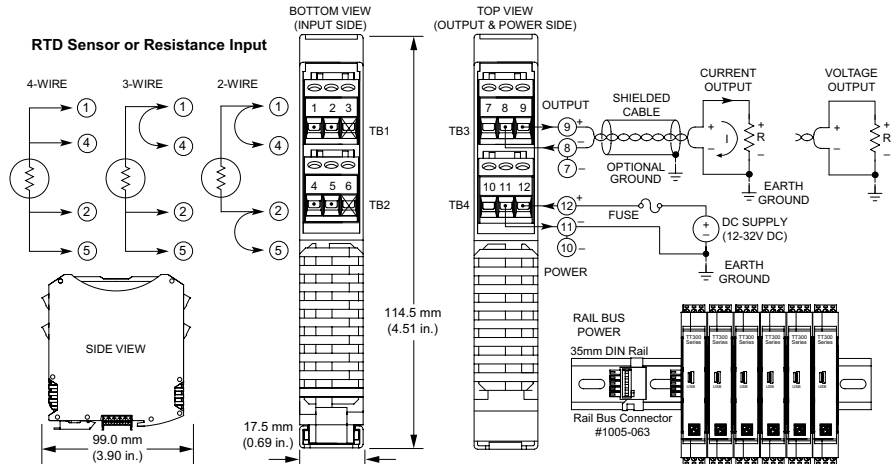


Transmitters: TT330 Series

TT335 Isolated RTD/resistance input four-wire transmitter



RTD (Pt, Ni, Cu) or 0-450 ohm input ♦ Universal current/voltage output ♦ 12-32V DC local/bus power

Description

The TT335 model is a space-saving four-wire transmitter that isolates and converts an RTD sensor input to a proportional control signal. DC current and voltage output are both supported on a single model. An optional DIN rail bus can deliver primary or redundant power to multiple units without wiring.

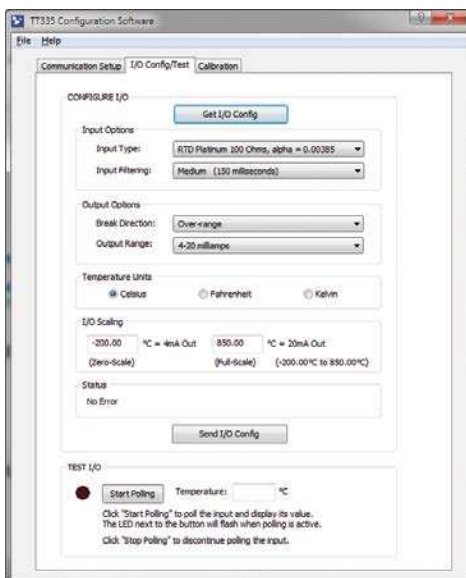
High-voltage isolation separates the input from the output circuit. Isolation protects from surges, reduces noise, and eliminates ground loop errors.

Setup and calibration are fast and easy with a convenient USB connection to your PC and Acromag's Windows configuration software.

Advanced signal processing capabilities, variable range input, and convenient USB programming make this instrument a very versatile temperature measurement device. These transmitters can withstand harsh industrial environments and operate reliably across a wide temperature range with very low drift. They feature RFI, EMI, ESD, EFT, and surge protection plus low radiated emissions.

Key Features & Benefits

- Easy setup and digital calibration via USB with Windows configuration software
- Selectable RTD or linear resistance input type: Pt RTD (100Ω, 200Ω, 500Ω, or 1000Ω), Ni RTD (120Ω), Cu RTD (10Ω), or Resistance (0-450Ω)
- Universal output connections support ranges up to ±21mA or ±10.5V DC without rewiring
- Pluggable terminals for convenient wiring
- High accuracy, linearity, stability, and reliability
- User-selectable filtering (none, low, med., high)
- Fast response (as low as 32ms)
- Supports normal or reverse-acting output
- Selectable upscale or downscale operation for sensor faults and lead-break detection
- Bus power, local power, or both for redundant power supplies
- 1500V isolation, 3-way (power, input, output)
- Shock (25g) and vibration (4g) resistant
- Wide ambient operation (-40 to 80°C)
- CE compliant. UL/cUL Class 1 Div 2 Zone 2 approvals (pending)



TT330 Series Transmitter Configuration Software is downloadable (FREE) from www.acromag.com.

Windows® XP, Vista, 7, and 8

TT335 Model software allows you to configure transmitters offline, save the file, and download into units later, at your convenience.

Acromag 
THE LEADER IN INDUSTRIAL I/O

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Transmitters: TT330 Series

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Performance Specifications

IMPORTANT: To prevent damage or errors from grounded PCs and surges, Acromag strongly recommends use of their USB-ISOLATOR when configuring a TT330 Series transmitter.

■ USB Interface

USB Connector

Type: USB Mini-B type socket, 5-pin.
Data rate: 12Mbps. USB v1.1 and 2.0 compatible.
Maximum cable length: 5.0 meters.

USB Transient Protection

Transient voltage suppression on power and data lines.

Driver

Not required. Uses Windows HID drivers.

■ Input

Default Configuration

100Ω Pt RTD, $\alpha=0.00385$, -200 to 850°C input, 4-20mA output, upscale break detect, medium filter.

Input Configuration

Two-, three- or four-wire sensor input connections.
Programs in °C, °K, °F, or ohmic integer values only.

Input Ranges

Input Type	Input Range	Accuracy ²
RTD, Pt 100Ω	-200 to 850°C (-328 to 1562°F)	±0.2°C, ±0.019%
RTD, Pt 200Ω	-200 to 850°C	±0.3°C, ±0.029%
RTD, Pt 500Ω	-200 to 850°C	±0.5°C, ±0.048%
RTD, Pt 1000Ω	-200 to 850°C	±1.0°C, ±0.095%
RTD, Ni 120Ω (Minco 7-120)	-80 to 320°C (-112 to 608°F)	±0.08°C, ±0.020%
RTD, Cu 10Ω (Minco 16-9)	-200 to 270°C (-328 to 518°F)	±0.5°C, ±0.106%
Resistance (linear) ¹	0 to 450Ω	±0.05Ω, ±0.010%

Note 1: Linear resistance input range approaches but does not include 0Ω and 500Ω. If exactly 0Ω or 500Ω is measured, break detection is triggered.

Note 2: Rated accuracy (in °C and % of span) applies for input spans greater than 5% of input full-scale.

Input Scaling Adjust

Zero: 0 to 95% of range, typical.
Full scale: 5 to 100% of full scale range, typical.

Lead Break (Sensor Burnout) Detection

Configurable for either upscale or downscale.

■ Output

Output Range

Range	Over-Range	Resolution
±10V	±10.5V	1 part in 62558
±5V	±5.25V	1 part in 31278
0 to 10V	-0.5527 to +10.5V	1 part in 59293
0 to 5V	-0.27634 to +5.25V	1 part in 60414
±20mA	±21mA	1 part in 62400
0 to 20mA	-1.1054 to 21mA	1 part in 58732
4 to 20mA	-1.1054 to 21mA	1 part in 46984

Output Accuracy

Better than ±0.05% of span, typical (±0.1% max.) for nominal input spans. Includes the effects of repeatability, terminal point conformity, and linearization, but does not include sensor error.

Output Load

Voltage output: 1K ohms minimum.
Current output: 0-525 ohms.

Output Response Time (for step input change)

No filter: 32ms.
Low filter: 50ms.
Medium filter: 160ms.
High filter: 1210ms.

Output Ambient Temperature Drift

Better than ±80ppm/°C (±0.0080%/°C).

■ Environmental

Operating temperature

-40 to 80°C (-40° to 176°F).

Storage temperature

-40 to 85°C (-40 to 185°F).

Relative humidity

5 to 95% non-condensing.

Power Requirement

12-32V DC SELV (Safety Extra Low Voltage), 1.3W max.

Isolation

1500V AC peak. 250V AC (354V DC) continuous isolation between input, output, and power (3-way).

Shock and Vibration Immunity

Vibration: 4g, per IEC 60068-2-64.
Shock: 25g, per IEC 60068-2-27

Electromagnetic Compatibility (EMC) Compliance

Radiated Emissions: BS EN 61000-6-4, CISPR 16.
RFI: BS EN 61000-6-2, IEC 61000-4-3.
Conducted RFI: BS EN 61000-6-2, IEC 61000-4-6.
ESD: BS EN 61000-6-2, IEC 61000-4-2.
EFT: BS EN 61000-6-2, IEC 61000-4-4.
Surge Immunity: BS EN 61000-6-2, IEC 61000-4-5.

Approvals

CE compliant. UL/cUL listing pending.
Designed for Class I; Division 2; Groups ABCD; Zone 2.

■ Physical

General

General-purpose enclosure designed for mounting on 35mm "T-type" DIN rail.

Case Material

Self-extinguishing polyamide, UL94 V-0 rated, color light gray. General-purpose NEMA Type 1 enclosure.

I/O Connectors

Removable plug-in terminal blocks rated for 12A/250V; AWG #26-12, stranded or solid copper wire.

Dimensions

17.5 x 114.5 x 99.0 mm (0.7 x 4.51 x 3.90 inches).

Shipping Weight

0.22 kg (0.5 pounds) packed.

Ordering Information

Models

TT335-0700

Four-wire transmitter, isolated RTD/resistance input

Services

TT330-Config/Cal

Factory custom configuration/calibration service. Specify input type, input/output zero and full-scale values, filtering, and sensor fault settings on order.

Software

TTC-SIP (recommend one kit per customer)

Software Interface Package for Acromag TT Series transmitters. Includes configuration software CD-ROM (5040-944), isolator (USB-ISOLATOR) and two USB cables (4001-112, 4001-113).

Accessories

See www.acromag.com for more information.

USB-ISOLATOR

USB-to-USB isolator, includes USB cable (4001-112).

TTBUS-KIT

DIN rail bus power connector and left/right terminal blocks. One kit supports multiple transmitters.

ISO9001
AS9100



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