



Isolated Transmitters



AC Voltage and AC Current Input

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

AC voltage transmitters accept direct voltage inputs. Current models include an external AC current sensor. This toroidal sensor outputs a safe DC milliamp signal which transmits accurately over long distances. Input span is a function of the primary turns placed on the sensor.

Input Ranges

- AC voltage, 50/60Hz
0 to 150V AC
- AC current, 0 to 20A

Output Ranges

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

Power Requirements

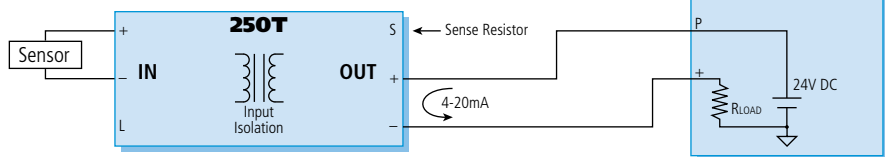
- 250T: 12 to 50V DC @ 20mA (loop-powered)
- 350T: DC voltage source (see table below)

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

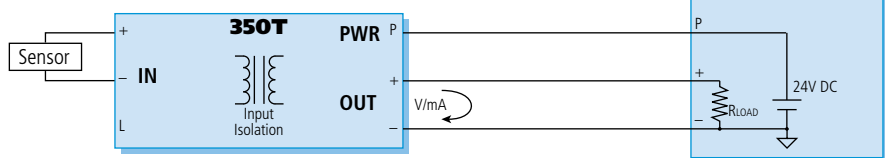
- 450T: 115V or 230V AC, $\pm 10\%$, 50 to 60Hz

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

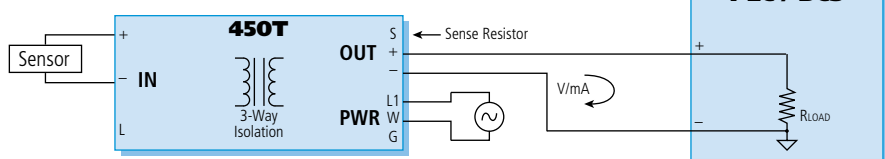
250T Loop-Powered (2-wire) Transmitter



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.
- External AC current sensor with DC mA output enables remote mounting of transmitter (for safe monitoring of the AC signal)
- AC current range is a function of sensor primary turns for easy rescaling in field
- Factory-calibrated AC current transmitter does not need recalibration
- RFI and EMI resistance minimize the effects of environmental noise.
- Compact, 1-inch wide housing uses less space.
- 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

$\pm 0.5\%$ of calibrated span. Includes repeatability, hysteresis, terminal point linearity, and adjustment resolution.

Ambient Temperature Effect

Less than $\pm 0.01\%$ of output span per °F ($\pm 0.018\%$ per °C). (Specification includes the combined effects of zero and span over temperature).

Noise Resistance

RFI: Less than $\pm 0.5\%$ of output span effect.
EMI: Less than $\pm 0.25\%$ of output span effect.

Noise Rejection

Common Mode (-VAC): 120dB at 60Hz, 100 ohm unbalance.

Common Mode (-CACX): 120dB at 60Hz, 1 ohm unbalance.

Normal Mode: Not Applicable.

Response Time

Output reaches 98% of output span in 300ms.

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-VAC-V5-2-DIN-NCR-C
To order factory calibration, append "-C" to end of model number. Specify ranges on order.

Base	Input	Mounting	Approval
250T	-VAC	-DIN -N4	-NCR
	-CACX	-ST -N12	
		-SM -XP	

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

Base	Input	Output	Mounting	Approval
350T	-VAC	-Y	-DIN	-NCR
	-CACX	-V0		
		-V5		

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

Base	Input	Output	Power	Mounting	Approval
450T	-VAC	-Y	-1	-DIN	-NCR
	-CACX	-V0	-2		
		-V5			

Input Options

-VAC: AC Voltage,
0 to 150V AC range,
Span adjust: 60 to 150V AC
Zero adjust: 0 to 90VAC
Input impedance 100k ohms
Input burden is 0.3 volt-amps

-CACX*: AC Current

AC Current Sensor (5020-350): One sensor is supplied with each transmitter. The sensor is a high-accuracy toroidal instrument transformer. See Page 205 for more information.

AC Input Range	Primary Turns	Sensor Output
0 to 20 Amps AC	1	0 to 11.17 mA DC
0 to 10 Amps AC	2	0 to 11.17 mA DC
0 to 5 Amps AC	4	0 to 11.17 mA DC
0 to 1 Amps AC	20	0 to 11.17 mA DC

Input Burden: A function of the wire gauge resistance used for the primary turns.

Input Overload: The AC Current Sensor withstands overloads as follows: 20 times full-scale for 0.01 second., 10 times full-scale for 0.1 second., and 5 times full-scale for 1.0 second.

AC Current Sensor to Transmitter Wiring Distance: 400 feet maximum for 18 AWG wire gauge. Other wire gauges can be used as long as the resistance of both wires is less than 5.0 ohms.

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.

Ordering Notes

* Unit is factory calibrated for fixed range (adjustable by windings of sensor). Custom factory calibration '-C' option is not available with this input.

Accessories

Power supplies
See Power Supplies on Page 199.

5020-350
AC current sensor. (See page 205)

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.

AC Current Sensor

