CERTIFICATE OF CONFORMITY

Issued to:	GoodWe Technologies Co., Ltd. No.90 Zi Jin Rd., New District, Suzhou, 215011, China
For the product:	Gird-Tied PV Inverter
Trade name:	GOODWE
Type/Model:	GW700-XS-30; GW1000-XS-30; GW1500-XS-30; GW2000-XS-30; GW2500-XS-30; GW3000-XS-30; GW3300-XS-30
Ratings:	See Annex
Manufactured by:	GoodWe Technologies Co., Ltd. No.90 Zi Jin Rd., New District, Suzhou, 215011, China
Requirements:	Engineering Recommendation G98 Issue 1 – Amendment 7: 2022 (G98/1-7)

This Test Certificate is granted on account of an examination by DEKRA, the results of which are laid down in a confidential file no. 6157937.50.

The examination has been carried out on one single specimen of the product. The certificate does not include an assessment of the manufacturer's production. Conformity of his production with the specimen tested by DEKRA is not the responsibility of DEKRA.

This Test Certificate expires at the latest on 2 February 2029 or expires upon withdrawal of one of the above mentioned standards.

Shanghai, 2 February 2024 Certificate Number: 6157937.01COC

DEKRA Testing and Certification (Shanghai) Ltd.

Cliff Lin
Certification Manager

Accreditation of the certification body by IAS according to ISO/IEC 17065 for products.
Accreditation is valid in the areas of certification mentioned in the certificate.

IAS ACCREDITED Product Certification Agency
PCA-141

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Annex

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Ratings of the test product:

Model	GW700-XS-30	GW1000-XS-30	GW1500-XS-30	GW2000-XS-30	GW2500-XS-30	GW3000-XS-30	GW3300-XS-30
PV input							
Vmax PV (Vdc) (absolute Max.)	600	600	600	600	600	600	600
Isc PV (absolute Max.) (A)	25	25	25	25	25	25	25
Max. input current (A)	16	16	16	16	16	16	16
MPPT voltage range (Vdc)	40-450	40-450	40-450	40-450	40-550	40-550	40-550
AC Grid (output)							
Normal Voltage (Vac)	220/230/400						
Frequency (Hz)	50 / 60						
Max. output current (A)	3.2	4.6	6.9	9.1	11.4	13.7	15
Normal Active Power (W)	700	1000	1500	2000	2500	3000	3300
Normal Apparent Power (VA)	700	1000	1500	2000	2500	3000	3300
Max. Apparent Power (VA)	700	1000	1500	2000	2500	3000	3300
Power factor (adjustable)	1.0 (0.8 leading…0.8 lagging)						
Others							
Protective class	Class I						
Ingress protection (IP)	IP66						
Operating Temperature	-25°C to +60°C						
Inverter Isolation	Non-isolated						
Overvoltage category	OVC III (AC Main), OVC II (PV)						

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G98/1-7 Form C: Type Test Verification Report	
Extract form test report number:	**6157937.50**

1. Operating Range:				**P**
This test should be carried out as specified in A.1.2.10. Pass or failure of the test should be indicated in the fields below (right hand side), for example with the statement “Pass”, “No disconnection occurs”, etc. Graphical evidence is preferred.				
Model: GW3000-XS-30				
Test 1:				
Measured Voltage (V)	Measured Frequency (Hz)	Measured Power (W)	Measured Power factor	Test Time (s)
196.0	47.0	2677.5	1.000	24
Test 2:				
Measured Voltage (V)	Measured Frequency (Hz)	Measured Power (W)	Measured Power factor	Test Time (s)
196.0	47.5	2684.7	1.000	5485
Test 3:				
Measured Voltage (V)	Measured Frequency (Hz)	Measured Power (W)	Measured Power factor	Test Time (s)
253.4	51.5	2988.7	1.000	5457
Test 4:				
Measured Voltage (V)	Measured Frequency (Hz)	Measured Power (W)	Measured Power factor	Test Time (s)
253.4	52.0	2989.5	1.000	982
Test 5:				
Measured Voltage (V)	Measured Frequency (Hz)	Measured Power (W)	Measured Power factor	Test Time (s)
230.5	50.0	2988.5	1.000	5406
Test 6:				
Measured Voltage (V)	Ramp range	Test frequency ramp	Test Duration	Confirm no trip
195.5	47.0 Hz to 52.0 Hz	+1 Hzs^{-1}	5.05s	no trip
253.0	52.0 Hz to 49.0 Hz	-1 Hzs^{-1}	3.00s	no trip

2. Power Quality – Harmonics:						**P**
These tests should be carried out as specified in BS EN 61000-3-2. The chosen test should be undertaken with a fixed source of energy at two power levels a) between 45 and 55% and b) at 100% of **Registered Capacity**. The test requirements are specified in Annex A1 A.1.3.1 (**Inverter** connected) or Annex A2 A.2.3.1 (Synchronous).						
Model: GW700-XS-30						
Micro-generator tested to BS EN 61000-3-2						
Micro-generator rating per phase (rpp)			0.7	kW		
For 3-phase **Micro-generator**s, tick this box if harmonic measurements are identical for all three phases. If the harmonics are not identical for each phase, please replicate this section with the results for each phase.			Single phase PV inverter			
Harmonic	At 45-55% of **Registered Capacity**		100% of **Registered Capacity**			
	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	0.020	--	0.034	--	1.080	
3	0.040	--	0.023	--	2.300	
4	0.006	--	0.010	--	0.430	
5	0.042	--	0.028	--	1.140	
6	0.009	--	0.008	--	0.300	
7	0.043	--	0.012	--	0.770	
8	0.011	--	0.007	--	0.230	
9	0.049	--	0.014	--	0.400	
10	0.012	--	0.005	--	0.184	
11	0.115	--	0.045	--	0.330	
12	0.009	--	0.004	--	0.153	
13	0.052	--	0.048	--	0.210	
14	0.008	--	0.005	--	0.131	
15	0.034	--	0.050	--	0.150	
16	0.008	--	0.006	--	0.115	
17	0.027	--	0.047	--	0.132	
18	0.009	--	0.005	--	0.102	
19	0.024	--	0.044	--	0.118	
20	0.009	--	0.005	--	0.092	
21	0.013	--	0.040	--	0.107	0.160
22	0.009	--	0.005	--	0.084	
23	0.013	--	0.036	--	0.098	0.147
24	0.009	--	0.005	--	0.077	
25	0.016	--	0.034	--	0.090	0.135

26	0.009	--	0.004	--	0.071	
27	0.020	--	0.031	--	0.083	0.124
28	0.009	--	0.004	--	0.066	
29	0.024	--	0.029	--	0.078	0.117
30	0.009	--	0.004	--	0.061	
31	0.030	--	0.027	--	0.073	0.109
32	0.008	--	0.004	--	0.058	
33	0.032	--	0.024	--	0.068	0.102
34	0.008	--	0.004	--	0.054	
35	0.030	--	0.022	--	0.064	0.096
36	0.007	--	0.004	--	0.051	
37	0.026	--	0.020	--	0.061	0.091
38	0.006	--	0.003	--	0.048	
39	0.024	--	0.017	--	0.058	0.087
40	0.006	--	0.003	--	0.046	

Model: GW3000-XS-30		
Micro-generator tested to BS EN 61000-3-2		
Micro-generator rating per phase (rpp)	3	kW
For 3-phase **Micro-generator**s, tick this box if harmonic measurements are identical for all three phases. If the harmonics are not identical for each phase, please replicate this section with the results for each phase.	Single phase PV inverter	

Harmonic	At 45-55% of **Registered Capacity**		100% of **Registered Capacity**			
	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	0.017	--	0.019	--	1.080	
3	0.032	--	0.059	--	2.300	
4	0.005	--	0.009	--	0.430	
5	0.036	--	0.043	--	1.140	
6	0.005	--	0.006	--	0.300	
7	0.015	--	0.015	--	0.770	
8	0.004	--	0.004	--	0.230	
9	0.014	--	0.022	--	0.400	
10	0.004	--	0.004	--	0.184	
11	0.035	--	0.056	--	0.330	
12	0.003	--	0.003	--	0.153	
13	0.024	--	0.045	--	0.210	
14	0.003	--	0.003	--	0.131	

15	0.019	--	0.036	--	0.150	
16	0.003	--	0.003	--	0.115	
17	0.014	--	0.022	--	0.132	
18	0.003	--	0.003	--	0.102	
19	0.013	--	0.021	--	0.118	
20	0.003	--	0.003	--	0.092	
21	0.011	--	0.015	--	0.107	0.160
22	0.003	--	0.003	--	0.084	
23	0.011	--	0.013	--	0.098	0.147
24	0.002	--	0.003	--	0.077	
25	0.009	--	0.013	--	0.090	0.135
26	0.002	--	0.003	--	0.071	
27	0.009	--	0.01	--	0.083	0.124
28	0.002	--	0.002	--	0.066	
29	0.007	--	0.01	--	0.078	0.117
30	0.002	--	0.002	--	0.061	
31	0.006	--	0.009	--	0.073	0.109
32	0.002	--	0.002	--	0.058	
33	0.006	--	0.008	--	0.068	0.102
34	0.002	--	0.002	--	0.054	
35	0.005	--	0.008	--	0.064	0.096
36	0.002	--	0.002	--	0.051	
37	0.004	--	0.006	--	0.061	0.091
38	0.001	--	0.002	--	0.048	
39	0.003	--	0.007	--	0.058	0.087
40	0.001	--	0.002	--	0.046	

Note the higher limits for odd harmonics 21 and above are only allowable under certain conditions, if these higher limits are utilised please state the exemption used as detailed in part 6.2.3.4 of BS EN 61000-3-2 in the box below.

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3. Power Quality – Voltage fluctuations and Flicker:	**P**

These tests should be undertaken in accordance with EREC G98 Annex A1 A.1.3.3 (**Inverter** connected) or Annex A2 A.2.3.3 (Synchronous).
The standard test impedance is 0.4 Ω for a single phase **Micro-generating Plant** (and for a two phase unit in a three phase system) and 0.24 Ω for a three phase **Micro-generating Plant** (and for a two phase unit in a split phase system). Please ensure that both test and standard impedance are completed on this form. If the test impedance (or the measured impedance) is different to the standard impedance, it must be normalised to the standard impedance as follows (where the **Power Factor** of the generation output is 0.98 or above):
d max normalised value = (Standard impedance / Measured impedance) x Measured value.
Where the **Power Factor** of the output is under 0.98 then the X to R ratio of the test impedance should be close to that of the standard impedance.
The stopping test should be a trip from full load operation.
The duration of these tests needs to comply with the particular requirements set out in the testing notes for the technology under test.
The test date and location must be declared.

Test start date	2023-11-07	Test end date	2023-11-07
Test location	No.99, Hongye Road, Suzhou Industrial Park, Suzhou, Jiangsu, P.R. China		
Model:	GW3000-XS-30		

Single Phase

	Starting			Stopping			Running	
	d(max)	d(c)	d(t)	d(max)	d(c)	d(t)	P_{st}	P_{lt} 2 hours
Measured Values at test impedance	0.145	0.077	0	0.140	0.077	0	0.14	0.11
Normalised to standard impedance	0.145	0.077	0	0.140	0.077	0	0.14	0.11
Normalised to required maximum impedance	N/A	N/A	N/A	N/A	N/A	N/A	N/A	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	0.4	Ω	XI	0.25	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 **Micro-generators**. Delete as appropriate.
^ Applies to single phase **Micro-generators** and **Micro-generators** using two phases on a three phase system. Delete as appropriate.

4. Power quality – DC injection:				**P**
This test should be carried out in accordance with A 1.3.4 as applicable. The % **DC** injection ("as % of rated AC current" below) is calculated as follows: % **DC** injection = Recorded **DC** value in Amps / base current where the base current is the **Registered Capacity** (W) / 230 V. The % **DC** injection should not be greater than 0.25%.				
Model: GW3000-XS-30				
Single Phase				
Test power level	20%	50%	75%	100%
Recorded DC injection value in Amps	27.2mA	30.2mA	29.32mA	27.46mA
as % of rated AC current	0.21%	0.23%	0.22%	0.21%
Limit	0.25%	0.25%	0.25%	0.25%
Model: GW700-XS-30				
Single Phase				
Test power level	20%	50%	75%	100%
Recorded DC injection value in Amps	5.11 mA	7.51 mA	7.35 mA	7.53 mA
as % of rated AC current	0.17%	0.247%	0.242%	0.247%
Limit	0.25%	0.25%	0.25%	0.25%

5. Power Factor:			**P**
This test shall be carried out in accordance with A.1.3.2 and A.2.3.2 at three voltage levels and at **Registered Capacity** and the measured **Power Factor** must be greater than 0.95 to pass. Voltage to be maintained within ±1.5% of the stated level during the test.			
Model: GW3000-XS-30			
Voltage	0.94 pu (216.2 V)	1 pu (230 V)	1.1 pu (253 V)
Measured value	1.000	1.000	1.000
Power Factor Limit	>0.95	>0.95	>0.95
Model: GW700-XS-30			
Voltage	0.94 pu (216.2 V)	1 pu (230 V)	1.1 pu (253 V)
Measured value	0.999	0.999	0.998
Power Factor Limit	>0.95	>0.95	>0.95

6. Protection – Frequency tests:						**P**
These tests should be carried out in accordance with Annex A1 A.1.2.3 (**Inverter** connected) or Annex A2 A.2.2.3 (Synchronous). For trip tests, frequency and time delay should be stated. For “no trip tests”, “no trip” can be stated.						
Model: GW3000-XS-30						
Function	Setting		Trip test		“No trip tests”	
	Frequency	Time delay	Frequency	Time delay	Frequency / time	Confirm no trip
U/F stage 1	47.5 Hz	20 s	47.40	20.10 s	47.7 Hz 30 s	No trip
U/F stage 2	47.0 Hz	0.5 s	46.90	0.548 s	47.2 Hz 19.5 s	No trip
					46.8 Hz 0.45 s	No trip
O/F	52.0 Hz	0.5 s	52.02	0.540 s	51.8 Hz 120.0 s	No trip
					52.2 Hz 0.45 s	No trip
Note: For frequency trip tests the frequency required to trip is the setting ± 0.1 Hz. In order to measure the time delay a larger deviation than the minimum required to operate the projection can be used. The “No trip tests” need to be carried out at the setting ± 0.2 Hz and for the relevant times as shown in the table above to ensure that the protection will not trip in error.						

7. Protection – Voltage tests:						**P**
These tests should be carried out in accordance with Annex A1 A.1.2.2 (**Inverter** connected) or Annex A2 A.2.2.2 (Synchronous). For trip tests, voltage and time delay should be stated. For “no trip tests”, “no trip” can be stated.						
Model: GW3000-XS-30						
Single Phase						
Function	Setting		Trip test		“No trip tests”	
	Voltage	Time delay	Voltage	Time delay	Voltage / time	Confirm no trip
U/V	0.8 pu (184 V)	2.5 s	182.22 V	2.500 s	188 V 5.0 s	No trip
					180 V 2.45 s	No trip
O/V stage 1	1.14 pu (262.2 V)	1.0 s	262.21 V	1.028 s	258.2 V 5.0 s	No trip
O/V stage 2	1.19 pu (273.7 V)	0.5 s	273.69 V	0.500 s	269.7 V 0.95 s	No trip
					277.7 V 0.45 s	No trip
Note: For Voltage tests the Voltage required to trip is the setting ±3.45 V. The time delay can be measured at a larger deviation than the minimum required to operate the protection. The No trip tests need to be carried out at the setting ±4 V and for the relevant times as shown in the table above to ensure that the protection will not trip in error.						

8. Protection – Loss of Mains test:									**P**
For PV **Inverter**s shall be tested in accordance with BS EN 62116. Other **Micro-generator**s should be tested in accordance with A.2.2.4 at 10%, 55% and 100% of rated power. For test condition A, EUT output = 100 % P_n, test condition B, EUT output = 50 % to 66 % P_n, and test condition C, EUT output = 25 % to 33 % P_n.									
Model: GW3000-XS-30									
For **Inverter**s tested to BS EN 62116 the following sub set of tests should be recorded in the following table.									
Test Power and imbalance	33% -5% Q Test 22		66% -5% Q Test 12		100% -5% P Test 5	33% +5% Q Test 31	66% +5% Q Test 21	100% +5% P Test 10	
Trip time. **Limit is 0.5s**	0.196 s		0.204 s		0.210 s	0.252 s	0.250 s	0.258 s	

No.	P_{EUT} a) (% of EUT rating)	Reactive load (% of Q_L)	P_{AC} b) (% of nominal)	Q_{AC} c) (% of nominal)	Run-on time (ms)	P_{EUT} (W)	Actual Q_f	V_{DC} d)	Remarks e)
1	100	100	0	0	476	2890	1.000	508.00	Test A at BL
2	66	66	0	0	472	2100	1.000	298.71	Test B at BL
3	33	33	0	0	476	993	1.002	100.07	Test C at BL
4	100	100	-5	-5	200	2850	1.015	508.00	Test A at IB
5	100	100	-5	0	248	2850	1.038	508.00	Test A at IB
6	100	100	-5	+5	244	2890	1.079	508.00	Test A at IB
7	100	100	0	-5	210	2890	0.964	508.00	Test A at IB
8	100	100	0	+5	258	3090	1.025	508.00	Test A at IB
9	100	100	+5	-5	195	3090	0.901	508.00	Test A at IB
10	100	100	+5	0	246	3060	0.932	508.00	Test A at IB
11	100	100	+5	+5	247	3060	0.968	508.00	Test A at IB
12	66	66	0	-5	204	2000	0.952	298.71	Test B at IB
13	66	66	0	-4	207	2010	0.957	298.71	Test B at IB
14	66	66	0	-3	208	2010	0.962	298.71	Test B at IB
15	66	66	0	-2	209	2010	0.967	298.71	Test B at IB
16	66	66	0	-1	212	2010	0.972	298.71	Test B at IB
17	66	66	0	+1	456	2010	1.005	298.71	Test B at IB
18	66	66	0	+2	454	2010	1.007	298.71	Test B at IB
19	66	66	0	+3	296	2010	1.012	298.71	Test B at IB

20	66	66	0	+4	253	2010	1.017	298.71	Test B at IB
21	66	66	0	+5	250	2000	1.025	298.71	Test B at IB
22	33	33	0	-5	196	995	0.933	100.07	Test B at IB
23	33	33	0	-4	200	995	0.934	100.07	Test C at IB
24	33	33	0	-3	204	995	0.943	100.07	Test C at IB
25	33	33	0	-2	206	995	0.949	100.07	Test C at IB
26	33	33	0	-1	212	995	0.953	100.07	Test C at IB
27	33	33	0	+1	470	995	1.007	100.07	Test C at IB
28	33	33	0	+2	468	993	1.012	100.07	Test C at IB
29	33	33	0	+3	378	993	1.017	100.07	Test C at IB
30	33	33	0	+4	308	993	1.022	100.07	Test C at IB
31	33	33	0	+5	252	993	1.027	100.07	Test C at IB

Note:
PEUT: EUT output power.
Pac: Active power flow at S1 in Figure 1. Positive means power from EUT to utility. Nominal is the 0 % test condition value.
Q_{ac}: Reactive power flow at S1 in Figure 1. Positive means power from EUT to utility. Nominal is the 0 % test condition value.
For test condition A, > 75 % of rated input voltage range used, for test condition B, 50 % of rated input voltage range, ±10 % used, for test condition C, < 20 % of rated input voltage range used. Based on EUT rated input operating range. For example, if range is between X volts and Y volts, 75 % of range = X + 0,75 × (Y – X). Y shall not exceed 0,8 × EUT maximum system voltage (i.e., maximum allowable array open circuit voltage). In any case, the EUT should not be operated outside of its allowable input voltage range.
BL: Balance condition, IB: Imbalance condition.

If the device requires additional shut down time (beyond 0.5 s but less than 1 s) then this should be stated on this form.

8. Protection – Frequency change, Vector Shift Stability test:			**P**
This test should be carried out in accordance with EREC G98 Annex A1 A.1.2.6 (**Inverter** connected) or Annex A2 A.2.2.6 (Synchronous). Confirmation is required that the **Micro-generating Plant** does not trip under positive / negative vector shift.			
Model: GW3000-XS-30			
	Start Frequency	Change	Confirm no trip
Positive Vector Shift	49.0 Hz	+50 degrees	No trip
Negative Vector Shift	50.0 Hz	-50 degrees	No trip

8. Protection – Frequency change, RoCoF Stability test:			**P**
The requirement is specified in section 11.3, test procedure in Annex A.1.2.6 (**Inverter** connected) or Annex A2 A.2.2.6 (Synchronous). Confirmation is required that the **Micro-generating Plant** does not trip for the duration of the ramp up and ramp down test.			
Model: GW3000-XS-30			
Ramp range	Test frequency ramp:	Test Duration	Confirm no trip
49.0 Hz to 51.0 Hz	+0.95 Hzs^{-1}	2.15 s	No trip
51.0 Hz to 49.0 Hz	-0.95 Hzs^{-1}	2.10 s	No trip

9. Limited Frequency Sensitive Mode – Over frequency test:					**P**
This test should be carried out in accordance with A.1.2.9. The test should be carried out using the specific threshold frequency of 50.4 Hz and **Droop** of 10%. The measurement tolerances are contained in A.1.2.9.					
Model: GW3000-XS-30					
Alternatively, simulation results should be noted below:					
Test sequence at **Registered Capacity** >80%	Measured **Active Power** Output (W)	Frequency (Hz)	Calculated droop (%)	Primary Power Source	**Active Power** Gradient
Step a) 50.00 Hz ±0.01 Hz	2988.49	50.00	-	Photovoltaic array simulator	-
Step b) 50.45 Hz ±0.05 Hz	2956.20	50.45	9.18		-
Step c) 50.70 Hz ±0.10 Hz	2799.75	50.70	9.52		-
Step d) 51.15 Hz ±0.05 Hz	2529.41	51.15	9.79		-
Step e) 50.70 Hz ±0.10 Hz	2799.16	50.70	9.49		-
Step f) 50.45 Hz ±0.05 Hz	2955.70	50.45	9.03		-
Step g) 50.00 Hz ±0.01 Hz	2986.62	50.00	-		
Test sequence at **Registered Capacity** 40-60%	Measured **Active Power** Output (W)	Frequency (Hz)	Calculated droop (%)	Primary Power Source	**Active Power** Gradient
Step a) 50.00 Hz ±0.01 Hz	1499.22	50.00	--	Photovoltaic array simulator	-
Step b) 50.45 Hz ±0.05 Hz	1466.50	50.45	9.05		-
Step c) 50.70 Hz ±0.10 Hz	1310.66	50.70	9.52		-
Step d) 51.15 Hz ±0.05 Hz	1039.56	51.15	9.78		-
Step e) 50.70 Hz ±0.10 Hz	1310.57	50.70	9.52		-
Step f) 50.45 Hz ±0.05 Hz	1466.87	50.45	9.15		-

Step g) 50.00 Hz ±0.01 Hz	1499.93	50.00	--		

The frequency at each step should be maintained for at least one minute and the Active Power reduction in the form of a gradient determined and assessed for compliance with paragraph 11.2.3. The Droop should be determined from the measurements between 50.4 Hz and 51.15 Hz. The allowed tolerance for the frequency measurement shall be ± 0.05 Hz. The allowed tolerance for Active Power output measurement shall be ±10% of the required change in Active Power.
The resulting overall tolerance range for a nominal 10% Droop is +2.8% and – 1.5%.

10. Power output with falling frequency test (For PV Inverter): **P**

This test should be carried out in accordance with A.1.2.7.

Model: GW3000-XS-30

Test sequence	Measured **Active Power** Output (W)	Frequency (Hz)	Primary power source
Test a) 50 Hz ± 0.01 Hz	2989.31	50.00	Photovoltaic array simulator
Test b) Point between 49.5 Hz and 49.6 Hz	2987.71	49.60	Photovoltaic array simulator
Test c) Point between 47.5 Hz and 47.6 Hz	2988.26	47.60	Photovoltaic array simulator

12. Re-connection timer **P**

Model: GW3000-XS-30

Test should prove that the reconnection sequence starts after a minimum delay of 20 s for restoration of voltage and frequency to within the stage 1 settings of Table 2. Both the time delay setting and the measured delay should be provided in this form; both should be greater than 20 s to pass. Confirmation should be provided that the **Micro-generating Plant** does not reconnect at the voltage and frequency settings below; a statement of “no reconnection” can be made.

Time delay setting	Measured delay	Checks on no reconnection when voltage or frequency is brought to just outside stage 1 limits of Table 10.1.			
40 s	42 s	At 1.16 pu (266.2 V)	At 0.78 pu (180.0 V)	At 47.4 Hz	At 52.1 Hz
Confirmation that the **Micro-generator** does not re-connect.		No Reconnection	No Reconnection	No Reconnection	No Reconnection
Recover to normal operation range after confirmation of no connection		Yes	Yes	Yes	Yes
Confirmation that the Power Generating Module shall reconnect		Reconnection after 42 s	Reconnection after 42 s	Reconnection after 42 s	Reconnection after 42 s

13. Fault level contribution: **P**

These tests shall be carried out in accordance with EREC G98 Annex A1 A.1.3.5 (**Inverter** connected) and Annex A2 A.2.3.4 (Synchronous). Please complete each entry, even if the fault contribution is zero.

Model: GW3000-XS-30

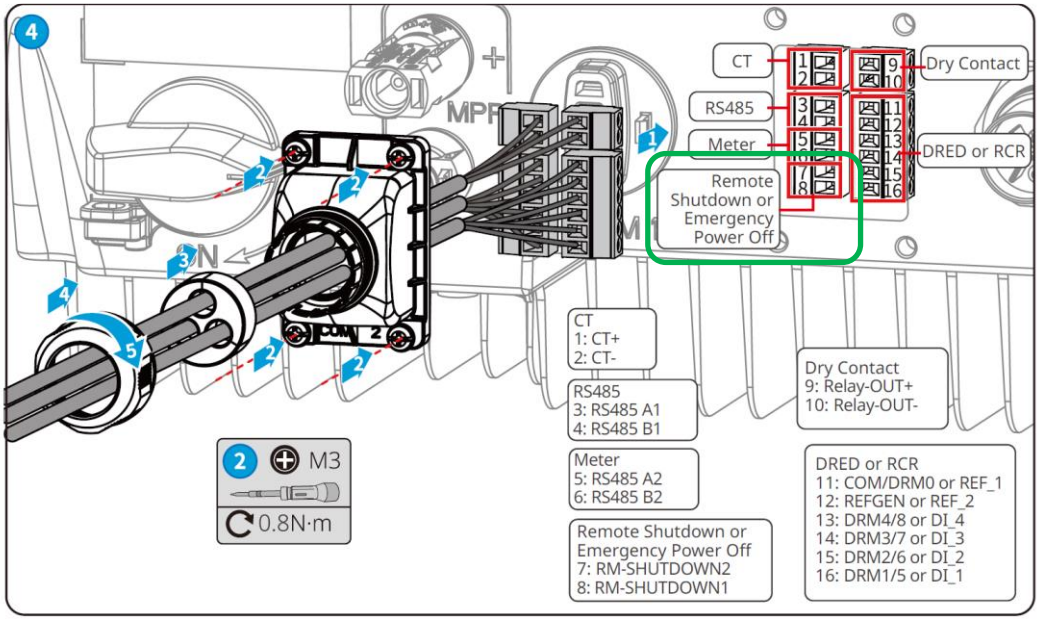
For machines with electro-magnetic output			For **Inverter** output		
Parameter	Symbol	Value	Time after fault	Volts	Amps
Peak Short Circuit current	i_p	N/A	20ms	56.0V	0.8A
Initial Value of aperiodic current	A	N/A	100ms	52.4V	3.61A
Initial symmetrical short-circuit current*	I_k	N/A	250ms	51.3V	10.84A
Decaying (aperiodic)	i_{DC}	N/A	500ms	51.0V	12.29A

component of short circuit current*					
Reactance/Resistance Ratio of source*	$^{X}/_{R}$	N/A	Time to trip	0.791S	In seconds
For rotating machines and linear piston machines the test should produce a 0 s – 2 s plot of the short circuit current as seen at the **Micro-generator** terminals. * Values for these parameters should be provided where the short circuit duration is sufficiently long to enable interpolation of the plot.					

14. Logic interface (input port)	
Confirm that an input port is provided and can be used to reduce the **Active Power** output to zero	Yes
Provide high level description of logic interface, e.g. details in 9.4.3 such as AC or **DC** signal (the additional comments box below can be used)	Yes
15. Self-Monitoring solid state switching: No specified test requirements. Refer to EREC G98 Annex A1 A.1.3.6 (**Inverter** connected).	
It has been verified that in the event of the solid state switching device failing to disconnect the **Micro-generator**, the voltage on the output side of the switching device is reduced to a value below 50 V within 0.5 s.	Yes
16. Cyber security	
Confirm that the **Manufacturer** or **Installer** of the **Micro-generator** has provided a statement describing how the **Micro-generator** has been designed to comply with cyber security requirements, as detailed in 9.7.	Yes, Manufacturer's declaration provided.

Additional comments.

The inverter provides a logical interface that can be operated via an external switch or contactor to reduce the active power output to zero. Users can install the switch connected to port 7and port 8 of the inverter and just need control the switch signal causing the switch to open or short. When the switch is closed, the inverter will operate normally. When the switch is opened, the inverter will cease to export active power within 5 seconds.



-End-