● Thank you for purchasing KOSO EFi Multi-funciton LCD meter. Before operating the unit, please read the instructions thoroughly and retain them for future reference.

⚠ Notice

● This meter works with DC 12V only. The battery inside (CR2032) is only for the clock.
● For proper installation, follow the steps below. Any damage caused by faulty installation shall be imputed to the users.
● To avoid a short circuit, do not pull the wire off the connector while installing the unit. Do not cut or modify the wire terminal either.
● Do not disassemble or change any parts.
● Maintenance and repairs should be executed by our professionals only.

Flash Light on

Press the button one time Press the button 3 seconds

MARK MEANING:

⚠	Some procedures must be followed in order to avoid faulty installation.
⚠ WARNING!	Some procedures must be followed in order to avoid injuries from occuring to yourself or to others.
⚠ CAUTION!	Some procedures must be followed in order to avoid damages from occuring to the vehicle.

1-1 Assembly

1 Meter X 1

2 Power wire X 1

3 RPM wire set X 1

4 sensor wire set X 3

5 PT1/8 water temp sensor X 2

6 Mid-way connector X 2

7 Velcro X 1

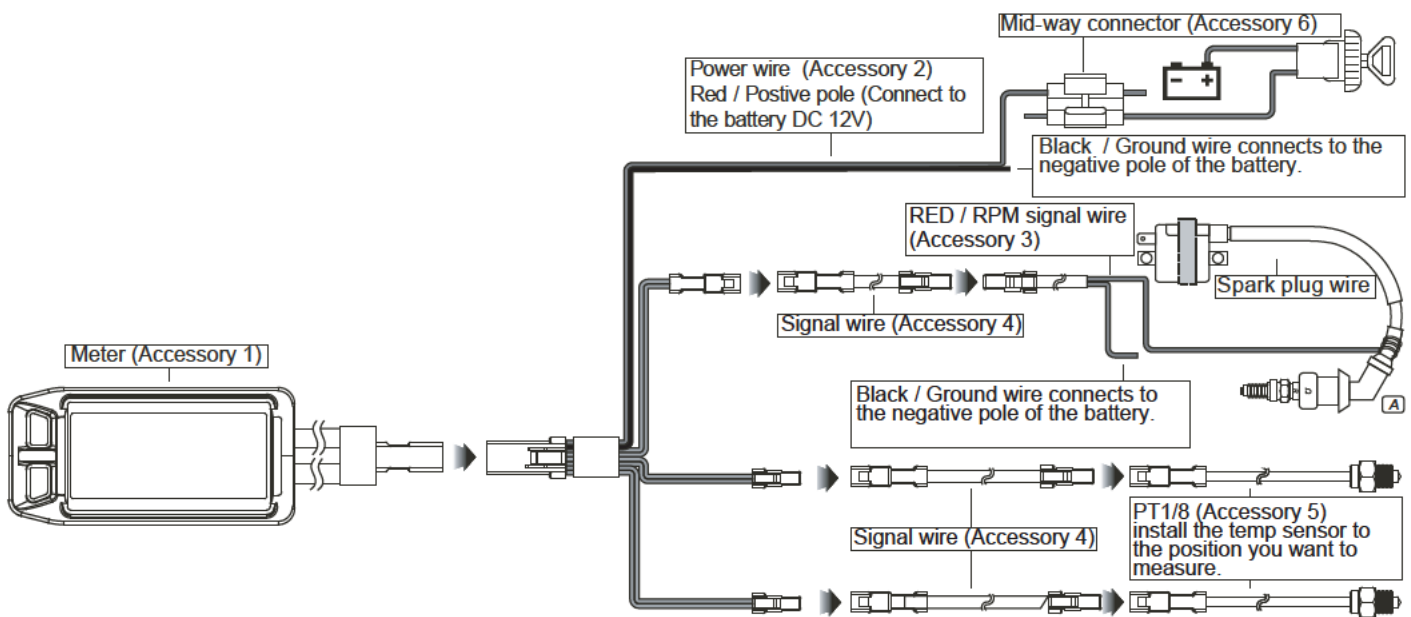**8** Battery (CR2032) X 1

NOTE | Contact your local distributor, if the items you received are not the same as the ones listed above.

1-2 Optional accessories

1 Oil temp sensor adapter
M12 X P1.5 X 15L
M14 X P1.25 X 15L
M14 X P1.5 X 15L
M16 X P1.5 X 15L
M18 X P1.5 X 15L
M20 X P1.0 X 15L
M20 X P1.5 X 15L

2 Water temp sensor adapter
M14
M16.M18
M22.M26 mm

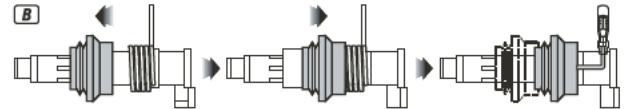**3** Extension Wire

4 Oxygen sensor

5 Sensor bung

NOTE | Some of the optional accessories may not be available in your area. For more details, contact your local distributor.

2-1 Wiring installation instructions

Mid-way connector (Accessory 6)

Power wire (Accessory 2)
Red / Postive pole (Connect to the battery DC 12V)

Black / Ground wire connects to the negative pole of the battery.

RED / RPM signal wire (Accessory 3)

Spark plug wire

Signal wire (Accessory 4)

Meter (Accessory 1)

Black / Ground wire connects to the negative pole of the battery.

PT1/8 (Accessory 5) install the temp sensor to the position you want to measure.
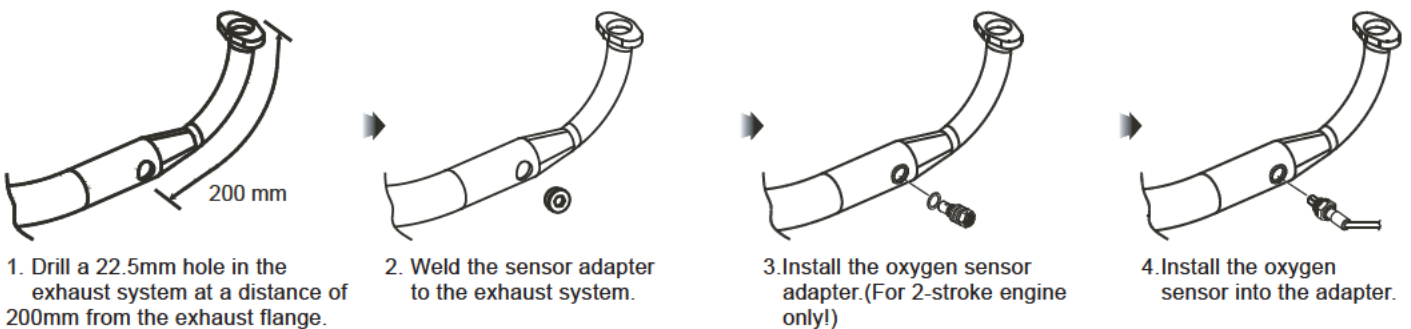
Signal wire (Accessory 4)

A

The RPM wire installation
A. Wrap the RPM wire at least 3~10 times around the spark plug.
B. For the models that come with the new ignition coil, wrap the RPM wire at least 5 times around the spark plug. View image to the right.
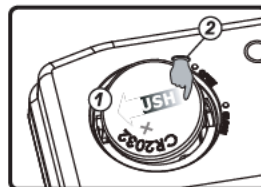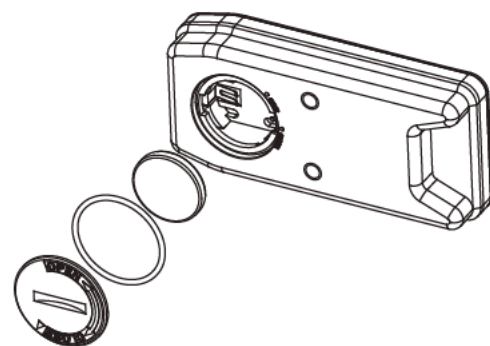
B

2-2 Oxygen sensor installation instructions

200 mm

1. Drill a 22.5mm hole in the exhaust system at a distance of 200mm from the exhaust flange.

2. Weld the sensor adapter to the exhaust system.

3. Install the oxygen sensor adapter.(For 2-stroke engine only!)

4. Install the oxygen sensor into the adapter.

⚠ CAUTION! During installation, make sure the sensor will not touch the body or engine to avoid damages from occuring.
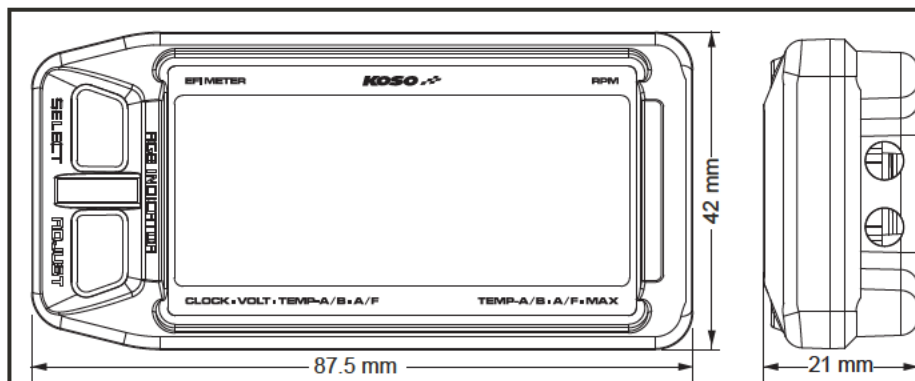
2-3 Battery replacement instructions

Follow this procedure for proper installation.
● The meter includes an internal battery (CR 2032). This battery should only be replaced when the power runs out
● In order to intall the battery properly, push the battery as shown on figure (2) to make sure the battery is placed underneath the metal tab (1).

⚠ WARNING! By not following these instructions you risk damaging the meter permanently

CR2032

EFI METER · KOSO · RPM
SELECT · ADJUST · AGE INDICATOR
CLOCK·VOLT·TEMP-A/B·A/F · TEMP-A/B·A/F-MAX

42 mm
87.5 mm
21 mm

Thermometer alarm light A/B
- Setting range:60~250°C(140~482°F)
- Setting unit:1°C (°F)

Shift light
- Setting range:5,000~20,000 RPM
- Setting unit:100 RPM

MAX RPM / Temperature record
- The meter will record the top RPM and temperature automatically.

- **Select button**
  - ○ The functions in setting screen in order are; clock→volt→sensor A →sensor B.
- **Adjust button**
  - ○ The functions in setting screen in order are; sensor A →sensor B→MAX record (RPM / Temp)
- **Select+Adjust button X3**
  - seconds to enter the setting screen. (Check section 4-3 for detail)

Level (Tachometer)
- Display range:OFF、10,000、15,000、20,000 RPM

Digital (Tachometer)
- Display range:0~20,000 RPM
- Display unit:100 RPM

Thermometer A/B
When the sensor wire is connected to the temperature sensor, and are in the a5/a7 mode set to temperature / the meter will show the temperature.
- Display range: 0~250°C (32.0~482.0°F)
- Display unit:0.1°C (°F)

Clock
- 24 H

Volt meter
(Input power needed can't work with battery)
- Display range:8.0~18.0 V
- Display unit:0.1 V

Air Fuel ratio
When the sensor wire is connected to the O2 sensor, and are in the a5/a7 mode set to AF ra / the meter will then show the A/F ratio.
- Display range:12.1~16.8
- Display unit:0.1

● Digital (Tachometer)	Display range:0~20,000 RPM Display unit:100 RPM	○ Air/ Fuel ratio	Display range:12.1~16.8 Display unit:0.1
● Level (Tachometer)	Display range: 0~10,000/15,000/20,0000 RPM	● Volt meter (Input power needed, can't work with CR 2032) Display range:DC 8.0~18.0 V Display unit:DC 0.1 V	
○ Display internal	<0.5 second		
○ Shift light	Setting range:5,000~20,000 RPM Setting unit:100 RPM	● Clock	24 H
○ MAX RPM record	Display range:0~20,000 RPM	● Effective voltage	CR 2032 (Lifetime around 2years)
○ Stroke / Piston	Setting range: 2 Stroke:1.2.3.4.6 pistons 4 Stroke:1.2.4.6.8.10.12 pistons	● External power	DC12V
		● Effective temperature range	-10~+60 °C
● Thermometer	Setting unit:°C & °F for alternative	● Meter standard	JIS D 0203 S2
○ Thermometer A/B	Display range:0~250 °C (32~482 °F) Display unit:0.1 °C (°F)	● Meter size	87.5 X 42 X 20.8 mm
		● Meter weight	+\- 72 g
○ Display internal	<0.5 second	● Indicator light color	🔵 Temperature A alarm(Blue) 🔴 RPM shift light (Red) 🟢 Temperature B alarm (Green)
○ Thermometer alarm	Setting range:60~250 °C (140~482 °F) Setting unit:1 °C (°F)		
○ MAX temperature record	Display unit:0~250 °C (32~248 °F)		

NOTE Design and specifications are subject to change without notice.

● Select button functions:

● In the clock screen, press the Select button one time to enter into the volt screen.

● In the volt screen, press the Select button once to enter into the sensor A screen.

● In the sensor A screen, press the Select button once to enter the sensor B screen.

● In the sensor B screen, press the Select button once to go back to the clock screen.

● Back to the clock screen.

● Adjust button functions:

● In the sensor A screen, press the Adjust button once to enter the sensor B screen.

● In the sensor B screen, press the Adjust button once to enter in the Max. record screen.

● MAX record screen, press the Adjust button once to go back to the sensor A screen.
● Hold pressing Adjust button for 3 seconds to reset MAX record.

NOTE When you set the A/B setting as A/F ratio, it will not show the value in the Max record.

● Back to sensor A screen.

● Select + Adjust X3 second button function instruction

● In main screen, press down the Adjust+Select buttons at the same time for 3 seconds to enter the setting screen. (Check section 4-3 for detail)

● In main screen

● In main screen, press down the Select & Adjust button at the same time for 3 seconds to enter the setting screen.
● The setting screen is in the same order as the following drawing. Use the setting order for your reference when you want to set the meter.

↻ If you want to make this function setting, you could hold down the Select button for 3 seconds to go back to the main screen.

● The backlight brightness setting

● The clock setting

● The RPM input signal setting

● Thermometer alarm light B setting

● Digital / Level Tachometer setting

● The RPM shift light setting

● The thermometer unit setting

● Sensor A setting

● Thermometer alarm light A setting

● Sensor B setting

●In the main screen, press down the Select + Adjust for 3 seconds to enter into the setting screen.

4-3-1 RPM pulse setting

●Press the Select button to enter into **ə 1** RPM pulse setting screen.

●EX. You want to change the current setting value from P-1 to P-2.
●Press the Adjust button to enter the corresponding value for the RPM signal number per ignition.(Please check the reference table below!)

NOTE The piston type can be set to 0.5、1、2、3、4、5、6.

⚠ Now the number is flashing!

The setting value	The corresponding stroke and pistons number.		The corresponding RPM signal number per ignition.
0.5	—	4C-1P	2 RPM signals per 1 ignition.
1	2C-1P	4C-2P	1 RPM signal per 1 ignition.
2	2C-2P	4C-4P	1 RPM signal per 2 ignition.
3	2C-3P	4C-6P	1 RPM signal per 3 ignition.
4	2C-4P	4C-8P	1 RPM signal per 4 ignition.
5		4C-10P	1 RPM signal per 5 ignition.
6	2C-6P	4C-12P	1 RPM signal per 6 ignition.

NOTE Model Category reference (Check section 5-1 for detail)

⚠ CAUTION! Most of the 4-stroke bikes with one single piston are igniting once every 360 degrees, so the setting should be the same as the bike with 2-stroke and one piston engine.

●EX. The ignition angle setting is changed from P-1 to P-2.
●Press the Select button to go back to the **ə 1** RPM pulse setting screen.

●**ə 1** RPM pulse setting screen.
●Press the Adjust button to enter the **ə 2** Bar graphic / Digital tachometer setting screen.

4-3-2 Bar graphic / Digital tachometer setting

●**ə 2** Bar graphic / Digital tachometer setting screen.
●Press the Select button to enter the Bar graphic / Digital tachometer setting screen.

●EX. You want to set the Bar graphic tachometer to 20,000 RPM.
●Press the Adjust button to choose the setting range.

NOTE The tachometer range : 10,000、15,000、20,000、OFF

⚠ Now the number is flashing!

●EX. Now the setting is changed from 15,000 RPM to 20,000 RPM.
●Press the Select button to go back to the **ə 2** Bar graphic / Digital tachometer screen.

●**ə 2** Bar graphic / Digital tachometer setting screen.
●Press the Adjust button to enter the **ə 3** shift light setting screen.

4-3-3 The shift light (RED light) setting

●**ə 3** The shift light (RED light) setting screen.
●Press the Select button to enter the **ə 3** shift light (RED light) setting screen.

●EX: You want the shift light to light on at 9,000 RPM. Please change the shift light setting value to 9,500 RPM directly.
●Press the Select button to move to the digit you want to set.

●Press the Adjust button to choose the value you want to set.

NOTE Setting range:5,000~20,000 RPM

⚠ Now the number is flashing!

●EX: Now the shift light (RED light) setting is changed from 9,000 RPM to 9,500 RPM.
●Press the Select button to go back to The **ə 3** shift light screen.

●**ə 3** The shift light (RED light) setting screen.
●Press the Adjust button to enter the **ə 4** Temperature unit setting screen.

4-3-4 Temperature unit setting

●**ə 4** The temperature unit setting screen.
●Press the Select button to enter the **ə 4** temperature unit setting screen.

●EX. You want to set the Temperature unit to ℉.
●Press the Adjust button to change the setting.

NOTE Setting range : ℃、℉.

⚠ Now the number is flashing!

●EX.To change the setting from ℃ to ℉.
●Press the Select button to go back to the **ə 4** temperature unit setting screen.

●**ə 4** The temperature unit setting screen.
●Press the Select button to enter the **ə 5** sensor A screen.

4-3-5 Sensor A setting

- a 5 The sensor A setting screen.
- Press the Select button to enter the sensor A setting screen.

- EX: You want to set the Sensor A (temp).
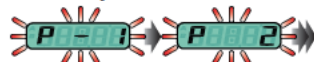- Press the Adjust button to select type of senor.

$$tEnnP \Rightarrow AFr$$

NOTE | Sensor type: water temp/oil temp/cylinder head temp/air-temp/AF ratio.

NOTE | Choose temperature mode, enter into it and choose sensor A or B.

NOTE | When under AFr mode, you can do set up under screen a 9.

⚠ Now the number is flashing!

- EX: You want to set the Sensor A P-5.
- Press the Select button to choose the one you want to set.

$$P-1 \Rightarrow P \quad 2 \Rightarrow$$

- Press the Adjust button to choose the you want to set.

$$P-1 \Rightarrow P \quad 5$$

NOTE | Setting range:P-1~P-7

NOTE | Model Category reference (Check section 5-2 for detail)。

⚠ Now the number is flashing!

- EX: The Sensor A setting is changed from P-1 to P-5.
- Press the Select button to go back to a 5 the Sensor A screen.

- a 5 Sensor B screen.
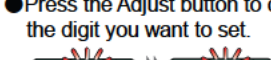- Press the Adjust button to enter the a 6 Temperature alarm light A (Blue) seeting screen.

4-3-6 | Temperature alarm light A (Blue) setting

- a 6 Temperature alarm light A (Blue) setting screen.
- Press the Select button to enter the Temperature alarm light A (Blue) setting screen.

- EX: You want to set the temperature alarm light A(Blue) at 105℃.
- Press the Select button to move to the digit you want to set.

$$0900C \Rightarrow 0900C$$

- Press the Adjust button to choose the digit you want to set.

$$0900C \Rightarrow 1050C$$

NOTE | Setting range:60~250 ℃ (140~482 °F)。

⚠ Now the number is flashing!

- EX: The temperature alarm light A (Blue) setting is changed from 90℃ to 105℃.
- Press the Select button to go back to a 6 The temperature alarm light A (Blue) setting screen.

- a 6 Temperature alarm light A (Blue) setting screen.
- Press the Adjust button to enter the a 7 sensor B setting screen.

4-3-7 | Sensor B setting

- a 7 Sensor B setting screen.
- Press the Select button to enter the Sensor B setting screen.

- EX: You want to set the Sensor B (temp).
- Press the Adjust button to select type of sensor.

$$tEnnP \Rightarrow AFr$$

NOTE | Sensor type: water temp/oil temp/cylinder head temp/air-temp/AF ratio.

NOTE | Choose temperature mode, enter into it and choose sensor A or B.

NOTE | When under AFr mode, enter into and do set up under screen a 9.

⚠ Now the number is flashing!

- EX: You want to set the Sensor A P-5.
- Press the Select button to choose the you want to set.

$$P-1 \Rightarrow P \quad 2 \Rightarrow$$

- Press the Adjust button to choose the you want to set.

$$P-1 \Rightarrow P \quad 5$$

NOTE | Setting range:P-1~P-7

NOTE | Model Category reference (Check section 5-2 for detail)。

⚠ Now the number is flashing!

- EX: The Sensor B setting is changed from P-1 to P-5.
- Press the Select button to go back to a 7 the Sensor B setting screen.

- a 7 The sensor B screen.
- Press the Adjust button to enter the a 8 Temperature alarm light B (Green) setting screen.

4-3-8 | Temperature alarm light B (Green) setting

- a 8 Temperature alarm light B (Green) setting screen.
- Press the Select button to enter the Temperature alarm light B (Green) setting screen.

- EX: Set the temperature alarm light B(Green) at 105℃.
- Press the Select button to move to the digit you want to set.

`2500℃` ➡ `2500℃`

- Press the Adjust button to choose the digit you want to set.

`1010℃` ➡ `1050℃`

NOTE Setting range:60~250 ℃ (140~482 °F)。

⚠ Now the number is flashing!

- EX: The temperature alarm light B (Green) setting is changed from 90℃ to 105℃.
- Press the Select button to go back to **A 8** The temperature alarm light B (Green) screen.

- **A 8** Temperature alarm light B (Green) screen.
- Press the Adjust button to enter **A 9** the clock (Hour / Minute) setting screen.

4-3-9 Clock setting (Hour / Minutes)

- **A 9** The clock (Hour) screen.
- Press the Select button to enter the clock (Hour) setting screen.

- EX: Set the hour to 14.
- Press the Adjust button to choose the hour you want to set.

`0:00` ➡ `14:00`

NOTE Setting range: 0~23 H.
⚠ Now the number is flashing!

- EX. Now the setting is changed from 0:00 to 14:00.
- Then press the Adjust button to enter the minute setting screen.

- EX. Change the setting to 14:05.
- Press the Select button to move to the digit you want to set.

`14:00` ➡ `14:00`

- Press the Adjust button to choose the digit you want.

`14:00` ➡ `14:05`

NOTE Setting range: 0~59 minutes.
⚠ Now the number is flashing!

- EX. Now the setting is changed from 0:00 to 14:05.
- Press the Adjust button to go back to the clock screen.

- **A 9** The clock screen.
- Press the Adjust button to enter the **A10** Backlight setting.

4-3-10 Backlight setting

- **A10** The Backlight screen.
- Press the Select button to enter the Backlight setting screen.

- EX. Set the brightness at 1.
- Press the Adjust button to choose the level you want to set.

`5-5` ➡ `1-5`

NOTE Backlight setting range: 0 (Darkest) ~5 (Brightness).

⚠ Now the number is flashing!

- EX:The Backlight setting changes from iLL 1 to ILL 5.
- Press the Select button to go back to **A10** the Backlight screen.

- **A10** Backlight screen.
- Press the Select button for 3 seconds to go back to the main screen.

- The main screen.

The following situation does not necessarily indicate malfunction of the meter. Check the following points, before taking it in for repairs.

Trouble	Check item	Trouble	Check item
The meter does not work when the power is on.	● The meter has no power. →Make sure the wiring is connected. The wiring and fuse are not broken. →The battery is broken or the battery is too old to supply enough power (DC 12V) to make the meter work.	Tachometer does not appear or it appears incorrectly.	● Check if the RPM sensor wiring is connected correctly. ● Check if the spark plug is R type or not. If not, replace the spark plug with the R type spark plug. ● Check your setting. → Refer to the manual 4-3-1.
The meter shows incorect information	● Maybe the problem is caused by the insufficient power →Change the inner battery. (CR 2032.) ● Maybe the problem is caused by wrong battery installation →Check if the battery direction is correct.	Temp does not appear or appear incorrectly	● Check the sensor. →Is the wiring broken or falling off? ● Mabe the problem is caused by the insufficient power →Change the inner battery (CR 2032).

※If the problem is not resolved after following the steps above, please contact your local distributors for assistance.