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RPM-8000-PRO

Sensor less Automotive RPM Measurement with LCD display and easy calibration

- **Independent of vehicle and engine type**
- **No sensor installation required**
- **Direct reading of RPM**
- **Wide dynamic range**
- **Analogue and digital output signals**
- **Small, lightweight, convenient**
- **Simple and accurate calibration**
- **Universal 12 - 42Vdc supply**

RPM-8000-PRO offers a discerning solution for automotive RPM measurement without an additional sensor: the practical instrument is simply connected via a standard jack to the cigarette lighter socket and the RPM is shown directly on the LCD display. You even have the choice to output the data as an analog voltage (1 Volt per 1000 rev/min) or as a digital pulse sequence (TTL). The smart measuring principle is based on an analysis of the ripple balance of the supply system, characteristic for all automotive alternators. The frequency of this ripple amounts to about 100 to 120 pulses per engine rotation and therefore delivers good dynamic measuring results.

Though the frequency is proportional to the engine RPM, it also depends on the gear transmission ratio from crankshaft/alternators and on the number of alternators poles and phases. This makes the calibration of the input signal to the actual measured RPM necessary. The latest version of the RPM-8000-PRO now offers two elegant options:

Internal calibration: The internal calibration assumes a steady engine RPM of 2000 rev/min, which can be monitored by the automotive tachometer. By pushing the “Cal. Int” button the calibration starts, whereby the instrument assigns the actual measured pulse frequency to speed “2000” and outputs the actual engine RPM to the LCD display.

External calibration (option): A laser RPM ”RPM-LASER-CAL” is needed for this option. A reflector tag is mounted on the crankshaft and scanned by laser beam. The TTL output of the laser instrument is connected via cable to the “Ext. Cal In.” input of the RPM-8000-PRO and delivers one pulse per rotation. By comparing the pulse sequence with the measured pulse frequency, the instrument calculates automatically the relationship between ripple balance and speed. Identical displays on laser and RPM-8000-PRO signal successful calibration (also shown by luminescent LED’s).

The measuring range of the analog output can be varied on demand via jumpers (e.g. to 0.5, 1.0 or 2.0 Volt per 1000 rev/min). The TTL output can also be scaled with a frequency factor of 1:8 or 1:16 – and therefore adapted to the resolution ability of attached measuring systems. For testing purposes, the number of pulses per revolution is indicated by pressing the yellow TTL button, independently of the digital output divider (TTL Div). The instrument saves the calculated calibration data in non-volatile memory until the next calibration.

Technical details:

Supply voltage	12-42 V dc
Power consumption	80 mA maximum
Analog output:	adjustable 0.5 V, 1 V or 2 V per 1000 rev/min **(must specify at order, standard is 1V)**
	max. delay 70 ms
	accuracy +/- 0.5 %
	output impedance 2 ohm 10 mA
Digital output:	frequency range approximately 500 Hz – 10 kHz
	set with frequency divider 1/1; 1/8; 1/16
	TTL level 0 and 4 V
	output impedance 130 ohm
	Max. delay 0.1 – 2 ms
	jitter 0.1 – 1 %
Synchronization frequency range:	800 Hz -2 kHz
Synchronization time	1 – 2 seconds
Calibration:	Internal: based on 2000 rev/min indicated on tachometer in vehicle.
	External: with laser and reflector tag on crankshaft.
Displays:	LCD screen 4 ½ position for engine speed-frequency or conversion factor frequency/engine speed
	LED red Power
	LED green Sync. OK
	LED yellow control of Yello button, “number of pulses per revolution”
	LED red Calibration OK
Rotary switch:	frequency divider 1/1, 1/8 or 1/16
Red button:	start internal calibration
Yellow button:	shows the number of pulses per revolution in the LED screen

RPM-8000-PRO in transport case with optional “RPM-LASER-CAL”

Connectors:	BNC for TTL output
	BNC for analog output
	BNC for external calibration input
	3 pole Tuchel for connecting to vehicle electrical distribution system through cable with connector for cigarette lighter
Dimensions:	150 x 75 x 40mm
Weight:	450g without connection cable
Material:	anodized aluminium
Operating temperature:	-5°C to +70°C
Storage temperature:	-20 to +80°C
Humidity:	20 – 80%
Vibrations:	5g military standard 810C curve C
Shock:	in all directions 100 g

Technical specifications are subject to change without notice!