

TNS400 – Remote Type Temperature Sensor with Digital Display



- ▶ 4 switching outputs
- ▶ 4-digit LEDs with digital display
- ▶ All-metal housing
- ▶ Optional 4 switching outputs + 1 analog output
- ▶ 0.5% of F.S.
- ▶ Remote type design

TNS400 measures the temperature with a high-accuracy sensor and output signal is processed to standard electrical signal for outputting and displaying. All-metal housing; rotatable highlight LED display; dual keys design and friendly menu; multiple process connections; 330° rotatable indicator.



Specifications

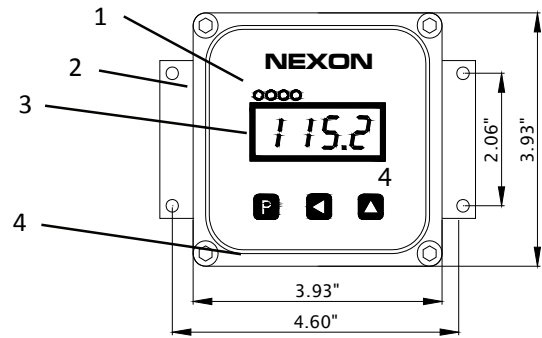
Measuring Range	-50...125°C
Power Supply	12...30Vdc
Current Consumption	≤30mA (power supply 24Vdc, no-load)
Switching Output	
Output	Push-pull (compatible with PNP/NPN); NC/NO configurable
S1, S2 Output Current	<500mA
Response Time	<10ms
Voltage Drop	<1V
Accuracy	≤±0.5% of F.S.
Current Analog Output	
Output	3-wire 0...20mA / 4...20mA programmable
Load RA	RA≤0.5KΩ
Linearity	≤±0.5% of F.S.
Voltage Analog Output	
Output	3-wire 0...5V / 1...5V programmable
Load RA	RA>10KΩ
Linearity	≤±0.5% of F.S.
Wiring Protection	Reverse polarity, overvoltage and short-circuit
Display	
Design	8mm height, red 4-digit LED
Display Range	-1999...9999
Accuracy	≤±0.5% of F.S.
Stability (Drift/Year)	≤±0.3% of F.S.
Temperature	
Medium	-50...125°C
Ambient	-40...85°C
Probe Pressure Rating	200bar
Material	
Display Head	Zinc Alloy
Housing	304 stainless steel
Wetted Parts	316 stainless steel
Protection Class	IP67
Electrical Connection	Terminals

Applications

- ▶ Equipment manufacturing
- ▶ Hydraulics and pneumatics
- ▶ Pump and compressor
- ▶ Machinery manufacturing

Set Panel

Key	Function
P ◀	Press and hold 3 seconds to enter the user menu
▲	Shift up the menu / change value
▶	Shift down the menu / change setting bit
P	Verify the setting and enter the next option



- ▶ Output state lights: from left to right for S1,S2,S3,S4 respectively.
- ▶ Wall-mount bracket
- ▶ 4-digit red LED display
- ▶ Keys: P – confirm; left–shift key, up–shift key

Menu

Display	Item	Description	Options
unit	unit	unit	F / °C
SP1	SP1	set point of output 1	2% ...100% of F.S.
rP1	rP1	reset point of output 1	lower limit ... 98% of F.S.
out1	out1	output mode	hysteresisNC/NO window NC/NO
SP2	SP2	set point of output 2	2% ...100% of F.S.
rP2	rP2	reset point of output 2	lower limit ...98% of F.S.
out2	out2	output mode	hysteresisNC/NO window NC/NO
SP3	SP3	set point of output 3	2% ...100% of F.S.
rP3	rP3	reset point of output 3	lower limit ... 98% of F.S.
out3	out3	output mode	hysteresisNC/NO window NC/NO

Display	Item	Description	Options
SP4	SP4	set point of output 4	2% ...100% of F.S.
rP4	rP4	reset point of output 4	lower limit ... 98% of F.S.
out4	out4	output mode	hysteresisNC/NO window NC/NO
SFun	sfun	output function	PNP / NPN
Aout	Aout	current analog output	0...20mA or 4...20mA
		voltage analog output	0...5V or 1...5V
ASt	Ast	analog output start point	lower limit ...75% of F.S.
AEd	AEd	analog output end point	25%...100% of F.S.
Sto	Sto	Save	Yes/No

Functional Specifications

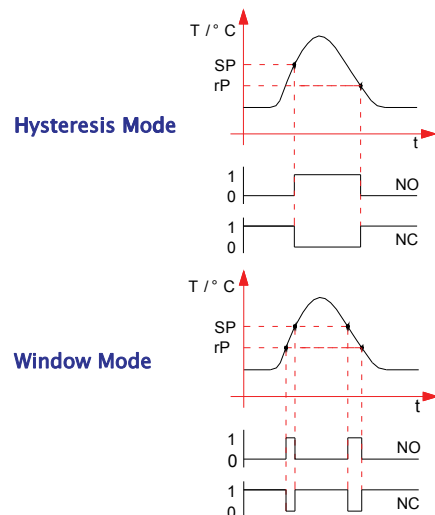
Note: For reply output model with back plate, please set SFUN as PNP.

Hysteresis Mode

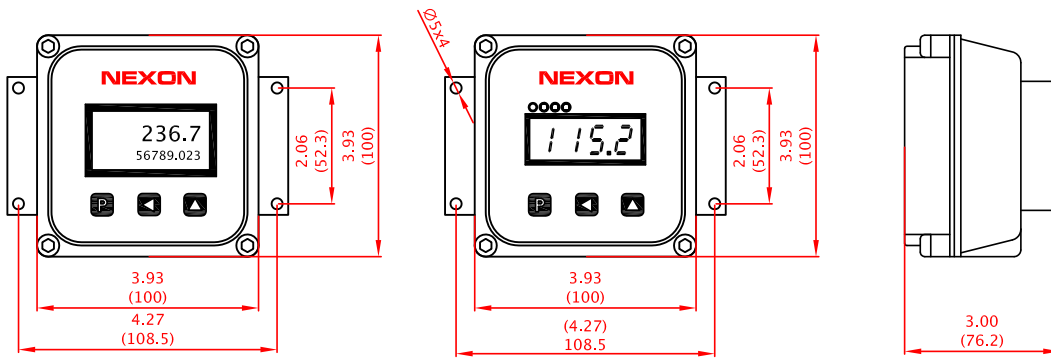
The hysteresis keeps the switching output stable if temperature fluctuates around the setpoint. Output switches when rising temperature reaches set point (SP1); As temperature falls, the output switches back only if the reset point (rP1) is reached.

Window Mode

The window function allows the monitoring of a defined range. If the temperature is between set point (SP1) and reset point (rP1), the output is activated (NO), otherwise it is deactivated(NC).

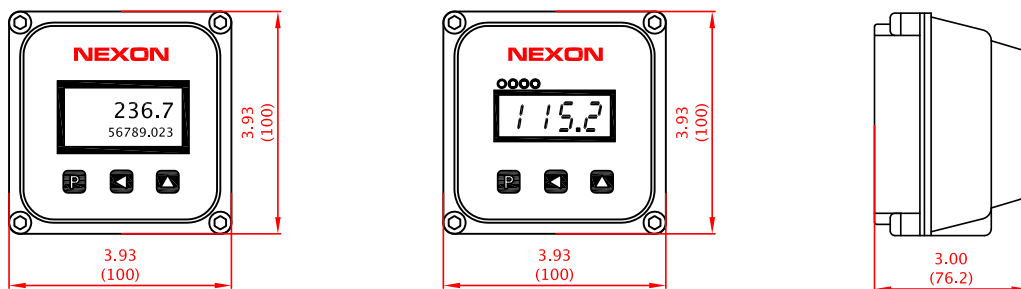


Dimensions in inches (mm)



LCD display with mounting bracket

7-segment LED display with mounting bracket

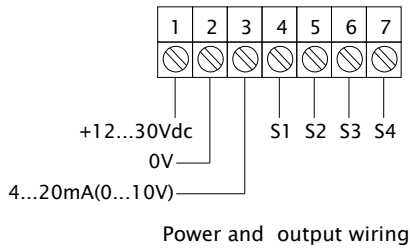


LCD display

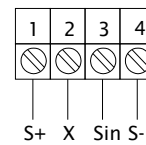
7-segment LED display

Wiring

Without backplate(PNP or NPN) :

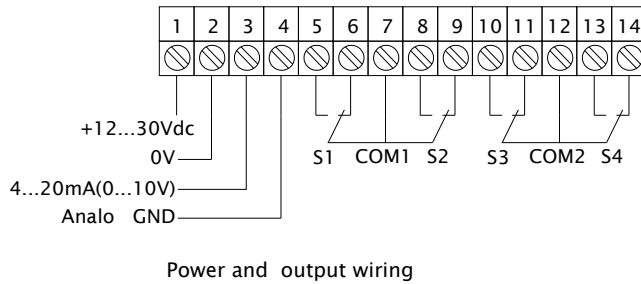


Power and output wiring

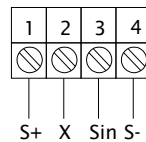


Senor wiring

With backplate(SPDT relay output) :

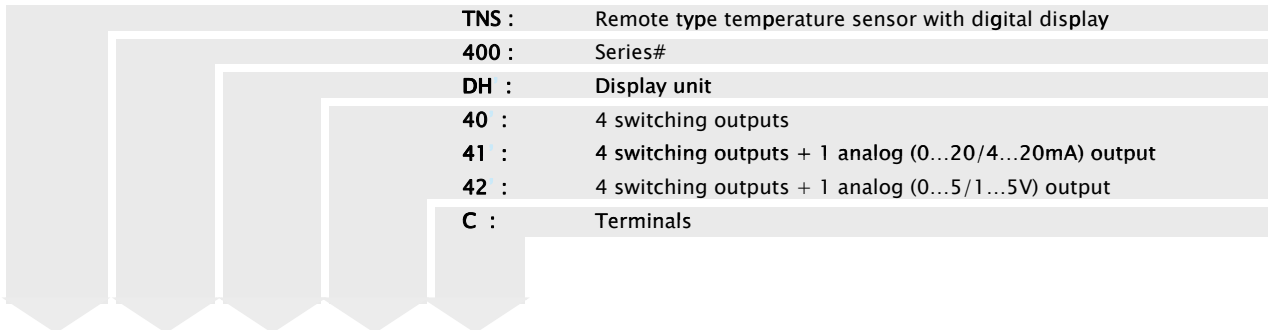


Power and output wiring



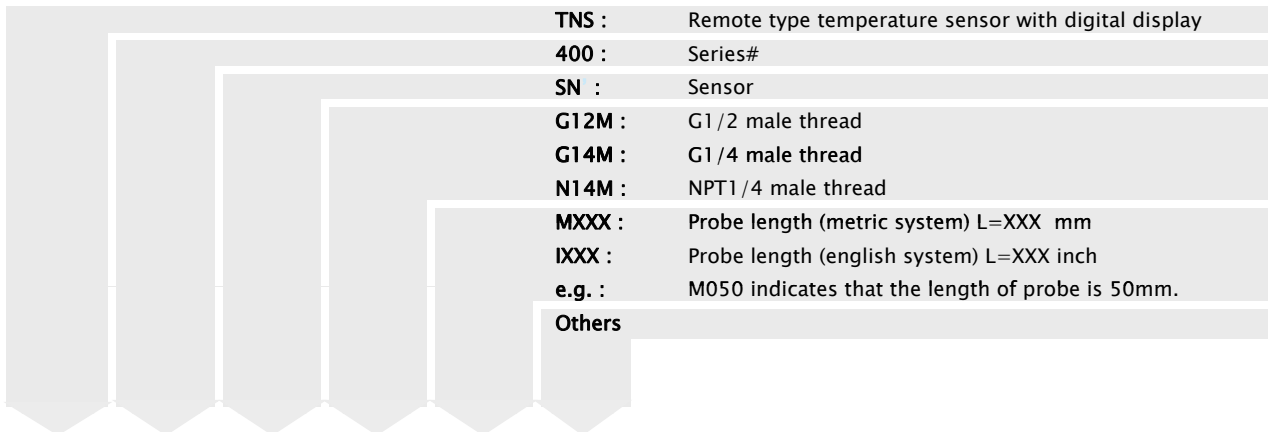
Senor wiring

Order Code for Display Unit



TNS	400/	DH	40	C
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Order Code for Temperature Probe



TNS	400/	SN	G12M	M050	/
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Special Order on Request

- ▶ NPT1/2 process connection
- ▶ Flange connection for sanitation requirement
- ▶ Other electrical / process connection