# KOSO
Feel The Speed

INSTRUCTIONS

●Thank you for purchasing our product. Before installing/operating the product, please read the instructions carefully and retain them for future reference.

⚠ Attention!

● For installation, please follow the steps described. Any damage caused by wrong installation shall be imputed to the users.
● To avoid a short circuit from occuring do not pull or modify the wires during installation.
● Do not disassemble or change any parts. Opening and disassembling this unit will void any warranty.
● Maintenance and repairs should be executed by our professionals only.

◎ Symbol description:
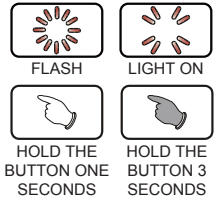
NOTE

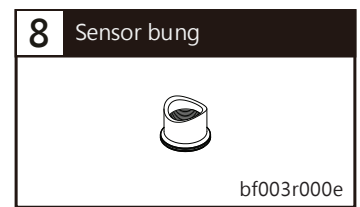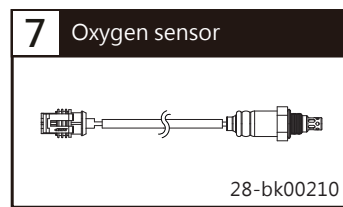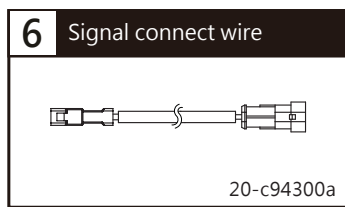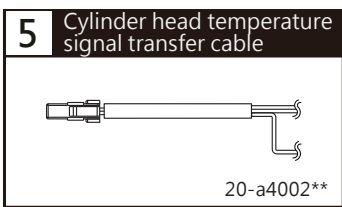⚠ Some procedures must be followed to avoid damages to the instrument.

⚠**WARNING!** Certain procedures must be followed to avoid damages to yourself, to the vehicle or others.

FLASH

LIGHT ON

HOLD THE BUTTON ONE SECONDS

HOLD THE BUTTON 3 SECONDS

1-1 Accessories

1 LCD Meter X1	**2** Main wiring harness X1
3 Active speed sensor X1	**4** RPM wire (TYPE A) X1
5 RPM wire (TYPE B) X1	**6** Temp sensor wire X1
7 TH-01 water temp sensor X1	**8** M8 / S type speed sensor bracket X1
9 M10 / S type speed sensor bracket X1	**10** M5 X 5L mm Hexagon screw X2
11 2.5 mm Allen key X1	**12** Meter decorative cover X1
13 Meter bracket X1	**14** M4X12L mm screw X1
15 M5X16L mm screw X2	**16** M6X40XP1.0 mm screw X2
17 M8X45XP1.25 mm screw X2	**18** M6 screw X2
19 M8 screw X2	**20** M6 Gasket X2
21 M8 Gasket X2	

1-2 Optional accessories

1 L TYPE speed sensor backet BI003S01	**2** Temperature sensor adapter
3 Water temp sensor adapter	**4** Temperature signal extension cable 20-o89206a

5	Cylinder head temperature signal transfer cable	6	Signal connect wire	7	Oxygen sensor	8	Sensor bung
	20-a4002**		20-c94300a		28-bk00210		bf003r000e

9	Screw cap
	ba550r020e

NOTE Some of the optional accessories may not be available in your area. Contact your local distributor to obtain more information.

2-1 Wiring installation instructions

Yellow - High beam light (+12V)
Blue - R turn signal light (+12V)
White - Neutral light (−)
Orange - L turn signal light (+12V)
Green - Fuel
Green / Red - ABS(-)
Purple - Engine light (−)
Blue/Black - IMMO(-)

Black - Ground wire connects directly to the negative pole of the battery.

Main wiring harness (Accessories 2)

Mid-way connector

Red - Postive pole (Connect to the battery **DC 12V**)

Brown - Positive wire should be connect to main power switch.

LCD Meter (Accessories 1)

Red - RPM wire please connect it to the suitable position according to the models

Connect to speed sensor

Signal connect wire (Optional accessories 6)

Oxygen sensor (Optional accessories 7)

Active speed sensor (Accessories 3)

Yellow / White Temperature sensor terminals

Temp sensor wire (Accessories 6)

TH-01 water temp sensor (Please install the temp sensor to the position.)

Temperature signal extension cable (Optional accessories 4)

Cylinder head temperature signal transfer cable (Optional accessories 5)

Ignition coil positive

RPM wire (TYPE A) (Accessories 4) **A**

RPM wire (TYPE B) (Accessories 5)

Mid-way connector

Coil

Spark plug wire

Spark plug cap

Spark plug

EMS CDI

Flywheel

Ignition pulse

RPM wire (TYPE B) (Accessories 5) **B**

Tachometer

Pick up

C

Main power switch wire reference:

	Power	Key on	Ground
YAMAHA	Red	Brown	Black
HONDA	Red	Red / Black	Green
SUZUKI		Black	Green
KAWASAKI	White	Brown	Black / Yellow
KYMCO	Red	Black	Green
SYM	Red	Black	Green
PGO	Red / White	Orange	Black

NOTE The color listed above may differ depending on the model and year.

RPM wire reference:

YAMAHA	Yellow / Black	**BUELL**	Pink
HONDA	Yellow / Green	**CAGIVA**	Gray / Green
SUZUKI	Yellow / Blue	**DUCATI**	Gray / Green
KAWASAKI	Light Blue	**H-D**	Pink
APRILIA	Gray / Violet	**MV**	Gray / Yellow
BMW	Black	**TRIUMPH**	Red
BENELLI	Gray / Violet		

NOTE The color listed above may differ depending on the model and year.
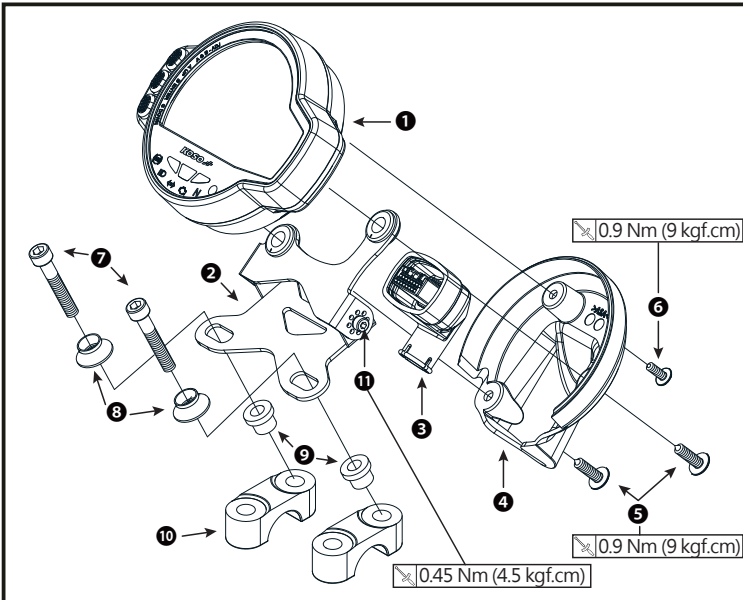
Fuel indicator wire reference:

YAMAHA	Green	**KYMCO**	Yellow / White
HONDA	Yellow / White	**SYM**	Yellow / White
SUZUKI	Yellow / White	**PGO**	Gray
KAWASAKI	Black / L Green		

NOTE When connecting the power wires, please follow the instructions carefully. If the red & brown wires are connected in parallel, the meter won't work properly.

⚠ The RPM wire installation
We recommend installing the R type spark plug or low-resistance spark plug cap at the same time.
A. Connect the RPM wire (Type A) on the spark plug wire by connecting the male and emale connectors.
B. Connect the RPM wire (Type B) to the pick up sensor.
C. Connect in parallel the RPM wire (Type A) with the original tachometer signal wire.
The best signal source will be in order as C>B>A, we will suggest that you check different ways if you have problems getting the RPM signal.

⚠ The fuel sensor is electronic type, do not connect in parallel with the original wire - other wise the fuel gauge won't display. **The wrong installation of the fuel wire might damage the instrument.**

2-2 Installation instructions

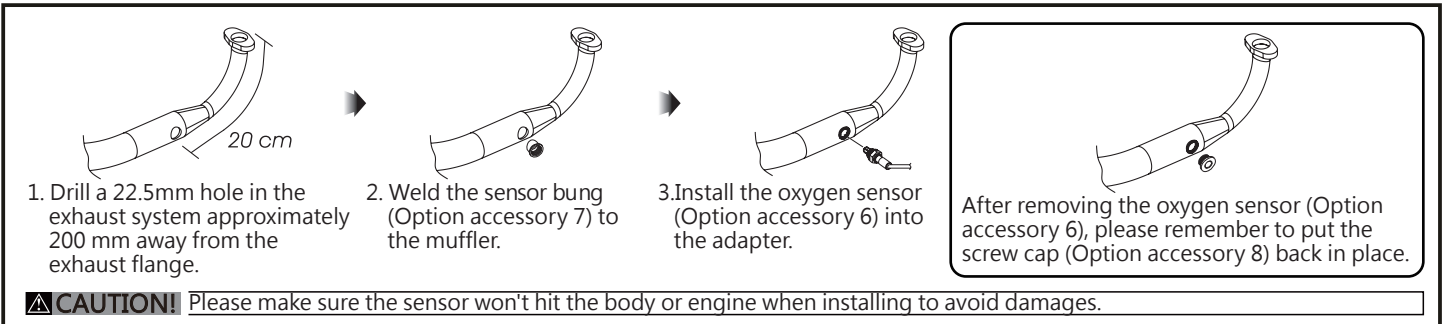When installing, please follow the steps bellow.

1. LCD Meter (Accessories 1)
2. Meter bracket (Accessories 13)
3. Main wiring harness (Accessories 2)
4. Meter back cover (Accessories 12)
5. M5X16L mm screw x2 (Accessories 11) — 0.9 Nm (9 kgf.cm)
6. M4X12L mm screw x1 (Accessories 10) — 0.9 Nm (9 kgf.cm)
7. M6 or M8 mm screw x2 (Accessories 16 or 17)
8. M6 or M8 screw x2 (Accessories 18 or 19)
9. M6 or M8 gasket x2 (Accessories 20 or 21)
10. Handle bar bracket

NOTE You can also install it (meter bracket) on the original meter bracket.

11. Meter bracket micro-adjustment screw — 0.45 Nm (4.5 kgf.cm)

NOTE You can choose the angle first and then use the screw to fix the angle.

Torque marks on diagram: 0.9 Nm (9 kgf.cm), 0.9 Nm (9 kgf.cm), 0.45 Nm (4.5 kgf.cm)

2-3 Oxygen Sensor Installation

20 cm

1. Drill a 22.5mm hole in the exhaust system approximately 200 mm away from the exhaust flange.

2. Weld the sensor bung (Option accessory 7) to the muffler.

3. Install the oxygen sensor (Option accessory 6) into the adapter.

After removing the oxygen sensor (Option accessory 6), please remember to put the screw cap (Option accessory 8) back in place.

⚠ CAUTION! Please make sure the sensor won't hit the body or engine when installing to avoid damages.

MOTO / SCOOTER S type speed sensor bracket instruction

Remove the caliper set screws.

Install the S type sensor bracket.

Adjust to the proper angle and fasten the set screws. The set screws of the adaptor and the disc rotor shall be in concentric circles to prevent poor speed signals.

Install the active speed sensor.

Adjust the distance between sensor and magnet.
We suggest you to make sure the distance is under **2 mm** for catching good speed signal.

The active speed sensor can be installed by any metal parts to detect the speed.
EX. 1 The disc screw.
EX. 2 The disc to detect the disc gap. (Please make sure the distances between the gaps are the same in advance to avoid a poor speed signal.)
EX. 3 The sprocket to detect the disc gap.
   (Please make sure the distances between the gaps are the same in advance to avoid a poor speed signal.)
EX. 4 Rear disc - detect the gap between the disc.
We suggest you to pick up the speed from the disc screws. The more sensor points there are, the better the speed accuracy is.
The maximum sensor points the speed sensor can detect is 20 points per turn.

NOTE After installation, please use your hand to turn the tire to see is everything ok. The LED on the active speed sensor will light up once the signal is detected.

EX. 1
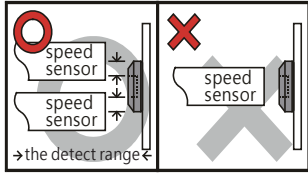
The hexagon socket disc screw
The best detect area: The edge of the hexagon socket screw.

⚠ Please don't pick up the signal from the middle hole of the hexagon socket screw to avoid a poor signal.
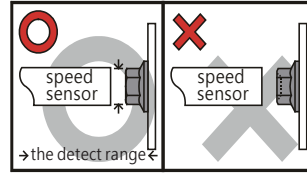
The hexagon screw
The best detect area: The middle of the screws.

⚠ Some hexagon screw center is with a small hole in the center. In this case, we suggest you that to pick up the signal from the edge of the screw like the hexagon socket screw.

EX. 2、4
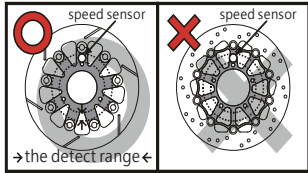
The disc
The best pick up area: Please detect the speed signal from the gaps of the disc.

⚠ Please note that there are discs with the gaps in different locations, and this method will not work on it!

EX. 3
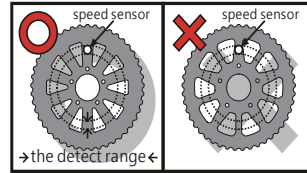
The sprocket
The best pick up area: Please pick up the speed signal from the gaps of the sprocket.

⚠ Please note that there are sprockets with gaps in different locations, and this method will not work on it !

3-1 Basic function instruction

Tachometer (LCD Bar)
●Display Range :
0 ~ 10,000 RPM (250 RPM each segment)
0 ~ 13,000 RPM (250 RPM each segment)
Tachometer (Number)
*Displays when the gear function is turned off
●Display Range :
0 ~ 10,000 RPM (100 RPM each segment)
0 ~ 13,000 RPM (100 RPM each segment)

Speedometer
●Display range : 0~199 km/h (0~124 MPH)
●Display unit : 1 km/h (MPH)

Button A (UP)
Button B (ENTER)
Button C (DOWN)

Fuel meter
●Display Range : OFF、6 Levels

●**Indication light**
●ABS
●High beam light
●Trun signal
●Engine warning light

(ABS) ●Neutral N
≡D ●Warning light ●
⇔ ●IMMO ●

Gear meter
(When the gear function is off, the speed function is displayed.)
●Display range : OFF, highest gear, N and highest gear, show all (N / 1 ~ 6)

Thermometer
●Display Range : OFF、11 temperature sensor type ranges
※The temperature for the cylinder head will only be displayed when the RPM is over 0.
Air-fuel ratio
●Display Range : 12.1 ~ 17.5
※ This is a selective function, which shall be used in conjunction with the narrowband AFR sensor.
Voltmeter
●Display Range : 8.0 ~ 18.0 V

Odometer
●Display range : 0 ~ 99,999 km (mile) return to zero upon exceed
●Display unit : 1 km (mile)
Distance meter A,B
●Display range : 0 ~ 9,999.9 km (mile) return to zero upon exceed
●Display unit : 0.1 km (mile)
Mileage maintenance user settings (closable)
●Display range : user adjustable (500 ~ 16,000km / 300 ~ 10,000 mile) ~ -999 mile, automatically decreases according to the increase of total mileage.
●Display unit : 1 km (mile)

Time
●Display range : 12 hour format
Run time
●Display range :
00:00 ~ 99:59 (<100 hour)
100 ~ 9,999H (100 ~ 9,999 hour)
Engine running time
● Display range:
00:00 ~ 99:59 (<100 hours)
100 ~ 9,999H (100 ~ 9,999 hours)

Max. speed record
●Display range : 0 ~ 199 km / h (0 ~ 124 MPH)
Max. RPM
●Display range : 0 ~ 10,000 RPM、0 ~ 13,000 RPM
Maximum temperature record
●Display range : 11 temperature sensor type ranges
Max gear level record
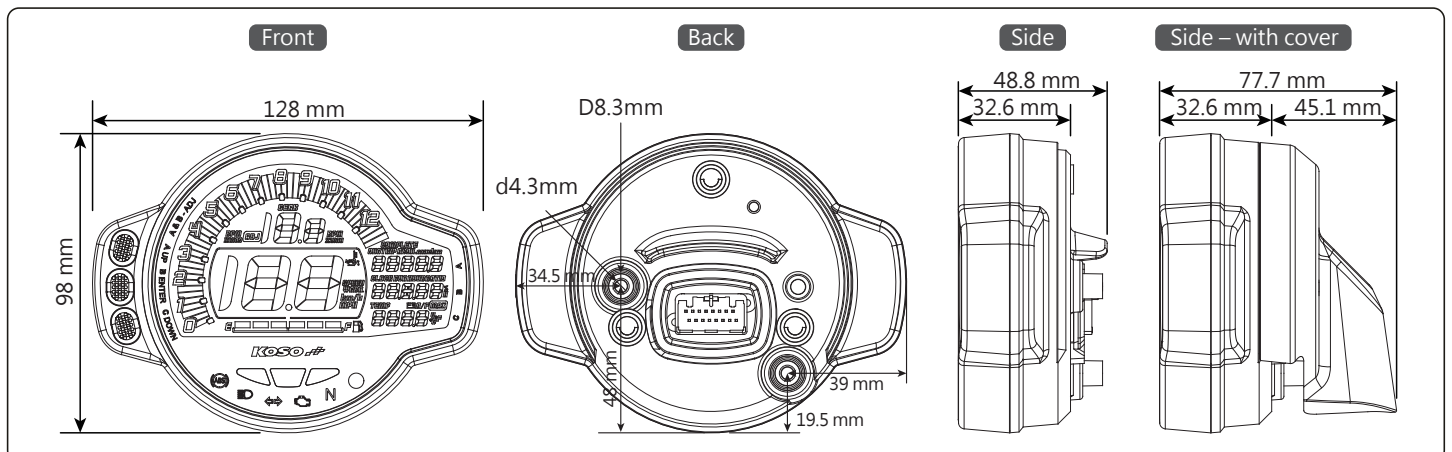●Display range : -(No display) ~ 9 gear level

3-2 Features and settings description

● Speedometer	Display range : 0 ~ 199 km/h (0 ~ 124 MPH) switchable Display unit : 1 km/h (MPH)
○ Speedometer unit	Setting range : km(km/h) 、 mile(MPH)
○ Internal and external odometer	Display range : 0 ~ 99,999 km (mile) return to zero once exceeded. Display unit : 1 km (mile)
○ Trip meter A 、 B	Display range : 0 ~ 9,999.9 km (mile) return to zero once exceeded. Display unit : 0.1 km (mile)
○ Over speed warning	Setting range : 30 ~ 199 km/h (19 ~ 124MPH) warning on when higher than set value (including). Setting unit : 1 km/h (MPH)
○ Tire circumference	Setting range : 300 ~ 2,500 mm Setting unit : 1 mm
● Sensor points	Display range : 1 ~ 40 points
● Gear indicator	Display range : OFF, highest gear, N and highest gear, show all (N / 1 ~ 6)
● Maintenance mileage	Setting range : 500 ~ 16,000 km (300 ~ 10,000 mile) Setting unit : 100 km (mile)
● Bar segment tachometer	Display range : 0 ~ 10,000 RPM 、 0 ~ 13,000 RPM Display unit : 0 ~ 10,000 RPM (250 RPM each segment) 0 ~ 13,000 RPM (250 RPM each segment)
○ The RPM input pulse	Setting range : POS(+) 、 NEG(-)
○ RPM signal	Setting range : P-0.5 、 P-1 、 P-1.5 、 P-2 、 P-2.5 、 P-3 、 P-4 、 P-5 、 P-6 、 P-9 、 P-10 、 P-11 、 P-12 、 P-17 、 P-18 、 P-23 、 P-24 、 P-34 、 P-36
○ First-stage warning for over-RPM (Illuminated)	Display range : 0 ~ 10,000 RPM Setting range : 3,000 ~ 9,750 RPM Display range : 0 ~ 13,000 RPM Setting range : 3,000 ~ 12,750 RPM Higher than the setvalue (inclusive), the signaling light for over-RPM will be lit (green)
○ Second-stage warning for over-RPM (Illuminated)	Display range : 0 ~ 10,000 RPM Setting range : 3,000 ~ 9,750 RPM Display range : 0 ~ 13,000 RPM Setting range : 3,000 ~ 12,750 RPM Higher than the set value (inclusive), the signaling light for over-RPM will be lit (red)
○ Third-stage warning for over-RPM (Blinking)	Display range : 0 ~ 10,000 RPM Setting range : 3,250 ~ 10,000 RPM Display range : 0 ~ 13,000 RPM Setting range : 3,250 ~ 13,000 RPM Higher than the set value (inclusive), the signaling light for over-RPM will be flashing (green + red) Setting unit : 100 RPM

● Temperature & Max. temperature record
Display range :
❶ OFF
❷ Cylinder head temperature:

P-1	-20 ~ 200°C (-4 ~ 392°F)	P-1A	-20 ~ 200°C (-4 ~ 392°F)
P-2	-40 ~ 185°C (-40 ~ 365°F)	P-2A	-40 ~ 185°C (-40 ~ 365°F)
P-3	-20 ~ 220°C (-4 ~ 428°F)	P-5A	-20 ~ 120°C (-4 ~ 248°F)
P-4	-20 ~ 200°C (-4 ~ 392°F)	P-6A	-30 ~ 200°C (-22 ~ 392°F)
P-5	-20 ~ 120°C (-4 ~ 248°F)		
P-6	-30 ~ 200°C (-22 ~ 392°F		

❸ Temperature sensor:

P-250	0 ~ 250°C (32 ~ 482°F)

○ Thermometer unit	Setting range : °C 、 °F
○ Over temp warning	Setting range : 50 ~ 180°C (122 ~ 356°F) · warning sign on when higher than set value. Setting unit : 5°C(3°F)
● Fuel meter	Setting range : OFF 、 100Ω 、 250Ω 、 270Ω 、 390Ω 、 510Ω 、 1200Ω 、 fuel switch 、 USER
○ Low fuel warning	Setting range : 0 ~ 3 segments, low fuel warning blinking when lower than set value (including). Setting unit : 1 segment
● Clock	Setting range : 1:00 ~ 12:59 (12 H)
● Voltmeter	Display range : 8.0 ~ 18.0 V Display unit : 0.1 V
○ Low voltage warning	Setting range : 8.0 ~ 13.0 V · low voltage warning on when lower than set value (including). Setting unit : 0.1 V
● Backlight brightness	Setting range : 1 - 5 (darkest)~ 5 - 5 (brightest)
● ABS	Setting range : ON 、 OFF
● AFR	Setting range : ON 、 OFF
● Lean/Rich settings	Display range : 12.1 ~ 17.5 Display unit : 0.1
○ Operating voltage	DC 12V
● Temperature range	-10 ~ +60°C
○ Specifications	JIS D 0203(S2)
● Meter Size	128 X 98 X 48.8 mm
○ Meter Weight	About 200 g
● Indication light	● ABS ⓐⓑⓢ ● High beam light ≣D ● Turn signal ⇦⇨ ● Engine warning light ● Neutral N ● Warning light / IMMO ●

NOTE Design and specification may change without further notice.

3-3 Meter size

Front — 128 mm, 98 mm
Back — D8.3mm, d4.3mm, 34.5 mm, 39 mm, 19.5 mm
Side — 48.8 mm, 32.6 mm
Side – with cover — 77.7 mm, 32.6 mm, 45.1 mm

3-4 Button A (UP) function instructions

●In the total mileage screen, **press button A once** to switch to Trip A screen.

●Trip A screen, **press button A once** to switch to Trip B screen.
●**Hold the button A for 3 seconds** to clear the Trip A recordings.

●Trip B screen, **press button A once** to switch to mileage maintenance screen.
●**Hold the button A for 3 seconds** to clear the Trip B recordings.

●In the mileage maintenance screen, **press the button A once** to return to total mileage screen.
●Mileage maintenance will count down from setting value, when it reaches 0, the screen will blink to indicate mileage reached.

●**Hold the button A for 8 seconds** to clear the mileage maintenance recordings.
 ○At 0 seconds, start holding the button.

 ○At 3 seconds, mileage display will begin blinking.

 ○Between 4-7 seconds, if the button is released, the proccess will end.
 ○After 8 seconds, the mileage maintenance record is cleared.

●Total mileage screen.

3-5 Button B (ENTER) function instructions

●In the clock screen, **press button B once** to switch to Run time.
●**Hold the button B for 3 seconds** to enter into the setting screen.

3-5-1 Clock settings

●**EX : To set hour to 10.**
●Press button A (to add) or button C (to deduct) to choose the setting number.
⚠ Now the setting value will blink.
NOTE Cursor moving order is :
Digit in ten minutes > Digit in minutes
NOTE Setting range : 1 ~ 12 (12H).

●Example : Set time settings from 12 to 10.
●Press button B once to enter time into the (minutes) settings screen.

●**Example : You want to change the minutes to 30.**
●Press button A (to add) or button C (to deduct) to choose the setting number.
⚠ Now the setting value will blink.
NOTE Setting range : 00 ~ 59 minutes.

●**EX : Set time settings from 0 to 30.**
●Press button B once to go back to the clock screen.

●Clock screen.

●In the Runtime screen, **press button B once** to enter into the hour meter.
NOTE Time would start accumulating when the speed per hour is over 5 km/h.

Runtime	<100 hour	100 ~ 9,999 hour
Display range	00:00 ~ 99:59	100 ~ 9,999 H
Icon example		

●**Hold the button A for 3 seconds** to clear the Runtime screen.

●In the hour meter, **press button B once** to return to time screen.
NOTE Time will start accumulating when the running speed is over 1,000 RPM.

Hour meter	<100 hour	100 ~ 9,999 hour
Display range	00:00 ~ 99:59	100 ~ 9,999 H
Icon example		

●**Hold the button A for 3 seconds** to clear the Hour meter screen.

●Clock screen.

● In the engine temperature screen, **press button C once** to switch to Air-fuel ratio screen.

NOTE Enter the voltage screen when the AFR function is set to off.

● In the Air-fuel ratio screen, **press button C once** to switch to the Voltage screen.

● In the Voltage screen, **press button C once** to switch to the MAX screen.

● In the MAX screen, **press the button C once** to return to the engine temperature screen.

● **Hold the button C for 3 seconds** to clear the MAX screen.

● Engine temperature screen.

4 The settings screen description

● Setting the main screen

● 1.1 _Overspeed warning

● 1.2 _Maintenance mileage settings

● 1.3 _Sensor point setting

● 1.4 _Wheel circumference

● 2.1 _First-stage RPM warning value

● 2.2 _Second-stage warning for RPM

● 2.3 _Third-stage warning for RPM

● 2.4 _RPM

● 2.5 _Type of RPM signals

● 2.6 _RPM stroke piston

● 3.1 _Type of thermal sensor

● 3.2 _Over temperature warning

● 3.3 _Temperature unit

● 4.1 _Backlight brightness

● 4.2 _ABS

● 4.3 _Air-fuel ratio

● 4.4 _Low voltage warning

● 4.5 _Total mileage

● 4.6 _Mileage unit

● 5.1 _Fuel resistance setting

● 5.2 _Low fuel warning

● 6.1 _Gear

● Exit settings

● Main screen

NOTE Press button A (to add) or press button C (to deduct) to set the item.

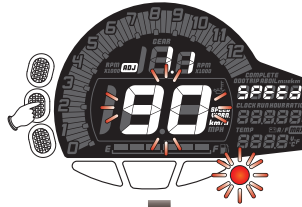**NOTE** The diagrams are examples of button A.

4-1 Overspeed warning

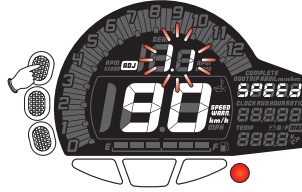● **Press button B** to enter overspeed warning setting screen.
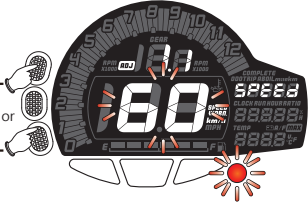
● **EX : To set overspeed warning value to 90 km/h.**
● **Press button A (to add) or button C (to deduct)** to choose the setting number.

⚠ Now the setting value will blink.

NOTE Setting range :
30 ~ 199 km/h (19 ~ 124 MPH).
Setting unit : 1 km/h (MPH).
Default value : 60 km/h (38 MPH)

● Example : Set the overspeed warning value from 60 km/h to 90 km/h.
● **Press button B once** to return to overspeed warning screen.

● Overspeed warning setting screen.
● **Press button A once** to enter next setting.

4-2 Maintenance mileage settings

● **Press button B** to enter Maintenance mileage settings screen.

● **EX : To set Maintenance mileage settings value to 1,500.**
● **Press button A (to add) or button C (to deduct)** to choose the setting number.

⚠ Now the setting value will blink.

NOTE Setting range : 500 ~ 16,000 km (300 ~ 10,000 mile).
Setting unit : 100 km (mile).
Default value : 500.

● Example : Set the Maintenance mileage value from 500 to 1,500.
● **Press button B once** to return to Maintenance mileage screen.

● Maintenance mileage setting screen.
● **Press button A once** to enter next setting.

4-3 Sensor point settings

● **Press button B** to enter the Sensor point settings screen.

● **EX : To set the Sensor point value to 6.**
● **Press button A (to add) or button C (to deduct)** to choose the setting number.

⚠ Now the setting value will blink.

NOTE Setting range : 1 ~ 40.
Setting unit : 1.
Default value : 1.

● Example : Set the Sensor point settings value from 1 to 6.
● **Press button B once** to return to the sensor point settings screen.

● Sensor point setting screen.
● **Press button A once** to enter next setting.

● **Press button B** to enter Tire circumference settings screen.

⚠ **CAUTION!**

● Please measure the tire circumference (the tire you will install the sensor on) and make sure the number of magnet sensor point (You could install the magnet into the disc screw or the sprocket screw.)

● The speed displayed on the meter will be affected by the setting, please make sure the setting number is correct before you make the setting.
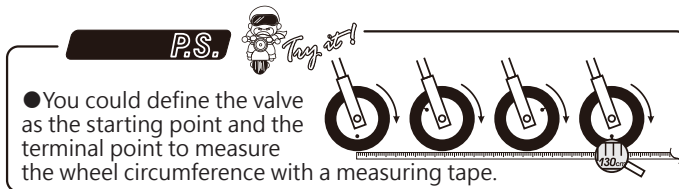
⚠ Please reset this function upon changing the tire size.

P.S. Try it!

● You could define the valve as the starting point and the terminal point to measure the wheel circumference with a measuring tape.

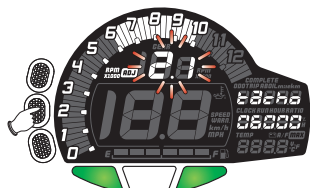● **Press button A (to add) or button C (to deduct)** to choose the setting number.

● **EX：To set Tire circumference setting value to 1,300 mm.**

● **Press button A (to add) or button C (to deduct)** to choose the setting number.

⚠ Now the setting value will blink.

NOTE Setting range : 300 ~ 2,500 mm.
Setting unit : 1 mm.
Default value : 1,000 mm.

● Example : Set the tire circumference value from 1,000 to 1,300.

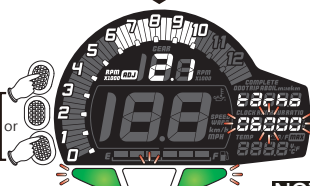● **Press button B once** to return to Maintenance mileage screen.

● Tire circumference setting screen.

● **Press button A once** to enter next setting.

4-5 First-stage RPM warning value

● **Press button B** to enter First-stage RPM warning value screen.

● Example : Set the First-stage RPM warning value from 6,000 RPM to 7,000 RPM.

● **Press button B once** to return to First-stage RPM warning screen screen.

● **EX：To set First-stage RPM warning value to 7,000 RPM.**

● **Press button A (to add) or button C (to deduct)** to choose the setting number.

⚠ Now the setting value will blink.

NOTE When the scope of RPM is 0 ~ 10,000 RPM.
Setting range : 3,000 ~ 9,750 RPM
When the scope of RPM is 0 ~ 13,000 RPM.
Setting range : 3,000 ~ 12,750 RPM
Default value : 6,000 RPM.

● First-stage RPM warning value setting screen.

● **Press button A once** to enter next setting.

4-6 Second-stage warning for RPM

● **Press button B** to enter Second-stage warning for RPM value screen.

● Example : Set the Second-stage warning for RPM value from 8,000 RPM to 8,750 RPM.

● **Press button B once** to return to Second-stage warning for RPM screen.
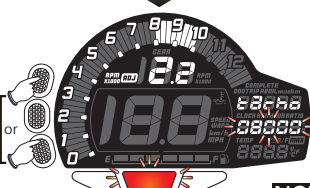
● **EX：To set Second-stage warning for RPM to 8,700 RPM.**

● **Press button A (to add) or button C (to deduct)** to choose the setting number.

⚠ Now the setting value will blink.

NOTE When the scope of RPM is 0 ~ 10,000 RPM.
Setting range : 3,250 ~ 10,000 RPM
When the scope of RPM is 0 ~ 13,000 RPM.
Setting range : 3,250 ~ 13,000 RPM
Setting unit : 250 RPM.
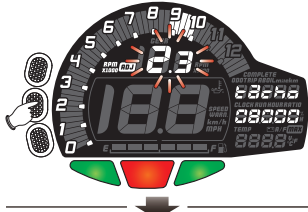Default value : 8,000 RPM.

● Second-stage warning for RPM value setting screen.

● **Press button A once** to enter next setting.
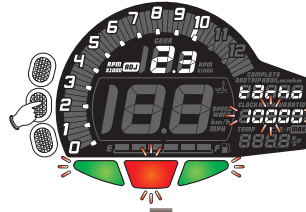
4-7 Third-stage warning for RPM

● **Press button B** to enter Third-stage warning for RPM value screen.

● Example : Set the Third-stage warning for RPM value from 9,000 RPM to 10,000 RPM.
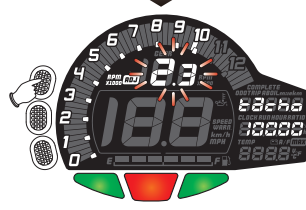● **Press button B once** to return to Third-stage warning for RPM screen.

● **EX : To set Third-stage warning for RPM to 10,000 RPM.**
● **Press button A (to add) or button C (to deduct)** to choose the setting number.

⚠ Now the setting value will blink.

NOTE When the scope of RPM is 0 ~ 10,000 RPM.
Setting range : 3,250 ~ 10,000 RPM
When the scope of RPM is 0 ~ 13,000 RPM.
Setting range : 3,250 ~ 13,000 RPM
Setting unit : 250 RPM.
Default value : 9,000 RPM.

● Third-stage warning for RPM value setting screen.
● **Press button A once** to enter next setting.

4-8 RPM

● **Press button B** to enter RPM settings screen.

● Example : Set the RPM value from 0 ~ 10,000 RPM to 0 ~ 13,000 RPM.
● **Press button B once** to return to RPM screen.

● **To set the RPM range to 0 ~ 13,000 RPM.**
● **Press button A (to add) or button C (to deduct)** to choose the setting number.

⚠ Now the setting value will blink.

NOTE Setting range : 0 ~ 10,000 RPM 、 0 ~ 13,000 RPM 。
Default value : 0 ~ 10,000 RPM 。

● RPM setting screen.
● **Press button A once** to enter next setting.

4-9 Type of RPM signals

● **Press button B** to enter Type of RPM signals screen.

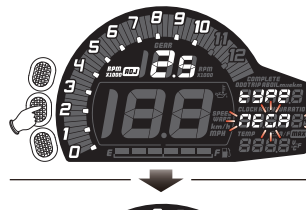● Example : Set the Type of RPM signals value from POS(+) to NEGA(-).
● **Press button B once** to return to RPM screen.

● **EX : To set Type of RPM signal to negative(-).**
● **Press button A (to add) or button C (to deduct)** to choose the setting.

⚠ Now the setting value will blink.

NOTE Settings range : POS(+) 、 NEG(-).
Default value : POS(+).

● Type of RPM signals value setting screen.
● **Press button A once** to enter next setting.

● **Press button B** to enter RPM stroke piston value screen.

● **EX. You want to connect the RPM signal wire to the pick up signal and there are 12 flywheel signals per turn.**
● **Press button A (to add) or button C (to deduct)** to choose the setting number.

⚠ Now the setting value will blink.

NOTE Settings range : P-0.5、P-1、P-1.5、P-2、P-2.5、P-3、P-4、P-5、P-6、P-9、P-10、P-11、P-12、P-17、P-18、P-23、P-24、P-34、P-36.
Default value : 1.

● Example : Set the RPM stroke piston value from 1 to 12.
● **Press button B once** to return to Running speed stroke piston screen.

● RPM stroke piston setting screen.
● **Press button A once** to enter next setting.

● **Press button B** to enter Type of thermal sensor value screen.

⚠ **CAUTION!**
● Methods for temperature detection are divided into OFF, cylinder head temperature, and temperature sensor.
● For the cylinder head temperature function, it requires additional wiring to be purchased seperately (Optional accessory 4 and 5).
● For the temperature sensor function, please select P-25 regarding the setting value.

● **EX : For YAMAHA FORCE 155, the setting value as per the reference is P-5.**
● **Press button A (to add) or button C (to deduct)** to choose the setting number.

⚠ Now the setting value will blink.

⚠ If the setting is OFF, enter the **4-14** backlight brightness directly.

NOTE Settings range : OFF、P-1、P-2、P-3、P-4、P-5、P-6、P-1A、P-2A、P-5A、P-6A、P-250.
Default value : P-250.

NOTE The temperature for the cylinder head would only be displayed when the RPM is > 0RPM.

Model category reference		
Vehicle brand	Vehicle type	Default value
YAMAHA	GTR	P-1
	BWS	P-1
	CUXI	P-1
	CYGNUS	P-1
	S-MAX	P-5
	Force 155	P-5
SYM	RX 110	P-2
	DRG	P-2
KYMCO	RACING 150	P-3
	VJR	P-3
	CUXI	P-4
	Quannon 150	P-6
HONDA	PCX (esp)	P-6
	MSX	P-6
	Monkey	P-6

Model category reference - FOR aRacer ECU		
Vehicle brand	Vehicle type	Default value
YAMAHA	GTR	P-1A
	BWS	P-1A
	CUXI	P-1A
	CYGNUS	P-1A
	S-MAX	P-5A
	Force 155	P-5A
SYM	RX 110	P-2A
	DRG	P-2A
HONDA	PCX (esp)	P-6A
	MSX	P-6A
	Monkey	P-6A

● Example : Set the Type of thermal sensor value from P-250 to P-5.
● **Press button B once** to return to Type of thermal sensor screen.

● Type of thermal sensor setting screen.
● **Press button A once** to enter next setting.

● **Press button B** to enter overheat warning setting value screen.

● **EX : To set overheat warning value to 90 °C.**
● **Press button A (to add) or button C (to deduct)** to choose the setting number.

⚠ Now the setting value will blink.

NOTE Settings range : 50 °C ~ 180 °C (122 ~ 356 °F)。
Setting unit : 5 °C (3 °F)。
Default value : 100 °C (212 °F)。

● Example : Set the Warning indicator operation settings - overheat from 100 °C to 90 °C.
● **Press button B once** to return to Warning indicator operation settings - overheat screen.

● Warning indicator operation settings - overheat setting screen.
● **Press button A once** to enter next setting.

4-13 Speed, temperature unit settings

- Press button B to enter Speed, temperature unit settings screen.

- EX : To set temperature unit settings value to °F.
- Press button A (to add) or button C (to deduct) to choose the setting number.

⚠ Now the setting value will blink.

NOTE Settings range : °C 、 °F.
Default value : °C.

- Example : Set the temperature unit settings from °C to °F.
- Press button B once to return to Warning indicator operation settings - overheat screen.

- Speed, temperature unit settings screen.
- Press button A once to enter next setting.

4-14 Backlight brightness settings

- Press button B to enter Backlight brightness settings value screen.

- EX : To set Backlight brightness settings value to 3-5.
- Press button A (to add) or button C (to deduct) to choose the setting number.

⚠ Now the setting value will blink.

NOTE Settings range : 1-5 ~ 5-5.
Default value : 5-5.

- Example : Set the Backlight brightness settings from 5-5 to 3-5.
- Press button B once to return to Backlight brightness settings screen.

- Backlight brightness settings screen.
- Press button A once to enter next setting.

4-15 ABS settings

- Press button B to enter ABS settings screen.

- EX : To set ABS to ON.
- Press button A (to add) or button C (to deduct) to choose the setting number.

⚠ Now the setting value will blink.

NOTE Settings range : ON 、 OFF.
Default value : ON.

- Example : Set the ABS settings from OFF to ON.
- Press button B once to return to ABS settings screen.

- ABS settings screen.
- Press button A once to enter next setting.

4-16 AFR settings

- Press button B to enter air-fuel ratio settings screen.

- EX : To set air-fuel ratio to ON.
- Press button A (to add) or button C (to deduct) to choose the setting number.

⚠ Now the setting value will blink.

NOTE Settings range : ON 、 OFF.
Default value : OFF.

NOTE This selected function, will only work with the air-fuel ratio sensor.

- Example : Set the air-fuel ratio settings from OFF to ON.
- Press button B once to return to AFR settings screen.

- Air-fuel ratio settings screen.
- Press button A once to enter next setting.

● **Press button B** to enter the low voltage warning setting screen.

● Example：Set the low voltage warning value from 11.5 V to 10.0 V.
● **Press button B once** to return to warning indicator settings screen.

● **EX：To set low voltage warning to 10.5 V.**
● **Press button B** to choose the setting number.

⚠ Now the setting value will blink.

NOTE Settings range : 8.0 ~ 13.0 V.
Setting unit : 0.1 V.
Default value : 11.5 V.

● Warning indicator resistance settings screen.
● **Press button A once** to enter next setting.

● **Press button A (to add) or button C (to deduct)** to choose the setting number.

● **Press button B** to enter Total mileage settings screen.

● **Press button B** to choose the setting number.

● **EX : To set external total mileage value to 50,000 km.**
● **Press button A (to add) or button C (to deduct)** to choose the setting number.

⚠ User unable to adjust and clear internal ODO.

⚠ Now the setting value will blink.

NOTE Settings range : 0 ~ 99,999 km

● Example：Set the external ODO from 0 to 50,000 km.
● **Press button B once** to return to Total mileage settings screen.

● Total mileage settings screen.
● **Press button A once** to enter next setting.

● **Press button B** to enter Mileage unit settings screen.

● Example：Set the Mileage unit settings from km/h to mile.
● **Press button B once** to return to Mileage unit settings screen.

● **EX：To set Mileage unit to MPH.**
● **Press button A (to add) or button C (to deduct)** to choose the setting number.

⚠ Now the setting value will blink.

NOTE Settings range :
km(km/h)、mile(MPH).
Default value : km(km/h).

● Mileage unit settings screen.
● **Press button A once** to enter next setting.

● **Press button B** to enter Fuel gauge resistance settings screen.

● **EX：For YAMAHA FORCE 155, the setting value as per the reference is 270 Ω.**
● **Press button A (to add)** or **button C (to deduct)** to choose the setting number.
⚠ Now the setting value will blink.

NOTE The fuel gauge resistance setting range：OFF、100Ω、250Ω、270Ω、390Ω、510Ω、1200Ω、fuel switch、CUSt. Default value：100 Ω.

NOTE In the absence of the fuel meter wirings, the fuel meter will not be displayed.

NOTE Custome fuel level resistance:
1)Manual - Please check 4-20-1 Fuel Level Resistance Manual Setting Instructions.
2)Auto - Please check 4-20-2 Fuel Level Resistance Auto Setting Instructions.
3)Where the setting is OFF, directly enter into the 4-22 gear setting.

Vehicle brand	Vehicle type	Default value	Vehicle brand	Vehicle type	Default value
YAMAHA	JOG 50 , 100	100 Ω	YAMAHA	LC 135	100 Ω
	RS 100	100 Ω		NEW LC 135	100 Ω
	RSZ 100	100 Ω		LAGENDA 110	100 Ω
	SV MAX 125	100 Ω		S-MAX 155	100 Ω
	CYGNUS 125	100 Ω		T-MAX 530	100 Ω
	NEW CYGNUS 125	100 Ω		MIO 110	100 Ω
	GTR 125	100 Ω		AEROX 50	100 Ω
				BW´S 125	100 Ω
				FORCE 155	270 Ω

車 系	車 種	Default value	車 系	車 種	Default value
HONDA	MSX 125	270 Ω	KYMCO	GOING 100	510 Ω
	WAVE 110	510 Ω		JR 100	510 Ω
	GN5 110	510 Ω		SR G4 125	510 Ω
	SH-150i	510 Ω		V-LINK GP 125	510 Ω
	PCX 125	100 Ω		KTR 150	100 Ω
	CBR 250	180 Ω		RACING 125 , 150	1200 Ω
	MONKEY 125	390 Ω		Quannon 150	1200 Ω
GILERA	RUNNER 50	100 Ω		G5 125 , 150	1200 Ω
PEUGEOT	SPEEDFIGHT 50	100 Ω		G6 150	100 Ω
APRILIA	SR 50	100 Ω		VJR 50 , 110	1200 Ω
SUZUKI	V 125	100 Ω	SYM	S-PRO 100	100 Ω
PGO	TIGRA 125 , 150	700 Ω		WOLF 125	100 Ω
	X-HOT 125 , 150	100 Ω	AEON	ELITE 250	100 Ω
	I´ME 125	100 Ω		CO-IN 125	100 Ω
	J BUBU 115	700 Ω		MY 125 , 150	100 Ω
	G-MAX 125	100 Ω	GILERA	MINI 125	100 Ω
	G-MAX 150	700 Ω	Hartford	Clouded Leopard 150	100 Ω

● Example：Set the Fuel gauge resistance settings from 100 Ω to 270 Ω.
● **Press button B once** to return to Fuel gauge resistance settings screen.

● Fuel gauge resistance settings screen.
● **Press button A once** to enter next setting.

● **EX：To set the resistance of the fuel meter (Ω) to CUSt.**
● **Press button A (to add)** or **button C (to deduct)** to choose the setting number.
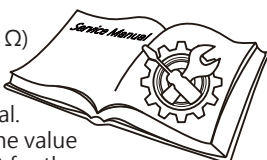⚠ Now the setting value will blink.
NOTE Default value：100 Ω

● Example：Set the resistance of the fuel meter (Ω) on the main screen from 100 to CUSt.
● Press button B two times to enter the manual operating setting screen.
● **Example：For YAMAHA FORCE 155, according to the service manual, the fuel tank resistance from low to high is 267 - 273 Ω (the lowest) and 10 - 14 Ω (the highest).So enter the setting value as 14 Ω .**

P.S. Try it!
● You may refer to the lowest (267 ~ 273 Ω) and the highest (10 ~ 14 Ω) resistance of fuel for the fuel sensor in the Electric Component section in the repair manual.
● Generally, the setting value would be the value closest to the lowest value (267 ~ 14 Ω) for the lowest and highest fuel resistance.

● **EX：To set the lowest fuel resistance to 267 Ω.**
● **Press button B** to move the cursor to the setting range.
⚠ Now the setting value will blink.

● **Press button A (to add)** or **button C (to deduct)** to choose the setting number.

● Example：Set the lowest fuel resistance from 0 to 267 Ω.
● **Press button B for three times** to enter the setting screen for the highest fuel resistance.

● **EX：To set the highest fuel resistance to 14 Ω.**
● **Press button B** to choose the setting number.
⚠ Now the setting value will blink.

● **Press button A (to add)** or **button C (to deduct)** to choose the setting number.

● Example：Set the highest fuel resistance from 0 to 14 Ω.
● **Press button B for two times** to return to the screen for the resistance of the fuel meter (Ω).

- Fuel gauge resistance settings screen.
- **Press button A once** to enter next setting.
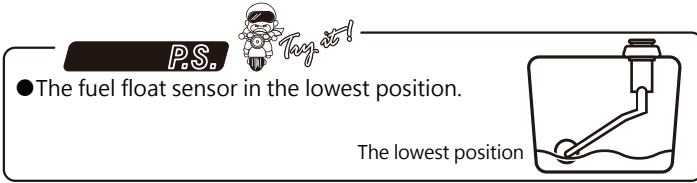
4-20-2 Automatic detection operating settings

- **EX：To set the resistance of the fuel meter (Ω) to CUSt.**
- **Press button A (to add) or button C (to deduct) to choose the setting number.**
  ⚠ Now the setting value will blink.
  NOTE Default value : 100 Ω

- Example：Set the resistance of the fuel meter (Ω) on the main screen from 100 to CUSt.
- **Press button B** to enter the automatic detection screen.

P.S. Try it!
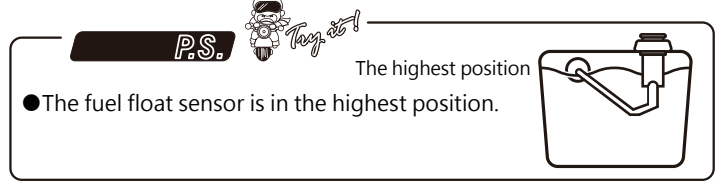- The fuel float sensor in the lowest position.
  The lowest position

- **Press button A or button C to detect the lowest fuel resistance.**

- Example：The automatic detected minimum fuel level is 267 Ω.
- **Press button B for five times** to enter the detection screen for the highest fuel resistance.

⚠ **CAUTION!**
- Before detection, please ensure your current fuel level is in the highest position that you would like to have.
- Stop the vehicle for a few seconds to allow the fuel surface to become steady, then start the detection of the resistance.

P.S. Try it!
The highest position
- The fuel float sensor is in the highest position.

- **Press button A or button C to detect the highest fuel resistance.**

- Example：The highest oil revel automatically detected was 14 Ω.
- **Press button B for five times** to return to the screen for the resistance of the fuel meter (Ω).

- Fuel gauge resistance settings screen.
- **Press button A once** to enter next setting.

4-21 Low fuel warning settings

- **Press button B to enter Low fuel warning settings screen.**

- **EX：To set the low fuel level to 2 bars.**
- **Press button A (to add) or button C (to deduct) to choose the setting number.**
  ⚠ Now the setting value will blink.
  NOTE Settings range : 0~3 bars, the fuel level symbol will blink as a warning when the fuel level is at the setting value or below. Default value : 1 bars

- Example：Set the low fuel level from 1 to 2 bars.
- **Press button B once** to return to Low fuel warning settings screen.

- Low fuel warning settings screen.
- **Press button A once** to enter next setting.

4-22 Gear learning settings

● **Press button B** to enter gear learning settings screen.

● **EX : To set the gear to gear-learning.**
● **Press button A (to add) or button C (to deduct)** to choose the setting number.

⚠ Now the setting value will blink.

NOTE If any changes happen to the tires circumference then the gear indicator will need to re-learn the gear positioning.

NOTE Settings range :
OFF、Gear-learning
Default value : Gear-learning

● Example : Set the Gear learning from off to Gear-learning.
● **Press button B** to enter the Gear-learning screen.

● Example : When the gauge displays LEArN, it will blink.
● **Press button A or button C** to start the gear learning.

NOTE Where gear-learning is not required, press button B to return to the main screen for gear-learning setting.
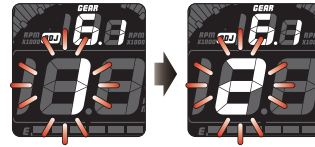
● Start riding when "GO" is flashing.

NOTE To abandon the gear-learning, short-press any button to return to the main screen for gear-learning setting.

● During the gear learning, please select a road that is wide and and relatively straight with little to no traffic lights for more accurate settings and traffic safety.
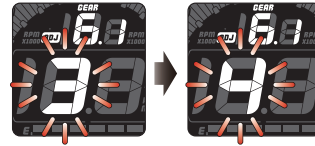
Step one

● When the 1st Gear is blinking, please change the gear of the bike to 1st gear and keep riding the bike for few seconds. The setting is completed when the signal has detected the accurate 1st gear value, and the process will move on to the 2nd gear.

Step two
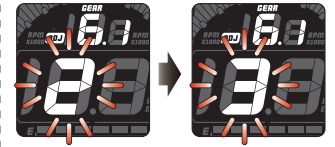
● When the 2nd Gear is blinking, please change the gear of the bike to 2nd gear and keep riding the bike for few seconds. The setting is completed when the signal has detected the accurate 2nd gear value, and the process will move on to the 3rd gear.

Step three

● When the 3rd Gear is blinking, please change the gear of the bike to 3rd gear and keep riding the bike for few seconds. The setting is completed when the signal has detected the accurate 3rd gear value, and the process will move on to the 4th gear.

Step four

● If the highest gear for the bike is the 6th gear, when the gear learning model has reached the 7th gear and it is unable to detect the accurate gear after pending for few seconds, it will end the learning process and return to the setting screen.
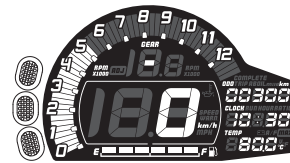
● Gear learning settings screen.
● **Press button A once** to enter next setting.

4-23 Exit settings

● Once confirmed, to leave the screen, **press button B** to return to the main screen.

● Main screen.

5 Trouble shooting

The following situations do not indicate malfunction of the meter. Check the following points before contacting us.

Trouble	Check item	Trouble	Check item
The meter doesn't work when power is on. The meter shows wrong information. **Speed doesn't appear or appears incorrectly.**	●The power isn't supplied to the meter. →Please make sure the wiring is connected. The wiring and fuse are not broken. →The battery is too old to supply needed power (DC 12 V). ●Check the voltage of your battery, and make sure the voltage is over DC 12 V. ●May be due to poor connection of wiring. →Please check whether the wires are disconnected or have fallen off. ●May be wrong settings. →Please check the settings menu to confirm whether the setting for speed per hour is correct.	Fuel meter doesn't display or displays error. The clock is incorrect.	●May be due to poor connection of wiring. →Please check whether the wires are disconnected or have fallen off. ●May be wrong setting. →Please check the settings menu to confirm whether the setting for fuel level is correct. ●May be wrong setting. →Please check the setting list to see whether the setting for clock is correct. ●Wirings for the connector may be poorly installed. →Please confirm whether the wires in the connector is properly installed and whether the wires are connected.
Tachometer doesn't appear or appears incorrectly.	●May be due to poor connection of wiring. →Please check whether the wires are disconnected or have fallen off. ●May be due to failure to change to R type spark plug. ●May be wrong setting. →Please check the settings menu to confirm whether the setting for RPM is correct.	**Voltage doesn't appear or appears incorrectly.** A / F does not display or displays error.	●Wires in the connector may be poorly installed. →Please confirm whether the wires in the connector is properly installed and whether the wires are connected. ●May be due to poor connection of wiring. →Please check whether the wires are disconnected or have fallen off. ●May be due to the wrong settings of AFR. →Please check the settings menu to confirm whether the setting is correct.
Thermometer doesn't appear or appears incorrectly.	●May be due to poor connection of wiring. →Please check whether the wires are disconnected or have fallen off. ●May be wrong setting. →Please check the settings menu to confirm whether the setting for temperature is correct.		

※ If you can't resolve the problems according to the steps above, please contact our technical department.