klein einfach sicher

microguard

English Manual

General

ALL RIGHTS RESERVED.

NO PART OF THIS MANUAL MAY BE REPRODUCED, TRANSCRIBED, STORED IN A RETRIEVAL SYSTEM, TRANSLATED INTO ANY LANGUAGE OR COMPUTER LANGUAGE OR TRANSMITTED IN ANY FORM OR BY ANY MEANS, ELECTRONIC, MECHANICAL, PHOTOCOPYING, RECORDING OR OTHERWISE, WITHOUT THE PRIOR WRITTEN PERMISSION OF THE COPYRIGHT OWNER.

THE COPYRIGHT OWNER GIVES NO WARRANTIES AND MAKES NO REPRESENTATIONS ABOUT THE CONTENTS OF THIS MANUAL AND SPECIFICALLY DISCLAIMS ANY IMPLIED WARRANTIES OR MERCHANTABILITY OR FITNESS FOR ANY PURPOSE.

THE COPYRIGHT OWNER RESERVES THE RIGHT TO REVISE THIS MANUAL AND TO MAKE CHANGES FROM TIME TO TIME IN ITS CONTENTS WITHOUT NOTIFYING ANY PERSON OF SUCH REVISIONS OR CHANGES.

Copyright: © WIATEC GMBH

Pictures: istockphoto.com, wiatec gmbh

27. April 2019

E-Mail: support@microguard.de

1. Introduction

The purpose of this manual is to provide general instructions for installation of our MicroGuard-USB devices into cars equipped with parking heaters and to explain parameter settings necessary for operation with different heater manufacturers and models. Dedicated manuals for different heaters are available in German language on our website:

http://microguard.de/downloads/anleitungen-microguard-usb

Please use those manuals for the individual connection of our device to a particular heater model.

2. Scope of delivery

In the delivery you will find the following content:

- MicroGuard-USB (control device),
  - special version with power conversion module +12V or
  - a special version with modification for your specific connection
- Connectors with 15cm cable (will need individual extension)
- Option: external temperature sensor(s), if ordered
- Option: y-cable for several temperature sensors (if ordered)

For GSM remotes we offer only external temperature sensors.

3. General switching function

MicroGuard-USB is equipped with two output and two input lines which can be used for heater switching and switch control (or alarm lines).

- Older heaters can be controlled using +12V signals (orange output) or ground output (brown).
- Newer heaters use Bus signals (W-Bus, LIN, CAN). We offer a special modul equipped with W-BUS signals. In other cases we adopt the connection of our module to an existing control device (like timer or wireless receiver).

With MicroGuard-USB a temperature sensor can be used to feedback on temperature inside the car.

4. External temperature sensor - characteristics

Device: Dallas Semiconductor DS18B22:

- temperature range: -55°C bis +125°C
- Accuracy: +/- 0.5°C for -10°C < T < +85°C, +/- 2°C otherwise
- External sensors are water proof in a metal eclosure: http://microguard.de/file_download/54/AnleitungTemperaturwaechter.pdf

5. Aufbau und Schnittstellen

Fig. 1 is showing MicroGuard-USB:

- Micro-USB: power supply connector, used only for some types of GSM control configurations, mainly with remote senders
- Mini-USB: port for external T-sensors
- Ein-/Ausgänge: input and output lines, +12V power supply
- USB-Port: connection to Surfsticks (PORT1)
- LED: function indicator

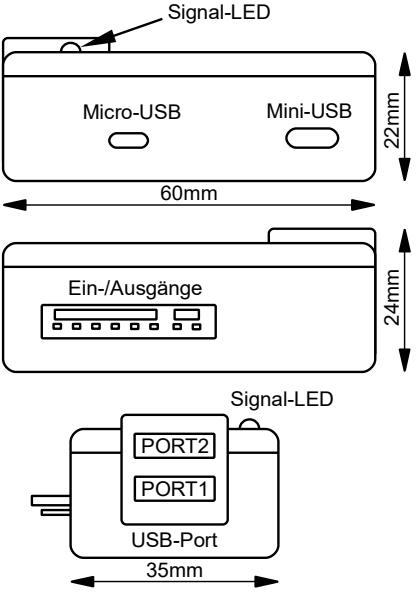

Fig. 1: MicroGuard-USB Module

6. Connection to heaters controlled by +12V or ground

Use always a 5A fuse for power supply connections. Never connect directly to car battery.

Wrong power connection will destroy the device!

Fig. 2 shows a general scheme for potential connection of MicroGuard-USB to external devices. You can use the orange line to control heaters by +12V signals. You can use brown line to control heaters using ground signals or convert ground to voltage-independent switch driving a relay.

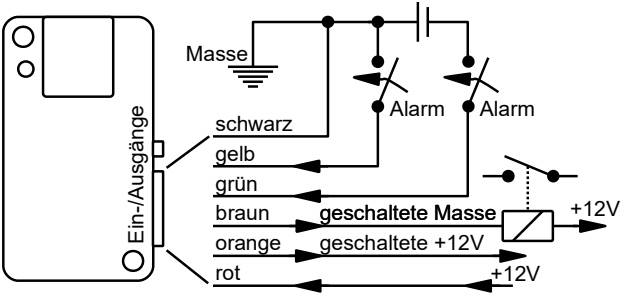

Figure 2: General connection scheme for MicroGuard-USB

Fig. 3 Shows usually used outputs and power supply lines used for GSM controls for heaters. +12V battery voltage is vonnected to red line, ground to black. Switched signal on orange (+12V) and brown (ground) are available.

For individual connection schemes to divers heater models, please refer to the schematics described in the dedicated German installation instruction. If there are questions about the connection schemes, please contact our support per mail: support@wiatec.de

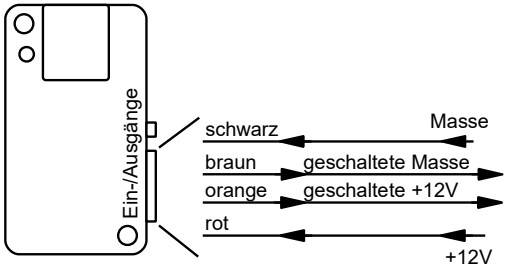

Figure 3: Available signals for heater control

7. General Initializing Procedure

MicroGuard-USB uses entries in the phone book of the SIM card to store system parameters during initialization and later during operation. The general init procedure is identical for all the modules, independently of the connection type. Some parameters have to be adopted to the individual heater / control device after initialization. Please refer to the chapters in the German manuals for details.

Please go through these steps to initilize the system:

1. Validate that you can call out and send SMS using the SIM card. Give yourself a call and send SMS to your phone number using another mobile phone.
2. In the security options delete the need to enter a PIN when starting the mobile phone. Validate this setting by switching the mobile off an on again.
3. Delete all call forwarding using the GSM code ##002# with your mobile.
4. Connect MicroGuard-USB with power supply. LED starts to flash 1x a second.

5. Insert SIM into the USB UMTS-Stick and connect the stick to MicroGuard-USB (PORT1!). After 20-30 seconds LED signal changes and shows 2x fast flashing every second.

6. Make a call to the SIM in the stick using your mobile phone. This mobile will be registered in the system as master control number. The call will be terminated after 1-2 “rings”.

7. After call termination LED flashing changes to 3x long on, some seconds off, 4x long on. In this time the parameters are being written into the phone book of the SIM.

8. After approx. one minute, LED starts to flash 3x very quickly. If you ordered a temperature sensor, plug in the sensor into the Mini-USB port during this flashing procedure. Temperature sensors have a unique ID which has to be registered in the system during init procedure.

9. Sensor registration takes approx. 30 second. After that a call is executed to the master control number (your mobile). Also, confirmation SMS “System Init OK” is sent to the master number. General Initialization completed.

Now it is time to adjust some system parameters to your heater or control device connection. Below we describe parameter settings only for +12V and GND controlled heaters. Other special settings might be required for other connection types, please refer to German manuals or contact our support: support@wiatec.de

10.1 Parameters for heaters controlled by +12V

The duration of the +12V signal on the orange output (heating time) is controlled by the parameter ORPULS. To be able to switch the orange line by a simple call, please send an SMS with the content

SW=19 ORPULS=xxxx

from the master control number to MicroGuard-USB. Note that xxxx determines the heater time in minutes (first two numbers), e.g:

- Heating time of 30 minutes:

  SMS command „SW=19 ORPULS=3000“

- Heating time of 15 minutes:

  SMS command „SW=19 ORPULS=1500“

Test the switching function. You can check the parameters using SMS command MGCONFIG.

10.2 Parameters for heaters controlled by Ground signal

The duration of the GND signal on the brown output (heating time) is controlled by the parameter BRPULS. To be able to switch the brown line by a simple call, please send an SMS with the content

SW=09 BRPULS=xxxx

from the master control number to MicroGuard-USB. Note that xxxx determines the heater time in minutes (first two numbers), e.g:

- Heating time of 30 minutes:

  SMS command „SW=09 BRPULS=3000“

- Heating time of 15 minutes:

  SMS command „SW=09 BRPULS=1500“

Test the switching function. You can check the parameters using SMS command MGCONFIG.

Note: To switch on both lines at the same time use SMS command

SW=29

8. External Switch Button

* ab Software-Version 1.43

MicroGuard-USB allows to cinfigure an exterlan button which can switch the heater on and off when installed in the car. Fig. 4 Shows a push button with integrated ON-indicator driven by the signal on the orange output line. Note that the LED has to come with a series resistor to be able to withstand +12V at the orange line. Any other button without LED indicator can also be used instead.

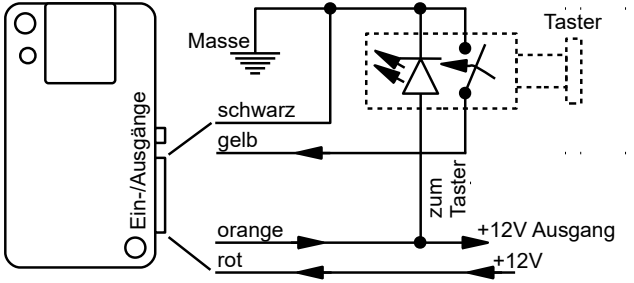

Figure 4: Connection of an external ON/OFF push button

To be able to use the button function, some parameters must be modified vs. factory settings, see Table below:

Phone Book Enry	Factory Setting	SMS Command	Function
MG SWITCH	'09'	SW=09 SW=19	Switching of brown line (GND) for LED indicator Switching of orange line (+12V) for LED indicator
		SW=79	+12V signal for LED for WBUS modules
MG YON	'1'	YON=2	Push button function for yellow line IN
MG YACT	'0'	YACT=0	Active-low level for yellow line IN

Table 1: Parameter modifications for push button with MicroGuard-USB

Examples:

- Push button wit +12V LED indicator, W-BUS module:

  SW=79 YON=2 YACT=0

- Push button with +12V LED indicator, STD module:

  SW=19 YON=2 YACT=0 (+12V orange line being switched)
  SW=29 YON=2 YACT=0 (both lines being switched)

- Push button with GND LED indicator, STD module:

  SW=09 YON=2 YACT=0 (GND brown line being switched)
  SW=29 YON=2 YACT=0 (both lines being switched)

Please note: if both lines are being switched settings for heating time should be equal for both liner (ORPULS and BRPULS). Otherwise there will be a discrepancy between the real heating and button indication.

9. Active Feedback of Switching*

* Software-Version 1.43 (2015) and later

MicroGuard-USB indicates the switching event by termination of the incoming call. The number of “ring” signals is an indicator for the switchong operation:

- Switching ON: 2 rings
- Switching OFF: 1 ring

MicroGuard-USB allows an active feedback about the switching operation using available alarm lines. The feedback type can be set to call or/and SMS. Table 2 summarizes the required parameters for the feedback function.

Phone Book Enry	*Factory Setting*	*SMS Command*	*Function*
MG AlarmOn[1)]	'0'	ARM	Activation of the feedback function
MG SWITCH	'0'	SW=19[2)] SW=79[2)]	Use of +12V for switching (STD) Use of +12V for WBUS modules
MG AlCall	'1'	ALCALL=17	Feedback type set to call
MG AlSMS	'0'	ALSMS=17	Feedback type set to SMS
MG GACTHI	'1'	GACT=0 GACT=1 GACT=2	Feedback after switch-off Feedback after switch-on Feedback after switch-off and -on

Table 2: Configuration for active feedback

[1)] The feedback uses the alarm function of the module
[2)] +12V output line being used as signal for feedback and LED indicator

Example for SMS command setting SMS as feedback at on and off for a WBUS module

ARM SW=79 ALSMS=17 GACT=2

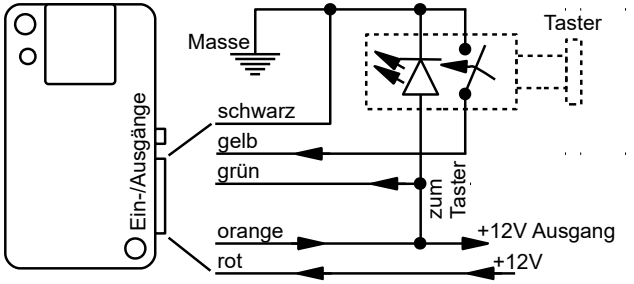

Figure 5: Configuration of input and output lines for active feedback and a push button

11 GPS Features

MicroGuard USB PORT2 is dedicated to additional accessories and functions. One of those functions is GPS service, vehicle localization & GPS-based alarm.

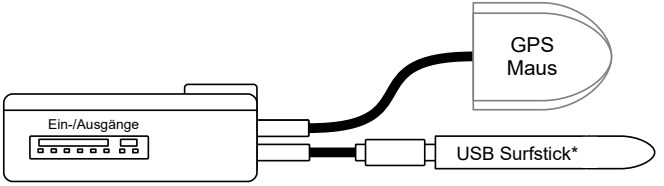

Figure 6: Anschluss von USB-Stick und GPS-Maus an MicroGuard-USB

Fig. 6 shows a GPS receiver connected to PORT2. With this receiver,

following additional functionality is enabled:

1. Vehicle localization
2. 24h Timer
3. GPS fencing
4. GPS Home

Note that currently only limited GPS-receiver models are compatible with MicroGuard-USB. You can find those compatible receivers in our shop:

http://www.wiatec.de/shop/index.php?cPath=35

No special init procedure is required for compatible GPS receivers.

11.1 Vehicle localization

The GPS receiver at PORT2 delivers current location of the vehicle every 10 seconds. This position can be requested any time using SMS

POSITION

MicroGuard-USB replies with the current location, e.g.:

https://www.google.de/maps/place/51.0754950,13.7478625

11.2 24h Timer

Beyond vehicle localization a GPS receiver delivers also a very accurate satellite timer which can be used for timer functions. We have implemented a 24h timer which allows to define the switching time of the heater to be set in advance within 24h. You can send one SMS to the heater in the evening to define when the heater will be switched on next morning (1 time only).

The SMS command is compatible with Eberspächer App EasyStart GSM

STARTxxyy

where xx is start time in hours and yy start time in minutes.

Example:

START0745

will start the heater next morning at 7:45 am.

11.3 Geo-Fencing

This feature generates a notification based on the last saved position and the fact that the vehicle leaves the region of 300m around this location. The notification can be defined to be a phone call or text message with a text which can be individually set by the user. This feature is being frequently used as theft alerts for vehicles.

A summary of SMS commands for Geo-Fencing is given in Table below.

SMS Command	*Function*
SETGEO	Sets the current position as reference for GEO-fencing
GEONR=<Nr.>	Changes the phone number to be alerted by GEOFENCE (default is master control number)
GEOSMS	Sets alert type to text message and turns on GEO-fencing
GEOCALL	Sets alert type to phone call (default) and turns on fencing
GEOOFF	Switches off GEO-fencing without changing the position
SETGEOSMS=<Text>	Sets <Text> as content of the text message for GEO-fencing, At the same time alert type is set to text message.

11.4 GPS-Home

GPS-Home is the inverse function to GEO-Fencing. When the vehicle enters a region 300m around a predefined location, an alert is being generated. Also here the notification can be defined to be a phone call or text message with a text which can be individually set by the user.

A summary of SMS commands for Geo-Fencing is given in Table below.

SMS Command	***Function***
SETHOME	Sets the current position as reference for GPS-Home
HOMENR=<Nr.>	Changes the phone number to be alerted by GPS-Home (default is master control number)
HOMESMS	Sets alert type to text message and turns on GPS-Home
HOMECALL	Sets alert type to phone call (default) and turns on GPS-Home
HOMEOFF	Switches off GPS-Home without changing the position
SETHOMESMS=<Text>	Sets <Text> as content of the text message for GPS-Home, At the same time alert type is set to text message.

12 Additional remarks

12.1 Switching modes

- Using one of the connection schemes shown above heaters can be switched on and off.
- Heating time is determined by the setting in MicroGuard-USB (parameters ORPULS and BRPULS). A subsequent call/SMS switched the heater on again.
- Another control device may be used without restrictions. However, control devices will influence themselves. It is recommended to use the same device fro switch off as for switch on.

12.2 Using of mobile phones instead of USB Sticks

Theoretically, a usage of compatible mobile phones instead of sticks is possible. Due to the weakness of charging for STD mobile batteries, reliable functions with mobile phone connected to MicroGuard-USB cannot be guarneed at lower temperatures (below 5°C).

Please use USB Surf-Sticks ONLY!

13 Technical

Weight	30 g
Size	L 60 x B 35 x H 24 mm
Supply voltage	7-15 V
Current consumption	40mA (average)
Operating Temperatures	-20°C to 85°C

14 Certification

MicroGuard-USB fulfills following directives:

- 89/336/EWG (EMV)
- 73/23/EWG, extended by 93/68/EWG
- 2002/95/EG (RoHS)

10. WEEE Directive 2002/96/EG

on waste electrical and electronic equipment

Disposing of this product correctly will help save valuable resources and prevent any potential negative effects on human health and the environment, which could otherwise arise from inappropriate waste handling.

Please contact your local authority for further details of your nearest designated collection point.

klein einfach sicher

microguard

Kinderleichte Bedienung
Installation in 2 Minuten

GSM **Funkwächter** mit Benachrichtigung durch Anruf und/oder SMS.
Heizungs-/**Heizkessel-Überwachung**, Benachrichtigung bei Störung; Resettaster per Anruf/SMS
Stromausfallmelder mit Temperatursensor (optional)
Temperaturüberwachung, interner Sensor und bis zu 4 externe Sensoren am Kabel
Steuerung von **Standheizung** per Anruf/SMS. Spezielle iPhone/Android App vorhanden
Steuerung elektronischer **Heizungsthermostate** mit Rückmeldung über die aktuelle Temperatur
Steuerung konventioneller **Funk-Steckdosen** per SMS, beliebig viele Steckdosen mit einem Modul!
Optionaler PIR-**Bewegungsmelder** für Ihr Büro, Lager und Ferienhaus
Optionaler **Erschütterungsmelder** für mobile Gegenstände und Maschinen
Erweiterung für **Kfz-Alarmanlagen**, Ortung der Fahrzeuge möglich

Bildquellen der verwendeten Fotos: istockphoto.com

www.microguard.de