

Self-Powered, Industrial

**DYNALCO**  
CONTROLS  
A UNIT OF MARK CONTROLS CORPORATION

# Digital Tachometer

SPD-100

**2 YEAR  
WARRANTY**



*A heavy-duty digital tachometer ideally suited for universal applications. Solid-state. Illuminated version available.*

## FEATURES

Signal and power derived totally from magnetic pickup or pulser.

Intrinsically safe. Can be used in hazardous environments with approved Dynalco pickups.

No power supply connections. High immunity to electrical noise.

**Universal:** Can be field-calibrated.

**High accuracy:** 4 digit display; 1 rpm resolution.

Standard SAE case size fits panels with  $3\frac{3}{8}$ " openings. High shock and vibration resistance. Gasketed and sprayproof.

Ideal for OEM use. Can be paralleled with governors and/or speed switches. Can share existing pickups or pulsers; draws only microamperes.

Ground-free terminals have no polarity; easy installation.

Lighted versions available.

## SPECIFICATIONS

### EXTERNAL POWER REQUIREMENTS:

None. All SPD-100 models are signal-powered. Lighted versions require 12 or 24 Vdc (depending on model) for internal lighting, only.

**DISPLAY:** 4 active digits (0 to 9999), non-blinking LCD display, character height of 0.5 inches. Display contrast increases with increasing ambient light; ideal for both indoor and outdoor installations.

**INPUT SIGNAL VOLTAGE:** From pickups, pulsers, shaft encoders, etc. Minimum signal amplitude: 2.5 Vrms. Maximum permissible signal: 15 Vrms. The SPD 100 automatically limits pickup signals at approximately 10 volts peak-to-peak. Input impedance is 100 ohms in series with a 6 volt zener.

**INPUT SIGNAL FREQUENCY:** Maximum input signal frequency of 20,000 Hz. Lowest frequency range limited by gate time and corresponding numerical display.

**ISOLATED CIRCUIT:** All circuitry is totally floating: i.e. totally isolated and insulated from the case and from ground.

**TEMPERATURE RANGE:** Operating:  $-20^{\circ}\text{C}$  to  $+80^{\circ}\text{C}$  ( $-5^{\circ}\text{F}$  to  $+175^{\circ}\text{F}$ ); Storage:  $-40^{\circ}\text{C}$  to  $+90^{\circ}\text{C}$  ( $-40^{\circ}\text{F}$  to  $+195^{\circ}\text{F}$ ).

**VIBRATION:** MIL STD 810C; Method 514.2; Curve Q; Procedure V; Modified to 500 Hz upper limit.

5 Hz to 10 Hz @ 0.2 inches D.A.  
10 Hz to 18 Hz @ 1.0 g (peak)  
18 Hz to 57 Hz @ 0.06 inches D.A.  
57 Hz to 500 Hz @ 10 g (peak)

**ACCURACY:** 1 RPM resolution; within 0.5% (0.1% typical at room ambient) under all combined environmental conditions.

**GATE TIME RANGES:** Gate time is field-selectable from 0.26 to 5.7 seconds for the SPD-100 series. For the SPD-108 series gate time is field-selectable over a range of 0.13 to 2.85 seconds. This accommodates calibrations for an extremely broad range of corresponding pulses per seconds.

**Third Party Approvals:**

1. CSA (Canadian Standards Association): Class I, Division 1, Groups A, B, C, & D with M134, M135, M139, M203, M204, M205. Class I, Division 1, Groups C & D with M160, M201, M202, M231.
2. FM (Factory Mutual): Class I, Division 1, Groups A, B, C, & D.
3. American Bureau of Shipping: type approval for use in classed vessels.
4. Lloyd's Register of Shipping: type approval of control and electrical equipment.

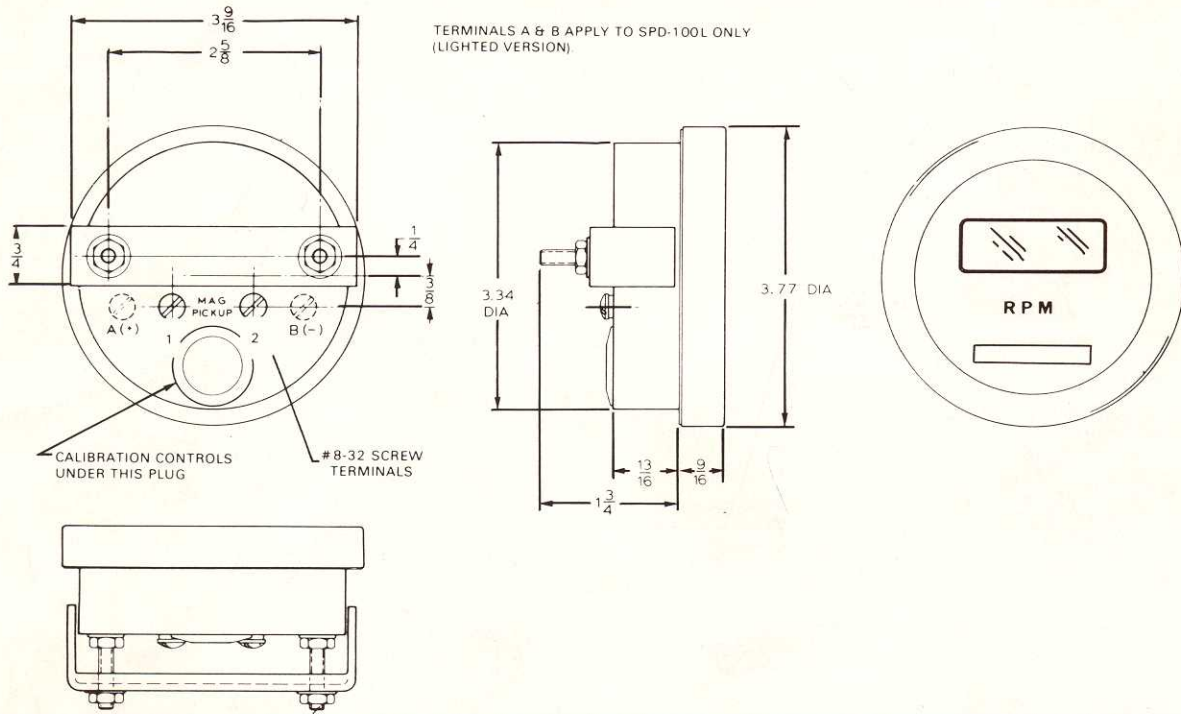
**MAGNETIC PICKUPS**

Dynalco Magnetic Pickups M102 and M107 are used with the SPD-100 in most applications. Refer to Dynalco Magnetic Pickup brochure, for various types and characteristics. For low-speed applications, or to permit operation with larger gaps, the ultrahigh sensitivity M142 can be used. For intrinsically safe applications Dynalco offers 7 models with the M202 and the M134 as the most frequently used.

**Approved**



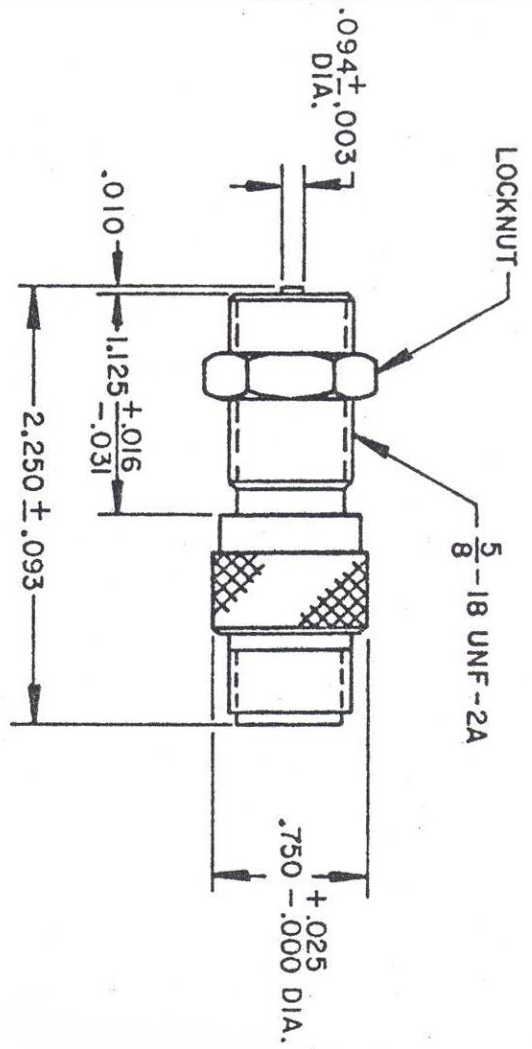
**OUTLINE AND CONNECTON DRAWING**



**HOW TO ORDER**

- I. Specify model required:
  - a. Gate time range: 0.26 to 5.70 seconds. SPD-100: standard unit  
SPD-100L: internally lighted
  - b. Gate time range: 0.13 to 2.85 seconds. SPD-108: standard model  
SPD-108L: internally lighted
- II. For internally lighted units select 12 or 24 Vdc version.
- III. Specify magnetic pickup, if required.
- IV. For Factory Calibration: Advise the gate time required or the number to be displayed at a given signal frequency. Or, just indicate the number of gear teeth or discontinuities per revolution. [Be sure to determine if the gear or shaft is rotating at the speed of interest or if some step-up or step-down ratio must be considered.]

| REVISIONS |             | DATE | APPD |
|-----------|-------------|------|------|
| LTR       | DESCRIPTION |      |      |



| TEMPERATURE RANGE | OUTPUT VOLTAGE PEAK TO PEAK   | DC RESISTANCE OHMS      | INDUCTANCE MILLIHENRYS | OUTPUT CONNECTOR                           | INSULATION RESISTANCE                          | NET WEIGHT   |
|-------------------|-------------------------------|-------------------------|------------------------|--|--|--------------|
| -65° F TO +225° F | 400-550 VOLTS<br>(SEE NOTE 1) | 1750 - 2250<br>AT 75° F | 700 NOM.               | MATES WITH MS3106A-10SL-4S<br>(SEE NOTE 2) | 100 MEGOHMS MIN.<br>AT 500VDC, COIL TO HOUSING | 1.9 OZ. AVG. |

**NOTES:**

- TESTED AT 1000 INCHES/SECOND WITH A 20 PITCH, 30 TOOTH GEAR, 0.005" CLEARANCE AND 100,000 OHM LOAD SHUNTED BY 250 MMF.
- WITH APPROACH OF FERROUS METAL, PIN "B" IS POSITIVE WITH RESPECT TO PIN "A".

**PRODUCTION**

**CONSTRUCTION:**  
HOUSING - 303 STAINLESS STEEL  
POLE PIECE - 416 STAINLESS STEEL  
POTTING - EPOXY RESIN

UNLESS OTHERWISE SPECIFIED  
DIMENSIONS ARE IN INCHES  
TOLERANCES ARE

|          |             |        |
|----------|-------------|--------|
| FRACT.   | DEC.        | ANGLES |
| ± 1/64   | .xxx ± .005 | ± 1/2° |
| XX ± .01 |             |        |

**MATERIAL:**

**DYNALCO® CORPORATION**  
FORT LAUDERDALE, FLORIDA

TITLE: MAGNETIC PICKUP MODEL M142

SCALE: — SIZE: A DRAWING NUMBER: 8000142 REV.:

DRAWN: *K. Daisley* DATE: 1-17-79  
APPROVED: *Joe* 1/18/79

DO NOT SCALE THIS DRAWING