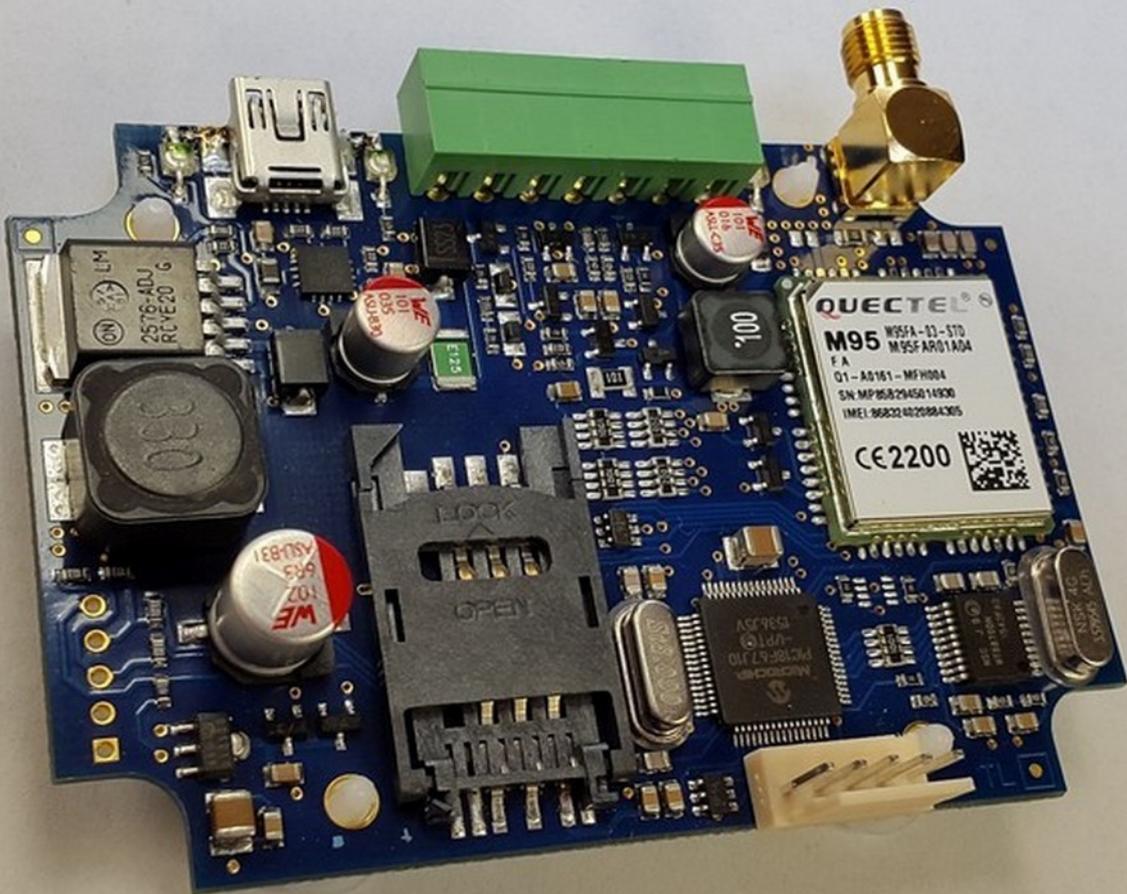# VBG

Mobile Communicators

VBG, VBG-3G, VBG-S

Installer Manual

Rev. 2016.05.04.

DECLARATION OF CONFORMITY

(in accordance with 93/68/EEC)

We**, VILLBAU Security Systems Ltd.** (1182 Budapest, Üllői út 611., HUNGARY) declare, that the following products:

VBG	GPRS/GSM communicator
VBG-3G	HSPA/UMTS communicator
VBG-S	GPRS/GSM serial communicator
VBG-S3G	HSPA/UMTS serial communicator

are in conformity with the following EU directives:

2014/30/EU	Electromagnetic Compatibility
2014/35/EU	Low Voltage Equipment Safety
1999/05/ECC	R&TTE Directive
2011/65/EU	RoHS2 Directive

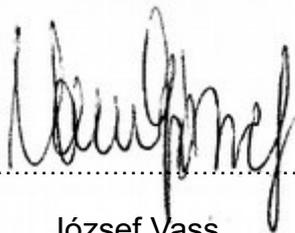The products named above comply with the requirements of these EU Directives by meeting the following standards:

EN 61000-6-3:2001 EMC	Generic emission standard. Residential and commercial.
EN 50130-4:2011	Immunity Environmental Class I
EN 50136-1:2012	Alarm Transmission Systems
EN 60950-1:2006+A12:2011	Information technology equipment, Safety, General requirements
TBR 21, ETSI EN 300 001	PSTN Communication

We hereby declare that the products named above has been designed to comply with the relevant sections of the above referenced standards and specifications. The units comply with all essential requirements of the directives when installed and used as per manufacturer's instructions.

The technical documentation supporting this declaration is available at the above address for inspection by the relevant authorities. The products are marked with the CE mark.

In case of any change made to the instruments without the written permission of VILLBAU Security Systems, including any hardware or software changes, or the improper use of the instruments, this declaration should be considered void.

Budapest, 2016. május 4.

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József Vass
For and on behalf of
VILLBAU Security Systems Ltd.

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1. INTRODUCTION

The VBG Mobile Communicaotrs are recommended for security installations, where the reporting to Alarm Monitoring Service providers (AMS) has to be made over the mobile internet network. The main reporting channel is the GPRS (VBG/VBG-S) or the HSPA/UMTS mobile internet network, as a backup, GSM call can be used, if available. Both for mobile internet and GSM, a primary and a secondary channel can be given. The secondary channel can be used as a backup, or for parallel reporting (double reporting). The VBG communicators provide a reliable and affordable solution for reporting over the mobile internet network.

> To be able to use and understand all the features of the VBG series communicators, please, read this *Installer Manual* carefully.

> **SAFETY NOTICE!** Please, take care of installing and using this product according to the instructions and procedures detailed in this manual to ensure proper product safety.

2. SYSTEM OVERVIEW

The VBG communicator receives the messages from the telco interface of the security control panel, in Contact ID format, and forwards these through the mobile internet network or cellular network to the Alarm Monitoring Service central.
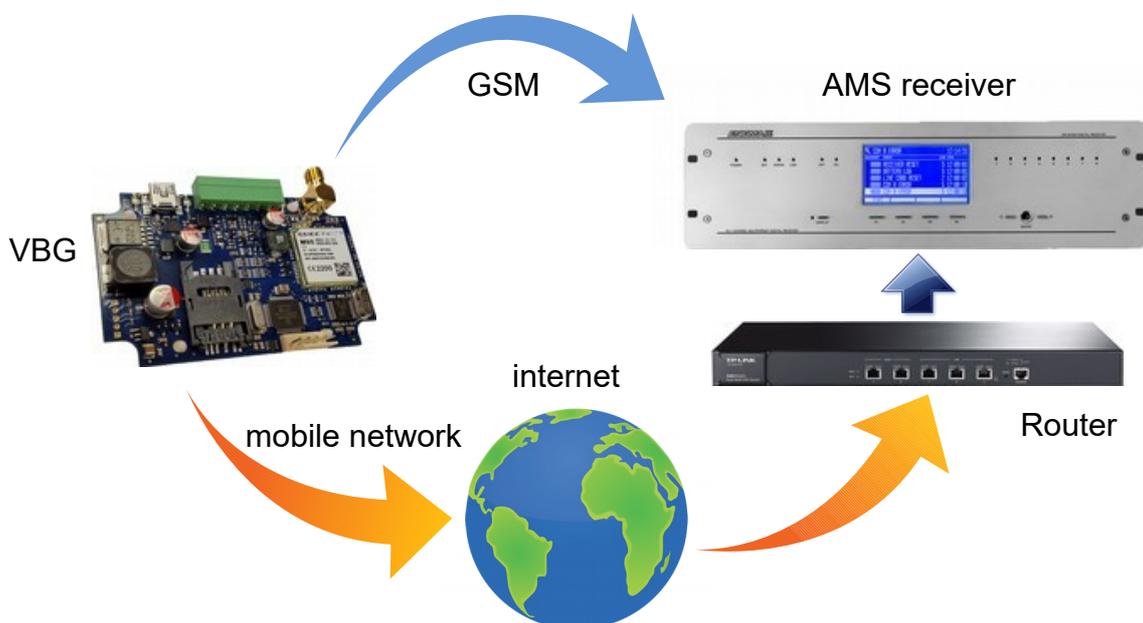
3. OVERVIEW
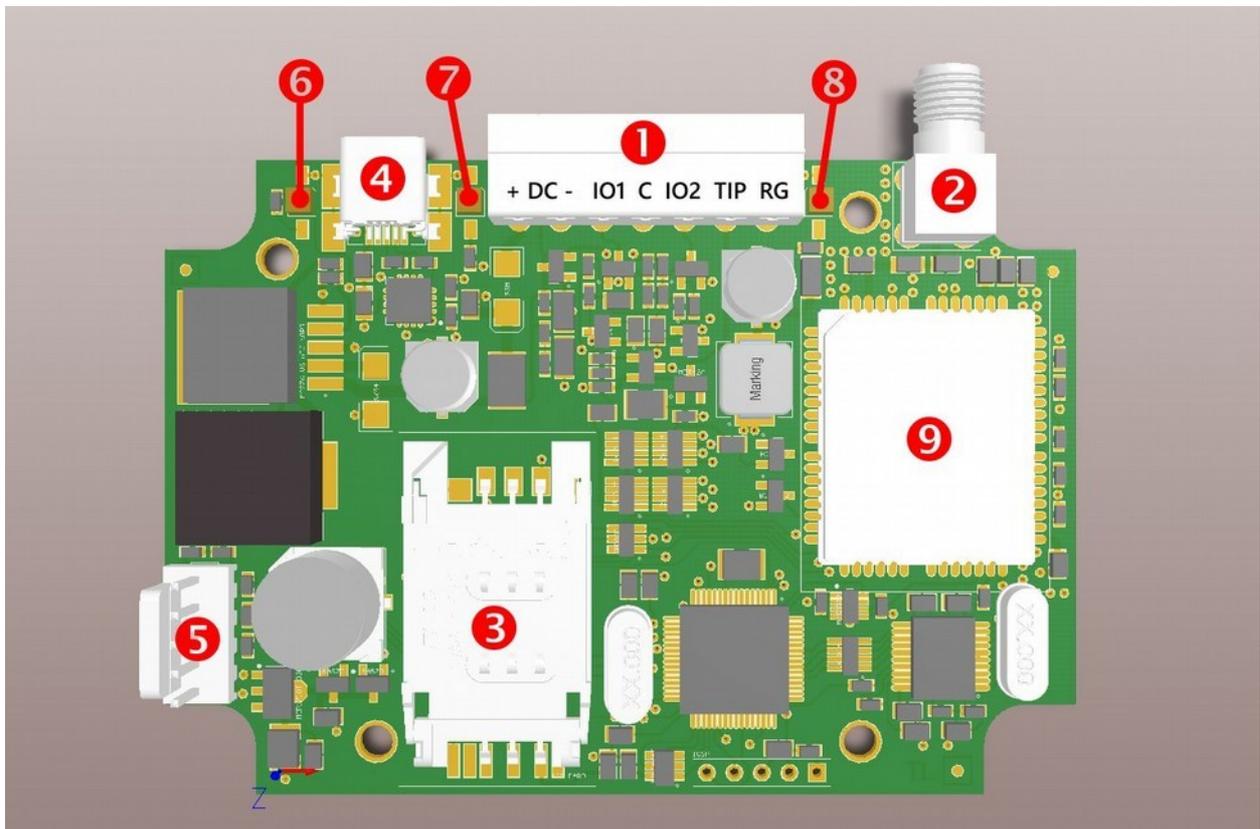
❶	Terminal block for connections (VBG and VBG-3G)
❷	Antenna socket (SMA)
❸	SIM card holder
❹	USB connector for programming and debugging (VBG and VBG-3G)
❺	Serial connector, for IO-84 and Secolink connection, and programming (VBG-S)
❻	Trouble LED (LED-2)
❼	Power/Signal LED (LED-1)
❽	GPRS Comm LED (LED-3)
❾	GPRS modem (VBG and VBG-S) or HSPA/UMTS modem (VBG-3G)

4. LED INDICATORS

LED-1: **Power/Signal LED**

In case of proper power supply, the LED-1 lights continuously, and indicates mobile network signal strength by slow flashes in every 10 seconds:

0, 1 flashes   no / weak signal level

2, 3 flashes   medium / good signal level

If the power supply to the communicator fails, (falls below 10 V DC), the LED-1 will flash fast. In case the power supply restores (raises above 12V DC), the LED-1 will return to normal operation. During programming, the LED-1 flashes slowly.

LED-2: **Trouble LED**

Provides general fault signal

no light   No trouble condition, proper operation.

continuous light   The configured reporting channel has physical problem (e.g. no SIM card)

flash   Unsuccessful reporting attempt on one or all reporting channels

 If LED-1 and LED-2 flash promptly alternating, it indicates that these is no reporting channel has been properly programmed. During firmware upgrade of the unit the two LEDs flash alternating slowly.

LED-3: **GPRS Comm LED**

Indicates the status of the GPRS / GSM connection

continuous light   GPRS / GSM connection is OK

no light   Initiating GPRS/GSM connection, or no SIM card, or no GPRS / GSM channel is programmed.

flash   Some or all GPRS / GSM channels have failed to report properly to the AMS central.

5. GENERAL RECOMMENDATIONS

The average mobile data usage of the VBG communicator is estimated at 5-6 MB/month. This value can depend on the frequency of the test (keep-alive) signals. Please, use a SIM card with at least 5-10MB/month data plan.

If the protection of the SIM card is not required otherwise, it is recommended to switch the PIN code request of the SIM card off.

The VBG communicators are connected in most cases to the telco interface (TIP and RING terminals) of the security control panel. An exception is the VBG-S model, which can be connected to SecoLink control panels, or to the IO-84 I/O Expansion Module via its serial port.

When connected to the telco interface of a security control panel, the following might be considered:

– Telephone communication should be enabled for the security control panel
– DTMF (Tone) dialing must be set
– A telephone number must be set for reporting
– A user account must be set for reporting (do not use '0' digit, if possible)
– Contact ID (all codes) format must be selected
– It might be necessary to turn off Telephone line monitoring (TLM) option
– It might be necessary to turn off dial tone detection
– For some control panels, the „Force Dialing" option must be set.

The communicator receives the reports over its telco interface, and forwards the messages to the AMS central.

If there is a failure in the operation of the communicator, the „Debug" mode can be used to identify the cause of the problems. More information at „Troubleshooting"

In case resetting of the communicator is necessary, this can be done by sending the **#<password> reset** SMS command to it. (<password> is the *SMS Programming Password* parameter, its default value is 1234).

6. PROGRAMMING THE COMMUNICATOR WITH PC

The VBG communicators can be programmed via the USB connector (virtual serial port). For programming, please, use the *EniTerm* software.

> The VBG communicators are supported from EniTerm version 2.30. It is always recommended to check the latest available software version before programming. The latest version of the EniTerm software can be downloaded at www.villbau.com, for free.

The programming steps are as follow:

1. Connect the VBG communicator to the PC with a mini-USB cable.
2. Start *EniTerm,* then open the proper device file, and select produc type:
   - VBIP.ET – VBG programming
3. Set the COM port for programming in the *Communication / Port Settings* menu. The password for programming is „1234" by default.
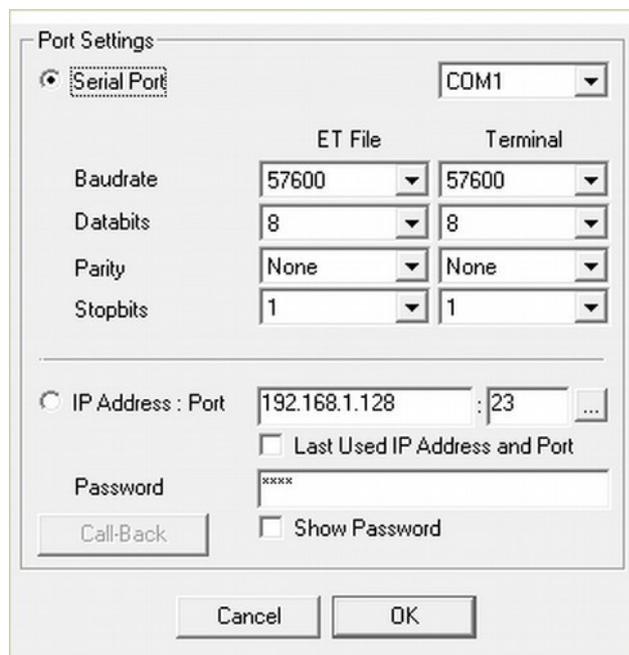

5. Read out current settings from device, by clicking on *Communication / Read* button.
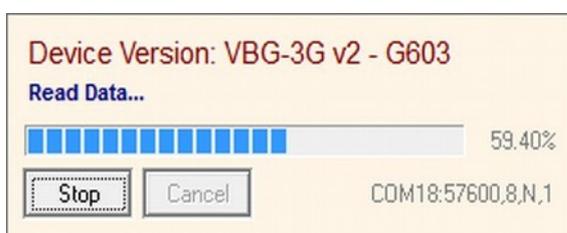
The firmware version of the device can be interpreted as follows:
G – 16 (year – 2016, alphanumeric)
6 – 6 (month – June, hexadecimal)
03 – 3 (day – the third)

6. Set the parameters in *EniTerm,* as needed. In case you have used VBIP or VBIP-G communicator before, then you might realize, that the options are similar, but only channels 3,4,5, and 6 can be accessed.
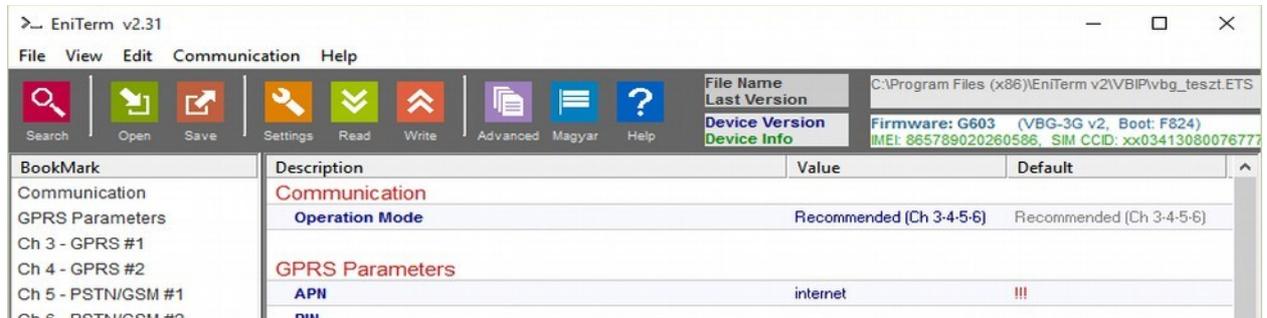
> ℹ️ The short description of the options, that can be set in EniTerm, can be found by right-clicking on them in the UI.

7. When all the required options and parameters have been set, these can be donwloaded to the device by clicking on C*ommunication / Write.*

8. The commonly used settings may be worth to save on the PC as a template for programming communicators. This can be done at *File / Save* menu. The previously saved settings can be reloaded later by using *File / Open* menu.

> ⚠️ The VBG communicator uses a special DTMF format for GSM reporting, which ensures problem free transmission over the GSM analog line. However, this DTMF format is supported by the **ENIGMA II receiver** only, and might not be compatible with 3rd party products!

7. TROUBLESHOOTING

If there is any problem with the communciators it is always recommended to upgrade their firmware to the latest available version, as this could solve most problems.

SYMPTOM: No connection between the VBG and the PC during programming
SOLUTION: Check the USB cable connection at the PC. Check the Device Manager in Windows, if the driver for the USB serial port is properly installed, and the virtual serial port (COM) appears in the device list. Check, if the EniTerm software is set to the same COM port.

SYMPTOM: the settings of VBG seem to be ok, but no communication goes through to the AMS central.
SOLUTION: Check the IP address and port settings for the AMS server. Check the APN settings. Turn off PIN request at the SIM card, using a mobile phone. Check if there is proper cellular signal level. Check, if the mobile internet service is available for the SIM card – use it with a mobile phone, and verify internet connection.

SYMPTOM: The control panel cannot send messages to the VBG communicator.
SOLUTION: Check, if the control panel is programmed properly – reporting is enabled, set to tone dialing, a proper account code and phone number is set, and Contact ID is selected as reporting format.

SYMPTOM: The control panel shows Comm Fault
SOLUTION: For some control panels it may required to disable TLM and/or dial tone detection. In some cases,

The VBG communicator can provide the following error messages (examples):
1354 034 99 = SIM card not present
1354 999 99 = Comm Trouble between the VBG and the control panel
1354 003 99 = Comm Failure on channel GPRS #1
1354 006 99 = Comm Failure on channel GSM #2
1354 000 99 = Comm Failure for all channels in 3-4-5-6 mode.
1354 020 99 = Comm Failure for channels 3 and 4 in 3-4; 5-6 mode.
1354 030 99 = Comm Failure for channels 5 and 6 in 3-4; 5-6 mode.
1354 100 99 = Comm Failure for channels 3 and 5 in 3-5; 4-6 mode.
1354 200 99 = Comm Failure for channels 4 and 6 in 3-5; 4-6 mode.

8. TESTING AMS SERVER CONNECTION

In case of eventual communicaton failures, when it is suspected, that the communicator cannot access the server of the AMS central, it can be useful to check server availability on the public internet network. For testing the software IPT.EXE can be used.

The IPT.EXE can be downloaded from the www.villbau.com site, for free. The file does not have to be installed, can only be run, as is.
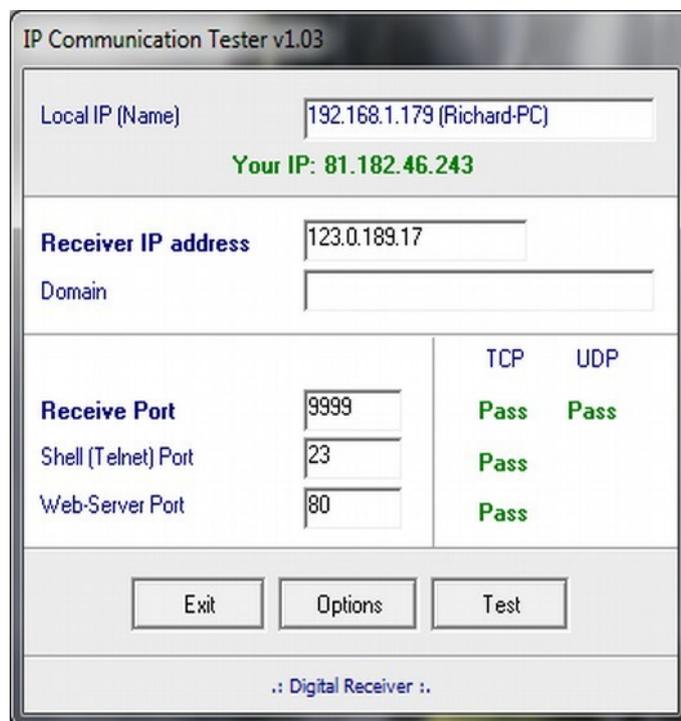
1. The IP address or domain name of the AMS server must be set.
2. The ports for accessing the AMS server must be set as follows:
   Receive port – for event reception, Telnet port – for remote programming, Web-server port – for browser-access
3. Clicking on Test button, the software checks the available ports, and indicates Pass or Fail status.
4. More settings can be done at the *Options* menu:
   - *Enable TCP Test Report* = TCP connection testing
   - *Enable UDP Test Report* = UDP connection testing
   - *Invisible TCP/UDP Test* = The test event used for checking connection will not be displayed on the receiver
   - *Enable AES Crypted Test Report / AES Key* = AES enrcyption testing

9. FIRMWARE UPGRADE

> It is recommended to upgrade regularly latest device firmware to use new functions and eliminate possible bugs.

> Firmware upgrade can be done by VBUploader , this is free you could download from the www.villbau.com website. The sofware always contains the latest firmwares.

The firmware upgrade steps are the following:

1. Please save the actual settings from the communicator with *EniTerm* software before firmware upgrade (check *System programming with PC software* chapter).

2. Start *VB Uploader* program for firmware upgrade.

3. Choose your unit type (STEP 1. - VBG), then press NEXT.

4. Choose the new firmware file for the upgrade (STEP 2.), then press NEXT.

5. Choose the COM port, where the VBG is connected (STEP 3.), then NEXT.

6. The upgrade process can be started by pressing *START* button. The program verifies the current firmware version, then waits for the user to confirm the upgrade:
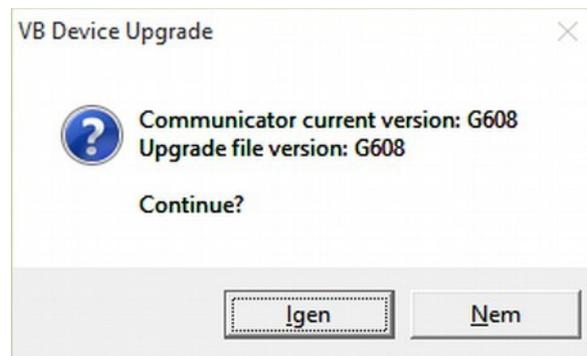
7. Selecting „Yes" will start the upgrade. The whole process takes about 1 minute. If you select „No", then no change in the firmware will be done.

8. As the upgrade is completed, load back the program data with the *EniTerm* software. (see section *6. Programming the communicator with PC*).

To be able to use the latest features and options, it might be necessary to obtain the latest version of the EniTerm software. The EniTerm software can be donwloaded from www.villbau.com for free.

10. SMS PROGRAMMING

In case it is needed (and the SIM card used in the unit is capable to send and receive SMS messages), the most important features and parameters can be configured using SMS messages.

An SMS message can containt multiple commands, separated by spaces. The proper execution of the commands is verifyed by answering an „OK" messages. If there is any problem with the commands, an „ERROR" reply message is generated. After some specific control commands, the device will perform a reboot.

The <password> used at SMS programming can be programmed with the EniTerm software, the default value is 1234. The <ch> parameter is the number of the actual channel, where it is applicable.

The following SMS commands can be used:

#<password>* reset – pl.: *#1234* reset*
The communicator will be reset within 30 seconds.

#<password>* ? – pl.: *#1234* ?*
The communicator reports the status of its inputs and its firmware version.

#<password>* apn=<apn> – pl.: *#1234* apn=online*
#<password>* apn=<apn>,<apn-user>,<apn-psw> – pl.: *#1234* apn=my.apn,id,pw*
Sets the APN for the SIM card, if necessary, username and password can also be given. The device will restart within 30 seconds.

#<password>* a=<account-id> – pl.: *#1234* a=1234*
#<password>* a<ch>=<account-id> – pl.: *#1234* a3=5678*
Sets the account-id of the communicator globally, or by individual channels. The device will restart within 30 seconds.

#<password>* s<ch>=<ip>:<port>:<tcp/udp> – pl.: *#1234* s4=my.ams.com:987:tcp*
#<password>* s<ch>=<phone-nr> – pl.: *#1234* s5=36301234567*
This command sets the server parameters for channels 3 and 4, and the CMS phone number for channels 5 and 6. The protocol setting (tcp or udp) is optional, and the phone number has to be given in international format, without the preceeding + or 00 prefix. Setting s=0 will disable reporting on all channels, s4=0 will disable reporting on channel 4. The device will restart within 30 seconds.

#<password>* t<ch>=<test-period> – pl.: *#1234* t4=10*

Sets the test period in minutes, for the given channel. The period value can be between 0 and 65535, setting 0 will disable test reports. The device will restart within 30 seconds.

#<password>* tc=<test-code> – pl.: *#1234* tc=1603*
#<password>* tc<ch>=<test-code> – pl.: *#1234* tc5=1602*

Sets the test code globally, or by individual channels. Please, take care to program a valid Contact-ID code. The device will restart within 30 seconds.

#<password>* o<n>=<on/off> – *pl.: #1234* o1=on*

Can be used to control the on-board outputs of the commnunicator. Value of<n> can be 1 or 2. The corresponding I/O of the device should be programmed as an output, and the operation of the output follows the preprogrammed scheme. The output can be activated with the „on", or „1" values, and deactivated with „off" or „0".

#<password>* ox<n>=<on/off> – *pl.: #1234* o1=on*

Can be used to control the outputs of the IO-84 module(s), connected to the communicator. Value of<n> can be 1 to 8. The operation of the corresponding output of the IO-84 will follow its preprogrammed scheme. The output can be activated with the „on", or „1" values, and deactivated with „off" or „0". When no IO-84 module(s) are connected to the communicator, the command will be acknowledged, but ignored.

#<password>* p<n>=<phone-nr> – *pl.: #1234* p5=36301234567*

The command can be used to set the telephone numbers, which can activate the gate-control function. Value of <n> can be between 1 and 8. To use the gate-control function, some of the outputs of the communicator (or a connected IO-84 module) must be enabled and set to „gate-control" mode. In this mode, any calls received from the given telephone numbers will activate the corresponding output.

11. TECHNICAL DATA

	VBG
Power Supply	10,5 – 28,0 V DC
Standby Current	80 mA
Maximal Current	500 mA
Inputs / Outputs	2, programmable
Output type / rating	OC / max. 50 mA
Mobile modem	**VBG, VBG-S:** M95 Quad Band 850/900/1800/1900MHz GPRS Class B, Multislot Class 12, GSM Class 4/Class 1 **VBG-3G:** UG96 UMTS/HSPA 800/850/900/1900/2100MHz@UMTS 850/900/1800/1900MHz@GSM HSUPA Rel.7 (cat.6), HSDPA Rel.7 (Cat.8) GPRS/EDGE Multi-slot Class 33 UMTS Rel. 99/7, GSM Rel. 99/4
Antenna	SMA
Event buffer	Up to 64 events
Operating temperature	-10 °C / 50 °C
Size (W / L / H)	65 x 83 x 12 mm
Weight	35 g