



## Temperature transmitters

### HTT 1200S smart

IO-Link interface

Temperature probes

Accuracy 1 %

**smart**



**IO-Link**

#### Features

- IO-Link interface
- Additional switching output or analogue output as an option (0 .. 10 V or 4 .. 20 mA)
- With integrated temperature probe
- Very compact design
- Robust
- Added value thanks to:
  - Process data
  - Condition data
  - Smart data

#### Description

The new generation of smart sensors is designed to generate further relevant information in addition to the operation data. This ensures the support of dynamic, real-time optimised and self-organising processes, which optimises the availability as well as resource consumption and reduces operating costs.

The HTT 1200S has been especially developed for series application and where extremely limited space is available.

The temperature sensor, based on a PT 1000 and corresponding evaluation electronics, allows the measurement of temperatures ranging from -25 °C to +125 °C.

With a pressure resistance of up to 150 bar and excellent EMC properties, the HTT 1200S is ideally suited for utilisation, even in rough environments.

IO-Link is the communication between the sensor / actuator (IO-Link device) and an IO-Link master based on a point-to-point interface. Process data, parameters and diagnostic information of the temperature sensor can be transmitted via a standard cable (SDCI mode).

In addition, the HTT 1200S provides a wide range of additional smart information.

#### Application fields

Wide range of applications within the mechanical engineering sector, such as:

- Hydraulics - Pneumatics
- Cooling systems
- Compressors and much more

## Technical data

| Input data  |   |   |     |
|---|---|---|-----|
| Measurement range   | -25 .. +125 °C  |   |     |
| Probe length  | mm  | 16  | 40  |
| Probe diameter  | mm  | 6.7                                       | 6.7 |
| Pressure resistance   | bar   | 150                                       | 150 |
| Mechanical connection   | G1/4 A ISO 1179-2   |   |     |
| Tightening torque, recommended  | 20 Nm   |   |     |
| Parts in contact with fluid   | Mech. connection: stainless steel<br>Seal: FKM  |   |     |
| Output data   |   |   |     |
| Output signal   | IO-Link V1.1<br>Additional switching output or analogue output as an option.  |   |     |
| Switching output  | PNP Transistor switching output<br>(parameteriseable: PNP, NPN or Push-Pull)<br>One additional Push-Pull transistor switching output<br>Switching current: max. 250 mA per switching output |   |     |
| Analogue output, permitted load resistance  | 4 .. 20 mA, $R_{Lmax} = U_B - 8 \text{ V} / 20 \text{ mA}$ [kΩ], load max. 500 Ω<br>0 .. 10 V, $R_{Lmin} = 2 \text{ kΩ}$ ,  |   |     |
| Accuracy (at room temperature)  | ≤ ± 1.0 % FS typ.<br>≤ ± 2.0 % FS max.  |   |     |
| Rise time acc. to DIN EN 60751  | $t_{50}$ : ~ 4 s<br>$t_{90}$ : ~ 8 s  |   |     |
| Temperature drift   | ≤ ± 0.02 % FS / °C  |   |     |
| Smart Functions   |   |   |     |
| Operating data logging (resettable as well as persistent throughout the whole life cycle) | Temperature (min /max / average values)<br>Operating time, i.e.<br>-General (hour counter)<br>-Arrhenius value (device temperature, weighted operating time)                                |   |     |
| Measuring channel-related events  | General measured-channel related operating times<br>Event counter<br>Statistic for the actual use (operation per measuring range segment / over/undershooting, overload etc.)               |   |     |
| Environmental Conditions / Approvals / Tests  |   |   |     |
| Operating temperature range <sup>1)</sup>   | -40 .. +85 °C / -25 .. +85 °C   |   |     |
| Storage temperature range   | -40 .. +100 °C  |   |     |
| Fluid temperature range <sup>1)</sup>   | -40 .. +125 °C / -25 .. +125 °C   |   |     |
| EMC   | EN 61000-6-1 / 2 / 3 / 4  |   |     |
| Vibration resistance  | DIN EN 60068-2  | 1.6 mm (2 .. 25 Hz)<br>4 g (25 .. 100 Hz) |     |
| Shock resistance  | DIN EN 60068-2-27   | 100 g / 6 ms / half sine                  |     |
| Protection type <sup>2)</sup>   | DIN EN 60529  | IP 67                                     |     |
| CE mark   | Provided  |   |     |
| Other data  |   |   |     |
| Supply voltage  | 9 .. 35 V DC, if PIN 2 = SP2<br>18 .. 35 V DC, if PIN 2 = analogue output<br>(each 18 .. 30 V DC for communication operation)   |   |     |
| Residual ripple of supply voltage   | ≤ 5 %   |   |     |
| Current consumption   | ≤ 25 mA   |   |     |
| Weight  | ~ 60 g for 16 mm probe length<br>~ 100 g for all others   |   |     |

## IO-Link-specific data

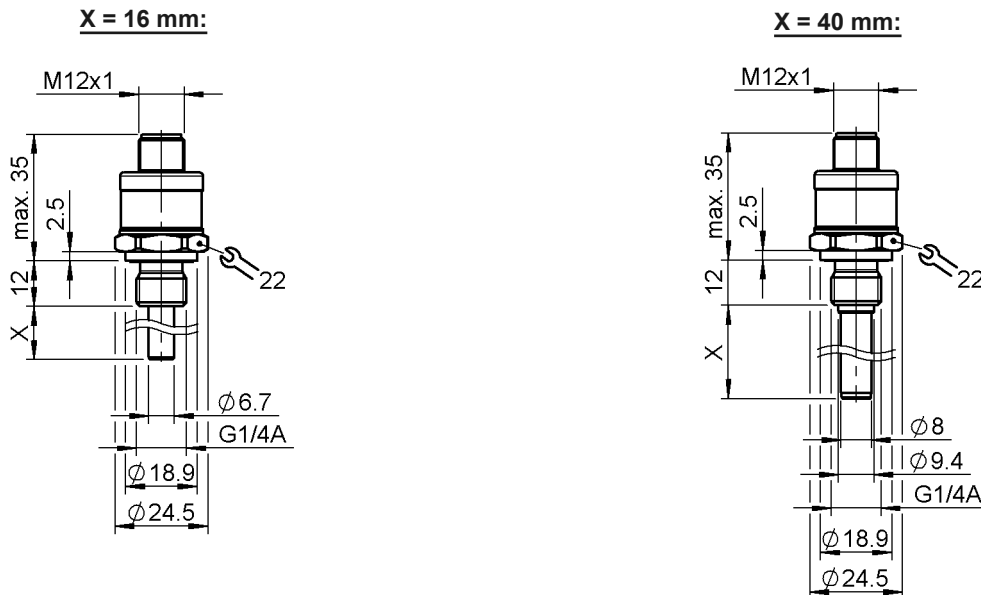
|   |   |
|---|---|
| IO-Link revision                                | V1.1, IO-Link System and Interface Specifications V1.1.2  |
| Transmission Rate, Baud rate <sup>3)</sup>      | 38.4 kbit/s (COM2)  |
| Minimum cycle time                              | 2.5 ms  |
| Process input data                              | 16 Bit (14 Bit measured value + 2 switching bits)   |
| Process output data                             | n/a   |
| SIO Mode Supported                              | Yes   |
| Master-port class                               | Class-A (Class B, if Pin 2 is not connected)  |
| Sensor profile                                  | GPS   |
| M-sequence capability                           | PREOPERATE = TYPE_1_V with 8 octets on-request data<br>OPERATE = TYPE_2_2 with 1 octet on-request data<br>ISDU supported  |
| Profile characteristics                         | 0x0001 (Device Profile: Generic Profiles Sensor),<br>0x4000 (Common Application Profile: Identification and Diagnosis)<br>0x8001 (Function Class: Switching Signal Channel) |
| Download the IO Device Description (IODD) from: | <a href="https://ioddfinder.io-link.com/#/">https://ioddfinder.io-link.com/#/</a>   |

**Note:** Reverse polarity protection of the supply voltage, overvoltage, override and short circuit protection are provided.

**FS (Full Scale)** = relative to complete measuring range

- 1) In the standard up to -25 °C with FKM seal, -40 °C on request
- 2) With mounted mating connector in corresponding protection type
- 3) Connection with unscreened standard sensor line possible up to a max. line length of 20 m.

## Device dimensions



## Pin connections

| M12x1, 4 pole | Pin | Output signal: F31 |   |
|---------------|-----|--------------------|---|
|               |     | Signal             | Description                                   |
|               | 1   | L+                 | +U <sub>B</sub>                               |
|               | 2   | Q2/QA/n.c.         | Switching output 2 or analogue output or n.c. |
|               | 3   | L-                 | 0 V   |
|               | 4   | Q1/C               | Switching output 1/ IO-Link communication     |

## Model code

HTT 1 2 4 6 S - F31(- X) - XXX - 000

### Mechanical connection

4 = G1/4 A ISO 1179-2

### Electrical connection

6 = Plug M12x1, 4 pole (mating connector not included)

### Enhanced functions

S = Smart

### Output signal

F31 = IO-Link

(Options:

F31 - 1 = IO-Link interface + 1 additional Push-Pull transistor switching output

F31 - B = IO-Link interface + analogue output 0 .. 10 V, 3 conductor

F31 - C = IO-Link interface + analogue output 4 .. 20 mA, 3 conductor)

### Probe length in mm

016; 040

### Modification Number

000 = Standard

### Accessories:

Appropriate accessories, such as mating connectors, can be found in the Accessories brochure.

## Note

The information in this brochure relates to the operating conditions and applications described.

For applications or operating conditions not described, please contact the relevant technical department.

Subject to technical modifications.

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