

## Product Datasheet - Technical Specifications



More information in our Web-Shop at ► [www.meilhaus.com](http://www.meilhaus.com) and in our download section.

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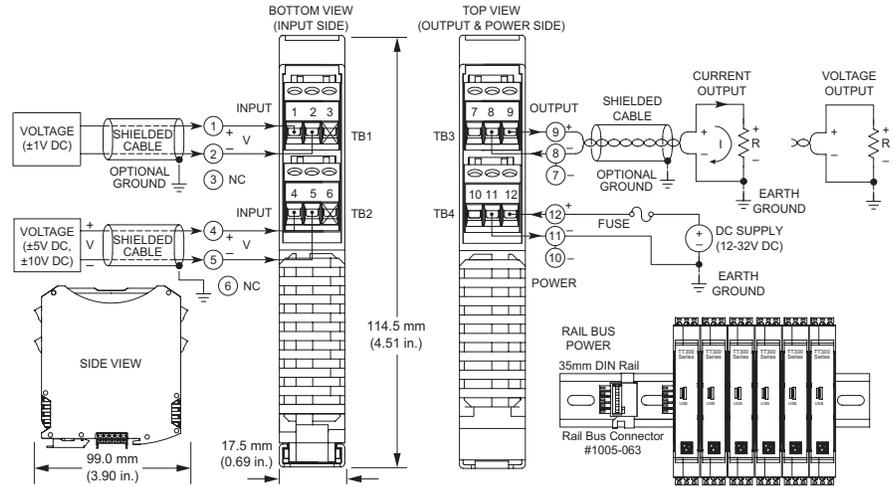
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# Transmitters: TT330 Series

## 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.

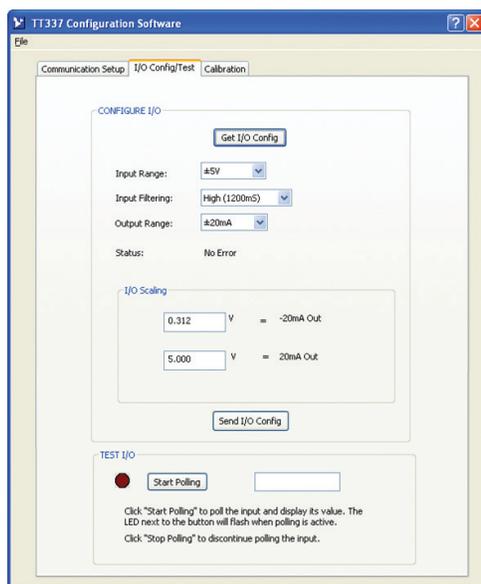
High-voltage isolation separates the input from the output circuit. Isolation protects from surges, reduces noise, and eliminates ground loop errors.

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 (25g) and vibration (4g) resistant
- Mounts on Type T DIN-rail
- Wide ambient operation ( $-40$  to  $80^{\circ}C$ )
- CE compliant. UL/cUL Class I Div 2, ATEX/IECEx 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

The Agility™ Config Tool is downloadable (FREE) at the [Google Play Store](https://play.google.com/store/apps/details?id=com.acromag.agility) For Android Devices only

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



# Transmitters: TT330 Series

## 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 Suppressers (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)	
	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: 4g, per IEC 60068-2-6

Shock: 25g, per IEC 60068-2-27

##### Approvals

CE compliant. UL/cUL listed Class I Division 2 Groups ABCD. ATEX, IECEx certified Zone 2.

 II 3 G Ex nA IIC T4 Gc  $-40^\circ\text{C} \leq T_a \leq +80^\circ\text{C}$

#### 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).

##### TT BUS-KIT

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

ISO9001  
AS9100



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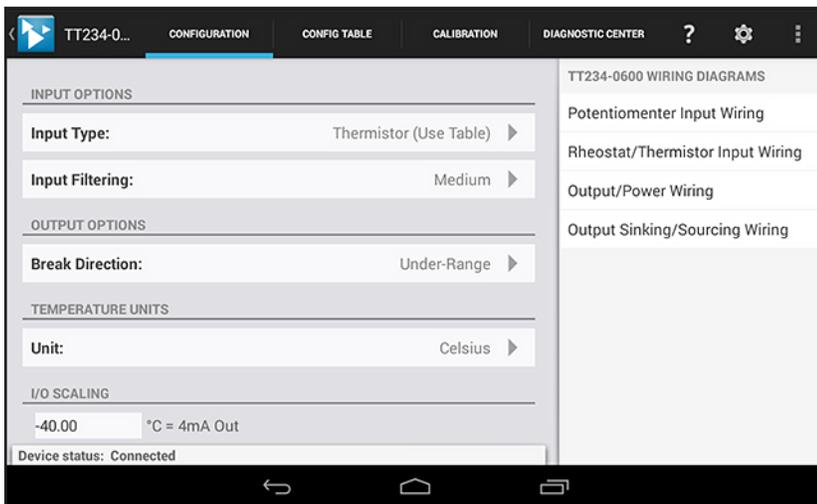
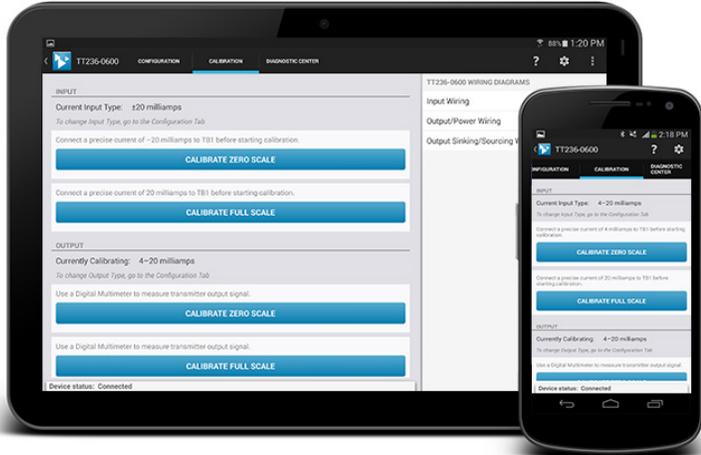
# Transmitters: TT Series

## Acromag Agility™ Config Tool Mobile Application

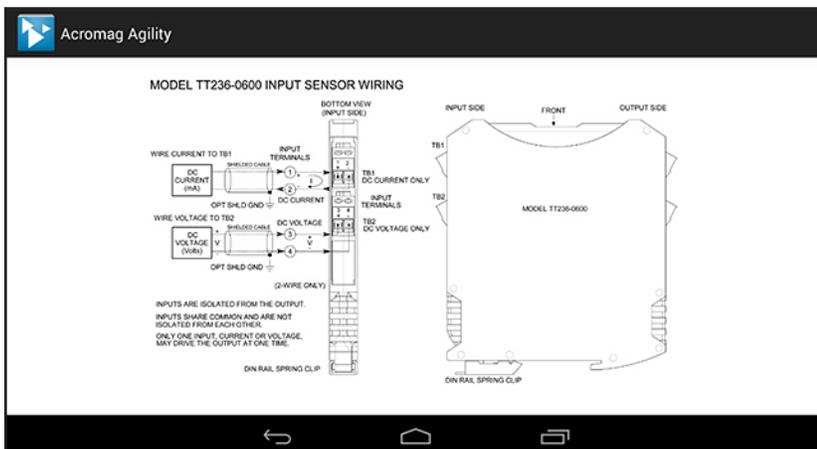
The Agility™ Config Tool is a mobile application that allows easy setup and configuration of Acromag TT Series transmitters via a tethered mobile device.

This free app is available for Android devices at the Google Play store at [Acromag Agility™ Config Tool](#).

Demo the software, no need for a module. To enter demo mode simply tap the  icon in the upper left corner 8 times.



With a couple of taps, quickly configure input, output, unit and scaling options.



Quick and easy access to the wiring diagram, even offline without internet access.

### Key Features & Benefits

- Connects to Acromag TT Series transmitters (except models TT231)
- Requires the use of USB OTG Cable (Acromag part #: 5028-565) and USB A to Mini B Cable (Acromag part #: 4001-113)
- Configures and calibrates TT Series products via phone or tablet running Android 4.3 ICS (Ice Cream Sandwich) or later.
- View wiring diagrams, even without an internet connection
- Perform quick and easy field diagnostics and troubleshooting
- Ideal for field technicians



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