

## SPD-100 & SPD-100L SIGNAL-POWERED TACHOMETER

### Calibration Manual



#### Rev. B

P/N: 145F-12040

PCO – 00010648

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#### **IMPORTANT – PLEASE READ BEFORE PROCEEDING!**

The Dynalco SPD-100 & SPD-100L Tachometers are designed for reliable and rugged operation. These products have been designed and tested to meet the demands required in many industrial locations. Performance of this product is directly related to the quality of the installation and knowledge of the user in operating and maintaining the instrument. To ensure continued operation to the design specifications, personnel should read this manual thoroughly before proceeding with installation, operation and maintenance of this instrument. If this product is used in a manner not specified by Dynalco, the protection provided by it may be impaired.

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#### **⚠ WARNING**

- Failure to follow proper instructions may cause any one of the following situations to occur: Loss of life; personal injury; property damage; damage to this instrument; and warranty invalidation.
- For clarification of instructions in this manual or assistance with your application, contact Dynalco as below:  
Tech Support: [Technical-dynalco-support@barksdale.com](mailto:Technical-dynalco-support@barksdale.com)  
or 1-866-227-8528  
Customer Care: [Sales-Dynalco@barksdale.com](mailto:Sales-Dynalco@barksdale.com)  
or 1-800-835-1060  
  
Or by mail:  
Barksdale Inc.  
Barksdale® and Dynalco® Products  
3211 Fruitland Ave  
Los Angeles, CA 90058
- Follow all warnings, cautions, and instructions marked on and supplied with the product.
- Use only qualified personnel to install, operate, program and maintain the product.
- Educate your personnel in the proper installation, operation, and maintenance of the product.
- Install/calibrate equipment as specified in the installation/calibration section of this manual. Follow appropriate local and national codes. Only connect the product to power sources and end devices specified in this instruction manual.
- Any repair is only to be performed by Dynalco using factory documented components. Tampering or unauthorized substitution of parts and procedures can affect the performance and cause unsafe operation of your process.
- All equipment doors must be closed and protective covers must be in place unless qualified personnel are performing maintenance.

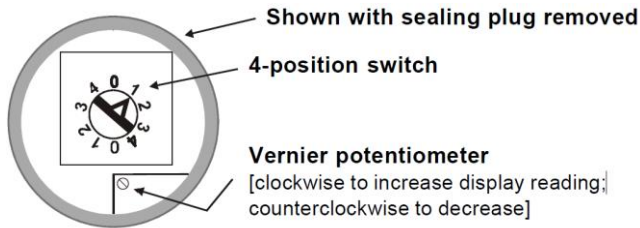
# Calibration Instructions

The SPD-100 and SPD-100L tachometers are normally factory-calibrated to the customer-specified number of sensing teeth or discontinuities, sensing speed, and desired numerical display.

**If necessary, refer calculation procedure below to Calculate Signal Frequency and Gate Time.**

## To calibrate an SPD-100 or SPD-100L

1. Remove the sealing plug on the back of the housing.
2. Apply the calculated signal frequency to terminals 1 and 2. A Dynalco F-16 or F-15 signal generator is ideal.
3. Select the appropriate gate time range on the 4-position switch. See label on back of SPD-100 or SPD-100L; or refer Item 3.
4. Adjust the vernier potentiometer for the desired display. See below.



**Example:** If 3390 Hz = 1800 RPM, then gate time is 0.53 seconds.

1. Apply 3390 Hz to terminals 1 and 2 on tachometer (no polarity).
2. Turn the gate time range switch to (either) position number 1 to select gate time range of 0.26–0.72 seconds.
3. Adjust the vernier potentiometer to obtain a display of 1800.

**See label on back of SPD-100, SPD-100L for additional information**

**QUICK GATE TIME CALCULATION** }  $\frac{60}{\text{Number of Teeth}}$  { Assumes the pickup is "seeing" the gear of interest directly, not through a step up or step down ratio.

(For example: 60/113 teeth = 0.53 sec. gate time)

## 1. Calculating Signal Frequency (in Hz)

Multiply RPM times the number of teeth (or discontinuities), then divide by 60. For example, sensing a ring gear with 113 teeth rotating at 1800 RPM gives a frequency of 3390 Hz.

$$\text{Signal Frequency in Hz} = \frac{(\text{RPM}) \times (\text{Teeth or Discontinuities})}{60}$$

$$\text{Signal Frequency in Hz} = \frac{(1800 \text{ RPM}) \times (113 \text{ Teeth})}{60} = 3390 \text{ Hz}$$

## 2. Calculating Gate Time (In seconds)

Divide the number to be displayed on the SPD-100 or SPD-100L by the corresponding signal frequency.

$$\text{Gate Time} = \frac{1800 \text{ RPM}}{3390 \text{ Hz}} = 0.53 \text{ seconds}$$

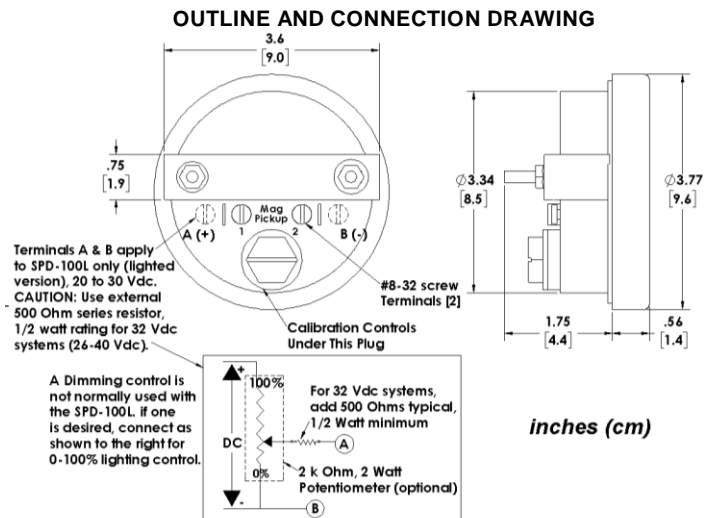
## 3. Gate Time Range Selection on 4-Position Switch

Select either position for each number pair on the switch:

<b>Position 1: 0.26–0.72 sec.</b>	<b>Position 2: 0.72–1.43sec.</b>
<b>Position 3: 1.43–2.85 sec.</b>	<b>Position 4: 2.85–5.70sec.</b>

## Optional Calibration Method: On-engine

- A. Select the appropriate gate time range on the 4-position switch.
- B. Connect the magnetic pickup output to terminals 1 & 2.
- C. Adjust vernier potentiometer on SPD-100 or SPD-100L until its display agrees with another precise digital tachometer.



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