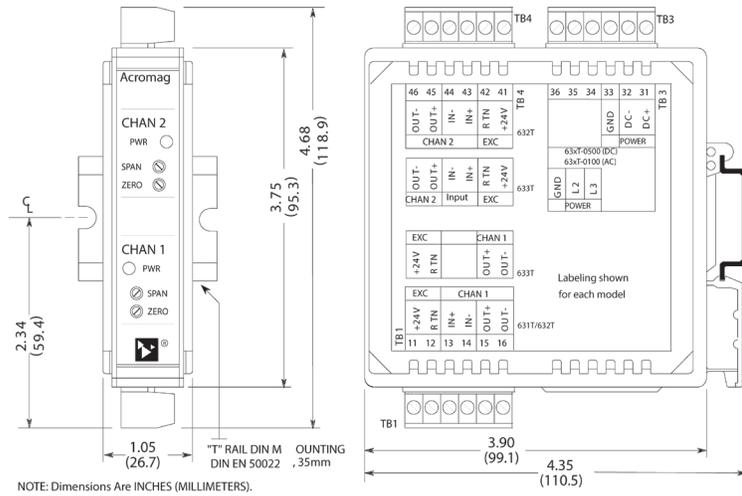


Isolated Transmitters: 600T Series

631T, 632T, 633T Multi-Channel 4-Wire Isolators



DC current input ◆ Single/dual-channel AC/DC-powered isolators ◆ Signal splitter

Description

Models

- 631T: Single I/O channel
- 632T: Dual I/O channel
- 633T: Single input, dual output (splitter)

These units receive 4-20mA process current inputs and provide isolated 4-20mA output signals. Each channel operates independently and is isolated from the others to prevent interaction between channels. Galvanic isolation eliminates ground loops, reduces noise, and blocks transient signals.

Units are shipped with factory calibration for quick installation. These isolators also automatically compensate for load resistance variations, so re-calibration is rarely necessary. However, adjustable zero and span trim pots are provided to ensure precise calibration for maintenance requirements and long term serviceability.

These isolators generate a 24V input excitation supply suitable for powering one or two 2-wire transmitters. The supply is current limited at each output to prevent any excitation short from pulling down the internal power supply. The internal DC supply improves system performance by isolating loops on a single or dual channel basis. It saves space, complexity, and the expense of installing additional supplies to power your field loops.

Input / Output Ranges

4 to 20mA DC input
4 to 20mA DC output

Power Requirement

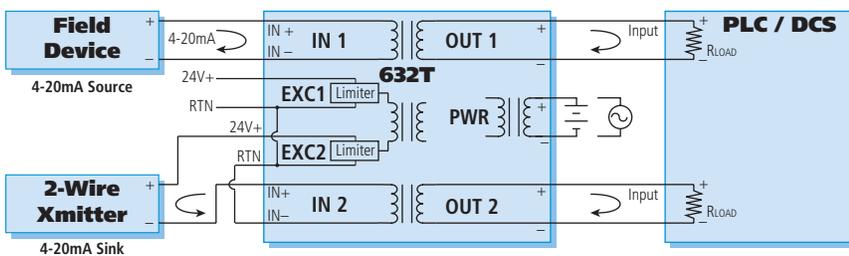
12-36V DC
90-250V AC (125V DC ±10%)
Four-wire isolated transmitter

Approvals

CE marked. UL, cUL listed.
Class I, Division 2, Groups A, B, C, D.

Key Features & Benefits

- Two channels in a single unit saves space and reduces costs.
- Signal splitter model (633T) provides two identical isolated outputs from one input signal.
- Built-in isolated excitation supply with short circuit protection can drive up to two field 2-wire process loops.
- Full isolation safely separates each input channel, each output channel, the excitation supply, and power.
- Excellent accuracy and stability ensure reliable operation in hostile environments.
- Low input burden keeps voltage drop to less than 1.5V for full-scale current.
- Supports wide 0 to 1000 ohm load range and no trimming is required if the load varies.
- Current limiting safely limits output to 27mA.
- Pluggable terminals, zero/span trim pots and power LEDs make installation, maintenance, and long term service easy.



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Performance Specifications

Reference Test Conditions

Input/output current 4 to 20mA; Output load 250 ohms; Power 24V DC or 115V AC; 77°F (25°C).

Input Range

4 to 20mA input (each channel).

Input Burden

Voltage drop (631T, 632T):
Less than 1.5V (75 ohms) at full scale.
Voltage drop (633T):
Less than 3.0V (150 ohms) at full scale.

Input Overvoltage Protection

Bipolar Transient Voltage Suppressors (TVS).

Input Excitation

24V DC $\pm 10\%$, 22mA maximum each. Fully isolated. Includes independent current limiting at EXC1 and EXC2 near 23mA, each.

Output Range

4-20mA DC output (each channel).

Output Trim Range

Zero and full-scale adjustment to $\pm 4\%$.

Output Limiting

Outputs are limited to 27mA.

Output Load

0 to 1000 ohms (631T).
0 to 950 ohms (632T, 633T).

Output Load Resistance Effect

Less than $\pm 0.01\%$ of output span effect for a ± 100 ohm change in load resistance.

Output Response Time (for input step change)

25mS typical to 98% of final output value.

Accuracy

$\pm 0.05\%$ of output span. Error includes the combined effects of isolator repeatability, hysteresis, terminal point linearity and adjustment resolution.

Temperature Drift

Better than $\pm 50\text{ppm}/^\circ\text{C}$ ($\pm 0.005\%/^\circ\text{C}$) over the ambient temperature range. This specification includes the combined effects of zero and span over temperature.

Calibration

Two 15-turn potentiometers (zero and span) per output channel, accessible from front of the unit.

Bandwidth

-3dB at 50Hz, typical with a 500 ohm load.

Noise Rejection

Common mode: Better than 100dB at 60Hz, typical.
Normal mode: -6dB at 60Hz, typical, 500 ohm load.

LED Indicators

Green, one LED per output channel.
Constant ON indicates power applied.

◆ Environmental

Ambient Temperature

Operating: -25 to 75°C (-13 to 167°F),
[if excitation supplies are used on 632T or 633T
-25 to 60°C (-13 to 140°F)]
Storage: -40 to 85°C (-40 to 185°F)

Relative Humidity

5 to 95%.

Power Requirement

DC-powered units: 12-36V DC SELV.
AC-powered units: 90-250V AC (125V DC $\pm 10\%$)
631T: 1.5 watts without excitation, 2.4 watts with excitation.

632T, 633T: 3.0 watts without excitation, 4.8 watts with excitation.

Isolation

Inputs, outputs, individual channels, power, and excitation supplies are isolated from each other for common-mode voltages 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).

Electromagnetic Field Immunity (EMI)

Less than $\pm 0.25\%$ of output span effect under the influence of electromagnetic fields from switching solenoids, commutator motors, and drill motors.

Meets Immunity Standards Per EN50082-1

Electrostatic Discharge (ESD) Immunity
4KV direct contact and 8KV air-discharge to the enclosure port per EN61000-4-2.

Radiated Field Immunity (RFI)

10V/M, 80 to 1000MHz AM and 900MHz keyed carrier, per EN61000-4-3 and ENV50204.

Electrical Fast Transient Immunity (EFT)

2KV to power and 1KV to signal I/O per EN61000-4-4.

Conducted RF Immunity (CRFI)

10Vrms, 150KHz to 80MHz, per EN61000-4-6.

Surge Immunity

0.5KV per EN61000-4-5.

Emissions Per European Norm EN50081-1

Radiated Frequency Emissions
30 to 1000MHz per EN55022 Class B.

Approvals

CE marked, UL & cUL listed.
Hazardous Locations: Class I: Div. 2; Groups A, B, C, D

◆ Physical

Enclosure

Case: Self-extinguishing NYLON type 6.6 polyamide thermoplastic UL94 V-2 NEMA Type 1 enclosure.

Connectors (Removable Terminal Blocks)

Wire Range: AWG #14-22 (AWG #12 stranded only).

Printed Circuit Boards

Military grade FR-4 epoxy glass circuit board.

Dimensions

1.05W x 4.68H x 4.35D inches.
26.7W x 95.3H x 110.5D millimeters.

Ordering Information

◆ Models

[631T-0100](#)

Single channel isolator, AC-powered

[631T-0500](#)

Single channel isolator, DC-powered

[632T-0100](#)

Dual channel isolator, AC-powered

[632T-0500](#)

Dual channel isolator, DC-powered

[633T-0100](#)

Single input with dual isolated output, AC-powered

[633T-0500](#)

Single input with dual isolated output, DC-powered

◆ Accessories

[PSSR-VD24](#)

Power supply (24V DC, 2.5A).

[TBK-B02](#)

Optional terminal block kit, barrier strip style, 4 pcs.

[TBK-S02](#)

Optional terminal block kit, spring clamp style, 4 pcs.

[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 630T transmitters.



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