITY/TEMPERATURE SENSOR for Humlog 20 E      |                        | Accessories - Humlog 20 E             |                 |
| RH/T-Sensor with metal grid filter               | <b>LOGPROBE20-HTPC</b> | T-coupler M12 - M12                   | <b>HA030204</b> |
| RH/T-Sensor with stainless steel sintered filter | <b>LOGPROBE20-HTPD</b> | Cable 2 m (6.6 ft)                    | <b>HA010816</b> |
|  |                        | Cable 5 m (16.4 ft)                   | <b>HA010817</b> |
|  |                        | Cable 10 m (32.8 ft)                  | <b>HA010818</b> |
|  |                        | Male connector M12x1 self-assembled   | <b>HA010706</b> |
|  |                        | Female connector M12x1 self-assembled | <b>HA010708</b> |

### Order Example

#### HUMLOG20 THI

Data logger for Temperature and relative Humidity

#### HUMLOG20 TCO

Data logger for Temperature, relative Humidity and CO<sub>2</sub>