



Isolated Transmitters



RTD Input

These models convert sensor inputs to proportional process current or voltage output signals.

Models

250T: Loop-powered transmitter series

350T: DC-powered transmitter series

450T: AC-powered transmitter series

Input Ranges

- 100 ohm Pt RTD (2, 3, or 4-wire), Pt-385/392
- 10 ohm Cu RTD (2, 3, or 4-wire)

Output Ranges

- DC current: 4 to 20mA
- DC voltage: 0 to 5V or 0 to 10V

Power Requirements

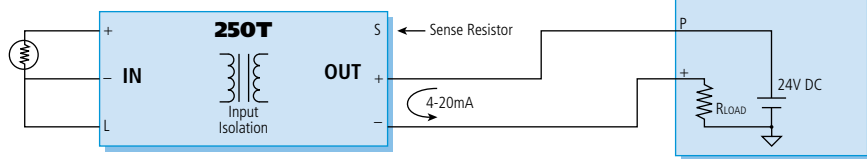
- 250T: 12 to 50V DC @ 20mA (loop-powered)
- 350T: DC voltage source (see table below)

Output range	Power
4 to 20mA	10 to 36V DC @ 30mA
0 to 5V	10 to 36V DC @ 9mA
0 to 10V	12.5 to 36V DC @ 9mA

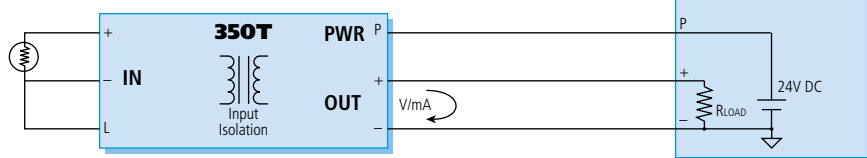
- 450T: 115V or 230V AC, ±10%, 50 to 60Hz

Output range	Power
4 to 20mA	115V AC @ 0.050A
4 to 20mA	230V AC @ 0.025A
0 to 5V, 0 to 10V	115V AC @ 0.020A
0 to 5V, 0 to 10V	230V AC @ 0.010A

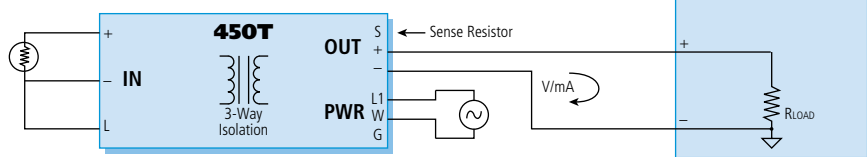
250T Loop-Powered (2-wire) Transmitter



350T DC-Powered (3-wire) Transmitter



450T AC-Powered (4-wire) Transmitter



Special Features

- Excellent accuracy and stability ensure reliable measurements in harsh industrial environments.
- RTD signal linearization improves accuracy and reduces drift.
- RTD break detection indicates open RTD failures with upscale operation.
- RTD lead wire compensation eliminates the effect of the wire's resistance.
- RFI and EMI resistance minimize the effects of environmental noise.
- 75% span adjustment enables precise application calibration.
- Low power consumption (350T as low as 9mA).
- 1500V AC peak isolation (250V AC or 354V DC continuous) prevents ground loops.

250T models:

Input isolated from output/power.

350T models:

Input isolated from output and power.
Output and power share a common.

450T models:

3-way isolation. Input, output, and power circuits are isolated from each other.

Performance

Ambient Temperature Range

Operating: -13 to 185°F (-25 to 85°C).
Storage: -40 to 185°F (-40 to 85°C).

Accuracy

±0.1% of calibrated span or ±0.25 mV, whichever is greater. Includes repeatability, hysteresis, terminal point linearity, and adjustment resolution.

Ambient Temperature Effect

-RBPx: ±0.01% of output span per °F (±0.018% / °C).
-RBCx: ±0.025% of output span per °F (±0.045% / °C).
(Specification includes the combined effects of zero and span over temperature).

Noise Resistance

RFI: Less than ±0.5% of output span effect.
EMI: Less than ±0.25% of output span effect.

Noise Rejection

Common Mode: 120dB at 60Hz, 100 ohm unbalance.
Normal Mode: 26dB at 60Hz, 100 ohm source,
20dB at 60Hz, 10 ohm source.

Response Time

Output reaches 98% of output span in 350ms.

Bandwidth

-3dB at 3 Hz, typical.

Output Compliance

250T: $R_{LOAD} (max.) = (V_{SUPPLY} - 12V) / 20mA$.
350T: $R_{LOAD} (max.) = (V_{SUPPLY} - 2.5V) / 20mA$.
450T: $R_{LOAD} = 600$ ohms.



Ordering Information

Select one option from each column. Example: 450T-RBP2-V0-2-DIN-NCR-C
To order factory calibration, append "-C" to end of model number. Specify ranges on order.

Base	Input		Mounting		Approval
250T	-RBP1	-RBC1	-DIN	-N4	-NCR
	-RBP2	-RBC2	-ST	-N12	-DT1
	-RBP3		-SM	-XP	

Note:
All 250Ts have 4 to 20mA output and are loop-powered.

Base	Input		Output	Mounting	Approval
350T	-RBP1	-RBC1	-Y	-DIN	-NCR
	-RBP2	-RBC2	-V0		
	-RBP3		-V5		

Note:
All 350Ts accept 10 to 36V DC power supply.

Base	Input		Output	Power	Mounting	Approval
450T	-RBP1	-RBC1	-Y	-1	-DIN	-NCR
	-RBP2	-RBC2	-V0	-2		
	-RBP3		-V5			

Input Options

Platinum RTD input

- RBP1: Platinum RTD, 100 ohm
Span adjust: 25 to 100°C (45 to 180°F)
Zero adjust: -150 to 150°C (-238 to 302°F),
Accuracy: ±0.1%
- RBP2: Platinum RTD, 100 ohm
Span adjust: 50 to 200°C (90 to 360°F)
Zero adjust: -150 to 150°C (-238 to 302°F),
Accuracy: ±0.1%
- RBP3: Platinum RTD, 100 ohm
Span adjust: 200 to 800°C (360 to 1440°F)
Zero adjust: -150 to 150°C (-238 to 302°F),
Accuracy: ±0.3%

Copper RTD input

- RBC1: 10 ohm Copper RTD
Span: 50 to 100°C (90 to 180°F)
Zero: -50 to 50°C (-58 to 122°F)
Accuracy: ±0.25%
- RBC2: 10 ohm Copper RTD
Span: 100 to 200°C (180 to 360°F)
Zero: -50 to 50°C (-58 to 122°F)
Accuracy: ±0.25%

Maximum Excitation Current

- Platinum RTD: 1.0mA (0.5mA for -RBP3)
- Copper RTD: 1.5mA.

Lead Wire Compensation

- A. 100 ohm, Pt RTD: Zero shift is less than 0.01%/ohm of lead resistance, for up to 10 ohms/leg, with a total maximum shift of 0.1%.
- B. 10 ohm Cu RTD: Zero shift is less than 0.05%/ohm of lead resistance, for up to 10 ohms/leg, with a total maximum shift of 0.5%.

Output Options (350T, 450T only)

- Y: 4 to 20mA DC.
- V0: 0 to 10V DC into 10K ohms or greater
- V5: 0 to 5V DC into 5K ohms or greater

Power Options (450T only)

- 1: 115V AC power
- 2: 230V AC power

Mounting Options

Mountings

- DIN: DIN rail G or T mount
- ST: SNAPTRACK mount [250T only]
- SM: Surface-mount [250T only]

External housings

- N4: NEMA 4, water-tight [250T only], holds two
- N12: NEMA 12, oil-tight [250T only], holds two
- XP: Explosion-proof NEMA 4 [250T only], holds one

Approval Options

- NCR: No certification/approval required.
- DT1†: CSA approval, Div. 2 hazardous locations:
Class I; Div. 2; Groups A, B, C, D [250T only].

Ordering Notes

† Units are shipped separately from any optional enclosures (i.e. units are not installed in any external housing).

Accessories

Power supplies

See Power Supplies on Page 199.

DIN RAIL 3.0

DIN RAIL 16.7

DIN rail strip, Type T, 3 inches (75mm) or 16.7 inches (425mm)

20RM-16-DIN

19" rack-mount kit with DIN rail. Holds sixteen 250T/350Ts or ten 450T transmitters.

350T-N4-WM

NEMA 4 water-tight enclosure, wall-mount. Holds two 350Ts or one 450T transmitter.

350T-N12-WM

NEMA 12 oil-tight enclosure, wall-mount. Holds two 350Ts or one 450T transmitter.