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VERITAS**

Certificate of compliance

Applicant: Zucchetti Centro Sistemi SpA
Via Lungarno nr. 305/A
52028 Terranuova Bracciolini (Arezzo)
Italy

Product: Photovoltaic (PV) and battery inverter

Model: AZZURRO 1PH HYD3000 ZSS HP
AZZURRO 1PH HYD3600 ZSS HP
AZZURRO 1PH HYD4000 ZSS HP
AZZURRO 1PH HYD4600 ZSS HP
AZZURRO 1PH HYD5000 ZSS HP
AZZURRO 1PH HYD5500 ZSS HP
AZZURRO 1PH HYD6000 ZSS HP

Inverter for single-phase parallel connection to the public grid. The network monitoring and disconnection device is an integral part of the above-mentioned model.

Applied rules and standards:

EN 50549-1:2019-02, NBN EN 50549-1:2019-02

Requirements for parallel connection of installations with distribution networks - Part 1: Connection to an LV distribution network - Production of installations up to and including Type B

- 4.4 Normal operating range
- 4.5 Immunity to disturbances
- 4.6 Active response to frequency deviation
- 4.7 Power response to voltage variations and voltage changes
- 4.8 EMC and power quality
- 4.9 Interface protection
- 4.10 Connection and starting to generate electrical power
- 4.11 Ceasing and reduction of active power on set point
- 4.13 Requirements regarding single fault tolerance of interface protection system and interface switch

C10/11:2019-09

Specific technical requirements for generator in parallel operation with the distribution network

DIN V VDE V 0126-1-1:2006 (4.1 Functional safety)

Automatic disconnection device between a generator and the public low-voltage grid

Commission Regulation (EU) 2016/631 of 14 April 2016

Establishing a network code on requirements for grid connection of generators (NC RFG).

Type approval for generation units to use in Type A.

At the time of issue of this certificate, the representative product listed above corresponds to the stated rules and standards.

Report number: 21TH0243_EN 50549-1_BEL_ZCS_0 **Certification program:** NSOP-0032-DEU-ZE-V01
Certificate number: U22-0378 **Date of issue:** 2022-06-14



Certification body of Bureau Veritas Consumer Products Services Germany GmbH Accredited according to DIN EN ISO/IEC 17065

Testing laboratory accredited according to DIN EN ISO/IEC 17025

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Annex to the EN 50549-1 / C10/11 certificate of compliance No. U22-0378

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Appendix
 Extract from test report according to EN 50549-1 / C10/11 Nr. 21TH0243_EN 50549-1_BEL_ZCS_0

Type Approval and declaration of compliance with the requirements of EN 50549-1, Commission Regulation (EU) 2016/631 of 14 April 2016 and C10/11 for Belgium

Manufacturer / applicant	Zucchetti Centro Sistemi SpA Via Lungarno nr. 305/A 52028 Terranuova Bracciolini (Arezzo) Italy
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Micro-generator Type	Photovoltaic and battery inverter			
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	AZZURRO 1PH HYD3000 ZSS HP	AZZURRO 1PH HYD3600 ZSS HP	AZZURRO 1PH HYD4000 ZSS HP	AZZURRO 1PH HYD4600 ZSS HP
MPP DC voltage range [V]	160-520	160-520	160-520	160-520
Input DC voltage range [V]	90-600	90-600	90-600	90-600
Input DC current [A]	13/13	13/13	13/13	13/13
Output AC voltage [V]	L/N/PE, 230, 50Hz	L/N/PE, 230, 50Hz	L/N/PE, 230, 50Hz	L/N/PE, 230, 50Hz
Rated AC current [A]	13,0	16,0	17,4	20,0
Max AC current [A]	15,0	16,0	20,0	20,9
Active Power [W]	3000	3680	4000	4600
Apparent power [VA]	3000	3680	4000	4600
Battery DC voltage range [V]	42-58V	42-58V	42-58V	42-58V
Battery charge current [A]	75	75	75	75
Battery discharge current [A]	75	75	75	75

	AZZURRO 1PH HYD5000 ZSS HP	AZZURRO 1PH HYD5500 ZSS HP	AZZURRO 1PH HYD6000 ZSS HP	--
MPP DC voltage range [V]	250-520	250-520	300-520	--
Input DC voltage range [V]	90-600	90-600	90-600	--
Input DC current [A]	13/13	13/13	13/13	--
Output AC voltage [V]	L/N/PE, 230, 50Hz	L/N/PE, 230, 50Hz	L/N/PE, 230, 50Hz	--
Rated AC current [A]	21,7	23,9	26,1	--
Max AC current [A]	21,7	25,0	27,3	--
Active Power [W]	5000	5500	6000	--
Apparent power [VA]	5000	5500	6000	--
Battery DC voltage range [V]	42-58V	42-58V	42-58V	--
Battery charge current [A]	100	100	100	--
Battery discharge current [A]	100	100	100	--

Firmware version	V02000
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Description of the structure of the power generation unit:
 The power generation unit is equipped with a PV and line-side EMC filter. The power generation unit has no galvanic isolation between DC input and AC output. Output switch-off is performed with single-fault tolerance based on the inverter bridge and two series-connected relays in (each) line and neutral. This enables a safe disconnection of the power generation unit from the network in case of error.



Appendix

Extract from test report according to EN 50549-1 / C10/11

Nr. 21TH0243_EN 50549-1_BEL_ZCS_0

Note:

The settings of the interface protection are password protected adjustable.

In case the above stated generators are used with an external protection device, the protection settings of the inverters are to be adjusted according to the manufacturer's declaration.

The above stated generators are tested according to the requirements in the EN 50549-1:2019, Commission Regulation (EU) 2016/631 of 14 April 2016 and C10/11 for Belgium. Any modification that affects the stated tests must be named by the manufacturer/supplier of the product to ensure that the product meets all requirements.