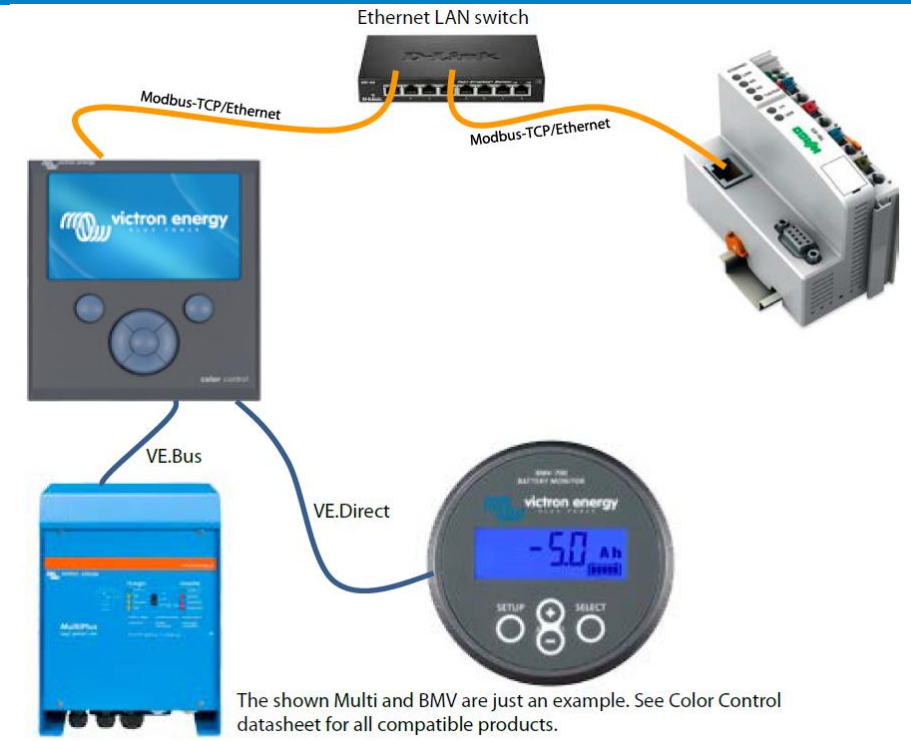
Data communication with Victron Energy products

Matthijs Vader

www.victronenergy.com



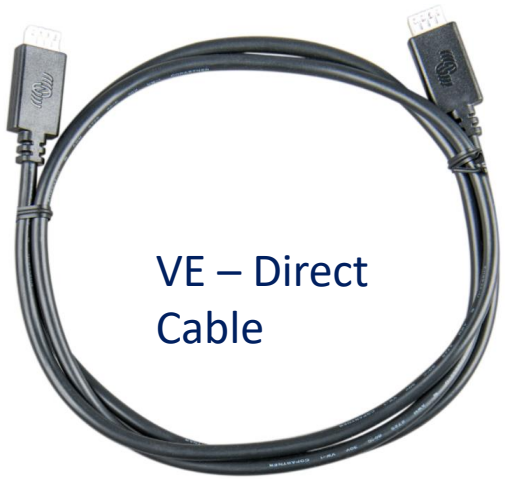
The shown Multi and BMV are just an example. See Color Control datasheet for all compatible products.

VE.Direct VE.Direct is a combination of what we used to call the HEX protocol and the BMV text protocol. It combines the advantages of both: in text-mode the products automatically transmit all important parameters every second. To implement code which reads and interprets this data is extremely simple. If more functionality is needed, such as changing settings, one can switch to the HEX protocol. Communication ports on new Victron products will always be either VE.Can or VE.Direct ports. The VE.Direct port is for products where a full Canbus connection adds to much cost. VE.Direct documentation is available on our website. Look for the VE.Direct Protocol document on: http://www.victronenergy.com/support-and-downloads/whitepapers/. And see also the VE.Direct FAQ: https://www.victronenergy.com/live/vedirect_protocol:faq.

Below list is all different lengths and normal as well as the right-angle cables

VIC-DIR-CABLE-0.3	VE.Direct Cable 0.3m
VIC-DIR-CABLE-0.9	VE.Direct Cable 0.9m
VIC-DIR-CABLE-1.8	VE.Direct Cable 1.8m
VIC-DIR-CABLE-10.0	VE.Direct Cable 10m
VIC-DIR-CABLE-3.0	VE.Direct Cable 3m
VIC-DIR-CABLE-5.0	VE.Direct Cable 5m
VIC-DIR-CABLE-RA-0.3	VE.Direct Cable 0,3m (one side Right Angle conn)
VIC-DIR-CABLE-RA-0.9	VE.Direct Cable 0,9m (one side Right Angle conn)
VIC-DIR-CABLE-RA-1.8	VE.Direct Cable 1,8m (one side Right Angle conn)
VIC-DIR-CABLE-RA-10.0	VE.Direct Cable 10m (one side Right Angle conn)
VIC-DIR-CABLE-RA-3.0	VE.Direct Cable 3m (one side Right Angle conn)
VIC-DIR-CABLE-RA-5.0	VE.Direct Cable 5m (one side Right Angle conn)

VE- Direct Right Angle



VE – Direct Cable

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BLUE POWER
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Products with data communication

The following product lines have a data communication port, with protocol information available for 3rd parties:

Product range	Products in that range	Onboard comm. port	3rd party protocol	How to connect
Color Control GX	Gateway to almost all Victron products that have a data communication port	Ethernet	Modbus-TCP	Modbus-TCP
Battery monitoring	BMV-600S, BMV-602S and BMV-600HS	BMV-60xS Text (TTL)	CAN and BMV Text	Via interface
	BMV-700 and BMV-700H	VE.Direct	VE.Direct	Direct or via interface
Inverters	Phoenix Inverter models from 1200 to 5000VA	VE.Bus	CAN and MK2/MK3	Via interface
	Phoenix Inverter 250, 375 and 500VA	VE.Direct	VE.Direct	Direct of via interface
Multi Inverter/chargers	Complete range: all Multis and Multi compacts	VE.Bus	CAN and MK2/MK3	Via interface
Quattro's	Complete range	VE.Bus	CAN and MK2/MK3	Via interface
Skylla-i/-IP44 battery chargers	Complete range	VE.Can	CAN	Direct
BlueSolar Chargers	BlueSolar MPPT 150/70 and 150/85 (VE.Can)	VE.Can	CAN	Direct
	BlueSolar MPPT 75/10 to 150/100 (VE.Direct)	VE.Direct	VE.Direct	Direct or via interface
Lynx Ion (Lithium Ion BMS)	Lynx Ion, Lynx Ion + Shunt and Lynx Ion BMS	VE.Can	CAN	Direct
Lynx Shunt 1000A VE.Can	Only the Canbus version.	VE.Can	CAN	Direct
Peak Power Pack	Complete range	VE.Direct	VE.Direct	Direct or via interface

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Protocol overview

At Victron Energy we have the following protocols:

Protocol	3rd party connections allowed	Topology	Physical	International standard	More information
Modbus-TCP	Yes (preferred)		TCP/IP	Modbus-TCP	Further down in this document
VE.Direct	Yes (preferred)	Point to point	RS232 / TTL	Proprietary	On our website, see next page for link
VE.Can / NMEA2000	Yes	Drop cables / Daisy chain	CANBUS	J1939 & NMEA2000	http://www.victronenergy.com/ http://www.nmea.org/
VE.Bus	No	Daisy chain	RS485	Proprietary	See MK2/MK3 protocol
MK2/MK3 Protocol	Yes	Point to point	RS232	Proprietary	On request
BMV Text	Yes	Point to point	RS232	Proprietary	On our website, see next page for link
VE9bit RS485	No	Point to point	RS485	Proprietary	Deprecated