



Isolated Transmitters



150T Series DC Current, Voltage, and Millivolt Input

Input Ranges

DC Current:
0 to 100mA DC

DC Voltage:
0 to 100V DC

Millivolt:
0 to 55mV DC

Output Range

4 to 20mA DC

Power requirement

12 to 50V DC, loop-powered

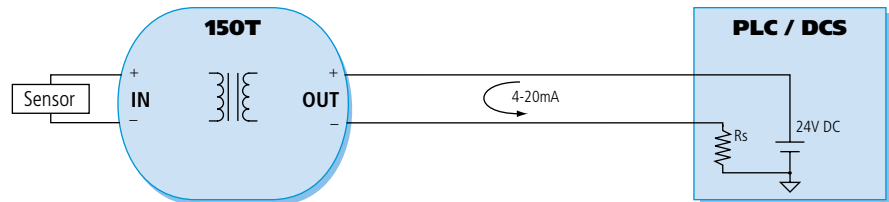
Approvals

-M models only.

CSA: Class I; Division 2; Groups A, B, C, D

FM: Class I; Division 2; Groups A, B, C, D, G
Class II; Division 2; Groups A, B, C, D, G
Class I; Division 1; Groups C, D
Class II; Division 1; Groups E, F, G

150T Loop-Powered Transmitter



Description

These loop-powered transmitters convert DC voltage or current inputs to proportional process current output signals. The output and power share the same pair of wires.

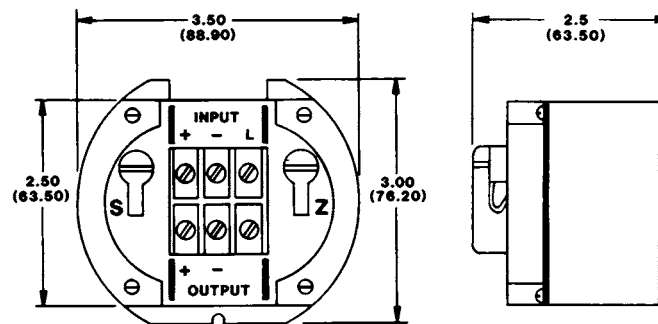
These two-wire transmitters deliver outstanding performance and a broad range of flexibility.

Series 150T transmitters are ideal for remote or control room mounting. They feature rugged construction and remain stable even in harsh industrial environments.

Special Features

- Excellent accuracy and stability ensure reliable measurements in harsh industrial environments.
- RFI and EMI resistance minimize the effects of noise.
- Isolated inputs prevent ground loops.
- Wide range zero and span adjustment enable precise calibration.

150T Dimensions



Dimensions are in inches (millimeters).



■ Performance

Reference Test Conditions

Input: 0-10mV with 100 ohm resistive source.

Output: 4-20mA into 500 ohm load.

Ambient temperature: 77°F (25°C).

Power supply: 24V DC supply.

■ Input

Input Ranges

Input span and zero are full range adjustable.

-CDC: Customer-specified DC current up to 100mA.

-VDC: Customer-specified DC voltage up to 100V.

-M: Span: 5 to 55mV Zero: -5 to 25mV

-SM: Span: 2 to 5mV Zero: -5 to 25mV

■ Output

Output Range

4-20mA DC output linear with input voltage signal.

Output Limits (approximate)

3.8mA DC to 30mA DC

Output Ripple

Less than 0.5% of maximum output span. Can be reduced to less than 0.1% by adding a 1µF capacitor across the load resistor.

Current Drive Capability

$R_{LOAD} (max.) = (V_{SUPPLY} - 12V) / 20mA$.

At $V_{SUPPLY} = 24V$, $R_{LOAD} = 0$ to 600 ohms

Load Resistance Effect

Less than +0.005% of output span for 100 ohm change.

Accuracy

±0.1% of calibrated span or 0.01 mV, whichever is greater. The error includes combined effects of transmitter repeatability, hysteresis, and terminal point linearity, and adjustment resolution. Does not include sensor error.

Response Time

For a step input, the output reaches 98% of output span in 300ms, typical.

■ Power

Power Supply Range

External loop power supply required: minimum 12V DC, maximum 50V DC. Under no circumstances must the DC supply ever exceed 100 volts peak instantaneously. Unit has reverse polarity protection.

Power Supply Effect

DC Volts: +0.001% of output span per volt DC.
60/120 Hz ripple: ±0.01% of span per volt peak to peak of power supply ripple.

■ Environmental

Ambient Temperature Range

-15 to 185°F (-25 to 85°C)

Ambient Temperature Effect

Less than ±0.01% of output span per °F (±0.018% per °C) over ambient temperature range for reference test conditions; ±0.025% of output span per °F (±0.045% per °C) for narrow span units at 5mV span.

(Specification includes the combined effects of zero and span over temperature.)

Isolation

Input circuit is electrically isolated from output/ power circuits allowing the input to operate at up to 250V AC or 354V DC off ground on a continuous basis (will withstand 1500V AC dielectric strength test for one minute without breakdown). Complies with test requirements outlined in ANSI C39.5-1974 for the voltage rating specified.

RFI Resistance

Less than ±0.5% of output span with RFI field strengths up to 10V/meter at frequencies of 27, 151 and 467 MHz.

EMI Resistance

Less than ±0.25% of output span effect with switching solenoids or commutator motors.

Noise Rejection

Common Mode: 130dB at 60 Hz, 100 ohm unbalance, typical.

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

Surge Withstand Capability (SWC)

Input/Output terminations rated per ANSI/IEEE C37.90-1978. Unit is tested to a standardized test waveform that is representative of surges (high frequency transient electrical interference), observed in actual installations.

■ Physical

Case

Self-extinguishing polypropylene UL94 V-O, recognized by CSA, color blue.

Printed Circuit Boards

Military grade FR-4 epoxy glass circuit board.

Connections

Barrier-type terminal strip using No. 6 screw & clamp plates. Wire range 12-26 AWG.

Environmental Protection

Water resistant enclosures, PC Boards are coated with fungus resistant acrylic conformal coating. Gasket material: silicon rubber.

Mounting Position Effect

Position insensitive.

Shipping Weight

One (1) pound (0.45 kg.) packed.

■ Ordering Information

Transmitter Models

150T-CDC-i-20-C-4164

Transmitter, DC current input.

Unit requires factory calibration.

Specify ranges on order.

150T-VDC-i-20-C-4165

Transmitter, DC voltage input.

Unit requires factory calibration.

Specify ranges on order.

150T-M-i-20

Transmitter, millivolt input.

To add factory calibration, append "-C" to end of model number. Specify ranges on order.

For agency approvals, add "CSA-" or "FM-" prefix to model number (e.g. FM-150T-M-i-20).

150T-SM-i-20-C

Transmitter, narrow span millivolt input.

Unit requires factory calibration.

Specify ranges on order.

Accessories

Power supplies

See Power Supplies on page 183.

150T-N4

NEMA 4 enclosure, water-tight.

150T-N12

NEMA 12 enclosure, oil-tight.

150T-XJSM-WM

150T-XJSM-PM

Explosion-proof enclosure (-WM for wall-mount or -PM w/pipe-mount hardware).

150T-SM-3.5

150T-SM-24

Mounting rail, 3.5" (holds one 150T) or 24" long.

150T-MSM

Metal surface mounting bracket.

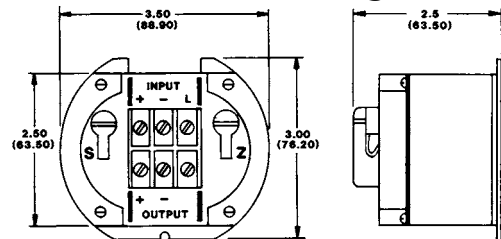
150T-DRA

DIN rail adapter.

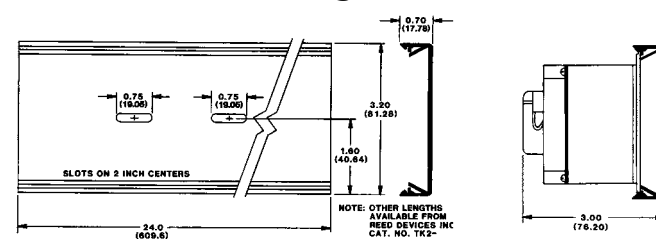


100T, 150T, 150I Dimensions

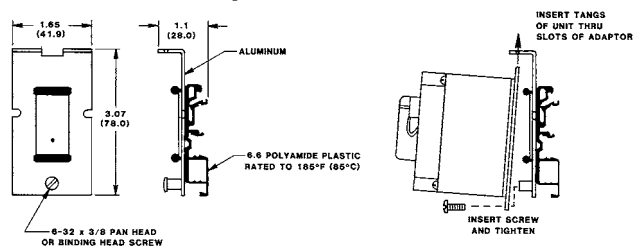
100T/150T/150I Housing



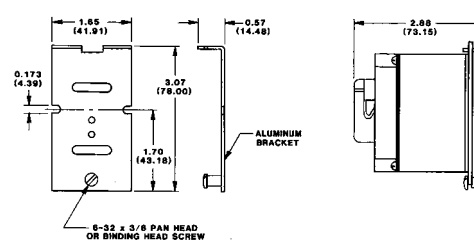
150T-SM-24 Mounting Rail



150T-DRA Adapter



150T-MSM Bracket



150T-N4, NEMA4 150T-N12, NEMA12

