

Extract from Report No.: 28110272 020

## Micro-generator details

Models of the same family:

### UNO-DM-X.X-TL-PLUS-XYK-JVN

Difference between models in term of hardware and software difference are described in Appendix 1 and Appendix 2.

Parameter	Value	Notes
<b>X.X</b> Can assume a combination of the following variants		
X.X	1.2	Differences in output Power
	2.0	
	3.3	
	4.0	
	4.6	
	5.0	
<b>XYK</b> Can assume a combination of the following variants		
X	Blank	-
	S	When the unit is natively equipped with a <b>DC switch</b>
Y	Blank	-
	B	When the unit is natively equipped with the optionally assembled accessory board namely <b>ZGN.V2P54 (WLAN BOARD)</b>
	E	When the unit is natively equipped with the optionally assembled accessory board namely: - <b>ZGN.V2P54 (WLAN BOARD)</b> and - <b>ZGN.V2P57 (ETHERNET BOARD)</b>
K	Blank	-
<b>JVN</b> Can assume a combination of the following variants		
J	Blank	-
	X	When the unit is natively equipped with the optionally assembled accessory board namely <b>ZGN.V2P05 (UNO-DM-COM KIT)</b>
V	Blank	-
	G	With a <b>cable gland</b> instead of pluggable AC connector for AC side input access.
N	Blank	-

### Power-One Italy S.p.A.

Via S. Giorgio, 642 - 52028 Terranuova Bracciolini, Arezzo, Italy

# Type Certification Test Result Sheet

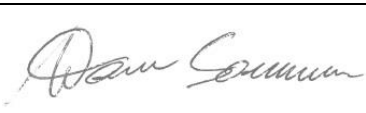


Extract from Report No.: 28110272 020

## Test house details

Name and address of test house	TÜV Rheinland Italia S.r.l. Via Mattei. 3 - 20010 Pogliano Milanese (MI) - Italy
Telephone number	Tel: +39.02.939 687
Facsimile number	Fax: +39.02.939 687 23
E-mail address	info@it.tuv.com

## Test details

Date of test	2/5/2017 – 27/06/2017
Name of test Engineer	Antonio Somma
Signature of test Engineer	
Test location (if different from above)	-

Extract from Report No.: 28110272 020

## Power quality

Harmonic current emission								
Maximum permissible harmonic current as per EN 61000-3-2 Class A								
Harmonic	2 <sup>nd</sup>	3 <sup>rd</sup>	5 <sup>th</sup>	7 <sup>th</sup>	9 <sup>th</sup>	11 <sup>th</sup>	13 <sup>th</sup>	15 <sup>th</sup> = n = 39 <sup>th</sup>
Limit	1.08	2.3	1.14	0.77	0.4	0.33	0.21	0.15 a (15/n)
Test value	0.298	0.929	0.201	0.159	0.281	0.151	0.119	0.091
a	50 % or some other declared value close to the mid point between minimum and maximum.							

Voltage fluctuations and flicker				
Maximum permissible voltage fluctuation (expressed as a percentage of nominal voltage at 100 % power) and flicker as per EN 61000-3-3				
	Starting	Stopping	Running	
Limit	3.3 %	3.3 %	P <sub>st</sub> = 1.0	P <sub>It</sub> = 0.65
Test value	0.324	0.324	0.324	0.324

	DC injection			Power factor		
Protection limit	20 mA, tested at three power levels			+ 0,95 – 0,95 at three voltage levels		
	Min. P=33% [%In]	Medium a P=66% [%In]	Max P=100% [%In]	210 V	230 V	250 V
Test Value	0.03	0.07	0.08	P=4897 Q=22.18 PF=0.999	P=5023 Q=14 PF=1	P=4898.5 Q=-22.04 PF=0.999
a	50 % or some other declared value close to the mid point between minimum and maximum.					

Extract from Report No.: 28110272 020

	Under frequency <		Over frequency >	
Parameter	Frequency [Hz]	Time[s]	Frequency [Hz]	Time[s]
Protection Limit	47.5	20	52	20
Actual setting	47.5	19.960	52	19.960
Trip Value (test result)	47.48	19.95	52.01	19.63
Supplementary information: <b>IRELAND Standard</b> Selected				

	Under frequency <<		Over frequency >>	
Parameter	Frequency [Hz]	Time[s]	Frequency [Hz]	Time[s]
Protection Limit	47.0	0.5	52.5	0.5
Actual setting	47.0	0.46	52.5	0.46
Trip Value (test result)	46.99	0.450	52.51	0.499
Supplementary information: <b>IRELAND Standard</b> Selected				

Extract from Report No.: 28110272 020

### Under/over voltage tests (single stage protection)

Parameter	Under Voltage Stage 1		Under Voltage Stage 2		Over Voltage Stage 1	
	Voltage [V]	Time [ms]	Voltage [V]	Time [ms]	Voltage [V]	Time [ms]
Protection Limit	191	3000	115	500	258	700
Actual setting (as applied to interface protection)	191.0	2940	115.000	460	258.0	660
Trip Value (test result)	190.46	2.945	114.50	474	257.76	658
Supplementary information: <b>IRELAND Standard</b> Selected						

### Loss of main (LoM)

Method used			
Output power level	Min. 33% Pn	Medium 66% Pn	MAX. 100% Pn
Trip setting clearance time	2.0 s	2.0 s	2.0 s
Trip value clearance time	0.840 s	0.784 s	0.761 s
--			

Extract from Report No.: 28110272 020

**Fault level contribution**

<b>Short-circuit current at micro-generator terminals</b>
Short-circuit applied to micro-generator at normal running condition 0 – 2,0 s plot

<b>Fault level contribution</b>		
<b>Time after fault</b>	<b>Voltage [V]</b>	<b>Current [A]</b>
20ms	20.02	24.80
60ms	10.65	12.31
100ms	7.59	7.78
1000ms	4.56	4.46

Note: trip after 3sec

Isc declared by manufacturer is:

UNO-DM-1.2	UNO-DM-2.0	UNO-DM-3.3	UNO-DM-4.0	UNO-DM-4.6	UNO-DM-5.0
10 A	12 A	16.0 A	19.0 A	22.0 A	24.0 A

End of the Annex