

TEST REPORT

for ELECTRICAL INSTALLATION
(To SANS 10142-1)

Certificate No.:

Date of Issue:

Additional pages added

☐ Yes☐ No

Existing certificate of compliance:	<input type="checkbox"/> Yes	<input type="checkbox"/> No	Date issued:	Number:	
<input type="checkbox"/> Existing installation	<input type="checkbox"/> Alteration / extension	<input type="checkbox"/> New installation	<input type="checkbox"/> Temporary installation		
Type of installation:	<input type="checkbox"/> Residential	<input type="checkbox"/> Commercial	<input type="checkbox"/> Industrial	<input type="checkbox"/> Common area for multiple users (Sectional title)	
	<input type="checkbox"/> Other		Describe:		
Type of embedded generation installation:	<input type="checkbox"/> Inverter based generation		<input type="checkbox"/> Synchronous machines	<input type="checkbox"/> Asynchronous machines	
	<input type="checkbox"/> Other		Specify:		
Size of embedded generation installation:	kVA	Category:	<input type="checkbox"/> A1	<input type="checkbox"/> A2	<input type="checkbox"/> A3
Type of electricity supply system:	<input type="checkbox"/> TN-S	<input type="checkbox"/> TN-C-S	<input type="checkbox"/> TN-C	<input type="checkbox"/> TT	<input type="checkbox"/> IT
Supply earth terminal provided:	<input type="checkbox"/> Yes	<input type="checkbox"/> No			
Prospective short-circuit current at point of control (PSCC):				kA	
How determined?	<input type="checkbox"/> Calculated		<input type="checkbox"/> Measured		<input type="checkbox"/> From Supplier
Main switch type:	<input type="checkbox"/> Switch Disconnector (on-load isolator)		<input type="checkbox"/> Fuse switch		<input type="checkbox"/> Circuit-breaker
	<input type="checkbox"/> Earth leakage circuit-breaker		<input type="checkbox"/> Earth leakage Switch Disconnector		
Number of poles:		Current rating:	A	Short-circuit / withstand rating: kA	
Surge protection:	<input type="checkbox"/> Yes		<input type="checkbox"/> No		

Inspection

NOTE: Answer "Yes" or "N/A". The report shall not be issued if any "No" answers appear.

Existing
InstallationNew / Altered /
Temporary

1.Circuits, fuses, switches, terminals, earth leakage units, circuit-breakers, distribution boards are correctly and permanently marked and / or labelled.

1.1 Point of Utility Supply correctly labelled.

1.2 Point of Control correctly labelled.

1.3 Point of Source Isolation correctly labelled.

1.4 Point of Source Separation correctly labelled.

1.5 Point of Generator Connection correctly labelled.

2.Lightning protection risk assessment is required. (If yes, attach SANS 10313 risk assessment report under Section 6 of this report).

3.Closing on dead bus protection and control function tested.

4.Anti-islanding protection and control function tested.

5.Synchronisation protection and control function tested (if applicable).

6.Single line diagram displayed in relevant distribution boards.

7.Structural requirements, as per SANS 10400, related to the EGI identified and addressed

8.Additional Utility requirements for EGIs are identified and addressed

9.The local authority has been notified of the EGI (If yes, provide notification number)(As per Annex 4 OHS Act)

Tests

Carry out all the tests for the main distribution board. Also conduct all tests and complete copies of the tests for each distribution board and for each supply (normal and alternative supplies), and attach as annexes to this report.

Units

Instrument

Readings / Result

Existing
installationNew / altered /
temporary
installation

1 Continuity of bonding.

 Ω

2 Resistance of earth continuity conductor.

 Ω

3 Earth loop impedance test.

 Ω

4 Neutral loop impedance test.

 Ω

6 Elevated voltage between incoming neutral and external earth (ground).

V

7 Earth resistance at electrode (if required).

 Ω

8 Insulation resistance.

M Ω

12 Operation of all earth leakage units.

mA

13 Operation of all earth leakage test buttons.

-

Correct

Correct

14 Polarity of points of consumption.

-

Correct

Correct

15 Phase rotation at points of consumption for three-phase systems.

-

Correct

Correct

16 All Switching Devices, make-and-break circuits.

-

Correct

Correct

17.Islanding condition – time to disconnect.

S

Inspection					Existing installation		New / altered / temporary installation	
NOTE: Answer "Yes" or "N/A". The report shall not be issued if any "No" answers appear.								
1. Single line diagram.								
2. Local authority notification.								
3. Lightning protection risk assessment report (if applicable).								
4. Structural requirements related to EGI installation identified and addressed, i.e., SANS 0400 Roof Test Report.								
Tests				Units	Instrument	Readings / Result		
Carry out all the tests for the energy storage system.						Existing installation	New / altered / temporary installation	
NOTE: Answer "Yes" or "N/A". The report shall not be issued if any "No" answers appear.								
1.Maximum calculated gas build-up.				%				
2.Torque rating of battery storage terminals.				N.m.				
3.Ambient temperature during commissioning.				°C				
4.Maximum expected temperature.				°C				
5.Voltage of each cell.				Ω				
6.Specific gravity of each cell.				SG				
7.Total voltage of interconnected cells at the battery terminals.				V				
8.Total voltage of interconnected cells at the Power Conversion Equipment (PCE) terminals.				V				
9.Maximum load on battery-connected inverter.				W				
10.Maximum charging voltage achieved from charge controller.				V				
11.Earth loop impedance test during island mode (for hybrid systems only).				Ω				
12.Neutral loop impedance test (for hybrid systems only).				Ω				
13.Prospective short-circuit current at Point of Isolation of the storage system.								
Indicate:	kA	<input type="checkbox"/> Calculated	<input type="checkbox"/> Measured	<input type="checkbox"/> From Supplier	-			
14.Battery bank voltage corresponds with battery inverter rating.				-		Correct		Correct
15.Polarity of interconnection of components.				-		Correct		Correct

Tests			Reading / Result Per Solar PV String								
Carry out all the tests for the DC side of the Embedded Generation Installation (EGI). NOTE: Where values are not required, answer "Yes" or "N/A". The report shall not be issued if any "No" answers appear.			Units	1		2		3		4	
Array	Module size	Wp									
	Quantity	-									
Array Parameters	Voc (STC)	V									
	Isc (STC)	A									
String Test	Voc	V									
	Isc	A									
	Irradiation (Sun)	w/m ²									
Polarity Check		-	Correct		Correct		Correct		Correct		
Earth Continuity		-	Correct		Correct		Correct		Correct		
Array Insulations Resistance (Ref IEC 60364-713-04, Test Method Annex 1)	Test voltage	V									
	Positive – Earth	MΩ									
	Negative – Earth	MΩ									
Connected to Inverter (Serial No.)		-									
EGI Inverter	Voltage at AC terminals after switching off inverter after 2s.	V									
	Time to reconnect to the AC grid.	s									
	Elevated voltage at inverter output.	V									

The DC test shall be performed in the following order:

1. Test continuity of equipment grounding / earthing conductors and system grounding / earthing conductors;
2. Test polarity of all DC cables, and check for correct cable identification and connections;
3. Test open-circuit voltage (Voc) for each PV source circuit;
4. Test short-circuit current (Isc) for each PV source circuit;
5. Test functionality of major system components (isolation, controls, protection and inverters);
6. Test the insulation resistance of the DC circuit conductors.