

MH2000

Quick Start User's Manual

V.1.03

AS EASY AS POSSIBLE

Personal handheld GPS/GSM tracker

TABLE OF CONTENT

Description of how the device works.....	2
For your safety.....	4
1. Welcome.....	6
2. Standard package content.....	6
3. LED indication.....	7
4. Device preparation.....	8
5. Device configuration through SMS.....	10
6. Requests.....	11
7. Factory defaults.....	12
8. Battery life time.....	14
9. Recommendations.....	14
10. Electrical characteristics.....	14
11. Maintenance and repair.....	15
12. Notes.....	16

DESCRIPTION OF HOW THE DEVICE WORKS

Turning on

After device starts, the device will turn on the GPS receiver right away for 3 minutes, in order to locate your coordinates and synchronize the internal clock. At this moment, place the device in open space, where the sky is clearly visible. When the device has synchronized the time, it will immediately go to sleep mode and you will be able to get normal time in the SMS message. If the device is unable to synchronize the internal clock, you will get the incorrect time in all of the SMS messages (i.e.: 2007 01 01 00:00:01).

Repeated time synchronization

If you want to synchronize the time anew, if for example it wasn't done when the device was turned on, then send the SMS with the text FIX?. When the device gets this SMS message, it will again turn on the GPS receiver and try to get your coordinates and synchronize the time. If the time synchronization is successful, you should get the correct time in all of your SMS messages. If time you receive, that is year, month, day, minutes are correct, but the hours are incorrect, that means that the device has no set time zone, in which you use your device. In order to unify the time, send the SMS message with the text CFG_DTZ_<Time zone> (i.e.: CFG_DTZ_+3). You will be informed by an SMS about successfully changing the settings.

Sleep mode

When in sleep mode, the device reacts to incoming SMS messages, changes in the operators connection and battery dischargment, so nothing else to do is necessary. If yo want to know, if the device is really on, for a short time (1 sec.) press any of the buttons. When pressed, the battery indicator will light up.

How ALARM works

Alarm mode can be turned by the red button. To turn on the alarm mode, you have to press the button and keep it pressed for no less then 3 seconds, otherwise the alarm mode will not turn on.

When the alarm mode is turned on, the device will send the SMS message (minimal time to get the SMS message is 15 seconds) with a link, which opened in a browser will display a zone, according to the GSM base station information, in which the device is right now. Later after 2 minutes the device will send the next message (if GPS coordinates are available) with a link to google maps, which opened will show a corrected position of the device. In one alarm duration time the device will send from 3 to 4 SMS messages. If the device is unable to locate GPS coordinates, it will always send SMS messages with a link where its position is determined from GSM base station information.

Messages about discharging battery

When the battery reaches 30% of its capacity, the device will form the SMS message and send it to the number which is entered into the memory. Do not be surprised if the device, due to internal battery chemical processes, which often imitate wrong battery charge level fluctuations, especially when the battery discharges, sends more SMS messages warning about the critical battery charge level. Do not forget to set up your phone number into the device configuration.

Query WIM? (Where I am?)

When you send this type of SMS query, the device will turn on the GPS receiver and try to determine its coordinates. When successful (the sent message with the link might take from 30 sec. to 3 min.) the device will send to the number a link to google maps with the position where it is. If unsuccessful to locate its coordinates (no sooner than 3 min.) the device will send a link to a map, where its position is shown in a zone, according to GSM base station information.

Take notice, that the GPS coordinates located by the GPS receiver are much more accurate than the zone, located according to GSM base station information. The devices location zone set by GSM base station information could have a 5-10 km. error, in the best case a 500 m. error. Coordinates from GPS receiver might have a 10m. error (in an open space) out of 95% of received coordinates, while the rest 5% could have a greater error.

FOR YOUR SAFETY

Please read these basic explanations. In disregarding them you may face danger or trespassing of existing laws. In case you wish to have more information, please read the concise user manual.



DISTURBANCES

All wireless equipment may be sensitive to disturbances which may have effect on its operation.



SWITCH OFF IN HOSPITALS

Follow all restrictions. You might need to switch off when being in the vicinity of any medical equipment.



SWITCH OFF IN THE MEANS OF TRANSPORT

Follow all restrictions. Wireless equipment may cause disturbances in air traffic.



SWITCH OFF WHEN FUELING

Do not use the device in petrol stations. Do not use it in the vicinity of fuels or chemicals.



SWITCH OFF WHEN BEING IN THE VICINITY OF PLACES OF EXPLOSIONS

Follow all restrictions. Do not use the device at places where explosion works are carried out.



CHARGER

Chargers and personal computers must comply with the requirements of DIN EN 60950-1:2003.



USE ONLY THE BATTERIES SUPPLIED BY THE MANUFACTURER

If a battery of an improperly sort is inserted, there is a possibility for explosion or other harms.



USE THE BATTERY SAFELY

Ensure that the battery doesn't have a contact with water. When storing, keep the device in a cool, dry place. Ensure that the battery and device are not exposed to hot surfaces or direct sunlight.

When transporting, ensure that the battery is safe from metal articles and do not keep it with metal rings, chains, etc.

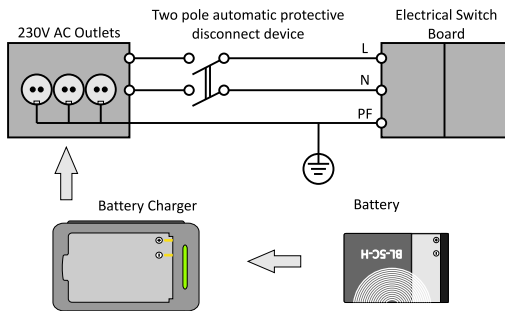
Do not damage the battery with nails or sharp objects.

Do not try to charge the battery directly from a household socket. This may lead to explosion or other harms.

To avoid mechanical damages, it is advisable to carry the equipment in a blow-proof package.

The operation environment of the device has effect on its communication quality. If the operation of the device has been disturbed, only qualified maintenance staff may do the repair. It is recommended to deliver the device to a repair center or back to the factory.

Power supply chains available at a place used for connecting charger must have safety devices (automatic bipolar switch off devices) which protect from power supply excess, short circuit and failure of grounding. The switch off device must be installed at a place which is easy to access. Its power must be consistent with the power of the connected device, and the distance between the contacts must not be less than 3 mm.



1 WELCOME!

Thank you for purchasing our device! We hope it will satisfy your expectations and you will enjoy its particular features. Please, find several minutes to read this document before beginning to work with MH2000.

All rights protected. © 2010 Ltd Teltonika.

All rights are owned by the author. You may not copy, compile or transfer the present information to third parties or distribute it without a prior written consent by UAB Teltonika.

Other products and company names mentioned in this Manual may be trademarks or names of products of such companies.

In case you have problems with the use of the product beyond your possibilities to solve it, please address them to the Technical Assistance Center (TAC) by e-Mail support@teltonika.lt or contact your local seller. We would be pleased to be of any assistance to you.

Teltonika recommends to read User Manual carefully. Teltonika does not take any responsibility for problems that occur due to an unappropriate usage of a device, incorrect configuration or usage of software that was issued by a third party. Teltonika reserves a right to modify the functionality of the device without any prior notice.

2 STANDARD PACKAGE CONTENT








- 1 x MH2000 Handheld Tracker
- 1 x Mini Screwdriver
- 2 x BL-5C Batterys
- 1 x Neck Strap
- 1 x Quick Start User Manual
- 1 x External BL-5C Battery Charger

NOTE: The manufacturer's set does not include any SIM card which is necessary to connect to the GSM network. A SIM card can be acquired from your local supplier of GSM services.

If an unsuitable SIM card has been inserted or the device fails to detect it, the device will reload automatically and try to start the connection again (if SIM card is not inserted the device will reload three times). If the reconnection fails, the device will show it by its indicator. If the card has been inserted later, the device must be switched off and switched on again.

3

LED INDICATION

- | | |
|---|---|
|  | Device is in sleep mode or switched off |
|  | Device found its location |
|  | Device registering to GSM network |
|  | GSM error (check PIN/SIM/Operator) |
|  | Reached the critical battery charge level |
|  | Device searching its location |
|  | Panic mode is activated |

4

DEVICE PREPARATION**INSERTING SIM CARD**

Open the back cover and find the SIM card holder. Pay attention how the SIM card should be placed into the device. It is shown by the symbol on the device.



NOTE: If the red GSM LED is blinking check is the SIM card placed correctly, or is the PIN code removed.

CHARGING THE BATTERY

The device battery can be charged using a BL-5C-H battery charger only. Put the battery into the charger and plug it into the wall outlet. When the charge process starts and finishes it will be indicated by a LED located on the charger.

After the battery is fully charged insert it into the device and turn the device on. The batteries are always provided half charged. Charge the battery before you start using the device.

CONNECTING TO PC

The device can be connected to a PC only using a special cable. This cable has a special integrated chip which allows communication between the device and PC.

NOTE: Connecting the cable which is not provided by the company Teltonika you can risk in damaging the device.



- 1 – LED indicators
- 2 – Panic Button
- 3 – ON/OFF Button
- 4 – Micro USB

LED INDICATORS

LED indicators indicate the status that the device is in at the time.

TURN ON/OFF BUTTON

To **turn on** the device press the button shortly and release it. To **turn off** the device press and hold button pressed until all LEDs light up then release it.

PANIC BUTTON

Press the button and hold it pressed until all LEDs light up, then release the button and device will activate the panic mode.

PCCABLE

(Additional accessory is needed)

This connector can be used for a device firmware update and debug log translation to PC only.

BATTERY CHARGING

(Additional accessory is needed)

Battery can be charged using the special external BL-5C battery charger. Take out the battery from the device fit it into the charger and plug the charger to the outlet (230V).

5 DEVICE CONFIGURATION THROUGH SMS

SMS TEXT	THE MEANING
CFG_AD_CELL+GPS	AD – Alarm Data -This message will configure the device to collect all available data in the memory while in panic mode.
CFG_AD_CELL	AD – Alarm Data – Collect data with GSM base station information only.
CFG_ADT_<time in sec.> <i>i.e. CFG_ADT_180</i>	AD – Alarm Duration Time – Set up the time how long the device will work in alarm mode when it is activated.
CFG_ADP_<phone number> <i>i.e. CFG_ADP_+37066612345</i>	ADP- Alarm Destination Number – set up the phone number to which the device should send information when alarm mode is activated.
CFG_ADSP_<time in sec.> <i>i.e. CFG_ADSP_60</i>	ADSP – Alarm Data Sending Period – set up how often the device should send SMS messages to the set number. Minimal available period is 30sec.
CFG_CLP_<mode> <i>i.e. CFG_CLP_24</i> <i>i.e. CFG_CLP_1</i> <i>i.e. CFG_CLP_0</i>	CLP – Coordinates Logging Period – set up what mode device will work in. This mode determines how often the device will collect its position in the memory. Modes: 24 coordinates/day and 1 coordinate/day or to switch off logging at all.

CFG_PLD_CELL+GPS	PLD – Periodical Logging Data – This message will collect all available data in the memory while in normal mode.
CFG_PLD_CELL	PLD – Periodical Logging Data - Collect data with GSM base station information only.
CFG_DTZ_<Time zone> <i>i.e. CFG_DTZ_+3</i>	DTZ – Device Time Zone – set up the time zone if you want to get your current location time by SMS.
CFG_CBN_<Battery level %>_ <Phone number> <i>i.e. CFG_CBN_30_+37066612345</i>	CBN* – Charge Battery Notification – Set up the level of the battery when device should send a notification to set number about the battery level.
CFG_SMS24_<mode>_<number> <i>i.e. CFG_SMS24_ON_+37066612345</i> <i>i.e. CFG_24H_SEND_OFF</i>	24H_SEND – 24 hour periodical data sending – Sets if the data collected will be sent after 24 hours. Modes: 0 – data will not be sent. 1 – data will be sent. Note: If data is not sent after 24 hours, after this time newer data will be overwritten over the oldest data available (the allowed maximum number of data packages is 24)

* Recommended minimal value is 30% otherwise device will not inform you because of low battery level.

6

REQUESTS

Requests - are special text messages which are checking the MH2000 device status and provide response via SMS to the requesting person. Example: The requesting person sends a SMS with the content Wim? The MH2000 received such SMS message will send back a the position where it is. SMS text of requests is not case sensitive, capital and small letters work as well.

SMS TEXT	THE MEANING
FIX?	Return the location where the device is at the moment.
INF?	Return all available information about devices current status.
LOG?*	Collect all 24 or all available data packets from the memory and send them to the requested number.
CFG?	Return all available configuration parameters of the device.
DEFAULT	Restores all parameters to factory default.
ALARM_OFF	Turns off the panic mode if it is activated.
WIM?	Creates and returns a link with the position of the device to be viewed with google maps.

* Device will send data in PDU format. To understand this format additional software is needed.

Device will inform about successfully changed parameters in all configuration SMS messages if the SMS message you have sent will be correct. Otherwise it will ignore your request.

7 FACTORY DEFAULTS

Time: - Set time (if there was no fix, default time is N/A (Not Available))

ID: - Given name to the device. Default is MH2000

ADT: - Alarm duration time. Time how long the device works in alarm mode (shown in seconds) Default: 360sec. Minimal available duration time is 30sec.

AD: - Alarm data: Data type, which is sent to set number in panic mode (02 - GSM base station information only, 03 - GPS coordinates only, 04 - all available data). Default is 04.

ADP: - Alarm destination number. Number, to which data will be sent in panic mode. Default is empty.

ADSP: - Alarm data sending period. How often data will be sent to the set number. Shown in seconds. Default is 120sec.

PLD: - Periodical logging data: The same as in AD parameter.

CLP: - Coordinates logging period. How often the device will save its position in the memory. Shown in seconds. By default is disabled.

DTZ: - Device time zone. Set time zone of the device. Default is 0.0.

CBN: - Charge battery notification. Battery level, when reached sends notification to set number. Shown level is in %. Default 30%, (no number)

24H_SEND: - 24 hour periodical data sending. A parameter, which shows if the data collected after 24 logging will be sent. (1 – on, 0 – off). Default is 0. (no number)

NOTE: if the sending is turned off (0), then after 24 hours of logging, newer data will be overwritten over the oldest available data. The allowed maximum number of data packages is 24 coordinates.

8 BATTERY LIFE TIME

MODE	LIFE TIME*
24 coordinates per day	up to 100 Hours
1 coordinate per day	up to 260 Hours
Sleep	up to 300 Hours

* Declared battery life time is approximate and may change depending on GSM signal level, GPS signal availability and operating temperature.

9 RECOMENDATIONS

Recommended operating temperature	0 up to 50°C
Storage temperature	-20 up to 60 °C

10 ELECTRICAL CHARACTERISTICS

Average current consumption when idle	up to \approx 4mA
Average current consumption when operating	up to \approx 100mA

11 MAINTENANCE AND REPAIR

This device is a high-quality design product; therefore, it should be handled carefully. The following advice will assist you in meeting the guarantee requirements.

Do not let the device get wet. In the precipitation, humidity and all sorts of liquids there may be minerals which may be a cause of corrosion of the electricity chains. If your device got wet, take out the battery and let the device get fully dry; afterwards, insert the battery again.

Do not use or keep the device in dusty and dirty places. Its moving and electronic parts may be damaged.

Do not keep the device in high temperatures. High temperature may reduce the life time of the electronic parts or damage the battery and deform or melt some plastic parts.

Do not keep the device in cold environment. If the device warms up to the room temperature, humidity may start condensing which may cause the failure of electricity circuit boards.

Do not try opening the device except as specified in this Quick start User Manual.

Do not throw, knock or shake the device. By doing so you can break internal circuit boards and small moving parts.

Do not clean the device with strong chemicals, solutions or cleansing agents.

Do not paint the device. The paint may block the moving parts and prevent them from operating well.

By using supplements which are not approved you may also infringe the legislation in the field of the use of radio equipment.

The charger must be used indoors only.

All these recommendations are equally important for your device, battery, charger and any other supplement. If any of the devices is not functioning properly, bring it for examination to the nearest authorized repair center.

