



**BUREAU
VERITAS**

Certificate of compliance

Applicant: ZIEHL industrie-elektronik GmbH+Co KG
Daimlerstr. 13
74523 Schwäbisch Hall
Germany

Product: Network and System Protection Unit

Model: UFR1002IP optional with VG1200

Network and System Protection device for three-phase parallel connection to the public grid.

Applied rules and standards:

EN 50549-1:2019

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
4.9 Interface protection
4.10 Connection and starting to generate electrical power

EN 50549-2:2019

Requirements for generating plants to be connected in parallel with distribution networks - Part 2: Connection to a MV distribution network - Generating plants up to and including Type B
4.9 Interface protection
4.10 Connection and starting to generate electrical power

DIN VDE V 0124-100:2020 (5.5.2.1 Functional safety of network and system protection)

Grid integration of generator plants - Low-voltage - Test requirements for generator units to be connected to and operated in parallel with low-voltage distribution networks

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 and Type B plants.

At the time of issue of this certificate, the safety concept of an aforementioned representative product corresponds to the valid safety specifications for the specified use in accordance with regulations.

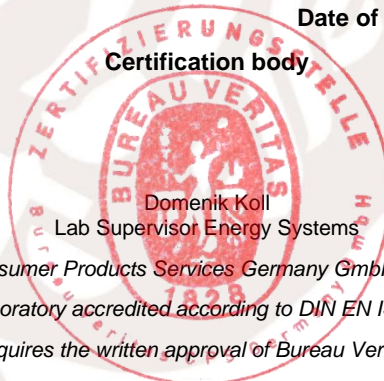
Report number: 22TH0358-EN50549_0

Certificate number: U23-0873

Certification Program: NSOP-0032-DEU-ZE-V01

Date of issue: 2023-10-09

Certification body



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

Testing laboratory accredited according to DIN EN ISO/IEC 17025

A partial representation of the certificate requires the written approval of Bureau Veritas Consumer Products Services Germany GmbH



BUREAU
VERITAS

Annex to the EN 50549-1 and EN 50549-2 certificate of compliance No. U23-0873

Appendix

Extract from test report according to EN 50549-1 and EN 50549-2 No. 22TH0358-EN50549_0

Type Approval and declaration of compliance with the requirements of EN 50549-1:2019 and EN 50549-2:2019 Commission Regulation (EU) 2016/631 of 14 April 2016

Manufacturer / applicant	ZIEHL industrie-elektronik GmbH+Co KG Daimlerstr. 13 74523 Schwäbisch Hall Germany
---------------------------------	---

Micro-generator Type	Network and System Protection Unit
-----------------------------	------------------------------------

	UFR1002IP	--	--	--
Supply voltage range	24 - 270 V	--	--	--
Voltage monitoring range	L/N 10- 310 V L/L 15 - 530 V	--	--	--
Frequency monitoring range	40 - 70 Hz	--	--	--

	VG1200	--	--	--
Voltage monitoring range 3AC-N	250 - 690 V	--	--	--
Voltage monitoring range 3AC	440 - 1200 V (max. 875 V PE)	--	--	--
Frequency monitoring range	45 - 65 Hz	--	--	--
Power consumption (own consumption)	< 1,5 VA	--	--	--

Firmware version	12690-1420-01
-------------------------	---------------

Description of the structure of the power generation unit:

The power generation unit is equipped with a 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.



BUREAU
VERITAS

Annex to the EN 50549-1 and EN 50549-2 certificate of compliance No. U23-0873

Appendix
Extract from test report according to EN 50549-1 and EN 505049-2 No. 22TH0358-EN50549_0

Type Approval and declaration of compliance with the requirements of EN 50549-1:2019 and EN 50549-2:2019 Commission Regulation (EU) 2016/631 of 14 April 2016

Parameter Table				
Clause EN 50549-1	Ref	Parameter	Micro generator setting range	Default settings used
4.9.2 Requirements on voltage and frequency protection	n.a	Threshold for protection as dedicated device [in A or kW, kVA]	16 A – 250 kVA	external protection device settings:
	B	Undervoltage threshold stage 1	0,065 U_n – 1,0 U_n	0,85 U_n
	B	Undervoltage operate time stage 1	0,05 s – 300,0 s	0,2 s
	B	Undervoltage threshold stage 2	0,065 U_n – 1,0 U_n	N/A
	B	Undervoltage operate time stage 2	0,05 s – 300,0 s	N/A
	B	Overvoltage threshold stage 1	1,0 U_n – 1,30 U_n	1,15 U_n
	B	Overvoltage operate time stage 1	0,05 s – 300,0 s	0,2 s
	B	Overvoltage threshold stage 2	1,0 U_n – 1,30 U_n	N/A
	B	Overvoltage operate time stage 2	0,05 s – 300,0 s	N/A
	B	Overvoltage threshold 10 min mean protection ^a	1,0 U_n – 1,30 U_n	1,10 U_n
	B	Overvoltage operate time 10 min mean protection ^a	0,05 s – 300,0 s	10 min (update every 3 s)
	B	Underfrequency threshold stage 1	45,0 Hz – 65,0 Hz	47,5 Hz
	B	Underfrequency operate time stage 1	0,05 s – 300,0 s	0,5 s
	B	Underfrequency threshold stage 2	45,0 Hz – 65,0 Hz	N/A
	B	Underfrequency operate time stage 2	0,05 s – 300,0 s	N/A
	B	Overfrequency threshold stage 1	45,0 Hz – 65,0 Hz	52,0 Hz
	B	Overfrequency operate time stage 1	0,05 s – 300,0 s	0,5 s
	B	Overfrequency threshold stage 2	45,0 Hz – 65,0 Hz	N/A
	B	Overfrequency operate time stage 2	0,05 s – 300,0 s	N/A
	4.10.2 Automatic reconnection after tripping (EIFS 2018:2 kap 8§, 9§)	B	Lower frequency	45,0 Hz – 65,0 Hz
B		Upper frequency	45,0 Hz – 65,0 Hz	50,10 Hz
B		Lower voltage	0,065 U_n – 1,0 U_n	0,85 U_n
B		Upper voltage	1,0 U_n – 1,30 U_n	1,10 U_n
B		Observation time	0 s – 6.000 s	180 s
B		Active power increase gradient	N/A	N/A

Note:
^a Over voltage – stage1: 10 min-mean-value corresponding to EN 50160.
 The settings of the interface protection are password protected adjustable in the stated range above.
 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 and Commission Regulation (EU) 2016/631 of 14 April 2016 with EIFS:2018:2 for Sweden. 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.