



Isolated Transmitters



Thermocouple 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

- Thermocouple types J, K, T, R, S, E, B
- Linearized thermocouple (custom ranges)

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)

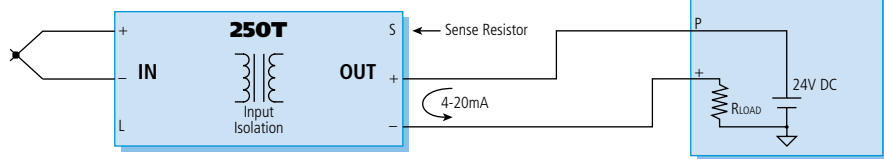
- 350T: DC voltage source (see table below)

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

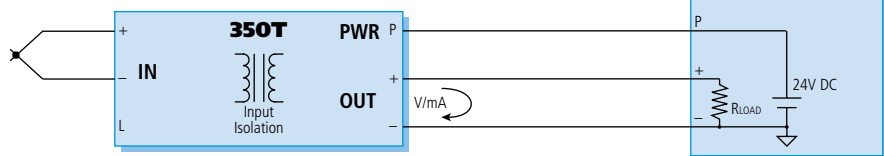
- 450T: 115V or 230V AC, $\pm 10\%$, 50 to 60Hz

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

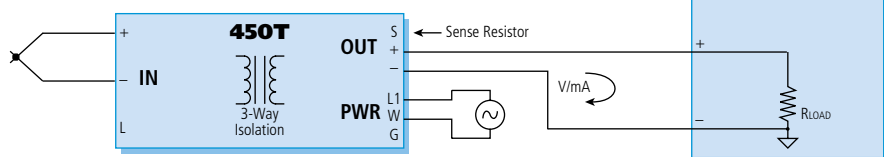
250T Loop-Powered (2-wire) Transmitter



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.
- Field-selectable input types reduce stocking requirements.
- Thermocouple reference junction compensation reduces drift and corrects nonlinearity.
- TC linearizer (5-slope) improves accuracy.
- TC break detection indicates open circuit failures with selectable up/downscale operation.
- RFI and EMI resistance minimize the effects of environmental noise.
- 75% span adjustment enables precise application calibration.
- 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

$\pm 0.1\%$ of calibrated span or $\pm 0.01\text{mV}$, whichever is greater. 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). $\pm 0.025\%$ of output span per °F ($\pm 0.045\%$ per °C) for narrow span units. (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: 130dB at 60Hz, 100 ohm unbalance.

Normal Mode: 30dB at 60Hz, 100 ohm source.

Response Time

Output reaches 98% of output span in 300ms.

Bandwidth

-3dB at 3 Hz, typical.

Output Compliance

250T: $R_{LOAD} (\text{max.}) = (V_{SUPPLY} - 12V) / 20\text{mA}$.

350T: $R_{LOAD} (\text{max.}) = (V_{SUPPLY} - 2.5V) / 20\text{mA}$.

450T: $R_{LOAD} = 600 \text{ ohms}$.

Linearization (-xLxx) Option

5-segment TC linearizer provides minimum 10 to 1 improvement $\pm 0.1\%$ in the linearity curve.



Ordering Information

Select one option from each column. Example: 450T-TC3-Y-1-DIN-NCR-C
To order factory calibration, append "-C" to end of model number. Specify ranges on order.

Base	Input	Mounting	Approval
250T	-TC1	-RL00*	-DIN -N4 -NCR
	-TC3*	-SL00*	-ST -N12 -OL1
	-JL00*	-EL00*	-SM -XP -DT1
	-KL00*	-BL00*	-EP1
	-TL00*		-IS1

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

Base	Input	Output	Mounting	Approval
350T	-TC1	-RL00*	-Y	-DIN -NCR
	-TC3*	-SL00*	-V0	
	-JL00*	-EL00*	-V5	
	-KL00*	-BL00*		
	-TL00*			

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

Base	Input	Output	Power	Mounting	Approval
450T	-TC1	-RL00*	-Y	-1	-DIN -NCR
	-TC3*	-SL00*	-V0	-2	
	-JL00*	-EL00*	-V5		
	-KL00*	-BL00*			
	-TL00*				

Input Options

Nonlinearized Input Options (output linear to millivolts)

-TC1: Thermocouple;
Field-selectable for J,K,T,R,S,E,B

Type J:
Span: 100 to 760°C (180 to 1368°F)
Zero: -100 to 450°C (-148 to 842°F)

Type K:
Span: 100 to 1200°C (180 to 2160°F)
Zero: -100 to 600°C (-148 to 1112°F)

Type T:
Span: 150 to 400°C (270 to 720°F)
Zero: -150 to 300°C (-238 to 572°F)

Type E:
Span: 100 to 700°C (180 to 1260°F)
Zero: -100 to 350°C (-148 to 662°F)

Type R:
Span: 550 to 1750°C (990 to 3150°F)
Zero: 0 to 1200°C (32 to 2192°F)

Type S:
Span: 550 to 1750°C (990 to 3150°F)
Zero: 0 to 1200°C (32 to 2192°F)

Type B:
Span: 1000 to 1820°C (1800 to 3276°F)
Zero: 0 to 1000°C (32 to 2192°F)

-TC3*: Narrow span TC, Field selectable J,K,T,R,S,E,B;
(spans from 3 to 5mV); . Specify ranges on order.

Linearized Input Options

(output linear to temperature for spans over 5mV
consult factory for spans under 5mV)

-JL00*: Linearized TC for Type J
Specify ranges on order.

-KL00*: Linearized TC for Type K
Specify ranges on order.

-TL00*: Linearized TC for Type T
Specify ranges on order.

-RL00*: Linearized TC for Type R
Specify ranges on order.

-SL00*: Linearized TC for Type S
Specify ranges on order.

-EL00*: Linearized TC for Type E
Specify ranges on order.

-BL00*: Linearized TC for Type B
Specify ranges on order.

Input Impedance

Without TC Break Detection: 1.0M ohm at 10mV span, typical; input current, ±10nA, typical.

With TC Break Detection: 400K ohm at 10mV span; input current, ±25nA, typical (±30nA, max.).

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.

-OL1: CSA approval, Ordinary Locations [250T only].

-DT1: CSA approval, Div. 2 hazardous locations:
Class I; Div. 2; Groups A, B, C, D [250T only].

-EP1††: CSA approval, Explosion-proof for hazardous locations: Class I; Groups B, C, D Class II; Groups E, F, G. NOTE: Only available with explosion-proof housing (-XP) [250T only].

-IS1†: CSA approval, Intrinsically Safe for hazardous locations: Class I; Groups A, B, C, D. [250T only].

Ordering Notes

* Unit requires factory calibration. Append "-C" to end of model number. Specify ranges on order.

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

†† Units shipped installed in external enclosure.

Accessories

Power supplies

See Power Supplies on page 183.

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.



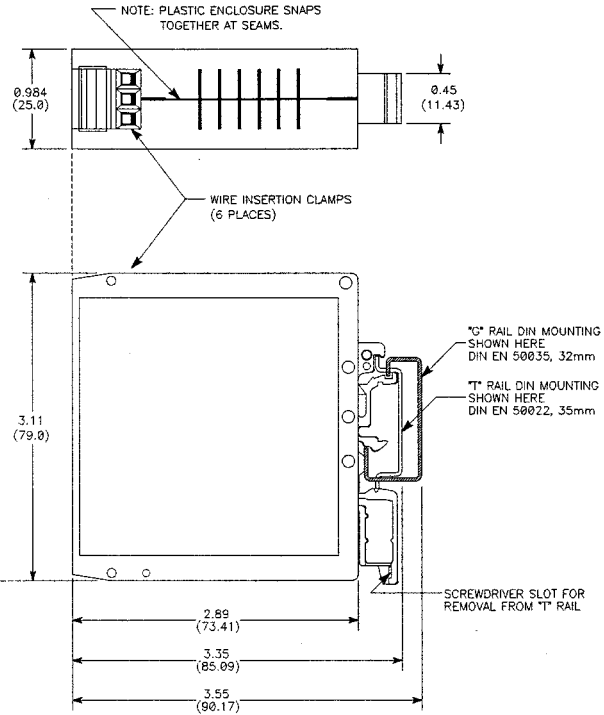
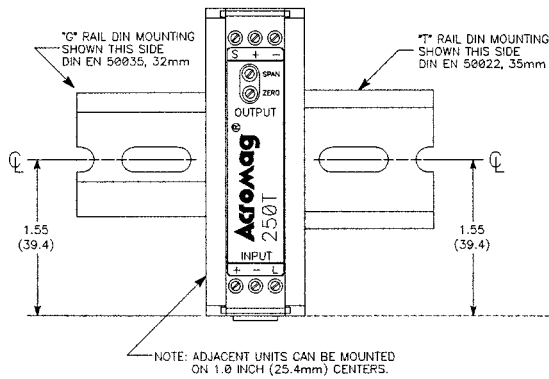
Dimensions

Transmitters: 250T, 350T

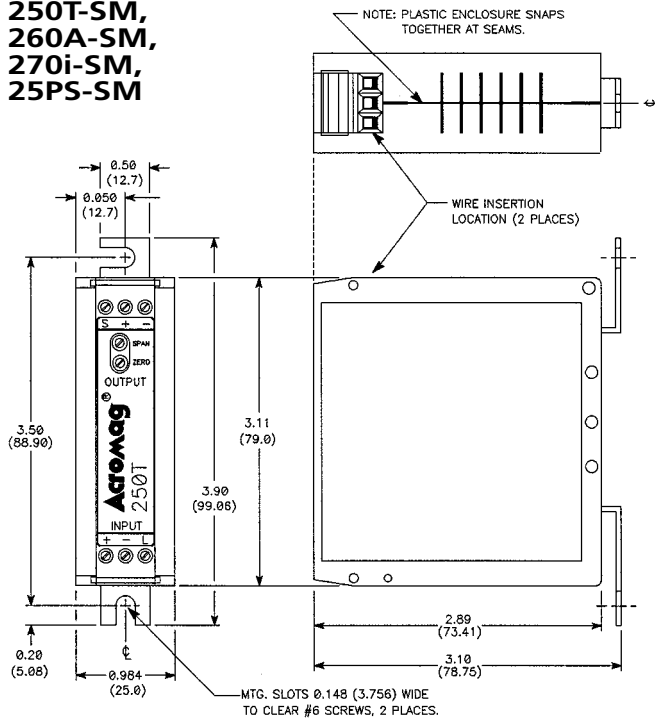
Isolators: 270i, 340i,

Limit Alarms: 260A

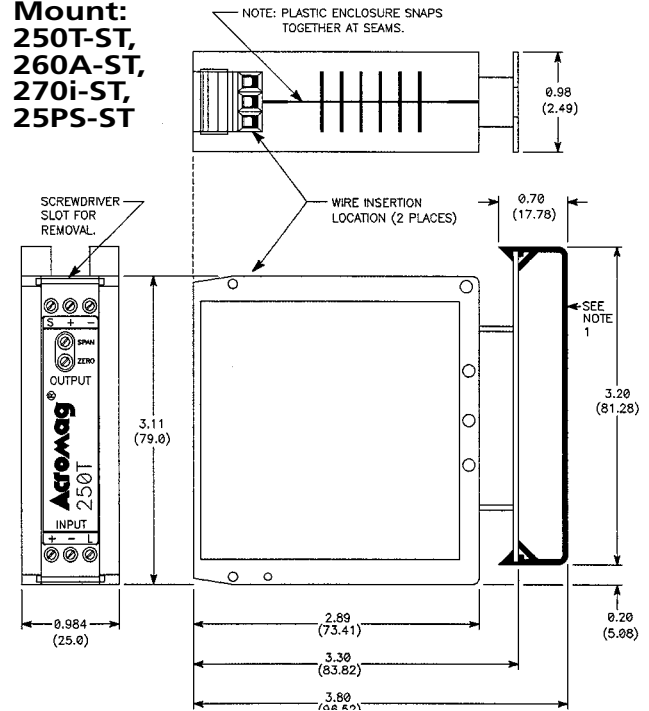
Power Supplies: 25PS, 35PS-2U



**Surface Mount:
250T-SM,
260A-SM,
270i-SM,
25PS-SM**



**Snaptrack Mount:
250T-ST,
260A-ST,
270i-ST,
25PS-ST**



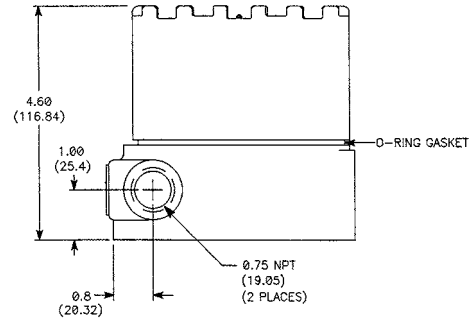
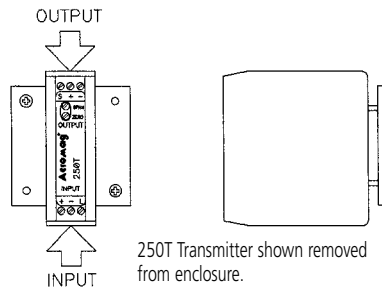
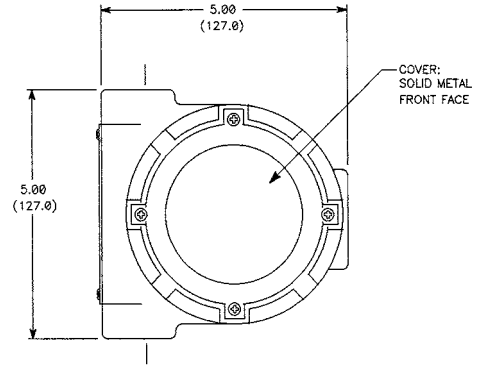
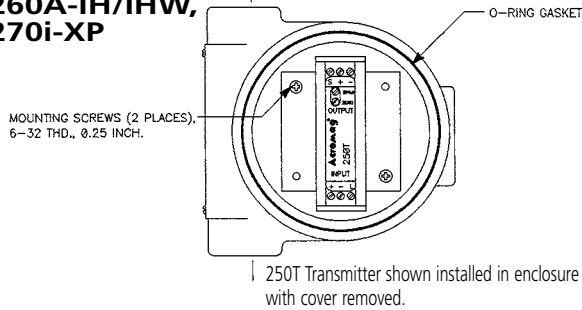
Dimensions are in inches (millimeters).



Dimensions

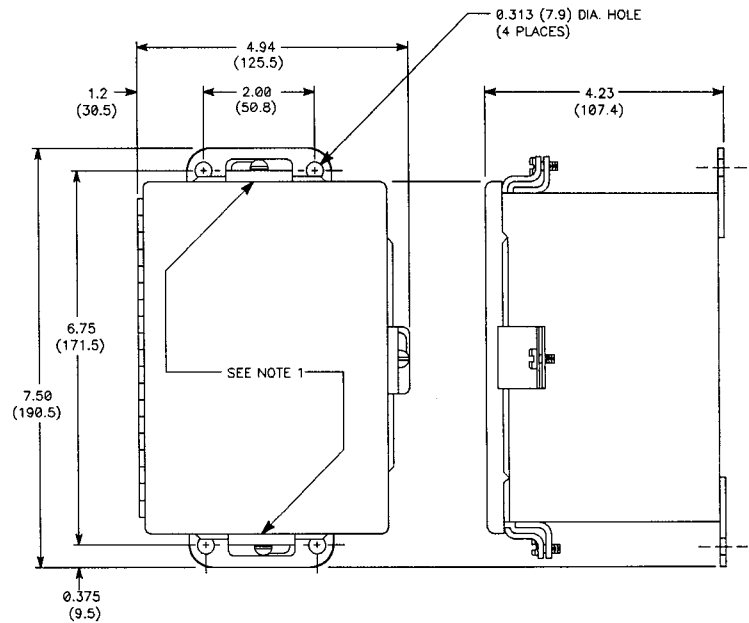
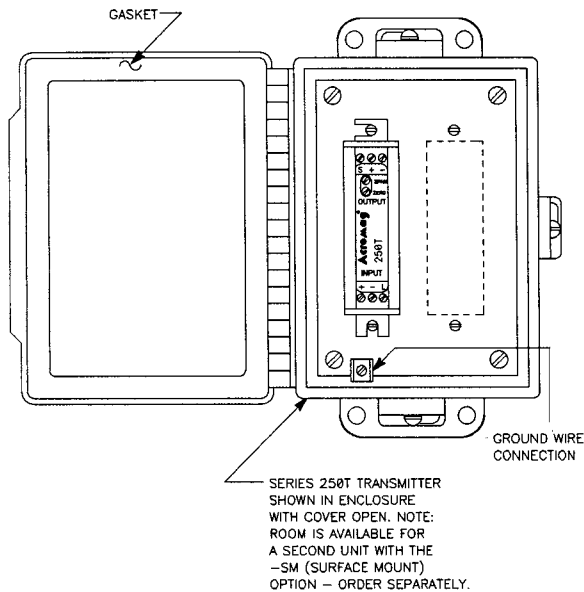
Explosion-Proof and Industrial Housing

250T-XP,
260A-IH/IHW,
270i-XP



NEMA-4 and NEMA-12 Enclosures

250T-N4 / N12, 25PS-N4 / N12
260A-N4 / N12, 270i-N4 / N12



- NOTES:
1. THESE SPECIFIC CLAMPS ON NEMA 4 ENCLOSURES ONLY.
 2. CONDUIT MOUNTING HOLES AND FITTINGS ARE CUSTOMER SUPPLIED.

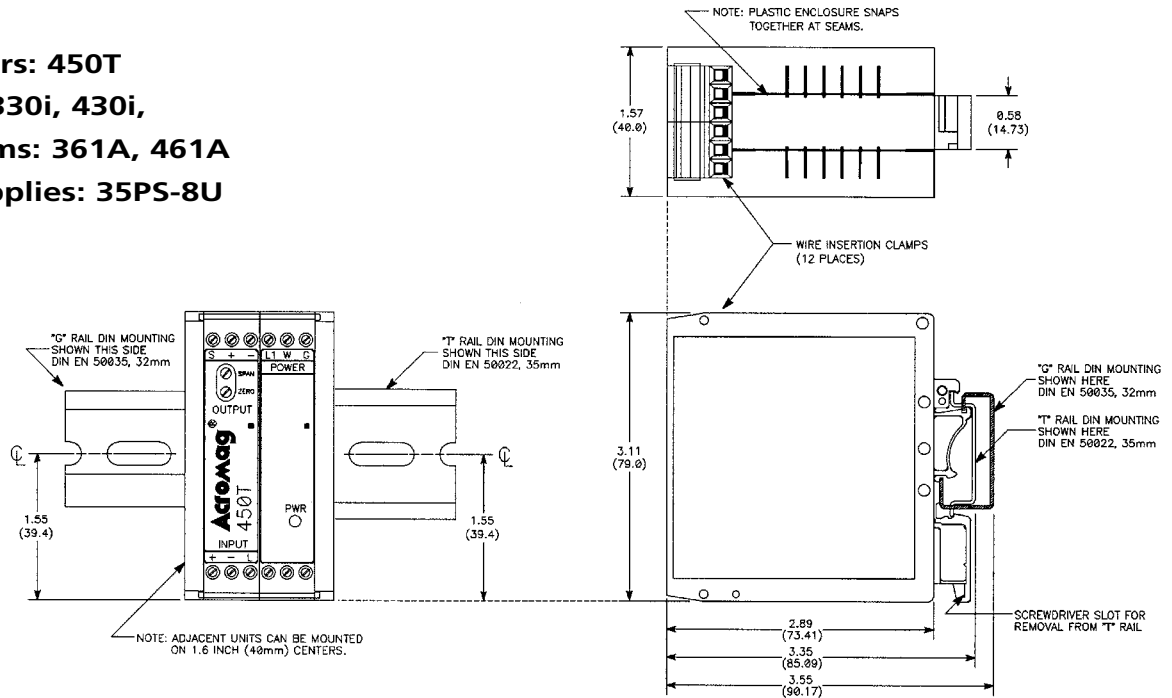
Dimensions are in inches (millimeters).

Flat Pack



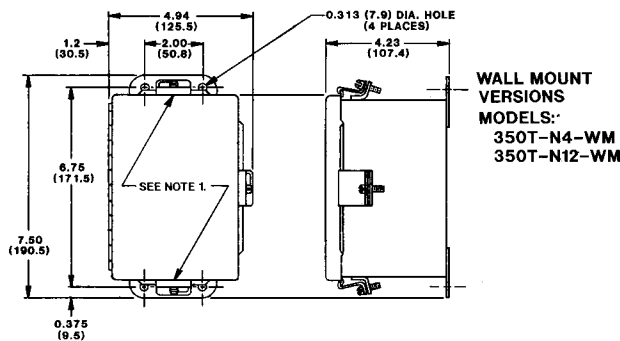
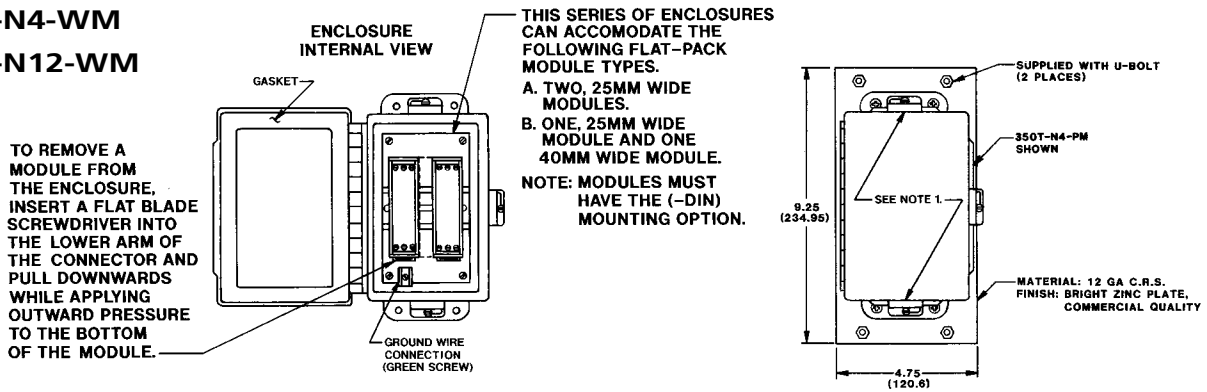
Dimensions

Transmitters: 450T
 Isolators: 330i, 430i,
 Limit Alarms: 361A, 461A
 Power Supplies: 35PS-8U



NEMA-4 and NEMA-12 Enclosures

350T-N4-WM
 350T-N12-WM



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 2. CONDUIT MOUNTING HOLES AND FITTINGS ARE CUSTOMER SUPPLIED.
 3. ALL DIMENSIONS ARE IN INCHES (MILLIMETERS).

Dimensions are in inches (millimeters).

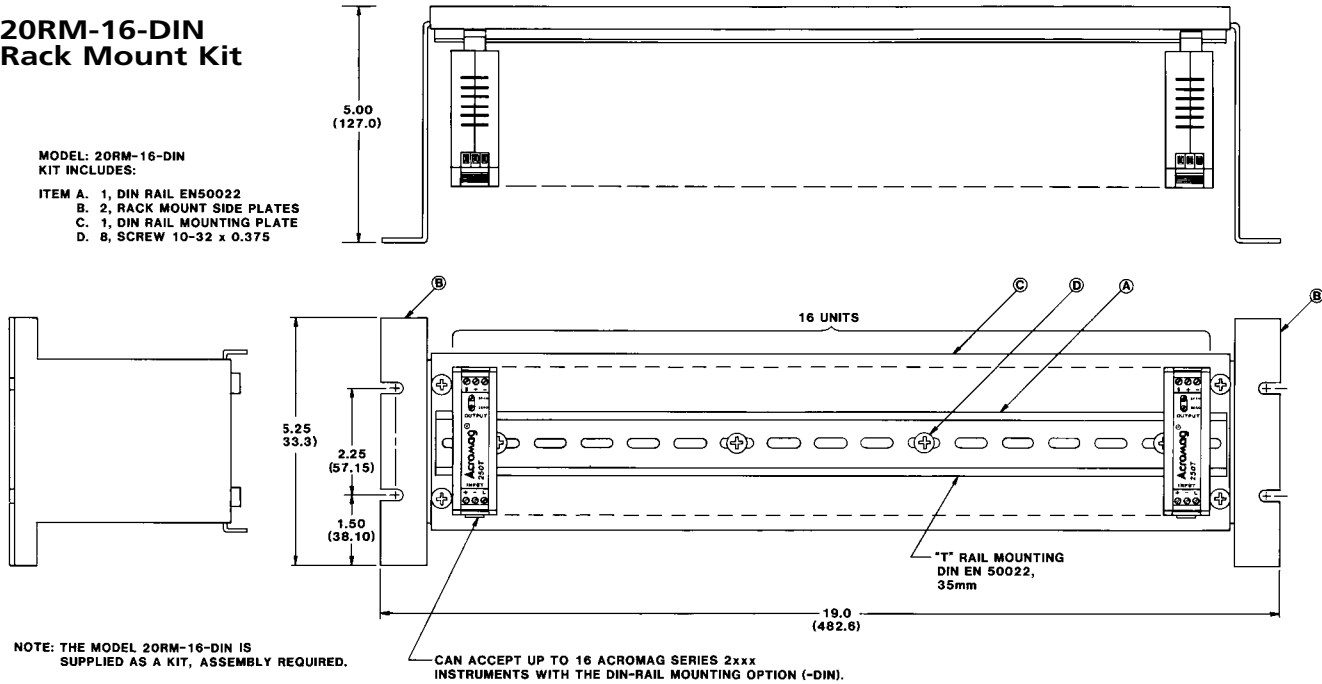


Dimensions

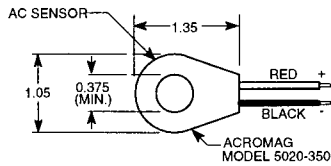
20RM-16-DIN Rack Mount Kit

MODEL: 20RM-16-DIN
KIT INCLUDES:

- ITEM A. 1, DIN RAIL EN50022
- B. 2, RACK MOUNT SIDE PLATES
- C. 1, DIN RAIL MOUNTING PLATE
- D. 8, SCREW 10-32 x 0.375



AC Sensor 5020-350



Dimensions are in inches (millimeters).