HYDAC INTERNATIONAL

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 Seal: FKM		
Output data			
Output signal	IO-Link V1.1 Additional switching output or analogue output as an option.		
Switching output	PNP Transistor switching output (parameteriseable: PNP, NPN or Push-Pull) One additional Push-Pull transistor switching output Switching current: max. 250 mA per switching output		
Analogue output, permitted load resistance	4 .. 20 mA, $R_{Lmax} = U_B - 8$ V / 20 mA [kΩ], load max. 500 Ω 0 .. 10 V, R_{Lmin} = 2 kΩ,		
Accuracy (at room temperature)	≤ ± 1.0 % FS typ. ≤ ± 2.0 % FS max.		
Rise time acc. to DIN EN 60751	t_{50}: ~ 4 s 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) Operating time, i.e. -General (hour counter) -Arrhenius value (device temperature, weighted operating time)		
Measuring channel-related events	General measured-channel related operating times Event counter Statistic for the actual use (operation per measuring range segment / over/undershooting, overload etc.)		
Environmental Conditions / Approvals / Tests			
Operating temperature range [1)]	-40 .. +85 °C / -25 .. +85 °C		
Storage temperature range	-40 .. +100 °C		
Fluid temperature range [1)]	-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) 4 g (25 .. 100 Hz)	
Shock resistance	DIN EN 60068-2-27	100 g / 6 ms / half sine	
Protection type [2)]	DIN EN 60529	IP 67	
CE mark	Provided		
Other data			
Supply voltage	9 .. 35 V DC, if PIN 2 = SP2 18 .. 35 V DC, if PIN 2 = analogue output (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 ~ 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[3)]	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 OPERATE = TYPE_2_2 with 1 octet on-request data ISDU supported
Profile characteristics	0x0001 (Device Profile: Generic Profiles Sensor), 0x4000 (Common Application Profile: Identification and Diagnosis) 0x8001 (Function Class: Switching Signal Channel)
Download the IO Device Description (IODD) from:	https://ioddfinder.io-link.com/#/

Note: Reverse polarity protection of the supply voltage, overvoltage, override and short circuit protection are provided.
FS (**F**ull **S**cale) = relative to complete measuring range

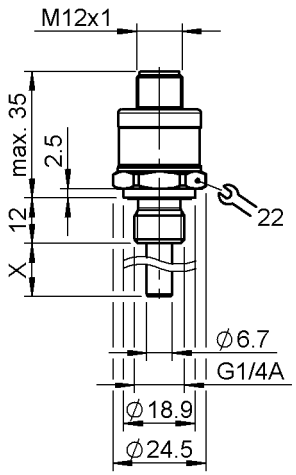
1) In the standard up to -25 °C with FKM seal, -40 °C on request

2) With mounted mating connector in corresponding protection type

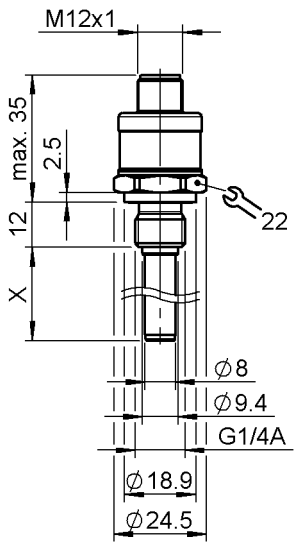
3) Connection with unscreened standard sensor line possible up to a max. line length of 20 m.

Device dimensions

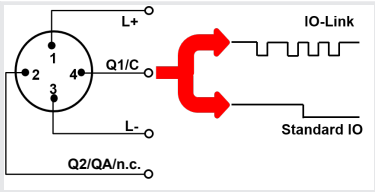
X = 16 mm:



X = 40 mm:



Pin connections

M12x1, 4 pole	Pin	Output signal: F31	
		Signal	Description
	1	L+	$+U_B$
	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.