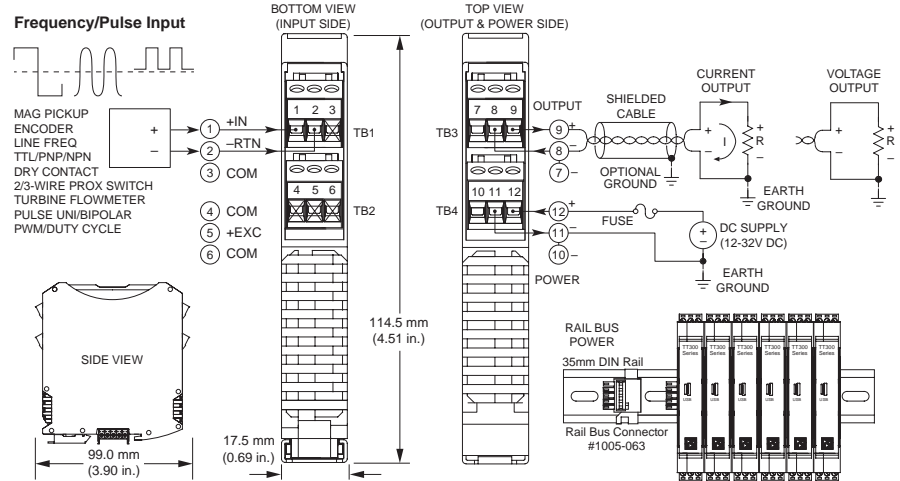


# Transmitters: TT330 Series

## TT339 Frequency/pulse/PWM input four-wire transmitter



**USB  
Configured**



Multi-range frequency/pulse input ♦ Universal current/voltage output ♦ 12-32V DC local/bus power

### Description

The TT339 model is a space-saving four-wire transmitter that isolates and converts frequency, pulse, or pulse-width modulation (PWM) 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 frequency 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.

Amplifier applications include:

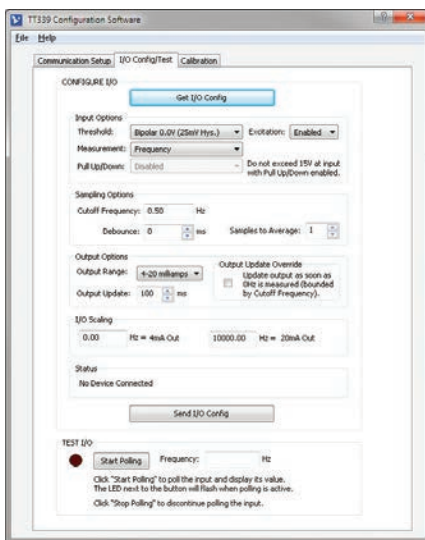
- Speed pickup
- Line frequency monitoring
- Turbine flowmeter interface
- PWM sensing/feedback circuits
- Shaft encoder interface

TT330 Series Transmitter Configuration Software is downloadable (FREE) from [www.acromag.com](http://www.acromag.com).  
Windows® XP, Vista, 7, 8

The Agility™ Config Tool is downloadable (FREE) at the [Google Play Store](http://Google Play Store)  
For Android Devices only

### Key Features & Benefits

- Easy setup and digital calibration via USB with Windows configuration software
- Measures frequency or duty cycle and interfaces many input types up to 100KHz
- Accepts input amplitudes up to 120VRMS ( $\pm 170V$  DC, unipolar or bipolar)
- Adjustable 0Hz cut-off, sample averaging, debounce, and output update time
- Universal output connections support ranges up to  $\pm 21mA$  or  $\pm 10.5V$  DC without rewiring
- Supports normal or reverse-acting output
- Fast response time and high accuracy
- Space-saving 17.5mm (0.7 inch) unit with pluggable terminals for convenient wiring
- Redundant power ready (rail/local)
- 1500V 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



TT339 Model software allows you to configure transmitters offline, save the file, and download into units later, at your convenience.

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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

±5.0V Square Wave; Input Threshold = Bipolar 0.0V; Hysteresis ±25mV; Pull Up/Down = Disabled; Excitation = Enabled; 0Hz Cutoff = 0.5Hz; Sample Average = 1; Output Range = 4-20mA; I/O Scaling = 0Hz to 10KHz, Normal Acting; Output Update = 100ms.

##### Frequency Input

Configurable for any range from 0Hz to 100KHz. Accepts unipolar (non-zero crossing) or bipolar (zero crossing) input signals. 0.5Hz minimum span. 1µs minimum pulse width.

##### Duty Cycle Input

Carrier frequency range: Any range from 0 to 20KHz. Duty cycle range: 1 to 99%, depending on freq. range.

##### Input Scaling Adjust

Zero: Adjustable over 0 to 99% of full-scale input. Full scale: Adjustable over 0.5Hz to 100KHz. Cut-off frequency: Adjustable over 0.01Hz to 100KHz.

##### Unipolar Signal Configuration:

Amplitude: 0 to 3V DC min., 0 to 170V DC max.

Thresholds: Configurable for 1.6V DC (±25mV hysteresis) or 5V DC (±83mV hysteresis), typical.

##### Bipolar Signal Configuration:

Amplitude: ±50 to ±200mV min. (depending on range and hysteresis), 120VRMS max. (±170V DC).

Thresholds: 0mV nominal (±25 or ±83mV hysteresis).

##### Input Pull-up/Pull-down (Internal)

Software-selectable 2.7KΩ input pull-up to +5V and a 1KΩ input pull-down to -FRN, or disabled. 15V DC maximum input when used.

##### Input Excitation Supply

+5V DC, current limited to +20mA typical.

##### Input Filter Bandwidth

-3dB at 35KHz, typical

##### Input Impedance

37.2K ohms, typical

##### Noise Rejection

Normal mode @ 60Hz: Not applicable  
Common mode @ 60Hz: 90dB

#### ■ 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 Load

Voltage output: 1000 ohms minimum  
Current output: 525 ohms maximum

##### Output Update

Software configurable from 10 to 5000ms. Determines rate at which output signal updates, unless optionally overridden by the 0Hz cutoff setting.

##### 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 Ripple

Less than ±0.1% of output span

##### Output Ambient Temperature Drift

Better than ±40ppm/°C (±0.0040%/°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.

##### 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

##### TT339-0700

Transmitter, isolated frequency/pulse/PWM 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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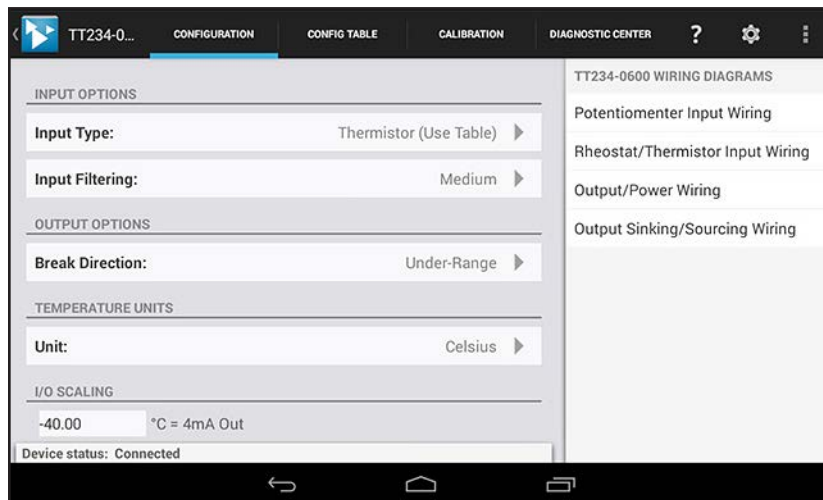
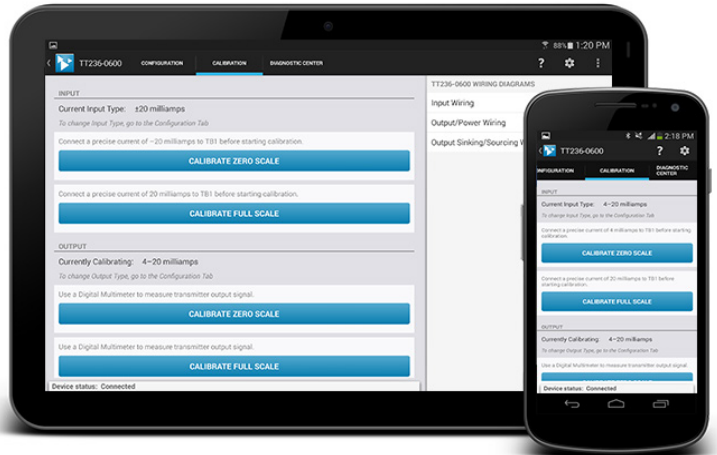
# Transmitters: TT Series

## Acromag Agility™ Config Tool Mobile Application

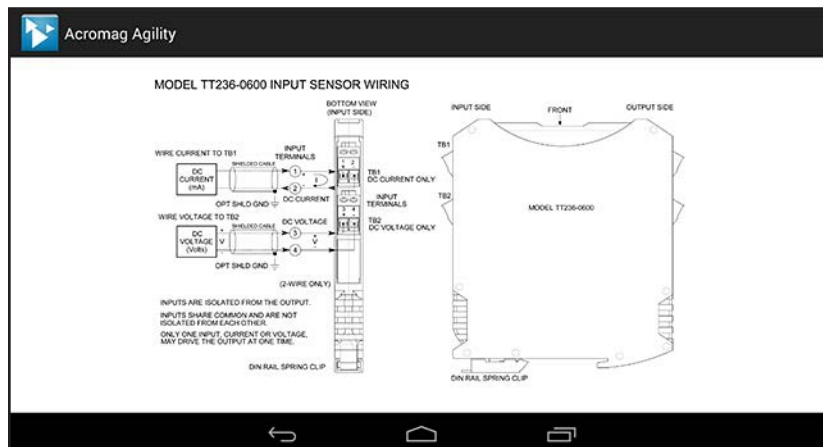
The Agility™ Config Tool is a mobile application that allows easy setup and configuration of Acromag TT Series transmitters via a tethered mobile device.

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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