DB-02
DIGITAL LCD METER

INSTRUCTION

*Thank you for purchasing **KOSO DB-02 speedometer**, before operating the unit, please read the instruction thoroughly and retain it for the future reference.*

⚠ Notice

- The meter function is powered by the inner battery,but the back light is powered by the outside power input
- For installation, please follow the steps described in manual. Any damage caused by wrong installation shall be imputed to the users.
- Don't break or modify the wire terminal. To avoid the short circuit, please don't pull the wire when installing.
- Do not disassemble or change any parts excluding the manual description.
- The interior examination or maintenance should be executed by our professionals.

MARK MEANING:

NOTE You could get the installation details from the information behind the mark.

⚠ Some processes must be followed to avoid the affection caused by wrong installation.

⚠WARNING! Some processes must be followed to avoid damages to yourself or the public.

⚠CAUTION! Some processes must be followed to avoid the damage to the vehicle.

PRESS THE BUTTON ONE TIME

PRESS THE BUTTON 3 SECONDS

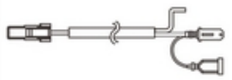
1-1 Accessory

1 LCD meter X 1

2 Power wireX1

3 RPM wire set (A TYPE) X 1

4 RPM wire set (B TYPE) X 1



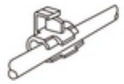
5 Temp sensor wire set X 2

6 PT 1/8water temp sensor X 2

7 Reed switch speed sensor X 1

8 D6 X 5L mm magnet X 1

9 Mid-way connect X 2



10 M8/ S type speed sensor bracket X 1

11 M10/ S type speed sensor bracket X 1

12 M5X5L Hexagon socket screw X 2

13 Battery X1

14 2.5 mm spanner X 1

15 4 mm spanner X 1

16 Meter bracket X 1

17 M5 washer X 2

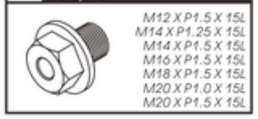
18 M5 X 15L screw X 2

NOTE Please contact the local distributor if the items you open are not the same, with the above-listed one.

1-2 Option accessory

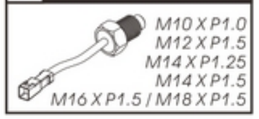
1 Disc magnet screw

2 Oil temp sensor adapter

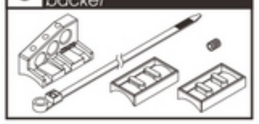


3 Water temp sensor adapter

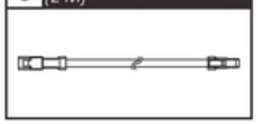
4 Temp sensor



5 L TYPE speed sensor backet

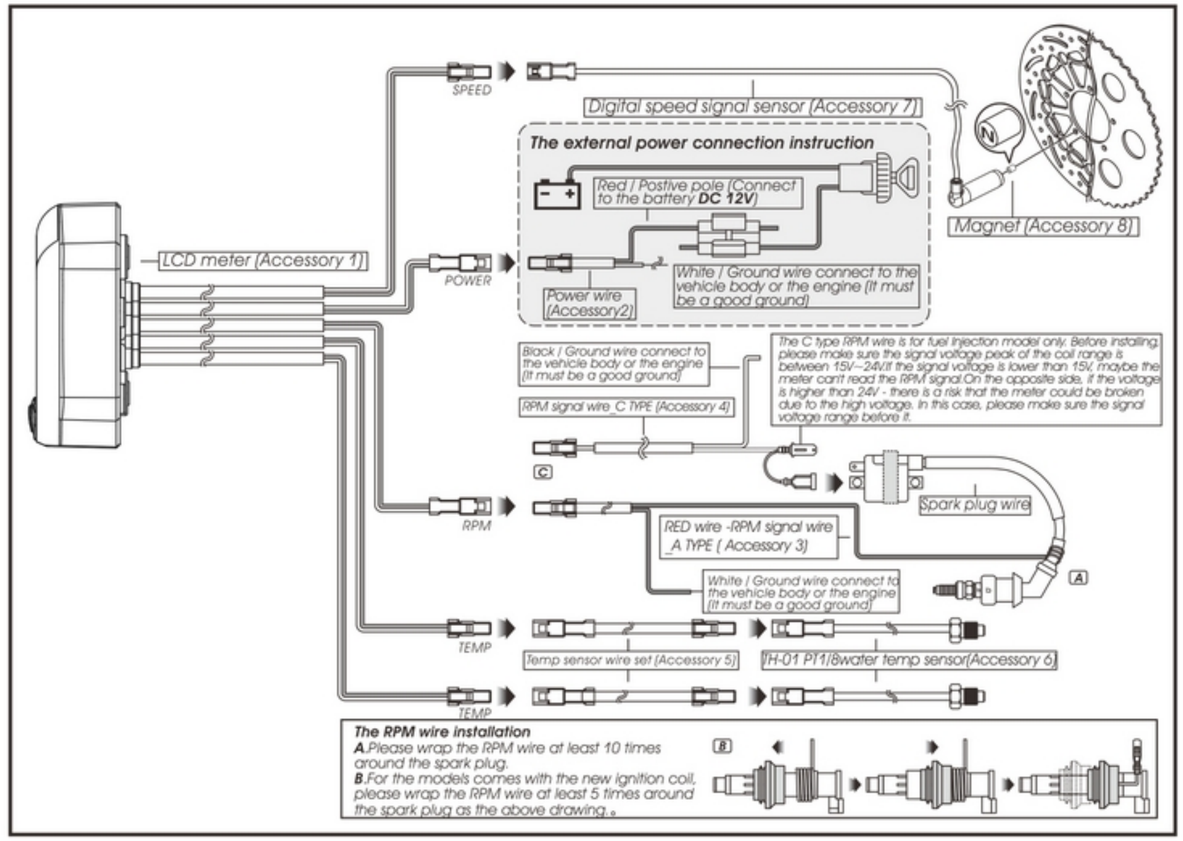


6 Temp sensor wire set (2 M)

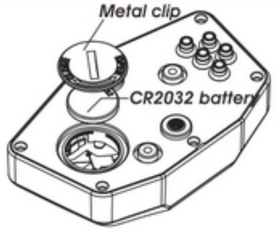


NOTE Some of the option accessories may not sell. For the details, please contact the local distributor.

2-1 Wiring installation instructions



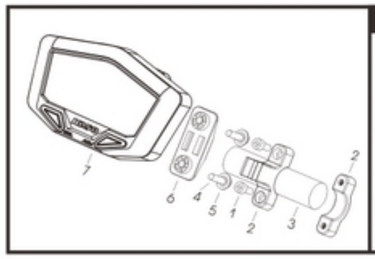
2-2 Battery change



- After open the battery cover, please use the slotted-head screwdriver to take the battery out.

NOTE Please use proper tool to take out the battery to avoid breaking the battery clipper.

2-3 INSTALLATION INSTRUCTIONS.



When installing, please follow the process.

1.M5 x 12l screw x2
2.Meter bracket for handle bar
3.Fix the bracket on handle bar (7/8 inch)
4.M5 x 18l screw x2
5.M5 washer x2
6.Meter fixed board
7.Fix the meter on the board (6) With the screw (5)
8.Fix the meter and the bracket together

NOTE Please adjust the meter to the best visible angle before tighte ning the screw

3 Display instruction

The temperature alarm A/B
- Setting range : 60~250°C (140~482°F)
- Setting uni : 1 °C (°F)

Speeding warning light
- Setting range : 30~360 km/h (19~225MPH)
- Setting unit : 1 km/h (MPH)。

The tachometer bar range
- Display range : 10,000、15,000 、20,000 RPM。

Batter situation
- When the battery is full, it will hows the battery in 4 segments.
- When the external power is connect, the battery symbol will disappear.

Auto sleep function
- When the meter works with the inner battery, it will enter the auto sleep function when the meter idles over 20 seconds.

3 stages RPM shift light
- Setting range : 5,000~20,000 RPM
- Setting unit : 100 RPM

The digital tachometer
- Display range : 0~360 km/h (0~225 MPH)
- Display unit : 1 km/h (MPH)。

Bar graph tachometer
- Display range : 0~20,000 RPM
- Display unit : 10 RPM。

Odometer
- Display range: 0~99999 km (mile) , reset automatically after 99999 km (mile)
- Display unit: 0.1 km (mile)

Trip A, B
- Display range: 0~999.9 km (mile), reset automatically after 0~999.9 km (mile)
- Display unit: 0.1 km (mile)

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

CLOCK
- Time : 24H
- When the meter is off, it will show the seconds.

Volt meter (the external power)
- Display range : 0.0~18.0V
- Display unit : 0.1V
- When the external power is connected, it will show the voltage value directly; It will show 0.0V when the external power is disconnected.

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3-1 Function instruction

•Speedometer	Display range : 0~360 km/h (0~225 MPH) Display unit : 1 km/h & MPH for alternative
○Display internal	<0.5 second
○Odometer	Display range: 0~999.9 km (mile), reset automatically after 0~999.9 km (mile) Display unit: 0.1 km (mile)
○Trip A.B	Display range: 0~999.9 km (mile), reset automatically after 0~999.9 km (mile) Display unit: 0.1 km (mile)
○Speeding warning light	Setting range : 30~360 km/h (19~225 MPH) Display unit : 1 km/h (MPH)
○Top speed record(MAX)	Display range : 0~360 km/h (0~225 MPH)
○Tire circumference	Setting range : 300~2,500 mm Display unit : 1 mm·Sensor point: 6
•Digital Tachometer	Display range : 20,000 RPM Display unit : 10 RPM
•Bar graph tachometer	Display range : 10,000 RPM 60 segment bar graph Display unit : 166 RPM for each segment
	Display range : 15,000 RPM 60 segment bar graph Display unit : 250 RPM for each segment
	Display range : 20,000 RPM 60 segment bar graph Display unit : 333 RPM for each segment
•Thermometer	Display unit : °C & °F for alternative
•Thermometer A、B	Display range : 0~250°C (32~482°F) Display unit : 0.1°C (°F)
○Display internal	<0.5 second
•Total hour meter	Display range: 0~999.9 H Display unit: 0.1 H (6 S)

○RPM shift light	Display range : 5,000~20,000 Display unit : 100 RPM。
○Pre shift light A & B	Display range : 500~5,000 Display unit : 100 RPM。
○MAX RPM record	Setting range : 0~20,000 RPM
○RPM input pulse	Display range : 0.5, 1, 1.5, 2, 2.5, 3, 4, 5, 6
○Temperature alarm A、B	Display range : 60~250°C (140~482°F) Display unit : 1°C (°F)
○TOP temperature alarm	Setting range : 0~250°C (32~482°F)
•Volt meter	Display range : DC 0~18 V Display unit : DC 0.1 V
●Back light	DC 12V
●Battery type (LCD display)	CR 2032
●Battery life time : Around 220 hours nonstop.	
•Effective temperature range	-10~+60°C
•Meter standard	JIS D 0203 S2
•Meter size	100 X 60 X 20 mm
•Meter weight	Around 200 g
•Telltales	Speeding (RED) Temperature alarm_T-A (RED) Temperature alarm_T-B (RED) RPM shift light_A (Yellow) RPM shift light_B (Orange) RPM Shift light (RED)

NOTE *Design and specification are subject to change without notice!*

4-1 Function switch instruction

•4-1-1 Select button function instruction

•In stand-by screen, press any button to start the meter.

•In main screen,Press the **Select button** once to switch function from clock to temp A.

•In temp A screen, press the **Select button** once to switch from Temp A to Temp B
•When the temperature is in the main screen, you could press down the **Select button** for 3 seconds to switch the temperature unit.

•In temp B screen, press the **Select button** once to switch from Temp B to volt function.
•When the temperature is in the main screen, you could press down the **Select button** for 3 seconds to switch the temperature unit.

•In volt screen, press the **Select button** once to switch from the volt function to the main screen.

•The main screen.

•4-1-2 Adjust button function instruction

•In stand-by screen, press any button to start the meter.

•In main screen, press the **Adjust button** once to switch the function from odo meter to trip A.
•In main screen, you could press down the **Adjust button** for 3 seconds to change the speed unit.

•In trip A screen, press the **Adjust button** to swtich from trip A to trip B.
•Press down the **Adjust button** for 3 seconds to reset the trip A.

•In trip B screen, press the **Adjust button** to swtich from trip B toe Max record.
•Press down the **Adjust button** for 3 seconds to reset the trip B.

•In Max record screen, press the **Select button** once to switch from Max record to the main screen.
•Press down the **Adjust button** for 3 seconds to reset the MAX record.

•The main screen.

•4-1-3 Adjust+Selectbutton function instruction

•In main screen, press the **Adjust & Select** button one time at the same time to switch the digital speedometer to digital tachometer.

•4-1-4 Select+Adjust button function instruction X3

• Press down the **Adjust** & **Select** button for 3 seconds to enter setting screen. (Check section 4-2 for detail)

4-2 Function setting instruction

•In main screen

•In main screen, press down the **Select & Adjust X 3 seconds** to enter the tire circumference and sensor point setting.

•Tire circumference setting

•**EX. The tire circumference is 1,300 mm.**
•Press the **Select button** to move to the digit you want to set.

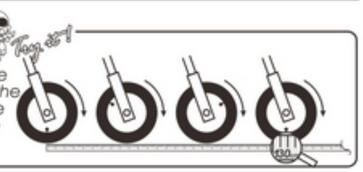
NOTE *setting range: 300~2,500 mm. Setting unit: 1 mm.*

⚠ 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.*

P.S.

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



•Press the **Adjust button** to choose the setting number.
•EX. The circumference setting is changed from 1,000 mm to 1,300mm.

•Press the **Select button** to enter the sensor point setting

•Sensor point setting

•Press the **Adjust button** to choose the setting number.
•**EX. The sensor point you want to set is 6.**

NOTE *The sensor point setting range: 6 points.*

•EX. the sensor point setting is changed from 1 P to 6 P.
•Press the **Select button** to enter the RPM pulse setting.

•RPM pulse setting

•**EX. You want to change the current setting value from 1 to 2.**
•Press the Adjust button to enter the corresponding value for the RPM signal number per ignition. (Please check the reference table below!)
•EX. The original setting is 0.5 (4C-1P).

NOTE *The piston type can be set is 0.5, 1, 1.5, 2, 2.5, 3, 4, 5, 6.*

The setting value	The corresponding spark plug position number		The corresponding RPM signal number per ignition
0.5	——	4C-1P	2 RPM signals per ignition.
1	2C-1P	4C-2P	1 RPM signal per ignition.
1.5		4C-3P	
2	2C-2P	4C-4P	1 RPM signal per 2 ignition.
2.5		4C-5P	
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 5ignition.
6	2C-6P	4C-12P	1 RPM signal per 6 ignition.

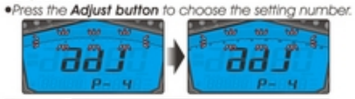
⚠ CAUTION!

Most of the 4-cycle bikes with one single piston are igniting every 360 degree once, so the setting should be the same as the bike with 2-cycle and one piston engine.

•EX. The ignition angle setting is changed from 1 to 2 (4C-4P).
•Press the **Select button** to enter the RPM setting screen.

•Tachometer level

•EX .You want to set the Bar graph tachometer to 20,000 RPM.
•Press the **Adjust button** to choose the setting number.



NOTE *The tachometer range : 10,000, 15,000, 20,000RPM*

•EX. Now the setting is changed from 10,000 RPM to 20,000 RPM.
•Press **Selec button** to enter sthe speeding setting screen.

•Speeding waring light seting

•EX. The speeding alarm you want to set is 68 Km/h.
•Press the **Select button** to move to the digit you want to set.

NOTE *Setting range: 30~360km/h (19~225 MPH). Setting unit: 1 km/h (MPH)*

•The speeding alarm setting is changed from 60 Km/h to 68 Km/h.
•Press the **Adjust button** to choose the setting number.

•Press **Selec button** to enters the shift light setting screen.

P.S.

The speeding light will light on when the speed reaches your speeding warning setting.

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The shift light setting instruction

- The setting is started from the Shift light, and then make the setting value for Pre shift light A&B according to it.

Pre shift light A (5) RPM ➡ **Pre shift light B** (15) RPM ➡ **Shift light** 9500 RPM

•The shift light setting

- EX: You want the shift light to light on at 9500 RPM Please change the shift light setting value to 9500 directly.
- Press the **Adjust button** to choose the setting number.

NOTE Display range : 5,000~10,000 RPM
Display unit : 100 RPM

- EX: Now the shift light setting is changed from 5000RPM to 9500 RPM.
- Press the Select button to enter the pre shift light B setting.

•The pre-shift light B setting

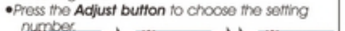
- EX: You want the pre-shift B light to light on at 8000 RPM.
  The equation is as following,
  The shift light setting value (9500) - The pre-shift light B setting value, (B) = 8000 (the RPM you want the pre-shift light to light on.)
  => The setting value of pre-shift light B = 1500.
  It means that you should set the pre-shift light setting as 15.
- Press the **Adjust button** to choose the setting number.

NOTE Display range : 5 (500 RPM)~50 (5000 RPM)
Display unit : 100 RPM

- EX: The setting value is changed from 10 to 15.
- Then press the **Select button** to enter the pre-shift light A setting.

•The pre-shift light A setting

- EX: You want the pre-shift A light to light on at 7500 RPM.
  The equation is as following,
  The **pre-shift light B** setting value (8000) - The pre-shift light A setting value (A) = 7500 (the RPM you want the pre-shift light to light on.)
  => The setting value of pre-shift light A = 500.
  It means that you should set the pre-shift light A setting as 5.
- Press the **Adjust button** to choose the setting number.



NOTE Display range : 5 (500 RPM)~50 (5000 RPM)
Display unit : 100 RPM

- EX: The setting value is changed from 10 to 5.
- Then press the **Select button** to enter the pre-shift light A setting.

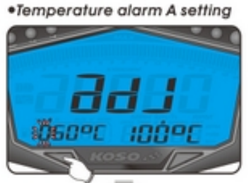
P.S. Try it!

The shift light

- When the shift light & pre shift light setting is 9500-15-05, the 3 stages Shift light will light on as below.

pre shift light **A** 7500 RPM ➡ pre shift light **B** 8000 RPM ➡ Shift light 9500 RPM

•Temperature alarm A setting



- EX: You want to set the temperature alarm A at 68C.
- Press the **Select button** to move to the digit you want to set.

- Press the Adjust button to change the value.
- EX: The temperature alarm A setting is changed from 60 C to 68 C.

- Then Press the Select button to enter the temperature alarm B setting.

P.S. Try it!

The red LED alarm will light on according to the temperature alarm A setting value.

•Temperature alarm B setting

- EX: You want to set the temperature alarm B at 108C.
- Press the **Select button** to move to the digit you want to set.

- Press the Adjust button to change the value.
- EX: The temperature alarm A setting is changed from 100 C to 108 C.

- Press the **Select button** one time to enter the clock (hour) setting.

P.S. Try it!

The red LED alarm will light on according to the temperature alarm B setting value.

•The clock setting

- **EX: You want to change the hour to 14.**
- Press the **Adjust button** to choose the hour you want to set.

NOTE Setting range: 0~23 H.

CAUTION! The second will be reset if you adjust the clock setting.

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

•The clock setting

- **EX. To change the setting to 14:05.**
- Press the **Adjust button** to choose the hour you want to set.

NOTE Setting range: 0~59 minutes.

CAUTION! The second will be reset if you adjust the clock setting.

- EX. Now the setting is changed from 14:00 to 14:05.
- Press the **Select button** one time to enter the LED alarm function setting.

•Warning light condition setting

- EX: You want to change the current warning light condition setting from "Auto LED" to "On LED."
- Press the **Adjust button** to change the warning light condition.

CAUTION!

AUTO LED : The warning light will function only when the external power is connected.
ON LED : The warning light will function all the time.

- EX : The warning light condition setting is changed from "Auto LED" to "On LED"
- Press **Select button**, to back the main screen.

- The main screen.

5 Trouble shooting

The following situation do not indicate malfunction of the meter.Please check the following before taking it in for repair.

Trouble	Check item	Trouble	Check item
The meter shows wrong information.	**●Please check the voltage of your battery, and make sure the voltage is over DC12V.** •Maybe the problem is caused by the insufficient power →Please change the inner battery. (Cr2032.) ●Maybe the problem is caused by wrong battery installation →Please check is the battery direction is correct.	**Tachometer does not appear or appear incorrectly.**	**●Please check the RPM sensor wiring is connected correctly.** **●Please check the spark plug is R type or not. If not, please replace the spark plug with the R type spark plug.** **●Please check your setting.** **→Please refer to the manual 4-2.**
Speed does not appear or appear incorrectly.	●Please make sure the speed sensor is connected correctly. ●Please check the tire-size setting. →please refer to the manual 4-2.	Temp does not appear or appear incorrectly.	●Please check the sensor. →Does the wiring break or falling off ?

※If still can't solve the problems according to the steps above, please contact with distributors or us.