



# TACH-PAK® 1

## Digital Process Tachometer

(Speed Switch Only)

CSA Listed

Part Number Series T77130

### Faster - More Accurate - Field Programmable

The **Tach•Pak 1** computing speed switch is a single channel instrument. It measures input frequency and converts the resulting quantities to relay closure.

The microcomputer-based Tach•Pak 1 speed switch 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 1 speed switch 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 alarm switching. It is superior in applications requiring fast update times and high accuracy for equipment protection.

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

### Features and Advantages

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

**Higher Level of Accuracy** -  $\pm 0.05\%$  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 is required.

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

**2 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
- Petrochemical production applications
- Pump or generator alarm
- Low speed switching
- Start-up, over/under speed switching
- Textile production applications
- Machine control
- Paper and pulp production
- Turbine speed control
- Food processing
- Conveyor alarms
- Printing industry
- Metal production
- Mining applications
- Test labs
- Generator sets
- Broken or slipping belt drives

Ordering P/N	Input Power	Enclosure	Net Weight (lbs.)
T77130-11	120 Vac/24 Vdc	Standard NEMA 1	2.5
-12	240 Vac/24 Vdc	Standard NEMA 1	2.5
-41	120 Vac/24 Vdc	NEMA 4X *	5.7
-42	240 Vac/24 Vdc	NEMA 4X *	5.7
-71	120 Vac/24 Vdc	Explosion Proof **	39.0
-72	240 Vac/24 Vdc	Explosion Proof **	39.0

\* See page 19 for dimensions

\*\* See page 20 for dimensions

## 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 amplifier 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 (20-30 V)  
15 watts maximum power.

### Output

**Relay Output:** Two SPDT relays, 6A  
@ 28 Vdc 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 millisecc. updates above  
100 Hz. See manual for updates be-  
tween 20 and 100 Hz, one cycle below  
20 Hz.

**Accuracy:**  $\pm$ 0.05% for relay setpoints in  
operation over temperature range.

### Environmental

**Temperature:** -10°C to 55°C  
operating  
-40°C to 80°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).

**Enclosures Available:** NEMA 1 STD,  
NEMA 4X and Explosion Proof.

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

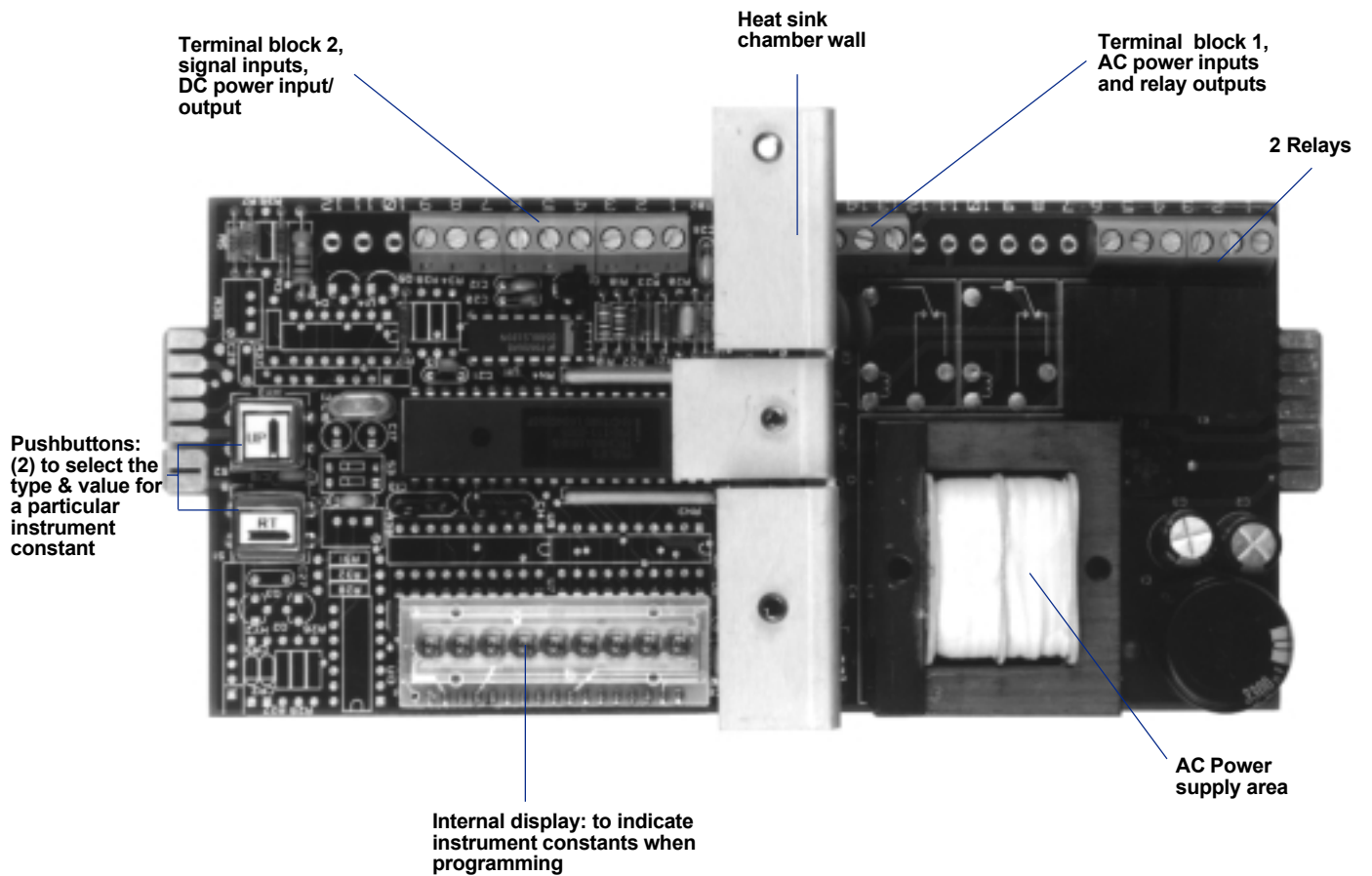
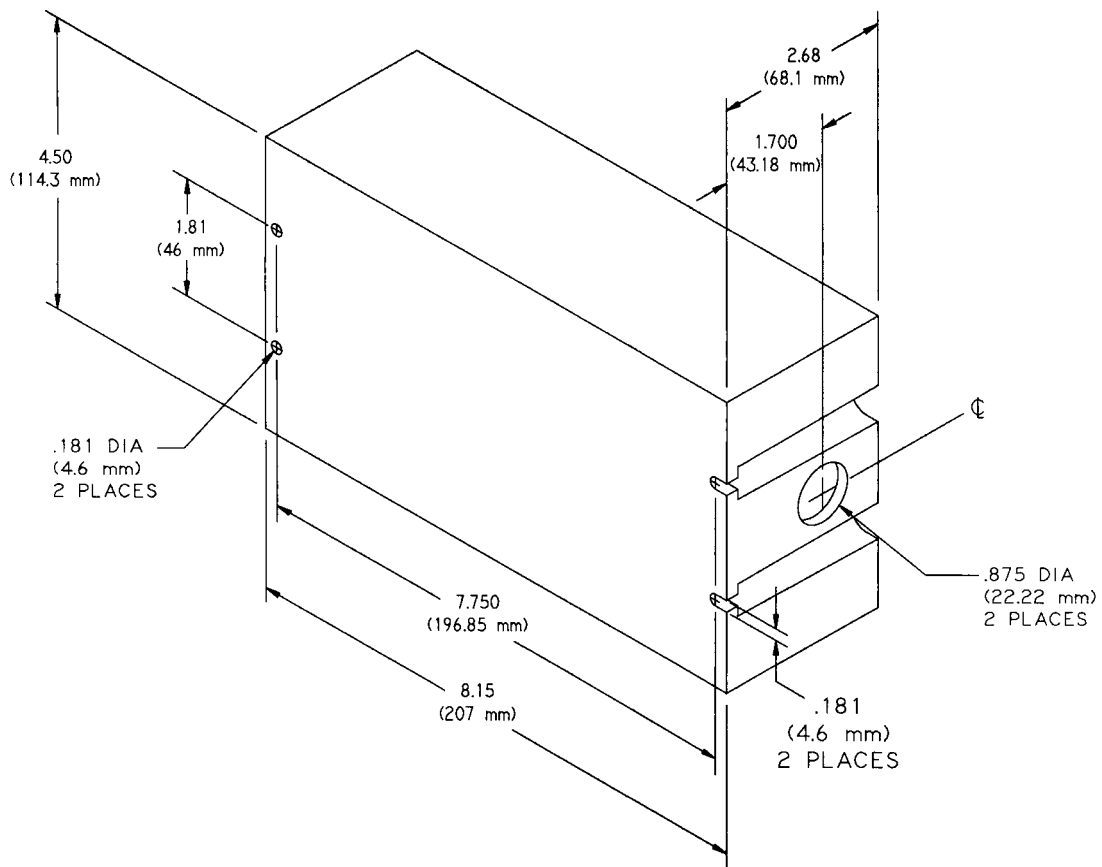
**Constant Storage:** Retained in EAROM  
and may be altered 1000 or more times.

**Electrical References:** Circuit common  
is isolated from AC power, AC ground  
and case. DC power is referenced to  
circuit common. Passive inputs are bal-  
anced. Active sensor inputs are refer-  
enced 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 -13 AC Power -14 AC Power -15 Earth	}	Relays shown de- energized. Contact rating: 6A max. at 28 Vdc or 6A max. at 240 Vac.
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**TB2** -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



Dimensions in inches and (mm).