

# DYNALCO

## Product Catalog

Compiled & Hosted on-line by

Gilmore Global Instruments



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# LST-100

## Digital Tachometer

The LST-100™ Series features a field-selectable pulse rate multiplier that can increase signal pulse rate by a factor of 10 or 100. The units are particularly useful when input frequency is low, resulting in too slow an update rate (gate time), or for applications where signal amplitude is minimal because of low shaft speed or large pickup-to-gear gap.

**2-Year  
Warranty**

### FEATURES

- Standard SAE case fits engine panels with 3.37 inch (8.6 centimeter) openings.
- Highly shock and vibration resistant. Gasketed and spray-proof.
- Universal: Can be field-calibrated for any number of pulses per revolution from the sensor.
- Ideal for OEM use. Can be paralleled with governors and/or speed switches.
- High immunity to electrical noise.
- Display contrast increases with increasing ambient light; ideal for both indoor and outdoor installation. Units are also available in lighted versions (LST-100L or LST-108L).
- The pulse rate multiplier increases input frequency which permits calibration at a much shorter gate time.
- Tachometer can be factory configured for different input types i.e. TTL, CMOS, magnetic pickups, etc. Specify which type when ordering.

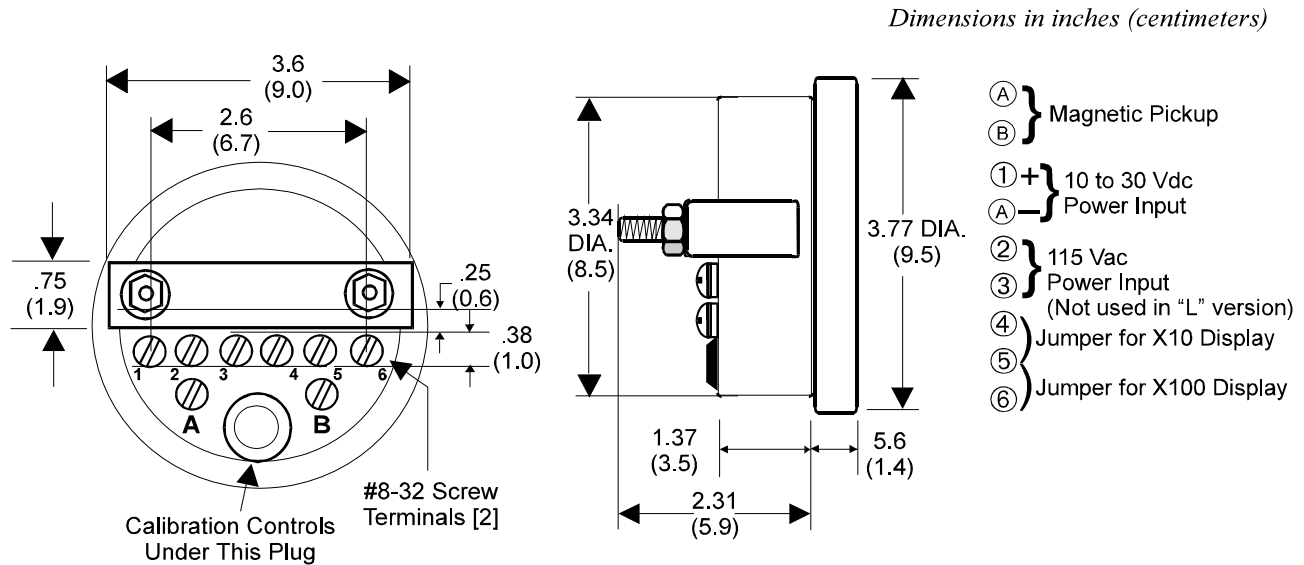


### SPECIFICATIONS

- **Power Requirement:** 10 to 30 Vdc or 115 Vac  $\pm 10\%$ , 50/60 Hz, 8 mA typical. LST-100L and LST-108L are powered with 20 to 30 Vdc only.
- **Display:** 4 active digits (0 to 9999), non-blinking LCD display, character height of 0.5 inch (1.3 centimeters).
- **Input Signal Frequency:** Signal frequency up to 10,000 Hz, except contact closure.
- **Contact Closure Input Option:** 0-200 Hz.
- **Input Signal Voltage:** 25 mVrms sensitivity for the standard unit which accepts zero crossing waveforms from pickups, generators, and pulsers. Nominal input resistance of 10 k $\Omega$ . Maximum permissible signal 50 Vrms. TTL option accepts unidirectional positive pulses from 0 to +5 volts, up to 0 to +15 volts.
- **Signal Common:** Signal common is tied internally to the negative side of the dc supply.
- **Operating Environment:** (operating)  $-5^{\circ}\text{F}$  to  $+175^{\circ}\text{F}$  ( $-20^{\circ}\text{C}$  to  $+80^{\circ}\text{C}$ ); (storage)  $-40^{\circ}\text{F}$  to  $+195^{\circ}\text{F}$  ( $-40^{\circ}\text{C}$  to  $+90^{\circ}\text{C}$ ).

- **Accuracy:** 1 RPM resolution, within  $\pm 0.5\%$  ( $\pm 0.1\%$  typical at room ambient) under all combined environmental conditions.
- **Gate Time Adjust:** Gate time is set by selecting one of four ranges on a switch and by a 25-turn vernier control potentiometer. Both controls are accessible from the back of the tachometer through a plugged hole.
- **Gate time ranges (LST-100 & 100L):**  
(1) 0.26–0.72; (2) 0.72–1.43; (3) 1.43–2.8; (4) 2.85–5.70.
- **Gate time ranges (LST-108 & 108L):**  
(1) 0.13–0.36; (2) 0.36–0.72; (3) 0.72–1.43; (4) 1.43–2.85.
- **Recommended Magnetic Pickups:** Dynalco Controls magnetic pickup M102 is used with the LST-100 Series in most applications. For very low speed applications the Dynalco Controls ultrahigh sensitivity M142 and the zero-velocity M910 are recommended. Refer to the Dynalco Controls Magnetic Pickups Brochure for a description of these and other pickups.
- **Weight:** 0.8 pounds (0.36 kg)

## OUTLINE AND CONNECTION DRAWING



# LST-100 Series

**DYNALCO**  
CONTROLS

## Digital Tachometer

*The LST-100™ Series features a field-selectable pulse rate multiplier that can increase signal pulse rate by a factor of 10 or 100. The units are particularly useful when input frequency is low, resulting in too slow an update rate (gate time), or for applications where signal amplitude is minimal because of low shaft speed or large pickup-to-gear gap.*

### 2-Year Warranty

#### Features

- Standard SAE case fits engine panels with 3.37 inch (8.6 centimeter) openings.
- Highly shock and vibration resistant. Gasketed and spray-proof.
- Universal: Can be field-calibrated for any number of pulses per revolution from the sensor.
- Ideal for OEM use. Can be paralleled with governors and/or speed switches.
- High immunity to electrical noise.
- Display contrast increases with increasing ambient light; ideal for both indoor and outdoor installation. Units are also available in lighted versions (LST-100L or LST-108L).
- The pulse rate multiplier increases input frequency which permits calibration at a much shorter gate time.
- Tachometer can be factory configured for different input types i.e. TTL, CMOS, magnetic pickups, etc. Specify which type when ordering.



#### Specifications

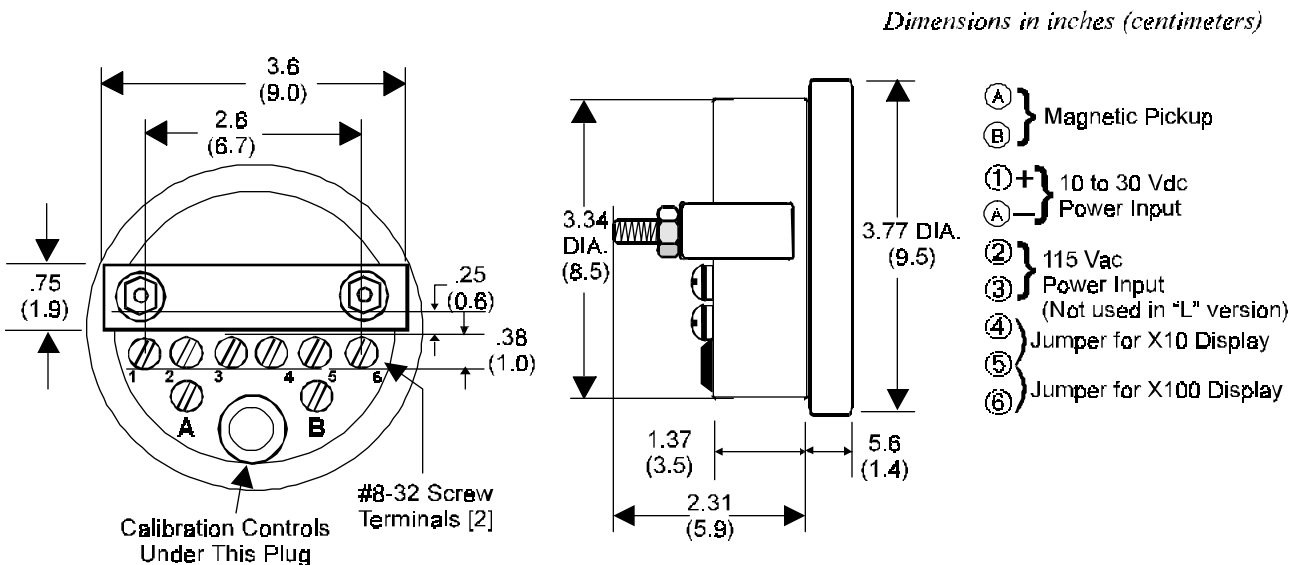
- **Power Requirement:** 10 to 30 Vdc or 115 Vac  $\pm 10\%$ , 50/60 Hz, 8 mAdc typical. LST-100L and LST-108L are powered with 20 to 30 Vdc only.
- **Display:** 4 active digits (0 to 9999), non-blinking LCD display, character height of 0.5 inch (1.3 centimeters).
- **Input Signal Frequency:** Signal frequency up to 10,000 Hz, except contact closure.
- **Contact Closure Input Option:** 0-200 Hz.
- **Input Signal Voltage:** 25 mVrms sensitivity for the standard unit which accepts zero crossing waveforms from pickups, generators, and pulsers. Nominal input resistance of 10 k $\Omega$ . Maximum permissible signal 50 Vrms. TTL option accepts unidirectional positive pulses from 0 to +5 volts, up to 0 to +15 volts.
- **Signal Common:** Signal common is tied internally to the negative side of the dc supply.
- **Operating Environment:** (operating)  $-5^{\circ}\text{F}$  to  $+175^{\circ}\text{F}$  ( $-20^{\circ}\text{C}$  to  $+80^{\circ}\text{C}$ ); (storage)  $-40^{\circ}\text{F}$  to  $+195^{\circ}\text{F}$  ( $-40^{\circ}\text{C}$  to  $+90^{\circ}\text{C}$ ).

- **Accuracy:** 1 RPM resolution, within  $\pm 0.5\%$  ( $\pm 0.1\%$  typical at room ambient) under all combined environmental conditions.
- **Gate Time Adjust:** Gate time is set by selecting one of four ranges on a switch and by a 25-turn vernier control potentiometer. Both controls are accessible from the back of the tachometer through a plugged hole.
- **Gate time ranges (LST-100 & 100L):**  
(1) 0.26–0.72; (2) 0.72–1.43; (3) 1.43–2.8; (4) 2.85–5.70.
- **Gate time ranges (LST-108 & 108L):**  
(1) 0.13–0.36; (2) 0.36–0.72; (3) 0.72–1.43; (4) 1.43–2.85.
- **Recommended Magnetic Pickups:** Dynalco Controls magnetic pickup M102 is used with the LST-100 Series in most applications. For very low speed applications the Dynalco Controls ultrahigh sensitivity M142 and the zero-velocity M910 are recommended. Refer to the Dynalco Controls Magnetic Pickups Brochure for a description of these and other pickups.
- **Weight:** 0.8 pounds (0.36 kg)

### How to Order

- Specify the LST-100 or the LST-108. Refer to gate time ranges when ordering the LST-100 or LST-108. Unit also available in the LST-100L and LST-108L (lighted version). (XP Enclosure available through the factory).
- Specify the LST-100-1 for use with magnetic pickups, ac generators, and other zero-crossing waveform generators.
- Specify the LST-100-2 for use with signal sources with unidirectional positive output pulses such as TTL, CMOS, Dynalco Controls PG-278, M910 pickup, etc.
- Specify the LST-100-3 for contact closure input.

## Outline and Connection Drawings



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**CONTROLS**

LST-100 Series and LST-108 Series are trademarks of Dynalco Controls.  
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FOR COMPLETE SPECIFICATION INFORMATION, CONTACT A DYNALCO REPRESENTATIVE.

# MTH-103D

## Tachometer/ Hourmeter/Trip

The MTH-103D™ is a microprocessor-based 5-digit tachometer, hourmeter. The trip can be programmed to activate on overspeed, underspeed (Class C), or hours. Unit may be pickup-powered or DC-powered.

### 2-Year Warranty

#### FEATURES

- Selectable Overspeed Trip Response: set for instantaneous RPM, average RPM, Class-C underspeed, or hours.
- Both signal and power may be derived from magnetic pickup.
- High accuracy: 5-digit display, 1 rpm resolution, 100,000 hour range.
- Universal: Can be field-calibrated like a digital watch (with the single push button) for any number of pulses per revolution, for trip point value, and for preset/reset hours.
- Displays speed, hours, and the setpoint on command.
- Fast overspeed reaction time of 0.1 second (above 20 Hz input) is independent of sensing gear teeth.
- Display contrast increases with increasing ambient light. Ideal for both indoor and outdoor installations.
- Standard SAE case size fits engine panels with 3-3/8" openings.
- High shock and vibration resistance. Gasketed and spray proof.
- Highly resistant to electrical noise.



#### SPECIFICATIONS

**Power:** Magnetic pickup or 9-30 Vdc.

**Display:** 5 active digits (0 to 99999), non-blinking liquid crystal display (LCD), 0.4" character height.

**Input Signal Frequency:** From 10 to 13,000 Hz.

**Input Signal Voltage (when powered from):**

**A.** Magnetic pickups - Minimum signal amplitude is 4.0 Vrms. Maximum permissible signal is 15 Vrms: the MTH-103D automatically limits pickup signals at approximately 10 volts peak-to-peak.

**B.** DC — Nominal 1.5 Vrms signal sensitivity.

**Tachometer Accuracy:** Quartz crystal-controlled, 1 rpm resolution, within 0.2% under all combined environmental conditions.

**Hourmeter:** 100,000-hour range (99,999), 1-hour increments. Display is visible and time accumulates only when the signal is applied to terminals A and B.

**Trip:** Setpoint value is field-settable directly in rpm or hours (count up or down). Normally open solid-state contacts at terminals 5(+) and 6(-) close on trip. Reaction time of 0.1 seconds. Maximum continuous contact rating of 0.15 amps, 400 Vdc.

**Trip Accuracy:**  $\pm 1$  unit, maximum.

**Hourmeter Accuracy:** 0.2% of reading. Retains count in memory when signal or power is removed.



## SPECIFICATIONS

**Isolated Circuit:** All circuitry is totally floating, isolated, and insulated from the case and from ground.

**Environment Temperature:**

Operating: -5°F to +175°F (-20°C to +79°C)

Storage: -40°F to +195°F (-40°C to +90°C)

**Vibration:** Mil. Std. 810C, Method 514.2, Curve P, to 500 Hz.

**Weight:** 1.0 lb (0.45 kg)

**Magnetic Pickups:** Dynalco magnetic pickups M204, M205, M207 and M208 are recommended with the MTH-103D in applications where the pickup is being used for power.

When dc-power is used either the M201, M202, M203, M233, M102 or M142 or equivalent are recommended. Refer to Dynalco Magnetic Pickup brochure for various types and characteristics.

## CSA CERTIFICATION (based on application)

**Class I, Division 1, Group A, B, C, and D\***

**Class I, Division 2, Group A, B, C, and D\***

### When Pickup Powered:

Dynalco magnetic pickup M204, M205, M207, or M208 must be used.

**Class I, Division 1, Group A, B, C, and D —**

When using the trip output of the MTH-103D, a CSA-certified Zener barrier must be used.

**Class I, Division 2, Group A, B, C, and D —**

No Zener barrier required for the trip output.

### When 9-36 Vdc Powered:

Dynalco magnetic pickup M201, M202, M203, or M233 must be used to provide the speed signal.

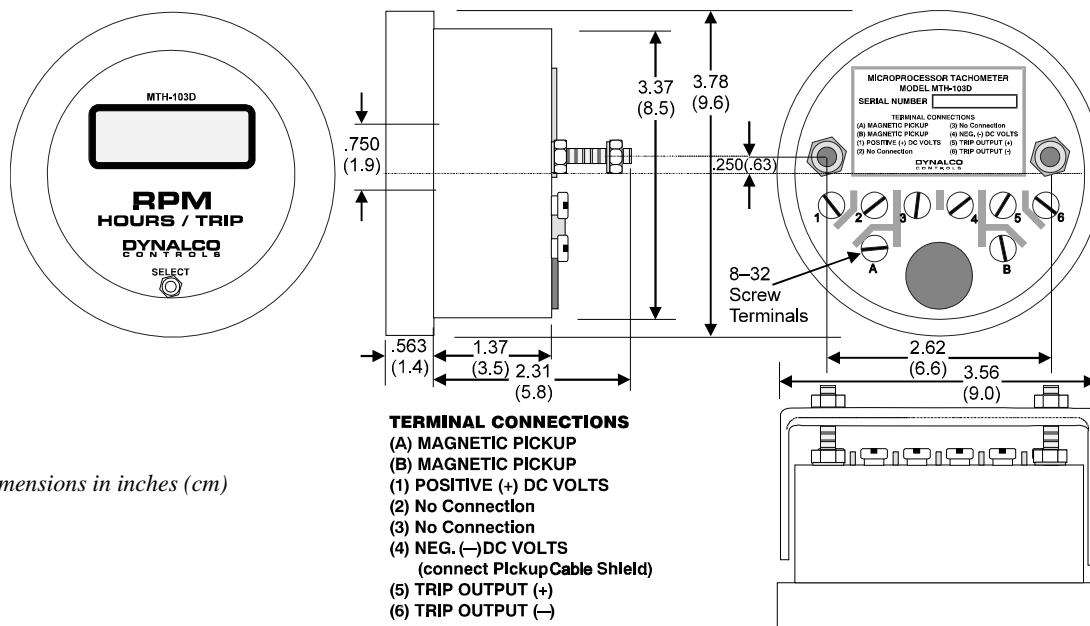
**Class I, Division 1, Group A, B, C, and D —**

Certification is contingent on powering the MTH-103D through a CSA-certified Zener barrier. When using the trip output of the MTH-103D, it must also be connected through a CSA-certified Zener barrier.

**Class I, Division 2, Group A, B, C, and D —**

No Zener barriers required.

## OUTLINE DRAWING AND CONNECTIONS



# DYNALCO

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# SPD-100

## Signal-Powered Digital Tachometer



### FEATURES

- Signal and power derived totally from magnetic pickup or pulser.
- Intrinsically safe. Can be used in hazardous environments with approved Dynalco pickups. (See THIRDPARTY APPROVALS, next page.)
- No power supply connections. High immunity to electrical noise.
- Can be field-calibrated.
- High accuracy: 1 rpm resolution.
- High shock and vibration resistance.
- Standard SAE case size fits panels with 3-3/8 inch (86 mm) openings.
- Gasketed and spray-proof.
- 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.

**2-Year  
Warranty**

#### \*THIRD PARTY APPROVALS

##### SPD-100 and SPD-108



LR45322

*Canadian Standards Association (CSA): 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, and M233.*

##### SPD-100 Only

*American Bureau of Shipping: type approval for use in classed vessels.*



## SPECIFICATIONS

### External Power Requirements:

All models are signal-powered. Lighted versions: 12 or 24 Vdc, depending on model.

### Display:

Four active digits (0 to 9999), non-blinking LCD display; character height of 0.5 inches (14 mm). Display contrast increases with increasing ambient light.

### Input Valve 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  $\Omega$  in series with a 6 volt Zener diode.

### 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.

### Operating Temperature Range:

-5°F to +175°F (-20°C to +80°C).

### Storage:

-40°F to +195°F (-40°C to +90°C).

**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:

One rpm resolution; within 0.5% (0.1% typical at room ambient) under all combined environmental conditions.

### Gate Time Ranges:

**SPD-100 Series :** field-selectable from 0.26 to 5.7 seconds.

**SPD-108 Series:** field-selectable from 0.13 to 2.85 seconds.

This accommodates calibrations for an extremely broad range of corresponding pulses per second.

### Magnetic Pickups:

Dynalco Magnetic Pickups M102 and M107 are used with the SPD-100 Series 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 Controls offers various models, with the M202 and M134 the most frequently used.

**Weight:** 1 lb (0.45 kg)

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**DYNALCO**

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## Signal-Powered Digital Tachometer

**2-Year  
Warranty**

### FEATURES

- Signal and power derived totally from magnetic pickup or pulser.
- Intrinsically safe. Can be used in hazardous environments with approved Dynalco pickups. (See THIRD PARTY APPROVALS, next page.)
- No power supply connections. High immunity to electrical noise.
- Can be field-calibrated.
- High accuracy: 1 rpm resolution.
- High shock and vibration resistance.
- Standard SAE case size fits panels with 3-3/8 inch (86 mm) openings.
- Gasketed and spray-proof.
- 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.



#### \*THIRD PARTY APPROVALS

##### SPD-100 and SPD-108



LR45322

*Canadian Standards Association (CSA): 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, and M233.*

##### SPD-100 Only

*American Bureau of Shipping: type approval for use in classed vessels.*

## **SPECIFICATIONS**

### **EXTERNAL POWER REQUIREMENTS**

All models are signal-powered. Lighted versions: 12 or 24 Vdc, depending on model.

### **DISPLAY**

Four active digits (0 to 9999), non-blinking LCD display; character height of 0.5 inches (14 mm). Display contrast increases with increasing ambient light.

### **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  $\Omega$  in series with a 6 volt Zener diode.

### **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:**

–5°F to +175°F (–20°C to +80°C).

#### **Storage:**

–40°F to +195°F (–40°C to +90°C).

### **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**

One rpm resolution; within 0.5% (0.1% typical at room ambient) under all combined environmental conditions.

### **GATE TIME RANGES**

**SPD-100 Series** : field-selectable from 0.26 to 5.7 seconds.

**SPD-108 Series**: field-selectable from 0.13 to 2.85 seconds.

This accommodates calibrations for an extremely broad range of corresponding pulses per second.

### **MAGNETIC PICKUPS**

Dynalco Magnetic Pickups M102 and M107 are used with the SPD-100 Series 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 Controls offers various models, with the M202 and M134 the most frequently used.

### **WEIGHT**

1 lb (0.45 kg)

## DC or Pickup-Powered Digital Temperature Gauge

*Standard RTD or thermocouple input indicates temperature of power cylinders, coolant, turbochargers, compressor discharge, lubricant, valves. Excellent for process control, instrumentation, textile, machine tool, and food processing.*

### **2-Year Warranty**

#### **Features**

- Grounded or ungrounded thermocouples; 2-wire RTDs.
- Thermocouples: standard J, K, T, and E; RTDs: platinum, nickel, and copper.
- Rugged: all solid-state. No meter movement.
- Sealed: Resistant to sour gas that attacks internal workings in analog meter movements.
- Lighted version: solid-state illumination.
- Standard SAE case size fits engine panels with 3-3/8 inches (~85.7 mm) openings.
- Large 0.5 in. high LCD digits. Display contrast increases with increasing ambient light: ideal for outdoor installations.
- Power from 8–40 Vdc or magnetic pickup.
- Highly resistive to electrical noise and supply spikes.



#### **Specifications**

**Display:** 3½ digits (–1999 to +1999), liquid crystal display (LCD). Brightness increases with ambient light. No outdoors fade-out. 1 degree increments.

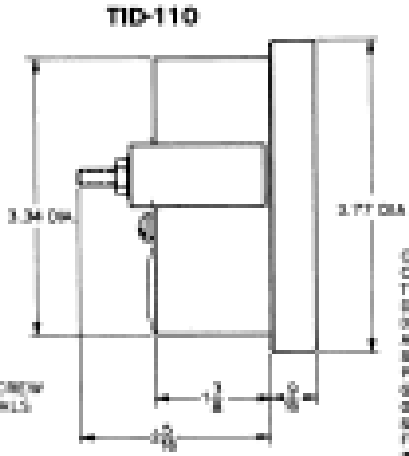
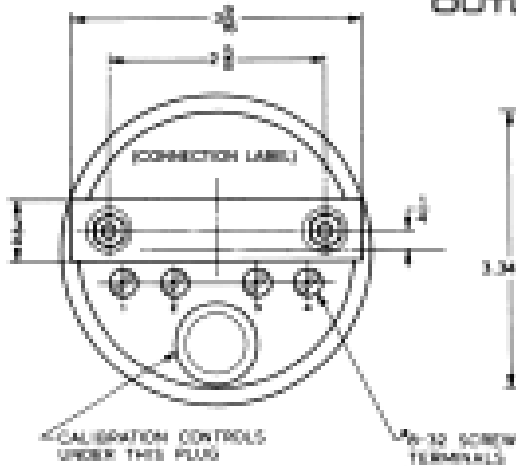
**Environment temperature:** *Operating:* –5°F to +175°F (–20°C to +70°C). **Storage:** –40°F to +195°F (–40°C to +91°C). 0.25% maximum effect on readout with 50°F (28°C) change in ambient temperature.

**Sensors:** *Thermocouples:* integral cold junction compensation; thermocouple extension wire resistance of up to 100 ohms introduces less than 1° error. **RTDs:** two-wire only, with heavy copper extension leads to minimize error, i.e., #16 AWG for up to 50 feet; #14 to 100 feet, for platinum or nickel; #8 AWG for up to 25 feet for 10 ohm copper. **Burned out thermocouple or open RTD indicated by a “1” in the thousands column with all other digits blanked.**

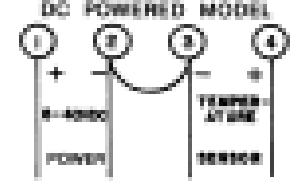
**Power:** *DC-powered units:* 8 to 40 Vdc. *Typical current consumption:* 1 mA at 12 Vdc; 4 mA at 24 Vdc; 6 mA at 32 Vdc. *Lighted units:* 20 to 30 Vdc; 25 mA at 28 Vdc, nominal. **Magnetic pickup-power units:** require a minimum of 2.5 Vrms pickup signal, and cannot be lighted.

**Weight:** <1 lb (<0.45 kg)

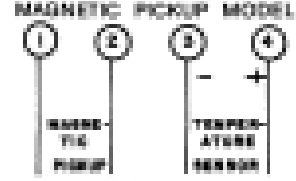
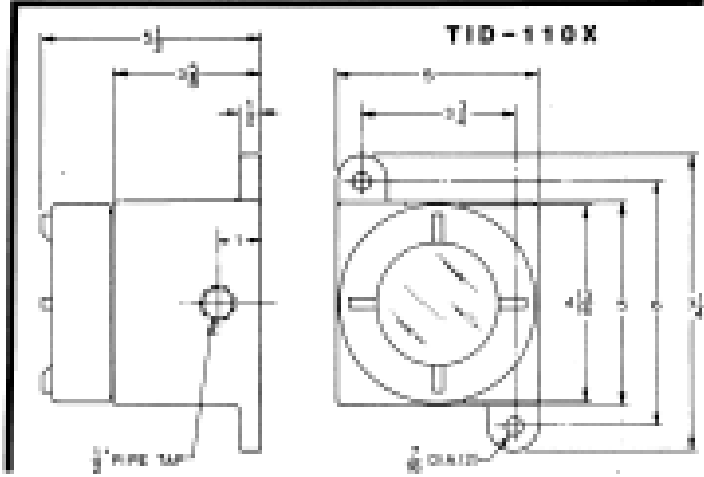
**OUTLINE DRAWINGS**



**ELECTRICAL CONNECTIONS**



CAUTION: CONNECT TEMPERATURE SENSOR ONLY TO TERMINALS 4+ AND 3--. CONNECT 2 TO 45 VDC POWER TO 1+ & 2--. FOR LIGHTED DISPLAY UNITS, SUPPLY 1% POWER WITH 20 TO 25 VDC ONLY. REMOVE THE EXTERNAL JUMPER ACROSS TERMINALS 2 AND 3 ONLY IF THERE IS SOME EXTERNAL DC PATH BETWEEN SIGNAL AND POWER, i.e. GROUND/ED THERMOCOUPLE 2 AND GROUND/ED DC SUPPLY OR BATTERY (BOTH GROUND/ED). RETAIN JUMPER FOR ALL RTD SENSORS FOR UNGROUND/ED THERMOCOUPLES AND FOR GROUND/ED THERMOCOUPLES WITH FLOAT/ING DC POWER.



CAUTION: DO NOT CONNECT DC OR AC POWER TO THIS INSTRUMENT. THIS UNIT IS MAGNETIC PICKUP POWERED. CONNECT TEMPERATURE SENSOR TO TERMINALS 4+ & 3--. CONNECT MAGNETIC PICKUP TO 1 AND 2. DO NOT USE ANY EXTERNAL JUMPER ON THIS INSTRUMENT IF THE MAGNETIC PICKUP OUTPUT IS FLOATING (UNGROUND/ED). THIS UNIT WILL ADJUST GROUND/ED OR UNGROUND/ED SENSORS IF THE MAGNETIC PICKUP OUTPUT IS GROUND/ED. i.e. SHARED WITH OTHER GROUND/ED INPUT AND FINE TUNE THEN USE ONLY UNGROUND/ED SENSORS.

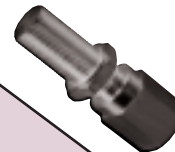
**SENSOR TYPE AND RANGE**

TYPE	SENSOR	TEMP RANGE	TYPE	SENSOR	TEMP RANGE	TYPE	SENSOR	TEMP RANGE
-11	J T/C	-50° to +1400°F	-16	T T/C	-45° to +400°C	-21	Ni RTD	-100° to +500°F
-12	J T/C	-45° to +760°C	-17	E T/C	-50° to +1800°F	-22	Ni RTD	-75° to +260°C
-13	K T/C	-50° to +1800°F	-18	E T/C	-45° to +980°C	-23	Cu RTD	-50° to +500°F
-14	K T/C	-45° to +980°C	-19	Pt RTD	-200° to +1200°F	-24	Cu RTD	-45° to +260°C
-15	T T/C	-50° to +750°F	-20	Pt RTD	-100° to +750°C			

**NOTES:** Pt RTD is 100 ohms at 0°C, 0.00392 ohms per ohm per 0°C, characteristic winding no. 11  
 Ni RTD is 120 ohms at 0°C, characteristic winding no. 7  
 Cu RTD is 10 ohms at 25°C, characteristic winding no. 15  
 Observe recommendations under "Specifications/Sensors"

# INTRINSICALLY SAFE MAGNETIC PICKUPS

## Power Source



Cross Section	Output Voltage Peak-to-Peak	Temperature	DC Resistance	Inductance	Output Polarity	Output Connector	Characteristic Curve Group	Figure No. To Use For Computing	Third Party Approved	Model No.
	15-17 Volts <sup>(4)</sup>	-65°F to +225°F	550-650 Ohms	260 mH Nominal	Pin B Positive	Mates With MS3106A-10SL-4S <sup>(1)</sup>	15	6	CSA <sup>(8)</sup>	M203
	15-17 Volts <sup>(4)</sup>	-65°F to +225°F	550-650 Ohms	260 mH Nominal	Pin B Positive	Mates With MS3106A-10SL-4S <sup>(1)</sup>	15	6	CSA <sup>(8)</sup>	M204
	15-17 Volts <sup>(4)</sup>	-65°F to +225°F	115-140 Ohms	37 mH Nominal	Pin B Positive	Mates With MS3106A-10SL-4S <sup>(1)</sup>	16	6	CSA <sup>(8)</sup>	M205
	15-17 Volts <sup>(10)</sup>	-65°F to +225°F	55-65 Ohms	4.5 mH	Pin B Positive	Mates With MS3106A-10SL-4S <sup>(1)</sup>	--	--	CSA <sup>(8)</sup>	M207
				18 mH						M208

- (1) A 10' shielded cable assembly with mating connector and clamp is available.
- (2) Tested at 1000 inches/sec. with a 20 pitch, 30 tooth gear, 0.005" clearance and 100,000 ohm load shunted by 250 picofarads.
- (3) Tested at 1000 inches/sec. with an 8 pitch, 12 tooth gear, 0.005" clearance and 100,000 ohm load.

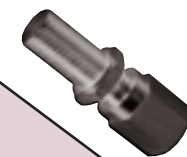
- (4) Tested at 1000 inches/sec. with an 8 pitch, 12 tooth gear, 0.005" clearance and 1250 ohm load shunted by 250 picofarads.
- (5) Tested at 25°C with 12 Vdc, 20 pitch, 30 tooth gear, 0.005" clearance and 100,000 ohm load. Voltage output is independent of speed.

- (6) Tested at 100 inches/sec. with an 8 pitch gear, 0.005" clearance and 100,000 ohm load.
- (7) Tested at 50 inches/sec. with a 16 pitch gear, 0.005" clearance and 100,000 ohm load.
- (8) Only as part of CSA certified system/assembly.
- (9) Usable with any instrumentation.
- (10) Tested at 1000 inches/sec. with a 6 pitch gear, 0.005" clearance and 100,000 ohm load.



# ACTIVE MAGNETIC PICKUPS

## Hall Effect



Cross Section	Power Supply	Temperature	Sensed Frequency	Insulation Resistance	Housing	Output Connector/Output Leads	Pull-up Resistor	Third Party Approved	Model No.
	4.5 to 24 Vdc	-40°F to +250°F	0 to 30 KHz	100 M Ω Min. @ 50 Vdc (Pin A to Housing)	303 Stainless Steel	Mates With MS3106A-10SL-3S	2K Ohms	CSA <sup>(8)</sup>	<b>M801</b>
	4.5 to 24 Vdc	-40°F to +250°F	0 to 30 KHz	100 M Ω Min. @ 50 Vdc (Black Lead to Housing)	303 Stainless Steel	Output Leads AWG #22 (Shielded Cable)	2K Ohms	CSA <sup>(8)</sup>	<b>M802</b>
	4.5 to 24 Vdc	-13°F to +250°F	0 to 12 KHz	100 M Ω Min. @ 50 Vdc (Pin C to Housing)	303 Stainless Steel	Mates With MS3106A-10SL-3S	4.7K Ohms	--	<b>M805</b>

### Output Voltage

**M801, M802** TTL compatible, switches from high to low with south pole flux.  
Logic 0: +0.4V peak maximum with 20 mA sink current.  
Logic 1:  $R_L \times E_S / R_L + 2 K\Omega$

**M805** TTL compatible, switches from low to high with approach of disk hole.  
Logic 0: +0.4V peak maximum with 25 mA sink current.  
Logic 1:  $R_L \times E_S / R_L + 4.7 K\Omega$

### Power Supply Current

**M801, M802** 20 mA typical with 24 Vdc power supply.  
**M805** 15 mA maximum.

### Recommended Air Gap

**M801, M802** 0.062 inch typical with HTM-801 target magnet.  
**M805** 0.035 inch maximum with Dynalco target disk.

**WARNING: INCORRECT WIRING MAY CAUSE PERMANENT DAMAGE TO PICKUP**

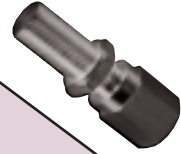
(1) A 10' shielded cable assembly with mating connector and clamp is available.  
(2) Tested at 1000 inches/sec. with a 20 pitch, 30 tooth gear, 0.005" clearance and 100,000 ohm load shunted by 250 picofarads.  
(3) Tested at 1000 inches/sec. with an 8 pitch, 12 tooth gear, 0.005" clearance and 100,000 ohm load.

(4) Tested at 1000 inches/sec. with an 8 pitch, 12 tooth gear, 0.005" clearance and 1250 ohm load shunted by 250 picofarads.  
(5) Tested at 25°C with 12 Vdc, 20 pitch, 30 tooth gear, 0.005" clearance and 100,000 ohm load. Voltage output is independent of speed.

(6) Tested at 100 inches/sec. with an 8 pitch gear, 0.005" clearance and 100,000 ohm load.  
(7) Tested at 50 inches/sec. with a 16 pitch gear, 0.005" clearance and 100,000 ohm load.  
(8) Only as part of CSA certified system/assembly.  
(9) Usable with any instrumentation.

# STANDARD MAGNETIC PICKUPS

Ultra High Sensitivity



Cross Section	Output Voltage Peak-to-Peak	Temperature	DC Resistance	Inductance	Output Polarity	Output Connector	Characteristic Curve Group	Figure No. To Use For Computing	Third Party Approved	Model No.	
	400-550 Volts <sup>(2)</sup>	-65°F to +225°F	1750-2250 Ohms	700 mH Nominal	Pin B Positive	Pin B Positive	Mates With MS3106A-10SL-4S <sup>(1)</sup>	10	4	--	M142
	400-550 Volts <sup>(2)</sup>	-65°F to +225°F	1750-2250 Ohms	700 mH Nominal	Pin B Positive	Pin B Positive	Mates With MS3106A-10SL-4S <sup>(1)</sup>	10	4	--	M185
	400-550 Volts <sup>(2)</sup>	-65°F to +225°F	1750-2250 Ohms	700 mH Nominal	Pin B Positive	Pin B Positive	Mates With MS3106A-10SL-4S <sup>(1)</sup>	10	4	--	M184

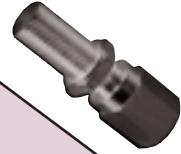
- (1) A 10' shielded cable assembly with mating connector and clamp is available.
- (2) Tested at 1000 inches/sec. with a 20 pitch, 30 tooth gear, 0.005" clearance and 100,000 ohm load shunted by 250 picofarads.
- (3) Tested at 1000 inches/sec. with an 8 pitch, 12 tooth gear, 0.005" clearance and 100,000 ohm load.

- (4) Tested at 1000 inches/sec. with an 8 pitch, 12 tooth gear, 0.005" clearance and 1250 ohm load shunted by 250 picofarads.
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# STANDARD MAGNETIC PICKUPS

Ultra  
High Sensitivity



Cross Section	Output Voltage Peak-to-Peak	Temperature	DC Resistance	Inductance	Output Polarity	Output Connector	Characteristic Curve Group	Figure No. To Use For Computing	Third Party Approved	Model No.
	400-550 Volts <sup>(2)</sup>	-65°F to + 225°F	1750-2250 Ohms	700 mH Nominal	Pin B Positive	Mates With MS3106A-10SL-4S <sup>(1)</sup>	10	4	--	M142
	400-550 Volts <sup>(2)</sup>	-65°F to + 225°F	1750-2250 Ohms	700 mH Nominal	Pin B Positive	Mates With MS3106A-10SL-4S <sup>(1)</sup>	10	4	--	M185
	400-550 Volts <sup>(2)</sup>	-65°F to + 225°F	1750-2250 Ohms	700 mH Nominal	Pin B Positive	Mates With MS3106A-10SL-4S <sup>(1)</sup>	10	4	--	M184

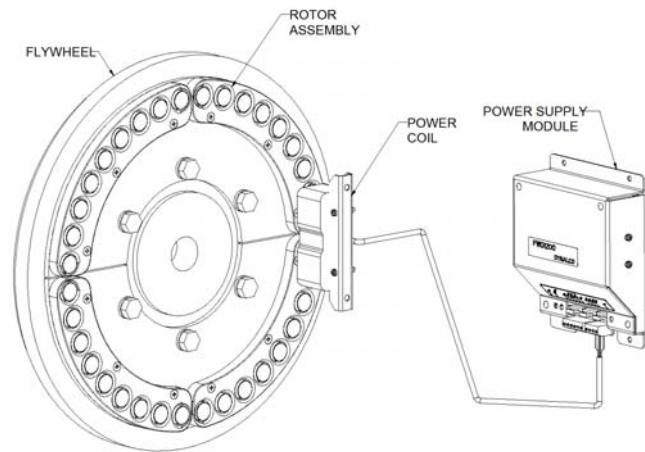
(1) A 10' shielded cable assembly with mating connector and clamp is available.  
 (2) Tested at 1000 inches/sec. with a 20 pitch, 30 tooth gear, 0.005" clearance and 100,000 ohm load shunted by 250 picofarads.  
 (3) Tested at 1000 inches/sec. with an 8 pitch, 12 tooth gear, 0.005" clearance and 100,000 ohm load.

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 (7) Tested at 50 inches/sec. with a 16 pitch gear, 0.005" clearance and 100,000 ohm load.  
 (8) Only as part of CSA certified system/assembly.  
 (9) Usable with any instrumentation.

# **DYNA-GEN™**

## **Flywheel Generator System**



- **Reliable 12 VDC Power Source – No bearings or belts to wear out**
- **Provides 8 Amps Total Output (100 Watts Total Power)**
- **Engine Driven Power for Remote Locations**
- **Replaces Alternators**
- **CSA Class I, Div 2 Groups A, B, C & D approved**

*The **DYNA-GEN™** is ideal for skid mounted engine driven compressors and pumps operating in remote locations and hazardous areas.*

The **DYNA-GEN™** flywheel generator is capable of producing up to 8 Amps total @ regulated 12 VDC, providing power to start & run your engine and accessories while keeping the battery charged.

The **DYNA-GEN™** system consists of (3) components, the Rotor Assembly, Power Coil and Power Supply Module. The Rotor Assembly is designed to be mounted to the flywheel or crank shaft pulley of most gas or diesel engines. The power coil is mounted to oppose the rotor which produces power regulated by the power supply module.

## FEATURES

- No external power required
- No maintenance required - No parts to wear out
- Powers ignition, shutdown panel, AFR controls, scanner and other accessories
- Generates 8 Amps total at regulated 12 VDC from (2) outputs
  - Main Power output generates 6 Amps
  - Ignition Power output generates 2 Amps
- Integrated circuitry for battery charging
- Universal mounting plate for engine flywheel

## SPECIFICATIONS

### Operating Speed:

Engine Run Speed Range: 1200 – 2400 RPM  
Maximum Rated Speed: 2400 RPM

### Electrical:

Output Voltage: 12 VDC (regulated @ 13.65 VDC)

Output Current: 8 Amps Total from (2) Outputs as follows:

Ignition Output: 1.0 Amps available at 300 RPM  
1.4 Amps available at 500 RPM  
2.0 Amps available at 1000 – 2400 RPM

Main Output: 3.5 Amps available at 1000 RPM  
5.0 Amps available at 1500 RPM  
6.0 Amps available at 1800 RPM

### Mechanical:

Rotor outside diameter: 14.25 inches  
Rotor inside diameter: 6.00 inches (for drive shaft clearance)

### Environmental:

Operating Temperature Range: -40 to +70 C  
Power Supply Module designed to be mounted inside existing panel  
CSA Class I, Division 2, Groups A, B, C & D approved

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**CRANE**

**DYNALCO**

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