




Multifunctional Meter

Temp **Tach** **Hour** **Backlight** **Waterproof**

1 Notice

-  1. Please use the product accordance with the user manual strictly.
- 2. Please do not try to disassemble the main unit and its accessories.
-  3. This meter can not be used underwater or in the heavy rain.
- 4. Fierce vibration and strong impact may make the product failure.
-  5. Incorrect installation of battery cover at the back side will make the front panel of main unit fogged,condensed or watered.
- 6. As this meter has back light,power consumption will be large.When the battery is low,please replace the battery as soon as possible.The battery type is CR2032.

2 Battery installation

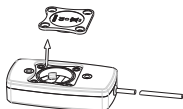
Note:The meter has data storage function,previous data will be remembered automatically after replacing the battery.

1 Unscrew the four screws in the cover



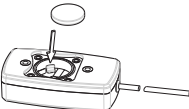
Use a screwdriver to counter clock wise twist, then unscrew the screws

2 Open the battery cover



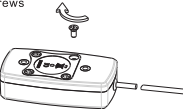
Remove the battery cover from the product

3 Put the battery inside



Smooth side should be put upward

4 Close battery cover,and tighten the screws



Use a screwdriver to clockwise twist , then tighten the screws.

3 Product Installation

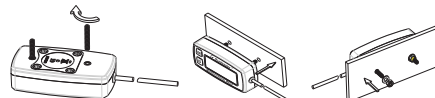
Note:There are three ways,you can choose the one you needed.

- 1 When using double-sided tape, stick one side on the back of the hour meter,stick another side on the machine.



2 When using screws, proceed in the following order

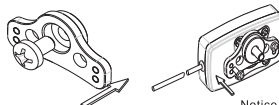
- a) Fasten the two M3 bolts on the hour meter;
- b) Mount the bolts into the fixed plate holes;
- c) Insert M3 gasket and fasten with M3 screw nut to the fixed plate.



Notice: The mounting plate is required matching holes, if don't have it, please drill corresponding holes in the mounting plate.

3 When using aluminum frame, proceed in the following order

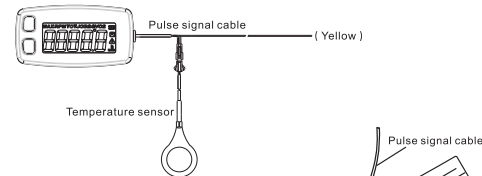
- a) Fasten the aluminum frame with M6 screws into the mounting plate;
- b) Fasten the aluminum frame and hour meter with M3 screws.





Notice: This product does not include the aluminum frame.

4 Fittings installation

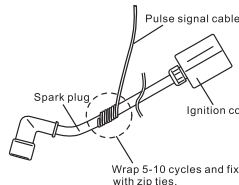
1. Wrap the pulse signal cable around the spark plug wire at least 5 cycles and fixed with zip ties. Notice:The pulse signal cable isn't installed firmly will affect the accuracy of test data.
2. Connect temperature sensor to product terminal,install the product on the device under test.
3. Check if the product is installed correctly, temperature interface shows temperature. When engine is activated, RPM interface shows current RPM, which means the product is installed correctly.



Temperature sensor type:

Probe	Model	Temperature range
	TS002P	-20~+300°C
	TS001P	-20~+300°C

※Default model is TS002P.



Wrap 5-10 cycles and fixed with zip ties.

5 Region definition

M Button


※In the non-set state,short press enter into viewing interface;long press 2S to enter into setting up state, press it to decrease set value .

S Button

※Long press 2S to confirm the set value.

S Button

※Switch between the different main interface, press it to increase set value .



Auxiliary function display

※RPM,MAXRPM,TOT,JOB, SVC.

Battery level display

※Display battery residual capacity.


Alerting function

※Icon for overspeed alert and overtemperature alert.


6 Interface switch

※In the non-set state, short press **S** to switch interface.

Temperature Interface



RPM Interface



TOT Interface

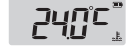


short press **S** short press **S**

7 Interface operations


1 Temperature Interface operations

Temperature main Interface—real time display current temperature




Short press **M**

View overtemperature alert



long press **M** 2S




※Set value flashes when setting.

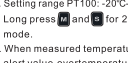
1. Press **S** to increase set value .Press **M** to decrease set value .
2. Short press one time to change 1 unit; Long press for 1 second,three times per second, changes 10 unit per time.
3. Setting range PT100~200°C-300°C (-4°F--572°F) Long Long press **M** and **S** for 2S to confirm and exit setting mode.
4. When measured temperature exceed overtemperature alert value,overtemperature alert icon will flash,At the same time, the measured value will display for 3S and flash for 2S circularly.

Short press **M**

View max temperature



long press **M** 2S

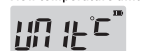


Short press **M**

Reset max temperature

1. The temperature return to initial value -20°C (-4°F) after resetting.
2. Maximum temperature records for the current measured temperature value. If current temperature value exceed recorded value for 2 times, the recorded value will be updated,the updated value is the maximum temperature.

View temperature unit



Set temperature unit



- There are two optional temperature units °C and °F, switch the temperature unit by short press **[M]** and **[C]**.
- Long press **[M]** and **[C]** for 2S to confirm and exit setting mode.
- After selecting the temperature unit, all temperature data will be turned to the one based on current temperature unit.

※Temperature unit default value is °C.

RPM Interface operations

RPM main interface ---real time display current RPM



- If the meter pick up the signal for more than 1S continuously, the LCD will display current measured RPM.



View overspeed alert value



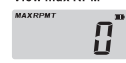
Set overspeed alert value



※Set value flashes when setting.

- Press **[M]** to increase set value, Press **[C]** to decrease set value.
- Short press one time to change 100 unit; Long press for 1 second, three times per second, changes 1000 unit per time, default value is 8500, setting range is 1000 ~25000, Long press **[M]** and **[C]** for 2S to confirm and exit setting mode.
- When measured RPM exceed overspeed alert value, overspeed alert icon will flash. At the same time, the measured value will display for 3S and flash for 2S circularly.

View max RPM



Clear max RPM



- The max RPM return to initial value 0.
- Max RPM records for the current measured RPM value. If current RPM value exceed recorded value for 2 times, the recorded value will be updated.

View stroke



Reset stroke



※Set value flashes when setting.

- Switch the stroke type by short press **[M]** and **[C]**.
- Long press **[M]** and **[C]** for 2S to confirm and exit setting mode.
- Suitable for 9 types gasoline engine, initial value is 1P1R. Stroke types include: 1P1R, 2P1R, 3P1R, 4P1R, 6P1R, 8P1R, 3P2R, 5P2R, 1P2R.

3 Timing Interface

Main interface-Display total running hours



- If the meter pick up the signal for more than 1S continuously, TOT flashes, start recording running time.



View partial running hours



Clear partial running hours



- The partial running time return to initial value 0.



View maintenance reminder hours



Set maintenance reminder hours



※Set value flashes when setting.

- When backlight is off, press any button to activate backlight. If no any operation on button for 10 seconds continuously, it returns to the main interface automatically.
- Press **[M]** to increase set value, Press **[C]** to decrease set value.
 - Short press one time to change 1 unit; Long press for 1 second, three times per second, changes 5 unit per time, default value is 20, setting range is 0-200.
 - Long press **[M]** and **[C]** for 2S to confirm and exit setting mode.
 - When setting is 0, maintenance function is closed; After setting, the maintenance reminder time value become effective immediately.
 - The maintenance reminder time run in a way of countdown, when countdown reaches 0, 'SVC' icon flashes, press any button to clear the 'SVC' icon. After clearing the countdown will start accord to last setting value.

※Reminder function

- When SVC reminder start, SVC icon will flash in any interface.
- When over temperature alert happened in RPM interface or timing interface, the current main interface display for 10S and over temperature alert display for 1 time alternatively.
- When overspeed alert happened in temperature interface or timing interface, the current main interface display for 10S and overspeed alert display for 1 time alternatively.
- When over temperature alert and overspeed alert happened simultaneously, alternatively display as below: over speed alert display for one time-the current main interface display for 10S-over temperature alert display for one time-the current main interface display for 10S.

8 Relationship between stroke and cylinder in setting RPM mode

RPM type	Ignition Method	Stroke and Cylinder	RPM range
1P1R	1 spark per revolution	4stroke2cylinder	0—25000
		2stroke1cylinder	0—25000
2P1R	2 spark per revolution	4stroke4cylinder	0—15000
		2stroke2cylinder	0—15000
3P1R	3 spark per revolution	4stroke6cylinder	0—10000
		2stroke3cylinder	0—10000
4P1R	4 spark per revolution	4stroke8cylinder	0—7500
6P1R	6 spark per revolution	4stroke12cylinder	0—5000
8P1R	8spark per revolution	4stroke16cylinder	0—3750
3P2R	3 spark 2 revolution	4stroke3cylinder	0—20000
5P2R	5 spark 2 revolution	4stroke5cylinder	0—12000
1P2R	1 spark 2 revolution	4stroke1cylinder	0—25000

9 Product fitting list

Hour meter-----1piece	Cable ties-----2Pieces
Bolt-----1 set	Operation Manual -----1Piece
Double-sided tape-----1piece	Battery-----1piece
Temperature sensor-----1piece	

10 Specifications & Parameters

Housing Material	ABS
Waterproof Level	IP65
Display Type	LCD
Display Window Size(Visible)	41x17mm
Product Weight	103g
Product Size	69x37x18mm
Battery Type	CR2032 Replaceable
Battery Capacity	210mAh
Max Total Display hours	99999H
Max partial Display hours	9999.9H
SVC Range	0-200H
RPM Refresh Rate	0.5S
Temperature Range	TS001P/TS002P: -20°C+300°C (-4°F+572°F) Default model is TS002P
Temperature Accuracy	±1%
Temperature Refresh Rate	8S

11 Troubleshooting

Problem	Possible Reasons	Solution
No display on screen	1. Battery empty. 2. Battery installed backwards.	1. Replace a new battery. 2. Check if battery is installed correctly.
Time no change or not accurate after 6 minutes, or RPM is not accurate	1. Sensing line loose or wrapped less cycles. 2. Wire may damage. 3. Stroke type setting is incorrect.	1. Tighten or wrap more cycles. 2. Repair or change cable. 3. Set the correct stroke.
Display no change	The meter crash	Re-install the battery
LCD screen display err	1. Sensor is not connected. 2. Sensor damage.	1. Re-install the sensor. 2. Replace a new sensor.
Unclear display on LCD Or color changed	1. Wrong angle of the product. 2. Lack of battery.	1. Adjust the angle. 2. Replace the battery.

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