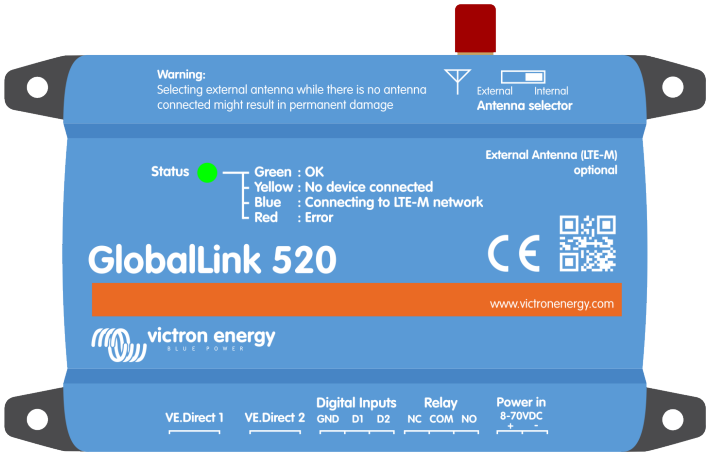
ENGLISH



GlobalLink 520

Rev. 19 - 08/2026

This manual is also available in HTML5.

Table of Contents

1. Introduction **1**
1.1. GlobalLink 520 1
1.2. Supported countries January 2024 (This list will change over time) 1

2. Installation **2**
2.1. What's in the box? 2
2.2. Assembly instructions 2

3. LED indicators **3**

4. Cellular connectivity **4**
4.1. 4G LTE-M 4
4.2. Antenna 4
4.3. Internal SIM card 4
4.4. Custom SIM card 4
4.4.1. Steps to replace the SIM card 4
4.5. Compliance 5

5. Product compatibility & data transmission to VRM **6**

6. Power draw **7**

7. Digital inputs **8**
7.1. Connection and pinout 8
7.2. Digital inputs as VRM alarm notification trigger 8

8. Relay switch **12**

9. Input Voltage Measurement **13**

10. Firmware updates **14**

11. Settings and diagnostics **15**
11.1. VictronConnect 15
11.2. Settings 16
11.3. Victron smart devices and RuuviTags 17
11.3.1. Setting up Victron smart devices & RuuviTag sensors 17
11.4. Custom names 18

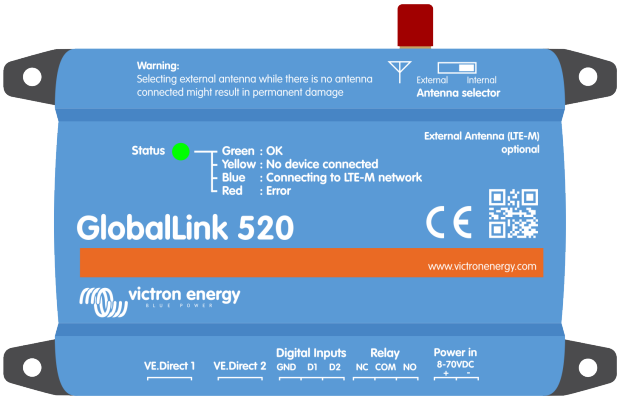
12. Troubleshooting **19**

13. FAQ **20**

14. Appendix **21**
14.1. Enclosure Dimensions 22

1. Introduction

1.1. GlobalLink 520



The GlobalLink 520 lets you connect other Victron equipment, such as your Battery Monitor (BMV), SmartShunt, Solar Charger, Smart IP43 Charger or Inverter VE.Direct to the Victron Remote Management (VRM) portal via VE.Direct or Instant readout via Bluetooth. RuuviTag and RuuviTag Pro sensors are also supported. The transmission to the VRM Portal takes place via LTE-M cellular technology standard. The VRM portal is available to use free of charge to view the status of your installation from anywhere in the world using your desktop or mobile device.

The first five years of cellular connectivity are included in the purchase price. The device comes pre-configured and is ready to use right out of the box. You do not need to change any settings.

Make sure you have LTE-M coverage in your country before purchasing this device: https://1nce.com/en-eu/1nce-connect/our-coverage. However, this list does not show the operators per country nor the exact coverage of LTE-M per operator.

We created a list from existing VRM data showing which operators have more than one GlobalLink 520 active on their network and added a link to the coverage map: https://community.victronenergy.com/articles/119936/globallink-520-lte-m-coverage.html.

1.2. Supported countries January 2024 (This list will change over time)

Argentina	Ireland	Puerto Rico
Austria	Jamaica	Romania (Bucharest area only, pending further roll-out LTE-M)
Australia	Japan	Spain
Belgium	Jersey	Sweden
Canada	Korea, Republic of	Switzerland
Denmark	Latvia	Taiwan
Estonia	Luxembourg	United Kingdom
Finland	Mexico	US Virgin Islands
France	Netherlands	USA
Germany	New Zealand	
Guernsey	Norway	
Hungary	Poland	

2. Installation

2.1. What's in the box?

- GlobalLink 520
- 1.5m power cable with 1A inline fuse, M10 eyelets and power connector
- 2 pluggable terminal blocks with spring clamps

What's not in the box

- VE.Direct cables

2.2. Assembly instructions

1. Make a note of the VRM Portal ID indicated on the sticker on the GlobalLink 520 .
2. Mount the GlobalLink 520 close to the device you wish to monitor.
3. Connect your compatible devices to the GlobalLink 520 via a VE.Direct cable (available in different lenghts) or via Bluetooth (see chapter Victron smart devices and RuuviTags [17]).
4. Connect the DC Power (8V - 70V).
5. The LED will start blinking blue while trying to connect to the network (this can take up to 5 minutes).
6. The LED will blink green and yellow when one VE.Direct device is connected, or green only when two VE.Direct devices are connected.
7. Visit the VRM portal to 'add' your installation to your account using the Portal ID you wrote down in step 1. You can only add your device to VRM once it has connected to the network (blinking yellow and/or green).

CONFIDENTIAL NETWORK CREDENTIALS

This device contains a label with Wi-Fi and Bluetooth login credentials.

To prevent unauthorized access, data breaches, or misuse:

- Do **NOT** expose this label to public view.
- Do **NOT** share the information printed on this label with unauthorized persons.
- Ensure the label is properly covered or protected after installation.

Unauthorized access to these credentials may result in network security risks.

This label must be hidden, secured, and masked from public view at all times.

Restricted access – authorized personnel only. Unauthorized access can compromise device security.

3. LED indicators

The GlobalLink 520 has a multi-colour LED to indicate its operational status. See the table below for the colour code and its meaning

LED colour	LED state	Meaning
Blue	Blinking ☼	Connecting to VRM. If the LED keeps blinking blue, check the network coverage for your region.
Green	Blinking ☼	Everything is OK: A connection has been made both to the VRM and to two VE.Direct devices.
Green/Yellow	Blinking ☼	The device is connected to VRM, but only to one VE.Direct device: Check the cable and power to the second VE.Direct device.
Yellow	Blinking ☼	The device is connected to VRM, but not to a VE.Direct device: Check the cable and power to the VE.Direct device.
Red	Continuous ●	The device detected a problem and will automatically reboot to try and rectify it. This process usually takes a few minutes.
Purple	Blinking ☼	The device is updating its software. This process usually takes a few minutes.

4. Cellular connectivity

The GlobalLink 520 is a cellular device which connects to LTE-M compatible 4G networks. The cellular provider of the included SIM card is '1nce'. Their global network of operators is constantly expanding and you can check LTE-M coverage in your area here: https://1nce.com/en-eu/1nce-connect/our-coverage.

4.1. 4G LTE-M

LTE-M is the abbreviation for LTE Cat-M1 or Long Term Evolution (4G), category M1. This cellular technology is designed to connect Internet of Things (IoT) devices to existing 4G towers while using low energy. LTE-M supports handover and roaming, making it possible to use this device in a moving vehicle such as a campervan (with an external antenna).

4.2. Antenna

The GlobalLink 520 has an internal antenna and an SMA connector for an optional external antenna. A switch on the top of the device determines which antenna is used. If the switch is set away from the SMA connector, the internal antenna is used, when set towards the connector, the external antenna is used.

> ⚠ Do not set the switch to "external" if there is no external antenna connected, as this can permanently damage your device.

The GlobalLink 520 is not rated for outdoor use. You can however connect your own outdoor antenna to the device to improve your signal strength if the internal antenna does not have good enough reception (note: you can find the signal strength in VRM). LTE-M uses the following frequencies: 703-803 and 2520-2620 MHz.

Even if the connection still appears to be quite stable and works with a poor signal, the performance drops drastically, as can be seen in the table below. Data is then, for example, not transmitted at the scheduled intervals.

RSSI	Signal strength	Description
>= -65 dBm	Excellent	Strong signal with maximum data speeds
-65 dBm to -75 dBm	Good	Strong signal with good data speeds
-75 dBm to -85 dBm	Fair	Fair but useful, fast and reliable data speeds may be attained, but marginal data with drop-outs is possibly
-85 dBm to -95 dBm	Poor	Performance will drop drastically
<= -100 dBm	No signal	Disconnection

4.3. Internal SIM card

Inside the device is a nano SIM card which is used for connectivity. This SIM is locked and can only be used in combination with this specific GlobalLink device. It has a limited data bundle for the device to operate and receive updates over the air.

4.4. Custom SIM card

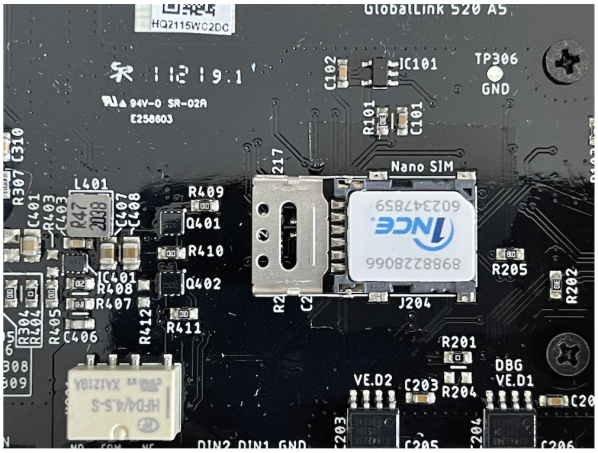
It is possible to replace the factory-installed SIM with another SIM card. Make sure your operator does support LTE-M (CAT-M1), which is not the same as regular 4G (LTE). On average the GlobalLink 520 uses between 1 and 2MB (megabyte) of data per week. Note that actual usage may be calculated differently by your operator.

4.4.1. Steps to replace the SIM card

1. Detach all cables and make sure that the device is not connected to a power supply or battery.
2. Open the GlobalLink 520 enclosure with a Phillips screwdriver.
3. Locate the SIM card holder on the center of the board, slide the cover of the holder slightly to the left (or right, whichever way the PCB is turned) and pull up to open the holding mechanism.
4. Place your SIM card in the holder with the connectors facing down, flip it to the closed position and slide it into place.
5. Reconnect all cables, power up the GlobalLink 520, open the VictronConnect app and go to the settings to set the PIN and APN of your operator.
6. Wait a few minutes for the device to establish a connection, indicated by the green blinking LED. If it takes more than 15 minutes, the device will automatically reboot and try again. If that doesn't work either, you can disconnect the power for at

least 10 seconds and try again. If the PIN is not correct, an error message will be displayed. This is not the case for the APN, please double check.

> In the event that you switch back to the factory installed SIM card from a custom SIM card, the custom APN must be deleted.



4.5. Compliance

SIMPLIFIED EU DECLARATION OF CONFORMITY: Hereby, Victron Energy B.V. declares that the GlobalLink 520 is in compliance with Directive 2014/53/EU. The full text of the EU declaration of conformity is available at the following internet address: https://ve3.nl/7G.

UK PSTI STATEMENT OF COMPLIANCE: We, Victron Energy B.V., confirm that our product GlobalLink 520 complies with the security requirements outlined in Schedule 1 of The Product Security and Telecommunications Infrastructure (Security Requirements for Relevant Connectable Products) Regulations 2023. The official Statement of Compliance can be downloaded from https://ve3.nl/7G.

5. Product compatibility & data transmission to VRM

The GlobalLink 520 supports VE.Direct protocol and Instant Readout via Bluetooth. The latter is used for wireless data communication between the GlobalLink 520 and compatible smart devices. The data from devices connected via VE.Direct and Instant Readout can then be monitored via the VRM portal. See also the Victron smart devices and RuuviTags [17] chapter.

VE.Direct (wired)

Supported data attributes for wired devices connected via VE.Direct:

VE.Direct device	Data attributes transmitted to VRM every 15 minutes
MPPT solar charger	State, battery voltage, battery current, load current, solar yield, error code
BMV / SmartShunt	Main (battery) voltage, auxiliary voltage, main (battery) current, load current, State of Charge, alarm reason
Inverter (RS)	State, mode, battery voltage, AC output voltage, AC output current, warning reason, alarm reason
Multi RS	State, battery voltage, battery current, AC output voltage, AC output current, error code
Smart IP43 Charger	State, mode, battery voltage (up to 3 channels), battery current (up to 3 channels), error code
Orion XS	State, mode, battery voltage, battery current, DC input voltage, DC input current, error code

Note: Even though the Peak Power Pack has a VE.Direct port, the GlobalLink is not compatible with it.

Instant Readout (Bluetooth)

Supported data attributes for Bluetooth devices connected via Instant Readout:

Bluetooth device	Data attributes transmitted to VRM every 15 minutes
MPPT solar charger	State, battery voltage, battery current, PV power, load current, solar yield, error code
BMV / SmartShunt	Main (battery) voltage, auxiliary voltage, main (battery) current, State of Charge, alarm reason
Smart Battery Sense	Voltage, temperature
Inverter (RS)	State, battery voltage, battery current, PV power, solar yield, AC output power, error code
Multi RS	State, battery voltage, battery current, active AC input, AC input power, AC output power, PV power, solar yield, error code
Smart IPxx Charger	State, battery current (up to 3 channels), battery voltage (up to 3 channels), error code
Orion XS	State, input voltage, input current, output voltage, output current, off reason, error code
Orion-Tr Smart	State, input voltage, output voltage, off reason, error code
Lynx Smart BMS	Battery voltage, battery current, State of Charge, time-to-go, warnings & alarms, error code
NG BMSes	Lynx Smart BMS NG, smallBMS NG, VE.Bus BMS NG: Battery voltage, battery current, State of Charge, Remaining time, warning & alarms, error code, Battery temperature, Consumed Ah
Lithium SuperPack NG battery	Battery voltage, Battery current, State of Charge, Remaining time, Battery temperature, Consumed Ah
Lithium Battery Smart	Battery voltage, cell voltage (up to 8 cells), balancer status, error code
Smart BatteryProtect	State, output state, input voltage, output voltage, off reason, error code
VE.Bus Smart Dongle	State, battery voltage, battery current, active AC input, AC input power, AC output power, State of Charge, alarm, error code
RuuviTag	Temperature, humidity, pressure

6. Power draw

The GlobalLink 520 can be powered directly from your battery bank and operates between 8V and 70V.

The tables below detail the average power draw under varying conditions, based on system voltage and relay contact status (open or closed), with Bluetooth functionality both disabled and enabled.

Average power consumption with Bluetooth disabled		
System voltage	**Average current with relay open**	**Average current with relay closed**
12V	20mA	40mA
24V	10mA	20mA
48V	5mA	10mA

Average power consumption with Bluetooth enabled		
System voltage	**Average current with relay open**	**Average current with relay closed**
12V	50mA	64mA
24V	26mA	34mA
48V	14mA	19mA

7. Digital inputs

7.1. Connection and pinout

The GlobalLink 520 comes with two digital inputs, which also act as pulse counters; you can view their current state and the number of detected pulses (rising edge, 1000Hz max) in VRM. The GlobalLink 520 resets the pulse counters on a reboot, the module also reboots when there is no network.

Pinout	Input
pin1	input1
pin2	input2
pin3	gnd

The inputs are non-isolated. They operate at 3V3 levels and can withstand up to 5V input. Each input has an internal 10k pull-up resistor to 3V3.

We recommend wiring it to a potential free relay that switches the input between free-floating and shorted to ground. Or otherwise an open collector/optocoupler output, which also switches the signal between free-floating and shorted to ground.

7.2. Digital inputs as VRM alarm notification trigger

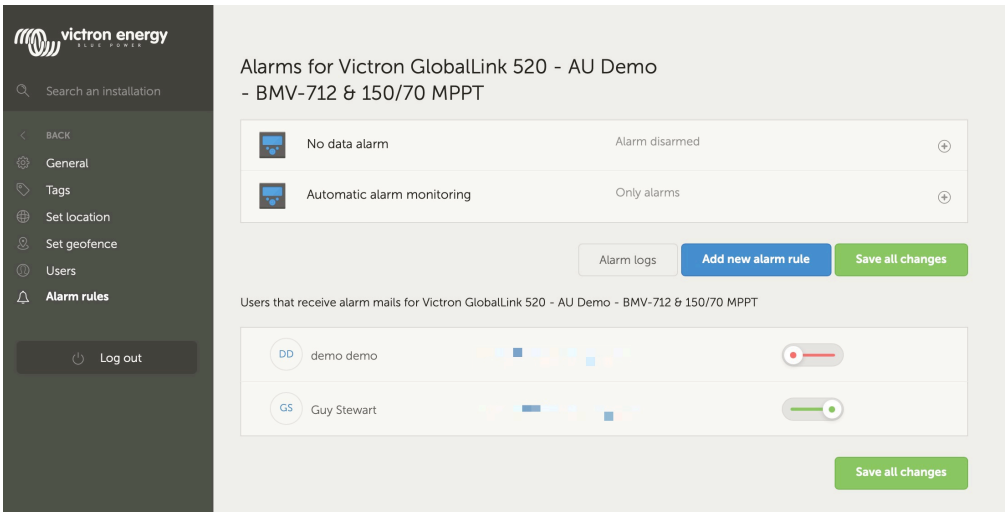
The digital inputs can trigger an alarm notification in VRM and send an email to selected users, if desired.

The GlobalLink 520 is intended to be a low-data consumer and sends cloud updates every 15 minutes.

It is therefore normal that there is some latency delay between the change of the digital input state and the signal to VRM and any subsequent alarm. So it may not be suitable for applications where a near real-time alarm is essential.

Alarm options are set in VRM Settings -> Alarm rules menu.

In this menu, you can see the default alarms that are pre-configured. For more information on all possible VRM parameters, see the VRM portal documentation.



Add a new alarm rule in VRM using the digital inputs as a trigger

It is possible to add a new alarm rule in VRM by clicking the 'Add new alarm rule' button.

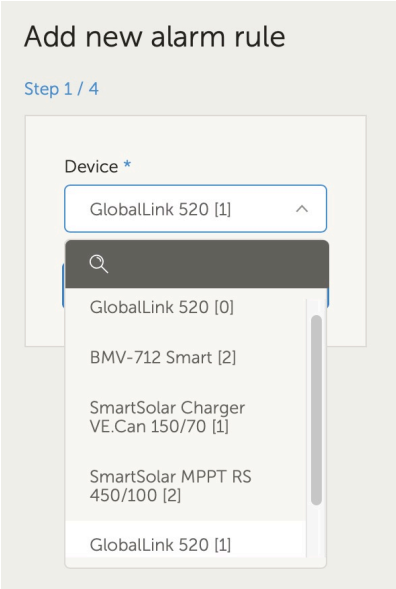
The Digital inputs are displayed as separate devices from the other Global Link parameters when creating a new alarm rule.

GlobalLink 520 [0] - Internal data

GlobalLink 520 [1] - Digital input 1

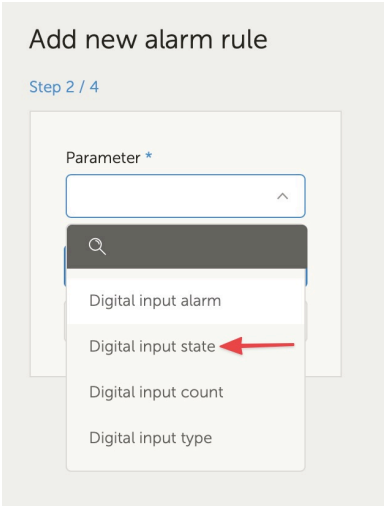
GlobalLink 520 [2] - Digital input 2

You will also see other connected devices separately in this list.



Once you have selected the digital input device you wish to use to trigger an alarm, click next.

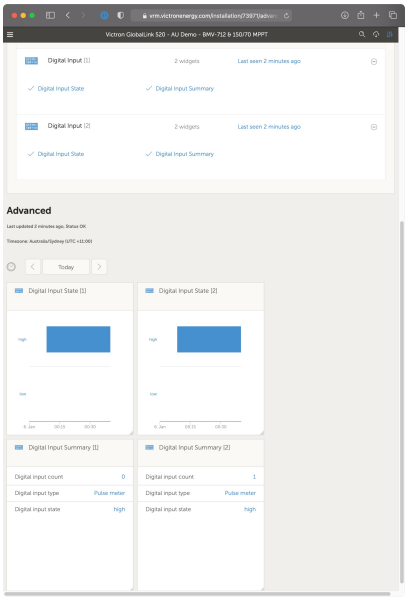
Then select the parameter;



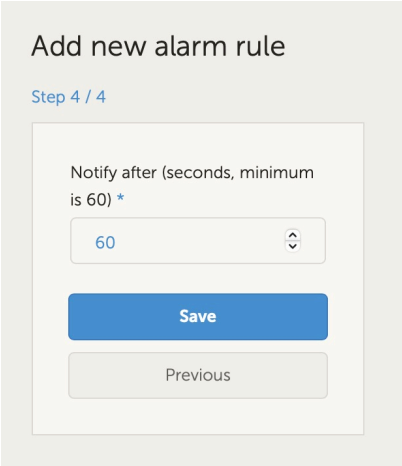
Digital input state and click next.

Then enable either the ‘High’, or ‘Low’ value, depending on the alarm behaviour you would like. This may take some testing with your specific digital input wiring and the results shown in VRM to get the results you want.

It can be useful to enable the Digital input state widgets in the advanced tab of VRM to get a sense of the behaviour and the reading that you should configure for the alarm.



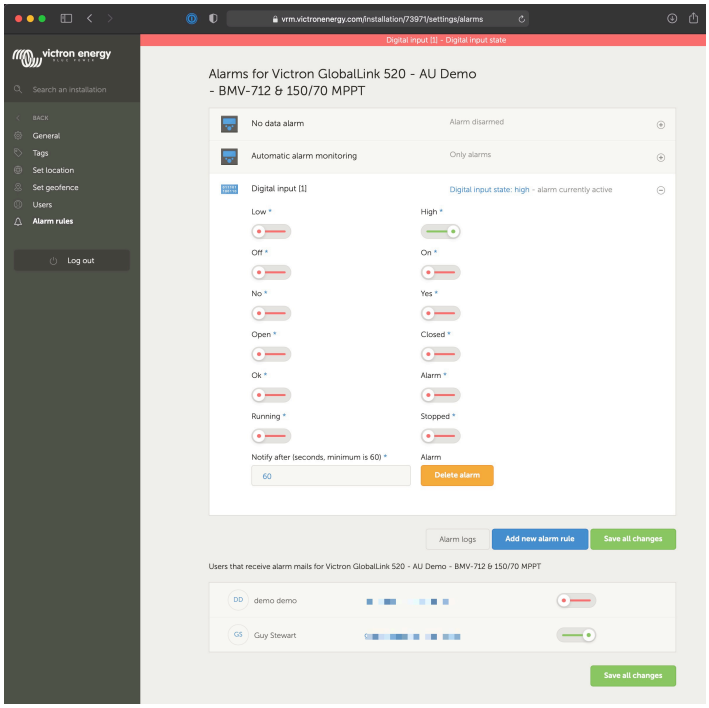
Then set the minimum time that the condition is active for before an alarm notification is created.



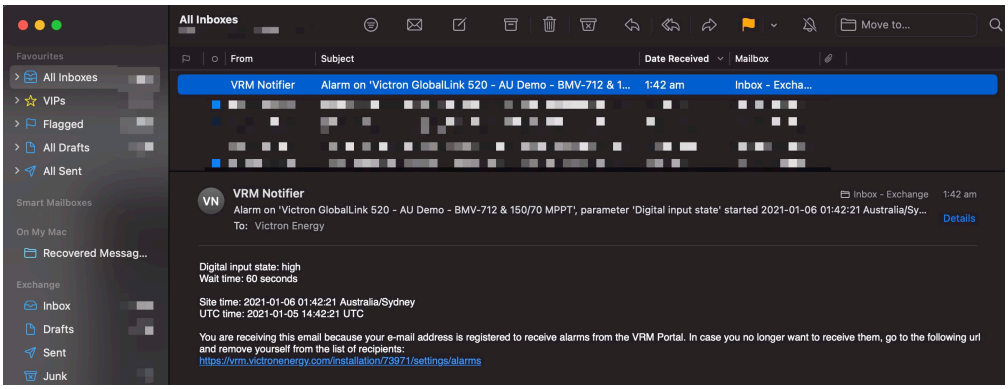
Note that the time set is the amount of time the high or low condition is active before an alarm is generated. It can then take an additional amount of time (up to 15 minutes) before that alarm is sent to VRM and an email notification is sent.

Once the new alarm rule has been added, review the email notifications, and enable or disable email alerts for registered users of the site.

Then click ‘Save all changes’.



Example of the email alarm notification;



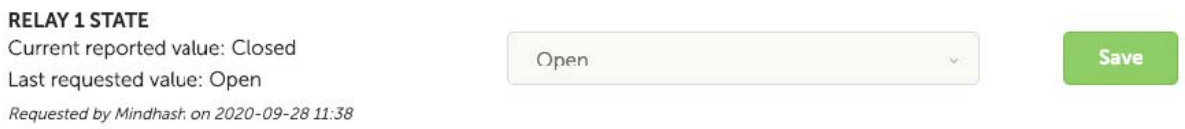
There is a shortcut from the alarm settings to the VRM alarm log. The history of your digital input alarms will be recorded there.

8. Relay switch

The GlobalLink 520 comes with one relay which can be operated from VRM from the device list page.

Pinout	
pin1	NO
pin2	COM
pin3	NC

You can queue changes to the relay state in VRM. Changes will be propagated the next time the device connects and transmits its data, and can thus take up to 15 minutes to take effect (or longer if the device has no connection).



9. Input Voltage Measurement

The GlobalLink measures the voltage on its own power connector. If none of the connected VE.Direct or Smart devices is able to measure voltage, this value is used instead in VRM.

Note that this measurement is not very accurate. At 14V it's +/- 0.2V, at 24V it's +/- 0.5V and at 48V it's +/- 1V.

10. Firmware updates

The GlobalLink 520 can automatically check and update its firmware to the official release or beta release, depending on the setting. Auto-update settings can be changed or disabled via the Settings menu in VictronConnect or the Device list on the VRM portal.

1. Open the VictronConnect app and tap on the GlobalLink 520 from within the Device list.
2. After successfully connecting, tap on the cog wheel icon in the top right-hand corner to open the Settings menu.
3. Tap on the Auto-update selection menu. There are 3 options to choose from:
   a. Disabled: disables Auto-update
   b. Official release: Only official release firmware versions will be installed (automatically)
   c. Beta release: Installs (automatically) latest beta firmware version if it is newer than the previous beta or official release version
4. If a new firmware update is available, the unit starts updating and the LED will blink purple. This can take up to 10 minutes. Do not turn off the device even if the LED stops blinking for a while, so as not to interrupt the update process.

11. Settings and diagnostics

Not all Android devices can connect to the GlobalLink 520. An example is the HUAWEI Y6 2019 and there may be other Android phones that are also incompatible.

Unfortunately, if you are using an incompatible Android phone with the GlobalLink 520, you have no choice but to use another compatible mobile device.

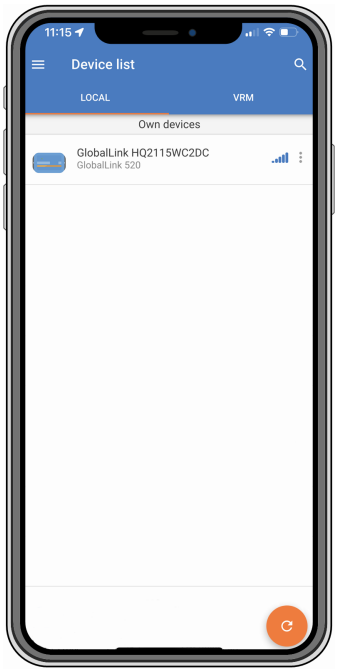
Please do not contact Victron Support if you find your mobile device is not compatible. This is a known limitation of the GlobalLink 520 firmware and is currently not supported..

11.1. VictronConnect

The status of the GlobalLink 520 with firmware v2.05 or newer can be monitored live with a Bluetooth-enabled device (such as a mobile phone or tablet) using the VictronConnect app.

If you don't see your device in VictronConnect, it is possible that Bluetooth is disabled. You can enable Bluetooth from the device overview in VRM. After enabling this, it can take up to 15 minutes for the change to go into effect.

When you open the VictronConnect app, you can select a GlobalLink 520 from the overview, which shows the serial number and the BLE signal strength. After a successful connection, the status screen is loaded.



On the status screen, there is information about the connectivity to the cellular network and the Victron Remote Management portal. For the device to work properly, the SIM status should be Ready and the cellular status must be Connected. You can also check if the correct antenna is selected and the current signal strength. The status screen also shows the operator name and number. It is not possible to select one yourself, even if more than one network is available in your region.

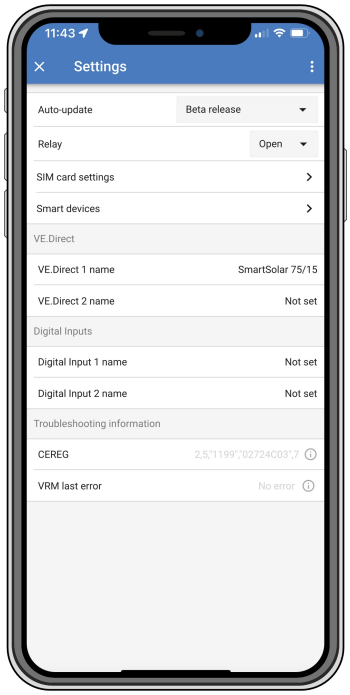
In the status screen, it is also possible to see the status of both VE.Direct ports, the number of connected Bluetooth (smart) devices and the status of both digital inputs.

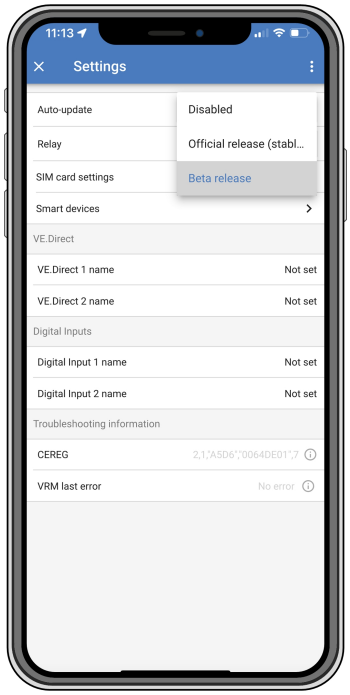
If you connect to the GlobalLink 520 very early during power-up, it is possible that it will show an error for the SIM Status. Please power cycle the device and wait for the device to be fully booted before connecting. The device does not restart automatically when an error is detected and there is an active connection via BLE (VictronConnect).

11.2. Settings

The Settings page is accessed by clicking on the cog wheel icon at the top right corner. The Settings page provides access to view or change the settings of the GlobalLink 520. This page also allows you to view product information such as installed firmware versions, toggle the GlobalLink 520 on-board relay or change or disable the update channel.

If you select a beta-release firmware, please note that the beta-release firmware is not intended for normal use. In particular, it is not intended for use in critical and/or unattended systems: for example, an accidental error on our part may render the system remotely inaccessible or even cause a system reset or shutdown.





For troubleshooting, you can also find the CEREG output on the settings page. This information can help us to debug any issue that you might encounter regarding connectivity of the cellular modem.

11.3. Victron smart devices and RuuviTags

The GlobalLink 520 supports Victron smart devices and RuuviTag sensors. These devices connect via Bluetooth Low Energy (BLE) and are easy to set up via VictronConnect. All the data like voltage, current, temperature, humidity and air pressure will directly be available in VRM.

11.3.1. Setting up Victron smart devices & RuuviTag sensors

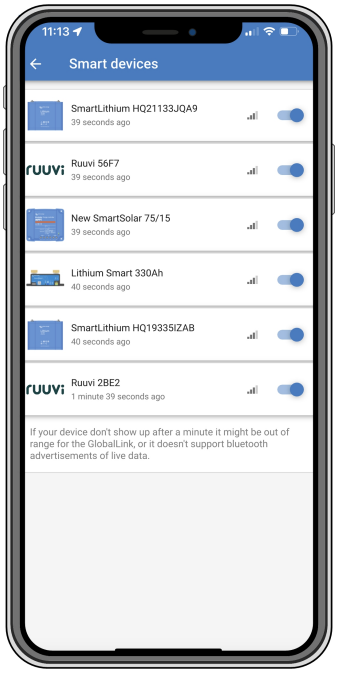
You can configure which smart devices and RuuviTags you want to use with your GlobalLink in VictronConnect. Make sure your GlobalLink is powered on and Victron smart devices or a RuuviTag is within range (+/- 10 meters indoor).

Before setting up your GlobalLink 520, connect to your Victron smart devices using the VictronConnect app to update the firmware of those devices and then enable Instant readout from the Product info menu. See also the Product compatibility [6] list for Victron smart devices that support Instant readout. Devices not listed are not supported even though they have Bluetooth.

Steps to configure smart devices

1. In VictronConnect, go to your GlobalLink and then to Settings by tapping the cog wheel icon in the upper right corner.
2. Click on Smart devices menu.
3. A list with all smart devices and RuuviTags in range will show up. Toggle the slider to enable (disabled by default) those you want to see on the VRM portal.
4. If your smart device does not show up in the list, it might be out of range or its battery is depleted.
5. You can change the name of the device by tapping the device name and then tapping Custom name.
6. After configuring the smart devices, you can see if they are working correctly in the overview page.

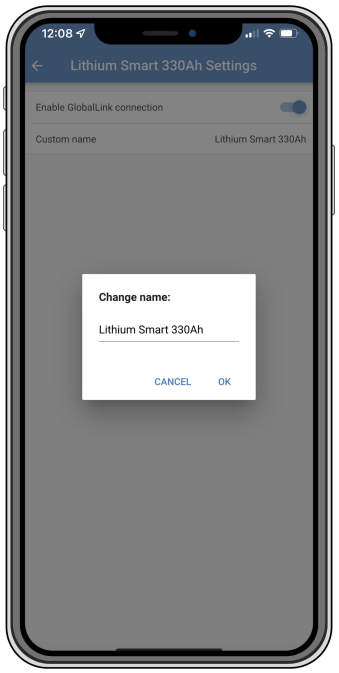
We recommend connecting no more than 25 Victron smart devices to the GlobalLink 520.



11.4. Custom names

With VictronConnect it is possible to give custom names to the following connections:

- VE.Direct Port 1
- VE.Direct Port 2
- Digital Input 1
- Digital Input 2
- All Victron smart devices including RuuviTags



12. Troubleshooting

Step 1: Check the device has power.

The LED on the device should be blinking in some colour. If it is not blinking, check if the power cable is connected correctly and supplies sufficient power. If you're using the included cable, be sure to also check its inline fuse which may be blown if the power pins were accidentally reversed.

Step 2: Check for cellular (LTE-M) coverage.

Verify that the LED is blinking either green or yellow. After power-up, the LED will first blink blue, indicating that it is establishing communication with the LTE-M network and VRM. Once connected, it will start blinking green (when there is a VE.Direct device) or yellow (when there is no VE.Direct device). In case it keeps blinking blue the unit will keep trying to establish a connection until there is a timeout (+/- 15 min) and then automatically reboot the device.

You can check the signal strength in VRM on the advanced page where you can activate the RSSI graph. The signal RSSI should be between -50dB (best connection) and -100dB (bad connection). Below -100dB the connection will no longer work. You can also find the latest RSSI in the device list.

Check and make sure there is coverage in your country (https://1nce.com/en-eu/1nce-connect/our-coverage). If there should be coverage, but you have no signal, you can consider purchasing an external antenna.

Step 3: Check the connected VE.Direct devices.

Make sure the LED is blinking green or geen & yellow which indicates that only one VE.Direct device is connected. In case it's only blinking yellow, check the cable to the VE.Direct device, and power to the VE.Direct device.

Step 4: Find the device in the VRM portal

Login to VRM, and add the module by going through the "Add installation" wizard. Only after the module has made an active connection to the cellular network it is available in VRM.

13. FAQ

Q1: Will the device store data and send it out later when the gateway is in range?

No.

Q2: Can the firmware of the device be updated?

Yes, it will automatically update. It is not possible to do a manual update.

Q3: How can I connect multiple VE.Direct devices to the device?

You can connect up to two VE.Direct devices.

Q4: Can I connect both this module and something else to the VE.Direct port at the same time?

No.

Q5: Can the module be used to remotely switch the load output of an MPPT?

No.

Q6: Can the module be used to remotely update the firmware of a BMV, MPPT, or Inverter?

No.

Q7: Can the module be used to remotely change the configuration of the BMV, MPPT or Inverter?

No.

Q8: Can the module be used to remotely perform any other action?

Yes, you can switch the onboard relay switch from VRM.

Q9: Can I use the GlobalLink with a GX device (e.g Cerbo GX)

No, it is impossible to use a GlobalLink with a GX device.

The GlobalLink is intended to be used instead of a GX device to connect one or two supported VE.Direct devices directly to VRM via the built-in LTE-M connection. Data will be sent straight to the VRM portal, no GX device is required.

You cannot connect the GlobalLink directly to a GX device, it is designed to connect to the supported VE.Direct devices (such as BMV or MPPT) directly. If you would like to connect your GX device to a 4G network use the GX LTE 4G instead.

Q10: The Peak Power Pack has a VE.Direct port. Does the device work with it?

No.

Q11: Can I use my own SIM card in the device?

Yes. Make sure your operator supports LTE-M (Cat M1).

Q12: Can I use the SIM card for other devices?

No, the SIM card is locked, has a strict data limit, and will not work on other devices.

Q13: Can I factory reset the device?

Yes, you can factory reset the device to remove all locally configured settings. To remove all historic data, delete the corresponding installation in VRM.

Q14: Does the device have GPS

No.

Q15: Can I use the device over WiFi?

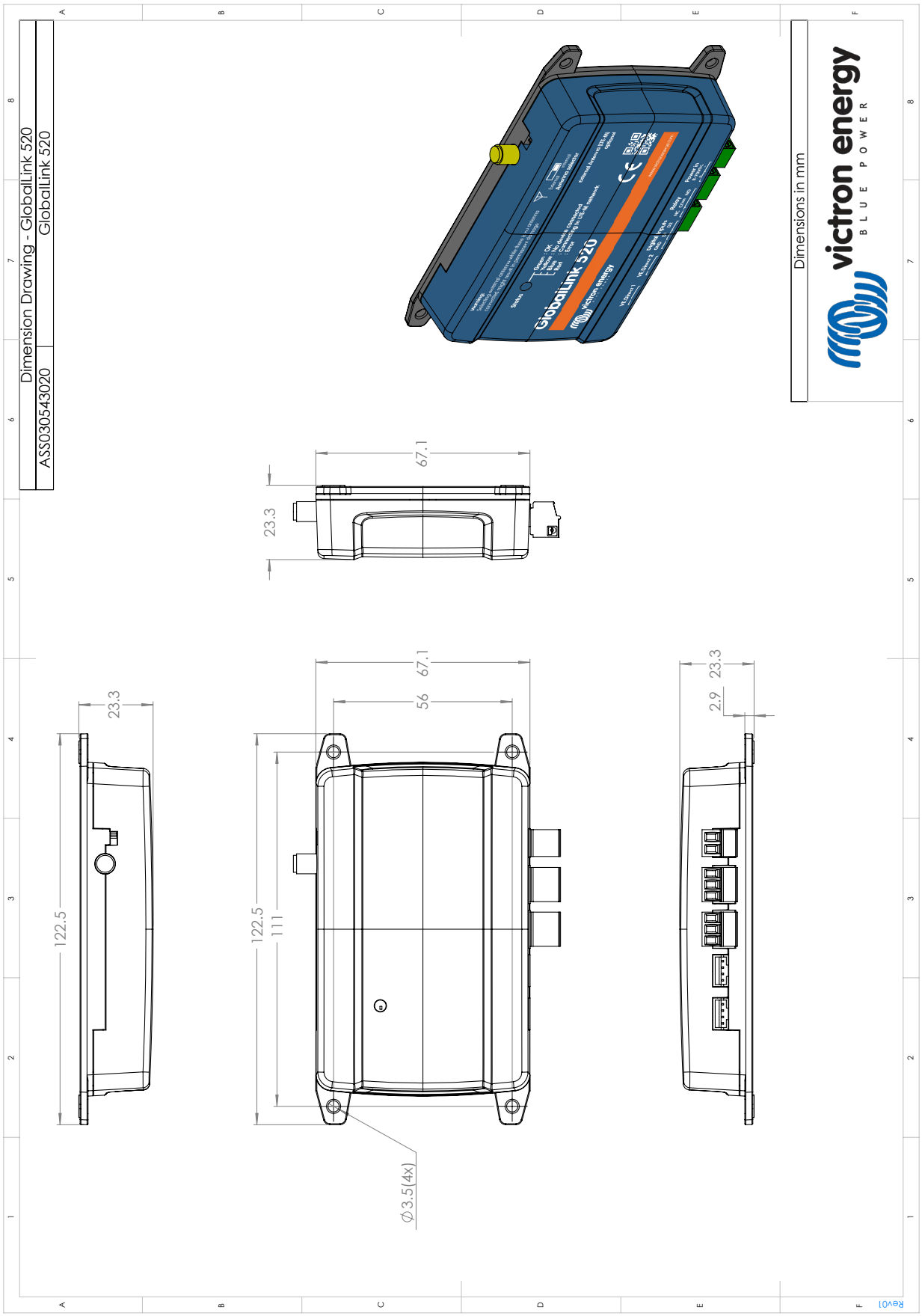
No.

Q16: What happens after the 5th year? Do I have to buy a new device?

We are planning to introduce a payment system in VRM for those who wish to extend the prepaid SIM beyond the initial five-year period. Until then the SIM cards in GlobalLink will continue to operate as normal, and Victron will cover any costs of keeping them active. Alternatively you can also insert and use your own SIM card.

Q17: Does the GlobalLink support NB-IoT networks?

No

14. Appendix

14.1. Enclosure Dimensions