

Accessories

Transmitters

SERIES 5750

The SERIES 5750 temperature transmitter from Watlow offers remarkably accurate temperature measurement and improves reliability to reduce downtime and costs.

The SERIES 5750 offers new measurements with resistance temperature detectors (RTDs) in three and four-wire connections. It is designed to fit directly inside connection heads type DIN B or larger.

The transmitter is programmed using a separate connection cable and an easy-to-use Windows®-based software program configures the transmitter in seconds.

The SERIES 5750 provides linearization between temperature sensor input signals and the 4-20mA output signal to ensure accurate temperature measurements across a broad range.

Contact Watlow's customer service department to integrate this transmitter into a Watlow Style AR or AT thermocouple sensor or with a Style RR or RT RTD sensor.



Features and Benefits

Accepts three and four-wire RTD and thermocouple sensor inputs

- Standardizes transmitter for various sensors and applications

Designed for harsh conditions

- Withstands high vibration and high humidity applications

Sensor error compensation function

- Provides convenience for adjusting the sensor/transmitter combination, or the transmitter alone, ensuring accurate temperature measurement within a specific range

Large center hole and robust terminals with test connections and low height

- Enables easy mounting

Configuration without external power

- Allows configurations to be edited or read offline by connecting to a personal computer (PC) universal serial bus (USB) port

Easy-to-use Windows® configuration software

- Parameters such as sensor type, measuring range, filter activation, cold junction compensation, sensor failure and error corrections are set in one window

Note: All accessories are subject to minimum purchase quantities.



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Specifications

Input RTD

- Pt100 (IEC 60751, $\alpha = 0.00385$)
-328 to +1832°F (-200 to +1000°C)
- Pt100 (JIS C 1604, $\alpha = 0.003916$)
-328 to +1832°F (-200 to +1000°C)
- Pt1000 (IEC 60751, $\alpha = 0.00385$)
-328 to +392°F (-200 to +200°C)
- 3-, 4-wire connection
- Sensor current ~ 0.4mA
- Max. sensor wire resistance 25Ω/wire

Input Thermocouples

- Range Type: B, C, E, J, K, N, R, S, T
- Max. sensor wire resistance 500Ω (total loop)

Monitoring

- Sensor failure monitoring upscale or downscale action

Adjustments

- Zero adjustments for all inputs at any value within temperature range limits
- Min. spans: Pt input 18°F (10°C)
T/C 2mV

Output

- Analog 4-20mA, temperature linear
- Resolution 5μA
- Min. output signal measurement/failure 3.8mA/3.5mA
- Max. output signal measurement/failure 20.5mA/21.6mA
- Permissible load, see load diagram 725Ω @ 24VDC

Temperature

- Ambient, storage and operation
-40 to +185°F (-40 to +85°C)

General Data

- Selectable dampening time ~ 2s
- Update time ~ 1.5s
- Isolation in - out non-isolated
- Humidity 0 to 100% RH
- Vibration acc. to IEC 60068-2-6, test Fc,
60-500Hz, 10g
- Output limitations and fail currents are NAMUR compliant

Power Supply

- Polarity protected
- Supply voltage 8 to 32VDC
- Permissible ripple 4V p-p @ 50/60Hz

Accuracy

- Linearity RTD $\pm 0.1\%$ ^①
T/C $\pm 0.2\%$ ^①
- Calibration RTD max. of $\pm 0.4^\circ\text{F}$ / $\pm 0.2^\circ\text{C}$ or $\pm 0.1\%$ ^①
T/C max. of $\pm 20\mu\text{V}$ or $\pm 0.1\%$ ^①
- Cold junction compensation (CJC) T/C $\pm 0.9^\circ\text{F}$ ($\pm 0.5^\circ\text{C}$)
- Temperature influence^③ All inputs max. of $\pm 0.25^\circ\text{C}/25^\circ\text{C}$ or $\pm 0.25\%/25^\circ\text{C}$ ^{① ②}
- Max. of $\pm 0.5^\circ\text{F}/50^\circ\text{F}$ or $\pm 0.28\%/50^\circ\text{F}$ ^{① ②}

Housing

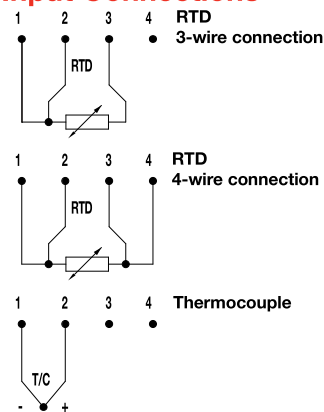
- Material, Flammability (UL[®]) PC/ABS + PA, V0
- Mounting DIN B-head or larger, DIN rail (with mounting kit)
- Connection single/stranded wires max. 1.5 mm², AWG 16
- Weight 32g
- Protection, housing / terminals IP 65/IP 00

^①Of input span

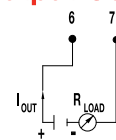
^②If zero-deflection >100% of input span: add 0.125% of input span/
25°C or 0.14% of input span/50°F per 100% zero-deflection

^③Reference temperature 68°F (20°C)

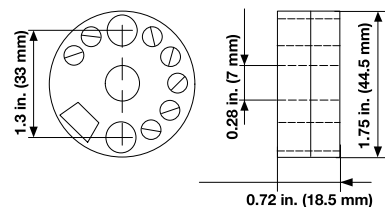
Input Connections



Output Connections



Dimensional Drawing



Note: All accessories are subject to minimum purchase quantities.

Accessories

Transmitters

SERIES 5750

Ordering Information

Part Number

1 2 3 4	5	6	7 8 9	10	11 12 13 14	15
SERIES	Sensor Type	Low Temp. Sign	Low Temp.	High Temp. Sign	High Temp.	Unit of Measure
5750						

1 2 3 4	SERIES
5750 =	Linearized T/C or RTD

5	Sensor Type
B =	Type B T/C
C =	Type C T/C
E =	Type E T/C
J =	Type J T/C
K =	Type K T/C
N =	Type N T/C
R =	Type R T/C
S =	Type S T/C
T =	Type T T/C
0 =	PT100 (IEC 60751, $\alpha = 0.00385$) 3-wire
1 =	PT100 (JIS C 1604, $\alpha = 0.003916$) 3-wire
2 =	PT100 (IEC 60751, $\alpha = 0.00385$) 4-wire
3 =	PT100 (JIS C 1604, $\alpha = 0.003916$) 4-wire
4 =	PT1000 (IEC 60751, $\alpha = 0.00385$) 3-wire
5 =	PT1000 (IEC 60751, $\alpha = 0.00385$) 4-wire

6	Low Temperature Sign
	Enter + or - sign

7 8 9	Low Temperature
	Enter lower limit temperature required

10	High Temperature Sign
	Enter + or - sign

11 12 13 14	High Temperature
	Enter higher limit temperature required

15	Unit of Measure
	Enter °F or °C

Program cable and software part #5750-CABLE (required for optional future changes)

Note: All accessories are subject to minimum purchase quantities.

Accessories

Transmitters

SERIES 5900 (Isolated)

Watlow's SERIES 5900 temperature transmitter delivers remarkably accurate temperature measurement and improves reliability to reduce downtime and costs.

The 5900 SERIES two-wire signal conditioner uses surface mount and digital technology with non-volatile memory. It is designed to fit directly into universal aluminum or universal iron connection heads with a separate mounting kit.

The transmitter is programmed using a separate connection cable and an easy-to-use Windows®-based software program. There is no need to use a separate thermocouple/RTD calibrator or individual resistors.

The SERIES 5900 is isolated to 1500VAC and features full linearization between temperature sensor input signal and the 4-20mA output signal. Isolated transmitters provide isolation from input to output thus eliminating ground loops and signal integrity.

Additional options include insulation resistance monitoring between sensor and ground to prevent inaccurate measurements due to insulation breakdown.

Contact Watlow's customer service department to integrate this transmitter into a Watlow Style AR or AT thermocouple sensor or a Watlow Style RR or RT RTD sensor.



Features and Benefits

Full temperature to thermocouple signal linearization throughout the complete operation temperature span

- Ensures signal accuracy

Full isolation from input to output

- Eliminates ground loops for high data integrity

Fits directly into connection head

- Easy to install

Programmable

- Ensures greater convenience for future changes and inventory efficiency

User selectable input types

- Thermocouple calibration Types B, C, E, J, K, N, R, S and T; RTD Pt100 and Pt1000 including four-wire

Optional insulation resistance monitoring

- Prevents inaccurate measurements due to insulation breakdown

CE marked

- Compliant to electromagnetic interference

Note: All accessories are subject to minimum purchase quantities.



Accessories

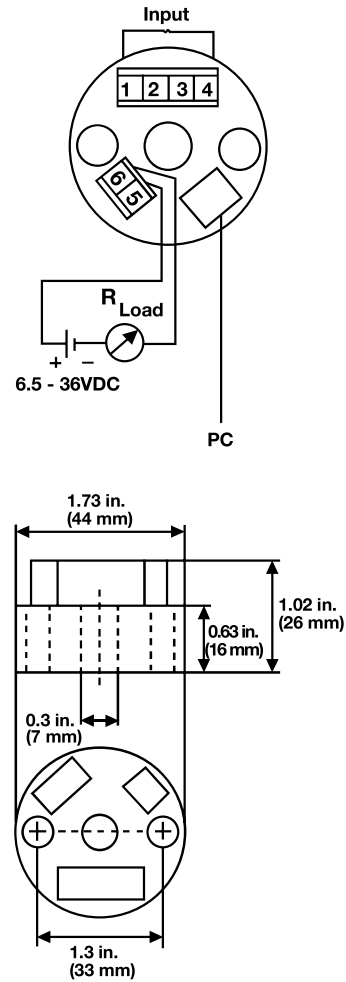
Transmitters

SERIES 5900 (Isolated)

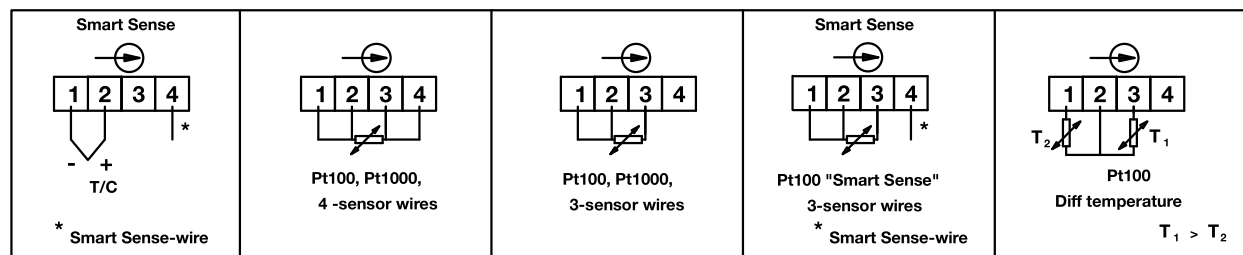
Specifications

- Isolation: 1500VAC for one minute
- Operating voltage: 6.5 to 36 volts (the 5900 is protected against voltage surges and reverse polarity)
- Sensor burn out protection: A pulsed current continuously checks all sensor leads for disconnect; the output will go upscale or downscale
- Minimum input signal: RTDs: 10°C, thermocouples: 2mV
- Operating temperature: -40 to 85°C
- Response time approximately: 0.5 seconds
- RFI sensitive: 20 - 1000 MHz, 10V/m typical <0.1% (of end value)
- Permissible ripple of supply: 4V p-p
- Long-term stability: 0.1% per year
- Calibration inaccuracy, thermocouples: Max. of 20μ volts or 0.01%
- Temperature effect: Cold junction compensation 0.02% C/C
- Housing: PC, ABS/VO connection polyamid / V2
- Mounting: DIN B

Dimensional Drawings



Wiring Diagram



Note: All accessories are subject to minimum purchase quantities.

Accessories

Transmitters

SERIES 5900 (Isolated)

Ordering Information

Part Number

① ② ③ ④	⑤	⑥	⑦ ⑧ ⑨	⑩	⑪ ⑫ ⑬ ⑭	⑮
SERIES	Sensor Type	Low Temp. Sign	Low Temp.	High Temp. Sign	High Temp.	Unit of Measure

① ② ③ ④	SERIES
5900	= Linearized T/C or RTD
5901	= 1000Ω RTD
5902	= Isolated, linearized with insulation resistance monitoring

⑤	Sensor Type
B	= Type B T/C
C	= Type C T/C
E	= Type E T/C
J	= Type J T/C
K	= Type K T/C
N	= Type N T/C
R	= Type R T/C
S	= Type S T/C
T	= Type T T/C
0	= PT100 (IEC 60751, $\alpha = 0.00385$) 3-wire
1	= PT100 (JIS C 1604, $\alpha = 0.003916$) 3-wire
2	= PT100 (IEC 60751, $\alpha = 0.00385$) 4-wire
3	= PT100 (JIS C 1604, $\alpha = 0.003916$) 4-wire
4*	= PT1000 (IEC 60751, $\alpha = 0.00385$) 3-wire
5*	= PT1000 (IEC 60751, $\alpha = 0.00385$) 4-wire
* Only valid options for 5901 SERIES	

⑥	Low Temperature Sign
	Enter + or - sign

⑦ ⑧ ⑨	Low Temperature
	Enter lower limit temperature required

⑩	High Temperature Sign
	Enter + or - sign

⑪ ⑫ ⑬ ⑭	High Temperature
	Enter higher limit temperature required

⑮	Unit of Measure
	Enter °F or °C

Program cable and software part #5900-CABLE

Note: All accessories are subject to minimum purchase quantities.



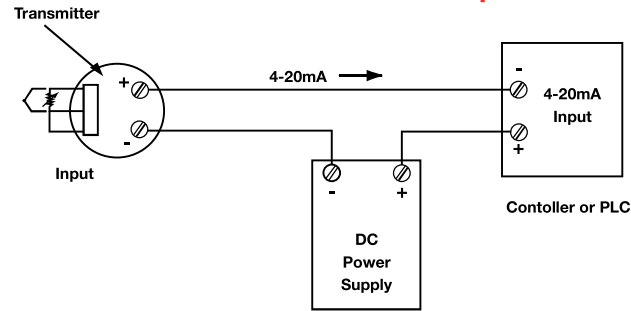
Accessories

Transmitters

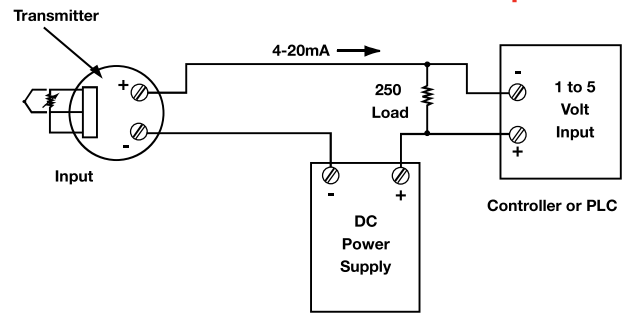
System Components

Typical Wiring Diagrams for Two-Wire Signal Conditioners

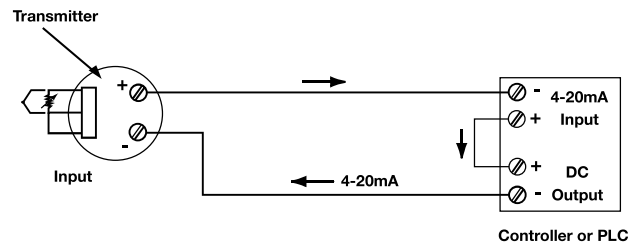
Controller or PLC with 4-20mA Input



Controller or PLC with 1 to 5 Volt Input



Controller or PLC with Integral Power Supply



Transmitter and Connection Head Mounting Options

Signal Conditioner Model and Description	Connection Heads			
	Cast Aluminum	Cast Iron	Explosion XP SERIES	Poly Heads Pt SERIES
5750, Non-isolated, Non-linearized	Mount with kit 81501901	Does not fit	Mount with kit 81501301	Mount with kit 81501201
5900, 5901 and 5902, Isolated, Linearized	Mount with kit 81501901	Does not fit	Mount with kit 81501301	Mount with kit 81501201

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