Datasheet
Temperature meter ST300

Introduction

The ST300 pairs a PT1000 sensor with an advanced transmitter to monitor medium temperature shifts, instantly converting the fluctuations into a 4...20 mA industrial signal. A built-in local display allows for convenient on-site monitoring of readings, while switching outputs enhance system safety and process control.



Characteristics

All metal housing

330° rotatable display

4-bit display

4…20mA / 0…5V + switching output

Applications

Hydraulic and lubrication system

Cooling / Heating system

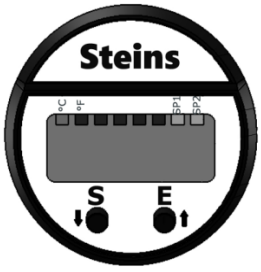
Oil and Gas

Water / Water treatment

Specifications

Measuring range	-58…392°F / -50…200°C (higher temperature available on request)
Power	12…30 VDC
Non-load current consumption	<30mA @ 24VDC
Current output	3-wire 4…20mA
	Load resistance: ≤ 0.5 KΩ
	Linearity ≤ 0.5% F.S.
Voltage output	3-wire 0…5V
	Load resistance: ≥ 10 KΩ
	Linearity ≤ 0.5% F.S.
Switching output	Push-Pull (PNP / NPN), NC, NO programmable
	Output current < 500mA
	Response time: ≤ 10 ms
	Voltage drop: < 1V
	Accuracy: 0.5% F.S.
Wiring protection	Reverse polarity, Over-voltage, Short-circuit
Display	4-bit digital LED
Accuracy	0.5% of reading
Temperature	Medium temperature: -60…390°F / -50…200°C
	Ambient temperature: -40…185°F / -40…85°C
	Storage temperature: -40…210°F / -40…100°C
Probe pressure rating	2,900 psi (200 bar)
Probe diameter	6 mm
	8 mm
Material	Display housing: zinc alloy
	Body: SS 304
	Wetted parts: SS 316
Protection class	IP65
Electrical connection	5-pin M12 x 1
Process connection	NPT1/4"
	NPT1/2"
	G1/4"
	G1/2"
Certification	ISO 9001; CE

Panel



Keys

keys	Function
S + E	Hold together 3s to enter settings / Press together to confirm
S	Menu Down / Change Value
E	Menu Up / Move Cursor

Menus

Menus	Description	Options
unit	Display Unit	°F / °C
SP1	Switch 1 Set Point	2%...100% of measuring range
rP1	Switch 1 Reset Point	0…98% of measuring range
out1	Switch 1 Output Mode	Hno / Hnc / Fno / Fnc*
SP2	Switch 2 Set Point	2%...100% of measuring range
rP2	Switch 2 Reset Point	0…98% of measuring range
out2	Switch 2 Output Mode	Hno / Hnc / Fno / Fnc*
Sfun	Switch Output Type	PnP / nPn
Afr	Analog Output Lower Limit	0…75% of measuring range
Ato	Analog Output Upper Limit	25%...100% of measuring range
Aout	Analog Output Range	0…20mA / 4…20mA
dAp	Damping of Switching Output	0…8s
Sto	Save	YES / NO

*

Hno - Hysteresis normally open

Hnc - Hysteresis normally close

Fno - Window normally open

Fnc - Window normally close

Others	Description
OL	Above High Limit Alarm
UL	Below Low Limit Alarm

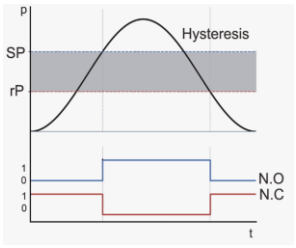
Note:

1) The difference between the set point and the reset point must be at least 2% of the measuring range, or one of them will be adjusted automatically.
2) The difference between the analog output upper limit and lower limit must be at least 25% of the measuring range; or one of them will be adjusted automatically.

Output mode - Window / Hysteresis

Hysteresis Mode

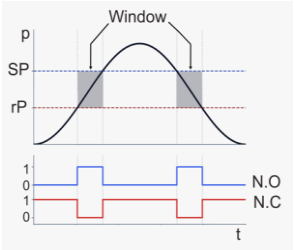
Hysteresis is used to prevent output instability when the temperature fluctuates around the set point.



Example using NC (Normally Closed) logic:
The hysteresis zone (SP - rP) is represented by the gray area in the diagram on the right.
Rising temperature: The switch opens when the temperature rises above the set point (SP).
Falling temperature: The switch closes only when the temperature drops below the reset point (rP).

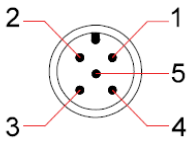
Window Mode

Window mode is used to monitor whether the temperature remains within a specific range. An alert will trigger if the temperature moves outside of this range.

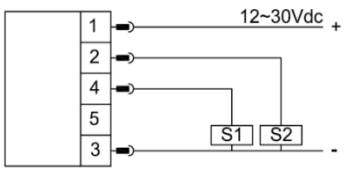
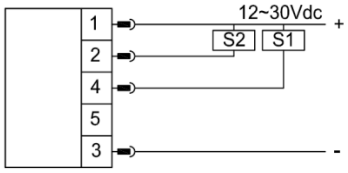
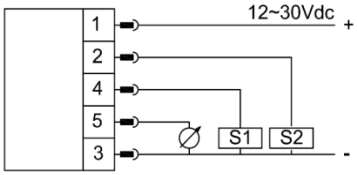
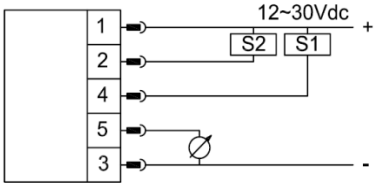


Example using NC (Normally Closed) logic:
The window range is represented by the gray area in the diagram on the right.
Inside the range: The switch closes when the temperature is between the set point (SP) and the reset point (rP).
Outside the range: The switch opens if the temperature rises above the set point (SP) or drops below the reset point (rP).

Wiring

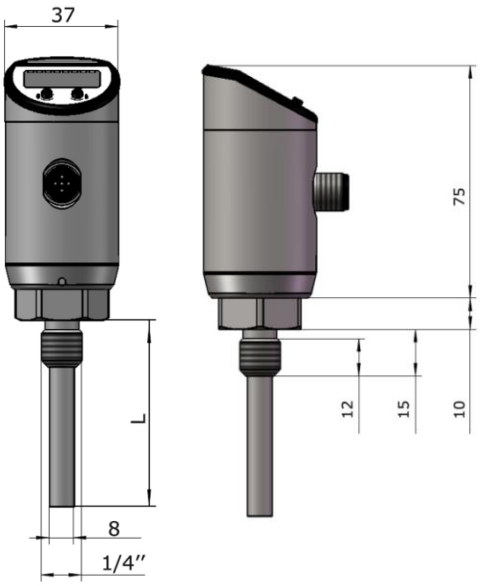


Signal	Pin	Color
Power +	1	Brown
Power -	3	Blue
Switch S1	4	Black
Switch S2	2	Wite
Analog Output (4…20mA / 0…5V)	5	Gray

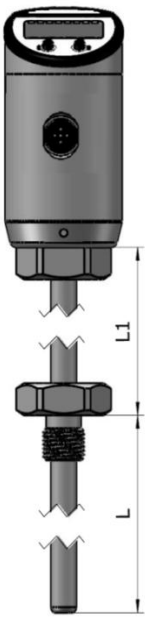
PNP	NPN
 2 x PNP	 2 x NPN
 2 x PNP + Analog	 2 x NPN + Analog

Dimensions in mm

Integrated transmitter



Medium temperature ≤ 250°F (125°C)



High temperature model
Medium temperature > 250°F (125°C)

Temperature upper limit	L1	L
250°F (125°C)	0 mm	see order code for details
390°F (200°C)	50 mm	

Order Code

Example: ST300-T33A8L25N14

1. Model

ST300	Temperature sensor ST300

2. Measuring range

T1	-60…30°F (-50…0°C)
T2	-60…120°F (-50…50°C)
T3	30…120°F (0…50°C)
T4	30…175°F (0…80°C)
T5	30…210°F (0…100°C)
T6	30…250°F (0…120°C)
T7	30…300°F (0…150°C)
T8	30…390°F (0…200°C)
	Other range on request

3. Output signal

2S	2 switching outputs
3A	4…20mA + 2 switching outputs
3V	0…5V + 2 switching outputs

4. Probe diameter

6	Ø6
8	Ø8 (standard)

5. Probe length

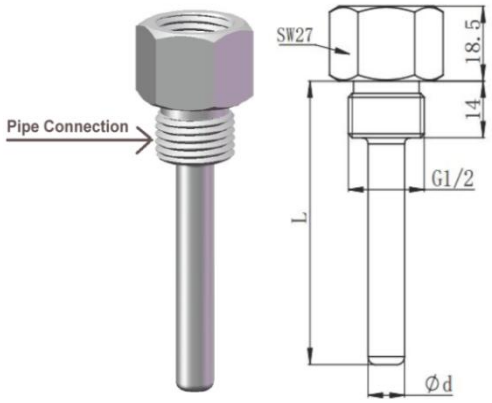
L25	25 mm
L50	50 mm
L100	100 mm
L150	150 mm
L250	250 mm
L350	350 mm
	Thread length is included, see dimensions.

6. Process connection

N14	NPT1/4" male thread
N12	NPT1/2" male thread
G14	G1/4" male thread
G12	G1/2" male thread

7. Thermalwell (optional)

PG12	G1/2" male thread
PN12	NPT 1/2" male thread
	Select the thread for pipe connection



Thermalwell

Accessory 1 - power/signal cable with socket

1. Connecting cable with socket

ET05-	5-pin M12 x 1 connecting cable

2. Material

PU	Material: PUR

3. Length

02	6.5ft / 2m (default)
05	16.5ft / 5m

4. Type

R	Regular cable
S	Shielded cable

5. Connector

G	Straight socket
W	Angled socket



Accessory 2 - Welding socket

1. Model	
TT01-	Welding socket

2. Thread	
N14	Fitting thread: 1/4" NPT thread
G14	Fitting thread: 1/4" G thread
N12	Fitting thread: 1/2" NPT thread
G12	Fitting thread: 1/2" G thread



