RALLY MASTER SG

GNSS RECEIVER

WHEEL SENSOR

SENSOR SPLITTER

INSTALLING SET

DUST CAPS

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INSTALLATION

Put included rubber grommets in holes of 10mm diameter (see mounting plan on the picture below and recommended panel cutouts on the last page), from the back side install black aluminium sleeves into the grommet and then instal the whole unit and fix the unit with M5 nut.

Antivibration set is made for 3.5mm thick panel, if you have thinner panel – shorten the sleeve or put washer between the unit and the grommet for increasing the height so that you can fasten enough your unit.

Grommet

Sleeve

M5 Nut

38mm
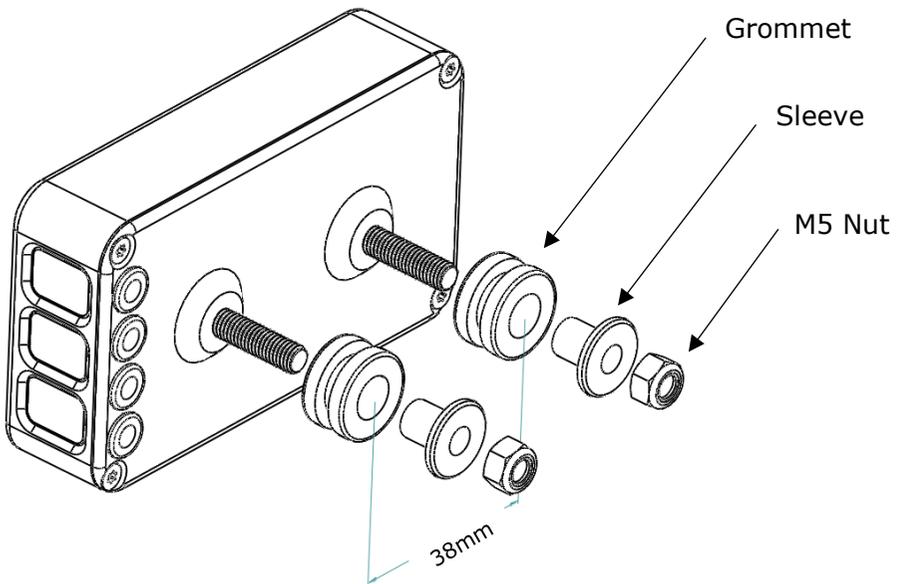
POWER CONNECTION

FOR USE ON 8-30VDC SYSTEMS ONLY!

You can use switched or non-switched 12V outlet on your motorcycle (continuous power is recommended).Use included power cable with M8 connector. Connect +12V (red) to positive pole on your bike andGND (black) to the grounded pole on your bike. Use strong and stabile connection.

Good idea is to put the fuse (recommended 1A) in the power line (not included in the package).

REMOTE BUTTONS for using remote buttons, connect them to the device with M8 connector (cable marked BUTTON). The connection and functionality work with all commercial external buttons.

⚙ For using remote buttons on right side of the bars, follow the setup menu for turnover the control.

GNSS RECEIVER find a good position for your GNSS receiver on your bike or vehicle – for the best performance, place the receiver in direction to the sky (horizontal) on high place (navigation tower on the top e.g.). For fastening, please use zip ties. Connect the receiver to the unit through the M8 connector (cable marked GNSS, the one with 4-pin connector).
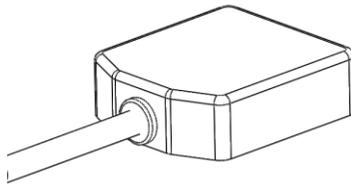
Best performance – horizontal receiver mounting

This GNSS receiver is professional grade receiver with one meter-level accuracy and supports concurrent reception of four GNSS systems. The high number of visible satellites enables the receiver to select best signals. This maximizes the position accuracy, in particular under challenging conditions such as in rally stages.

GNSS	
GPS + QZSS/SBAS	•
GLONASS	•
Galileo	•
BeiDou	•
Number of concurrent GNSS	4

Supported satellite navigation systems

WHEEL SENSOR Find a good position for the wheel sensor on the front calliper/fork so that the unit can detect every revolution of the wheel. The sensor is on all its surface M8 thread.

You must have a magnet installed on the spinning part of the wheel (brake disc or wheel hub) and the sensor installed on the static part (forks, calliper). Horizontal distance between the magnet face on the wheel and the sensor face should be around 5mm (maximum 10mm). Keep the wheel sensor and the magnet in one horizontal axis when the magnet is passing the wheel sensor:

WHEEL SENSOR

3-5mm

MAGNET

horizontal axis
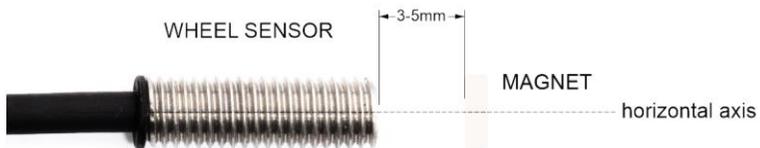
You can test your setup and revolutions reading on the unit – as the source set the sensor (wheel icon shown in left-up corner), reset the trip, and the dash (-) digit will show before the number segments. Rotate the wheel – every revolution should add one segment to the dash. On fourth revolution, the test mode for the sensor is done and segments will disappear –

SENSOR SPLITTER If you choose the sensor splitter instead of the wheel sensor in the delivery, simply connect the splitter to existing wheel sensor (suitable only for the magnetic sensor based on the reed switch, not for ABS sensors) on your bike through M8 connector (use primary side on the splitter where is one male connector).

The secondary side of the splitter (side with two female connectors) serve as the source from the wheel sensor on two units.

WHEEL SENSOR TEST
1. Reset the trip:

2. make a rotation with the wheel

1st rotation

2nd rotation

3rd rotation

4th rotation

Every rotation should trigger the segment – if not, please check your wheel sensor position. This testing segment will show up always after resetting the trip. This serves also as an indicator of the zero position (no rotation was made, start of special stage).

DUST CAPS If you will not use every outlet of the unit, **please use attached dust caps for unused connectors!**

START UP

The unit contains small lithium polymer battery that is powering the unit and serve as a backup once you loose 12V powering. Don't ride without 12V power.

Please turn on the 12VDC power for the unit. The unit will start immediately. The power control is based on the sleep mode.

SLEEP MODE

The unit will turn OFF (sleep) after 60 minutes of inactivity if you have present 12VDC power or 5 minutes if you turn off the 12V power. In this mode the power consumption is minimal (less then 1mA).

WAKING UP

- Touch the external or built buttons
- Move with your bike (magnetic sensor triggered)
- Start up the bike (12VDC appears)

Turning off the unit manually:

Option1: go on the clock screen and long press down button on remote buttons

Option2: go to setup menu and long press on down button built.

After manual turn off, wake up is possible only with built in buttons.

BACKLIGHT if you are on CLOCK screen in race menu, you can turn ON/OFF backlight by long press on UP button (remote or built one).

GNSS RECEIVER START UP

GNSS receiver starts working only when 12VDC from the bike is present!

If everything is connected well, after connecting 12VDC the GNSS bar will start blinking.

COLD START

During the COLD start, the GNSS receiver is finding your location. This will take around 30 seconds. Please be patient.

You can ride immediately even you are not receiving the signal and you should catch the satellites in few minutes, but the fastest way is if you will not move.

After the receiver found your location, signal bar shows strength of the receiving signal.

HOT START

If you turn off the bike, the receiver should find your location and catch the signal in 2 seconds (this "HOT start" lasts around 4 hours).

If you start after 4 and more hours brake, you will need wait again 30 seconds for fixing your position. Please keep this on mind before starting the stage!

The hot start lasting also depends on charged level of the small battery in the receiver. This one is charged only if you are using receiver.

GNSS check

You can check receiving quality in the setup menu: long press on CENTER (built) button – click DOWN until you will see GnSS – click UP - first screen is showing the number of satellites (S) in use for the navigation. If this number is 12 or more, you have very good reception. Minimum is 4 satellites.

SETUP

For precise functionality and personalization that fits to your style you should go through the setup menu.

On the both sides of the unit, you have available built buttons to control the unit (UP, CENTER, DOWN). Both sides work the same:
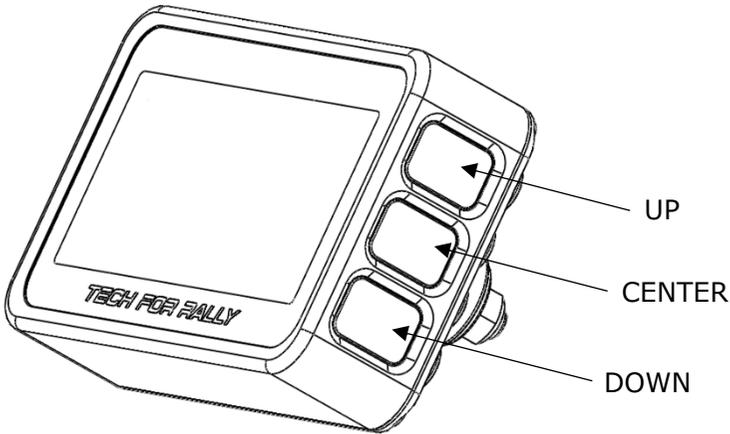
SETUP MENU CALL

BUILTS BUTTONS: long press on the CENTER button.

REMOTE BUTTONS: go on the CLOCK screen and make long press on the CENTER button.

In the setup menu, move with buttons UP and DOWN. With the DOWN button, scroll down in the setup menu. The UP button jumps to the selected option. Once you are in your selected option, push the UP button and go through all options those are possible for selected option. Once you decided that you want to choose your option, make long press on DOWN button (confirm). For resettable options, press long CENTER button for the reset. You will receive the confirmation by flashing your chosen option. Please see attached setup menu diagram for clear orientation in the setup menu.

SETUP MENU

In the SETUP MENU you can customize your RACE MENU and set the parameters:

TRIP 1

- TRIP 1 with .00 resolution – shows the TRIP 1 value with the 10 meters resolution. By long press DOWN you approve this resolution for the TRIP 1. By long press on CENTER button, you reset the TRIP1.
- TRIP 1 with .0 resolution - shows the TRIP 1 value with the 100 meters resolution. By long press DOWN you approve this resolution for the TRIP 1. By long press on CENTER button, you reset the TRIP 1.

TRIP 2

- TRIP 2 with .00 resolution
- TRIP 2 with .0 resolution
- On – if you like to use TRIP 2 in the race menu, you approve this feature by long press on DOWN button.
- Off – if you don't want to use TRIP 2 in the race menu, you approve it by long press on DOWN button.

SOURCE

- WHEEL SENSOR (SEnS) – by long press DOWN you choose the wheel sensor as a primary source for counting the TRIP1(2).
- GNSS - by long press DOWN you choose the GNSS as a primary source for counting the TRIP1(2).
- AUTO – by long press DOWN you can turn On/Off this feature. This feature serve as automatic selection of the source. Your primary source is selected (GNSS/Sensor), but if you ride and your primary source is not found (lost sensor, lost signal GNSS), unit automatically switch to other possible source.

ODOMETER
- On – for showing in the race menu - long press DOWN.
- Off – for not showing in the race menu – long press DOWN.
- Odometer value – showing total reached distance. By long press on CENTER button you will reset odometer.

RUN HOURS
- Total run hours. By long press on CENTER button you will reset run hours (e.g. after bike service).

TRIP TIMER 1
- On – for showing in the race menu - long press DOWN.
- Off – for not showing in the race menu – long press DOWN.
- Trip Timer 1 value – resettable by TRIP 1 reset.

TRIP TIMER 2
- On – for showing in the race menu - long press DOWN.
- Off – for not showing in the race menu – long press DOWN.
- Trip Timer 2 value - resettable by TRIP 2 reset.

TIMER 1
- On – for showing in the race menu - long press DOWN.
- Off – for not showing in the race menu – long press DOWN.
- Timer 1 value – reset the value by long press CENTER button.

TIMER 2
- On – for showing in the race menu - long press DOWN.
- Off – for not showing in the race menu – long press DOWN.
- Timer 2 value – reset the value by long press CENTER button.

GNSS
- S – number of satellites used for the navigation (12 is very good signal quality)
- C – number of catching satellites
- H – HDOP value (Horizontal dilution of precision, under 1 is very good precision, around 1m)
- A – Your actual altitude (in metric system in meters, in imperial system in feets)

CAP HEADING
- On – for showing in the race menu - long press DOWN.
- Off – for not showing in the race menu – long press DOWN.

SPEED
- On – for showing in the race menu - long press DOWN.
- Off – for not showing in the race menu – long press DOWN.
- Max Speed – shows the maximal reached velocity during the stage. This value will be reset by -ASS (reset after the stage), or make long press on the CENTER button.

CLOCK
- On – for showing in the race menu - long press DOWN.
- Off – for not showing in the race menu – long press DOWN.
- Time – Set only if you don't use GNSS. Long press UP and setup your time - adding by pressing UP and switching minutes/hours by DOWN, once you are done confirm by long press DOWN.

UNITS
- SI – for using metric system, long press on DOWN.
- U.S. – for using imperial system, long press on DOWN.

LED BRIGHT
− (most dimmed backlight) press UP button and set your preferred brightness. Jum out with press on DOWN button.

CIRCUMFERENCE

Circumference value in **mm** – to edit this value, make long press on the UP button. The last digit will start blinking and you can set the value by pressing the UP button. Move to another digit by pressing the DOWN button and continue. Once you are done, confirm this value by long press on the DOWN button.

UTC

UTC zone (0H is UTC time +0H etc.) - long press UP button and the digit will start blinking. Set your time zone by pressing UP button and confirm by long press on DOWN button. It is mandatory to set right this time zone, otherwise the time will not be shown correctly in using with GNSS.

FUEL

- On – for showing in the race menu - long press DOWN.
- Off – for not showing in the race menu – long press DOWN.
- Distance to empty tank – you can reset this value in setup menu by long press on the CENTER button
- Distance for full tank – set your driving distance for full tank by long press UP (in kilometers/miles), once you are done confirm by long press DOWN.

TURN (REMOTE BUTTONS TURNOVER)

- On – to apply the turnover rule for remote buttons (e.g. you are using remote buttons on the right side of the bars) – long press DOWN
- Off – to deactivate this feature – long press DOWN

RESET

- ALL – long press on the CENTER button and you will reset all parameters to factory setup.
- Part – long press on the CENTER button and you will reset TRIP1,2, TRIP TIMER 1,2, MAX SPEED.

Return from the SETUP MENU to the RACE MENU is by short press on the CENTER button.

RACE MODES

After start up the unit, you are automatically in the RACE MENU on the last used screen. This menu is personalized and shows only selected options you choose in the setup menu. Scroll screens in the race menu with the CENTER button (remote or built one). With buttons UP and DOWN e.g. set your trip, show max speed, start/stop the timer.

MAIN ICONS:

- the wheel icon is shown when the current screen is based on the wheel sensor (trip meter is counting from the wheel, speed is calculated from the wheel,…)

- the satellite icon is shown when the current screen is based on the gnss reciever (trip meter is counting from the gnss, speed is calculated from the wheel, CAP, …)

- these labels represent GNSS signal quality (number of satellites you are using for the navigation). Even with only one label on (the smallest), you are receiving enough satellites for navigating, but you are probably in barely view to the sky (tunnels).

- Battery icon shows up only when you don't have 12V present on the power cable. When the battery is fully charged, all 5 labels are black.

TRIP METER two settable and resettable trip meters (marked 1 and 2 on the display):

TRIP TIMER12 CLK MAX SPEED ODO FUEL MENU .ıll 📶

TRIP METER CORRECTION In the RACE MENU, you can correct your trip by touching the buttons UP and DOWN (external or build). Long press on the UP/DOWN buttons will make faster increasing/decreasing the TRIP.

SPEED The speed is measured by the magnetic wheel sensor or the GNSS. If the reception quality of GNSS receiver is acceptable, the speed is automatically based on GNSS.

TRIP TIMER12 CLK MAX SPEED ODO FUEL MENU .ıll 📶

MAX SPEED MAX SPEED is the maximal speed reached during the stage. Show up the MAX SPEED for 5 seconds by press on DOWN button (built or remote). You can reset the MAX SPEED by long press on the CENTER button (if you are on SPEED screen) or in the setup menu.

TRIP TIMER12 CLK MAX SPEED ODO FUEL MENU .ıll 📶

TRIP TIMERS the function of the TRIP TIMER is to measure the total trip time. The timer starts to count since the trip has moved from 0 to up (you have started the stage). After resetting the trip, also the trip timer is reset. For each trip (TRIP 1 and TRIP 2) is dedicated TRIP TIMER (1 and 2).

TRIP TIMER12 CLK MAX SPEED ODO FUEL MENU .ıll 📶

TIMERS the TIMER function is the same as stopwatch. You can use it for measuring your specified time, for example neutralizations. You start and stop the timer with the button UP. For reset the timer, make long press on CENTER button.

TRIP TIMER12 CLK MAX SPEED ODO FUEL MENU .ıll 📶

RACE MENU GO THROUGH

You are automatically in the RACE MENU after wake up the unit. Move in the RACE MENU by pressing CENTER button (remote or build).

TRIP 1 (permanently On)

TRIP TIMER 1 (can be turned On/Off)

TRIP 2 (can be turned On/Off)

TRIP TIMER 2 (can be turned On/Off)

CAP (can be turned On/Off)

SPEED / Max SPEED (can be turned On/Off)

CLOCK (can be turned On/Off)

ODO (can be turned On/Off)

TIMER 1 (can be turned On/Off)

TIMER 2 (can be turned On/Off)

FUEL (can be turned On/Off)

RESETS

TRIP RESET you can reset the trip1(2) independently of each other:

- TRIP Reset with **REMOTE** buttons – go on dedicated trip screen and make long press on the CENTER button on remotes. Keep holding until the reset is done. After the reset, you will obtain the total zero confirmation by dash (-) segment. You are also resetting dedicated trip timer with the trip.
- TRIP reset with **BUILT** buttons – go to the setup menu by long press on the CENTER built button. Click UP (you will go to trip1 submenu) and make long press on the CENTER button for reset the trip1.

ASS RESET this reset serve as a special stage reset (ASS). Resets all values that have something to do with your stage ride: Ttrip1(2), TripTimer1(2), Max Speed, Timer1(2).

The ASS reset is disponible only for remote buttons – make long press on the CENTER button immediately after the trip reset (like you reset the trip second time). Keep holding until the reset is done. For reset with built buttons follow the reset part in the setup menu on page 11.

MAX SPEED RESET you can reset the max speed independently of the trip – go on speed screen in race menu and make long press on the CENTER button on remotes. For reset with built buttons follow the setup menu on page 10.

TIMERS RESET make long press on the CENTER button on timers screen in race menu. For reset with built buttons follow the setup menu on page 9.

FUEL RESET after refuelling your tank, you can reset the distance to empty tank. Make long press on the CENTER button and keep it until the reset is done. For built buttons follow setup menu on page 11.

Resets status table

Reset trigger:

Reset trigger:	trip 1(2)	trip timer 1(2)	Max Speed	Odometer	Run Hours	timer 1(2)	Fuel
Trip reset	✓	✓					
-ASS	✓	✓					
Part	✓	✓					
All	✓	✓	✓	✓	✓	✓	✓
Max Speed			✓				
Odometer				✓			
Run Hours					✓		
Timer 1(2)						✓	
Fuel							✓

RECOMMENDED PANEL CUTOUTS
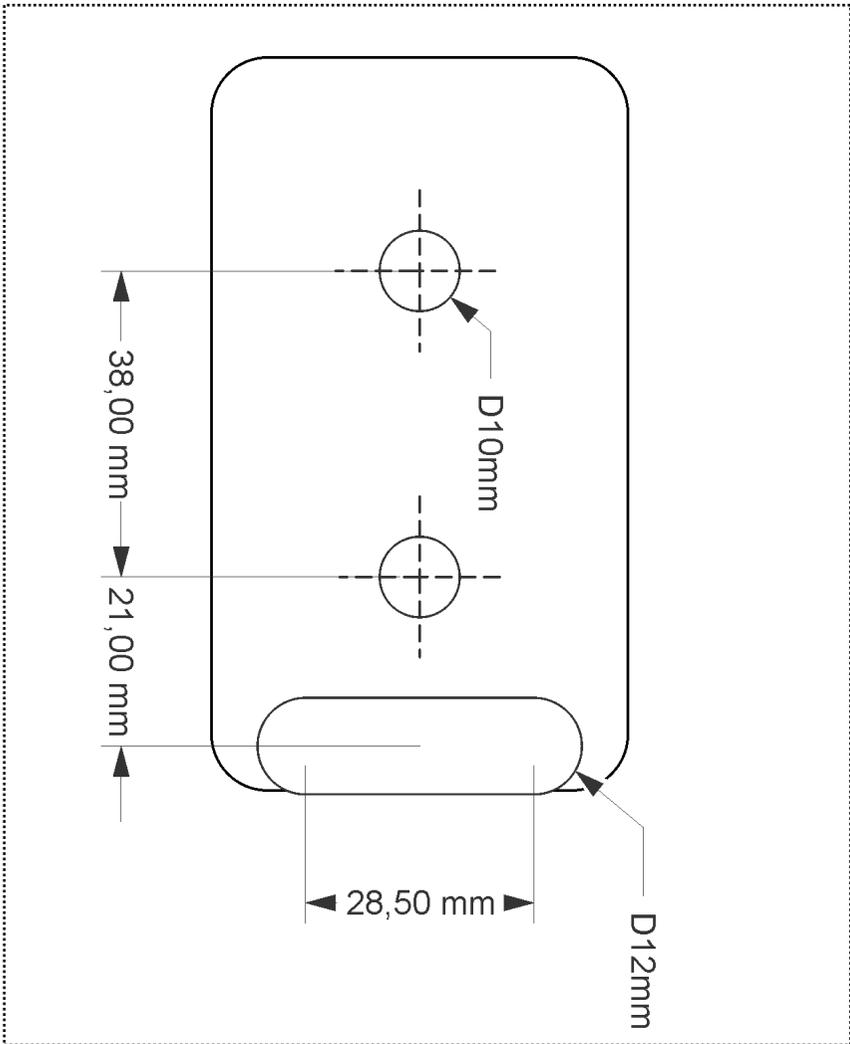
LIMITED WARRANTY

Within 1 year from the date of original purchase, Tech for rally will repair or replace, at its option, any Tech for rally unit which is deemed defective in workmanship or materials. Please return the unit, together with proof of date of purchase, to your local dealer or send unit to Tech for rally. Damage or injuries resulting from negligence or misuse are not covered by this warranty. Incidental or consequential damages are specifically excluded. This warranty gives you specific legal rights. You may also have other rights which vary from state to state. Because some states do not allow the exclusion of incidental or consequential damages, this exclusion may not apply to you.

This is an electronic device and should not be disposed of in your dustbin or wheelie bin, but should be recycled. Consumers must be responsible for ensuring that we dispose of items in an environmentally friendly manner.

UN3841

Lithium polymer batteries contained in equipment or packed with equipment.