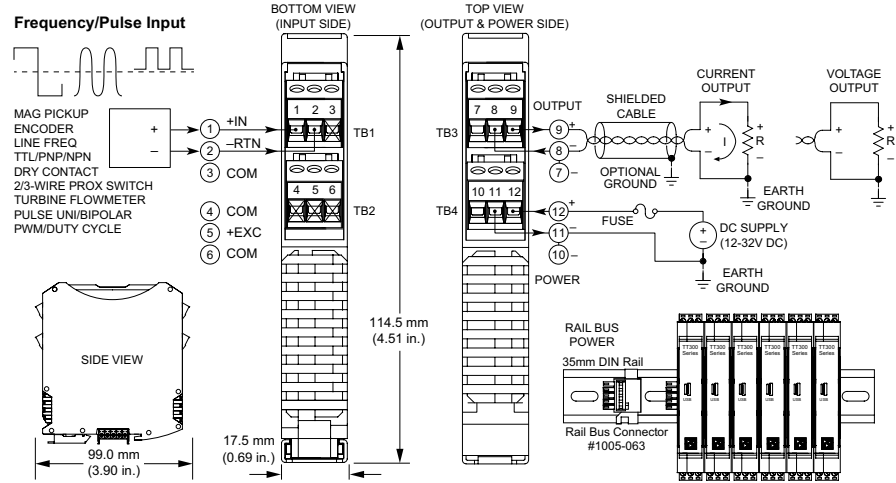


Transmitters: TT330 Series

TT339 Frequency/pulse/PWM input four-wire transmitter



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:

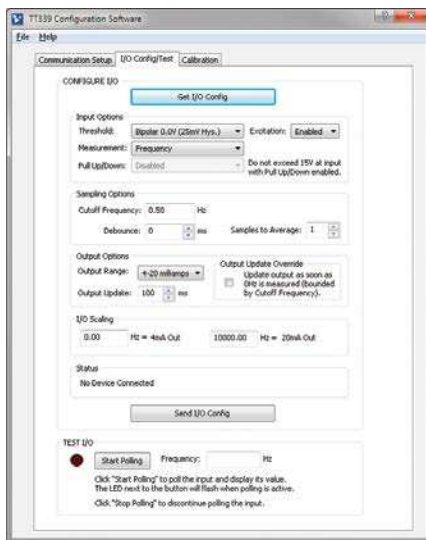
- Speed pickup
- Line frequency monitoring
- Turbine flowmeter interface
- PWM sensing/feedback circuits
- Shaft encoder interface

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

Windows® XP, Vista, 7, 8

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 1 Div 2 Zone 2 approvals (pending)



TT339 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 ■ www.acromag.com ■ 30765 Wixom Rd, Wixom, MI 48393 USA

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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), 120V_{RMS} 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 60068-2-64.

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

Approvals

CE compliant. UL/CUL listing pending.
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

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 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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