

# ATE-32 PT/VT Interface Speed Signal Conditioner

## DESCRIPTION

The Model ATE-32 PT/VT Interface Module is a signal conditioner that converts the output of the Potential Transformer of an electric generator to a 24 Volt pulse train suitable for input to a PLC-based frequency counter. Input amplitude range is 0.2 VRMS to 180 VRMS. Input frequency range is from 6 Hz to 120 Hz. Over 2000 VDC isolation between the input and output circuits protects the governor PLC. The circuitry is housed in a DIN rail mount (23 mm wide). The enclosure has a UL 94 V0 flame retardancy rating.

**Noise Immunity** is enhanced by a hysteresis circuit in the input stage of the module. The standard hysteresis is  $\pm 0.106$  Volt. Special hysteresis levels may be provided if requested when ordering the module to meet installation-specific requirements. This small-signal de-sensitization of the Model ATE-32 will improve the measurement of the frequency output of a generator operating at low speed without the application of field excitation.

A **3-pole Butterworth low-pass filter** is included in the Model ATE-32. This filter blocks high frequency transients from passing through to the frequency counting equipment. The input side of the Model ATE-32 is fully isolated from the output side, so the signal input can be connected either from line to neutral or from line to line of the instrumentation potential transformers (PT /VT).

## APPLICATION

The Model ATE-32 PT/VT Interface module is useful in applications where the rotating speed of a generator must be accurately measured without the addition of a conventional slotted disk or gear and magnetic pickups. It is designed with sufficient sensitivity to operate from the voltage produced at low speeds from the residual magnetism in the rotor of the generator. Typically, the residual output of most generators is sufficient for the Model ATE-32 to allow measurement of the generator speed down to and below 10% of the rated speed of the generator, which may be utilized by the unit braking system.

Typical generator PT/VT residual voltage output:

0.2VRMS @ 6Hz and 2.0VRMS at 60 Hz.

The Model ATE-32 PT/VT Interface Module also provides a more stable primary speed sensing method to be used in conjunction with a conventional speed gear/magnetic pickup method of sensing unit speed.

## STATUS LEDS

The Model ATE-32 utilizes two status LEDs. The green LED indicates that DC power is applied. The blue LED is illuminated when the input signal has positive polarity from terminal 1 or 2 to 3 or 4. The blue LED is extinguished when the input signal has negative polarity. At low input frequencies, the blue LED will flash visibly to indicate the presence of the input signal. At higher input frequencies, the LED will appear to be illuminated at a reduced intensity due to visual averaging of the flashes.

## CALIBRATION

No calibration is required for the Model ATE-32.

## SPECIFICATIONS

### Power

**Supply:** 18 to 30 VDC  
**Consumption:** 2 W typical

### Input

**Amplitude Range:** 0.2 VRMS to 180 VRMS

**Frequency Range:** 6 Hz to 120 Hz  
**Absolute Minimum:** DC

### Output

Pulse train 24 Volts peak (typical)

### Mounting

TS32 or TS35 DIN Rail

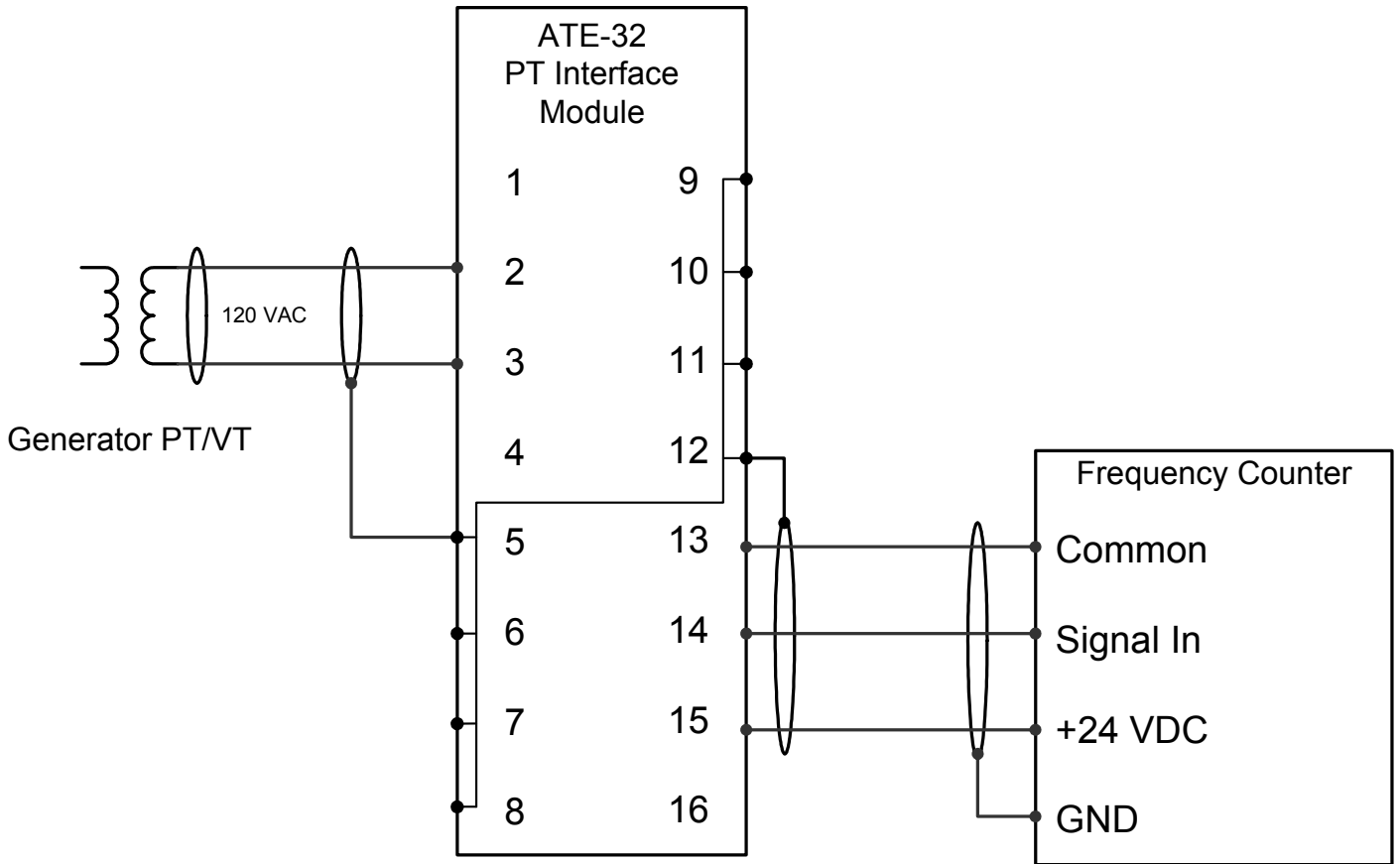
### Terminal Connections

5, 6, 7, 8, 9, 10, 11 & 12 Shield Bus  
1 & 2 (+) Input  
3 & 4 (-) Input  
13 & 16 Signal & Power Common  
14 Signal Output  
15 DC Power (+)

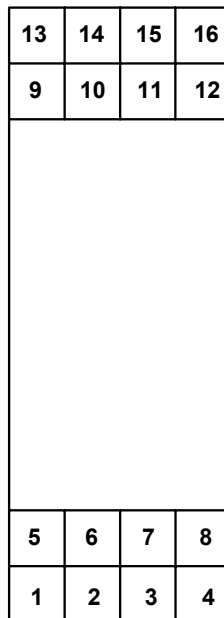
### Temperature Range

**Operating:** 0 to 55 °C (32 to 131 °F)  
**Storage:** -25 to 70 °C (-13 to 158 °F)

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**Figure 1 – Typical Connection of an ATE-32 Module**



**Figure 2 – Terminal Layout of an ATE-32 Module**