# GX GSM manual



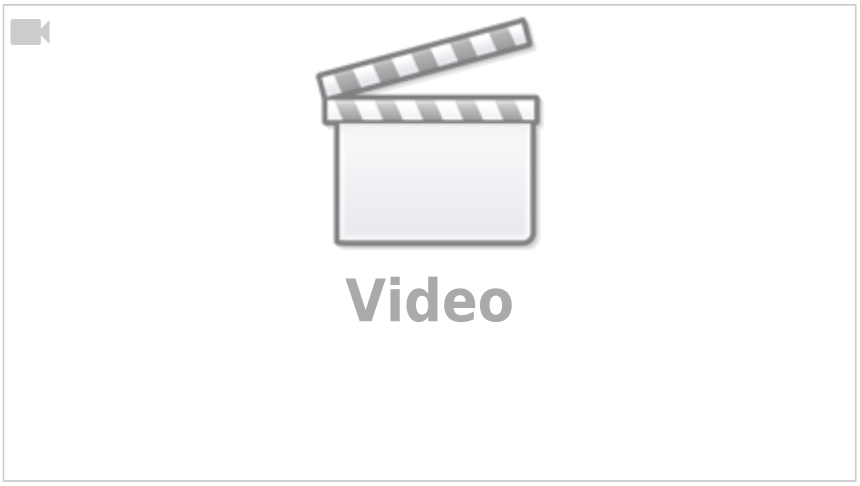

## 1. Introduction

The GX GSM is an accessory for GX-devices. It is a cellular modem; providing a mobile internet for the system and connection to Victron Remote Management (VRM).

It requires a SIM card of the Mini-SIM format; and connects to the GX-device with a (supplied) 1m USB cable.

See also the GX GSM Product Page.

Video explaining how to connect using LAN, WiFi, and the GX GSM:




**Antennas and accessories**

GSM: A small indoor GSM antenna is included. As an option we also sell an outdoor GSM antenna:

- GSM900100100 - Outdoor 2G and 3G GSM Antenna for GX GSM

GPS: The unit has a built-in GPS receiver. An antenna is not included; to use the GPS received; purchase the GPS Antenna.

- GSM900200100 - Active GPS Antenna for GX GSM

See bottom of this manual for photos and specs of both optional antennas.

### Compatibility

The GX GSM can be used with any of the GX Devices.

The GX GSM requires Venus OS v2.22 or newer to be installed on the GX Device.

### When to use a mobile router instead

The GX GSM only provides an internet connection for the GX-device: there is no option to share the internet to laptops, phones, or other devices.

For installations where more devices need internet, such as a yacht or RV, consider installing a mobile router instead. More information here.

## 2. Installation

Mount the device and connect the antenna. Consider using the outdoor antenna when installing the GX GSM in a closed metal enclosure.

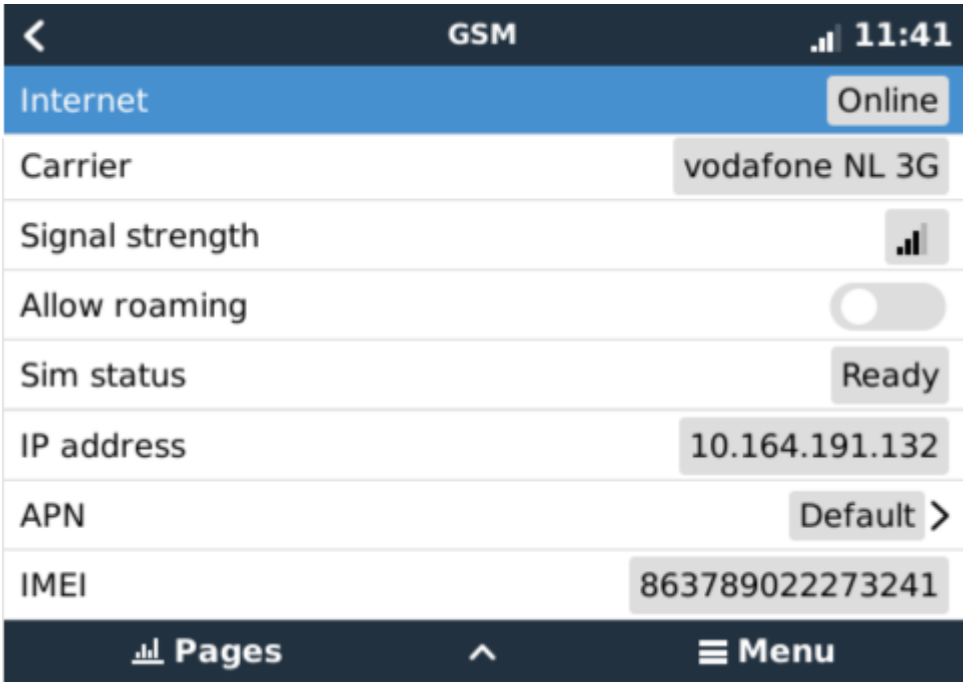
Insert the SIM card. You will need to eject the SIM card tray with a pen or other pointy object. Be aware that the SIM card tray sits slightly recessed inside the unit. Be sure to push it all the way in.

Connect the GX GSM to the GX-device with the supplied USB cable. Use a USB hub if all USB sockets are already in use.

Connect DC power supply (8 to 70 VDC). A 1.4M wire is included, with M10 lugs and an inline fuse.

After power-up, the blue LED will be solid blue. Next, once it has registered on a network, it will start blinking slowly. Finally, when it has established the internet connection, it will be blinking fast.

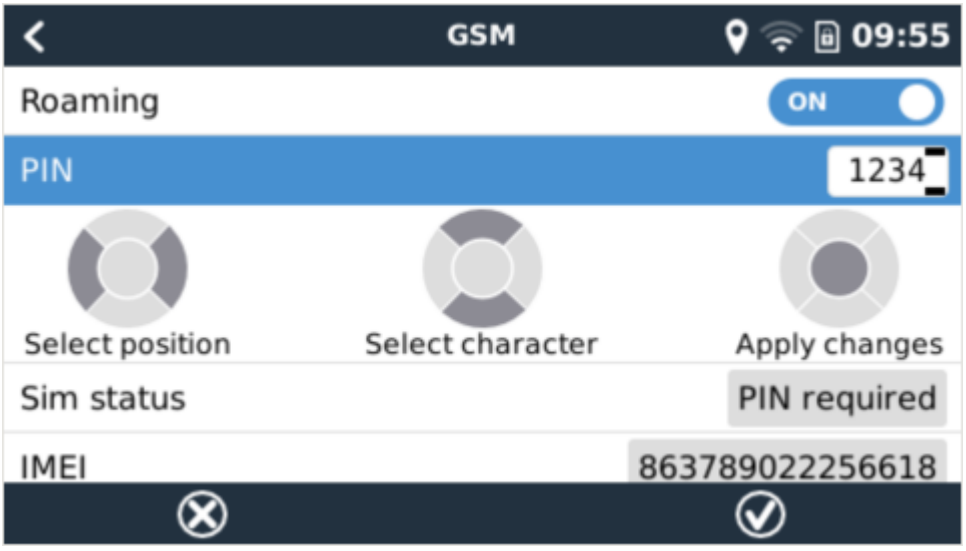
## 3. Configuration




When using a SIM card with its SIM-pin security disabled, the system will work without further configuration.

Setting a SIM pin helps reducing the risk of the SIM card being stolen and used. Use a mobile phone to set the SIM pin, and there after configure it on the GX-device.

Settings → GSM modem → PIN code




Some mobile networks require manual configuration of an APN specially when roaming. Contact your operator.

APN name can be configured in Settings → GSM Modem → APN.




# 4. GPS

When the optional antenna is added; the position will be visible like this:




Also the position is sent to the VRM Portal.

# 5. Status

### Status Bar

GSM modem status can be checked at a glance by looking at the status bar.

| Icon | Details |
|---|---|
|  | GSM modem is connected to network, but not to the internet (no data connection).<br>Either on purpose, because an ethernet or WiFi connection is available. |
|  | GSM modem is properly configured, the 3G/E/etc icon reflects that the GSM modem internet connection is in use. |
|  | WiFi is available and its internet connection is in use. WiFi has priority over GSM. |
|  | SIM PIN code is required. |
|  | Roaming, only informative. To use internet connection while roaming it needs to be enabled in<br>Settings → GSM modem → Allow roaming. |

## SIM Status

| Status | Description |
|---|---|
| Ready | SIM card is installed properly and registered to the network |
| SIM not inserted | SIM card is missing or not inserted properly. SIM tray might hang out a little. |
| PIN required | SIM card requires 4 digit PIN for unlock. |
| PUK required | SIM is locked due to wrong PIN inputs. 8 digit PUK is required to release the lock state. |
| SIM failure | SIM does not respond - might be broken |
| SIM busy | SIM is in busy state |
| SIM wrong | Type of SIM is not supported |

External Link===== 6. Trouble shooting =====

There are many reasons for modem internet connection to not work. Carefully go through each step of this trouble shooting guide. Make sure to start at the first step. When asking for help, make sure to mention each step taken and the result.

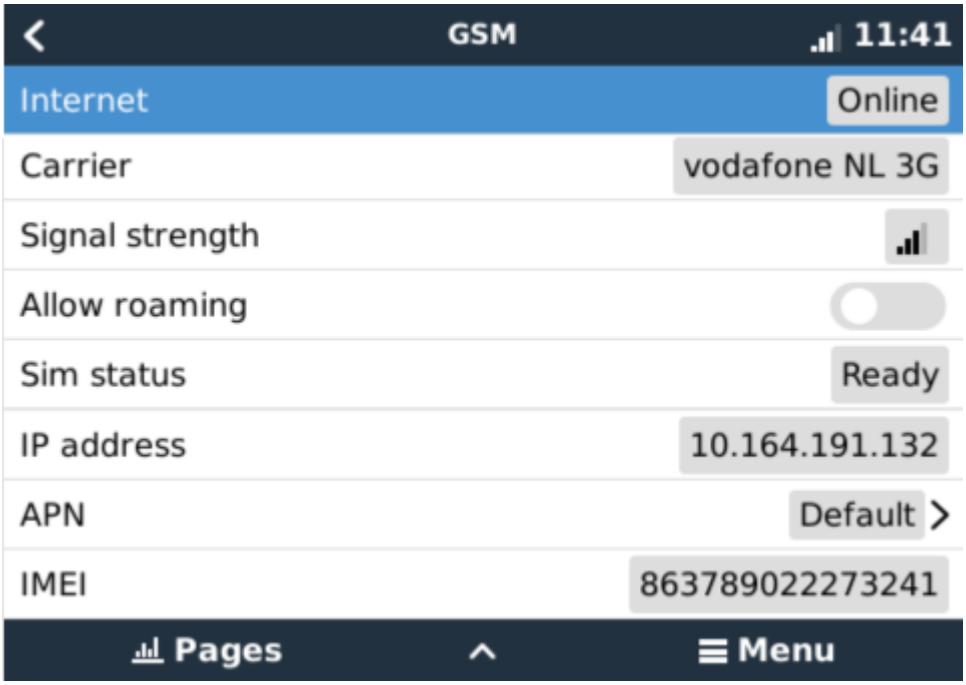
| Step | | Details |
|---|---|---|
| 1 | Power | Check that the blue LED is either lit continuous or blinking |
| 2 | USB connection | The modem must be connected to USB, and visible in the Settings → GSM modem menu |
| 3 | Simcard status | Check the SIM Status in the menu, it must show “Ready”. It will show “SIM not inserted”, or “PIN required”, or “PUK required” and more related errors when there is a problem. Please refer to the SIM Status list for details. |
| 4 | Signal strength | 1 bar minimum for VRM logging, 2 or 3 bars are necessary for a working remote console |
| 5 | Carrier registration | Check that a name of a Cellular provider is visible in the “Carrier” field. If it is not, check signal strength and otherwise contact your simcard provider and/or insert the simcard in a phone to double check its operation and subscription status. |

| Step | | Details |
|---|---|---|
| 6 | Internet connection | Verify that the Internet shows “Online”. Reasons for the system to not go “Online” whilst properly registered on the Network are:<br>1) APN not configured, contact the network operator for details.<br>2) The network is a different one than the home network (ie. roaming), and the setting to permit Roaming is disabled.<br>3) Signal strength is strong enough to register on the network, but not to open the data connection to the internet. |
| 7 | Connection to VRM Portal | Verify that the VRM Portal menu shows a recent last connection time. See Settings → VRM Portal. For more details, see the VRM Connection troubleshooting chapter of the GX Manual. |

An outdoor antenna typically increases received signal by 15 dB to 25 dB.

Note that Ethernet and WiFi connections have priority over the cellular connection. Even when the available Ethernet or WiFi connection does **not** have a good connection to the internet. There is **no** automatic detection in place which in such case switches over to the GX GSM. In more technical language: when the cellular data connection is active, it is configured with a high routing metric. This way, the Linux kernel prioritises Ethernet or Wifi when these are available.

This screenshot shows how all details look when everything is OK:




# 7. Supported Frequencies (2G/3G)

GX GSM, part number GSM100100100:

- 2G (GSM/GPRS/EDGE): 850/900/1800/1900 MHz (Quad-Band)
- 3G (UMTS/HSPA+): 900/2100 MHz (Dual-Band)
- The used module is a Simcom SIM5360E.

A second model is coming, expected in 2020 Q3, having below frequencies, suitable for the common networks in Mexico, USA & Canada as well as various countries in Southern America.

- 2G (GSM/GPRS/EDGE): 850/900/1800/1900 MHz (Quad-Band) - same between both models.
- 3G (UMTS/HSPA+): 850/1900 MHz (Dual-Band)
- This new product will be based on the Simcom SIM5360A.

### Regional Coverage Information

USA, Mexico, Canada and most of South America: 1900 MHz is the most common frequency for 3G, which is unsupported for the current version of GX GSM. But a second model is coming in 2020, see above.

Australia: The 900MHz 3G frequency in remote areas is typically provided by Optus. Telstra's rural 3G network operates at 850MHz which is not supported with the current version of GX GSM. Both Telstra and Optus operate 2100Mhz networks in urban areas, and are supported.

In case of uncertainty please double-check: GSM World Coverage Map

## 8. Technical Data

| | |
|---|---|
| **Outer dimensions (LxWxH)** | 106×42.5×22 mm (Drawing) |
| **Voltage range** | 8..70 VDC |
| **Power draw** | 2.5 W while 2G/3G data transfer<br><1.0 W in idle mode<br>+0.4 W if GPS is enabled |
| **Recommended fuse size** | 500 mA @ 12 V<br>250 mA @ 24 V<br>100 mA @ 48 V |
| **Wire gauge (power cable)** | 0.5..1.5mm² / AWG 28..16 |
| **Antenna connector** | Type SMA Female |
| **SIM card** | Regular Mini SIM |

## 9. Accessory / Antennas

### Outdoor 2G and 3G GSM Antenna



| | |
|---|---|
| **Part number** | GSM900100100 |
| **Mounting option** | Screw Mount |
| **Cable Type** | Rg-316 |
| **Cable Length** | 0.25 m |
| **Connector** | SMA Male Straight |
| **Frequencies** | 800/900/1800/1900/2100 MHz |
| **Signal Gain** | 3 dbi |

## Active GPS Antenna



| | |
|---|---|
| **Part number** | GSM900200100 |
| **Mounting option** | Magnet |
| **Cable Type** | Rg-174 |
| **Cable Length** | 3.0 m |
| **Connector** | SMA Male Straight |
| **Frequency** | 1575.42 MHz |
| **Impedance** | 50 Ω |

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