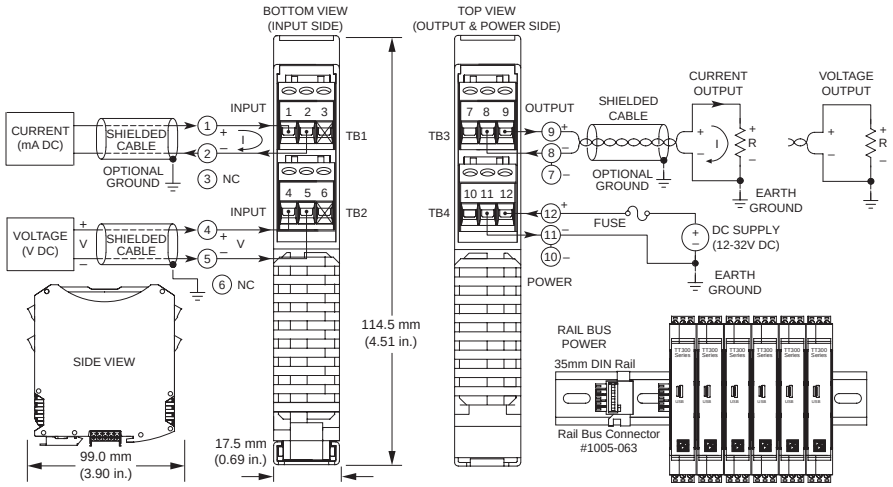
Transmitters: TT330 Series

TT336 Current/millivolt input four-wire transmitter



Multi-range ±20mA or ±500mV input ◆ Universal current/voltage output ◆ 12-32V DC local/bus power

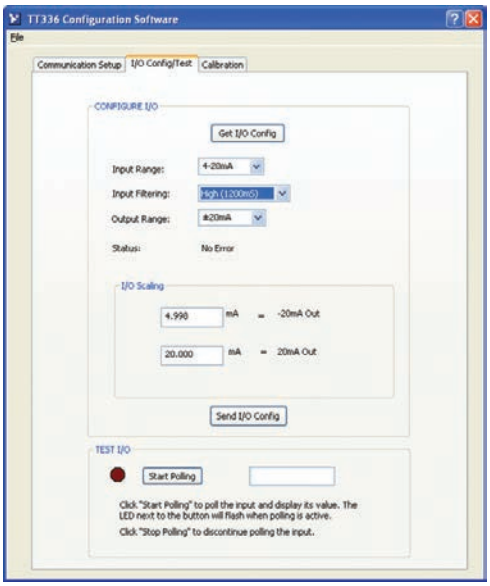
Description

The TT336 model is a space-saving four-wire transmitter that isolates and converts a DC current or low 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.



TT336 Model software allows you to configure transmitters offline, save the file, and download into units later, at your convenience.

TT330 Series Transmitter Configuration Software is downloadable (FREE) from www.acromag.com. Windows® XP, Vista, 7, and 8

The Agility™ Config Tool is downloadable (FREE) at the Google Play Store For Android Devices only

Key Features & Benefits

- Easy setup and digital calibration via USB with Windows configuration software
- Single unit supports unipolar and bipolar input ranges up to ±20mA or ±500mV DC
- Compatible with 0-20A AC sensor input
- Universal output connections support ranges up to ±21mA or ±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 (10ms to 1200ms)
- Supports reverse-acting (inverse) output
- Bus power, local power, or both
- Redundant power ready (rail/local)
- 1500V input isolation, 3-way (power, input, output)
- Shock (25g) and vibration (4g) resistant
- Mounts on Type T DIN-rail
- Wide ambient operation (-40 to 80°C)
- CE compliant. UL/cUL Class I Div 2, ATEX / IECEx Zone 2 approvals

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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
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: 4 to 20mA, medium filter.
Output: 4 to 20mA.

Input Ranges and Accuracy

Range	Accuracy
±500mV	±0.05% of span
0 to 500mV	±0.05% of span
±20mA	±0.05% of span
0 to 20mA	±0.05% of span
4 to 20mA	±0.05% of span
0 to 11.17mA (for AC sensor)	±0.05% of span
±1mA	±0.05% of span

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

Ambient Temperature Effect
Better than ±80ppm/°C (±0.008%/°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), 5.6V clamp level typical.

Input Resolution
Bipolar input: 1 part in 50000 (±25000)
Unipolar input: 1 part in 25000

Input Impedance
Current input: 24.9 ohms
Voltage input: 15M ohms

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

Noise Rejection
Normal mode @ 60Hz:
>4dB (no filter), >80dB (high filter)
Common mode @ 60Hz:
>90dB (no filter), >120dB (high filter)

Output

Output Range

Range	Over-Range	Resolution
±10V	±10.5V	1 part in 62415
±5V	±5V	1 part in 31208
0 to 10V	–0.5527 to +10.5V	1 part in 59240
0 to 5V	–0.27634 to +5.25V	1 part in 60262
±20mA	±21mA	1 part in 62259
0 to 20mA	–1.1054 to 21mA	1 part in 59596
4 to 20mA	–1.1054 to 21mA	1 part in 46877

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 (±20mA)	TB2 (±500mV)
No filter	10 milliseconds	15 milliseconds
Low filter	34 milliseconds	45 milliseconds
Medium filter	136 milliseconds	120 milliseconds
High filter	1168 milliseconds	1072milliseconds

Output Ripple
Less than ±0.1% of output span.

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), 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 Zone 2 approvals.

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

TT336-0700
Four-wire transmitter, current/millivolt 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).

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

5020-350
AC current sensor (toroidal transformer); converts 0-20A AC to 0-11.17mA DC.

ISO9001
AS9100
MADE IN USA

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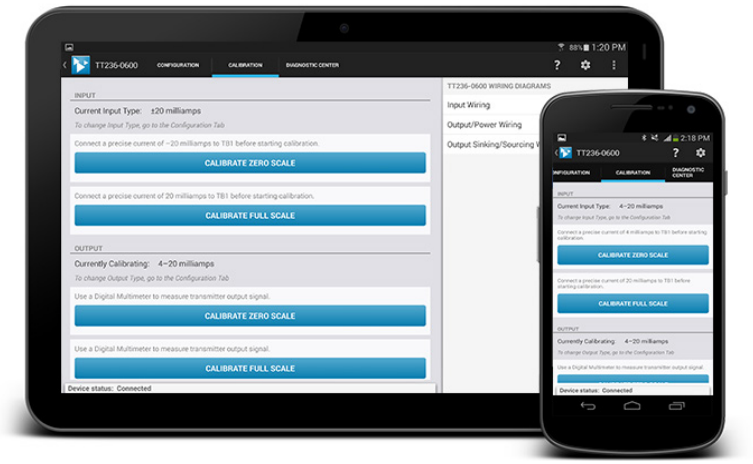
Transmitters: TT Series

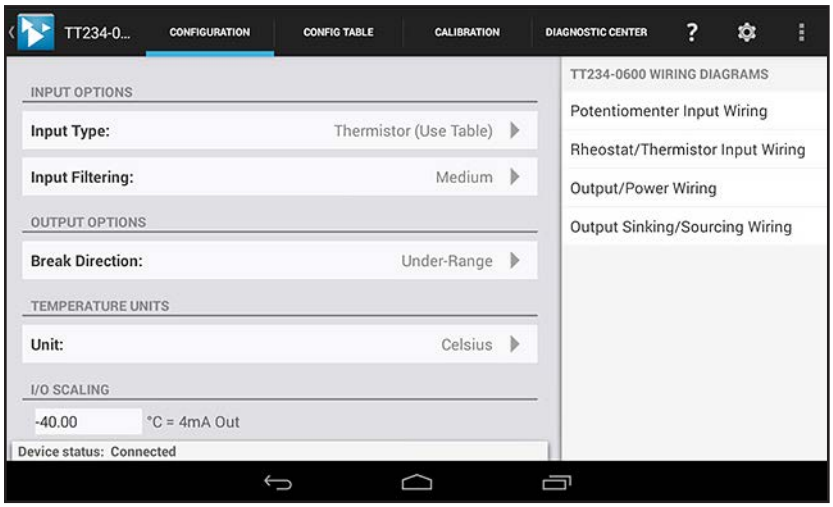
Acromag Agility™ Config Tool Mobile Application

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

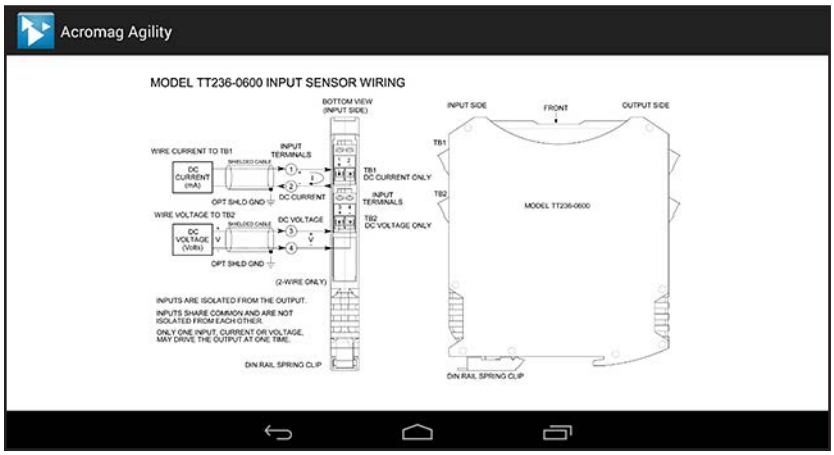
This free app is available for Android devices at the Google Play store at Acromag Agility™ Config Tool.

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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