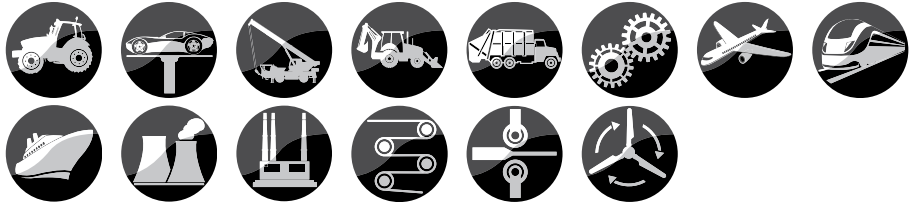


ETS 4000 Series Temperature Transducer



Applications



Description

The ETS 4000 is a robust electronic temperature transmitter which is particularly well suited to measuring temperature in hydraulic applications in industry.

The temperature sensor, based on a PT 100 and corresponding evaluation electronics, is capable of measuring temperatures in the range -13° to 212°F.

The sensor has analog output signals of 4 to 20 mA and 0 to 10 V available as standard to enable integration into modern controls.

The pressure resistance up to 9000 psi and excellent EMC characteristics make the ETS 4000 ideal for use in harsh conditions.

Special Features

- Ideal for industrial applications
- Robust design
- Excellent EMC characteristics
- Good long-term stability
- Standard protection class IP 65

Approvals



CE mark is a mandatory conformity mark on many products placed on the single market in the European Economic Area

Technical Details

Sensor Specifications	
Measuring range	-13° to 212°F (-25° to 100°C)
Rated pressure -psi (bar)	9000 (600)
Overload pressure - psi (bar)	13,000 (900)
Mechanical connection	G1/4A DIN 3852 male
Tightening torque	15 lb-ft (20 Nm)
Parts in contact with media	Stainless steel, FPM seal
Accuracy	≤ ±1.8°F (1°C) max
Weight	Approximately 200 g
Output signal	4 to 20 mA, 2 wire, $R_{Lmax} = (UB - 10V) / 20 \text{ mA}$ [kΩ] 0 to 10 V, 3 wire, $R_{Lmin} = 2 \text{ kΩ}$
Reaction Time T90 / T50	9 s / 3 s
Environmental Condition	
Ambient temperature range	-22° to 158°F (-30° to 70°C)
Storage temperature range	-40° to 212°F (-40° to 100°C)
Media temperature range	-22° to 212°F (-30° to 100°C)
CE mark	EN 61000-6-1 / 2 / 3 / 4
Vibration resistance to DIN EN 60068-2-6 at 10 to 500 Hz	≤ 20g
Environmental protection	IP 65
Electrical Specifications	
Supply voltage, 2-wire	10 to 30 VDC
Supply voltage, 3-wire	12 to 30 VDC
Residual ripple supply voltage	≤ 5%
Current consumption	approximately 25 mA
Reverse polarity protection of the supply voltage, excess voltage, override and short circuit protection	Standard

Model Code

ETS 4 1 4 X - X - 000

Mechanical Connection

4 G1/4 A DIN 3852 male

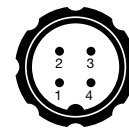
Electrical Connection4 4 pole plug M18x1, Binder Series (*connector not included*)6 M12x1 plug, 4 pole (*connector not included*)**Output**

A 4-20mA, 2-wire

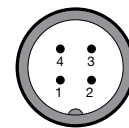
B 0-10VDC, 3-wire

Modification Number

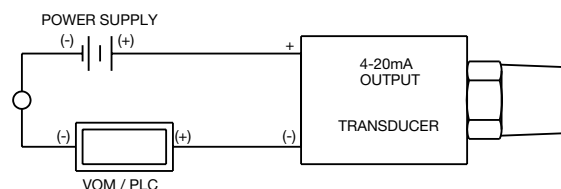
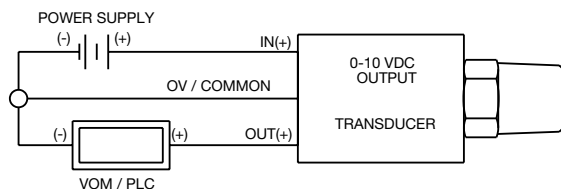
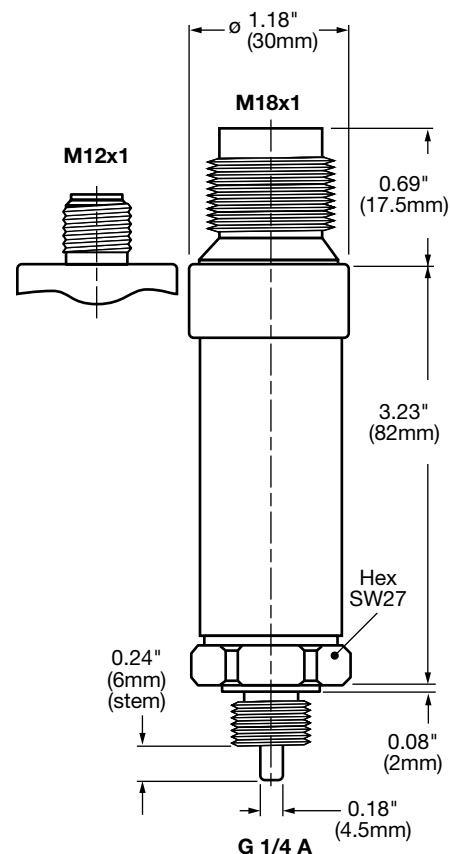
000 Standard

Pin Connections**Binder 714 M18**

Pin	4144-A	4144-B
1	nc	+U _B
2	Signal +	Signal
3	Signal -	0V
4	nc	nc

M12x1

Pin	4146-A	4146-B
1	Signal +	+U _B
2	nc	nc
3	Signal -	0V
4	nc	Signal

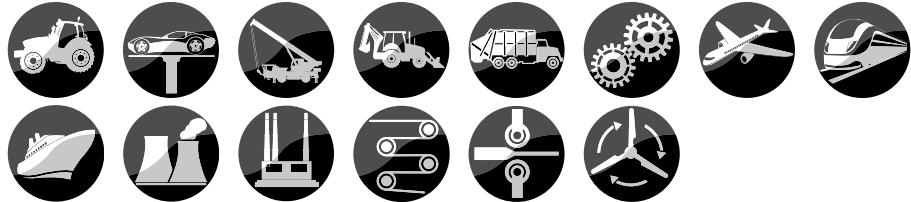
Circuit Diagram**Dimensions**

ETS 7000 Series

Standard, For Special Configurations order quantity is 250 pieces



Applications



Description

The ETS 7000 is an electronic temperature transmitter which, due to its compact design, is particularly suited to measuring temperature in hydraulic applications in the industrial and mobile sectors. Based on a silicon semiconductor device and corresponding evaluation electronics, the temperature sensor is designed to measure temperatures in the range -13° to 212°F.

The sensor has various analog output signals as standard, e.g. 4 to 20 mA or 0 to 10 V to enable integration into modern controls through the male M12x1 connection.

The pressure resistance up to 8700 psi and excellent EMC characteristics make the ETS 7000 ideal for use in harsh conditions.

Special Features

- Ideal for OEM applications
- Very compact design
- Excellent EMC characteristics
- Long-term stability
- Standard protection class IP 67

Approvals



CE mark is a mandatory conformity mark on many products placed on the single market in the European Economic Area

Technical Details

Sensor Specifications	
Measuring principle	Silicon semiconductor element
Measuring range	-13° to 212°F (-25° to 100°C)
Pressure resistance - psi	8700
Pressure overload - psi	13000
Mechanical connection	G1/4 DIN 2852
Torque rating	15 lb-ft (20 Nm)
Parts in contact with media	Stainless steel, FPM seal
Output data	
Output signal	4 to 20 mA, 2 wire, $R_{Lmax} = (UB - 8V) / 20 \text{ mA}$ [kΩ] 0 to 10 V, 3 wire, $R_{Lmin} = 2 \text{ kΩ}$
Accuracy	≤ ±1.5%FS typ.
Rise time T90 / T50	≤ 8 s / ≤ 4 s
Operating conditions	
Ambient temperature range	-13° to 176°F (-25° to 80°C)
Storage temperature range	-40° to 212°F (-40° to 100°C)
Fluid temperature range	-13° to 212°F (-25° to 100°C)
CE mark	EN 61000-6-1 / 2 / 3 / 4
Vibration resistance to	≤ 20 g
Safety type to DIN 40050	IP 67 (w/ ZBE 06 molded cable or flying lead)
Other data	
Supply voltage 2 conductor	8 to 32 V DC
Supply voltage 3 conductor	12 to 32 V DC
Residual ripple of supply voltage	≤ 5%
Current consumption 3 conductor	approx. 25 mA
Weight	approx. 50 g

Model Code**Mechanical Connection**

4 = G1/4 A male

Electrical Connection

6 = M12x1 plug, 4 pole (connector not included)

Output Signal

A = 2 conductor, 4 to 20mA

B = 3 conductor, 0 to 10 VDC

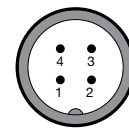
Modification Number

000 = standard

ETS 7 2 X 6 - A - 000

Pin Connections

M12x1, 4 pole



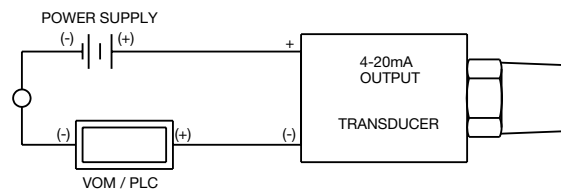
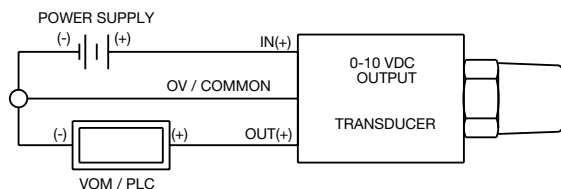
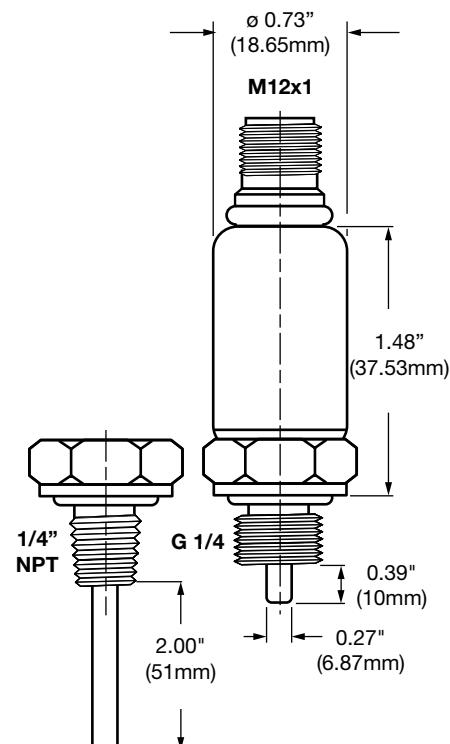
Pin	7246-A	7246-B
1	Signal +	+U _B
2	nc	nc
3	Signal -	0 V
4	nc	Signal

Example for a Customized Solution

ETS 7286-A-007

Part #00909861

Unit designed with 2" probe and 1/4" NPT fitting

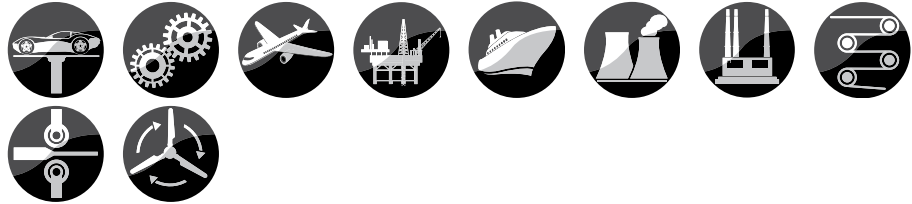
**Circuit Diagram****Dimensions**

ETS 3200 Series

Temperature Switch for Inline and Tank Mounting



Applications



Description

The ETS 3200 is a compact electronic temperature switch with 4-digit digital display.

Pressure resistant to 8700 psi, this model has an integral 18 mm temperature probe and can be screwed directly inline or into a hydraulic block.

Different output models with one or two switching outputs, optionally with an additional analog output signal, offer a variety of application possibilities. The switching points and the associated hystereses can be adjusted very quickly and easily using the keypad.

For optimum adaptation to the particular application, the unit has many additional adjustment parameters (e.g. switching delay times, N/C / N/O function, etc.).

Special Features

- 2 switching outputs, up to 1.2 A load per output
- Analog output selectable (4 to 20 mA / 0 to 10 V)
- 4-digit digital display
- Optimum alignment - display can be rotated in two planes (axes)
- Switching / reset points and many useful additional functions can be set using keypad
- Display of temperature and unit of measurement in °C or °F

Approvals



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Technical Details

Sensor Specifications									
Measuring range	-13° to 212°F (-25° to 100°C)								
Probe length - pressure resistance	<table> <tr> <td>18 mm probe</td><td>9000 psi</td></tr> <tr> <td>100 mm probe</td><td>725 psi</td></tr> <tr> <td>250 mm probe</td><td>725 psi</td></tr> <tr> <td>350 mm probe</td><td>725 psi</td></tr> </table>	18 mm probe	9000 psi	100 mm probe	725 psi	250 mm probe	725 psi	350 mm probe	725 psi
18 mm probe	9000 psi								
100 mm probe	725 psi								
250 mm probe	725 psi								
350 mm probe	725 psi								
Mechanical connection	G1/2 A DIN 3852 male								
Tightening torque	33 lb-ft (45 Nm)								
Parts in contact with media	Stainless steel, FPM seal								
Accuracy (display, analog output)	2°F (1°C)								
Temperature drift (ambient)	≤ ±0.0085% FS / °F max. zero point ≤ ±0.0085% / °F max. range								
Weight	<table> <tr> <td>with 18 mm probe</td><td>Approximately 135g</td></tr> <tr> <td>with 100 mm probe</td><td>Approximately 150g</td></tr> <tr> <td>with 250 mm probe</td><td>Approximately 185g</td></tr> <tr> <td>with 350 mm probe</td><td>Approximately 210g</td></tr> </table>	with 18 mm probe	Approximately 135g	with 100 mm probe	Approximately 150g	with 250 mm probe	Approximately 185g	with 350 mm probe	Approximately 210g
with 18 mm probe	Approximately 135g								
with 100 mm probe	Approximately 150g								
with 250 mm probe	Approximately 185g								
with 350 mm probe	Approximately 210g								
Output signal (selectable)	4 to 20 mA, ohmic resistance max. 500 Ω 0 to 10 V, ohmic resistance min. 1 kΩ corresponds in each case to -25 to 100°C								
Switching Specifications									
Type	PNP transistor								
Switching current	1.2A per output								
Switching cycles	≥ 100 million								
Rise time to DIN EN 60751	<table> <tr> <td>18mm probe</td><td>T50 : 3s / T90 : 9s</td></tr> <tr> <td>other probes</td><td>T50 : 8s / T90 : 15s</td></tr> </table>	18mm probe	T50 : 3s / T90 : 9s	other probes	T50 : 8s / T90 : 15s				
18mm probe	T50 : 3s / T90 : 9s								
other probes	T50 : 8s / T90 : 15s								
Environmental Condition									
Operating temperature range	-13° to 176°F (-25° to 80°C) -13° to 140°F (-25° to 60°C) with UL rating								
Storage temperature range	-40° to 185°F (-40° to 85°C)								
Media temperature range	-40° to 212°F (-40° to 100°C)								
CE mark	EN 61000-6-1 / 2 / 3 / 4								
UL mark (Environmental conditions to 1.4.2 UL 61010-1; C22.2 No. 61010-1)	Certificate no. E318391								
Vibration resistance to DIN EN 60068-2-6 at 10 to 500 Hz	≤ 10g								
Environmental protection	IP 67 (ZBE 06 / 08 molded cable)								
Electrical Specifications									
Supply voltage	9 to 35 VDC without analog output								
-limited energy- according to:	18 to 35 VDC with analog output								
	9.3 UL 61010; Class 2; UL 1310/1585; LPS UL 60950								
Residual ripple supply voltage	≤ 5%								
Current consumption	max. 2.455 A total max. 35 mA with inactive switching outputs max. 55 mA with analog output and inactive switching outputs								
Reverse polarity protection of the supply voltage, excess voltage, override and short circuit protection	Standard								
Display	7 segment LED display, 4 digits								

Model Code

ETS 3 2 2 - X - X - XXXX - 400

Mechanical Connection

2 = G 1/2 A DIN 3852, male with integral sensor

Electrical Connection

6 = M12x1 plug, 4 pole for output codes 2 & 3 (connector not included)

8 = M12x1 plug, 5 pole for output code 5 (connector not included)

Output

2 = 2 Switching Outputs (only with electrical connection 6)

3 = 1 Switching Output with 1 analog output (only with electrical connection 6)

5 = 2 Switching Outputs with 1 analog output (only with electrical connection 8)

Probe Length

0018 = 18mm (0.71")

0100 = 100mm (3.93")

0250 = 250mm (9.84")

0350 = 350mm (13.8")

Modification Number

400 = Standard (preset to °F)

Pin Connections

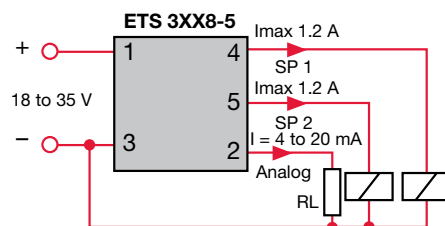
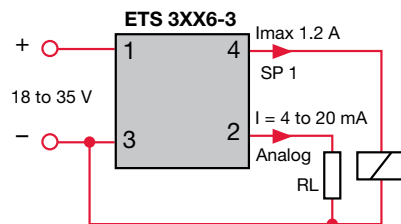
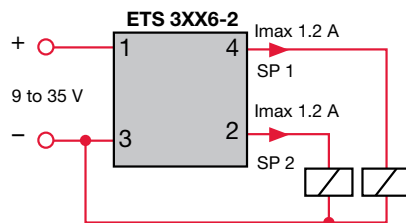
M12x1, 4 pole

Pin	3226-2	3226-3
1	+U _B	+U _B
2	SP 2	analog
3	0 V	0 V
4	SP 1	SP 1

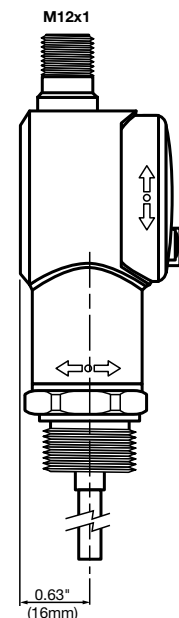
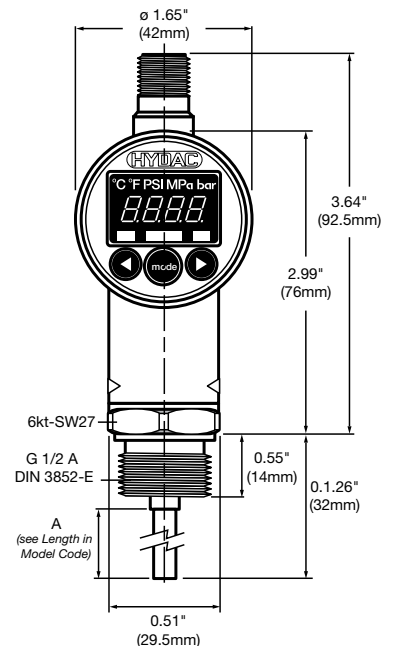
M12x1, 5 pole

Pin	3228-5
1	+U _B
2	analog
3	0 V
4	SP 1
5	SP 2

Circuit Diagram



Dimensions

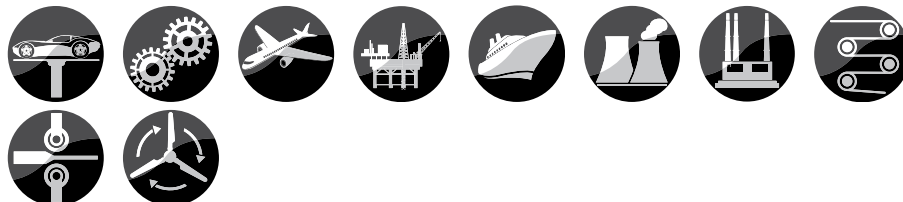


ETS 3800 Series

Temperature Switch with Separate Temperature Probe



Applications



Description

The ETS 3800 is a compact electronic temperature switch with a 4-digit digital display.

In the model for separate temperature probe, the measuring range is -20 to 300°F and is used primarily with the temperature probe TFP 100 which was specially developed for tank mounting.

It is also possible, however, to use standard PT 100 temperature probes. Different output models with one or two switching outputs, optionally with an additional analog output signal, offer a variety of application possibilities.

The switching points and the associated hystereses can be adjusted very quickly and easily using the keypad.

For optimum adaptation to the particular application, the unit has many additional adjustment parameters (e.g. switching delay times, N/C / N/O function, etc.).

Special Features

- 2 switching outputs, up to 1.2 A load per output
- Analog output selectable (4 to 20 mA / 0 to 10 V)
- 4-digit digital display
- Optimum alignment - display can be rotated in two planes (axes)
- Switching / switch-back points and many useful additional functions can be set using keypad
- Displays temperature

Approvals



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Technical Details

Sensor Specifications	
Measuring range	-22° to 302°F (-30° to 150°C)
Mechanical connection	Cable connection M12x1, 4-pole
Temperature drift (ambient)	≤ ±0.0085% FS / °F max. zero point ≤ ±0.0085% / °F max. range
Weight	Approximately 87g
Output signal	4 to 20 mA, ohmic resistance max. 500 Ω 0 to 10 V, ohmic resistance min. 1 kΩ corresponds in each case to -25 to 100°C
External Temperature Sensor Specifications	
Rated pressure for external sensor (TFP 100)	145 psi (10 bar)
Media temperature range	-40° to 257°F (-40° to 125°C)
Electrical connection	M18x1, 4 pole
Safety Sleeve Thermowell	
Parts in contact with medium	Nickel-plated Brass
Switching Specifications	
Type	PNP transistor
Switching current	1.2A per output
Switching cycles	≥ 100 million
Environmental Condition	
Ambient temperature range	-13° to 176°F (-25° to 80°C) -13° to 140°F (-25° to 60°C) with UL rating
Storage temperature range	-40° to 185°F (-40° to 85°C)
CE mark	EN 61000-6-1 / 2 / 3 / 4
eULus mark (Environmental conditions to 1.4.2 UL 61010-1; C22.2 No. 61010-1)	Certificate no. E318391
Vibration resistance to DIN EN 60068-2-6 at 0 to 500 Hz	≤ 10g
Environmental protection	IP 67 (ZBE 06/08 molded cable)
Electrical Specifications	
Supply voltage -limited energy- according to:	9 to 35 VDC without analog output 18 to 35 VDC with analog output 9.3 UL 61010; Class 2; UL 1310/1585; LPS UL 60950
Residual ripple supply voltage	≤ 5%
Current consumption	max. 2.455 A total max. 35 mA with inactive switching outputs max. 55 mA with analog output and inactive switching outputs
Reverse polarity protection of the supply voltage, excess voltage, override and short circuit protection	Standard
Display	7 segment LED display, 4 digits

Model Code

Mechanical Connection

6 = Female cable connection M12x1, 4 pole

Electrical Connection

6 = M12x1 plug, 4 pole for output codes 2 & 3 (connector not included)

8 = M12x1 plug, 5 pole for output code 5 (connector not included)

Output

2 = 2 Switching Outputs (only with electrical connection 6)

3 = 1 Switching Output with 1 analog output (only with electrical connection 6)

5 = 2 Switching Outputs with 1 analog output (only with electrical connection 8)

Probe Length

000 = For external temperature sensor (TFP 100)

Modification Number

400 = Standard (preset to °F)

ETS 3 8 6 X - X - 000 - 400

Supplied Accessories: A male connector M12 x1, 4 pole and 3 meter LIYCY 4x0.25 mm² are supplied with the device to connect to external temperature probe

Non-Supplied Accessories: External Sensor (TFP 100) must be used with TFP 100 thermowell.

TFP 100 Part Number: 00904696

TFP 100 Thermowell (Safety Sleeve) Part Number: 00906170

Pin Connections

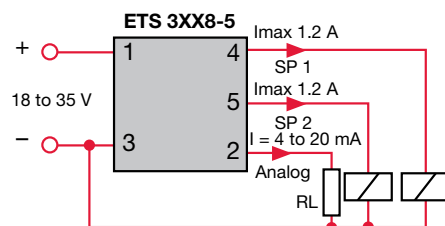
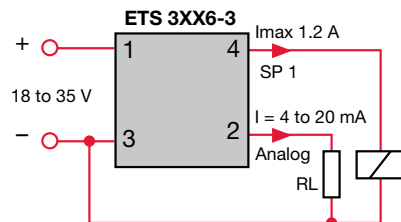
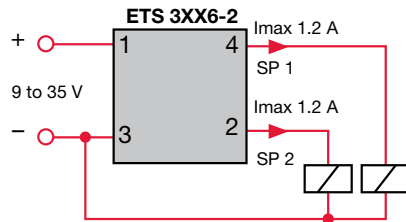
M12x1, 4 pole

Pin	3866-2	3866-3
1	+U _B	+U _B
2	SP 2	analog
3	0 V	0 V
4	SP 1	SP 1

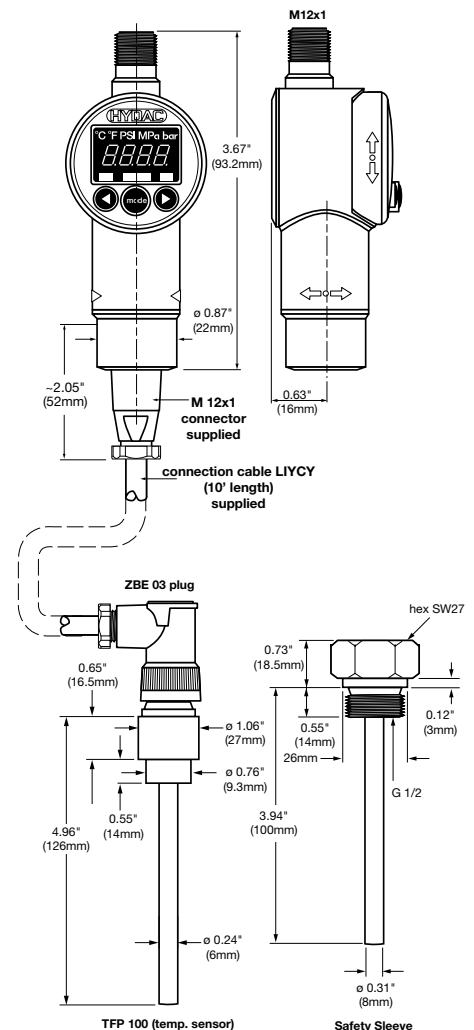
M12x1, 5 pole

Pin	3286-5
1	+U _B
2	analog
3	0 V
4	SP 1
5	SP 2

Circuit Diagram



Dimensions

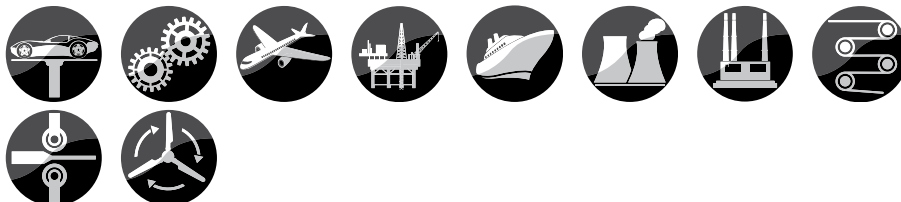


ETS 320 Series

Temperature Switch for Inline and Tank Mounting



Applications



Description

The ETS 320 is a compact electronic temperature switch with a 3-digit digital display.

Pressure resistant to 9000 psi with an integral 18 mm temperature probe, this model can be mounted directly inline or on the hydraulic block and has a measuring range of -10 to 212°C.

Different output models with one or two switching outputs, optionally with an additional analog output signal of 4 to 20 mA, offer a variety of application possibilities.

The switching points and the associated hystereses can be adjusted very quickly and easily using the keypad.

For optimum adaptation to the particular application, the unit has many additional adjustment parameters (e.g. switching delay times, N/C / N/O function, etc.).

Special Features

- Compact temperature switch with integral temperature probe
- 2 transistor switching outputs, up to 1.2 A load per output
- Option: analog output 4 to 20 mA
- 3-digit digital display
- Switching point or window function
- Switching / switch-back points and many useful additional functions can be set using the keypad

Approvals



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Technical Details

Sensor Specifications	
Measuring range	-13° to 212°F (-25° to 100°C)
Rated pressure - psi	9000
Mechanical connection	G1/2 A DIN 3852 male
Tightening torque	33 lb-ft (45 Nm)
Parts in contact with media	Stainless steel, FPM seal
Accuracy	≤ ±2°F (1°C)
Temperature drift (ambient)	≤ ±0.0085% FS / °F max. zero point ≤ ±0.0085% / °F max. range
Weight	Approximately 300g
Output signal	4 to 20 mA, 2 wire, ohmic resistance max 400 Ω
Switching Specifications	
Type	PNP transistor
Switching current	1.2A per output
Switching cycles	≥ 100 million
Rise time to DIN EN 60751	T50 : 3s T90 : 9s
Environmental Condition	
Operating temperature range	-13° to 176°F (-25° to 80°C)
Storage temperature range	-40° to 176°F (-40° to 80°C)
Media temperature range	-40° to 212°F (-40° to 100°C)
CE mark	EN 61000-6-1 / 2 / 3 / 4
Vibration resistance to DIN EN 60068-2-6 at 0 to 500 Hz	≤ 10g
Environmental protection	IP 65
Electrical Specifications	
Supply voltage	20 to 32 VDC
Residual ripple supply voltage	≤ 5%
Current consumption	100 mA (plus switching current)
Reverse polarity protection of the supply voltage, excess voltage, override and short circuit protection	Standard
Display	7 segment LED display, 3 digits

Model Code

Mechanical Connection

2 = G 1/2 A DIN 3852, male with integral sensor

Electrical Connection

6 = M12x1 plug, 4 pole for output codes 2 & 3 (connector not included)

8 = M12x1 plug, 5 pole for output code 5 (connector not included)

Output

2 = 2 Switching Outputs (only with electrical connection 6)

3 = 1 Switching Output with 1 analog output (only with electrical connection 6)

5 = 2 Switching Outputs with 1 analog output (only with electrical connection 8)

Measuring Range

100 = -13° to 212°F

Modification Number

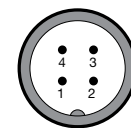
000 = Standard Display in °C

400 = Standard Display in °F

ETS 3 2 X - X - XXX - XXX

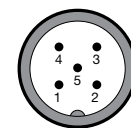
Pin Connections

M12x1, 4 pole



Pin	326-2	326-3
1	+U _B	+U _B
2	nc	analog
3	0 V	0 V
4	SP 1	SP 1

M12x1, 5 pole

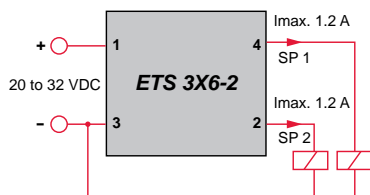


Pin	328-5
1	+UB
2	analog
3	0 V
4	SP 1
5	SP 2

Circuit Diagram

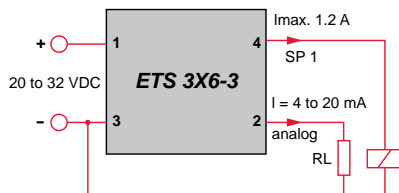
Model ETS 3X6-2

2 switching outputs



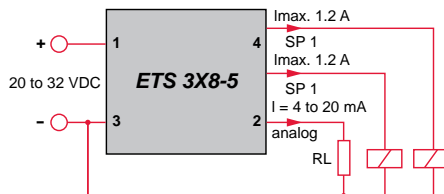
Model ETS 3X6-3

1 switching output, 1 analog output

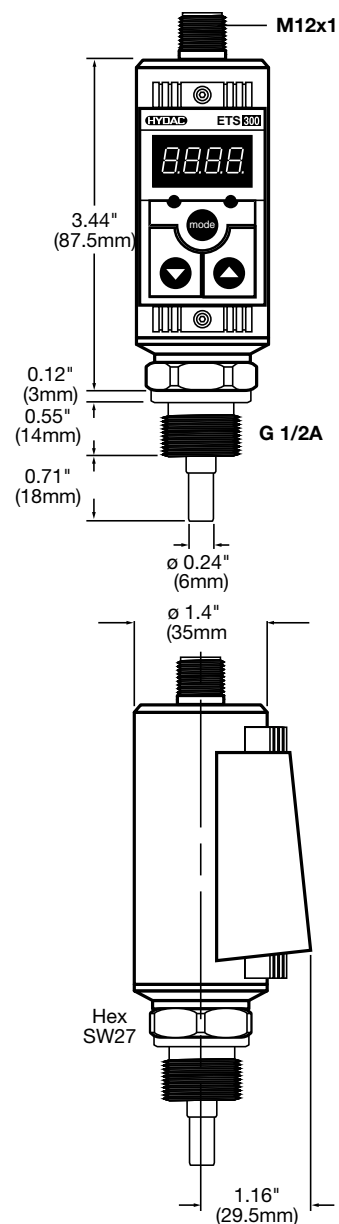


Model ETS 3X8-5

2 switching outputs, 1 analog output



Dimensions

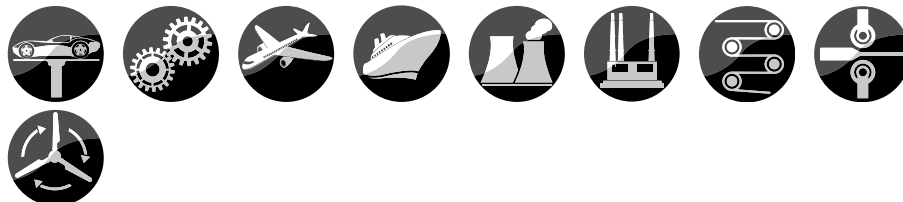


ETS 380 Series

Temperature Switch with Separate Temperature Probe



Applications



Description

The ETS 380 is a compact electronic temperature switch with a 3-digit digital display.

In the model for separate temperature probe, the measuring range is -20° to 300°F and is used primarily with the temperature probe TFP 100 which was specially developed for tank mounting.

It is also possible, however, to use standard PT 100 temperature probes. Different output models with one or two switching outputs, optionally with an additional analog output signal, offer a variety of application possibilities.

Different output models with one or two switching outputs, optionally with an additional analog output signal of 4 to 20 mA, offer a variety of application possibilities.

The switching points and the associated hystereses can be adjusted very quickly and easily using the keypad.

For optimum adaptation to the particular application, the unit has many additional adjustment parameters (e.g. switching delay times, N/C / N/O function, etc.).

Special Features

- 2 transistor switching outputs, up to 1.2 A load per output
- Option: analog output 4 to 20 mA
- 3-digit digital display
- Switching point or window function
- Switching / reset points and many useful additional functions can be set using the keypad

Technical Details

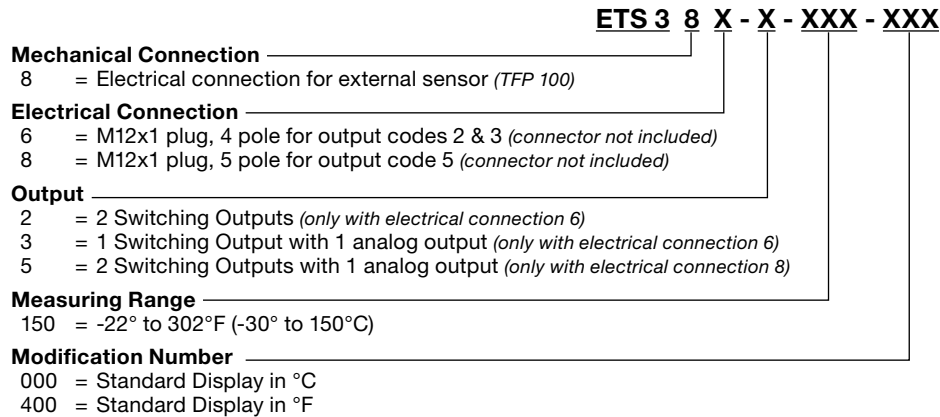
Sensor Specifications	
Measuring range	-20° to 300°F (-30° to 150°C)
Mechanical connection	Cable connection M12x1, 4-pole
Accuracy	≤ ±2°F (1°C)
Temperature drift (<i>ambient</i>)	≤ ±0.0085% FS / °F max. zero point ≤ ±0.0085% / °F max. range
Weight	Approximately 300g
Output signal	4 to 20 mA, ohmic resistance max. 400 Ω
External Temperature Sensor Specifications	
Rated Pressure for external sensor (<i>TFP 100</i>)	145 psi
Media temperature range	-40° to 257°F (-40° to 125°C)
Electrical connection	M18x1, 4 pole
Safety Sleeve Thermowell	
Parts in contact with medium	Nickel-plated Brass
Switching Specifications	
Type	PNP transistor
Switching current	1.2A per output
Switching cycles	≥ 100 million
Environmental Condition	
Ambient temperature range	-13° to 176°F (-25° to 80°C)
Storage temperature range	-40° to 176°F
CE mark	EN 61000-6-1 / 2 / 3 / 4
Vibration resistance to DIN EN 60068-2-6 at 0 to 500 Hz	≤ 10g
Environmental protection	IP 65
Electrical Specifications	
Supply voltage	20 to 32 VDC
Residual ripple supply voltage	≤ 5%
Current consumption	100 mA (<i>plus switching current</i>)
Reverse polarity protection of the supply voltage, excess voltage, override and short circuit protection	Standard
Display	7 segment LED display, 3 digits

Approvals



CE mark is a mandatory conformity mark on many products placed on the single market in the European Economic Area

Model Code



Supplied Accessories: A male connector M12 x1, 4 pole and 3 meter LIYCY 4x0.25 mm² are supplied with the device to connect to external temperature probe

Non-Supplied Accessories: External Sensor (TFP 100) must be used with TFP 100 thermowell.

TFP 100 Part Number: 00904696

TFP 100 Thermowell (Safety Sleeve) Part Number: 00906170

Pin Connections

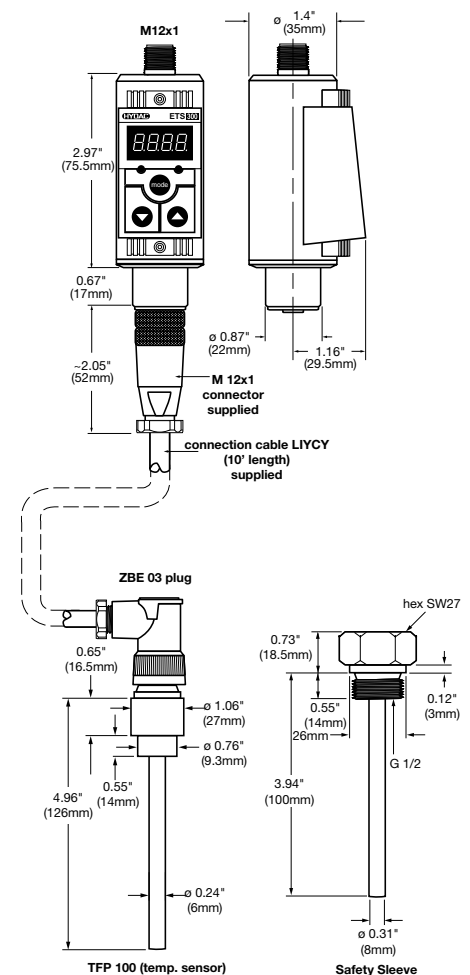
M12x1, 4 pole

Pin	386-2	386-3
1	+U _B	+U _B
2	nc	Analog
3	0 V	0 V
4	SP 1	SP 1

M12x1, 5 pole

Pin	388-5
1	+UB
2	Analog
3	0 V
4	SP 1
5	SP 2

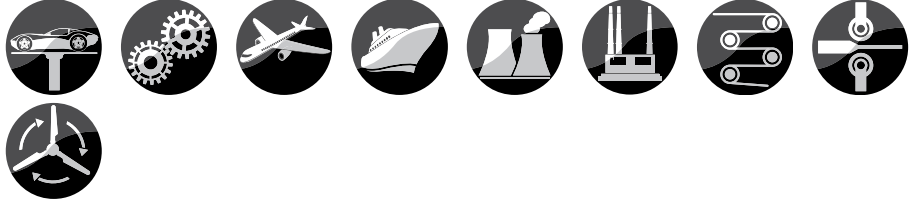
Dimensions



ETS 1700 Series Temperature Switch with Display



Applications



Description

The electronic temperature switch ETS 1700 is used mainly together with the temperature probe TFP 100, which was specially developed for tank mounting.

The 4-digit display can indicate the actual temperature, one of the switching points or the maximum temperature.

The maximum temperature indicates the highest temperature which has occurred since the unit was switched on or was last reset.

The 4 switching outputs can be used to control heating and cooling processes in hydraulic systems, for example.

These 4 switching and switch-back points which are independent of each other can be adjusted very simply via the keypad.

For incorporation into monitoring systems (e.g. with PLC) an analog output (4 to 20 mA or 0 to 10 V) is also available.

Special Features:

- 4-digit digital display
- Simple operation with key programming
- 4 limit relays, switching points and reset points can be adjusted independently
- Analog output signal selectable (4 to 20 mA or 0 to 10 V)
- Many useful additional functions
- Optional mounting position (*pressure connection on the top/bottom, keypad and display can be turned through 180°*)

Approvals



CE mark is a mandatory conformity mark on many products placed on the single market in the European Economic Area

Technical Details

Sensor Specifications	
Measuring ranges	32° to 212°F (0 to 100°C)
Accuracy	≤ ±2°F (1°C)
Temperature drift	≤ ±0.017% / °F max. zero point ≤ ±0.017% / °F max. range
Weight	Approximately 800 g
Output signal	4 to 20 mA, ohmic resistance max. 400 Ω 0 to 10 VDC, ohmic resistance min. 2 kΩ corresponds in each case to 0 to 100°C
External Temperature Sensor Specifications	
Rated Pressure for external sensor (TFP 100)	145 psi
Media temperature range	-40° to 257°F
Electrical connection	M18x1, 4 pole
Safety Sleeve Thermowell	
Parts in contact with medium	Nickel-plated Brass
Switching Specifications	
Type	4 relays with change-over contacts in 2 groups (common supply of each group connected)
Switching voltage	100mV to 250 V (AC or DC)
Switching current	0.009 to 2A
Switching power	400VA, 50 W (for inductive load use varistors)
Set point range	1.5 to 100% FS
Reset point range	1 to 99% FS
Switching cycles	> 20 million at minimum load > 1 million at maximum load
Environmental Condition	
Operating temperature range	-13° to 140°F (-25° to 60°C)
Storage temperature range	-40° to 176°F (-40 to 80°C)
CE mark	EN 61000-6-1 / 2 / 3 / 4
Vibration resistance to DIN EN 60068-2-6 at 0 to 500 Hz	≤ 5g
Environmental protection	IP 65
Electrical Specifications	
Supply voltage	22 to 32 VDC
Residual ripple supply voltage	≤ 10%
Current consumption	approximately 200 mA
Electrical connection	14 pole terminal block
Reverse polarity protection of the supply voltage, excess voltage, override and short circuit protection	Standard
Display	7 segment LED display, 4 digits, 13 mm high

Model Code

Display

- 01 = 4 digit °C
02 = 4 digit °F

Measuring Range

- 100 = -13° to 212°F (0° to 100°C)

Modification Number

- 000 = Standard

cable glands, mounting screw, a 5 pole female connector (Binder series 681) for connecting the separate temperature probe and a 10' sensor cable (LIYCY 4x0.25 mm²) are supplied with the unit.
Other accessories, such as vibration mounts, etc. can be found in the Accessories section.

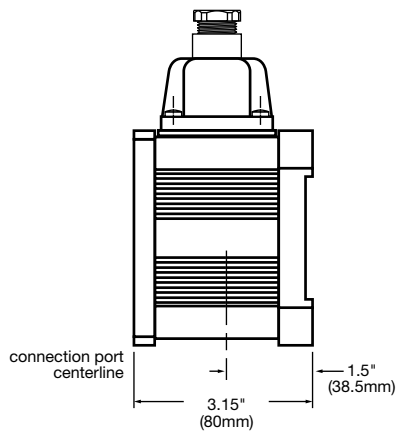
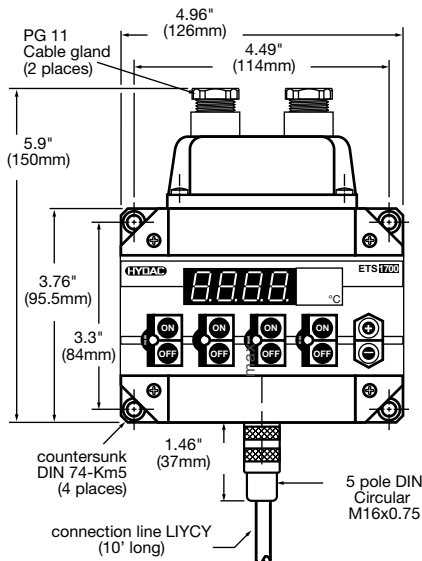
ETS 170 XX - X - 000

Pin Connections

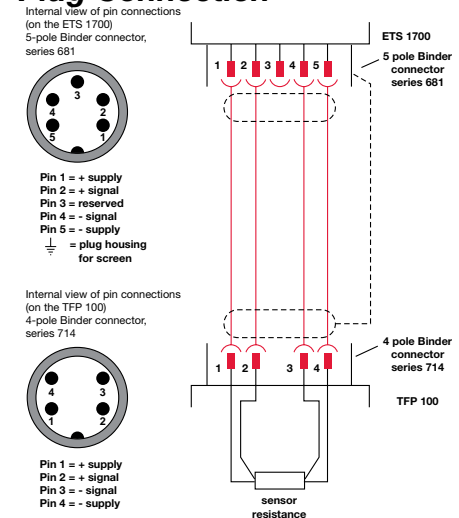
Device Connection

Pin	
1	+U _B
2	0 V
3	Analog output signal +
4	Analog output signal - (0 V)
5	Relay 1 N/C
6	Relay 1 N/O
7	Center relay 1 and 2
8	Relay 2 N/C
9	Relay 2 N/O
10	Relay 3 N/C
11	Relay 3 N/O
12	Center relay 3 and 4
13	Relay 4 N/C
14	Relay 4 N/O

Dimensions



Plug Connection



TFP 100

Safety Sleeve

External Sensor (TFP 100) must be used with TFP 100 thermowell.

TFP 100 Part Number: 00904696

TFP 100 Thermowell (Safety Sleeve) Part Number: 00906170

