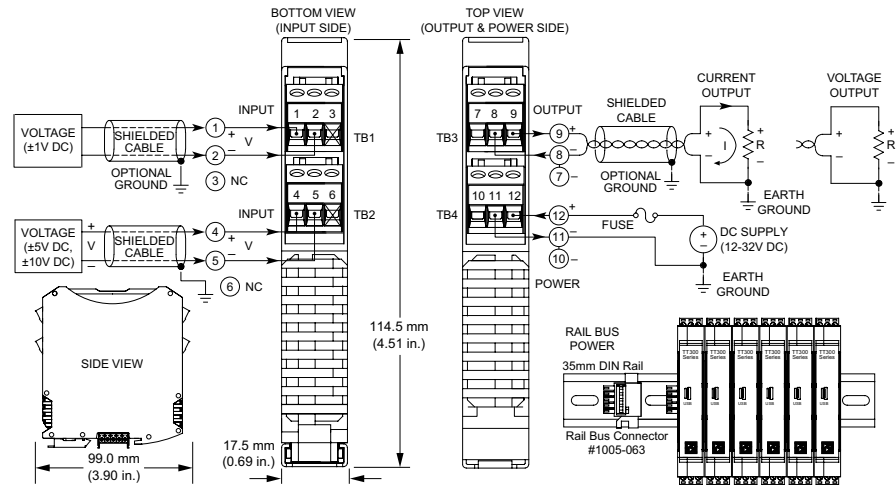


# Transmitters: TT330 Series

## TT337 Process voltage input four-wire transmitter



Multi-range  $\pm 1V$ ,  $\pm 5V$ , or  $\pm 10V$  input ◆ Universal current/voltage output ◆ 12-32V DC local/bus power

### Description

The TT337 model is a space-saving four-wire transmitter that isolates and converts a process level DC voltage 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.

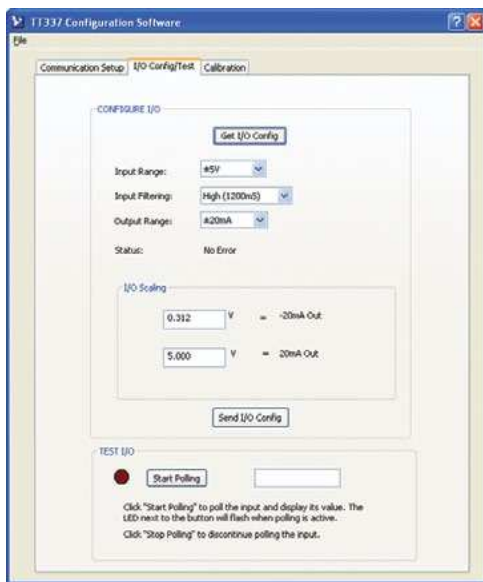
High-voltage isolation separates the input from the output circuit. Isolation protects from surges, reduces noise, and eliminates ground loop errors.

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
- Single unit supports  $\pm 1V$ ,  $\pm 5V$ , and  $\pm 10V$  DC input ranges
- Universal output connections support ranges up to  $\pm 21mA$  or  $\pm 10.5V$  DC without rewiring
- Space-saving 17.5mm (0.7 inch) unit with pluggable terminals for convenient wiring
- High accuracy, linearity, stability, and reliability
- User-selectable filtering (none, low, med., high)
- Adjustable response times (12ms to 1200ms)
- Supports reverse-acting (inverse) output
- Bus power, local power, or both
- Redundant ready power
- 1500V input isolation
- Shock (50g) and vibration (5g) resistant
- Mounts on Type T DIN-rail
- Wide ambient operation ( $-40$  to  $80^{\circ}C$ )
- CE compliant. UL/cUL Class 1 Div 2 Zone 2 approvals



TT330 Series Transmitter Configuration Software is downloadable (FREE) from [www.acromag.com](http://www.acromag.com).

Windows® XP, Vista, 7, and 8

TT337 Model software allows you to configure transmitters offline, save the file, and download into units later, at your convenience.



Tel 248-295-0880 ■ Fax 248-624-9234 ■ [sales@acromag.com](mailto:sales@acromag.com) ■ [www.acromag.com](http://www.acromag.com) ■ 30765 Wixom Rd, Wixom, MI 48393 USA

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## TT337 Process voltage input four-wire transmitter

### 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

USB Mini-B type socket, 5-pin.

##### USB Data Rate

12Mbps. USB v1.1 and 2.0 compatible.

##### USB Transient Protection

Transient voltage suppression on power and data lines.

##### USB Cable Length

5.0 meters maximum.

##### Driver

Not required. Uses built-in Human Interface Device (HID) USB drivers of the Windows operating system.

#### ■ Input

##### Default Configuration/Calibration

Input:  $\pm 10V$ , medium filter.

Output: 4 to 20mA.

##### Input Ranges and Accuracy

Range	Accuracy
$\pm 1V$ DC	$\pm 0.05\%$ of span
$\pm 5V$ DC	$\pm 0.05\%$ of span
$\pm 10V$ DC	$\pm 0.05\%$ of span

Error includes the effects of repeatability, terminal point conformity, and linearization.

##### Ambient Temperature Effect

Better than  $\pm 80\text{ppm}/^\circ\text{C}$  ( $\pm 0.008\%/^\circ\text{C}$ ).

##### Zero Scaling Adjust

0 to 95% of range, typical.

##### Full Scale Adjust

5 to 100% of full scale range, typical.

##### Input Over-Voltage Protection

Bipolar Transient Voltage Suppressors (TVS), 14V working and 18V clamp level typical.

##### Input Resolution

Bipolar input: 1 part in 50000 ( $\pm 25000$ )

Unipolar input: 1 part in 25000

##### Input Impedance

$\pm 1V$  input: 15M ohms.

$\pm 5V$  input:  $>1M$  ohms.

$\pm 10V$  input:  $>1M$  ohms.

##### Input Filter

Selectable digital filtering settings (none, low, medium, and high).

##### Noise Rejection

Normal mode @ 60Hz:

$>1\text{dB}$  (no filter),  $>80\text{dB}$  (high filter)

Common mode @ 60Hz:

$>80\text{dB}$  (no filter),  $>120\text{dB}$  (high filter)

#### ■ Output

##### Output Range

Range	Over-Range	Resolution
$\pm 10V$	$\pm 10.5V$	1 part in 62415
$\pm 5V$	$\pm 5V$	1 part in 31208
0 to 10V	-0.5527 to +10.5V	1 part in 59293
0 to 5V	-0.27634 to +5.25V	1 part in 59293
$\pm 20\text{mA}$	$\pm 21\text{mA}$	1 part in 62415
0 to 20mA	-1.1054 to 21mA	1 part in 59293
4 to 20mA	-1.1054 to 21mA	1 part in 47434

##### Output Load

Voltage output: 1K ohms minimum.

Current output: 0-550 ohms.

##### Output Response Time (for step input change)

Time to reach 98% of final output value (typical)	Time to reach 98% of final output value (typical)	
	TB1 ( $\pm 1V$ )	TB2 ( $\pm 5V$ , $\pm 10V$ )
No filter	12 milliseconds	78 milliseconds
Low filter	28 milliseconds	98 milliseconds
Medium filter	115 milliseconds	208 milliseconds
High filter	1116 milliseconds	1164 milliseconds

##### Output Ripple

Less than  $\pm 0.1\%$  of output span.

##### Output Ambient Temperature Drift

Better than  $\pm 80\text{ppm}/^\circ\text{C}$  ( $\pm 0.0080\%/^\circ\text{C}$ ).

#### ■ Environmental

##### Operating temperature

$-40$  to  $80^\circ\text{C}$  ( $-40^\circ$  to  $176^\circ\text{F}$ ).

##### Storage temperature

$-40$  to  $85^\circ\text{C}$  ( $-40$  to  $185^\circ\text{F}$ ).

##### Relative humidity

5 to 95% non-condensing.

##### Power Requirement

12-32V DC SELV (Safety Extra Low Voltage), 24mA max.

##### Isolation

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

##### Shock and Vibration Immunity

Vibration: 5g, per IEC 60068-2-64.

Shock: 50g, per IEC 60068-2-27

##### Approvals

CE compliant. UL/cUL listing.

Designed for Class I; Division 2; Groups ABCD; Zone 2.

#### 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.

#### ■ 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

TT337-0700

Four-wire transmitter, process voltage 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](http://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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