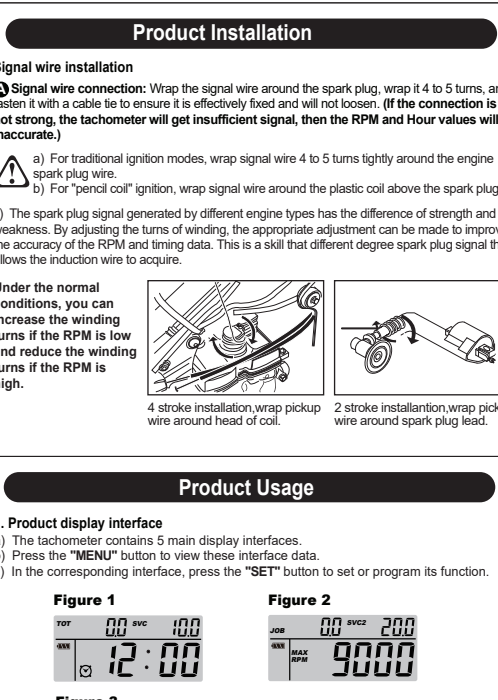


# OPERATING INSTRUCTIONS

## Self Powered Digital Tach Maintenance Hour Meter

### Product Accessories List



### Product Installation

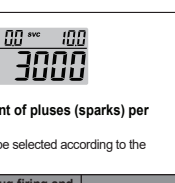
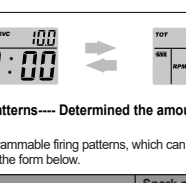
#### Signal wire installation

**Signal wire connection:** Wrap the signal wire around the spark plug, wrap it 4 to 5 turns, and fasten it with a cable tie to ensure it is effectively fixed and will not loosen. **(If the connection is not strong, the tachometer will get insufficient signal, then the RPM and Hour values will be inaccurate.)**

- a) For traditional ignition modes, wrap signal wire 4 to 5 turns tightly around the engine spark plug wire.  
b) For "pencil coil" ignition, wrap signal wire around the plastic coil above the spark plug.

c) The spark plug signal generated by different engine types has the difference of strength and weakness. By adjusting the turns of winding, the appropriate adjustment can be made to improve the accuracy of the RPM and timing data. This is a skill that different degree spark plug signal that allows the induction wire to acquire.

**Under the normal conditions, you can increase the winding turns if the RPM is low and reduce the winding turns if the RPM is high.**



### Product Usage

#### 1. Product display interface

- a) The tachometer contains 5 main display interfaces.  
b) Press the "MENU" button to view these interface data.  
c) In the corresponding interface, press the "SET" button to set or program its function.

Figure 1

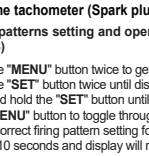


Figure 2

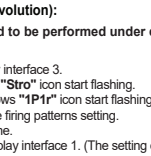


Figure 3



Figure 4

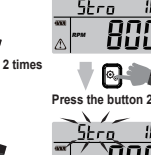
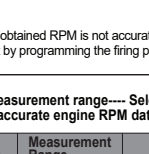


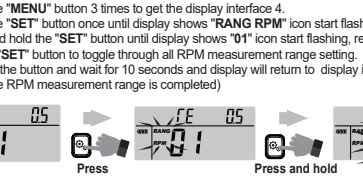
Figure 5



#### 2. Clock setting--- The clock is a 24-hour clock.

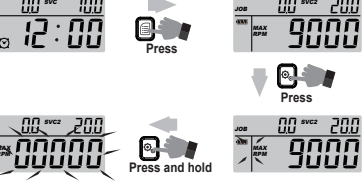
**Clock setting and operation need to be performed under display interface 1. (figure 1)**

- a) Press the "SET" button once until the "00" icon start flashing.  
b) Press and hold the "SET" button again until display shows "00" character start flashing, release and press "SET" button to get the minute value you want, and the "MENU" button to select the hour value; press "SET" button again to get the hour value you want.  
c) Release the button and wait for 10 seconds and display will return to display interface 1. (The setting of clock is completed)



#### 3. RPM--- Typical RPM display during operation of the engine.

- a) When the tach meter detect the engine spark plug signal for more than 1s continuously, the LCD will display the current RPM of the engine.  
b) The RPM can be programmed for different pulses per revolution; Different programming setting will get different RPM.



#### 4. Programmable firing patterns--- Determined the amount of pluses (sparks) per engine revolution

This product provides 9 Programmable firing patterns, which can be selected according to the corresponding relationship in the form below.

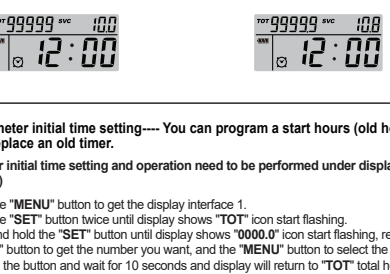
Engine firing patterns	Engine type	Spark plug firing and engine rotate laps	RPM Capacity
1P1R	4 stroke 2 cylinder / 2 stroke 1 cylinder	1 spark per revolution	0 - 25000
1P2R	4 stroke 1 cylinder	1 spark 2 revolution	0 - 25000
2P1R	4 stroke 4 cylinder / 2 stroke 2 cylinder	2 spark per revolution	0 - 12500
3P1R	4 stroke 6 cylinder / 2 stroke 3 cylinder	3 spark per revolution	0 - 8000
3P2R	4 stroke 3 cylinder	3 spark 2 revolution	0 - 16000
4P1R	4 stroke 8 cylinder	4 spark per revolution	0 - 6250
5P2R	4 stroke 5 cylinder	5 spark 2 revolution	0 - 10000
6P1R	4 stroke 12 cylinder / 2 stroke 6 cylinder	6 spark per revolution	0 - 4000
8P1R	4 stroke 16 cylinder	8 spark per revolution	0 - 3120

**Note:** Some 4 stroke 1 cylinder engine is 1P1R, the setting is the same way as the 2 stroke 1 cylinder engine.

#### 5. To set the tachometer (Spark plug firing revolution):

**The firing patterns setting and operation need to be performed under display interface 3. (figure 3)**

- a) Press the "MENU" button twice to get the display interface 3.  
b) Press the "SET" button twice until display shows "Stro" icon start flashing.  
c) Press and hold the "SET" button until display shows "1P1r" icon start flashing, release and press "SET" or "MENU" button to toggle through all engine firing patterns setting.  
d) Stop at correct firing pattern setting for your engine.  
e) Wait for 10 seconds and display will return to display interface 1. (The setting of firing patterns is completed)



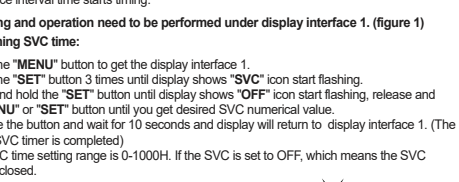
**Note:** If the obtained RPM is not accurate, for example, the RPM is half of the actual RPM, you can adjust it by programming the firing patterns.

#### 6. RPM measurement range--- Selecting the right measurement range will help you get more accurate engine RPM data

Range Selection	Measurement Range	Remarks
r1	0-25000 RPM	■ Different measurement RPM ranges are selected to ensure better anti-jamming performance of the tachometer to obtain accurate RPM data.
r2	0-18000 RPM	■ The default speed measurement range is r1.
r3	0-12000 RPM	■ Real-time RPM data beyond the RPM measurement range will not be displayed accurately.
r4	0-6000 RPM	■ The RPM data obtained under different RPM measurement ranges may be different.

**RPM measurement range setting and operation need to be performed under display interface 4. (figure 4)**

- a) Press the "MENU" button 3 times to get the display interface 4.  
b) Press the "SET" button once until display shows "RANG RPM" icon start flashing.  
c) Press and hold the "SET" button until display shows "01" icon start flashing, release and press "MENU" or "SET" button to toggle through all RPM measurement range setting.  
d) Release the button and wait for 10 seconds and display will return to display interface 1. (The setting of the RPM measurement range is completed)



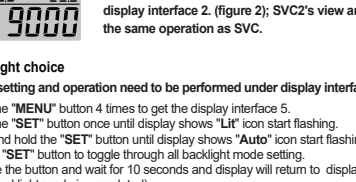
#### 7. MAX RPM--- Display the maximum RPM recorded. During the last period of operation.

**The MAX RPM view and operation in display interface 2 (figure 2)**

**To view MAX RPM:** Press the "MENU" button for once until display shows the "MAX RPM".

**To reset MAX RPM:**

- a) Press the "MENU" button once to get the display interface 2.  
b) Press the "SET" button once until display shows "MAX RPM" icon start flashing.  
c) Press and hold the "SET" button until display shows "00000" start flashing, MAX RPM is reset.



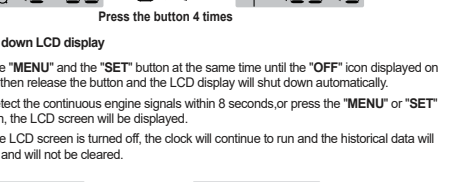
#### 8. Alert RPM--- The setting value of the warning reminder

**Alert RPM setting and operation need to be performed under display interface 3. (figure 3)**

When the RPM of the engine during the operation exceeds the set value, the meter will alarm to remind. The RPM value and warning icon will flash and the backlight color will turn red.

#### Programming alert RPM:

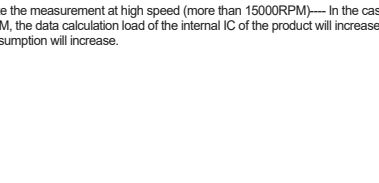
- a) Press the "MENU" button twice to get the display interface 3.  
b) Press the "SET" button once until display shows "RPM" and "Δ" icon start flashing.  
c) Press and hold the "SET" button until display shows "OFF" icon start flashing, release and press "MENU" or "SET" button until you get desired alert RPM numerical value.  
d) Release the button and wait for 10 seconds and display will return to display interface 1. (The setting of alert RPM is completed)  
e) If the alert RPM numerical value is set to OFF, which means that the alert RPM function is closed.



#### 9. RPM refresh rate--- Selecting the right refresh rate will help you get more accurate engine RPM data

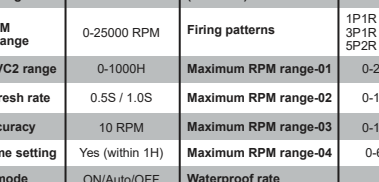
**RPM refresh rate setting and operation need to be performed under display interface 4. (figure 4)**

- a) Press the "MENU" button 3 times to get the display interface 4.  
b) Press the "SET" button twice until display shows "RE" icon start flashing.  
c) Press and hold the "SET" button until display shows "0.5" icon start flashing, and press "MENU" or "SET" button to toggle through all RPM refresh rate setting.  
d) Release the button and wait for 10 seconds and display will return to display interface 1. (The setting of RPM refresh rate is completed)



#### 10. TOT--- Total hours of operation.

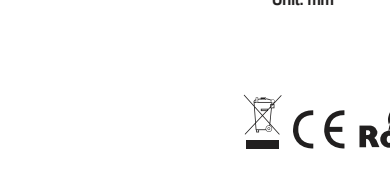
- a) It will always be displayed on the screen without shutting down.  
b) TOT time can not reset.  
c) The TOT time max value is 99999; When the TOT timing exceeds 9999.9hours, the timing accuracy is 0.1h; When the TOT timing exceeds 9999.9hours, the timing accuracy is 1H.  
d) When the TOT time exceeds 99999 hours, the timing will restart from 0.



#### 11. Hour meter initial time setting--- You can program a start hours (old hour meter data) to replace an old timer.

**Hour meter initial time setting and operation need to be performed under display interface 1. (figure 1)**

- a) Press the "MENU" button to get the display interface 1.  
b) Press the "SET" button twice until display shows "TOT" icon start flashing.  
c) Press and hold the "SET" button until display shows "0000.0" icon start flashing, release and press "SET" button to get the number you want, and the "MENU" button to select the value digit.  
d) Release the button and wait for 10 seconds and display will return to "TOT" total hours. (The setting of the hour meter initial time is completed)



**Note:** The initial time setting will not be set again after 1 hour of engine operation.

#### 12. JOB--- Hours of operation since the timer was reset

**JOB setting and operation need to be performed under display interface 2. (figure 2)**

**To view "JOB" time:** Press the "MENU" button twice.

**To reset "JOB" time:**

- a) Press the "MENU" button twice to get the display interface 2.  
b) Press the "SET" button once until display shows "JOB" icon start flashing.  
c) Press and hold the "SET" button until display shows "0000.0" icon start flashing, JOB timer is reset and you will begin to record the next job interval.



#### 13. SVC--- Maintenance interval time. Note: Timing is countdown.

When the maintenance interval time is reached, and the LCD display will flashing and the backlight color will turn red, then press the "SET" or "MENU" button to clear the status, the next maintenance interval time starts timing.

**SVC setting and operation need to be performed under display interface 1. (figure 1)**

#### Programming SVC time:

- a) Press the "MENU" button to get the display interface 1.  
b) Press the "SET" button 3 times until display shows "SVC" icon start flashing.  
c) Press and hold the "SET" button until display shows "OFF" icon start flashing, release and press "MENU" or "SET" button until you get desired SVC numerical value.  
d) Release the button and wait for 10 seconds and display will return to display interface 1. (The setting of SVC time is completed)  
e) The SVC time setting range is 0-1000H. If the SVC is set to OFF, which means the SVC function is closed.



#### 14. SVC2--- Maintenance interval time. Note: Timing is countdown.

Figure 2



**SVC2 setting and operation need to be performed under display interface 2. (figure 2); SVC2's view and reset have the same operation as SVC.**

#### 15. Backlight choice

**Backlight setting and operation need to be performed under display interface 5. (figure 5)**

- a) Press the "MENU" button 4 times to get the display interface 5.  
b) Press the "SET" button once until display shows "Lit" icon start flashing.  
c) Press and hold the "SET" button until display shows "Auto" icon start flashing, and press "MENU" or "SET" button to toggle through all backlight mode setting.  
d) Release the button and wait for 10 seconds and display will return to display interface 1. (The setting of backlight mode is completed)

**Auto meaning:** the backlight will be automatically turned off, when press the button, the backlight will be on.  
**ON meaning:** the backlight is always on.  
**OFF meaning:** turn off the backlight display.  
The choice of backlight mode will have a direct impact on battery life, and the "ON" mode is the largest power consumption.



#### 16. Other

##### Ⓐ Record the times of engine starts

**View the times of engine starts need to be performed under display interface 5. (figure 5)**

Press the "MENU" button 4 times until to get the display interface 5, the number at the bottom of the display screen indicates the number of engine starts.



##### Ⓑ To shut down LCD display

- a) Press the "MENU" and the "SET" button at the same time until the "OFF" icon displayed on the screen, then release the button and the LCD display will shut down automatically.  
b) Once detect the continuous engine signals within 8 seconds, or press the "MENU" or "SET" button again, the LCD screen will be displayed.  
c) When the LCD screen is turned off, the clock will continue to run and the historical data will be retained and will not be cleared.



##### Ⓒ Battery replacement

When the battery icon on the display screen starts to flash, it indicates that the battery voltage is very low and a new battery needs to be replaced.

##### Ⓓ About extending the service life of product

**To extend the life of your product, you can apply it as follows:**

- a) Avoid product are always in a very humid environment--- there is a risk of moisture intruding inside the product, causing the product to consume more electricity.  
b) Avoid product that are always in a high temperature environment (exceed 125°F) --- high temperature environment has the risk of increasing the discharge rate of the internal battery CR2032.  
c) Minimize the frequency of button operations--- continuous button operation, function switching, the power consumption will increase.  
d) Minimize the measurement at high speed (more than 15000RPM)--- In the case of ultra-high engine RPM, the data calculation load of the internal IC of the product will increase, and the power consumption will increase.

### Product Specifications & Parameters

Item name	Parameters	Item name	Parameters
Product model	RL-HM032B	Dimensions	68.5×34.9×17.2mm
TOT / JOB Timing range	0-99999H	Display window size (viewable)	40.8×16.8mm
Alert RPM setting range	0-25000 RPM	Firing patterns	1P1R 1P2R 2P1R 3P1R 3P2R 4P1R 5P2R 6P1R 8P1R
SVC / SVC2 range	0-1000H	Maximum RPM range-01	0-25000 RPM
RPM refresh rate	0.5S / 1.0S	Maximum RPM range-02	0-18000 RPM
RPM accuracy	10 RPM	Maximum RPM range-03	0-12000 RPM
Initial time setting	Yes (within 1H)	Maximum RPM range-04	0-6000 RPM
Backlit mode	ON/Auto/OFF	Waterproof rate	IP67
Battery type	CR2032 210mAh	Housing material	ABS
Working times range	0-99999 times	Weight	About 48g

### Product Dimension

