

Description

Mustang Dynamometer's MD-107-TACH is a tachometer with digital outputs, capable of interfacing with test, data acquisition, and measurement equipment. The MD-107-TACH measures engine speed (RPM) on gasoline, CNG, diesel, and other engines via a number of sensors. The MD-107-TACH can output logic-level pulses, or digital messages via CAN (MD-107-TACHC only) or RS-232 (MD-107-TACHR only). Bluetooth 2.1 and 5.0 communication capabilities are also optionally available (upon request).

The output interface, data format, and syntax can be re-configured by the end-user. These changes are effected by connecting the MD-107-TACH to a computer (via the USB interface) and editing the configuration text file stored in the MD-107-TACH's internal memory.

A number of different sensors can be used with the MD-107-TACH, all of which are connected via the BNC jack. The standard sensor is a clip-on capacitive pickup for use on secondary ignition circuits; inductive sensors for use on fuel injectors, primary ignition circuits, and secondary ignition circuits are also available.

A standard M12A-5 connector facilitates connection to data acquisition or test equipment. The MD-107-TACH is powered via this interface. The MD-107-TACHC is compatible with the DeviceNet (CANBUS) standard, and multiple units can be connected in parallel for simultaneous data capture. The MD-107-TACHR uses a serial interface (RS-232), and is intended for use in single-talker, single-listener applications.

General Specifications

Indicators:	One red LED for power and one green LED for input signal detection.
Engine cycle:	2-stroke, 4-stroke, or Wankel.
Engine type:	Internal combustion engines equipped with spark plug ignition systems and/or solenoid and piezoelectric type fuel injectors when using optional sensors.
Sensor input:	BNC jack connector.
Sensor (standard):	Capacitive (sensor) for use on high-voltage spark plug wires.
Sensor (optional):	Inductive (pickup) for use on high-voltage spark plug wires.
Sensor (optional):	Current transformer for spark ignition system primary circuits, and solenoid-type fuel injectors.
Digital interface/power:	M12A-5 connector (male).
USB Interface:	Micro-B connector.
Threaded insert:	M3 x 5 mm thread.
Dimensions:	4.8" x 2.4" x 1.2" (122 x 61 x 30 mm).
Weight:	Approximately 3 oz. or 85 g
Included accessories:	Clip-on spark plug wire sensor with 83.5" (212 cm) coaxial cable, padded hard carrying case, and datasheet.

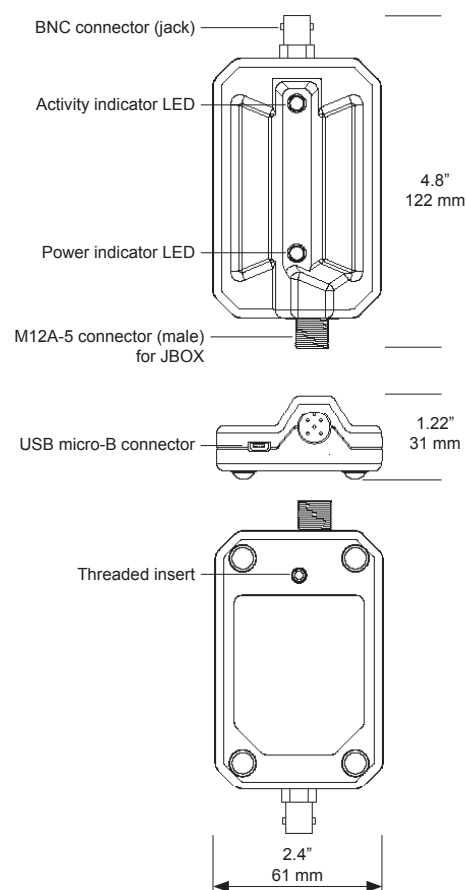


Features/Benefits

MD-107-TACH tachometer advantages:

- New and improved
- More accurate
- Compatible with JBOX and SMARTACH equipped systems (specify which at order)
- Replaces inductive RPM pick-ups

Visit MustangDyne.com or contact Sales@MustangDyne.com to find out more about Mustang Dynamometer's MD-107-TACH tachometer.



SPECIFICATIONS

MD-107-TACH

Electrical Specifications

Connector	Connections	Recommended Operating Conditions	Absolute Maximum Ratings*
M12A-5	Pin 2 (Power) to Pin 3 (Ground)	5 to 48 VDC	± 60 VDC
M12A-5	Pin 1 (Pulse output) to Pin 3 (Ground)	16 mA (source) to -8 mA (sink)	± 32 mA
M12A-5 (MD-107-TACHC)	Between Pin 4 (CAN_H), Pin 5 (CAN_L) and Pin 3 (Ground)	As specified in ISO 11898-2:2016 and ISO 11898-5:2007	± 58 V
M12A-5 (MD-107-TACHR)	Pin 4 (TX) to Pin 3 (Ground)	As specified in TIA/EIA-232-F and ITU V.28	± 13.2 V
M12A-5 (MD-107-TACHR)	Pin 5 (RX) to Pin 3 (Ground)		± 25 V
USB micro-B	Between Pins and All Pins and Ground	USB 2.x and USB 3.x compatible	+ 5.3 V / - 2.0 V
BNC	Between Pins	± 10 VRMS / ± 42 Vpeak	± 16 VRMS / ± 42 Vpeak

* Subjecting this device to conditions beyond those listed under Absolute Maximum Ratings may cause permanent damage to this device and/or connected equipment. These are maximum ratings only, which do not imply functional operation of the device at these or any other conditions beyond those indicated under Recommended Operating Conditions. Exposure to absolute maximum rated conditions for extended periods may affect device reliability.

Power Consumption

Connector	Input voltage [V]	Current Consumption [mA]	Condition
M12A-5 Pin 2 (Power) to Pin 3 (Ground)	5	42 mA	Outputs not connected
	12	18 mA	
	24	10 mA	
	36	8 mA	
USB micro-B	5	42 mA	Idle (no input or output signals)

* These are typical characteristics at 23°± 3°C (73°± 6°F) ambient temperature, with less than 75% relative humidity

Interface Characteristics

Interface type	Conditions	Interface Characteristics
Pulse	5 volt between Pin 2 and Pin 3 No load between Pin 1 and Pin 3	High level output: 4.8 V / Low level output: 0 V 2 ms (default) pulse width at high level output
CAN	M12A-5 (MD-107-TACHC)	ISO 11898-2:2016 (High-Speed CAN) CAN protocol versions 2.0A, B Active
RS-232	M12A-5 (MD-107-TACHR)	TIA/EIA-232-F and ITU V.28
USB	N/A	USB 2.1-compatible

Resolution

Output	Range	Resolution*
Pulse	300 to 20,000 RPM	One pulse per cycle
CAN	300 to 20,000 RPM	± 6.5 µs
RS-232	300 to 20,000 RPM	± 6.5 µs

* Resolution is specified at 23°± 3°C (73°± 6°F) ambient temperature, with less than 75% relative humidity.

Mustang Dynamometer

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