

 **GREENBOX GV**
User Guide

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Glossary

IP	Internet Protocol An IP address is an identification number that is assigned to each device connected to a computer network using the Internet Protocol.
Rail DIN	A DIN rail is a standardised 35 mm metal rail widely used in Europe in industrial control equipment in racks.
TCP	Transmission Control Protocol TCP is a reliable transfer protocol, in connected mode, documented in IETF RFC 793.
TCP/IP	Transmission Control Protocol/Internet Protocol The TCP/IP suite is a set of protocols used to transfer data over the Internet. It is often called TCP/IP, named after two of its protocols: TCP (Transmission Control Protocol) and IP (Internet Protocol), which were the first protocols defined.
Pulse output	Output of a water, gas, electricity meter or any other device capable of providing a number of pulses proportional to the physical quantity measured.
GPRS	General packet radio service (GPRS) is a packet oriented mobile data service on the 2G and 3G cellular communication system's global system for mobile communications (GSM). GPRS was originally standardized by European Telecommunications Standards Institute (ETSI) in response to the earlier CDPD and i-mode packet-switched cellular technologies.

Introduction

The GreenBox GV (GPRS version) is a housing intended for real-time monitoring and supervision of one or more pulse meters (maximum 7) with a pulse output.

The information gathered by the housing is sent via GPRS to a storage server to allow real-time monitoring of the physical quantities measured.

Configuring a GreenBox GV can be performed locally via a terminal or remotely via a server. Installing a GreenBox GV is easy thanks to its low space requirement and the 35 mm DIN rail compatible housing.

Examples of compatible meters:

Electric meters:

- 7E.23.8.230.00x0 (Finder)
- Socomec Countis E02
- Inepro PR01D
- Carlo Gavazzi EM23

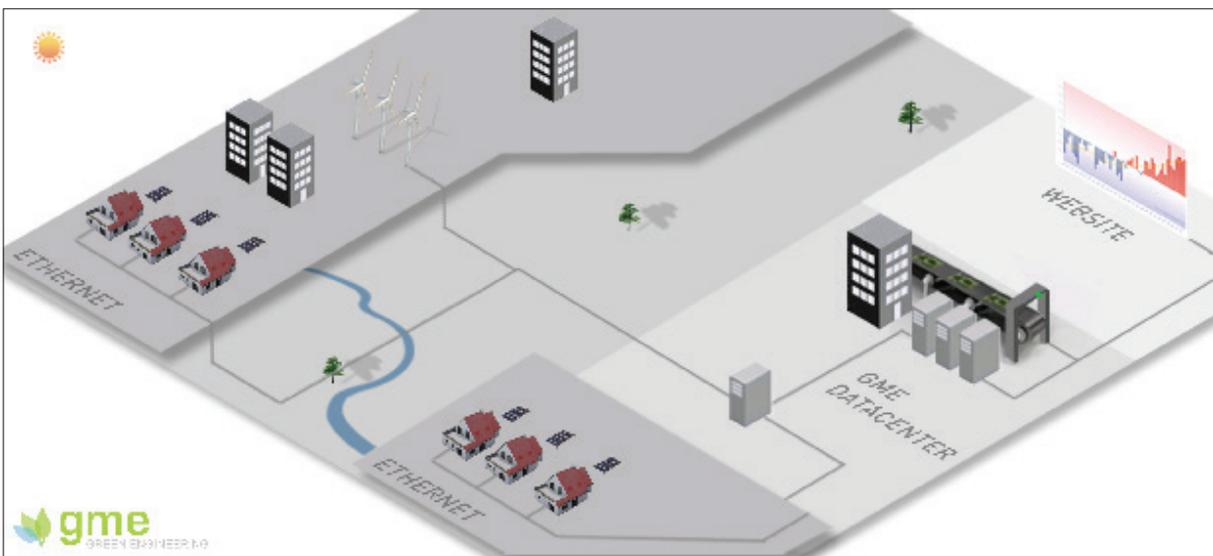
Gas meters:

- 200CFGM Gas Meter

Water meters:

- Lorentz ETKI

General Operation



GreenBox continuously collects all the data from the meters and enables monitoring in real time of the physical quantities measured.

Packaging

Content

The delivery must always contain a Green-Box GV equipped with its external power supply.

Model

You can identify the GreenBox by its type label located on the front of the housing.

Model: GreenBox Model
Serial No.: Serial number

The bar code corresponds to the serial number of the product.

You can find the version number of the software on the terminal. (See Terminal Commands section)

Safety instructions

You must observe all the safety instructions in this manual.

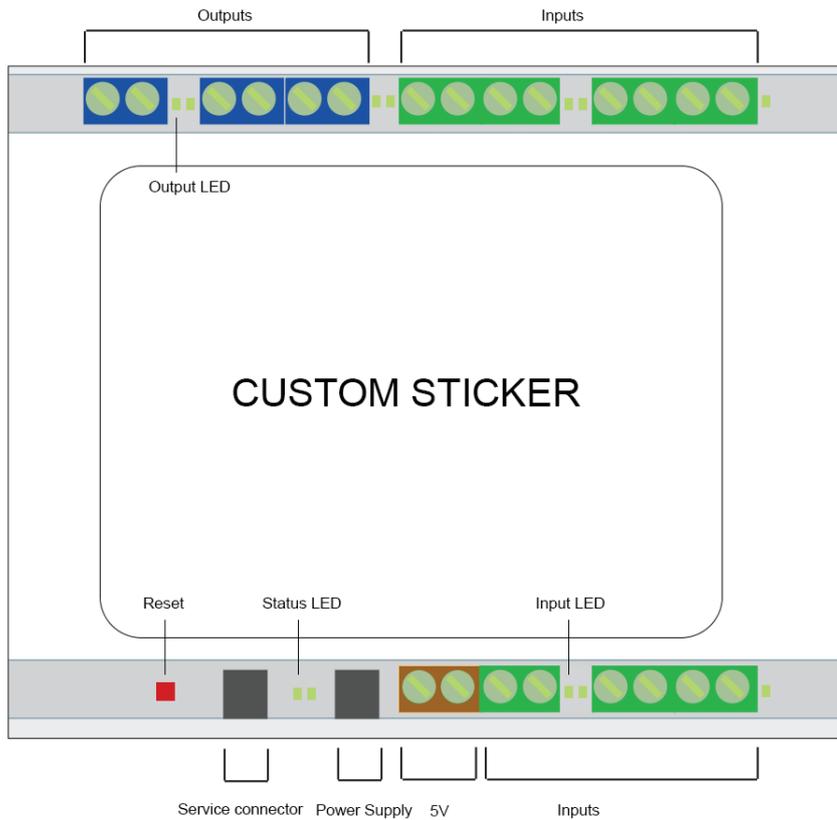
Failure to follow these instructions may result in damage to the equipment and pose a danger to people.

Damage may be caused to the GreenBox by electrostatic discharge (ESD). GreenBox Installation work must be carried out solely by a qualified electrician and it is mandatory to install the protection fuse.

G.M.Electronics can not be held liable for damage of any kind, direct or indirect, resulting from improper handling or installation by the GreenBox installation engineer.

Technical Specifications

Overview of GreenBox GV



Specifications

Power supply voltage	VDC	5
Power absorption	W	0.6
Pulse inputs		7
Output		3
Degree of protection		IP20
Fastening		DIN-rail 35 mm (EN 60715)
Housing width	mm	35
Operating temperature	°C	-30 à +85
Approval		CE, ROHS
Minimum cross-section of a solid cable	mm ²	0.5
Maximum cross-section of a solid cable	mm ²	4
Setup		Local/Remote
Configuration		Fixed IP/DHCP
Warranty	year	2

Technical Specifications

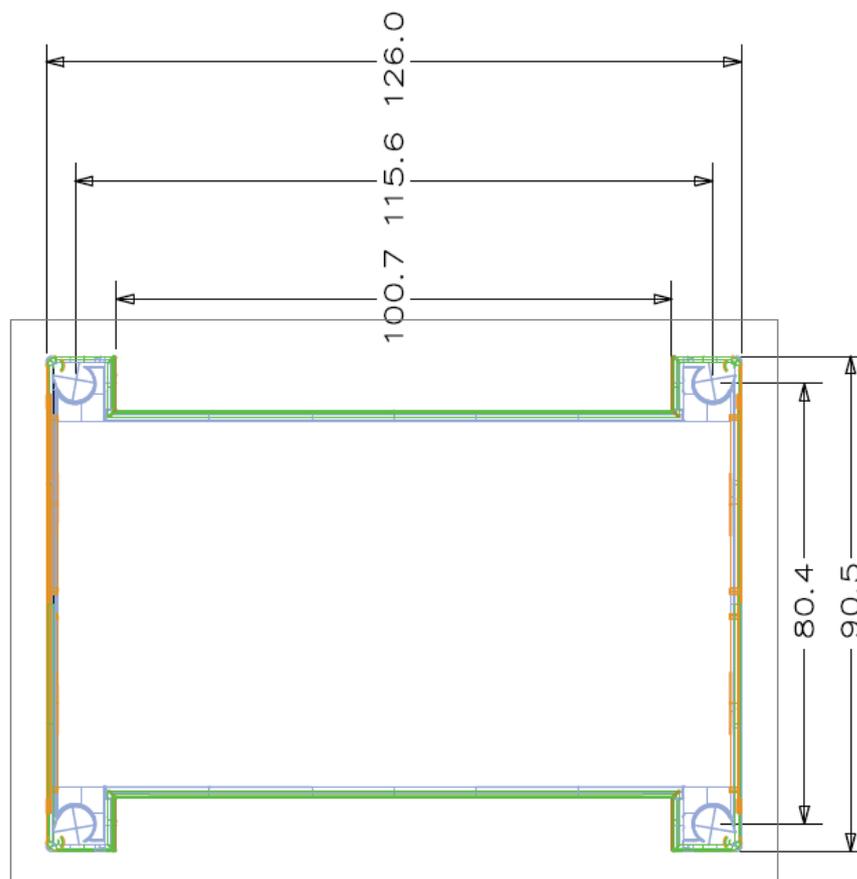
Meaning of LEDs		
STATUS LED*	Not lit	The housing is not under power or is defective
	Continuous	The housing is powered and in operation
INPUT LED	Flashing	The GreenBox GV is connected to the remote server
	Not lit	Pulse is not present on the corresponding input
	Flashing	Pulses from the electric meter are present on the corresponding input.

* The status LED may flash differently when an engineer presses the reset button. See the "Greenbox Reset" section for more information.

Installation

DIN rail housing

The GreenBox GV consists of a 35mm DIN rail housing.



Installation

GreenBox Installation

The GreenBox GV must be placed in an environment that conforms to the points defined in the technical specification table on page 7.

The housing is mounted on the 35mm DIN rail by hooking the two upper lugs onto the rail and clipping the bottom lug or on a wall with 4 screws.

Connecting the power supply



The external power supply is delivered with the GreenBox. You need to plug the mini USB connector in the power supply connector of the GreenBox.

You must use a power supply delivered by G.M.Electronics with an output voltage of 5VDC.

GPRS connection

When you power up the GreenBox, it will initialize the GSM first to open a connection to the server. If all is OK, the status will blink (after 1 or 2 minutes depending of the network quality).

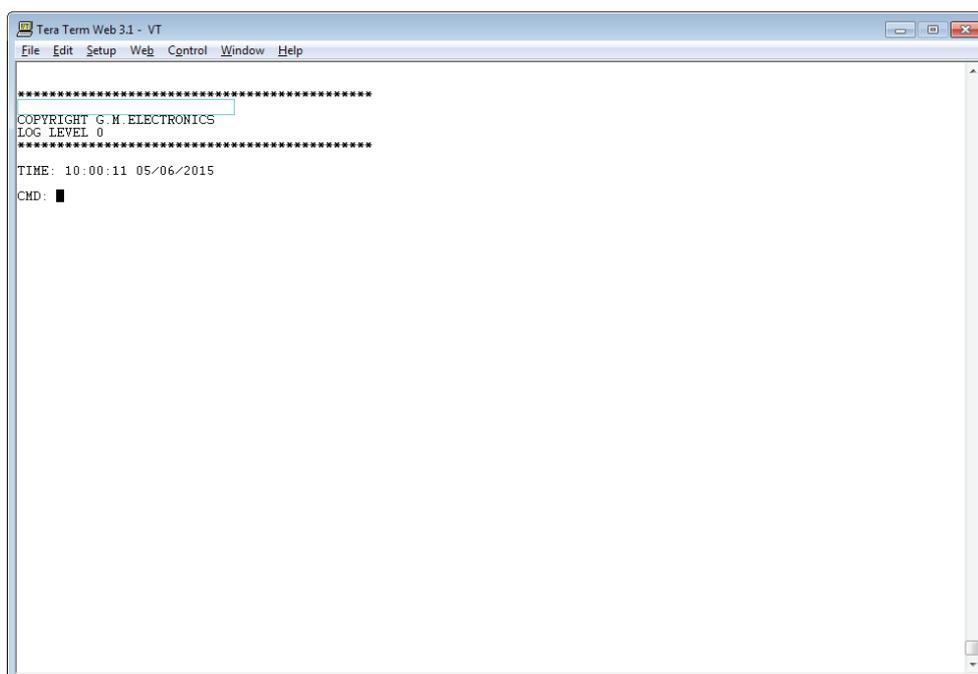
If it is not the case, you need to verify if the SIM Card is present and if the APN is correctly configured. (See page 11)

Configuration

Terminal

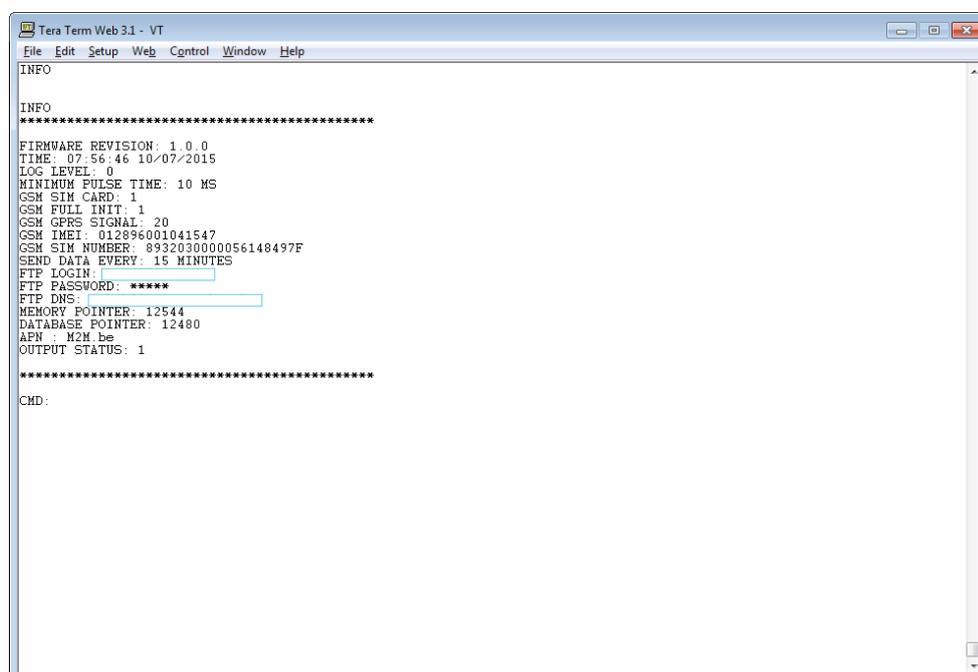
When a technician will connect his computer to the service connector with the service cable delivered by G.M.Electronics, he will be able to manage all functionalities of the GreenBox with software like Tera Term Pro.

The first screen the technician will have when he is connected to the GreenBox is this one.



```
Tera Term Web 3.1 - VT
File Edit Setup Web Control Window Help
*****
COPYRIGHT G.M.ELECTRONICS
LOG LEVEL 0
*****
TIME: 10:00:11 05/06/2015
CMD: █
```

It is possible to type commands in the terminal only if you are logged. To open a session, type P1531 in the terminal. When the session is opened, you can type "INFO" in uppercases and you will have this information:



```
Tera Term Web 3.1 - VT
File Edit Setup Web Control Window Help
INFO
INFO
*****
FIRMWARE REVISION: 1.0.0
TIME: 07:56:46 10/07/2015
LOG LEVEL: 0
MINIMUM PULSE TIME: 10 MS
GSM SIM CARD: 1
GSM FULL INIT: 1
GSM GPRS SIGNAL: 20
GSM IMEI: 012896001041547
GSM SIM NUMBER: 8932030000056148497F
SEND DATA EVERY: 15 MINUTES
FTP LOGIN: █
FTP PASSWORD: *****
FTP DNS: █
MEMORY POINTER: 12544
DATABASE POINTER: 12480
APN: M2M.be
OUTPUT STATUS: 1
*****
CMD:
```

Configuration

Terminal Commands

1. P1531

Open a session during 15 minutes

2. LOGLEVELX where X is the level.

Level can be between 0 and 2

By default, log level is 0

Level 0: Minimum info

Level 1: GSM Communication

Level 2: Full log (GSM Communication and all debug information)

So, if a technician reports a matter with a GreenBox, he will be able to send us a log with all necessary debug information if he increases the level to 2

Example: LOGLEVEL0 [PRESS ENTER]

You can type "q" [PRESS ENTER] to set the log level to 0.

3. INFO

This command gives useful information to the technician like:

FIRMWARE REVISION: Revision of the firmware installed inside the GreenBox

TIME: Real Time Clock

LOG LEVEL: Current Log Level

MINIMUM PULSE TIME: Minimum delay to consider a pulse on an input

GSM SIM CARD: Sim Card Initialization Flag

GSM FULL INIT: GSM Full Initialization Flag

GSM GPRS SIGNAL: Quality of GSM Signal

GSM IMEI: GSM IMEI Number

GSM SIM NUMBER: ICCID of the SIM CARD

SEND DATA EVERY: Frequency to send data in minutes

FTP LOGIN: Login of the FTP Server where we need to send data

FTP PASSWORD: Password of the FTP Server where we need to send data

FTP DNS: DNS of the FTP Server where we need to send data

MEMORY POINTER: Current Memory Pointer

DATABASE POINTER: Current Database Pointer

APN: APN

OUTPUT STATUS 1: Current Output Status

OUTPUT STATUS 2: Current Output Status

OUTPUT STATUS 3: Current Output Status

ALARM: XX:02:02

STEP: 0/3

Example: INFO [PRESS ENTER]

Configuration

4. APN

Configure the APN

Example: APNM2M.be [PRESS ENTER] will assign a new APN "M2M.be"

5. PIN

By default, the GreenBox will try without pin code. If it detects we need to insert a Pin code, it will try with the pin code configured by the technician.

Example: PIN1111 [PRESS ENTER] will set the PIN CODE to 1111.

6. DEFAULT

Restore default parameters.

You can use this command if you recorded a wrong password for example.

Example: DEFAULT [PRESS ENTER]

7. RESET

Reset the GreenBox

Example: RESET [PRESS ENTER]

8. MIN

This command gives the possibility to configure the minimum delay to consider a pulse. For example, we can assign 20 to this value. In this case, it will be necessary to have a pulse of minimum 20 milliseconds to increment the pulse counter of an input. By default, this parameter is 10. Possible values [1, 200].

Example: MIN20 [PRESS ENTER]

9. @RELAY1@ or @RELAY2@ or @RELAY3@

This command gives the possibility to configure the output to 0 or 1. You can verify the status of the output on the dedicated led. (Blue Connector). The value is recorded in local memory to set up correctly the output if a reset occurs.

Example: @RELAY2@1 [PRESS ENTER] will put the output to level 1 on the output 2

Configuration

10. DELAY

This command gives the possibility to configure the delay to send data to the server. By default, it is 120 minutes. So, the GreenBox will try to send data every 120 minutes to the FTP server in this case.

It is important to note the information is recorded in memory every 5 minutes. If we put a delay of 120 minutes, it means we will send a file to the FTP server with 24 lines. Maximum delay is 44640 minutes (31 days)

Example: DELAY15 [PRESS ENTER]

11. COUNTER

Show current values for each input. This value is set to 0 each time the GreenBox records data in memory (5 minutes)

COUNTERS

COUNTER 1: 0
COUNTER 2: 0
COUNTER 3: 0
COUNTER 4: 5
COUNTER 5: 0
COUNTER 6: 0
COUNTER 7: 0

In this example, Input 4 monitored 5 pulses

Reset Button

We have 4 options for the reset Button:

1. Short press (1 second): Give the GPRS signal (LED QOS will blink in blue)

0 blink: signal is bad	QOS: 0 - 5
1 blink: signal is low	QOS: 6 - 10
2 blinks: signal is medium	QOS: 11 - 15
3 blinks: signal is high	QOS: 16 - 20
4 blinks: signal is very high	QOS: 21 - 25
5 blinks: signal is excellent	QOS: 26 - 31

2. Press 3 seconds: Reset the GreenBox

3. Press 10 seconds: Reset the GreenBox and put default parameters

4. Press 20 seconds: Reset the GreenBox, put default parameters and clear the memory with all recorded pulses

Support

[G.M.Electronics website](#)

You will find all the information necessary to contact us on our website www.gmelectronics.be.

[Recycling](#)

You must recycle your product separately from household waste in compliance with local laws and regulations.

When this product reaches its end of life, bring it to a collection point designated by your local authorities for the recycling of electronic equipment.

Incorrect disposal of electronic equipment by the consumer may be punishable by fines.

The collection and recycling of your product during disposal will help conserve natural resources and ensure that it is recycled in a manner that protects human health and the environment