● Thank you for purchasing KOSO GPS Lap Timer. Before operating this unit, please read the instruction thoroughly and retain them for future reference.

⚠ Notice

● This product only functions with DC 12 V.
● Any damages caused by faulty installation shall be imputed to the users.
● To avoid a short circuit from occuring, do not pull or modify the wires during installation.
● Disassembling the instrument will void any warranty. Maintenance and repairs should be executed by our professionals only.

◎ About GPS

● Global Positioning System, GPS is a system that developed and managed by the United States Department of Defense. The system consists of 24 GPS satellites. Only 3 of which are needed in order to provide accurate positioning, speed detection and high precision time for most locations. The more satellites received, the more accurate each location will be decoded.
● Positioning accuracy control and system functions: due to policy consideration and national security, the U.S. reserves the right to control the systems functions and positioning accuracy without advanced notice or any notification at all. Weather conditions, as well as, environment and terrain will affect normal reception of satellite signal.
● Satellite signal cannot be received in the following environmental and terrain conditions: at the bottom of hills, tunnels, underpasses, between high buildings and in dense forests.
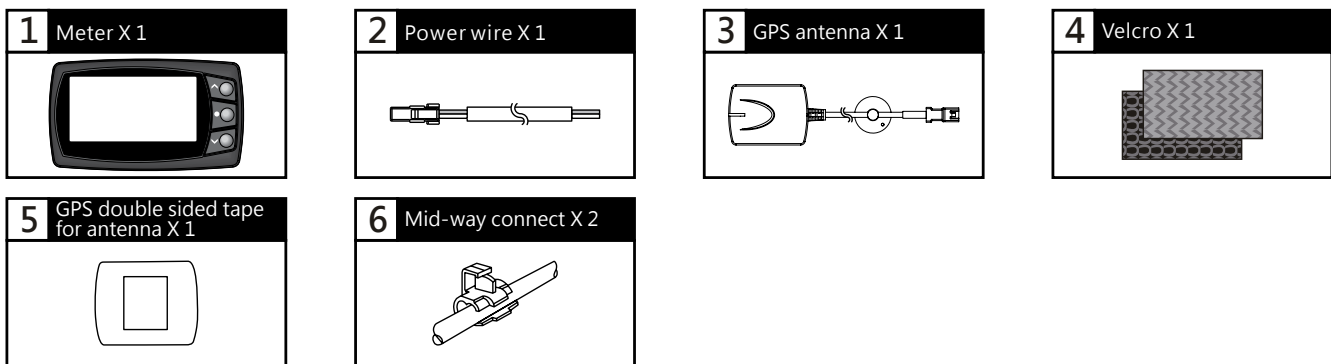
◎ MARK SYMBOL:

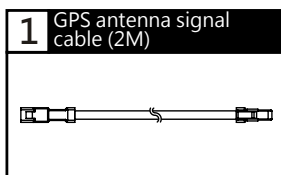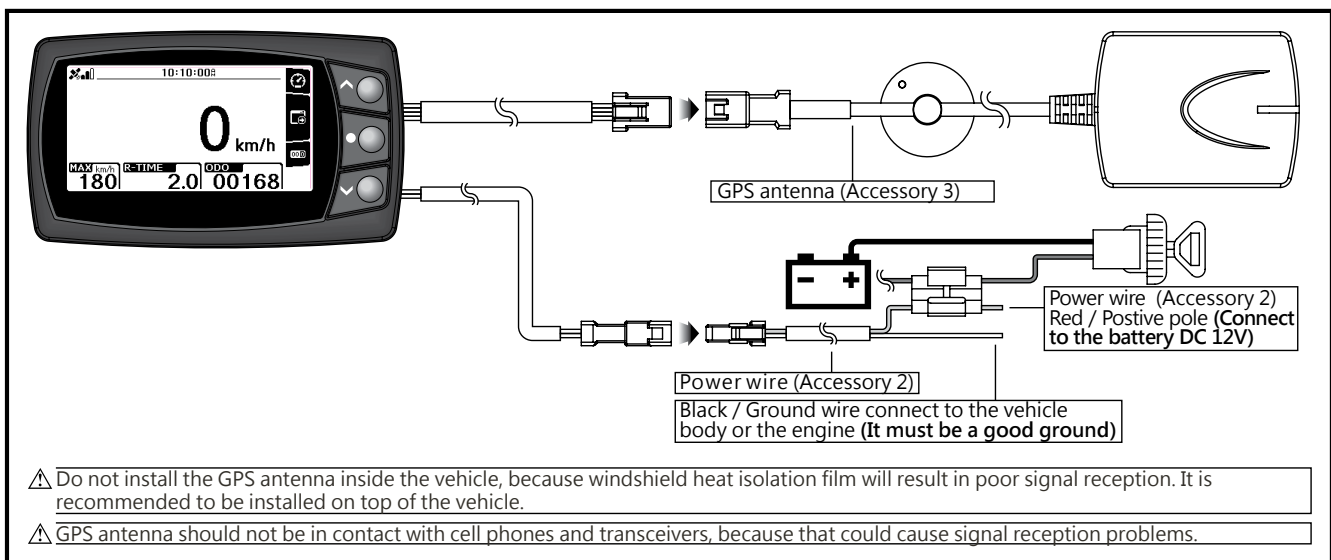| ⚠ Some procedures must be followed in order to avoid faulty installation. |
| --- |
| ⚠ **WARNING!** Some procedures must be followed in order to avoid damages from occuring to yourself and others. |
| ⚠ **CAUTION!** Some procedures must be followed in order to avoid damages from occuring to the vehicle. |

1-1 Accessories

1 Meter X 1	2 Power wire X 1	3 GPS antenna X 1	4 Velcro X 1

5 GPS double sided tape for antenna X 1	6 Mid-way connect X 2

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

1-2 Optional accessories

1 GPS antenna signal cable (2M)

| NOTE | For more information on the optional accesories, contact your local distributor. |

2 Wiring installation instructions

GPS antenna (Accessory 3)

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

Power wire (Accessory 2)

Black / Ground wire connect to the vehicle body or the engine (**It must be a good ground**)

⚠ Do not install the GPS antenna inside the vehicle, because windshield heat isolation film will result in poor signal reception. It is recommended to be installed on top of the vehicle.

⚠ GPS antenna should not be in contact with cell phones and transceivers, because that could cause signal reception problems.

Clock
- Setting range : 12、24 H
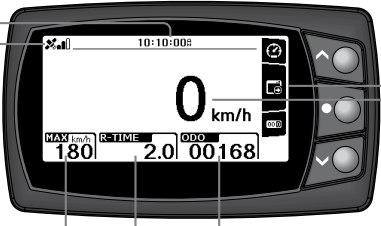- Automatically set clock according to time zone selected.

GPS message display area

AVE Speed
- Record range : 0 ~ 360 km/h (0 ~ 255 MPH)
- Record unit : 1 km/h (MPH)

Top speed record (Max.)
- Record range : 0 ~ 360 km/h (0 ~ 255 MPH)
- Record unit : 1 km/h (MPH)

Riding time
- Record range:0 ~ 9,999.9 H · reset automatically after 9,999.9 H
- Record unit:0.1 H

Key symbol display area
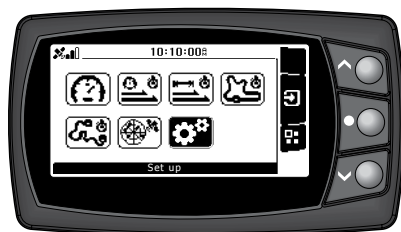
Speedometer
- Display range:0~360 km/h (0~255 MPH)
- Display range:1 km/h (MPH)

Odo meter
- Display range : 0 ~ 99,999 km (mile) · reset automatically after 99,999 km (mile)
- Display unit : 1 km (mile)

Trip meter
- Display range : 0 ~ 9,999.9 km (mile) · reset automatically after 9,999.9 km (mile)
- Setting unit : 0.1 km (mile)

Display shows: 10:10:00 · 0 km/h · MAX km/h 180 · R-TIME 2.0 · ODO 00168

3-2 Function settings instructions

● Speedometer	Display range : 0~360 km/h (0 ~ 255 MPH)	● Timing mode	
	Display range : 1 km/h (MPH)	○ Single recording time	Record range : 00′00″00~99′59″99
○ Display internal	<0.5 second	○ Number of lap record	Record range : 1~200 Laps (Maximum)
○ Odometer	Display range : 0 ~ 99,999 km (mile) · reset automatically after 99,999 km (mile)	○ Time difference compares to the best time record	Display range : 00″00~99″99
	Display range : 1 km/h (MPH)	○ Time difference compares to last lap	Display range : -99″99~+99″99
○ Trip meter	Display range : 0 ~ 9,999.9 km (mile) · resets automatically after 9,999.9 km (mile) (delete average speed and run time records simultaneously)(delete average speed and run time records simultaneously) Display range : 0.1 km/h (MPH)	○ Record display method	Setting range : Sequentially、Best
		○ Record displays retention time	Setting range : 5~20 second
		● Target speed timer	Setting range : 30 ~ 360 km/h (20~255 MPH) Setting unit : 5 km/h (MPH)
○ AVE Speed	Record range : 0~360 km/h (0~255 MPH)	● Target distance timer	Setting range : 1/32~30/32 mile (50~1,500 M)
	Record unit : 1 km/h (MPH)		Setting unit : 1/32 mile (50 M)
○ Riding time	Record range : 0 ~ 9,999.9 H · reset automatically after 9,999.9 H Record unit : 0.1 H	● Closed track single lap time recording	Setting range : 0′00″00 ~ 9′59″99
○ Top speed record	Record range : 0~360 km/h (0~255 MPH)	● Open track single lap time recording	Setting range : 0′00″00 ~ 9′59″99
	Record unit : 1 km/h (MPH)		
● Geodetic coordinate system	WGS-84	● Create track	Setting range : close, open
○ Coordinate display method	Setting range : d°m′s.s″、d.d°、d°m.m′	○ Track width	Setting range : 5 ~ 50 M Setting unit : 1 M
● Time zone	Setting range : UTC -12:00 ~ +14:00	○ Track length	Auto-calculation after travel a lap
● Calender	Automatic Time Adjustment by GPS signal	○ Checkpoint	Checkpoint Settings range : 0 ~ 22points (Max.)
● Clock	Setting range : 12、24 H	● Effective voltage	DC 12 V
	Automatically sets clock according to time zone selected.	● Effective temperature range	-10 ~ +60 °C
● Voltage waring	Battery symbol flashes when voltage is lower than the 7.0 V	● Meter standard	JIS D 0203 S2
		● Meter size	107.7 X 61.7 X 20.5 mm
● Display contrast adjustment	Setting range:1~16 level	● Meter weight	132.2 g
● Backlibht brightness adjust	Setting range : 0(Close)、1(Darkest)~7 (Brightest). The backlight brightness will change immediately after you set the value.		

3-3 Key symbol descriptions

Boot screen	Race Display				Settings Display
MAX / AVE	Scores	OK	New		Select
Next tab	Race	Return	Checkpoint		Edit / Add
ODO / Trip	Select	Return	View		Edit / Sub
	Open	Abort	Edit		Delete
	Start	Abort	Up		
	Go	Exit	Down		
	Finish	Exit			

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4 | Entering settings and fuctions index menu

● In the main screen settings hold the button ● to enter into the settings menu.
● Function index
├ a 1. Unit
├ a 2. Racing
├ a 3. Display (Contrast / Brightness)
├ a 4. Memory
├ a 5. Info
Exit settings

5 | Startup positioning

There are two scenarios for Startup Positioning Time.

Status	Time
● Used the Lap Timer very frequently.	● Around 1- 45 seconds.
● Haven't used the Lap timer for over 14 days. ● You are using the lap timer with 100km+ away from your last turn off position then it will take longer to start up for positioning.	● Around 2 - 5 minutes.

⚠ **CAUTION!** The following situations are classified as normal:
● When the receiving environment is bad or the GPS positioning is just finished, the meter may display speed when the vehicle is stationary.
● The actual mileage and the displayed mileage in the meter (ODO / Trip) might have 1 % - 5 % accumulated difference depending on the average satellite signal strength and user habits.

6 | Trouble shooting

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

Trouble	Check item
The meter doesn't work when the power is on.	● The power doesn't supply to the meter. → Please 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 12 V) to make the meter for it to work.
The meter shows the wrong readings	● Check the voltage of your battery, and make sure the voltage is over DC 12 V.

Trouble	Check item
Speed does not appear or appears incorrectly.	● Improper connection of GPS antenna. → Make sure the GPS antenna is connected correctly and no wires are broken. ● GPS antenna error → Make sure the GPS antenna test light is flashing normally. → Normal flashing frequency is 60 times per minute.
Temp does not appear or appears incorrectly	● Incorrect time zone settings → Check unit operation settings in section 4.1

※ If the problems persist after reviewing the above information, please contact your local distributors or us.

For more detailed instructions, please scan the QR code and be redirected to our video instruction tutorial or visit kosonorthamerica.com/gps-lap-timer-tutorial.