

# ***uRevCo***

*Universal Revolution Counter*

[www.urevco.com](http://www.urevco.com)

## **MT-EMB**

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## **General Description**

uRevCo is a device that allows to convert a mechanical tachometer into an electric one or anyway to replace a damaged tachometer movement though keeping its original shell, dial and hand.

It can be placed on vehicles with electric ignition 4-stroke engine provided with contacts, converted with magnetic or electro-optical transducer (eg. Petronix) or with transistor electronic ignition (automatic dwell control).

It fits also ignition/ECU modules with a square wave 12V specific tachometer output (Eg megajolt).

It cannot be used with capacitor discharge ignition not provided with a specific tachometer output.

Make sure that your vehicle and its tachometer do have the following features:

## **Binding parameters:**

Power supply voltage: 10VDC – 15VDC

Minimum input voltage: 8Vpp

For 2 4 6 8 or 12 cylinder motors

Maximum hand excursion: 320°

Maximum hand hole diameter: 1mm

## **Mounting**

- a) Disconnect and remove the tachometer that has to be converted or repaired from the vehicle onto which it is installed. Remove the old mechanism from the shell and separate the hand from the dial.
- b) Anchor the dial of the original tachometer on Aux PCB (drawing 4) possibly using the provided slotted holes and screws (drawing 1) or drilling Aux PCB (drawing 5) paying attention to avoid the no-drill area (drawing 1).

There are two couples of slotted holes with different dimensions for screws of different types.

To facilitate this operation it is possible to separate Aux PCB from the Main PCB removing the long nuts (drawing 1)

NOTE: the mechanism can be mounted in any position as regards the dial since it is the positioning of the hand and the programming to allow the correct functioning of the system.

- c) The hand limit pin has a diameter of 1 mm that is much bigger than the usual pins provided with most of these mechanisms. It is therefore necessary to enlarge the hand hole in which the pin will be inserted with a 1mm drill bit.

PAY ATTENTION TO THIS OPERATIONS! (specially if the hand is made of brass or metal) Refer to the video at [www.urevco.com](http://www.urevco.com) . The hand must be placed easily, with moderate pressure and must be

able to be rotated slightly with the pin stopped. Do not press the hand on the pin too hard or the mechanism may be damaged! If there was too much overlap between the hand and the pin, wipe again the hole with the same 1mm drill bit.

If the hole was overbored by mistake it remains a solution: fill the wrong hole with epoxy glue, wait for curing then redrill it !

Check the length of the protruding part of the pin of the old mechanism and compare it with the new one. If the pin of the new mechanism were too long, remove the exceeding part with a pair of nippers not too big. Pay attention not to bend the pin itself and polish the cut up softly with sandpaper. (If the device was parted, reassemble it.)

- d) Connect electricity to the terminal block according to the plan (drawing 3).  
In all cases except ignitions/ECU with specific 12V tachometer output, use the provided resistor wire to connect the signal pin (contact 2) or place a 56Kohm resistor in series with it.  
On the provided cable, the resistor is soldered where there is a label.
- e) DON'T close the tachometer shell yet.
- f) NOTE: uRevCo is decomposable to allow the installation in any situation.
- g) Main PCB can remain divided from the aux PCB for particular needs that may occur during the assembling. It is important to maintain the connection between the two circuits with the cable.
- h) Always interpose the nylon isolating washers between the main pcb and the fastening nuts.

### Programming

Note: if something goes wrong during calibration process simply disconnect urevco from the power supply for 3 min then restart the process from the beginning.

- a) Set up the dip switch according to the number of cylinders of the vehicle and the tachometer end value (See dip switch table on last page).  
NOTE: if the full scale deflation of you device has a value spanning between two set-up values (for example 6700 rotations/revolutions is between 6500 and 7000), set the lowest possible value up (in this case 6500).
- b) Supply the device with a dc power pack stabilized 12v (not less)
- c) Position the hand so that it points at 0 rpm or at the nick indicating the lower value on the dial or it touches the eventual pin (drawing 6 position a).  
NOTE: on lots of tachometers the interval of the firsts 1000 revolutions is inferior to the followings. The device calibrating system reckons with this condition (drawing 6).
- d) Enter the programming system by pressing s2 key (drawing 3) till the led ld1 will switch on (in about 3 sec)
- e) During the programming procedure the s1 key allows to move the hand clockwise whereas s3 key allows to move it in anticlockwise direction. Press these keys to move the hand and make it reach 1000 rpm position. Since the system may present a minimum hysteresis, if pressing the keys the hand should go over the 1000 rpm, bring the hand back below 1000 rpm and then rise it back to 1000 rpm.
- f) Press s2 to memorize the value. Ld2 led will switch on.
- g) With s1 and s3 keys, position the hand so that it the max rpm value that you programmed with dip switches. As said before, consider possible hysteresis.
- h) Press s2 to memorize the value. At this stage the hand will stay about to the max value set with the dip switch and both leds will lite. This function aims at checking the set up correctness. Verify that the value indicated is correct. If correct press again s2 and the hand will return to zero and the leds will turn off. If not, repeat the steps from d to h (recalibration).
- i) Remove the supply to the device.
- j) Close the tachometer shell and connect it.
- k) If necessary, use the mounting socket (drawing 2) to fix the dial and movement inside the shell.

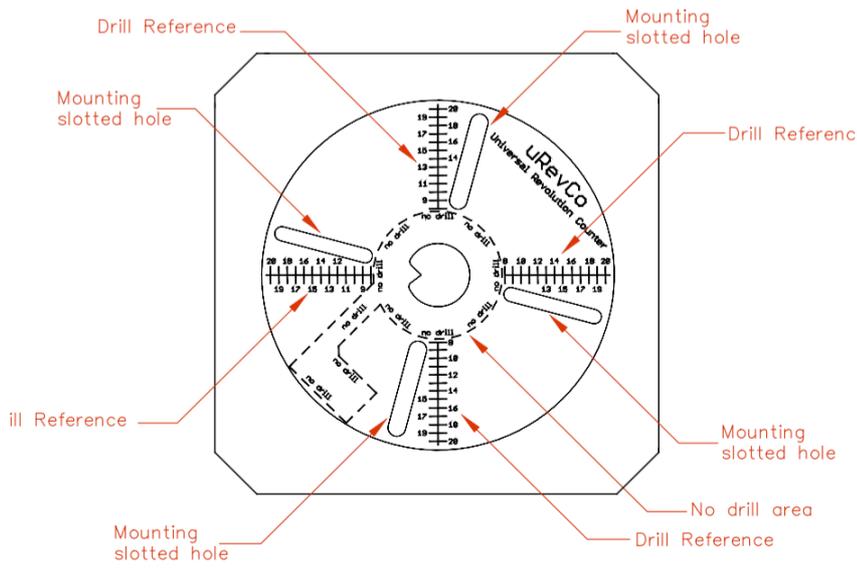
- l) The polyethylene socket can be cut or pierced at will. Self threading screws can be used can be used to anchor the shell to the socket. Thickness washers can be interposed in order to reach the correct positioning of the dial inside the shell.
- m) Mount the tachometer on the vehicle.

CYLINDERS	Switch 1	Switch 2	Switch 3
2	ON	ON	ON
4	OFF	ON	ON
6	ON	OFF	ON
8	OFF	OFF	ON
12	OFF	ON	OFF

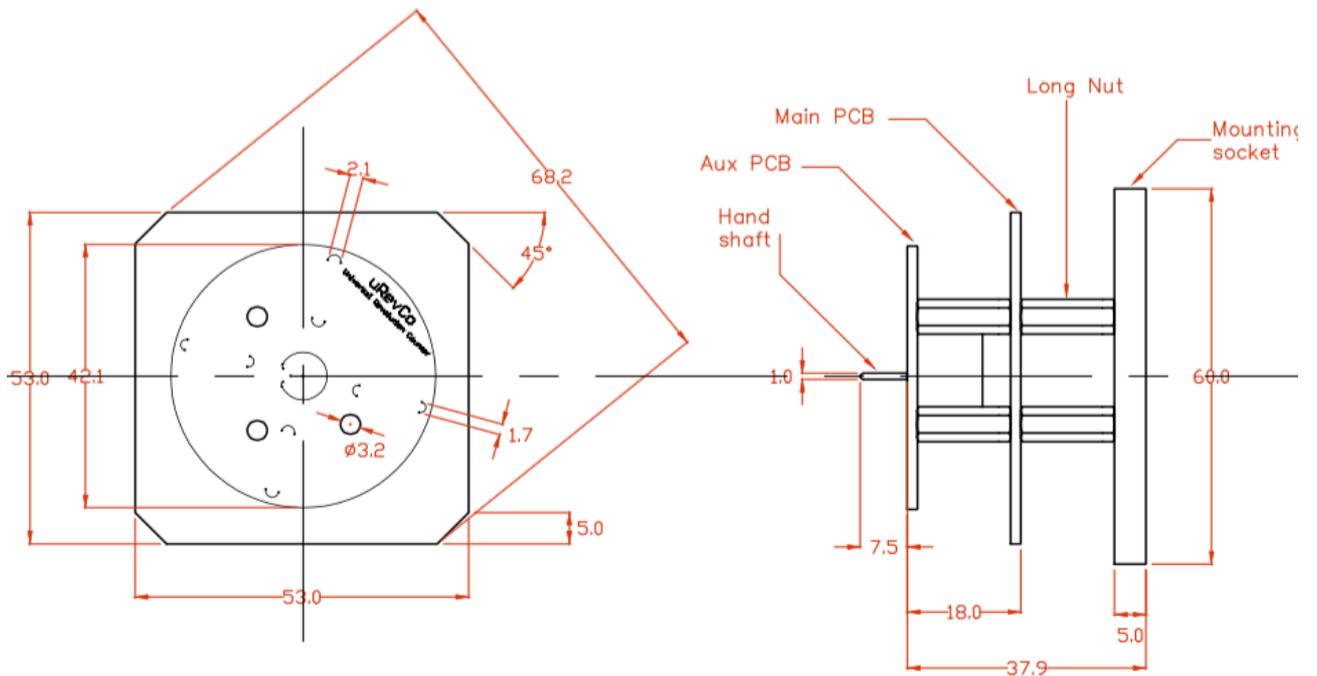
Dip switch cylinders table

Max RPM	Switch 4	Switch 5	Switch 6	Switch 7	Switch 8
3000	ON	ON	ON	ON	ON
3500	OFF	ON	ON	ON	ON
4000	ON	OFF	ON	ON	ON
4500	OFF	OFF	ON	ON	ON
5000	ON	ON	OFF	ON	ON
5500	OFF	ON	OFF	ON	ON
6000	ON	OFF	OFF	ON	ON
6500	OFF	OFF	OFF	ON	ON
7000	ON	ON	ON	OFF	ON
7500	OFF	ON	ON	OFF	ON
8000	ON	OFF	ON	OFF	ON
8500	OFF	ON	OFF	OFF	ON
9000	ON	ON	OFF	OFF	ON
9500	OFF	ON	OFF	OFF	ON
10000	ON	OFF	OFF	OFF	ON
10500	OFF	OFF	OFF	OFF	ON
11000	ON	ON	ON	ON	OFF
11500	OFF	ON	ON	ON	OFF
12000	ON	OFF	ON	ON	OFF
12500	OFF	OFF	ON	ON	OFF
13000	ON	ON	OFF	ON	OFF
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14000	ON	OFF	OFF	ON	OFF
14500	OFF	OFF	OFF	ON	OFF
15000	ON	ON	ON	OFF	OFF

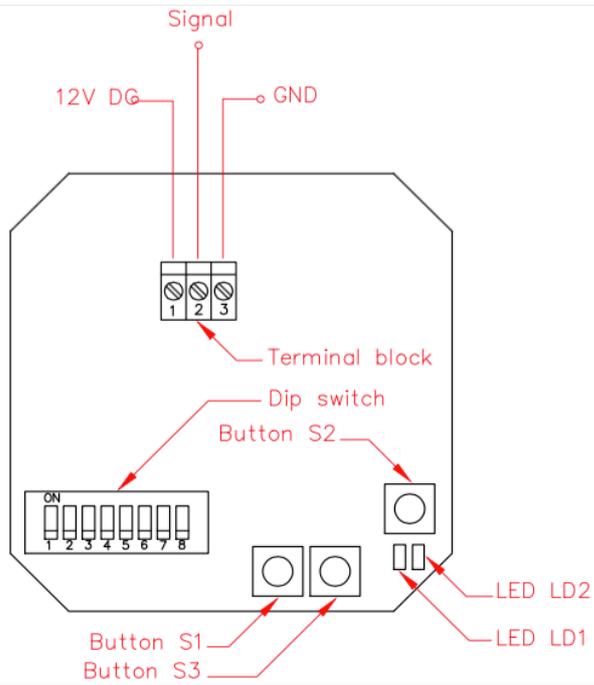
Dip Switch Max RPM table



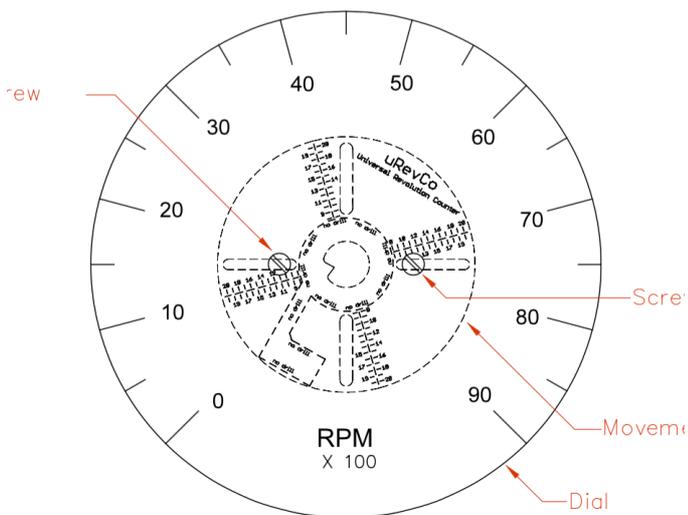
Drawing 1



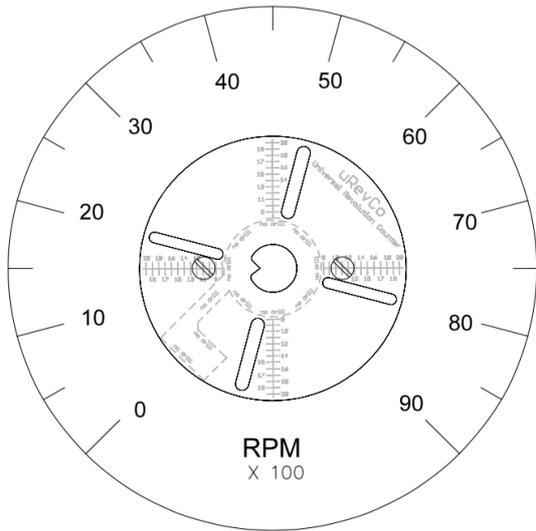
Drawing 2



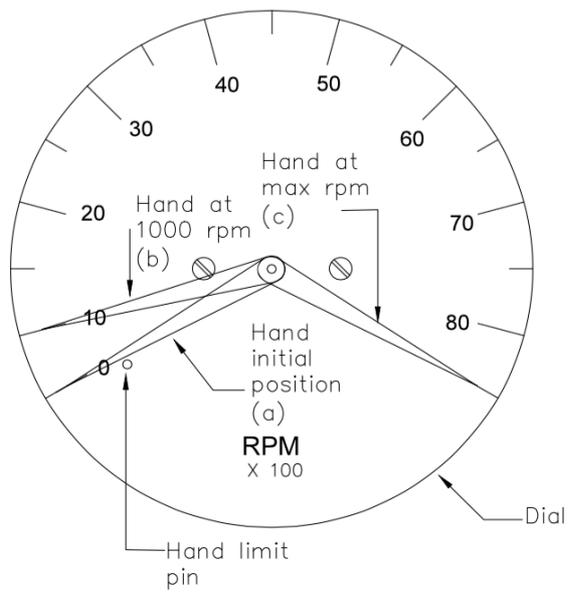
Drawing 3



Drawing 4



Drawing 5



Drawing 6