Datasheet
Temperature meter ST100 - Display

Introduction

ST100 equips a pt100 and a transmitter, pt100 is used to sensing the changes of medium temperature, the transmitter will convert the changes to industrial signal and output.

Characteristics

330° rotatable display

Measuring range -58…392°F / -50…200°C

High repeatability

4…20mA + 2 switching output

Temperature and switching state display

High reliability

Applications

Hydraulic and lubrication system

Cooling system

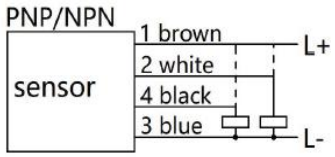
Heating system

Water supply system

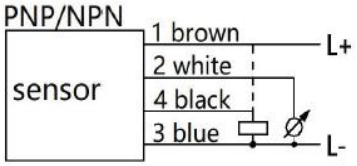
Specifications

Measuring range	-58…392°F / -50…200°C
Switch setting	Set point(SP): 2…100% of full span
	Reset point(rP): 0…98% of full span
	Number of switches: 1 or 2 selectable
	Increase/decrease every 0.1°C
Accuracy	0.5K + 0.4% of full span
Resolution	Switch output: 0.5°C
	4…20mA output: 0.5°C
	Display: 0.1°C
Process pressure	Ø6 probe: 580 psi / 40 bar
	Ø8 probe: 1450 psi / 100 bar
Temperature effect	0.1K / 10K
Voltage drop	<2V
Non-load current	<30mA
Switch load current	300mA
Analog load current	4…20mA: 500Ω @24VDC
Wiring protection	Reverse polarity, Over-voltage
Display	4-bit digital LED
Sensor	PT100
Ambient temperature	-13…176°F / -25…80°C
Protection class	IP65
Power	24 VDC
Housing material	Zinc alloy
Wetted parts material	304 or 316L stainless steel selectable
Electrical connection	4-pin M12 x 1
	5-pin M12 x 1 (for analog + 2 switching output)
Version	Integrated transmitter
	Remote transmitter

Wiring

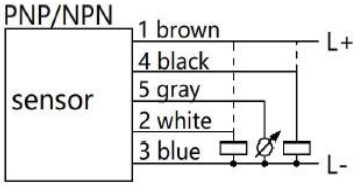


2 switching output



1 switching output +
1 analog output

1 analog output

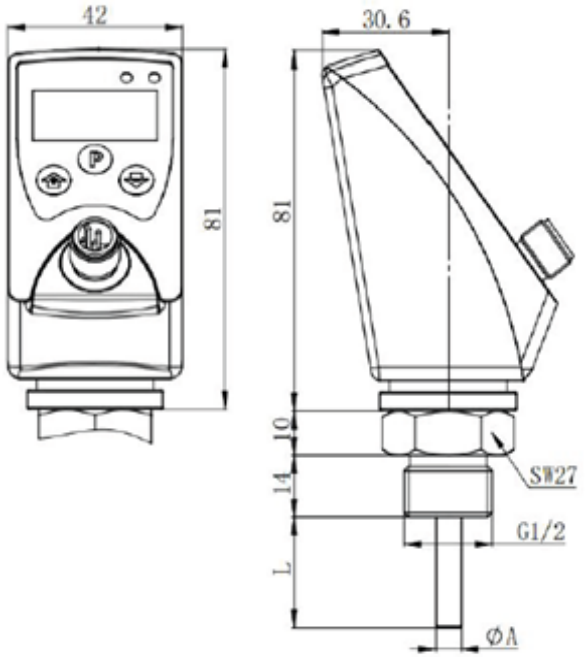


2 switching output +
1 analog output

Pin	Cable	2 switching output	1 switching + analog output	2 switching + analog output
1	Brown	24VDC	24VDC	24VDC
2	White	Switch 2 output	4…20mA output	Switch 2 output
3	Blue	VDC Grounding (0V)	VDC Grounding (0V)	VDC Grounding (0V)
4	Black	Switch 1 output	Switch 1 output	Switch 1 output
5	Gray	/	/	4…20mA

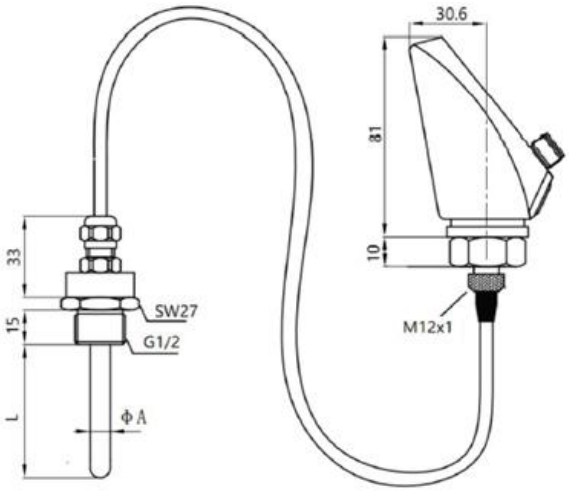
Dimensions in mm

Integrated transmitter



Customization available for:
Probe length L
Probe diameter A

Remote transmitter



Customization available for:
Probe length L
Probe diameter A

Panel

1 - Ⅰ = output 1 state
Ⅱ = output 2 state
2 - LED display
3- P confirm
4 - up
5 - down

Keys

keys	Function
P + ▲	Press and hold for 3 seconds to enter setting mode
▲	Shift menu up / change a setting value
▼	Shift menu down / move cursor
P	Enter menu / Confirm and enter next menu

Menus

Menus	Description	Options
unit	Unit selection	°C / °F
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

Alerting Display	Description
OL	Higher than upper limit alerting
UL	Lower than low limit alerting

* **Hno** - Hysteresis normally open
Hnc - Hysteresis normally close
Fno - Window normally open
Fnc - Window normally close

Note:

1) The difference between set point and reset point must be at least 2% of measuring range, or one of them will be adjusted automatically.

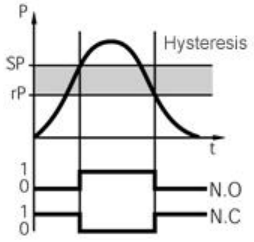
2) The difference between analog output upper limit and lower limit must be at least 25% of measuring range, or it will be adjusted automatically.

Output mode - Window / Hysteresis

Hysteresis

Hysteresis is used to have a stable output if the temperature fluctuates around set point.

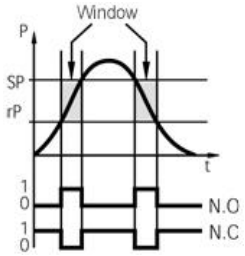
Use NC (normally closed) as example:
The hysteresis(SP-rP) is shown as gray area in right diagram.
For rising temperature, switch opens when temperature is higher than set point (SP).
For falling temperature, switch closes only when temperature is lower than reset point(rP).



Window

Window is used to monitor whether the temperature is in a certain range. Alarting will be activated if the temperature is out of the range.

Use NC (normally closed) as example:
The window range is shown as gray area in right diagram.
If temperature is inside the range of set point (SP) and reset point (rP), switch is closed.
If temperature is high than SP or lower than rP, switch opens.



Order Code

Example: ST100-FT51AA6L25G12-

1. ST100-	
F	Integrated type
R	Remote type

2. Measuring range	
T1	-58…32°F (-50…0°C)
T2	-58…122°F (-50…50°C)
T3	32…122°F (0…50°C)
T4	32…176°F (0…80°C)
T5	32…212°F (0…100°C)
T6	32…248°F (0…120°C)
T7	32…302°F (0…150°C)
T8	32…392°F (0…200°C)

3. Output signal	
2S	2 switching output
1A	4…20mA output
2A	4…20mA + 1 switching output
3A	4…20mA + 2 switching output

4. Probe material	
A	304 stainless steel
B	316L stainless steel

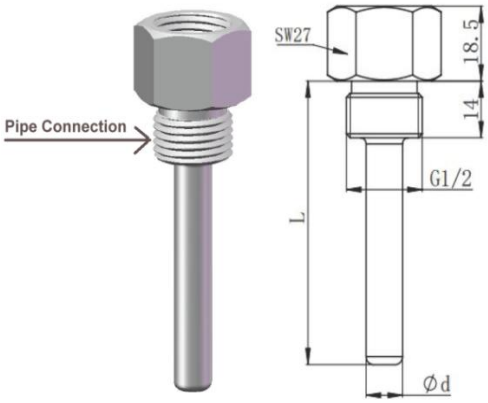
5. Probe diameter	
6	Ø6
8	Ø8

6. Probe length	
L25	25 mm
L50	50 mm
L75	75 mm
L100	100 mm
L150	150 mm
L200	200 mm

7. Process connection	
G12	G1/2" male thread
N12	NPT1/2" male thread
	Other thread on request

8. Cable length (remote type only)	
-	None
02	Cable length 2m / 6.5ft
05	Cable length 5m / 16.5 ft
10	Cable length 10m / 33 ft
	Other length on request

9. Protection tube (optional)	
PG12	G1/2" male thread
PN12	NPT 1/2" male thread
	Select the thread for pipe connection



Protection tube

Accessory - power/signal cable with socket

1. Connecting cable with socket

ET04-	4-pin M12 x 1 connecting cable with socket
ET05-	5-pin M12 x 1 connecting cable with socket
	5-pin cable is for 2 switching + analog output

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 - wirable plug

1. Wirable plug

ST04	4-pin M12 x 1 wirable plug

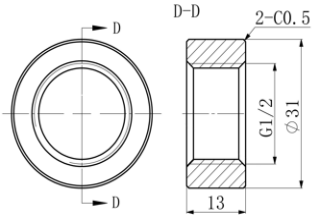
Accessory 2 - Welding socket

1. Model

TT01-	Welding socket

2. Thread

G12	Fitting thread: 1/2" G thread
N12	Fitting thread: 1/2" NPT thread



Accessory 3 - Wall mounting bracket for remote trasnmitter

1. Model

RR002-	Wall mounting socket (for remote transmitter)

2. Material

A	Aluminum

3. Hole size on wall

6	Hole diameter: 6mm