

# TACH•PAK® 3 Digital Process Tachometer

CSA Listed  
Part Number Series T 77430



### Faster - More Accurate - Field Programmable

The Tach•Pak 3 computing tachometer is a single channel instrument. It measures input frequency and converts the resulting quantities to a meter output, an analog output and four relays.

The microcomputer-based Tach•Pak 3 tachometer uses adaptive period averaging which permits a combination of fast response and high accuracy not available in other industrial speed instruments. The instrument functions can easily be programmed in the field or altered at any time using a unique internal switch design.

Typically, a Tach•Pak 3 tachometer is used with magnetic sensors as a signal source. However, it may receive a sine wave or TTL signal from any frequency source. The resulting speed is used for meter output, analog output or alarms. It is superior in applications requiring fast update times and high accuracy.

*It is the customer's responsibility to determine whether the product is proper for customer's use and application.*

### Features & Advantages

*Quicker Response Time* - 50 millisecond updates above 100 Hz.

*Higher Level of Accuracy* -  $\pm 0.5\%$  for analog outputs and  $\pm 0.05\%$  for relay setpoints in operation over temperature ranges.

*Field Programmable* - Adaptable to various applications and requirements by utilizing a unique internal switch design. No additional calibration equipment required.

*Digital Configuration* - Utilizes adaptive period averaging and floating point calculation.

*2 Analog Current Outputs* - 0-1 milliamps. 0-20 or 4-20 milliamps.

*4 Relays* - Sealed 6 amp SPDT auto reset or latching.

*AC or DC Power* - Adaptable to either AC or DC power source.

### Applications

- Fast response overspeed shutdown
- PLC or DCS Interface
- Petrochemical production
- Pump or generator alarm
- Low speed tachometer
- Expanding analog scale speed transmitter
- Start-up, over/under speed switching
- Textile production applications
- RPM measurement
- Paper and pulp production
- Turbine speed control input
- Metal production
- Mining applications
- Frequency measurement
- Test labs
- Generator sets
- Food processing
- Conveyor protection
- Printing industry

Ordering P/N	Input Power	Enclosure	Net Weight (lbs.)
T77430-11	120 Vac/24 Vdc	Standard NEMA 1	2.7
-12	240 Vac/24 Vdc	Standard NEMA 1	2.7
-41	120 Vac/24 Vdc	NEMA 4X *	5.9
-42	240 Vac/24 Vdc	NEMA 4X *	5.9
-71	120 Vac/24 Vdc	Explosion Proof **	39.0
-72	240 Vac/24 Vdc	Explosion Proof **	39.0

\* See page 16 for dimensions

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## Specifications

### Signal Input

**Type:** Software selectable for passive or active sensors & terminal block jumper for active sensors.

#### AC Input (sine wave):

Input Impedance = 2K ohms  
 Sensitivity @ 1KHz = 200 mVrms  
 Max. Voltage Input = 25 Vrms  
 CMRR = > 40 db @ 1KHz,  
 ref. to input threshold.

#### Pulse Input (TTL compatible):

Input Impedance = 2K ohms  
 Min. Pulse Width = 10  $\mu$ s  
 Logic 0 = V in < .5V  
 Logic 1 = V in > 1.5V  
 (+ 12 VDC @ 50mA supplied for powered sensors)

**Frequency Range:** Upper limit 30 KHz,  
 Lower limit software selectable 10 Hz to .0625 Hz.

### Power Supply

120 Vac  $\pm$ 10%, 50-60 Hz  
 24 Vdc (23-30 V), std. 750 ohm analog load or (20-30 V) with 600 ohm analog load.  
 15 watts maximum power.

## Outputs

**Meter Output** 0 to 1.0mA  $\pm$ .5% of full scale. True current 15 K ohm maximum. Full scale selectable from .1 Hz to 30 KHz.

Analog filter (approx. 2 sec.) switch selectable.

**Analog Output:** Selectable to 0 to 20 mA or 4 to 20 mA,  $\pm$ .5% of full scale. True current 750 ohm maximum.

Full scale and zero scale selectable .1Hz to 30 KHz.

Analog filter (approx. 2 sec.) switch selectable.

**Relay Outputs:** Four SPDT relays, 6A @ 28Vdc or 240Vac, 170 W or 1800 VA. Selective relay logic: Energize or de-energize above or below setpoint. Auto-reset at setpoint with programmable frequency hysteresis 00.0% to 99.9% or with time delay hysteresis selectable 000 to 999 data acquisitions. Latching relay at setpoint with remote reset.

**Response:** 50 milisec. updates above 100 Hz. See manual for updates between 20 and 100 Hz, one cycle below 20 Hz.

**Accuracy:**  $\pm$ 0.05% for relay setpoints in operations over temperature range,  $\pm$ 0.5% of full scale for meter and analog outputs.

## Environmental

**Temperature:** -10 to 55  $^{\circ}$ C operating.  
 -40 to 80  $^{\circ}$ C storage.

**Vibration:** Designed to meet MIL-810C, Method 514.2, Procedure VIII, Figure 514.2-6. Curve V (1.5 g's 10-200 Hz).

**Shock:** Designed to meet MIL-810C, Method 516.2, Procedure I, Figure 516.2-2 for ground equipment (30 g's half sine).

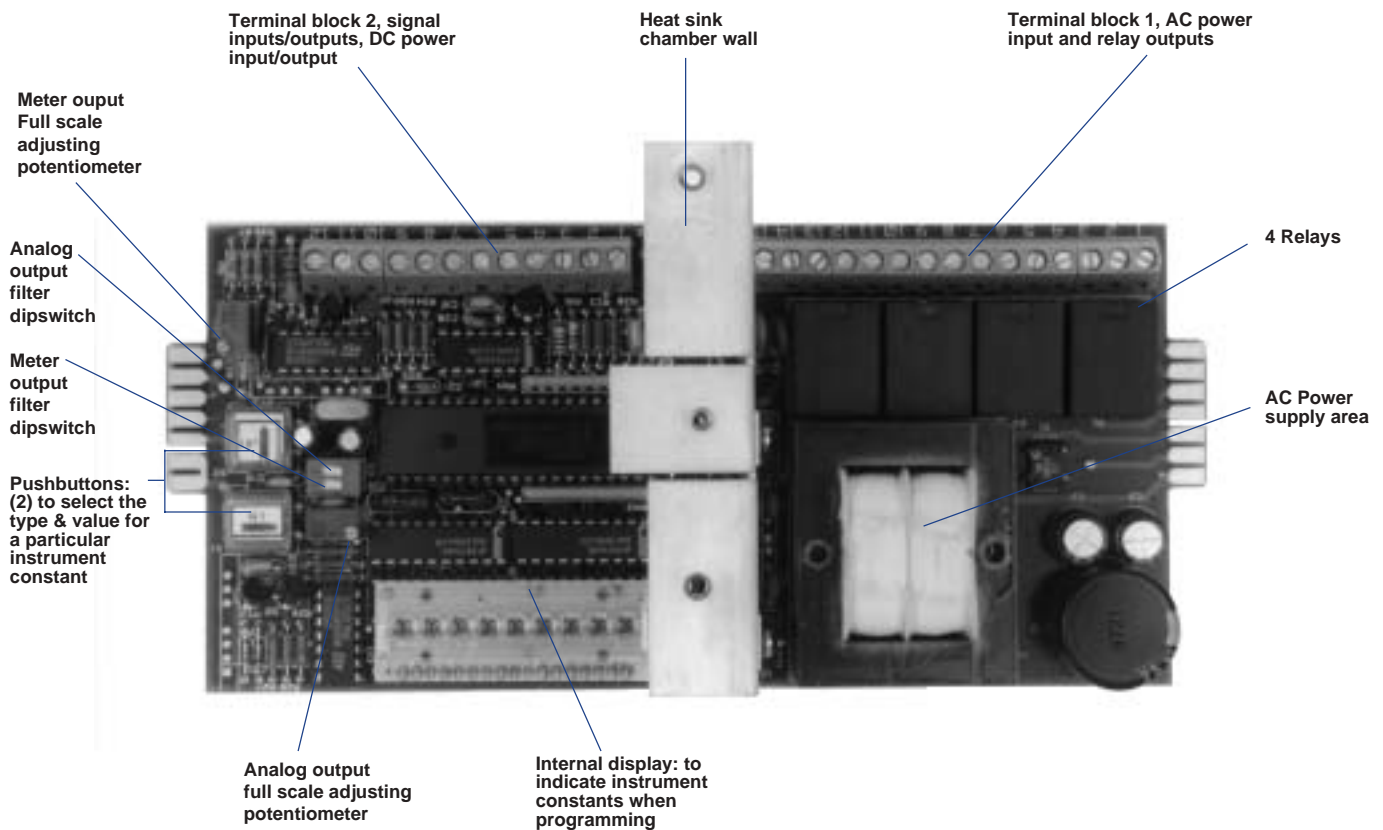
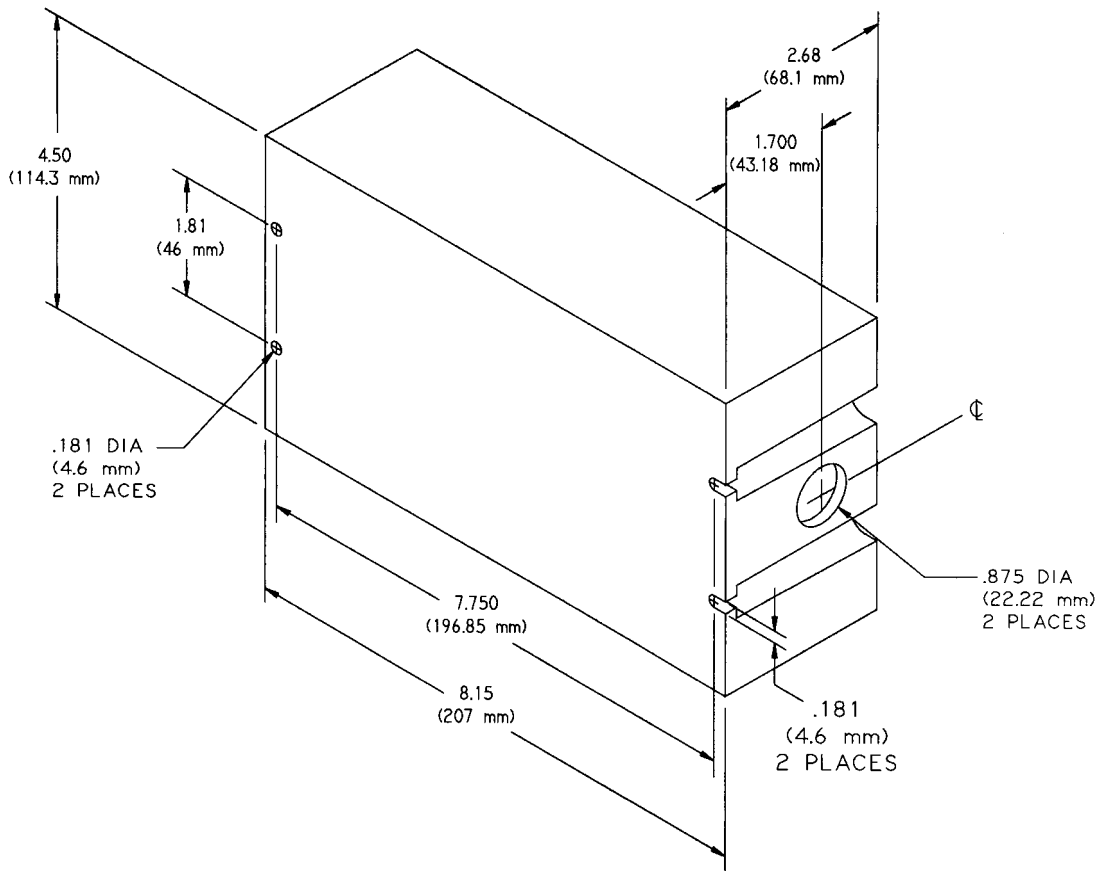
**Enclosure:** Enclosed terminals, same mounting holes as the 300 Tach with enclosure 50% wider. NEMA 4X & explosion proof enclosures optional.

**Humidity:** 90% relative and non-condensing.

**Constant Storage:** Retained in EAROM and may be altered 1000 or more times.

**Electrical References:** Circuit common is isolated from AC power, AC ground and case. DC power, analog output and meter output are referenced to circuit common. Passive inputs are balanced. Active sensor inputs are referenced to circuit common.

Electrical Connections	
<b>TB1</b> -1 K1 NC -2 K1 COM -3 K1 NO -4 K2 NC -5 K2 COM -6 K2 NO -7 K3 NC -8 K3 COM -9 K3 NO -10 K4 NC -11 K4 COM -12 K4 NO -13 AC Power -14 AC Power -15 Earth	Relays Shown De-Energized  Contact Rating: 6A Max. at 28Vdc OR 6A Max. at 240Vac
<b>TB2</b> -1 + 24 Vdc In -2 DC Common -3 Calibrate (when tied to +12V) -4 DC Common -5 + 12Vdc Out (50mA max.) -6 Relay reset (when tied to + 12V) -7 Signal + -8 Signal - -9 Shield -10 Meter + -11 Analog Common -12 Analog +	



Dimensions in inches and (mm).