



User manual for NUTS units S, M, L



NEECO UNIVERSAL TRACKING SYSTEM



NOTICE

- > *This product is not designed for the protection of human health or life.*
- > *The use of modules from the S, M or L series is at the owner's discretion.*
- > *M and L series modules contain neodymium magnets for secure fastening.*
- > *The modules are designed to transfer data wirelessly. Do not use the modules in places where using this type of equipment is prohibited.*

USE

The modules are designed for tracking railway carriages, containers, construction machinery, trailers, caravans, diggers, packages, tractors and other items. They can also be used as a concealed independent monitoring unit for passenger cars and trucks without connection to the vehicle's electrical system to avoid warranty breach. The



modules can also be used to monitor your motorcycles. Using correct tracking settings will also help you generate a trip logbook.

WAIVER OF LIABILITY

LEVEL, s.r.o. will not be liable for any damage, financial loss or legal disputes concerning assets or persons arising from correct or incorrect use of the product.

DESCRIPTION

VERSIONS - OVERVIEW

	GSM module	Antennas	Battery
L series	2G – 3G	Internal GPS & GSM	LiPo 15 600 mAh to 21 600 mAh
M series	2G – 3G	Internal GPS & GSM	LiPo 7 800 mAh to 10 800 mAh
S series	2G – 2G	Internal GPS & GSM	LiPo 1 500 mAh to 3 400 mAh

OPTIONAL ACCESSORIES

- MD 092 000 holder – for L series modules only
 - MD 092 001 pry bar – for L and M series modules only
 - SA 092 000 mains charger including a micro USB cable
- Optional accessories can be purchased separately.



VERSIONS – DETAILED OVERVIEW OF L SERIES

TYPE	GSM	BATTERY	GPS & GSM ANTENNAS
GC 092 042	2G / 3G	Rechargeable 15 600 mAh	Internal
GC 092 232	2G	Rechargeable 15 600 mAh	External
GC 092 242	2G	Rechargeable 15 600 mAh	Internal
GC 092 244	2G	Rechargeable 21 600 mAh	Internal
GC 092 245	2G	Non rechargeable 21 000 mAh	Internal

VERSIONS – DETAILED OVERVIEW OF M SERIES

TYP	GSM	BATTERY	CHARGING	INPUT
GC 095 243	2G	7 800 mAh	USB	x
GC 095 253	2G	7 800 mAh	cable	1 x analog / 1 x binary
GC 095 043	2G/3G	7 800 mAh	USB	x
GC 095 053	2G/3G	7 800 mAh	cable	1 x analog / 1 x binary
GC 095 263	2G	10 800 mAh	USB	x

VERSIONS – DETAILED OVERVIEW OF S SERIES

TYPE	GSM	GPS	BATTERY	CHARGING	INPUTS
GC 077 058	2G/3G	✓	1 500 mAh	cable	1 x analog / 1 x binary
GC 077 208	2G	x	1 500 mAh	cable	x
GC 077 218	2G	✓	1 500 mAh	CL connector	x
GC 077 248	2G	✓	1 500 mAh	USB connector	x
GC 077 250	2G	✓	x	x	1 x analog / 1 x binary
GC 077 258	2G	✓	1 500 mAh	cable	1 x analog / 1 x binary
GC 077 +++	2G	✓	3 400 mAh	USB connector	x
GC 075 832G	2G	✓	CAN, cable charging, anti-start up		1 x analog / 1 x binary



PRODUCT DESCRIPTION

The modules contain a GPS receiver for detecting position (latitude and longitude), a GSM/GPRS module for transferring the position to a superior system or directly to the user via SMS, a 3D motion sensor (for detecting movement, vibrations, tilt and impact), a thermometer and a barometer. L and M series modules are equipped with magnets for fastening the modules to a metal surface or a holder offered as an optional accessory can be used. The operating time per charge depends on the selected operating mode, ranging from one month to 3.5 years. The operating times of accumulators are also affected by the weather conditions in which the modules operate. Excessively high or low temperatures increase the self-discharge effect of accumulators.



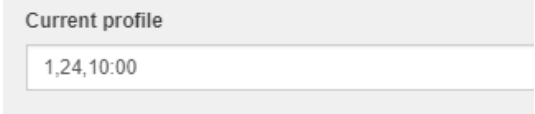
DESCRIPTION OF FUNCTION AND CONFIGURATION

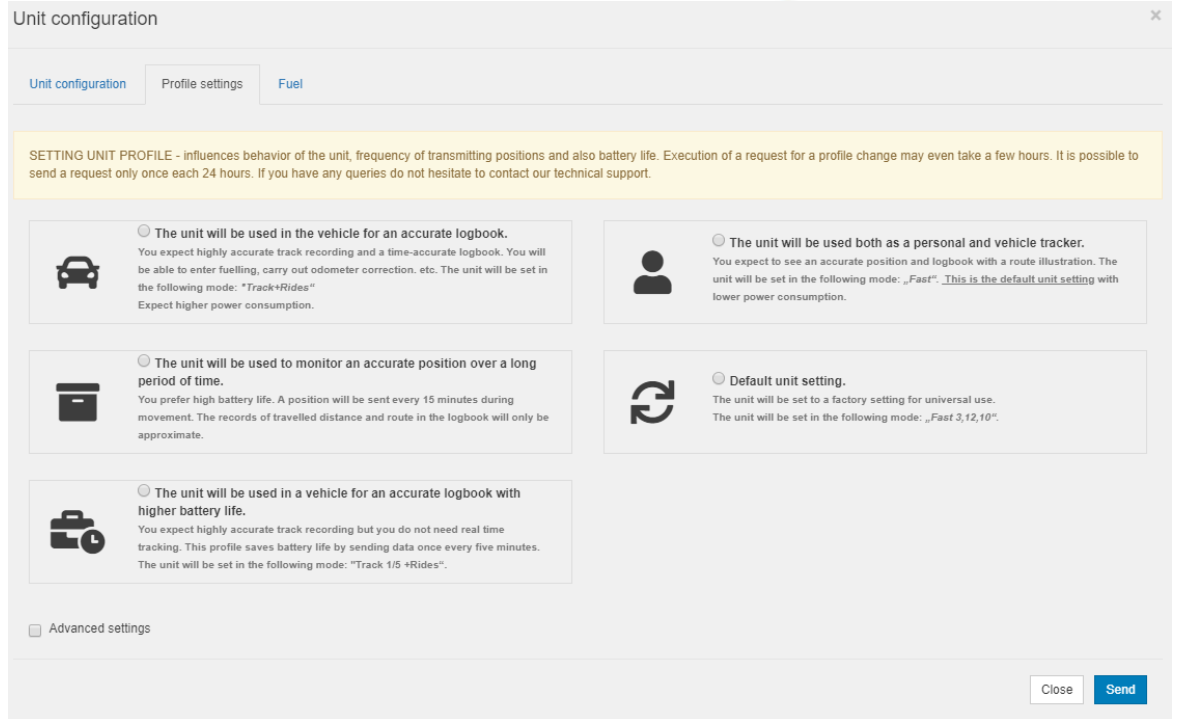
The information provided below applies if you have a full version of the Trexee service. The functions listed below cannot be used with the Lite version.

The modules operate in a mode selected by you. Module settings are selected at <https://nuts.neeco.com> in the **Settings – Unit settings** tab. Each module and the relevant details can be edited by clicking on the “pencil” icon  (registration number, vehicle name, default driver, vehicle icon, travel type). The “plus” button  is used to add new modules to the system. To add a new module, you need to know the HW key of the module, which is found on the label on the rear side of the module, or you can contact your sales representative to obtain your HW key.

- “Unit configuration” tab
 - Here, you can change the unit name, icon for the relevant unit and unit registration number or select a driver.
- To complete your changes, click “Save”.

✓

- “Profile setting” tab (this item is accessible depending on the unit type and setting)
 - Here, you configure parameters for sending values.
 - You always need to fill in all fields – the current values are listed in the **Current profile** field in the left bottom section of the screen.
- 
- These values can be changed once after 24 hours from the last change.
 - The default screen offers 4 choices to ensure that you do not need to input all required settings manually.
- To make configuration easier for you, we have prepared 4 options for module setting to choose from.
 - **You only need to select the option that matches your needs and you don't need to go through any additional settings.**



The image shows a 'Unit configuration' dialog box with a close button (X) in the top right corner. It has three tabs: 'Unit configuration', 'Profile settings', and 'Fuel'. A yellow warning box at the top states: 'SETTING UNIT PROFILE - influences behavior of the unit, frequency of transmitting positions and also battery life. Execution of a request for a profile change may even take a few hours. It is possible to send a request only once each 24 hours. If you have any queries do not hesitate to contact our technical support.'

Below the warning box are five radio button options, each with an icon and text:

- The unit will be used in the vehicle for an accurate logbook.**
You expect highly accurate track recording and a time-accurate logbook. You will be able to enter fuelling, carry out odometer correction, etc. The unit will be set in the following mode: "Track+Rides"
Expect higher power consumption.
- The unit will be used both as a personal and vehicle tracker.**
You expect to see an accurate position and logbook with a route illustration. The unit will be set in the following mode: „Fast“. This is the default unit setting with lower power consumption.
- The unit will be used to monitor an accurate position over a long period of time.**
You prefer high battery life. A position will be sent every 15 minutes during movement. The records of travelled distance and route in the logbook will only be approximate.
- The unit will be used in a vehicle for an accurate logbook with higher battery life.**
You expect highly accurate track recording but you do not need real time tracking. This profile saves battery life by sending data once every five minutes. The unit will be set in the following mode: "Track 1/5 +Rides".
- Default unit setting.**
The unit will be set to a factory setting for universal use. The unit will be set in the following mode: „Fast 3,12,10“.

At the bottom left, there is a checkbox for 'Advanced settings'. At the bottom right, there are 'Close' and 'Send' buttons.

✓

- If none of the recommended profiles is suitable for you, you can configure the module according to your specific needs using the advanced settings. In this case, proceed with caution and familiarise yourselves in detail with each parameter to be changed. This information is available for each of the parameters when you click on the question mark icon. You can restore the factory settings for the unit at any time by selecting and sending the "Default unit setting" option.
- Select the "Advanced settings" field.
- The options shown below will be displayed.



You can display explanations for individual fields by clicking the question mark. We always **RECOMMEND** reading the help section before saving your settings to find out what each of the fields represents and what you have set.

You can change the settings **once after 24 hours** from the last change.

What analogue values mean – see below

- If you need to set your unit to trigger the alarm when the unit is removed from the surface (available with Maxi and Standard modules) or you need to close trips immediately after the end of each trip, please go to the expert settings.

Expert settings

LOCK ?



- **LOCK** – Locking the unit position for detecting its removal and triggering alarm. (Only activate this if you are familiar with this function and know how to use it.) This function cannot be used with the Mini module.
- **RIDES** – This function defines precise beginning and end of individual trips. (Only activate this if you are familiar with this function. This cannot be combined with certain profile types.)
 - Always select RIDES when you want to add fuelling to the system.
- **Current profile** – setting the tracking interval and value monitoring via SMS. Set the units according to the example provided above.
 - *Interval for sending positions in motion*
 - *Interval for sending positions when stationary*
 - *First position in the interval for analogue value recording*
- After you have selected all values, click “Send”
 - The system will not let you continue if you forget to set any value or set an incorrect value.
- “Fuel” tab
 - This is only estimated information in the case of wireless modules.



Last position		
02/02/2019 16:53:28 CZ, Praha, Karlín, Šaldova	15:33	
03/02/2019 20:36:17 CZ, Praha, Chmelnice, Na chmelnici	10:01	

- You do not need to fill anything in.
- You can also check the last position and unit communication, as well as the current battery status in module settings.

USB AND LED

A micro USB connector and LED signalling charging status is located under a rubber cover on the front side. The USB connector is used for charging M, L and S series modules. The Trexee L Solar version requires charging with direct solar light. Charging the unit fully takes 65 to 75 hours, depending on the solar activity.

Charging times when using original accessories for charging

- L series – typically 10 to 12 hours
- M series – typically 5 to 7 hours
- S series – typically 2 to 3 hours

LED SIGNALLING

Green LED – power supply, accumulator charging	
Flashing	Accumulator charging in progress
Solid light	Accumulator is fully charged, power supply connected
Switched off	Sleep mode
Yellow LED – GSM status	
Flashing with 0.5 s interval	Not logged in to GSM, no SIM card
Flashing with 1 s interval	Logged in to GSM

DETECTION OF REMOVAL

After the Maxi or Standard module has been installed on the tracked item (a railway carriage, container, vehicle), module position can be locked. If the module is subsequently removed from the item, an alarm is triggered. See the LOCK setting above. Notification must be created for obtaining notices to your mobile phone. See the TREXEE system manual.

RECORD OF ANALOGUE VALUES

The modules allow measuring and recording internal analogue values (temperature, humidity, atmospheric pressure, battery voltage, battery capacity) at a regular set interval. This interval may be set within the range from 1 to 240 minutes. Measuring or recording analogue values does not wake the GSM or GPS module. Saved values are sent once the module is fully awakened according to the selected profile.



OPERATION AND INSTALLATION

PUTTING INTO OPERATION

The modules are supplied with configuration for sending the position once every 24 hours and once every 3 minutes when in motion. For more information see Function description.

SHUT DOWN AND STORAGE

Store the modules in a charged status. Charge the accumulators to at least 50% of their capacity at least every six months. Check the battery status in S series modules every 5 to 6 weeks. Storing the modules in a discharged status may cause irreparable damage to the accumulators due to self-discharge.

CHARGING

The modules are charged via a micro USB connector located under a rubber cover on the front side. The charging status indicated by LED next to the USB connector. Charge the modules with the charger and cable supplied as accessories. Charging the modules with anything other than original accessories may significantly lengthen the charging time.

INSTALLATION OF L SERIES MODULE IN HOLDER

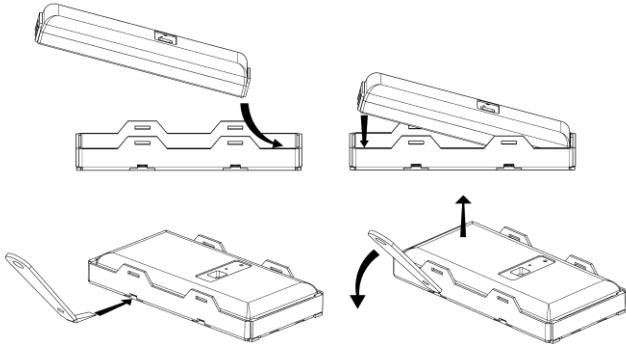
CAUTION, the product contains very strong magnets! Place the product on a metal surface or in a holder very carefully to prevent injuring fingers!

Always dismantle the product exclusively with the tool designed for this purpose – the MD 092 001 pry bar. L series modules can be lifted from the metal surface using the pry bar in the place of locks on the short side of the box.

If an L series module is placed in the MD 092 000 holder, insert the pry bar in one of the openings on the long side of the holder and lift it with the pry bar.

RECOMMENDED INSTALLATION – attach the MD 092 000 holder to the item with at least 4 screws. Use the openings provided on the holder. The holder can also be attached to the item with a premium quality double-sided tape – we recommend 3M tapes.

PLACEMENT



If possible, place the modules with the front side (with a rubber cover of the USB connector or the USB connector plug) facing free space towards the sky to ensure good reception of the GPS signal for the GPS antenna inside the module. Positioning modules without free space towards the sky will prolong the time required for obtaining the valid position and thus shortening the operating time per accumulator charging.

GPS SYSTEM

The system operates with precision of up to 2 m in free space. The precision in built-up areas is lower and the time required for obtaining the position is longer. GPS signal cannot be received inside buildings or underground spaces. Signal reception may also deteriorate with unsuitable placement. The quality of the signal changes during the day due to satellite movement and may be affected by adverse weather conditions (heavy rain, snowfall). The signal may also be shadowed by metal items near modules.

SIM INSTALLATION

All modules are supplied by the manufacturer with a SIM card. Removing a SIM card is deemed a breach of warranty. The modules will not function with other SIM cards than those provided by the manufacturer. A removed SIM card will not function in any other equipment.



TECHNICAL PARAMETERS

GSM	QuadBand	850/900/1800/1900 MHz
	SIM	Micro Sim, Plug-in 1,8 V
	Communication types	GSM Data, GPRS
	GPRS internet connection	Class 12 / static and dynamic IP VPN, UDP protocol / 128bit key encoding / FW update, configuration change, current data reading, event report reading
GNSS	GPS and Glonass	66 satellites
Antennas	GPS a GSM	Internal or external antennas, depending on type
Batteries	Type and capacity	Lilon 15 600 – 21 600 mAh charging L
		Lilon 7 800 – 10 800 mAh charging M
		Lilon 1 500 mAh charging S
Consumption	In standby mode	0.2 mAh continuously
	GPS position with sending to server	0.4 mAh intermittently
	Battery self-discharging	Lilon: 0.6 mAh continuously
USB	USB Micro	Charging
Sensors	Three-axis G sensor	Motion detection / tilt monitoring
	Additional sensors	Humidity / temperature / atmospheric pressure
		S series module only temperature sensor
Internal memory	Flash 512 Kb	Storage capacity of at least 5000 events / GPS positions
Dimensions	L series module	177 x 85 x 25 mm
	M series module	120 x 80 x 24 mm
	S series module	50 x 90 x 20 mm
Temperature range	Storage	- 40 °C to 85 °C
	Operating temperature	- 25 °C to 65 °C
Protection class	IP65	Waterproof
Weight	Including batteries	0.55 Kg L series
		0.25 Kg M series
		0.15 Kg S series