## **Temperature Transmitter with Digital Switch**

Model: T800S (General head)

**T800 (Explosion Proof head)** 





## **Advantages**

- Micro-processor based digital temperature switch/transmitter for industrial applications
- Adjustable switch points allow the user to obtain various temperature settings for each of the 2 switches and span
- Measuring ranges from -50 to 500 ℃
- RTD input
- Excellent accuracy and long term stability
- 4 digit LED local display
- 2switching points with analog output
- Measuring range turn down maximum 10:1

### **Applications**

The T800, T800S micro-processor based digital temperature switch with analog output signal can be used for a wide range of applications in process control, automatic machinery and hydraulic or pneumatic system design.

- Chemical, petrochemical, food and drug process controls
- Hydraulic and pneumatic equipments
- Machine tools and automatic machinery
- LPG and LNG transmission control and storage tank monitoring
- Engine monitoring and control



T800 / T800S

#### Certificate

Ex d IIC T6 (IP65)

#### **Descriptions**

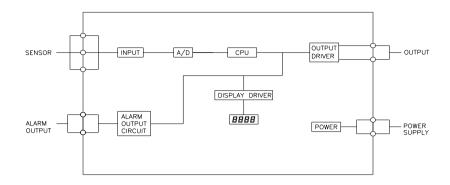
applications.

T800 Series micro-processor based digital temperature switch addresses all the fundamental issues of industrial temperature sensing that require highly accurate process control and monitoring. The T800S/P800, with its built-in RTD, a 4-digit digital display, 2 switching points, 4~20mA analog output signal and a front function keys, offer the user all the advantages of a modern electronic temperature measurement. External adjustments allow the user to set the measuring ranges, switch points, dead band and zero or span calibration, etc. It has a water resistant, aluminum die-cast housing for complete protection from harsh environments and its 4~20mA current output is ideal for remote monitoring of both primary and secondary process variables. It has been designed as an advanced device for measuring temperature in industrial

# Specification

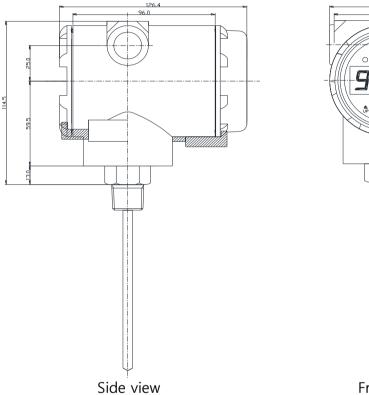
Input   Technology	Innet	
Measuring range       -50-500 °C         Output       4-20mA analog output / Optional 1~5V DC acailable on request         Local display       LED 4 digit         Electrical connection type       Terminal Head         Electrical Specification       Excitation voltage         Excitation voltage       24V DC (12~36V DC) , 85~260V AC (Optional)         Load resistance max @ 24V       500 Ω at 24V         Influence of excitation       0.01% FSO/V         Power ripple       ≤500mV P-P         Reverse polarity       Protected         Shock resistance       No change in performance after 10Gs for 11ms         Vibration       0.1G (1 m/s/s) maximum         Response time(10~90%)       ± 500 mSec.         Switching current       Maximum 1.2A         Adjustment range       Zero and span can be fully adjustable using front keys         Performance Specification         Accuracy       ≤±0.2% FSO         Repeatability       ± 0.1% FSO         Long term stability       Better Than 0.05% FSO per month         Ambient temperature range       -20~70 °C         Physical Specification       PT1/2" male thread (standard)         Process connection       PT1/2" male thread on prequest         PF 1/2"         Process media		
Output signal       4~20mA analog output / Optional 1~5V DC acailable on request         Local display       LED 4 digit         Electrical connection type       Terminal Head         Electrical Specification       24V DC (12~36V DC), 85~260V AC (Optional)         Excitation voltage       24V DC (12~36V DC), 85~260V AC (Optional)         Load resistance max @ 24V       500		
Output signal       4~20mA analog output / Optional 1~5V DC acailable on request 2 switching points with 4~20mA analog output         Local display       LED 4 digit         Electrical connection type       Terminal Head         Electrical Specification         Excitation voltage       24V DC (12~36V DC), 85~260V AC (Optional)         Load resistance max @ 24V       500 Ω at 24V         Influence of excitation       0.01% FSO/V         Power ripple       ≤500mV P-P         Reverse polarity       Protected         Shock resistance       No change in performance after 10Gs for 11ms         Vibration       0.1G (1 m/s/s) maximum         Response time(10~90%)       ± 500 mSec.         Switching current       Maximum 1.2A         Adjustment range       Zero and span can be fully adjustable using front keys         Performance Specification       2ev and span can be fully adjustable using front keys         Repeatability       ± 0.2% FSO         Non-linearity       ± 0.2% FSO         Repeatability       ± 0.1% FSO         Long term stability       ± 0.1% FSO         Long term stability       ± 0.1% FSO         Ambient humidity limits       5 to 100% R.H         Storage temperature range       -40 ~ 70 °C         Physical Specif		-50~500 °C
Local display   LED 4 digit		
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Excitation voltage		
Excitation voltage 24V DC (12~36V DC), 85~260V AC (Optional)  Load resistance max @ 24V 500		Terminal Head
Load resistance max @ 24V       500 Ω at 24V         Influence of excitation       0.01% FSO/V         Power ripple       ≤500mV P-P         Reverse polarity       Protected         Shock resistance       No change in performance after 10Gs for 11ms         Vibration       0.1G (1 m/s/s) maximum         Response time(10~90%)       ± 500 mSec.         Switching current       Maximum 1.2A         Adjustment range       Zero and span can be fully adjustable using front keys         Performance Specification       Accuracy         Accuracy       ≤ ±0.2% FSO         Non-linearity       ± 0.2% FSO         Repeatability       ± 0.1% FSO         Long term stability       Better Than 0.05% FSO per month         Ambient temperature range       -20 ~ 70 °C         Ambient humidity limits       5 to 100% R.H         Storage temperature range       -40 ~ 70 °C         Physical Specification       PT1/2" male thread (standard)         Flange & other connections available on request         Electrical connection       PF 1/2"         Process media       Gases and liquids compatible with stainless steel 316		
Influence of excitation       0.01% FSO/V         Power ripple       ≤500mV P-P         Reverse polarity       Protected         Shock resistance       No change in performance after 10Gs for 11ms         Vibration       0.1G (1 m/s/s) maximum         Response time(10~90%)       ± 500 mSec.         Switching current       Maximum 1.2A         Adjustment range       Zero and span can be fully adjustable using front keys         Performance Specification       Accuracy         Accuracy       ≤±0.2% FSO         Non-linearity       ± 0.2% FSO         Repeatability       ± 0.1% FSO         Long term stability       Better Than 0.05% FSO per month         Ambient temperature range       -20 ~ 70 °C         Ambient humidity limits       5 to 100% R.H         Storage temperature range       -40 ~ 70 °C         Physical Specification       PT1/2" male thread (standard)         Flange & other connections available on request         Electrical connection       PF 1/2"         Process media       Gases and liquids compatible with stainless steel 316		24V DC (12~36V DC), 85~260V AC (Optional)
Power ripple ≤500mV P-P Reverse polarity Protected Shock resistance No change in performance after 10Gs for 11ms  Vibration 0.1G (1 m/s/s) maximum  Response time(10~90%) ±500 mSec.  Switching current Maximum 1.2A  Adjustment range Zero and span can be fully adjustable using front keys  Performance Specification  Accuracy ≤±0.2% FSO  Non-linearity ±0.2% FSO  Repeatability ±0.1% FSO  Long term stability Better Than 0.05% FSO per month  Ambient temperature range -20 ~ 70 ℃  Ambient humidity limits 5 to 100% R.H  Storage temperature range -40 ~ 70 ℃  Physical Specification  Process connection PF1/2" male thread (standard)  Flange & other connections available on request  Electrical connection PF 1/2"  Process media Gases and liquids compatible with stainless steel 316	Load resistance max @ 24V	
Reverse polarity       Protected         Shock resistance       No change in performance after 10Gs for 11ms         Vibration       0.1G (1 m/s/s) maximum         Response time(10~90%)       ± 500 mSec.         Switching current       Maximum 1.2A         Adjustment range       Zero and span can be fully adjustable using front keys         Performance Specification         Accuracy       ≤±0.2% FSO         Non-linearity       ± 0.2% FSO         Repeatability       ± 0.1% FSO         Long term stability       Better Than 0.05% FSO per month         Ambient temperature range       -20 ~ 70 °C         Ambient humidity limits       5 to 100% R.H         Storage temperature range       -40 ~ 70 °C         Physical Specification       PT1/2" male thread (standard)         Flange & other connections available on request         Electrical connection       PF 1/2"         Process media       Gases and liquids compatible with stainless steel 316	Influence of excitation	0.01% FSO/V
Shock resistance       No change in performance after 10Gs for 11ms         Vibration       0.1G (1 m/s/s) maximum         Response time(10~90%)       ± 500 mSec.         Switching current       Maximum 1.2A         Adjustment range       Zero and span can be fully adjustable using front keys         Performance Specification       Accuracy         Accuracy       ≤±0.2% FSO         Non-linearity       ± 0.2% FSO         Repeatability       ± 0.1% FSO         Long term stability       Better Than 0.05% FSO per month         Ambient temperature range       -20 ~ 70 °C         Ambient humidity limits       5 to 100% R.H         Storage temperature range       -40 ~ 70 °C         Physical Specification       PT1/2" male thread (standard)         Flange & other connections available on request         Electrical connection       PF 1/2"         Process media       Gases and liquids compatible with stainless steel 316	Power ripple	≤500mV P-P
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Response time(10~90%)       ± 500 mSec.         Switching current       Maximum 1.2A         Adjustment range       Zero and span can be fully adjustable using front keys         Performance Specification       ≤±0.2% FSO         Accuracy       ≤±0.2% FSO         Non-linearity       ± 0.1% FSO         Long term stability       ± 0.1% FSO         Long term stability       Better Than 0.05% FSO per month         Ambient temperature range       -20 ~ 70 °C         Ambient humidity limits       5 to 100% R.H         Storage temperature range       -40 ~ 70 °C         Physical Specification       PT1/2" male thread (standard)         Process connection       PT1/2" male thread (standard)         Flange & other connections available on request         Electrical connection       PF 1/2"         Process media       Gases and liquids compatible with stainless steel 316	Shock resistance	No change in performance after 10Gs for 11ms
Switching current       Maximum 1.2A         Adjustment range       Zero and span can be fully adjustable using front keys         Performance Specification       Sepecification         Accuracy       ≤±0.2% FSO         Non-linearity       ± 0.2% FSO         Repeatability       ± 0.1% FSO         Long term stability       Better Than 0.05% FSO per month         Ambient temperature range       -20 ~ 70 °C         Ambient humidity limits       5 to 100% R.H         Storage temperature range       -40 ~ 70 °C         Physical Specification       PT1/2" male thread (standard)         Flange & other connections available on request         Electrical connection       PF 1/2"         Process media       Gases and liquids compatible with stainless steel 316		0.1G (1 m/s/s) maximum
	Response time(10~90%)	± 500 mSec.
$ \begin{array}{lll} \hline \textbf{Performance Specification} \\ \hline \textbf{Accuracy} & \leq \pm 0.2\% \ \textbf{FSO} \\ \hline \textbf{Non-linearity} & \pm 0.2\% \ \textbf{FSO} \\ \hline \textbf{Repeatability} & \pm 0.1\% \ \textbf{FSO} \\ \hline \textbf{Long term stability} & \textbf{Better Than 0.05\% FSO per month} \\ \hline \textbf{Ambient temperature range} & -20 \sim 70 \ ^{\circ}\text{C} \\ \hline \textbf{Ambient humidity limits} & 5 \ \text{to } 100\% \ \textbf{R.H} \\ \hline \textbf{Storage temperature range} & -40 \sim 70 \ ^{\circ}\text{C} \\ \hline \textbf{Physical Specification} \\ \hline \textbf{Process connection} & \hline \textbf{PT1/2" male thread (standard)} \\ \hline \hline \textbf{Electrical connection} & \hline \textbf{PF 1/2"} \\ \hline \hline \textbf{Process media} & \hline \textbf{Gases and liquids compatible with stainless steel 316} \\ \hline                                  $		Maximum 1.2A
$ \begin{array}{llllllllllllllllllllllllllllllllllll$	Adjustment range	Zero and span can be fully adjustable using front keys
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	Performance Specification	
Repeatability ± 0.1% FSO  Long term stability Better Than 0.05% FSO per month  Ambient temperature range -20 ~ 70 °C  Ambient humidity limits 5 to 100% R.H  Storage temperature range -40 ~ 70 °C  Physical Specification  Process connection PT1/2" male thread (standard)  Flange & other connections available on request  Electrical connection PF 1/2"  Process media Gases and liquids compatible with stainless steel 316		
Long term stability       Better Than 0.05% FSO per month         Ambient temperature range       -20 ~ 70 °C         Ambient humidity limits       5 to 100% R.H         Storage temperature range       -40 ~ 70 °C         Physical Specification       PT1/2" male thread (standard)         Flange & other connections available on request         Electrical connection       PF 1/2"         Process media       Gases and liquids compatible with stainless steel 316	Non-linearity	± 0.2% FSO
Ambient temperature range  Ambient humidity limits  5 to 100% R.H  Storage temperature range  Physical Specification  Process connection  PT1/2" male thread (standard)  Flange & other connections available on request  Electrical connection  PF 1/2"  Process media  Gases and liquids compatible with stainless steel 316		
Ambient temperature range  Ambient humidity limits  5 to 100% R.H  Storage temperature range  Physical Specification  Process connection  PT1/2" male thread (standard)  Flange & other connections available on request  Electrical connection  PF 1/2"  Process media  Gases and liquids compatible with stainless steel 316	Long term stability	
Storage temperature range       -40 ~ 70 °C         Physical Specification       PT1/2" male thread (standard)         Process connection       PInage & other connections available on request         Electrical connection       PF 1/2"         Process media       Gases and liquids compatible with stainless steel 316	Ambient temperature range	
Physical Specification       Process connection     PT1/2" male thread (standard)       Flange & other connections available on request       Electrical connection     PF 1/2"       Process media     Gases and liquids compatible with stainless steel 316		
Process connection  PT1/2" male thread (standard)  Flange & other connections available on request  Electrical connection  PF 1/2"  Process media  Gases and liquids compatible with stainless steel 316	Storage temperature range	-40 ~ 70 °C
Flange & other connections available on request  Electrical connection PF 1/2"  Process media Gases and liquids compatible with stainless steel 316	Physical Specification	
Electrical connection PF 1/2"  Process media Gases and liquids compatible with stainless steel 316	Process connection	
Process media Gases and liquids compatible with stainless steel 316		
	Electrical connection	
Materials wetted by process Probe : stainless steel 316	Process media	
	Materials wetted by process	Probe : stainless steel 316
Housing : Aluminum Die-casting terminal head		Housing : Aluminum Die-casting terminal head
Local display range 4 digit	Local display range	
Enclosure rating IP65		IP65
Explosion protection Ex d IIC T6 (Only T800)		Ex d IIC T6 (Only T800)
Influence of mounting position Not critical	Influence of mounting position	Not critical
Options Protection well	Options	Protection well

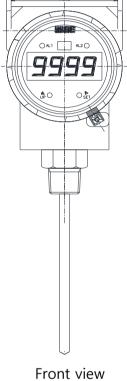
# System connection for digital switch



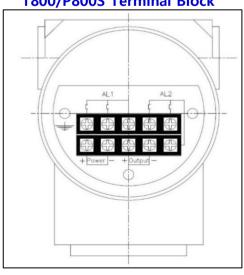
# Dimension (mm)

## **Electrical connection**





T800/P800S Terminal Block



Ordering information		
Temperature Transmitter with Digital Switch		
1. Base model		
T800	General Head	
T800S	Explosion Proof Type Head	
2. Input signal		
	RTD (PT 100 Ω)	
0	Other Input signal available on request	
3. Process connection		
	Male thread mounted	
2	Flange mounted	
4. Process connection type		
<u> Tl l l l l</u>	PT thread as standard	
J	Flange per JIS	
D	Flange per DIN	
AllI	Flange per ANSI	
X	Other process connections available on request	
5. Process connection s	ize	
	1/2"	
2	1"	
3	2"	
X	Specify the flange unit clearly	
6. Thermo-well		
S	With protection thermo-well	
N	Without protection thermo-well	
7. Measuring i	range	
01	-50 ~ 0 °C	
02	-50 ~ 50 °C	
03	-20 ~ 80 ℃	
04	-50 ~ 150 °C	
05	0 ~ 50 ℃	
06	0 ~ 100 ℃	
07	0 ~ 150 °C	
08	0 ~ 200 ℃	
09	0 ~ 300 °C	
10	0 ~ 400 ℃	
11	0 ~ 500 ℃	
XX	Other calibration ranges available on request	
8. Unit		
<u>C</u> F	Calibration in Celsius scale °C	
	Calibration in Fahrenheit scale °F	
	utput signal / Electrical connection type	
S	2 switching points / only available local display	
С	4~20mA Current output signal	
	2 switching points with analog output signal / only available local	
D	display	
	Other signal available on request	
LA	10. Option	
	A   AC 220V, 4 wire system	
	D DC 12~36V, 4 wire system	
	M 2 inch pipe mounting bracket	
	N None	