

TABLE OF CONTENT

1. Product Features.....	1
2. Harness installation.....	1
2.1 Overview.....	1
2.2 How to connect.....	2
3. Appendix.....	4
3.1 Specification.....	4
3.2 Electrical.....	4
3.2.1 Environmental conditions.....	4
3.2.2 Weight and dimensions.....	4
3.2.3 Ordering information.....	4
3.3 Disposal.....	4
3.4 Conformity declaration.....	4

SAFETY INSTRUCTIONS

This manual contains notices which you should observe to ensure your own personal safety, as well as to protect the product and the connected equipment. These notices are highlighted in the manual by a warning symbol and are marked as follows according to the level of danger:

	<p>Only qualified personnel should be allowed to install and work on this equipment. Qualified persons are defined as persons who are authorized to commission, to ground and to tag circuits, equipment and systems in accordance with established safety practices and standards.</p>
	<p>Turn off the power supply before performing any wiring operations! Short circuits can be harmful, critical and can cause explosions and serious burns!</p>
	<p>Please read this manual carefully and observe all safety instructions!</p>

DESTINATED USE

The Vanguard Wiring Harness is intended exclusively for commissioning the Vanguard FI battery pack series.

DISCLAIMER

BARTH® assumes no liability for usage and functionality of wiring harnesses in case of disregarding this manual. The strict accordance of this manual is important since the installation methods, peripheral connections, usage and maintenance can not be controlled by BARTH®. Therefore BARTH® assumes no liability for any claim.

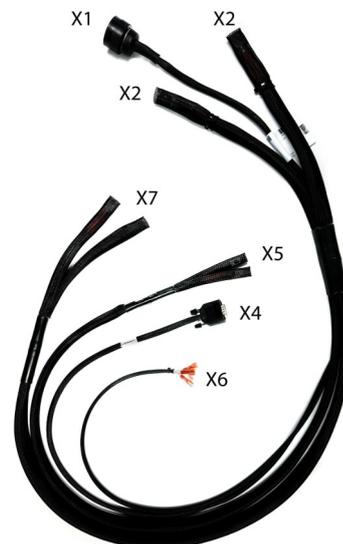
1. Product Features

- IP-67
- Automotive quality
- Plug and Play
- Enables charging and discharging
- Engineered and manufactured in Germany

2. Harness installation

	<p>The Vanguard wiring harness is intended exclusively for use with the Vanguard Lithium-ion batteries of the FI series. It must be installed in such a way that it is protected from the risk of fire, environmental influences and mechanical influences.</p>
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2.1 Overview



X1 Connector: Battery signal connector

2	HIGH TRUE 1	DISCHARGE MODE ENABLE
4	CAN0 HIGH	PRIMARY CANBUS (J1939)
5	CAN0 LOW	PRIMARY CANBUS (J1939)
6	GROUND	GROUND PIN
7	HIGH TRUE 2	CHARGE MODE ENABLE
9	5 V	5 V SUPPLY FOR PINS 2 AND 7
11	INTERLOCK SUPPLY	INTERLOCK LOOP IN APPLICATION HARNESS
13	INTERLOCK RETURN	INTERLOCK LOOP IN APPLICATION HARNESS

X2 Connector: Connection battery 48V - VCC/GND

1	VCC /48 Volt	Connection VDD battery
2	GND/48 Volt	Connection GND battery

X4 Connector: Charger signal connector

2	CAN0 LOW	PRIMARY CANBUS (J1939)
5	5 V	5 V SUPPLY FOR PINS 2 AND 7
7	CAN0 HIGH	PRIMARY CANBUS (J1939)
9	HIGH TRUE 2	CHARGE MODE ENABLE

X5 Connector: Connection Charger 48V - VCC/GND

1	5 V	VCC/48 Volt
2	GND	GND/48 Volt

X6 Connector: Switch battery on/off

1	5 V	5 V SUPPLY FOR PINS 2 AND 7
5	HIGH TRUE 1	DISCHARGE MODE ENABLE
7	GROUND	GROUND PIN

X7 Connector: Connection USER APPLICATION 48V

1	VCC	VCC/48 Volt
2	GND	GND/48 Volt

2.2 How to connect



Attention!

A Vanguard lithium battery can deliver short circuit currents over 1000 A. Serious injury or equipment damage may occur!

The following connection sequence must be observed.

A. Connect X2:1 to positive battery terminal. Use hardware supplied with your battery. Torque to battery specifications.



B. Connect X2:2 to the negative battery terminal. Use hardware supplied with your battery. Torque to battery specifications.



D. Connect X7:2 to negative terminal of load. Follow the recommendations of the load manufacturer.



C. Connect X7:1 to positive terminal of load. Follow the recommendations of the load manufacturer.



E. Connect X5:1 to positive terminal of the charger. Use hardware supplied with your battery. Torque to charger specifications.

F. Connect X5:2 to negative terminal of the charger. Use hardware supplied with your battery. Torque to charger specifications.



E. Connect X4 to charger signal SUB D. Torque by feel.



F. Connect X1 to battery signal. Turn clockwise until endpoint is reached.



3. Appendix

3.1 Specification

3.2 Electrical

Rated voltage	72 V DC
Rated current	100 A continuous 200 A for 10 s

3.2.1 Environmental conditions

Operation temperature	-40 to +70 °C
Storage temperature	-40 to +70 °C
IP rating	IPx6K

3.2.2 Weight and dimensions

Weight	3160 g
Dimensions	Max. length: 1700 mm

3.2.3 Ordering information

Ordering information	Art. No. 0125-0951
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3.3 Disposal



If you wish to finally dispose of the product, ask your local recycling centre or dealer for details about how to do this in accordance with the applicable disposal regulations.

3.4 Conformity declaration

For the following designated product it is hereby confirmed, that the construction in that technical design brought by us in traffic corresponds to the standards specified below. In the event of any alternation which has not been approved by us being made to any device as designated below, this statement shall thereby be made invalid.

Description	Vanguard wiring harness
Type / Art. No.	KB-951
RoHS Directive 2011/65EU & Amendment EU2017/2102	We hereby declare that our product is compliant to the RoHS Directive on restriction of the use of certain hazardous substances in electrical and electronic appliances.

BARTH® Elektronik GmbH
Lengerich, 31.05.2023



Dipl.-Ing. (FH) D. Barh, CEO