

assemblad®

UNIVERSAL COUNTER RPM-405



OPERATING MANUAL



Note:

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1 NORMS AND GENERAL WARNINGS

The RPM-405 is an Universal vibration RPM device for automotive engines, 2 and 4 strokes from 1 to 12 cylinders.

Please read carefully this manual before operating on the equipment and follow the instructions when doing any action on it, in particular when doing maintenance procedures.

Open the equipment only when explicitly indicated and after switching off its powering. Then, at the end of operations, close it restoring its original conditions, in particular the casing and the flap door, before switching on it again.

The manufacturer disclaims any responsibility for any kind of event arising from a improper use of the equipment or for a procedure not explicitly described on this manual. In any case, the responsibility is limited to the repair of the instrument.

For more detailed information please read the chapter "Warranty".

The equipment performs measures in conformity with the Italian Ministerial Decree of law n. 628 of 23/10/1996 and following modifications as Circular n. 88/95 of 6/9/1999

1.1 NOTE FOR THE USERS



The symbol of a "crossed" urban trash-bin is stamped on the equipment or on its box and it means that the product must be disposed into the appropriate collecting facility at the end of its life.

The disposal of the equipment will be managed by the producer. The user shall contact the producer and follow the method that has been implemented for collecting the appliance at the end of its life.

A correct waste disposal of the appliance and its subsequent treatment contributes to avoid serious environmental and health damages and allow the recycling of materials used into the equipment.

An incorrect waste disposal of the product is subject to administrative sanctions.

In accordance with art. 13 – D.L. 25 July 2005 – n. 151 for the Actuation of European Directives 2002/95/CE, 2002/96/CE and 2003/108/CE, related to reduction of dangerous substances in the electric appliance and to the waste disposal (RoHS RAEE).

2 TECHNICAL DATA

MEASUREMENT RANGE

RPM	300	÷	9990 giri/1'	Res.	1 rpm / 1'
Oil Temperature	20	÷	200 °C	Res.	1 °C

OPERATING FEATURES

Power supply	- from 10 to 28 Volt DC (vehicle battery)
Consumption	- 0,5 A DC
Size	- 100 x 200 x 56 mm
Weight	- 0,5 Kg circa

DISPLAY - LED - KEYBOARD

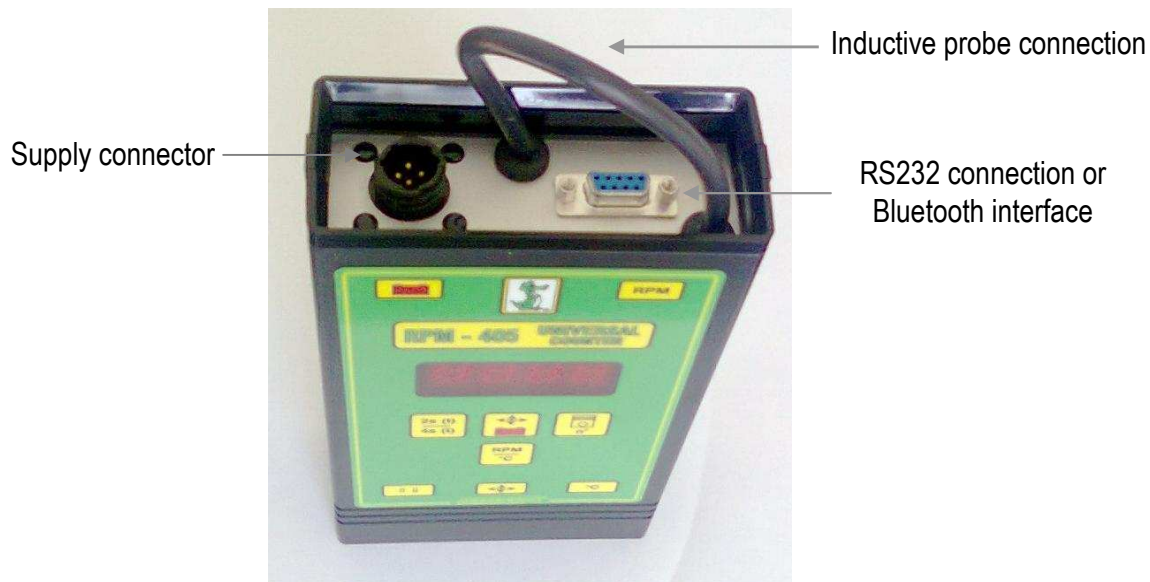
N. 4 LED Display – Red color.
N. 4 Keys.

SERIAL INTERFACE

RS-232 standard - 9 pins, 9600 baud, 8 bit, no parity, 1 stop bit.

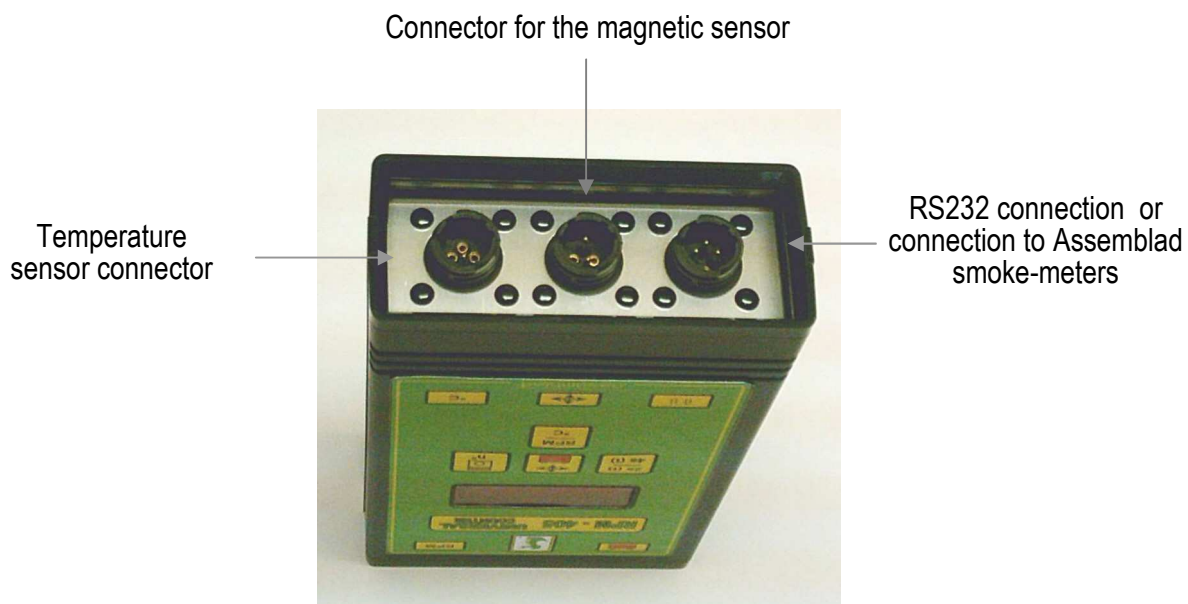
3 DESCRIPTION

3.1 UPPER PANEL



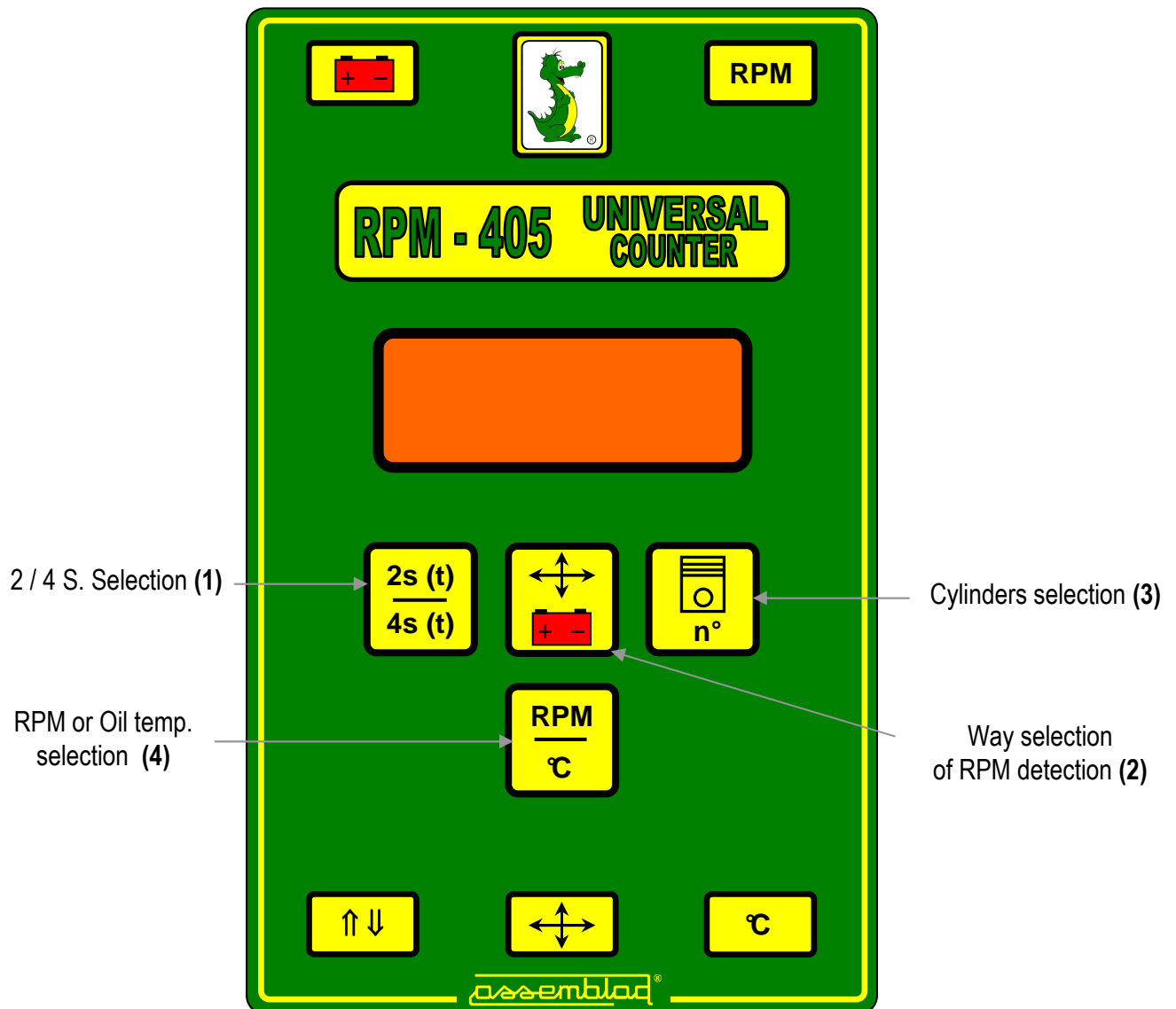
RPM-405 Upper panel

3.2 LOWER PANEL



RPM-405 Lower panel

3.3 KEYBOARD



3.4 ACCESSORIES

STANDARD ACCESSORIES

- 1) Magnetic sensor with cable
- 2) Power supply cable
- 3) RS232 serial cable

OPZIONAL ACCESSORIES

- 1) Cable to connect the Assemblad smokemeters
- 2) Universal out signal cable
- 3) Oil temperature probe
- 4) Bluetooth
- 5) Battery Pack

4 INSTALLATION

The installation is very simple and can be executed by the operator.

4.1 TRANSPORT AND INSTALLATION

Due to the reduced dimensions of instrument, the transport can be executed also manually; pay attention particularly to avoid any hits and falls: the eventual damages deriving from these causes are not covered by the guarantee.

It is suggested to conserve the packing for possible shipments of the apparatus for periodic calibration, technical attendance, etc.

Connect cables in equipment to the respective connectors on the instrument.

4.2 POWER UP

To power up the RPM-405 it is necessary to connect the two tweezers of the cable of feeding to the poles of the battery on the vehicle in test. The instrument remains ignited until the logoff.

5 OPERATION

5.1 WARNINGS AND PRECAUTIONS

- ❖ Verify that the tension of the battery of the vehicle is that one prescribed in the technical characteristics.
- ❖ Do not put the magnetic probe in particularly warm places of the motor (es. exhaust manifolds)
- ❖ Not remove the systems of protection and/or emergency from the equipment, not to bring modifications to the aim of increase the use or the performances.
- ❖ Not leave for too long time the instruments under tension; interrupt the feeding if an immediate use is not previewed.
- ❖ Pay attention to the DANGER or ATTENTION when operating on the motor .
- ❖ Protect face, hands and feet with adapted apparel, to avoid contacts with the superficial warmth which candles, radiators, pipes of the cooling system. The catalytic stock-pots catch up the highest temperatures, can cause to burn or fires. Not smoke and not use free flames when work on the motor .
- ❖ In the vehicles the cooling fan is independently active also when the engine is off: be careful in on operating near the fan.

5.2 POWER UP OF THE INSTRUMENT

Connect the cable of feeding to the battery of the vehicle. The instrument will be power-up automatically.

5.3 STANDARD MEASURE

Place the magnetic sensor on the motor block of the testing vehicle and wait for the display not indicating U blinkings and starting to mark the rates.

If the rates are not regular, or the visual display unit passes from the phase of reading to that one of calculation and viceversa, move the sensor in a point where it will have a more regular vibration.

In the case the vibration sensor doesn't work or it is not possible to find a point where to place, it's possible to switch to battery: for reading the battery impulses press key (2).

Pressing this key the display will indicate on the left the number of strokes and the right the number of cylinders and one small under-line nearby the display of the cylinders.

Pressing for some seconds key (2) it starts the phase of search indicated from "----", after approximately 10 seconds the value of rates will be visualize.

N.B. This procedure must be executed with not accelerated engine, in some cases it is recommended to switch on the lights of the vehicle in order to receive in regular way the impulses of the battery.

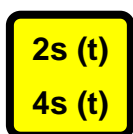
In order to return to the reading with magnetic sensor it will be enough to press key (2), in this way the display will indicate on the left the number of the strokes and on the right the number of the cylinders and an under-line near the display of the strokes.

If the magnetic sensor is not used it is suggested to disconnect from the instrument.

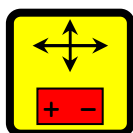
6 ORDINARY MAINTENANCE

For the RPM-405 does not demand any operation of ordinary maintenance.

7 ACTIVATIONS FROM KEYBOARD



The selection key determines the number 2 or 4 strokes.



The key turns the modality from the reading with magnetic sensor to the reading from the impulses battery.



The selection key cylinders determines the number 1,2,3,4,5,6,8,10,12 cylinders, every pressure of the key determines the variation.



The visualization key allows to pass from the reading of the turns to the reading of the temperature value.

8 WARRANTY

This device was built with care and carefully inspected before it left the factory. It is guaranteed for one year from the date of purchase by the final user.

To enjoy full rights under this warranty and avoid the risk of invalidation, you must mail a copy of the Warranty Certificate to the factory within 10 days of the purchase date.

The warranty covers all defects in materials.

The warranty does not cover: wiring, probes, the remote control unit and the accessories. These items are subject to wear and their efficiency depends on how they are handled.

The warranty does not cover damage caused by accidents, impact or dropping the instrument, or by negligence, improper use, non-compliance with the instructions and improper storage.

If the device has such defects as to require technical service, you must return it to Assemblad or an authorized service center. Shipping charges shall be covered by the customer.

ASSEMBLAD, even supplying support on demand for the first installation of the equipment, disclaims any liability for damages and injuries caused, even to third parties, by an improper installation, maintenance, defective or unsafe electrical connections. Further, ASSEMBLAD disclaims any claim for damages from anyone due to a miss utilization of the equipment for any reason.

The warranty shall immediately become invalid if the device shows any signs of tampering.

The exclusive court of jurisdiction for any disputes arising from the application and/or interpretation of this warranty is the Court of Florence (Italy).

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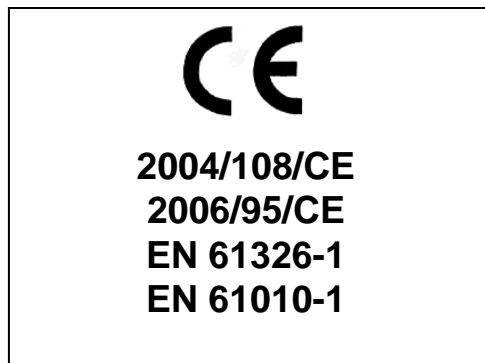
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