# DL-02R DIGITAL LCD tachometer INSTRUCTION

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

## ⚠ Notice

1. ***DC 12V** applications only.*
2. *For installation, please follow the steps described in manual. Any damage caused by wrong installation shall be imputed to the users.*
3. *To avoid the short circuit, please don't pull the wire when installing. Don't break or modify the wire terminal.*
4. *Do not disassemble or change any parts excluding the manual description.*
5. *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** Meter X 1

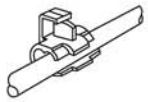
**2** RPM wire set (Type **A**) X 1

**3** RPM wire set (Type **B**) X 1

**4** Temp sensor wire set X 1

**5** PT 1/8water temp sensor X 1

**6** Mid-way connect X 4



**7** Meter bracket X 1

**8** Handle bar clamp X 1

**9** Rubber X 1

**10** M6 X 18L screw X 1

**11** M5 X P0.8 nut X 2

**12** M6 X P1.0 nut X 1

**13** M5 washer X 2

**14** M6 washer X 1

**15** Aluminum bush X 1

**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** Temp sensor wire set (2 M)

**2** 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

**3** Water temp sensor adapter

M14
M16.M18
M22.M26m/m

**4** Temp sensor

M10 X P1.0
M12 X P1.5
M14 X P1.25
M14 X P1.5
M16 X P1.5 / M18 X P1.5

**5** Cylinder head temp sensor

M10.
M14 mm

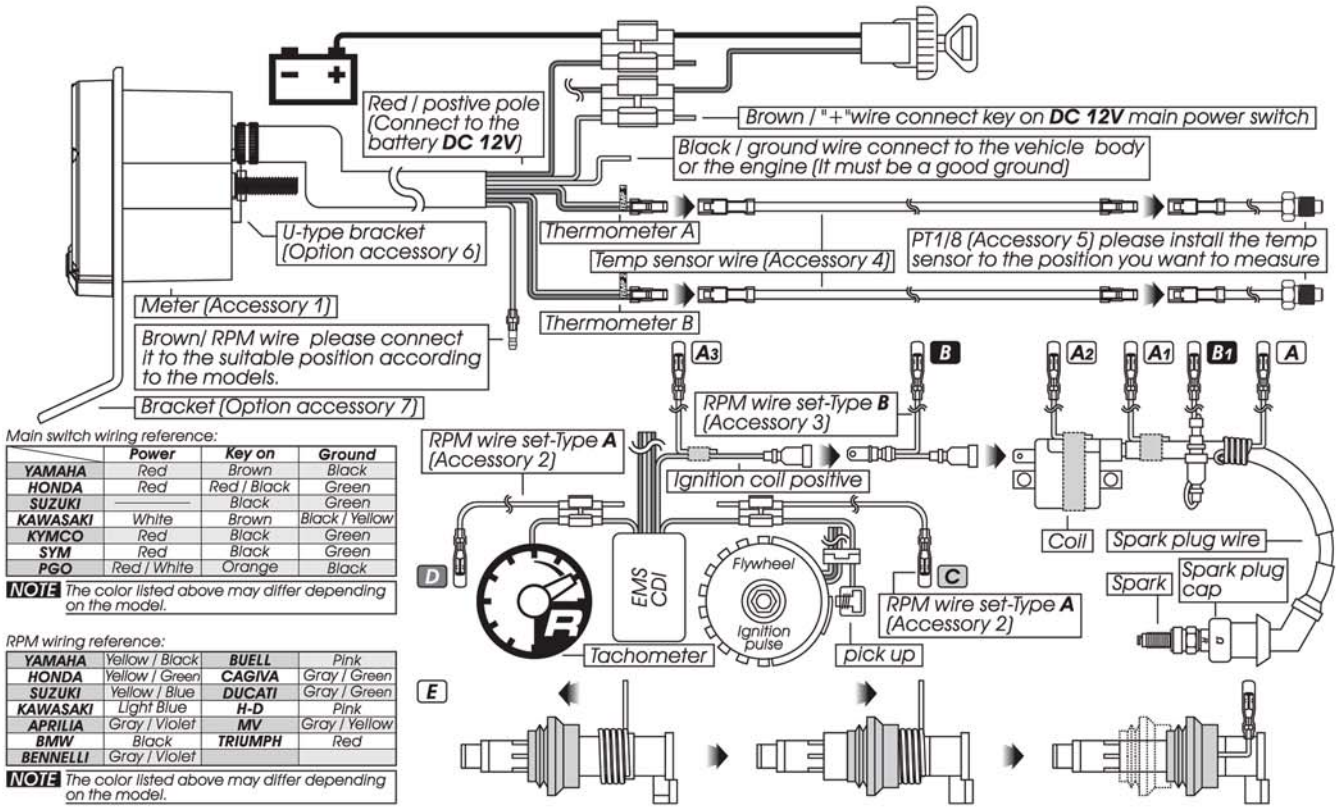
**6** U-type meter bracket

**7** Mirror hole meter bracket

**8** Universal adhesive bracket

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

## 2-1 Wiring installation instructions




Main switch wiring 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.

RPM wiring 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 |
| BENNELLI | Gray / Violet | | |

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

**NOTE** The temperature will disappear if you don't install & connect the temperature sensor with the meter.

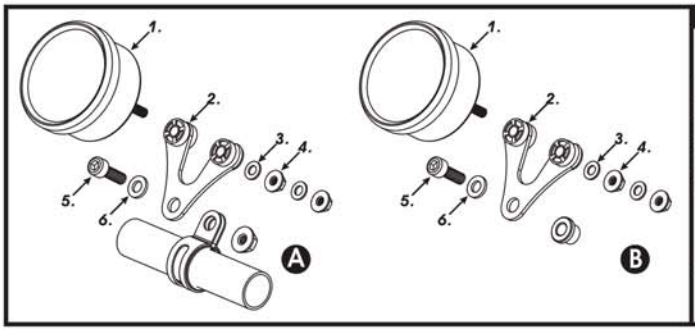
**NOTE** When connecting the power wiring, please follow the instruction. If you connect the red & brown wiring in parallel will cause the meter work improperly.

⚠ The RPM wire installation

**A.** Please wrap the RPM wire at least 5 times around the spark plug.
**A1.** Please use tape to fix the RPM (Type **A**) wire onto the spark plug wire.
**A2.** Please use tape to fix the RPM wire (Type **A**) on the spark plug cap.
**A3.** Please use tape to fix the RPM wire (Type **A**) on the coil positive pole wire. For some models with the coil negative wire, please tape the RPM wire (Type **A**) on the negative wire to get the RPM signal. (For example, the YAMAHA V-max 1200)
**B.** Please connect the RPM wire (type **B**) to connect to the ignition coil positive pole.
**B1.** Please wrap the RPM wire (type **B**) on the spark plug wire by connecting the male and female connector.
**C.** Please connect the RPM wire (Type **A**) to the pick up.
**D.** Please parallel the RPM wire (Type **A**) with the original tachometer signal wire (This method is available only when the original speedometer comes with a tachometer on it. You could get the RPM wire information from the service manual of your bikes.)
**E.** For the models comes with the new ignition coil, please wrap the RPM wire (Type **A**) at least 5 times around the spark plug as the above drawing.

***For multi-ignition models, we will suggest you to get the signal on the first ignition.***
***The best signal source will be in order as D>C>B>A, we will suggest you to check different ways if you have problems to get the RPM signal.***

## 2-2 Installation instructions




***When installing, please follow the process.***

1. Lcd meter (Accessory 1)
2. Meter bracket (Accessory 7)
3. M5 washer X 2 (Accessory 13)
4. M5 X P0.8 nut X 2 (Accessory 11)
5. M6 X P1.0 screw (Accessory 10)
6. M6 washer (Accessory 14)

Ⓐ Use the meter bracket (Accessory 7), handle bar clamp (Accessory 8), rubber (Accessory 9) and the nut to install the speedometer on the handle bar.

Ⓑ Use the aluminum bush(Accessory 15) to install the speedometer on the handle bar stem.

## 3-1A Overview

Clockwise

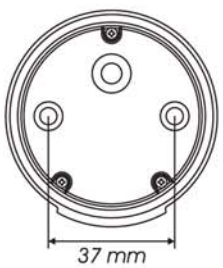
***Bar graph tachometer***
- Display range: 0~10,000 / 15,000 / 20,000 RPM.

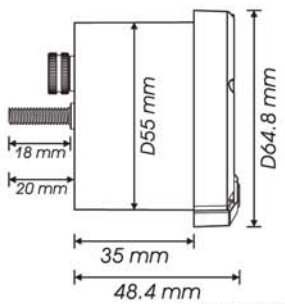
***Digital tachometer***
- Display range: 0~20,000 RPM.
- Display unit: 100 RPM.

***Digital thermometer A***
- Display range: 0~250°C (32~482°F)
- Display unit: 1°C (1°F), °C & °F for alternative.

***Thermometer A.B***
- Display range: 0~250°C (32~482°F)
- Display unit: 0.1°C (0.1°F), °C & °F for alternative.

***Clock***
- 24 H.




wh555ba004

## 3-1B Overview

Anticlockwise

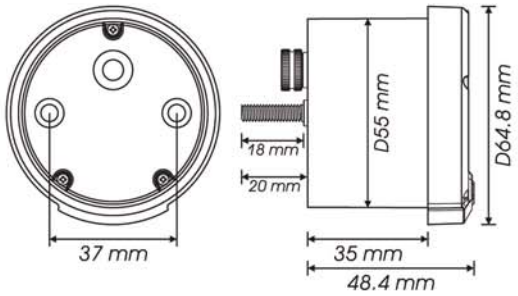
**Bar graph tachometer**
- Display range: 0~10,000 / 15,000 / 20,000 RPM.

**Digital tachometer**
- Display range: 0~20,000 RPM.
- Display unit: 100 RPM.

**Digital thermometer A**
- Display range: 0~250°C (32~482°F)
- Display unit: 1°C (1°F), °C & °F for alternative.

**Thermometer A.B**
- Display range: 0~250°C (32~482°F)
- Display unit: 0.1°C (0.1°F), °C & °F for alternative.

**Clock**
- 24 H.




## 3-2 Function, setting instruction

| | |
|---|---|
| ●Digital Tachometer | Display range: 0~20,000 RPM |
| ●Bar graph tachometer | Display range: 10,000 / 15,000 / 20,000 RPM |
| ○Display internal | <0.5 second |
| ○Max. RPM record | Display range: 0~20,000 RPM |
| ○Stroke / piston setting | Setting unit: 0.5, 1, 1.5, 2, 2.5, 3, 4, 5, 6 |
| ●Thermometer A.B | Display range :0~250°C (32~482°F)<br>Display unit: 0.1°C (0.1°F)<br>°C, °F for alternative |

| | |
|---|---|
| ○Display internal | <0.5 second |
| ○Top temperature record | Display range: 0~250°C (32~482°F) |
| ●Display internal | 24 H |
| ●**Effective voltage** | **DC 12 V** |
| ●Effective temperature range | -10~+60°C |
| ●Meter standard | JIS D 0203 |
| ●Meter size | D55 X 48.4 mm |
| ●Meter weight | Around 190 g |

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

**NOTE** If you enter the setting screen for 30 seconds and don't press the button, it will back to the main screen automatically.

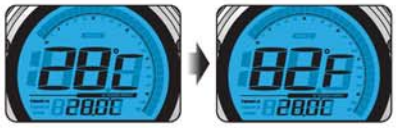
## 4-1A Select button function instruction

- Press the **Select button** one time to the Max. record screen.
- Press down the **Select button** for 3 seconds to switch the digital tachometer to digital thermometer.

- In Max. record screen, press the **Select button** one time to return to the main screen.
- Press the **Select button** for 3 seconds to reset the Max. Record.

## 4-1B Adjust button function instruction

- In main screen, press the **Adjust button** one time to switch from temp A to temp B.
- Press down the **Adjust button** for 3 seconds to switch the temperature unit from °C to °F.



- In temp B screen, press the **Adjust button** one time to switch the temp B to the clock.

- In the Clock screen, press the **Adjust button** one time to return to the main screen.

## 4-2 Cycle / Piston / Input signal /Time setting instruction

- In main screen, press down the **Select & Adjust button** for 3 seconds to enter the setting screen.

- **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 stroke and pistons 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.

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

●**EX. We would like to change the setting to Lo. (The negative impulse)**
●Press the **Adjust button** to choose the input signal you want to set.
●EX. Now the setting is Hi (The positive impulse)

**NOTE** The impulse setting range is between Hi (the positive impulse)& Lo (the negative impulse)

⚠ Now the input signal setting is flashing!

**NOTE** If the tachometer can't detect the signal (No RPM is displayed on the screen), you could choose another setting, and check it again.

●Press the **Select button** to enter the RPM setting screen.
●EX. The impulse setting is changed from Lo to Hi.

●**EX. You want to change the bar graph tachometer range from 10,000 RPM to 15,000 RPM.**
●Press the **Adjust button** to choose the range you want to set.
●EX. Now the current bar graph tachometer setting 10,000 RPM (10.0).

**NOTE** Setting range: 0~10,000 (10.0) / 15,000 (15,0) / 20,000 (20.0) RPM.

⚠ The digit you could set is flashing now.

●Press the **Select button** to enter the clock (Hours) setting screen.
●EX. Now the setting is changed from 10,000 RPM to 15,000 RPM.

●**EX. To change the setting to 13:00.**
●Press the **Adjust button** to choose the hour you want to set.
●EX. Now the setting is 0:00.

**NOTE** Setting range: 0~23 H.

⚠ The digit you could set is flashing now.

●Then press the **Select button** to enter the minute setting.
●EX. Now the setting is changed from 0:00 to 13:00.

●**EX. To change the setting to 13:05.**
●Press the **Adjust button** to select the minutes.
●EX. Now the setting is 13:00.

**NOTE** Setting range: 0~59 minutes.

⚠ The digit you could set is flashing now.

●Press the **Select button** to back to the main screen.
●EX. Now the setting is changed from 13:00 to 13:05.

●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 |
|---|---|
| The meter doesn't work when the power is on. | ●The power doesn't supply to the meter.<br>→Please make sure the wiring is connected. The wiring and fuse are not broken.<br>→The battery is broken or the battery is too old to supply enough power **(DC 12V) to** make the meter work. |
| **The meter shows wrong information.** | ●**Please check the voltage of your battery, and make sure the voltage is over DC 12V.** |
| Tachometer does not appear or appear incorrectly. | ●Please check the RPM sensor wiring is connected correctly.<br>●Please check the spark plug is **R** type or not. If not, please replace the spark plug with the **R** type spark plug.<br>●Please check your setting.<br>→Please refer to the manual **4-2**. |

| Trouble | Check item |
|---|---|
| **Temp does not appear or appear incorrectly.** | ●**Please check the sensor.**<br>**→Does the wiring break or falling off ?** |
| The clock is incorrect. | ●It is possible that the positive wire is connected wrongly.<br>→Please check is the red positive wire connect to the permanent power or battery and the brown positive wire is connected to the key on switch positive pole. |
| The Max. record doesn't work, the meter setting is not recorded. | ●It is possible that the permanent power wire is not connected well.<br>→Please check the red positive wire is connect well or not. |

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