
Explosion Proof Type Temperature Transmitter

Model : T159

WISE
SENSOR



Advantages

Explosion Proof transmitter for industrial applications

- Two wire 4~20mA current output signal
- RTD inputs
- Multi input (RTD and Thermocouple)
- Loop powered 4~20mA
- Excellent accuracy and long term stability

Applications

These are recommended in applications requiring amplification of RTD or T/C signals to carry to a long distance or guard against heavy field electrical noise.

The transmitter converts RTD or T/C inputs to an analog signal for direct interface with indicators, recorders, controllers, PLC, DCS systems can be used for a wide range of applications in process control, automatic machinery and hydraulic or pneumatic system design.

Certificate

Ex d IIC T6 (IP65)

Descriptions

T159 series temperature transmitters are designed to fit into standard weather or explosion-proofed terminal heads used on RTD or thermocouple assemblies to provide a 4~20mA transmission signal.

It is cost effective solution for all temperature measurement and accurate, durable and reliable.

Numerous configurations for measurement in many different mediums are offered.

Generally the transmitter produces a linear 4~20mA output carried on a two-wire system and optional voltage range of 1~5V DC can also be available. The transmitter is supplied factory calibrated, but also has zero and span potentiometers for field adjustment or calibration.



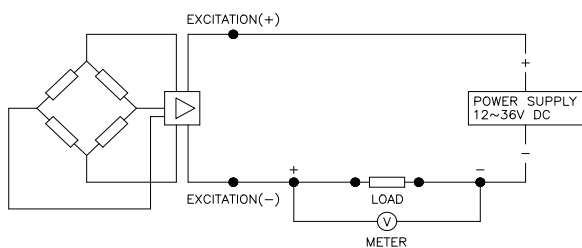
Specification

Input	
Technology	See table "Sensor type, range and accuracy"
Output	
	Current output
Electrical connection type	2-wire technique
Full scale output signal	20mA $\pm 0.2\%$
Zero measured output	4mA $\pm 0.03\%$
Sensor burnout	High (20.5 mA DC) or Low (3.9 mA)
Electrical Specification	
Excitation voltage	18 ~ 30 V DC (Noise range:20 mVp-p)
Load resistance max @ 24V	600 Ω at 24V
Influence of excitation	0.01% FSO/V
Shock resistance	No change in performance after 10Gs for 11ms
Reverse polarity	Protected
Response time(10~90%)	± 500 mSec.
Adjustment	Free (Only available Transmitter type "00")
Performance Specification	
Accuracy	$\leq \pm 0.2\%$ FSO
Non-linearity	Better Than 0.10% FSO
Repeatability	Better Than 0.05% FSO
Long term stability	Better Than 0.05% FSO per month
Cutoff frequency(-3 d B)	± 1 kHz
Ambient temperature limits	-10 ~ 70 °C
Ambient humidity limits	5 to 90% R.H
Physical Specification	
Process connection	PT1/2" male thread
	Flange & other connections available on request
Process media	Gases and liquids compatible with stainless steel 316
Materials wetted by process	Stainless steel 316L and other available on request
Materials of terminal head	Aluminum Die-casting
Enclosure rating	IP65
Explosion protection	Ex d IIC T6 (IP65)
Influence of mounting position	Not critical
Options	Protection well

Sensor type, range and accuracy

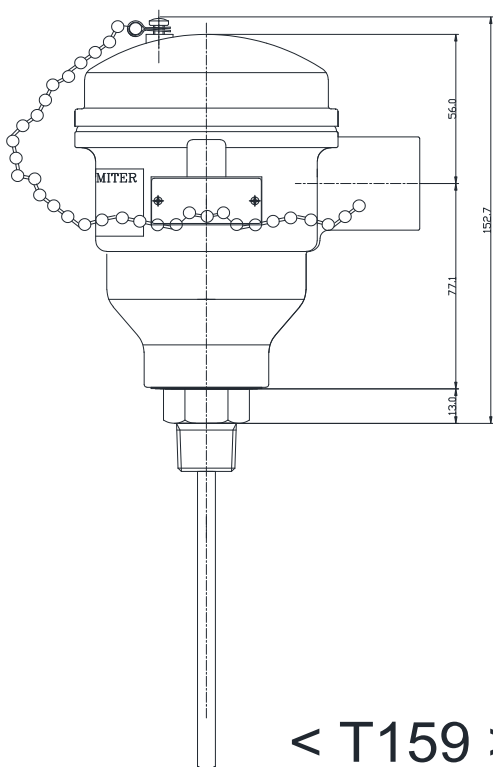
Resistance temperature detector (RTD)				
Input	Measuring range	Min. mea sured span	Calibration range	Analog output (mA) Error
Pt100	-200 ~ 850 °C	10 °C	-200 ~ 850 °C	0.2% of span
JPt100	-200 ~ 650 °C	10 °C	-200 ~ 650 °C	
Thermocouple elements (T/C) (Only available Transmitter type "90")				
Input	Measuring range	Min. mea sured span	Calibration range	Analog output (mA) Error
Type B	100 ~ 1820 °C	300 °C	100 ~ 400 °C	0.2% of span
		100 °C	400 ~ 1820 °C	
Type E	-200 ~ 1000 °C	50 °C	-200 ~ 1000 °C	
Type J	-200 ~ 1200 °C	50 °C	-200 ~ 1200 °C	
Type K	-200 ~ 1370 °C	50 °C	-200 ~ 1370 °C	
Type N	-200 ~ 1300 °C	50 °C	-200 ~ 1300 °C	
Type R	0 ~ 1760 °C	100 °C	0 ~ 1760 °C	
Type S	0 ~ 1760 °C	100 °C	0 ~ 1760 °C	
Type T	-200 ~ 400 °C	40 °C	-200 ~ 400 °C	

System connection for 2-wire transmitter

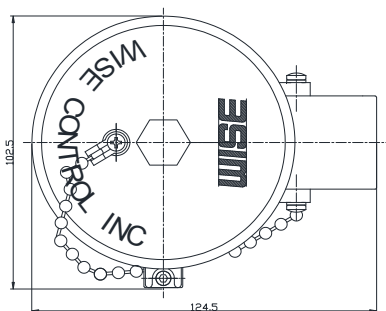
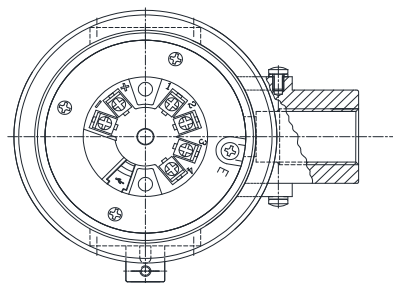


Dimension (mm)

Electrical connection

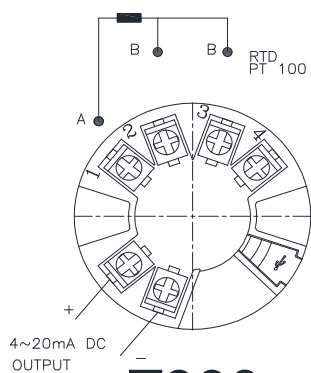


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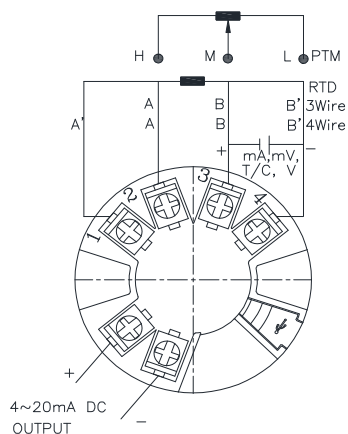
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Terminal block (Transmitter type 99)



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Terminal block (Transmitter type 90)



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Ordering Information

Explosion Proof Type Temperature Transmitter

1. Base model

T159										Explosion Proof Head
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2. Transmitter type

99										RTD only
90										Multi input(RTD & Thermocouple)

3. Input signal type

PT										RTD (PT 100 Ω)
JP										RTD (JPT 100 Ω)
TR										Thermocouple Type "R" (Only available Transmitter type "00")
TK										Thermocouple Type "K" (Only available Transmitter type "00")
TE										Thermocouple Type "E" (Only available Transmitter type "00")
TJ										Thermocouple Type "J" (Only available Transmitter type "00")
TT										Thermocouple Type "T" (Only available Transmitter type "00")
TB										Thermocouple Type "B" (Only available Transmitter type "00")
TS										Thermocouple Type "S" (Only available Transmitter type "00")
TN										Thermocouple Type "N" (Only available Transmitter type "00")
OS										Other Input signal available on request

4. Process connection

M										Male thread mounted
F										Flange mounted

5. Process connection type

T										PT thread as standard
J										Flange per JIS
D										Flange per DIN
A										Flange per ANSI
X										Other process connections available on request

6. Process connection size

1										1/2"
2										1"
3										2"
X										Specify the flange unit clearly

7. Thermo-well

S										With protection thermo-well
N										Without protection thermo-well

8. Measuring range

01										-50 ~ 0 °C
02										-50 ~ 50 °C
03										-20 ~ 80 °C
04										-50 ~ 150 °C
05										0 ~ 50 °C
06										0 ~ 100 °C
07										0 ~ 150 °C
08										0 ~ 200 °C
09										0 ~ 300 °C
10										0 ~ 400 °C
11										0 ~ 500 °C
12										0 ~ 600 °C
13										0 ~ 700 °C
14										0 ~ 800 °C
15										0 ~ 900 °C
16										0 ~ 1000 °C
xx										Other calibration ranges available on request

9. Unit

C										Calibration in Celsius scale °C
F										Calibration in Fahrenheit scale °F

10. Output signal / Electrical connection type

A1										4~20mA, DC, 2-wire output
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11. Option

N										None options
M										2 inch pipe mounting bracket

T159

90	PT	M	T	1	N	06	C	A1	N	Sample ordering code
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Specifications subject to change without notice