TÜV NEDERLAND

Victron Energy B.V.

Almere Haven

The quality management system of **Victron Energy B.V.** and the application thereof complies with the requirements as stipulated in the standard:

NEN-EN-ISO 9001:2015

Evaluation of the quality management system took place in accordance with TÜV Nederland's certification regulations for the field of application:

Development, delivery and repair of chargers, inverters, converters, and electrical devices.

This certification is subject to annual evaluation by TÜV Nederland.

Registration number:	24574/2.2
Start date certificate:	16-07-2018
Certificate valid until:	06-07-2021
Date of first certificate:	06-07-2015
Date audit:	05-04-2018
Previous certificate valid until:	06-07-2018

Managing Director
Mr. E.W.A.C. Franken

MGMT. SYS.
RvA C 029

TÜV NEDERLAND
ISO 9001

RDW

Vehicle Technology Division

THE NETHERLANDS
(NEDERLAND)

E4

COMMUNICATION

Concerning [1]:

- approval granted
- ~~approval extended~~
- ~~approval refused~~
- ~~approval withdrawn~~
- ~~production definitely discontinued~~

of a type of ~~electrical~~/electronic sub-assembly [1] with regard to Regulation number 10.

Approval number: E4-10R-043379 **Extension number: 00**

1.	Make (trade name of manufacturer)	: Victron Energy B.V.
2.	Type and general commercial description(s)	: Inverter/Charger Quattro 12/5000/220-100/100 230V
3.	Means of identification of type, if marked on the ~~vehicle~~/~~component~~/ separate technical unit [1]	: Typeplate on enclosure
3.1.	Location of that marking	: Front Side Product
4.	Category of vehicle	: All
5.	Name and address of manufacturer	: Victron Energy B.V.
6.	In the case of components and separate technical units, location and method of affixing of the approval mark	: Front Side Product
7.	Address(es) of assembly plant(s)	:

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8.	Additional information (where applicable)	: see Appendix below
9.	Technical service responsible for carrying out the tests	: TÜV Rheinland Nederland B.V.
10.	Date of test reports	: December 11, 2015 / July 29, 2016
11.	Number of test report	: 15080407.a01 / 13091801_Ver01.a07
12.	Remarks (if any)	: see Appendix
13.	Place	: Zoetermeer
14.	Date	: 05-OCT-2016
15.	Signature	:

16. The index to the information package lodged with the approval authority, which may be obtained on request, is attached.

17. Reasons for extension : Not applicable

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(1) Strike out what does not apply.

APPENDIX

to type-approval communication form number: E4-10R-043379, Extension number: 00

concerning the type-approval of an ~~electrical~~/electronic sub-assembly [1] under Regulation number 10.

1.	Additional information	: See annex
1.1.	Electrical system rated voltage	: 12 V DC ~~pos./~~neg. ground [1]
1.2.	This ESA can be used on any vehicle type with the following restrictions	: None
1.2.1.	Installation conditions, if any	: n.a.
1.3.	This ESA can be used only on the following vehicle types	: All
1.3.1.	Installation conditions, if any	: See Installation manual, attached
1.4.	The specific test method(s) used and the frequency ranges covered to determine immunity were	: ESA Not Safety related. Tests not applicable
1.5.	Laboratory accredited to ISO 17025 and recognized by the Approval Authority responsible for carrying out the tests	: TÜV Rheinland Nederland B.V.

2.	Remarks	: Attached to this Type Approval: 1 Application form 1 Annex 2B form 2 EMC Testreports 1 Manual 1 Installation Manual Photos BOM Schematic Diagram PCB Layout

[1] Strike out what does not apply.

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E4

COMMUNICATION

Concerning [1]:

- approval granted
- ~~approval extended~~
- ~~approval refused~~
- ~~approval withdrawn~~
- ~~production definitely discontinued~~

of a type of ~~electrical~~/electronic sub-assembly [1] with regard to Regulation number 10.

Approval number: E4-10R-053543 **Extension number: 00**

1.	Make (trade name of manufacturer)	: Victron Energy B.V.
2.	Type and general commercial description(s)	: Inverter/Charger Quattro 24/5000/120-100/100 230V Identical products are: Multiplus 24/5000/120-100 230V Phoenix Inverter 24/5000 230V
3.	Means of identification of type, if marked on the ~~vehicle~~/~~component~~/ separate technical unit [1]	: Typeplate on enclosure
3.1.	Location of that marking	: Front Side Product
4.	Category of vehicle	: All
5.	Name and address of manufacturer	: Victron Energy B.V.
6.	In the case of components and separate technical units, location and method of affixing of the approval mark	: Front Side Product

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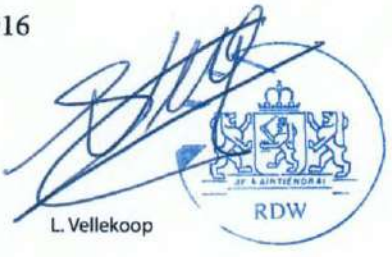
7.	Address(es) of assembly plant(s)	:
8.	Additional information (where applicable)	: see Appendix below
9.	Technical service responsible for carrying out the tests	: TÜV Rheinland Nederland B.V.
10.	Date of test reports	: November 30, 2015 / April 30, 2014
11.	Number of test report	: 15080404.a01 / 13091801.a06
12.	Remarks (if any)	: see Appendix
13.	Place	: Zoetermeer
14.	Date	: 04-AUG-2016
15.	Signature	:



16. The index to the information package lodged with the approval authority, which may be obtained on request, is attached.

17.	Reasons for extension	: Not applicable

(1) Strike out what does not apply.

APPENDIX

to type-approval communication form number: E4-10R-053543, Extension number: 00

concerning the type-approval of an ~~electrical~~/electronic sub-assembly [1] under Regulation number 10.

1.	Additional information	: See annex
1.1.	Electrical system rated voltage	: 24 V DC ~~pos./~~neg. ground [1]
1.2.	This ESA can be used on any vehicle type with the following restrictions	: None
1.2.1.	Installation conditions, if any	: n.a.
1.3.	This ESA can be used only on the following vehicle types	: All
1.3.1.	Installation conditions, if any	: See Installation manual, attached
1.4.	The specific test method(s) used and the frequency ranges covered to determine immunity were	: ESA Not Safety related. Tests not applicable
1.5.	Laboratory accredited to ISO 17025 and recognized by the Approval Authority responsible for carrying out the tests	: TÜV Rheinland Nederland B.V. Eiberkamp 10 9351 VT Leek The Netherlands
2.	Remarks	: Attached to this Type Approval: 1 Application form 1 Annex 2B form 1 Similarity Declaration (In EMC Report) 2 EMC Testreports 1 Manual 1 Installation Manual Photos BOM Schematic Diagram PCB Layout

[1] Strike out what does not apply.

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THE NETHERLANDS
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COMMUNICATION

Concerning [1]:

- approval granted
- ~~approval extended~~
- ~~approval refused~~
- ~~approval withdrawn~~
- ~~production definitely discontinued~~

of a type of ~~electrical~~/electronic sub-assembly [1] with regard to Regulation number 10.

Approval number: E4-10R-053539 **Extension number: 00**

1.	Make (trade name of manufacturer)	: Victron Energy B.V.
2.	Type and general commercial description(s)	: Digital Multi Control 200/200A Similar products: - Digital Multi Control 200/200GX
3.	Means of identification of type, if marked on the ~~vehicle~~/~~component~~/ separate technical unit [1]	: Typeplate on rear side (bottom of enclosure or PCB)
3.1.	Location of that marking	: Rear (bottom) side Product/PCB
4.	Category of vehicle	: All
5.	Name and address of manufacturer	: Victron Energy B.V.
6.	In the case of components and separate technical units, location and method of affixing of the approval mark	: Side Product
7.	Address(es) of assembly plant(s)	:

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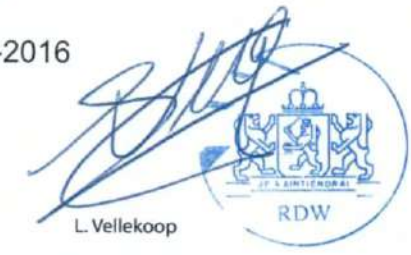
8.	Additional information (where applicable)	: see Appendix below
9.	Technical service responsible for carrying out the tests	: TÜV Rheinland Nederland B.V.
10.	Date of test reports	: December 16, 2016
11.	Number of test report	: 15090702.a01
12.	Remarks (if any)	: see Appendix
13.	Place	: Zoetermeer
14.	Date	: 25-OCT-2016
15.	Signature	:



16. The index to the information package lodged with the approval authority, which may be obtained on request, is attached.

17. Reasons for extension : Not applicable

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(1) Strike out what does not apply.

APPENDIX

to type-approval communication form number: E4-10R-053539, Extension number: 00

concerning the type-approval of an ~~electrical~~/electronic sub-assembly [1] under Regulation number 10.

1.	Additional information	: See annex
1.1.	Electrical system rated voltage	: Powered via Host (Victron Multi Plus Compact Inverter/Charger or similar ~~pos./~~neg. ground [1]
1.2.	This ESA can be used on any vehicle type with the following restrictions	: None
1.2.1.	Installation conditions, if any	: n.a.
1.3.	This ESA can be used only on the following vehicle types	: All
1.3.1.	Installation conditions, if any	: See Installation manual, attached
1.4.	The specific test method(s) used and the frequency ranges covered to determine immunity were	: ESA Not Safety related. Tests not applicable
1.5.	Laboratory accredited to ISO 17025 and recognized by the Approval Authority responsible for carrying out the tests	: TÜV Rheinland Nederland B.V.
2.	Remarks	: Attached to this Type Approval: 1 Application form 1 Annex 2B form 1 EMC Testreport 1Manual/datasheet Photos (testreport and manual) BOM's Schematic Diagrams PCB Layouts

[1] Strike out what does not apply.

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COMMUNICATION

Concerning [1]:

- approval granted
- ~~approval extended~~
- ~~approval refused~~
- ~~approval withdrawn~~
- ~~production definitely discontinued~~

of a type of ~~electrical~~/electronic sub-assembly [1] with regard to Regulation number 10.

Approval number: E4-10R-043382 **Extension number: 00**

1.	Make (trade name of manufacturer)	: Victron Energy B.V.
2.	Type and general commercial description(s)	: Inverter/Charger Quattro 12/3000/120-50/50 230V Similar to: - Multiplus 12/3000-120-16 230V - Multiplus 12/3000-120-50 230V - Phoenix Inverter 12/3000 230Vac
3.	Means of identification of type, if marked on the ~~vehicle~~/~~component~~/ separate technical unit [1]	: Typeplate on enclosure
3.1.	Location of that marking	: Front Side Product
4.	Category of vehicle	: All
5.	Name and address of manufacturer	: Victron Energy B.V. De Paal 35 1351 JG Almere Haven The Netherlands
6.	In the case of components and separate technical units, location and method of affixing of the approval mark	: Front Side Product

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Approval number: E4-10R-043382 **Extension number: 00**

7. Address(es) of assembly plant(s) :

8. Additional information (where applicable) : see Appendix below

9. Technical service responsible for carrying out the tests : TÜV Rheinland Nederland B.V.

10. Date of test report : April 29, 2014 and February 24, 2016

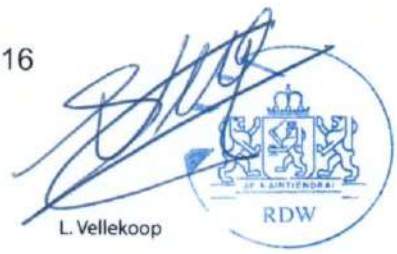
11. Number of test report : 13091801.a04 and 15080303.a01

12. Remarks (if any) : see Appendix

13. Place : Zoetermeer

14. Date : 10-OCT-2016

15. Signature :



16. The index to the information package lodged with the approval authority, which may be obtained on request, is attached.

17. Reasons for extension : Not applicable

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(1) Strike out what does not apply.

APPENDIX

to type-approval communication form number: E4-10R-043382, Extension number: 00

concerning the type-approval of an ~~electrical~~/electronic sub-assembly [1] under Regulation number 10.

1.	Additional information	: See annex
1.1.	Electrical system rated voltage	: 12 V DC ~~pos./~~neg. ground [1]
1.2.	This ESA can be used on any vehicle type with the following restrictions	: None
1.2.1.	Installation conditions, if any	: n.a.
1.3.	This ESA can be used only on the following vehicle types	: All
1.3.1.	Installation conditions, if any	: See Installation manual, attached
1.4.	The specific test method(s) used and the frequency ranges covered to determine immunity were	: ESA Not Safety related. Tests not applicable
1.5.	Laboratory accredited to ISO 17025 and recognized by the Approval Authority responsible for carrying out the tests	: TÜV Rheinland Nederland B.V.

2.	Remarks	: Attached to this Type Approval: 1 Application form 1 Annex 2B form 2 EMC Testreports 1 Manual Installation Manual Photos BOM Schematic Diagrams PCB Layouts

[1] Strike out what does not apply.

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Vehicle Technology Division

THE NETHERLANDS
(NEDERLAND)

E4

COMMUNICATION

Concerning [1]:

- approval granted
- ~~approval extended~~
- ~~approval refused~~
- ~~approval withdrawn~~
- ~~production definitely discontinued~~

of a type of ~~electrical~~/electronic sub-assembly [1] with regard to Regulation number 10.

Approval number: E4-10R-053544 **Extension number: 00: Correction 01**

1.	Make (trade name of manufacturer)	: Victron Energy B.V.
2.	Type and general commercial description(s)	: Inverter/Charger Quattro 24/3000/70-50/50 230V Identical/Similar Products: MultiPlus 24/3000/70-16 230V Multiplus 24/3000/70-50 230V Phoenix Inverter 24/3000 230Vac
3.	Means of identification of type, if marked on the ~~vehicle~~/~~component~~/ separate technical unit [1]	: Typeplate on enclosure
3.1.	Location of that marking	: Front Side Product
4.	Category of vehicle	: All
5.	Name and address of manufacturer	: Victron Energy B.V.
6.	In the case of components and separate technical units, location and method of affixing of the approval mark	: Front Side Product

Vehicle Admission & Surveillance

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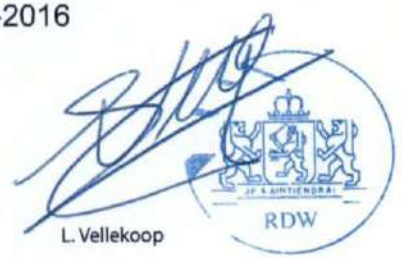
7.	Address(es) of assembly plant(s)	:
8.	Additional information (where applicable)	: see Appendix below
9.	Technical service responsible for carrying out the tests	: TÜV Rheinland Nederland B.V.
10.	Date of test reports	: November 30, 2015 / April 29, 2014
11.	Number of test report	: 15080403.a01 / 13091801.a05
12.	Remarks (if any)	: see Appendix
13.	Place	: Zoetermeer
14.	Date	: 27-JUL-2016
15.	Signature	:



16. The index to the information package lodged with the approval authority, which may be obtained on request, is attached.

17. Reasons for extension : Not applicable

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(1) Strike out what does not apply.

APPENDIX

to type-approval communication form number: E4-10R-053544, Extension number: 00: Correction 01

concerning the type-approval of an ~~electrical~~/electronic sub-assembly [1] under Regulation number 10.

1.	Additional information	: See annex
1.1.	Electrical system rated voltage	: 24 V DC ~~pos./~~neg. ground [1]
1.2.	This ESA can be used on any vehicle type with the following restrictions	: None
1.2.1.	Installation conditions, if any	: n.a.
1.3.	This ESA can be used only on the following vehicle types	: All
1.3.1.	Installation conditions, if any	: See Installation manual, attached
1.4.	The specific test method(s) used and the frequency ranges covered to determine immunity were	: ESA Not Safety related. Tests not applicable
1.5.	Laboratory accredited to ISO 17025 and recognized by the Approval Authority responsible for carrying out the tests	: TÜV Rheinland Nederland B.V.

2. Remarks : Attached to this Type Approval:
1 Application form
1 Annex 2B form
1 Similarity Declaration
1 ISO 900X
2 EMC Testreports
1 Manual
1 Installation Manual
Photos
BOM
Schematic Diagram
PCB Layout

[1] Strike out what does not apply.

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Vehicle Technology Division

THE NETHERLANDS
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E4

COMMUNICATION

Concerning [1]:

- approval granted
- ~~approval extended~~
- ~~approval refused~~
- ~~approval withdrawn~~
- ~~production definitely discontinued~~

of a type of ~~electrical~~/electronic sub-assembly [1] with regard to Regulation number 10.

Approval number: E4*10R05/01*4137*00 **Extension number: --**

1.	Make (trade name of manufacturer)	: Victron Energy B.V.
2.	Type and general commercial description(s)	: Inverter Charger, Model: Quattro 24/8000/200-100/100
3.	Means of identification of type, if marked on the ~~vehicle~~/~~component~~/ separate technical unit [1]	: Typeplate
3.1.	Location of that marking	: Front Panel
4.	Category of vehicle	: All
5.	Name and address of manufacturer	: Victron Energy B.V. De Paal 35 1351 JG Almere The Netherlands
6.	In the case of components and separate technical units, location and method of affixing of the approval mark	: Front of enclosure
7.	Address(es) of assembly plant(s)	:

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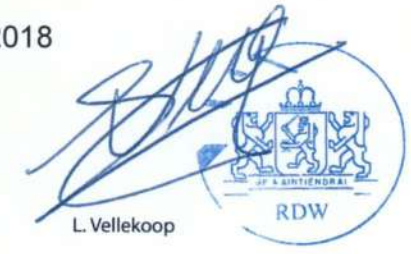
Approval number: E4*10R05/01*4137*00 **Extension number: --**

8.	Additional information (where applicable)	: See Appendix below
9.	Technical service responsible for carrying out the tests	: TÜV Rheinland Nederland B.V.
10.	Date of test report	: June 8, 2018
11.	Number of test report	: 18031603.a01
12.	Remarks (if any)	: see Appendix
13.	Place	: Zoetermeer
14.	Date	: 01-AUG-2018
15.	Signature	:



16. The index to the information package lodged with the approval authority, which may be obtained on request, is attached.

17. Reasons for extension : Not applicable

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(1) Strike out what does not apply.

APPENDIX

to type-approval communication form number: E4*10R05/01*4137*00, Extension number: --

concerning the type-approval of an ~~electrical~~/electronic sub-assembly [1] under Regulation number 10.

1.	Additional information	: -
1.1.	Electrical system rated voltage	: 24 V DC ~~pos./~~neg. ground [1]
1.2.	This ESA can be used on any vehicle type with the following restrictions	: All
1.2.1.	Installation conditions, if any	: Not applicable
1.3.	This ESA can be used only on the following vehicle types	: All
1.3.1.	Installation conditions, if any	: Not applicable
1.4.	The specific test method(s) used and the frequency ranges covered to determine immunity were	: ESA Not Safety Related. Immunity Tests not applicable
1.5.	Laboratory accredited to ISO 17025 and recognized by the Approval Authority responsible for carrying out the tests	: TÜV Rheinland Nederland B.V.
2.	Remarks	: Attached to this Type Approval: 1 Application form 1 Annex 2B form 1 EMC Testreport Owners Manual (Incl. Installation) Drawings/Photos Type plate Stickers Schematic Diagram PCB Layout

[1] Strike out what does not apply.

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Certificate of Suitability

Addendum

Certificate No.: **SAA160334**

Date of Issue: **4 July 2016**

Class Description: Non-Declared
Product Description: Bi-directional AC/DC Converter for use in a battery storage system

Additional Models	Description
Multiplus 24/5000/120-100	Similar to Multiplus 12/3000/120-16 except multiboard design and rated: Input:- AC: 187-250V~ 45-55Hz 50/50A DC: 9.5-17Vdc 250A Output:- AC: 225-235V~ 50Hz 11A DC: 13.2-14.1Vdc 120A
Quattro 12/3000/120-50/30	Similar to Multiplus 12/3000/120-16 except multiboard design and rated: Input:- AC: 187-250V~ 45-55Hz 50/30A DC: 9.5-17Vdc 458A Output:- AC: 225-235V~ 50Hz 11A DC: 13.2-14.1Vdc 120A
Quattro 12/3000/120-50/50	Similar to Multiplus 12/3000/120-16 except multiboard design and rated: Input:- AC: 187-250V~ 45-55Hz 50/50A DC: 9.5-17Vdc 250A Output:- AC: 225-235V~ 50Hz 11A DC: 13.2-14.1Vdc 120A

For and on Behalf of
SAA Approvals Pty Ltd

SAA Approvals Pty Ltd as accredited by JAS-ANZ under ISO/IEC 17065 certifies in accordance with the SAA Approvals Electrical Product Safety Certification Scheme that the product nominated in this certificate complies with standard/s listed.

When using the RCM the requirements of all relevant parts of AS/NZS 4417 applicable to the article must be fulfilled.

JAS-ANZ

SAA Approvals CERTIFIED

APPROVALS®

Certificate of Suitability

Addendum

Certificate No.: **SAA160334**

Date of Issue: **4 July 2016**

Class Description: Non-Declared
Product Description: Bi-directional AC/DC Converter for use in a battery storage system

Additional Models	Description
Quattro 12/5000/220-100/100	Similar to Multiplus 12/3000/120-16 except multiboard design and rated: Input:- AC: 187-250V~ 45-55Hz 100/100A DC: 9.5-17Vdc 458A Output:- AC: 225-235V~ 50Hz 11A DC: 13.2-14.1Vdc 220A
Quattro 24/3000/70-50/30	Similar to Multiplus 12/3000/120-16 except multiboard design and rated: Input:- AC: 187-250V~ 45-55Hz 50/30A DC: 19-33Vdc 125A Output:- AC: 225-235V~ 50Hz 11A DC: 26.4-28.8Vdc 70A
Quattro 24/5000/120-100/100	Similar to Multiplus 12/3000/120-16 except multiboard design and rated: Input:- AC: 187-250V~ 45-55Hz 100/100A DC: 19-33Vdc 239A Output:- AC: 225-235V~ 50Hz 18.5A DC: 26.4-28.8Vdc 120A

For and on Behalf of
SAA Approvals Pty Ltd

SAA Approvals Pty Ltd as accredited by JAS-ANZ under ISO/IEC 17065 certifies in accordance with the SAA Approvals Electrical Product Safety Certification Scheme that the product nominated in this certificate complies with standard/s listed.

When using the RCM the requirements of all relevant parts of AS/NZS 4417 applicable to the article must be fulfilled.

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Certificate of Suitability

Addendum

Certificate No.: **SAA160334**

Date of Issue: **4 July 2016**

Class Description: Non-Declared
Product Description: Bi-directional AC/DC Converter for use in a battery storage system

Additional Models	Description
Quattro 24/8000/200-100/100	Similar to Multiplus 12/3000/120-16 except multiboard design and rated: Input:- AC: 187-250V~ 45-55Hz 100/100A DC: 19-33Vdc 381A Output:- AC: 225-235V~ 50Hz 29.5A DC: 26.4-28.8Vdc 200A
Multiplus 48/5000/70-50	Similar to Multiplus 12/3000/120-16 except multiboard design and rated: Input:- AC: 187-250V~ 45-55Hz 50A DC: 38-66Vdc 118A Output:- AC: 225-235V~ 50Hz 18.5A DC: 52.8-57.6Vdc 70A
Multiplus 48/5000/70-100	Similar to Multiplus 12/3000/120-16 except multiboard design and rated: Input:- AC: 187-250V~ 45-55Hz 100A DC: 38-66Vdc 118A Output:- AC: 225-235V~ 50Hz 18.5A DC: 52.8-57.6Vdc 70A

For and on Behalf of
SAA Approvals Pty Ltd

SAA Approvals Pty Ltd as accredited by JAS-ANZ under ISO/IEC 17065 certifies in accordance with the SAA Approvals Electrical Product Safety Certification Scheme that the product nominated in this certificate complies with standard/s listed.

When using the RCM the requirements of all relevant parts of AS/NZS 4417 applicable to the article must be fulfilled.

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Certificate of Suitability

Addendum

Certificate No.: **SAA160334**

Date of Issue: **4 July 2016**

Class Description: Non-Declared
Product Description: Bi-directional AC/DC Converter for use in a battery storage system

Additional Models	Description
Quattro 48/5000/70-100/100	Similar to Multiplus 12/3000/120-16 except multiboard design and rated: Input:- AC: 187-250V~ 45-55Hz 100/100A DC: 38-66Vdc 118A Output:- AC: 225-235V~ 50Hz 18.5A DC: 52.8-57.6Vdc 70A
Quattro 48/5000/70-100/100-S	Similar to Multiplus 12/3000/120-16 except multiboard design and rated: Input:- AC: 187-250V~ 45-55Hz 100/100A DC: 38-66Vdc 118A Output:- AC: 225-235V~ 50Hz 18.5A DC: 52.8-57.6Vdc 70A
Quattro 48/8000/110-100/100	Similar to Multiplus 12/3000/120-16 except multiboard design and rated: Input:- AC: 187-250V~ 45-55Hz 100/100A DC: 38-66Vdc 188A Output:- AC: 225-235V~ 50Hz 28.5A DC: 52.8-57.6Vdc 110A

For and on Behalf of
SAA Approvals Pty Ltd

SAA Approvals Pty Ltd as accredited by JAS-ANZ under ISO/IEC 17065 certifies in accordance with the SAA Approvals Electrical Product Safety Certification Scheme that the product nominated in this certificate complies with standard/s listed.

When using the RCM the requirements of all relevant parts of AS/NZS 4417 applicable to the article must be fulfilled.

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Certificate of Suitability

Addendum

Certificate No.: **SAA160334**

Date of Issue: **4 July 2016**

Class Description: Non-Declared
Product Description: Bi-directional AC/DC Converter for use in a battery storage system

Additional Models	Description
Quattro 48/10000/140-100/100	Similar to Multiplus 12/3000/120-16 except multiboard design and rated: Input:- AC: 187-250V~ 45-55Hz 100/100A DC: 38-66Vdc 235A Output:- AC: 225-235V~ 50Hz 37.0A DC: 52.8-57.6Vdc 140A

For and on Behalf of
SAA Approvals Pty Ltd

SAA Approvals Pty Ltd as accredited by JAS-ANZ under ISO/IEC 17065 certifies in accordance with the SAA Approvals Electrical Product Safety Certification Scheme that the product nominated in this certificate complies with standard/s listed.

When using the RCM the requirements of all relevant parts of AS/NZS 4417 applicable to the article must be fulfilled.

JAS-ANZ

SAA Approvals
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APPROVALS®

Certificate of Suitability

Addendum

Certificate No.: **SAA160334**

Date of Issue: **2 August 2018**

Class Description: Non-Declared
Product Description: Bi-directional AC/DC Converter for use in a battery storage system

Additional Models	Description
Quattro 48/15000/200-100/100	Similar to Multiplus 12/3000/120-16 except for additional BF relay, output relay, capacitors and rated: Input:- AC: 187-250V~ 45-55Hz 100/100A DC: 38-66Vdc, 350A Output:- AC: 225-235V~ 50Hz 53A DC: 52.8-57.6Vdc 200A

For and on Behalf of
SAA Approvals Pty Ltd

SAA Approvals Pty Ltd as accredited by JAS-ANZ under ISO/IEC 17065 certifies in accordance with the SAA Approvals Electrical Product Safety Certification Scheme that the product nominated in this certificate complies with standard/s listed.

When using the RCM the requirements of all relevant parts of AS/NZS 4417 applicable to the article must be fulfilled.

JAS-ANZ

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Certificate

Applicant: **Victron Energy B.V.**

Product: **Inverter with integrated automatic disconnection device between a generator and the public low-voltage grid**

Model:	**Multiplus**			
	12/3000/120-16	**12/3000/120-50**	**24/3000/70-16**	**24/3000/70-50**
	48/3000/35-16		**48/3000/35-50**	
Rating:	2,4kW; 3,0kVA			
Model:	**Multiplus**		**Quattro**	
	24/5000/120-100		**24/5000/120-100/100**	
	48/5000/70-50	**48/5000/70-100**	**48/5000/70-100/100**	**48/5000/70-100/100-S**
Rating:	4,5kW; 5,0kVA			
Model:	**Quattro**			
	48/8000/110-100/100	**48/10000/140-100/100**	**48/15000/200-100/100**	
Rating:	6,4kW; 8,0kVA	8,0kW; 10,0kVA	12,0kW; 15,0kVA	

Intended use:

An automatic disconnection device with single-phase mains surveillance in accordance with Engineering Recommendation G59/3 for generators with a single-phase parallel coupling via an inverter to the public mains supply. The automatic disconnection device is an integral part of the aforementioned inverter.

Applied standards and guidelines:

Engineering Recommendation G59/3-1
Issue 3, Amendment 1 – August 2014
Recommendations for the connection of generating plant to the distribution systems of licensed distribution network operators

The safety concept of an aforementioned representative product corresponds at the time of issue of this certificate to the valid safety specifications for the specified use in accordance with regulations.
The above mentioned inverters are also in compliance with the standard, if installed in parallel and three-phase configurations up to 16A per phase. For configurations above 16A per phase the DNO must be consulted.

Report No: 15PP007-02

Certificate No: 15-128-04

Date of issue: 2018-02-06

DAkkS Deutsche Akkreditierungsstelle D-ZE-12089-01-00

Andreas Aufmuth
Certification Department

CERTIFICATION primara Test- und Zertifizier-GmbH Grid Code Compliance G59/3

Power Quality. Harmonics.

Generating Unit tested to BS EN 61000-3-12

Quattro 48/15000/200-100/100

Generating Unit rating per phase (rpp)			10	kVA	Harmonics % =Measured Value (Amps) x 23/rating per phase (kVA)	
Harmonic	At 45-55% of rated output		100% of rated output		Limit in BS EN 61000-3-12	
	Measured Value (MV) in Amps	%	Measured Value (MV) in Amps	%	1 phase	3 phase
2	0,33	0,172	0,261	0,115	8%	8%
3	4,98	2,598	1,137	0,501	21,6%	Not stated
4	0,12	0,063	0,115	0,051	4%	4%
5	0,5	0,261	0,569	0,251	10,7%	10,7%
6	0,15	0,078	0,110	0,048	2,67%	2,67%
7	1	0,522	0,313	0,138	7,2%	7,2%
8	0,22	0,115	0,151	0,067	2%	2%
9	0,5	0,261	0,209	0,092	3,8%	Not stated
10	0,13	0,068	0,073	0,032	1,6%	1,6%
11	0,15	0,078	0,110	0,048	3,1%	3,1%
12	0,05	0,026	0,026	0,012	1,33%	1,33%
13	0,62	0,323	0,083	0,037	2%	2%
THD	-	5,781	-	5,270	23%	13%
PWHD	-	3,293	-	2,481	23%	22%

Quattro 48/10000/140-100/100

Generating Unit rating per phase (rpp)			10	kVA	Harmonics % =Measured Value (Amps) x 23/rating per phase (kVA)	
Harmonic	At 45-55% of rated output		100% of rated output		Limit in BS EN 61000-3-12	
	Measured Value (MV) in Amps	%	Measured Value (MV) in Amps	%	1 phase	3 phase
2	0,31	0,70	0,33	0,76	8%	8%
3	1,88	4,32	2,74	6,30	21,6%	Not stated
4	0,13	0,30	0,13	0,30	4%	4%
5	0,45	1,03	0,51	1,18	10,7%	10,7%
6	0,13	0,30	0,11	0,26	2,67%	2,67%
7	0,22	0,50	0,30	0,69	7,2%	7,2%
8	0,11	0,26	0,11	0,26	2%	2%
9	0,12	0,28	0,16	0,38	3,8%	Not stated
10	0,06	0,13	0,07	0,15	1,6%	1,6%
11	0,05	0,11	0,11	0,26	3,1%	3,1%
12	0,03	0,07	0,03	0,07	1,33%	1,33%
13	0,05	0,10	0,08	0,18	2%	2%
THD	-	11,96	-	8,68	23%	13%
PWHD	-	3,20	-	1,96	23%	22%

Multiplus 24/5000/120-100						
Generating Unit rating per phase (rpp)			5	kVA	Harmonics % =Measured Value (Amps) x 23/rating per phase (kVA)	
Harmonic	At 45-55% of rated output		100% of rated output		Limit in BS EN 61000-3-12	
	Measured Value (MV) in Amps	%	Measured Value (MV) in Amps	%	1 phase	3 phase
2	0,04	0,22	0,11	0,54	8%	8%
3	0,86	4,41	1,81	9,23	21,6%	Not stated
4	0,01	0,07	0,05	0,27	4%	4%
5	0,51	2,61	0,20	1,02	10,7%	10,7%
6	0,01	0,07	0,04	0,21	2,67%	2,67%
7	0,06	0,29	0,18	0,92	7,2%	7,2%
8	0,03	0,13	0,07	0,35	2%	2%
9	0,07	0,36	0,12	0,63	3,8%	Not stated
10	0,02	0,08	0,03	0,17	1,6%	1,6%
11	0,03	0,16	0,07	0,37	3,1%	3,1%
12	0,01	0,03	0,01	0,05	1,33%	1,33%
13	0,05	0,26	0,05	0,26	2%	2%
THD	-	10,38	-	9,58	23%	13%
PWHD	-	3,28	-	2,43	23%	22%

Generating Unit tested to BS EN 61000-3-2				
Multiplus 24/3000/70-50				
Generating Unit rating per phase (rpp)		2,4	kW	
Harmonic	At 45-55% of rated output	100% of rated output		
	Measured Value (MV) in Amps	Measured Value (MV) in Amps	Limit in BS EN 61000-3-2 in Amps	Higher limit for odd harmonics 21 and above
2	0,04	0,05	1,080	
3	0,58	0,52	2,300	
4	0,03	0,03	0,430	
5	0,17	0,16	1,140	
6	0,02	0,02	0,300	
7	0,08	0,05	0,770	
8	0,02	0,02	0,230	
9	0,05	0,05	0,400	
10	0,01	0,02	0,184	
11	0,03	0,04	0,330	
12	0,00	0,00	0,153	
13	0,02	0,03	0,210	
14	0,00	0,00	0,131	
15	0,01	0,03	0,150	
16	0,00	0,00	0,115	
17	0,00	0,02	0,132	
18	0,00	0,00	0,102	
19	0,01	0,01	0,118	
20	0,00	0,00	0,092	
21	0,01	0,01	0,107	0,160
22	0,00	0,00	0,084	
23	0,01	0,02	0,098	0,147
24	0,00	0,00	0,077	
25	0,01	0,01	0,090	0,135
26	0,00	0,00	0,071	
27	0,00	0,01	0,083	0,124
28	0,00	0,00	0,066	
29	0,00	0,01	0,078	0,117
30	0,00	0,00	0,061	
31	0,01	0,00	0,073	0,109
32	0,00	0,00	0,058	
33	0,01	0,00	0,068	0,102
34	0,00	0,00	0,054	
35	0,00	0,00	0,064	0,096
36	0,00	0,00	0,051	
37	0,00	0,00	0,061	0,091
38	0,00	0,00	0,048	
39	0,00	0,01	0,058	0,087
40	0,00	0,00	0,046	

Power Quality. Voltage fluctuations and flicker

Quattro 48/15000/200-100/100

	Starting			Stopping from full load			Running	
	d_{max}	d_c	$d_{(t)}$	d_{max}	d_c	$d_{(t)}$	P_{st}	P_{lt} 2 hours
Measured Values at test impedance	-1,87	-1,05	0	1,30	1,23	0	0,40	0,40
Normalised to standard impedance	-15,86	-8,88	0	11,07	10,41	0	3,38	3,37
Normalised to required maximum impedance	-1,34	-0,75	0	0,94	0,88	0	0,29	0,29
Limits set under BS EN 61000-3-11	4%	3,3%	3,3%	4%	3,3%	3,3%	1,0	0,65

Quattro 48/10000/140-100/100

	Starting			Stopping from full load			Running	
	d_{max}	d_c	$d_{(t)}$	d_{max}	d_c	$d_{(t)}$	P_{st}	P_{lt} 2 hours
Measured Values at test impedance	6,12	5,91	0	6,10	5,90	0	1,37	1,35
Normalised to standard impedance	6,12	5,91	0	6,10	5,90	0	1,37	1,35
Normalised to required maximum impedance	2,04	1,97	0	2,04	1,97	0	0,46	0,45
Limits set under BS EN 61000-3-11	4%	3,3%	3,3%	4%	3,3%	3,3%	1,0	0,65

Multiplus 24/5000/120-100

	Starting			Stopping from full load			Running	
	d_{max}	d_c	$d_{(t)}$	d_{max}	d_c	$d_{(t)}$	P_{st}	P_{lt} 2 hours
Measured Values at test impedance	-2,79	-2,70	0	3,98	3,83***	0	0,58	0,50
Normalised to standard impedance	-2,79	-2,70	0	3,98	3,83***	0	0,58	0,50
Normalised to required maximum impedance	-2,40	-2,33	0	3,43	3,30	0	0,50	0,43
Limits set under BS EN 61000-3-11	4%	3,3%	3,3%	4%	3,3%	3,3%	1,0	0,65

Multiplus 24/3000/70-50								
	Starting			Stopping from full load			Running	
	d_{max}	d_c	$d_{(t)}$	d_{max}	d_c	$d_{(t)}$	P_{st}	P_{lt} 2 hours
Measured Values at test impedance	0,311	0,150	0,311	1,509	0,036	1,509	0,018	0,018
Normalised to standard impedance	0,311	0,150	0,311	1,509	0,036	1,509	0,018	0,018
Normalised to required maximum impedance	N/A							
Limits set under BS EN 61000-3-11	4%	3,3%	3,3%	4%	3,3%	3,3%	1,0	0,65

Test impedance	R	0,24	Ω	XI	0,15	Ω
Standard impedance	R	0,24* 0,4**	Ω	XI	0,15* 0,25**	Ω
Maximum impedance	R	N/A	Ω	XI	N/A	Ω

*Applies to three phase and split single phase generating units
**Applies to single phase generating units and generating units using two phases on a three phase system.
***The dc is above the limit since the current goes through the normalized impedance. The required maximum supply impedance is 0,35Ω

Power Quality. Power factor.

	216,2V	230V	253V	Measured at three voltage levels and at full output. Voltage to be maintained within + or – 1,5% of the stated level during test.
Measured Value	0,997	0,998	0,995	
Limit	>0,95	>0,95	>0,95	

Protection. Frequency tests

Function	Setting		Trip test		"No trip tests"	
	Frequency	Time delay	Frequency	Time delay	Frequency / time	Confirm no trip
U/F stage 1	47,5Hz	20,0s	47,50Hz	20,20s	47,7Hz 25s	No trip
U/F stage 2	47,0Hz	0,5s	47,00Hz	0,610s	47,2Hz 19,98s	No trip
					46,8Hz 0,48s	No trip
O/F stage 1	51,5Hz	90,0s	51,53Hz	90,20s	51,3Hz 95s	No trip
O/F stage 2	52,0Hz	0,5s	52,03Hz	0,595s	51,8Hz 89,98s	No trip
					52,2Hz 0,48s	No trip

Protection. Voltage tests

Function	Setting		Trip test		"No trip tests"	
	Voltage	Time delay	Voltage	Time delay	Voltage / time	Confirm no trip
U/V stage 1	200,1V	2,5s	200,1V	2,555s	204,1V 3,5s	No trip
U/V stage 2	184,0V	0,5s	184,0V	0,574s	188,0V 2,48s	No trip
					180,0V 0,48s	No trip
O/V stage 1	262,2V	1,0s	262,3V	1,080s	258,2V 2,0s	No trip
O/V stage 2	273,7V	0,5s	273,8V	0,600	269,7V 0,98s	No trip
					277,7V 0,48s	No trip

a) Protection. Loss of Mains test and single phase test

Note as an alternative, inverters can be tested to BS EN 62116. The following sub set of tests should be recorded in the following table.

Test power and imbalance	33% P -5% Q	66% P -5% Q	100% P -5% Q	33% P +5% Q	66% P +5% Q	100% P +5% Q
Trip time. Limit is 0.5s	102ms	152ms	142ms	144ms	216ms	178ms

Single phase test for multi phase **Generating Units**. Confirm that when generating in parallel with a network operating at around 50Hz with no network disturbance, that the removal of a single phase connection to the **Generating Unit**, with the remaining phases connected causes a disconnection of the generating unit within a maximum of 1s.

Ph 1 removed	Confirm trip	Ph 2 removed	Confirm trip	Ph 3 removed	Confirm trip

b) Protection. Frequency change, Stability test.

	Start frequnecy	Change	End frequency	Confirm no trip
Positive vector shift	49,5Hz	+9 dregrees		No trip
Negative vector shift	50,5Hz	-9 dregrees		No trip
Positive frequency drift	49,5Hz	+0,19Hz/sec	51,5Hz	No trip
Negative frequency drift	50,5Hz	-0,19Hz/sec	47,5Hz	No trip

c) Protection. Re-connection timer.

Time delay settings (s)	Measured delay (s)	Checks on no reconnection when voltage or frequency is brought to just outside stage 1 limits of table 10.5.7.1			
20s	22,7s	At 266,2V	At 196,1V	At 47,4Hz	At 51,6Hz
Confirmation that the **Generating Unit** does not re-connect		No re-connection	No re-connection	No re-connection	No re-connection

d) Faul Level contribution.

For machines with electro-magnetic output			For inverter output		
Parameter	Symbol	Value	Time after fault	Volts	Amps
Peak Short Circuit current	i_p	-	20ms	46,07 V	8,69 A
Initial Value of aperiodic current	A	-	100ms	27,48 V	0,02 A
Initial symmetrical short-circuit current	I_K	-	250ms	27,43 V	0,02 A
Decaying (aperiodic) component of short-circuit current	i_{DC}	-	500ms	27,41 V	0,02 A
Reactance/Resistance Ratio of source	X/R	-	Time to trip	31,27 ms	In seconds

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Declaration of Conformity

Applicant: **Victron Energy B.V.**

Product type: **Inverter with integrated automatic disconnection device**

Model:	**Multiplus**			
	12/3000/120-16	**12/3000/120-50**	**24/3000/70-16**	**24/3000/70-50**
	48/3000/35-16		**48/3000/35-50**	
Rating:	2,4kW; 3,0kVA			
Model:	**Multiplus**		**Quattro**	
	24/5000/120-100		**24/5000/120-100/100**	
	48/5000/70-50	**48/5000/70-100**	**48/5000/70-100/100**	**48/5000/70-100/100-S**
Rating:	4,5kW; 5,0kVA			
Model:	**Quattro**			
	48/8000/110-100/100	**48/10000/140-100/100**	**48/15000/200-100/100**	
Rating:	6,4kW; 8,0kVA	8,0kW; 10,0kVA	12,0kW; 15kVA	

A representative test sample of above stated model passed the tests according to:

Standard: IEC 62116:2014

Report no: 15PP007-05

Certificate no: 17-218-00

Date of issue: 2017-06-16

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Declaration of Conformity

Applicant: Victron Energy B.V.

Product type: Bidirectional Battery Inverter

Models *(Technical Data on page 2)*

Multiplus 12/3000/120-16
Multiplus 12/3000/120-50
Multiplus 24/3000/70-16
Multiplus 24/3000/70-50
Multiplus 24/5000/120-50
Multiplus 24/5000/120-100
Quattro 12/3000/120-50/30
Quattro 12/3000/120-50/50
Quattro 12/5000/220-100/100
Quattro 24/3000/70-50/30
Quattro 24/5000/120-100/100
Quattro 24/8000/200-100/100
Multiplus 48/3000/35-16
Multiplus 48/3000/35-50
Multiplus 48/5000/70-50
Multiplus 48/5000/70-100
Ouattro 48/5000/70-100/100
Ouattro 48/5000/70-100/100-S
Quattro 48/8000/110-100/100
Quattro 48/10000/140-100/100
Quattro 48/15000/200-100/100

representatives test samples of above stated models passed the tests according to:

Standard: IEC 62109-1:2010
EN 62109-1:2010
IEC 60335-2-29 (fourth Edition) +A1:2004 +A2:2009 for use in conjunction with IEC 60335-1:2010 (fifth Edition) +A1:2013
EN 60335-2-29:2004 + A2:2009 with EN 60335 1:2012 + A11:2014~

Report no: 15PP007-03, 15PP007-05

Certificate no: 16-012-03

Date of issue: 2017-10-13

Raphael Rader

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Technical Data

Model name	DC IN	AC OUT	AC IN	DC OUT	Apparent nominal output power (**Sn**)	Active nominal output power (**Pn**)
Multiplus 12/3000/120-16	9,5-17V; 250A	225-235V; 11A; 50Hz	187-250V; 16A; 45-55Hz	13,2-14,1V; 120A	3KVA	2,4kW
Multiplus 12/3000/120-50	9,5-17V; 250A	225-235V; 11A; 50Hz	187-250V; 50A; 45-55Hz	13,2-14,1V; 120A		
Multiplus 24/3000/70-16	19-33V; 125A	225-235V; 11A; 50Hz	187-250V; 16A; 45-55Hz	26,4-28,8V; 70A		
Multiplus 24/3000/70-50	19-33V; 125A	225-235V; 11A; 50Hz	187-250V; 50A; 45-55Hz	26,4-28,8V; 70A		
Multiplus 24/5000/120-50	9,5-17V; 250A	225-235V; 11A; 50Hz	187-250V; 50/30A; 45-55Hz	13,2-14,1V; 120A	5kVA	4,5kW
Multiplus 24/5000/120-100	9,5-17V; 250A	225-235V; 11A; 50Hz	187-250V; 50/50A; 45-55Hz	13,2-14,1V; 120A	5kVA	4,5kW
Quattro 12/3000/120-50/30	9,5-17V; 458A	225-235V; 11A; 50Hz	187-250V; 50/30A; 45-55Hz	13,2-14,1V; 120A	3kVA	2,4kW
Quattro 12/3000/120-50/50	9,5-17V; 250A	225-235V; 11A; 50Hz	187-250V; 50/50A; 45-55Hz	13,2-14,1V; 120A	3kVA	2,4kW
Quattro 12/5000/220-100/100	9,5-17V; 458A	225-235V; 11A; 50Hz	187-250V; 100/100A; 45-55Hz	13,2-14,1V; 220A	5kVA	4,5kW
Quattro 24/3000/70-50/30	19-33V; 125A	225-235V; 11A; 50Hz	187-250V; 50/30A; 45-55Hz	26,4-28,8V; 70A	3kVA	2,4kW
Quattro 24/5000/120-100/100	19-33V; 239A	225-235V; 18,5A; 50Hz	187-250V; 100/100A; 45-55Hz	26,4-28,8V; 120A	5kVA	4,5kW
Quattro 24/8000/200-100/100	19-33V; 381A	225-235V; 29,5A; 50Hz	187-250V; 100/100A; 45-55Hz	26,4-28,8V; 200A	8kVA	6,4kW
Multiplus 48/3000/35-16	38-66V; 65A	225-235V; 11A; 50Hz	187-250V; 16A; 45-55Hz	52,8-57,6V; 35A	3kVA	2,4kW
Multiplus 48/3000/35-50	38-66V; 65A	225-235V; 11A; 50Hz	187-250V; 50A; 45-55Hz	52,8-57,6V; 35A	3kVA	2,4kW
Multiplus 48/5000/70-50	38-66V; 118A	225-235V; 18,5A; 50Hz	187-250V; 50A; 45-55Hz	52,8-57,6V; 70A	5kVA	4,5kW
Multiplus 48/5000/70-100	38-66V; 118A	225-235V; 18,5A; 50Hz	187-250V; 100A; 45-55Hz	52,8-57,6V; 70A	5kVA	4,5kW
Ouattro 48/5000/70-100/100	38-66V; 118A	225-235V; 18,5A; 50Hz	187-250V; 100/100A; 45-55Hz	52,8-57,6V; 70A	5kVA	4,5kW
Ouattro 48/5000/70-100/100-S	38-66V; 118A	225-235V; 18,5A; 50Hz	187-250V; 100/100A; 45-55Hz	52,8-57,6V; 70A	5kVA	4,5kW
Quattro 48/8000/110-100/100	38-66V; 188A	225-235V; 28,5A; 50Hz	187-250V; 100/100A; 45-55Hz	52,8-57,6V; 110A	8KVA	6,4kW
Quattro 48/10000/140-100/100	38-66V; 235A	225-235V; 37,0A; 50Hz	187-250V; 100/100A; 45-55Hz	52,8-57,6V; 140A	10kVA	8kW
Quattro 48/15000/200-100/100	38-66V, 350A	225-235V; 53.0A; 50Hz	187-250V; 100/100A, 45-55Hz	52,8-57,6V,200A	15kVA	12kW

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Declaration of Conformity

Applicant: Victron Energy B.V.

Product type: Bidirectional Battery Inverter

Models *(Technical Data on page 2)*

Multiplus 12/3000/120-16
Multiplus 12/3000/120-50
Multiplus 24/3000/70-16
Multiplus 24/3000/70-50
Multiplus 24/5000/120-50
Multiplus 24/5000/120-100
Quattro 12/3000/120-50/30
Quattro 12/3000/120-50/50
Quattro 12/5000/220-100/100
Quattro 24/3000/70-50/30
Quattro 24/5000/120-100/100
Quattro 24/8000/200-100/100
Multiplus 48/3000/35-16
Multiplus 48/3000/35-50
Multiplus 48/5000/70-50
Multiplus 48/5000/70-100
Ouattro 48/5000/70-100/100
Ouattro 48/5000/70-100/100-S
Quattro 48/8000/110-100/100
Quattro 48/10000/140-100/100
Quattro 48/15000/200-100/100

representatives test samples of above stated models passed the tests according to:

Standard: IEC 62109-1:2010
EN 62109-1:2010
IEC 60335-2-29 (fourth Edition) +A1:2004 +A2:2009 for use in conjunction with IEC 60335-1:2010 (fifth Edition) +A1:2013
EN 60335-2-29:2004 + A2:2009 with EN 60335 1:2012 + A11:2014~

Report no: 15PP007-03, 15PP007-05

Certificate no: 16-012-03

Date of issue: 2017-10-13

Raphael Rader

primara
Test- und Zertifizier-GmbH

Technical Data

Model name	DC IN	AC OUT	AC IN	DC OUT	Apparent nominal output power (**Sn**)	Active nominal output power (**Pn**)
Multiplus 12/3000/120-16	9,5-17V; 250A	225-235V; 11A; 50Hz	187-250V; 16A; 45-55Hz	13,2-14,1V; 120A	3KVA	2,4kW
Multiplus 12/3000/120-50	9,5-17V; 250A	225-235V; 11A; 50Hz	187-250V; 50A; 45-55Hz	13,2-14,1V; 120A		
Multiplus 24/3000/70-16	19-33V; 125A	225-235V; 11A; 50Hz	187-250V; 16A; 45-55Hz	26,4-28,8V; 70A		
Multiplus 24/3000/70-50	19-33V; 125A	225-235V; 11A; 50Hz	187-250V; 50A; 45-55Hz	26,4-28,8V; 70A		
Multiplus 24/5000/120-50	9,5-17V; 250A	225-235V; 11A; 50Hz	187-250V; 50/30A; 45-55Hz	13,2-14,1V; 120A	5kVA	4,5kW
Multiplus 24/5000/120-100	9,5-17V; 250A	225-235V; 11A; 50Hz	187-250V; 50/50A; 45-55Hz	13,2-14,1V; 120A	5kVA	4,5kW
Quattro 12/3000/120-50/30	9,5-17V; 458A	225-235V; 11A; 50Hz	187-250V; 50/30A; 45-55Hz	13,2-14,1V; 120A	3kVA	2,4kW
Quattro 12/3000/120-50/50	9,5-17V; 250A	225-235V; 11A; 50Hz	187-250V; 50/50A; 45-55Hz	13,2-14,1V; 120A	3kVA	2,4kW
Quattro 12/5000/220-100/100	9,5-17V; 458A	225-235V; 11A; 50Hz	187-250V; 100/100A; 45-55Hz	13,2-14,1V; 220A	5kVA	4,5kW
Quattro 24/3000/70-50/30	19-33V; 125A	225-235V; 11A; 50Hz	187-250V; 50/30A; 45-55Hz	26,4-28,8V; 70A	3kVA	2,4kW
Quattro 24/5000/120-100/100	19-33V; 239A	225-235V; 18,5A; 50Hz	187-250V; 100/100A; 45-55Hz	26,4-28,8V; 120A	5kVA	4,5kW
Quattro 24/8000/200-100/100	19-33V; 381A	225-235V; 29,5A; 50Hz	187-250V; 100/100A; 45-55Hz	26,4-28,8V; 200A	8kVA	6,4kW
Multiplus 48/3000/35-16	38-66V; 65A	225-235V; 11A; 50Hz	187-250V; 16A; 45-55Hz	52,8-57,6V; 35A	3kVA	2,4kW
Multiplus 48/3000/35-50	38-66V; 65A	225-235V; 11A; 50Hz	187-250V; 50A; 45-55Hz	52,8-57,6V; 35A	3kVA	2,4kW
Multiplus 48/5000/70-50	38-66V; 118A	225-235V; 18,5A; 50Hz	187-250V; 50A; 45-55Hz	52,8-57,6V; 70A	5kVA	4,5kW
Multiplus 48/5000/70-100	38-66V; 118A	225-235V; 18,5A; 50Hz	187-250V; 100A; 45-55Hz	52,8-57,6V; 70A	5kVA	4,5kW
Ouattro 48/5000/70-100/100	38-66V; 118A	225-235V; 18,5A; 50Hz	187-250V; 100/100A; 45-55Hz	52,8-57,6V; 70A	5kVA	4,5kW
Ouattro 48/5000/70-100/100-S	38-66V; 118A	225-235V; 18,5A; 50Hz	187-250V; 100/100A; 45-55Hz	52,8-57,6V; 70A	5kVA	4,5kW
Quattro 48/8000/110-100/100	38-66V; 188A	225-235V; 28,5A; 50Hz	187-250V; 100/100A; 45-55Hz	52,8-57,6V; 110A	8KVA	6,4kW
Quattro 48/10000/140-100/100	38-66V; 235A	225-235V; 37,0A; 50Hz	187-250V; 100/100A; 45-55Hz	52,8-57,6V; 140A	10kVA	8kW
Quattro 48/15000/200-100/100	38-66V, 350A	225-235V; 53.0A; 50Hz	187-250V; 100/100A, 45-55Hz	52,8-57,6V,200A	15kVA	12kW

RUSSIAN
RIVER REGISTER

RECOGNITION CERTIFICATE

№ 09572

This is to certify that Russian River Register recognizes **Victron Energy B.V., The Netherlands** being capable of performing in accordance with the Russian River Register Rules:

-designing, manufacturing, installation, service and repair of inverters, converters, transformers, battery charges and inverters / chargers in accordance with documentation approved by Russian River Register.

Form of technical supervision — technical supervision by technical staff of organization on the basis of agreement or contract between organization and Russian River Register

Commencement date 26 August 2013 .

Expiry date 25 August 2015 .

Moscow Branch Office of
Russian River Register
(должность / position)

(signature)

М.П.
L.S.

09 0089909

Форма РР—11.1.2
Form RR—11.1.2

RUSSIAN RIVER REGISTER

for product

Name: Inverters, converters, transformers

Manufacturer: Victron Energy

Technical documentation is approved by Ref. No. МФ-22-1130 of 26.06.2013

Victron Energy
Specifications ТУ ЮВ-001-13 Victron Energy electrical equipment

Techniques of tests ПМИ ТУ ЮВ-001-13

The prototype model is tested and surveyed according to the program approved by Russian River Register.

On the basis of checks and test results this is to certify that the structure, properties, parameters and characteristics of type product meet the requirements of Russian River Register Rules.

Application and limitations:

As electrical equipment intended for installation on vessels with a class of the Russian River Register

This Certificate is valid since till 08.07.2018

№
No 09-11.1-4.3-0179

М.П. / L.S.

Director of Moscow Branch Office of Russian River Register — S. Presnov

position) signature) o. / name)

09 0089941

Technical data:

Type	/Power W	A/Current A	B./Voltage V	Гц./Frequency Hz	Protection
Isolation transformer / Isolation transformer	2000 - 3600Вт		115/230	50	IP21
Isolation transformer / Isolation transformer	7000Вт		230/230	50	IP21
Phoenix inverter / Phoenix inverter	180-5000ВА		12;24;48;96/230	50	IP20
Orion DC/DC convertor / Orion DC/DC convertor		5 - 70	18-35; 9-18/12; 24	-	IP20

This Type Approval Certificate does not substitute a Certificate or similar document of Russian River Register issued for a specific product.

This Type Approval Certificate becomes invalid in cases stipulated by Russian River Register Rules.

RUSSIAN RIVER REGISTER

Form RR—11.1.2

TYPE APPROVAL CERTIFICATE
for product

Name: Battery charges

Manufacturer: Victron Energy

Technical documentation is approved by Ref. No. МФ-22-1130 of 26.06.2013

Victron Energy
Specifications ТУ ЮВ-001-13 Victron Energy electrical equipment

Techniques of tests ПМИ ТУ ЮВ-001-13

The prototype model is tested and surveyed according to the program approved by Russian River Register.

On the basis of checks and test results this is to certify that the structure, properties, parameters and characteristics of type product meet the requirements of Russian River Register Rules.

Application and limitations:

As electrical equipment intended for installation on vessels with a class of the Russian River Register

This Certificate is valid since till 08.07.2018

№
No 09-11.1-4.3-0180

М.П. / L.S.

Director of Moscow Branch Office of Russian River Register — S. Presnov

(position) (signature) (s. / name)

09 0089942

Technical data:

Type	B./Power V	A/Current A	Frequency Hz	Protection
Blue Power battery charger / Blue Power battery charger	180-265/12-24	7-25	50	IP20
Blue Power battery charger / Blue Power battery charger	230/12-24	7-25	50	IP65
Centaur charger / Centaur charger	90-265/12-24	20-200	50	IP20
Phoenix battery charger / Phoenix battery charger	90-265/12-24	16-50	50	IP20
Skylla-i battery charger / Skylla-i battery charger	230/12-24	80-100	50	IP21
Skylla-TG battery charger / Skylla-TG battery charger	90-265/12-24	30-100	50	IP21
Skylla-TG battery charger / Skylla-TG battery charger	400/24	50-100	50	IP21

This Type Approval Certificate does not substitute a Certificate or similar document of Russian River Register issued for a specific product.

This Type Approval Certificate becomes invalid in cases stipulated by Russian River Register Rules.

RUSSIAN RIVER REGISTER

Form RR—11.1.2

TYPE APPROVAL CERTIFICATE
for product

Name: Inverter/ chargers

Manufacturer: Victron Energy

Technical documentation is approved by Ref. No. МФ-22-1130 of 26.06.2013

Victron Energy
Specifications ТУ ЮВ-001-13 Victron Energy electrical equipment

Techniques of tests ПМИ ТУ ЮВ-001-13

The prototype model is tested and surveyed according to the program approved by Russian River Register.

On the basis of checks and test results this is to certify that the structure, properties, parameters and characteristics of type product meet the requirements of Russian River Register Rules.

Application and limitations:

As electrical equipment intended for installation on vessels with a class of the Russian River Register

This Certificate is valid since till 08.07.2018

No 09-11.1-4.3-0181

М.П. / L.S.

Director of Moscow Branch Office of Russian River Register — S. Presnov

(position) (signature) (s. / name)

09 0089943

Technical data:

Type	B./Voltage V	/Power VA	Frequency Hz	Protection
MultiPlus inverter/charger / MultiPlus inverter/charger	12;24;48/187-265	800/5000	50	IP21
Quattro inverter/charger /Quattro inverter/charger	12;24;48/187-265	3000-10000	50	IP21

This Type Approval Certificate does not substitute a Certificate or similar document of Russian River Register issued for a specific product.

This Type Approval Certificate becomes invalid in cases stipulated by Russian River Register Rules.

Form RR—11.4.2

RUSSIAN RIVER REGISTER

CERTIFICATE OF TYPE APPROVAL

Name: Inverters, converters, transformers

Manufacturer:

Technical documentation is approved by Ref. No. МФ-22-1130 of 26.06.2013

Victron Energy
Specifications ТУ ЮВ-001-13 Victron Energy electrical equipment

Techniques of tests ПМИ ТУ ЮВ-001-13

The model is tested and surveyed according to the program approved by Russian River Register.

On the basis of checks and test results this is to certify that the structure, properties, parameters and characteristics of the type product meet the requirements of the Technical regulations on the safety of inland water transport objects.

Application and limitations:

As electrical equipment intended for installation on vessels with a class of the Russian River Register

This Certificate is valid since 08.07.2013

№
No. 09-11.4-4.3-0179

M.P. / L.S.

Director of Moscow Branch Office of Russian River Register — S. Presnov

(position) (signature) (name, surname)

09 0089944

Technical data:

Type	Power W	A/Current A	B./Voltage V	Fre-quency Hz
Isolation trans-former / Isolation transformer	2000 - 3600Вт		115/230	50
Isolation trans-former / Isolation transforme	7000Вт		230/230	50
Phoenix inverter / Phoenix inverter	180-5000BA		12;24;48;96/230	50
Orion DC/DC convertor / Orion DC/DC convertor		5 - 70	18-35; 9-18/12; 24	-

This Certificate of Type Approval does not substitute a Certificate or similar document of Russian River Register issued for a specific product.

This Certificate of Type Approval becomes invalid in cases stipulated by the Technical regulations on the safety of inland water transport objects.

RUSSIAN RIVER REGISTER

Form RR—11.4.2

CERTIFICATE OF TYPE APPROVAL

Name: Battery chargers

Manufacturer: Victron Energy B.V.

Technical documentation is approved by Ref. No. МФ-22-1130 of 26.06.2013

Victron Energy
Specifications ТУ ЮВ-001-13 Victron Energy electrical equipment

Techniques of tests ПМИ ТУ ЮВ-001-13

The model is tested and surveyed according to the program approved by Russian River Register.

On the basis of checks and test results this is to certify that the structure, properties, parameters and characteristics of the type product meet the requirements of the Technical regulations on the safety of inland water transport objects.

Application and limitations:

As electrical equipment intended for installation on vessels with a class of the Russian River Register

This Certificate is valid since 08.07.2013

№
No. 09-11.4-4.3-0180

М.П. / L.S.

Director of Moscow Branch Office of Russian River Register _____ _____ S. Presnov
(position) (signature) (name, surname)

09 0089945

Technical data:

Type	B./Voltage V	A/Current A	Frequency Hz	Protection
Blue Power battery charger / Blue Power battery charger	180-265/12-24	7-25	50	IP20
Blue Power battery charger / Blue Power battery charger	230/12-24	7-25	50	IP65
Centaur charger / Centaur charger	90-265/12-24	20-200	50	IP20
Phoenix battery charger / Phoenix battery charger	90-265/12-24	16-50	50	IP20
Skylla-i battery charger / Skylla-i battery charger	230/12-24	80-100	50	IP21
Skylla-TG battery charger / Skylla-TG battery charger	90-265/12-24	30-100	50	IP21
Skylla-TG battery charger / Skylla-TG battery charger	400/24	50-100	50	IP21

This Certificate of Type Approval does not substitute a Certificate or similar document of Russian River Register issued for a specific product.

This Certificate of Type Approval becomes invalid in cases stipulated by the Technical regulations on the safety of inland water transport objects.

RUSSIAN RIVER REGISTER

Form RR—11.4.2

CERTIFICATE OF TYPE APPROVAL

Name: Inverter/ chargers

Manufacturer: Victron Energy B.V. .

Technical documentation is approved by Ref. No. МФ-22-1130 of 26.06.2013

Victron Energy
Specifications ТУ ЮВ-001-13 Victron Energy electrical equipment

Techniques of tests ПМИ ТУ ЮВ-001-13

The model is tested and surveyed according to the program approved by Russian River Register.

On the basis of checks and test results this is to certify that the structure, properties, parameters and characteristics of the type product meet the requirements of the Technical regulations on the safety of inland water transport objects.

Application and limitations:

As electrical equipment intended for installation on vessels with a class of the Russian River Register

This Certificate is valid since 08.07.2013

№
No. 09-11.4-4.3-0181

M.П. L.S.

Director of Moscow Branch Office of Russian River Register — position

signature

S. Presnov — name, surname

09 0089946

Technical data:

Тип, марка/Type	B./Voltage V	Power VA	Frequency Hz	Protection
MultiPlus inverter/charger / MultiPlus inverter/charger	12;24;48/187-265	800/5000	50	IP21
Quattro inverter/charger /Quattro inverter/charger	12;24;48/187-265	3000-10000	50	IP21

This Certificate of Type Approval does not substitute a Certificate or similar document of Russian River Register issued for a specific product.

This Certificate of Type Approval becomes invalid in cases stipulated by the Technical regulations on the safety of inland water transport objects.

Declaration of Conformity

Applicant: **Victron Energy B.V.**

Product type: Connection cables

Model/Type reference ..... : VE.Direct to USB interface
ASS030530000
Interface MK2-USB (VE.Bus to USB) ASS030130000
CANUSB interface ASS030532000
VE.Bus to NMEA2000 interface ASS030520100
VE.Direct to NMEA2000 interface ASS030520300
VE.Can to NMEA2000 Micro-C male ASS030520200
BMV-60xS to NMEA2000 interface ASS030520000
BMV-60xS to VE.Can interface ASS030520020
Interface MK2.2b (VE.Bus to RS232) ASS030120200
RS232 to USB converter ASS030200000
VE.Direct to RS232 interface ASS030520500
VE.Direct to VE.Can interface ASS030520400
VE.Direct to Global Remote interface ASS030534000
VE.Bus to VE.Can interface ASS030520105
Inverting remote on-off cable ASS030550100
Non inverting remote on-off cable ASS030550200
VE.Direct non inverting remote on-off cable ASS030550300
Skylla-i remote on-off cable ASS030550400

Ratings ..... : ---

A representative test sample of above stated models passed the tests according to:

Standard: According manufacturer specification based on IEC 60335-1 2010 (Fifth Edition) incl. Corr. 1:2010 and Corr. 2:2011 + A1:2013
Testing according to the Standard without cable performance tests. Cable performance suitable for connecting Green-Energy Equipment.

Report no: 15PP112-01_0

Certificate no: 15-239-00

Date of issue: 2015-12-21

Raphael Rader

MATERIAL DECLARATION

Type 1: SELF DECLARATION

<Date of declaration>

Date:	4-5-2017

<MD ID Number>

MD-ID-No.	

<Other information (e.g. client, shipbuilder, hull NO if applicable>

Remarks	

<Product Information>

Product Name	Product Number	Product total mass		Product Information
		Mass	Unit	
DC-AC Inverter	QUA243020010	19,0	kg	Quattro 24/3000/70-50/50 230V Ve.Bus

This material information shows the amount of hazardous materials contained in 19,0 kg (Unit:)

<Material Information>

Table	Material Name		Threshold level	Present above threshold level	IF YES Material Mass		IF YES Information
				Yes or No	Amount	Unit	on where it is used
Table A Materials listed in appendix 1 of the Convention	Asbestos	Asbestos	No threshold level	No			
	PCB's	Polychlorinated Biphenyls (PCBs)	No threshold level	No			
	Ozone depleting substances	Chlorofluorcarbons (CFC's)	No threshold level	No			
		Halons		No			
		Other fully Halogenated CFC's		No			
		Carbon Tetrachloride		No			
		1,1,1-Trichloroethane		No			
		Hydrochlorofluorcarbons		No			
		Hydrobromofluorcarbons		No			
		Methyl Bromide		No			
		Bromochloromethane		No			
	Anti-fouling systems containing organotin compounds as a biocide		2.500 mg total tin/kg	No			
EU***	Perfluorooctane sulfonic acid (PFOS)		No threshold level	No			

Table	Material Name	Threshold level	Present above threshold level	IF YES Material Mass		IF YES Information
			Yes or No	Amount	Unit	on where it is used
Table B Materials listed in appendix 2 of the Convention	Cadmium & Cadmium Compounds	100 mg/kg	No			
	Hexavalent Chromium and Hexavalent Chromium Compounds	1,000 mg/kg	No			
	Lead and Lead Compounds	1,000 mg/kg	No			
	Mercury and Mercury Compounds	1,000 mg/kg	No			
	Polybromated Biphenyl (PBB's)	50 mg/kg	No			
	Polybrominated Dephenyl Ethers (PBDE's)	1,000 mg/kg	No			
	Polychloronaphtalenes (Cl>=3)	50 mg/kg	No			
	Radioactive substances	No thr.level	No			
	Certain Shortchain Chlorinated Paraffins	1%	No			
EU***	Brominated flame retardants (HBCDD)	No threshold level	No			

* currently no asbestos is tolerable under SOLAS Reg. II-1/3-5 and Para. 13 of MSC.1/Circ.1374., this requirement is subject to future changes
** 50ppm is to be used as threshold for reporting existing PCB only. NOTE: All new materials are to be free of any PCBs!
*** Additional material to be listed acc. to Annex 1 and Annex 2 of the 2013 EU Ship Recycling Regulation.

The object of declaration described above is in conformity with the IMO Guidelines for the development of Inventory of Hazardous Materials Resolution MEPC.269(68).
Important Notice: The content and specifications of this form may not be changed or amended. Any changes or amendments by others than the author of this form constitute a breach of copyright law.

4-5-2017
(Date)

(Signature and Company Stamp)

DECLARATION OF CONFORMITY

CE

COMPANY : Victron Energy B.V.

Declares that the following products:

PRODUCT TYPE : Interfaces

BRAND : Victron Energy

ASS030530000 VE.Direct to USB	ASS030520400 VE.Direct to VE.Can
ASS030130000 MK2-USB	ASS030534000 VE.Direct to Global Remote
ASS030140000 MK3-USB	ASS030700000 VE.Can RJ45 terminator
ASS030532000 CANUSB	ASS030520105 VE.Bus to VE.Can
ASS030520100 VE.Bus to NMEA2000	ASS030550100 Inverting remote on-off cable
ASS030520300 VE.Direct to NMEA2000	ASS030550200 Non inverting remote on-off cable
ASS030520200 VE.Can to NMEA2000 Micro-C	ASS030550300 VE.Direct non inverting remote on-off cable
ASS030120200 MK2.2b (VE.Bus to RS232)	ASS030550400 Skylla-i remote on-off cable
ASS030200000 RS232 to USB converter	CSE000100000 AC Current sensor
ASS030520500 VE.Direct to RS232	

Are in conformity with the requirements of the following Directives of the European Union:

EMC Directive 2014/30/EU with the following harmonized standards:

EN 55014-1:2006/A2:2011
EN 55014-2:1997/A2:2008
ISO 7637-2:2011-03

Low Voltage Directive 2014/35/EU with the following harmonized standards:

EN 60335-1:2012/AC:2014
EN 62109-1:2010

Restriction of the use of certain hazardous substances RoHS (2011/65/EU and 2015/863/EU) with the following harmonized standards:

EN-IEC 63000:2018

CE MARK DATE: July 3rd, 2014

Signed : Reinout Vader

Authority : Managing Director
Date : 6 June 2019

DECLARATION OF CONFORMITY

CE

COMPANY : Victron Energy B.V.

Declares that the following products:

PRODUCT TYPE : SINEWAVE INVERTER / BATTERY CHARGER

BRAND : Victron Energy

MODELS :

Quattro 12/3000/120-50/50	Quattro 24/3000/70-50/50	Quattro 48/3000/35-50/50
Quattro 12/5000/200-100/100	Quattro 24/5000/120-100/100	Quattro 48/5000/70-100/100
	Quattro 24/8000/200-100/100	Quattro 48/8000/110-100/100
		Quattro 48/10000/140-100/100
		Quattro 48/15000/200-100/100

Are in conformity with the requirements of the following Directives of the European Union:

EMC Directive 2014/30/EU with the following harmonized standards:

EN-IEC 61000-3-11: 2017
EN-IEC 61000-3-12: 2011
EN-IEC 61000-6-1:2007
EN-IEC 61000-6-2:2005
EN-IEC 61000-6-3:2007/A1:2011/C11:2012
EN 55014-1:2017
EN 55014-2:2015
EN-IEC 62040-2:2018
ISO 7637-2:2016

Low Voltage Directive 2014/35/EU with the following harmonized standards:

EN-IEC 60335-1:2012/A13:2017
EN-IEC 62109-1:2010
EN-IEC 62109-2:2011
EN-IEC 62040-1:2009/C1:2009/A1:2013

Restriction of the use of certain hazardous substances RoHS (2011/65/EU and 2015/863/EU) with the following harmonized standards:

EN-IEC 63000:2018

CE MARK DATE: November, 2011

Signed : Reinout Vader

Authority : Managing Director
Date : 18 July 2019