HYDAC INTERNATIONAL

Temperature Switch
ETS 3200

Integrated temperature probe | **Display**

IO-Link

Description:

The ETS 3200 with IO-Link communication interface is a compact, electronic temperature switch with an integrated 4-digit display.

With its integrated temperature probe, the ETS 3200 is particularly suitable for direct tank installation and is available in various lengths.

Pressure-resistant up to 600 bar with an integrated 18 mm temperature probe, this model can be mounted directly inline or on the hydraulic block.

The instrument has a switching output and an additional output that can be configured as switching or analogue output (4 .. 20 mA or 0 .. 10 V).

IO-Link is the communication between the sensor/actuator (IO-Link device) and an IO-Link master based on a point-to-point interface.

The advantages:
Process data, parameters and diagnostic information of the temperature switch can be transmitted via a standard cable (SDCI mode). The integrated LED display provides information on the operating mode and the switching statuses.

Simple exchange, the IO-Link master saves the parameters of the connected temperature switch and transmits them to the newly connected temperature switch when replaced. Thus, time-consuming new parameterisations will no longer be required.

If IO-Link is not used, the sensor still functions as a temperature switch with two switching outputs (SIO mode). To create customer-specific small series or to duplicate sensor settings across the system, the sensor can also be easily adjusted outside the system to suit the particular application, with the HYDAC Programming Device HPG P1-000, the HYDAC Programming Adapter ZBE P1-000 or by means of the Portable Data Recorder HMG 4000.

Typical fields of application for ETS 3200 IO-Link are machine tools, handling and assembly automation, intralogistics or the packaging industry.

Technical data:

Input data					
Measuring range		-25 .. +100 °C (-13 .. +212 °F)			
Probe length	mm	18	100	250	350
Probe diameter	mm	6	8	8	8
Pressure resistance	bar	600	50 [1]	50 [1]	50 [1]
Mechanical connection		G1/2 A ISO 1179-2			
Tightening torque, recommended		45 Nm			
Parts in contact with fluid		Mech. connection: Stainless steel Seal: FKM			
Output data					
Switching outputs		PNP transistor outputs Switching current: max. 250 mA per switching output			
Analogue output, permitted load resistance		Selectable: 4 .. 20 mA load resist. max. 500 Ω 0 .. 10 V load resist. min. 1 kΩ			
Accuracy (at room temperature)		≤ ± 1.0 °C (≤ ± 2.0 °F)			
Temperature drift (environment)		≤ ± 0.015 % FS / °C			
Response time acc. to DIN EN 60751	t_{50}: t_{90}:	3 s 9 s	8 s 15 s	8 s 15 s	8 s 15 s
Repeatability		≤ ± 0.25 % FS max.			
Environmental conditions					
Operating temperature range		-25 .. +80 °C (-13 .. +176 °F) (-25 .. +60 °C [-13 .. +140 °F] for UL-Spec.)			
Storage temperature range		-40 .. +80 °C (-40 .. +176 °F)			
Fluid temperature range [2]		-40 .. +100 °C / -25 .. +100 °C (-40 .. +212 °F / -13 .. +212 °F)			
CE mark		EN 61000-6-1 / -2 / -3 / -4			
cULus mark [3]		Certificate-No.: E318391			
Vibration resistance acc. to DIN EN 60068-2-6 at 0 .. 500 Hz		≤ 10 g			
Shock resistance acc. to DIN EN 60068-2-27 (11 ms)		≤ 50 g			
Protection class acc. to DIN EN 60529 [4]		IP 67			
IO-Link specific data					
IO-Link revision		V1.1 / support V1.0			
Transmission rate, baud rate [5]		38.4 kBaud (COM2)			
Minimum cycle time		2.5 ms			
Process data width		16 bit			
SIO mode supported		Yes			
M-sequence capability		PREOPERATE: TYPE_0 OPERATE: TYPE_2_2 ISDU: Supported			
IO Device Description (IODD) download at: https://ioddfinder.io-link.com/#/					
Other data					
Supply voltage when applied acc. to UL specifications		9 .. 35 V DC, if PIN 2 = SP2 18 .. 35 V DC, if PIN 2 = analogue output - limited energy – acc. to 9.3 UL 61010; Class 2; UL 1310 / 1585; LPS UL 60950			
Residual ripple of supply voltage		≤ 5 %			
Current consumption		≤ 0.535 A with active switching outputs ≤ 35 mA with inactive switching outputs ≤ 55 mA with inactive switching output and analogue output			
Display		4-digit, LED, 7-segment, red, height of digits 7 mm			
Weight	g	~ 135	~ 150	~ 185	~ 210

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] Higher pressure resistance on request
[2] -25 °C with FKM seal, -40 °C on request
[3] Environmental conditions acc. to 1.4.2 UL 61010-1; C22.2 No. 61010-1
[4] With mounted mating connector in corresponding protection class
[5] Connection with unshielded standard sensor line possible up to a maximum line length of 20 m.

Setting options:

All terms and symbols used for setting the ETS 3200 as well as the menu structure comply with the specifications in the VDMA Standard for temperature switches.

Setting ranges for the switching outputs:

Measuring range	Lower limit of RP / FL	Upper limit of SP / FH
-25 .. +100 °C	-23.5 °C	100.0 °C
-13 .. +212 °F	-11 °F	212 °F

Measuring range	Min. difference betw. RP and SP & FL and FH	Increment*
-25 .. +100 °C	1.5 °C	0.5 °C
-13 .. +212 °F	2 °F	1 °F

* All ranges given in the table can be adjusted by the increments shown.

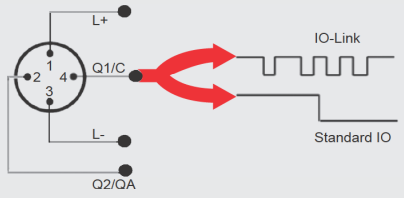
SP = switch point
RP = switch-back point
FL = temperature window lower value
FH = temperature window upper value

Additional functions:

- Switching mode of the switching outputs adjustable (switch point function or window function)
- Switching direction or switching outputs adjustable (N/C or N/O function)
- Switch-on or switch-off delay adjustable from 0.00 .. 99.99 seconds
- Analogue output signal selectable 4 .. 20 mA or 0 .. 10 V
- Choice of display (actual temperature, peak temperature, switch point 1, switch point 2, display off)

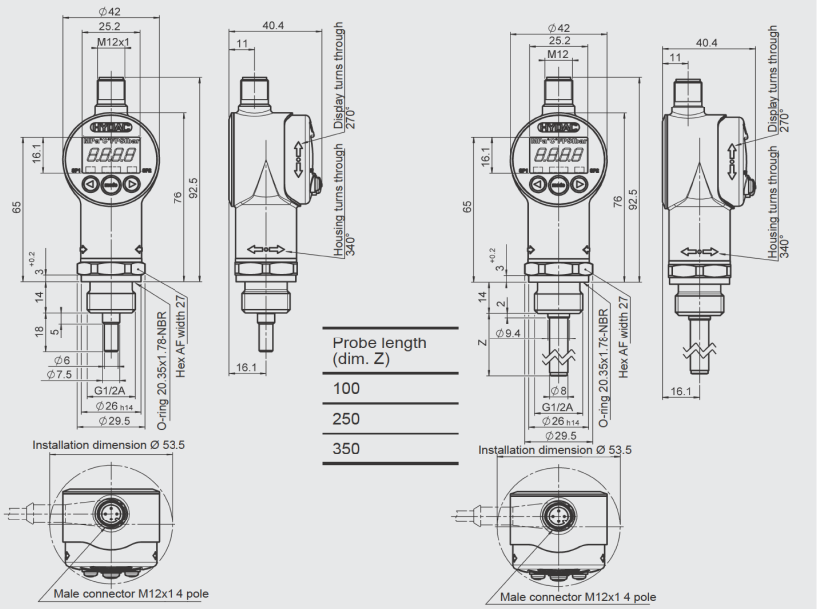
Pin connections:

M12x1, 4 pole



Pin	Signal	Description
1	L+	$+U_B$
2	Q2/QA	Switching output (SP2) / analogue output
3	L-	0 V
4	Q1/C	IO-Link communication / switching output (SP1)

Dimensions:



Model code:

ETS 3 2 2 6 – F31 – XXX – 000

Type
2 = with integrated temperature probe

Mechanical connection
2 = G1/2 A ISO 1179-2

Electrical connection
6 = male M12x1, 4 pole
(mating connector not supplied)

Output
F31 = IO-Link interface

Probe length in mm
018; 100; 250; 350

Modification number
000 = standard

Accessories:
Appropriate accessories, such as mating connectors, mechanical adapters, splash guards, clamps for wall-mounting and programming units, 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.