NMEA2000 Switch bank PGN definitions

This document is an add-on to our Datacommunication whitepaper. That whitepaper contains a list of PGNs transmitted by each product type. This document defines the bit definitions of the switch banks.

Download the main document, the Datacommunication whitepaper, from the whitepapers section on our website.

Proprietary messages: VREGs

Note that besides the standard NMEA2000 PGNs, Victron devices also transmit proprietary messages, called VREGs. VREGs are used for all parameters cannot be sent with standard NMEA 2000 PGNs. The VREG PGN number is 61184 (0xEF00), and it is sent to the broadcast address 61439 (0xEFFF).

See the document “VE.Can registers - public.docx” for detailed VREG information and examples. It is available for download on the whitepaper section on our website..

More CAN-bus and NMEA2000 related documentation

- Changing NMEA2000 instances
- NMEA2000 and VE.Can

PGN List

Switch Bank Control - PGN 127502 (0x1F20E) (deprecated)

This message is no longer transmitted and has been replaced by PGN 127501.
This applies to products with versions as specified in the table below or newer.

Product	Version
BlueSolar MPPT 150/70 & 150/85	v2.00
Lynx Shunt VE.Can	v1.00
Skylla-i (all models)	v1.08
VE.Direct to VE.Can\NMEA 2000 interface	v1.06
VE.Bus to VE.Can\NMEA 2000 interface	v0.12

Binary Status Report - PGN 127501 (0x1F20D)

This PGN is sent out by multiple products, however the details differ per product.

BlueSolar Charger 150/70 & 150/85

Signal	Meaning
Bank Instance	Instance of the message, default value 0
Status 1 - Relay	“On” - The relay on the charger is active, the contact is closed
Status 2 - Alarm	“On” - There is an alarm condition
Status 3 - Low voltage	“On” - Battery voltage is too low
Status 4 - High voltage	“On” - Battery voltage is too high
Status 5 - Solar activity*	“On” - Solar panel irradiated (can be used for day/night detection)
Status 6 … 28	Not used, reports as “Unavailable”

* Since v2.01

When the Alarm status bit is set to “On”, the alarm reason can be queried using Victron propietary register 0xEDDA (Charger error code).

Lynx Shunt VE.Can

Since v1.07 the Lynx Shunt also transmits PGN 127501 for the relay trigger reason next to the PGN with the alarm reason.
The mapping of the status bits is identical to the alarm message.
The default instance of the alarm message is 0, as the default instance for the relay message is 1.

Signal	Meaning
Bank Instance	Instance of the message Default value for alarm message is 0 Default value for relay message is 1
Status 1 – Low voltage	“On” – Battery voltage is too low
Status 2 – High voltage	“On” – Battery voltage is too high
Status 3 – Low SOC	“On” – The Battery state of charge is too low
Status 4 – Low fused voltage	“On” – Fused voltage is too low
Status 5 – High fused voltage	“On” – Fused voltage is too high
Status 6 – Fuse blown	“On” – The fuse is blown
Status 7 – High battery temperature	“On” – Battery temperature is too high
Status 8 – Low battery temperature	“On” – Battery temperature is too low
Status 9 – High internal temperature	“On” – Internal temperature is too high
Status 10 … 28	Not used, report as “Unavailable”

The alarm and relay thresholds can be configured using Victron proprietary registers.

Skylla-i

Signal	Meaning
Bank Instance	Instance of the message, default value 0
Status 1 - Relay	“On” - The relay on the charger is active, the contact is closed
Status 2 - Alarm	“On” - There is an alarm condition
Status 3 - Low voltage	“On” - Battery voltage is too low

Signal	Meaning
Status 4 - High voltage	“On” - Battery voltage is too high
Status 5 ... 28	Not used, reports as “Unavailable”

When the Alarm status bit is set to “On”, the alarm reason can be queried using Victron propietary register 0xEDDA (Charger error code).

VE.Direct to VE.Can\NMEA 2000 interface

See the manual of the VE.Direct to VE.Can interface:
https://www.victronenergy.com/accessories/ve-direct-to-ve-can-interface

VE.Bus to VE.Can\NMEA 2000 interface

See the manual of the VE.Direct to VE.Can interface:
https://www.victronenergy.com/accessories/ve-bus-to-nmea2000-interface