



MR. & ENGINEER NF VAN SCHALKWYK
Harmonizer and GM of Solar Training Centre

Overview of EG/DG Commissioning

*DG Support Workshop for Regulators and Utilities
Cape Town, South Africa: 22 - 26 June 2026*

GET.transform is co-funded by



Commissioning process and sign off

1. What is Commissioning
2. Commissioning Report
3. Inverter installation and programming example
4. Summary

What is Commissioning

Oxford definition of commissioning:

“Bring (something newly produced) into working condition”

DG like Solar Photovoltaic (PV) and storage systems are

- 1) New products
- 2) Unique in design; based on functionality and constraints
- 3) Has various integration challenges

What is DG Commissioning

Technical Commissioning:

The installer's **own testing of the system before it goes live**: insulation resistance, earthing, inverter configuration, and confirming anti-islanding works correctly. **Produces the Commissioning Report.**

Operational Commissioning ("Permission to Operate")

The **utility's formal review and sign-off authorising the system to actually switch on and run in parallel with the grid, based on that Commissioning Report** and the DG application.

Is commissioning necessary?

- The client wants a safe (legal), well working system
- Product supplier wants to honour their warrantee(s)
- Most installers wants to build and protect their reputation
- The network operator or utility wants to protect the network, the user(s) and community
- **Proper commissioning and reporting will help to address some of the above-mentioned requirements.**



OVERVIEW OF DG COMMISSIONING

Commissioning Report

DG Commissioning Report

Project Name:

Notes: (e.g. new system/ existing system being expanded etc)

1 Account Holder Details

Name:		
Electricity Account No:		
Property Registration No:		
Telephone Number:	Landline:	Mobile:
Email Address:		
Physical address:		

DG Commissioning Report

2 Installer Details

Company Name:			
Contact Person:			
Telephone Number:	Landline:	Mobile:	
Email Address:			
Physical address:			
		Postal code:	

DG Commissioning Report

3 Distributed Generator (DG) Details

Key equipment Manufacturer/s and Model/s:	
Total AC rating (kVA):	
Single or three phase:	
Serial number/s of key equipment (specify equipment e.g. inverter/s):	

4 Attachments Checklist

|

✓

nsform
rgy

Final as-built circuit diagram: <i><u>NOTE:</u> The diagram is to clearly indicate point of connection to Utility network, the location of all protection devices, location of all breakers/isolators/disconnectors, measurement location for all protection and control devices, connection point of the DG to the total system.</i>	
Energy Conversion type test Certificate of Compliance according to <i>Embedded Generation Interconnection Specification</i> , issued by accredited 3 rd party test house (mandatory for inverters):	
(If storage inverter in parallel:) Separate <i>Embedded Generation Interconnection Specification</i> certificate for storage inverter:	
Electrical installation Certificate of Compliance according to appropriate wiring standard issued by an industry accredited installer:	

5 Compulsory Declaration and Tests

The DG installation complies with the relevant sections of the <i>Embedded Generation Interconnection Specification</i> and Simplified Connection Criteria:	Y/N
ANTI-ISLANDING TEST: The loss of mains protection (anti-islanding) has been checked to be functional in a test carried out on-site – i.e. a momentary disconnection of the mains supply to the site:	Y/N
Safety labels have been fitted in accordance with the <i>Embedded Generation Interconnection Specification</i> (distribution board and metering point):	Y/N
The EG complies with licensing/registration requirements of the Regulator :	Y/N
The DG installation complies with any reverse feed/export limitations in the Utility's <i>Requirements for Embedded Generation</i> document (if applicable), including being set up to comply with maximum export capacity limits:	Y/N
Comments/notes:	

form

6 Compulsory Sign-Off

orm

SIGNOFF BY COMPETENT PERSON:

A qualified installer shall conduct commissioning tests in the presence of the utility. If the utility is satisfied with the results of the commissioning tests, an interconnection agreement and commissioning certificate for shall be issued.

Date

Signature

Full Name of signatory:			
Signatory registration details (tick if applicable):	Accredited Installer	☒	Registered professional engineer
		☒	

6 Compulsory Sign-Off

Registration No. (Industry Accreditation/ professional body):			
Company Name:			
Telephone Number:	Landline:	Mobile:	
Email Address:			
Physical address:			
		Postal code:	

m



OVERVIEW OF EG COMMISSIONING

Inverter Installation and Programming

Grid Code and Exporting

• GRID CODE SETTINGS

- Default or none
- Select NRS 097-2-1/VDE 4105, IEC 61727, IEEE 1547, IEC 62116, etc

• EXPORTING PARAMETERS

- Define utility supply reference (Internal or External CT)
- To export or not (PV/Batteries)
- Minimum Import/load
- SET Maximum Export Capacity (MEC) as specified by PTI
- Three-phase setup

VE Configure 3 (Quattro 12/3000/120-50/30)

tion Target Defaults Options Special Help

General Grid Inverter Charger Virtual switch Assistants

Grid code selection NRS097GridCodePage

Country / grid code standard
South Africa: NRS 097-2-1:2017

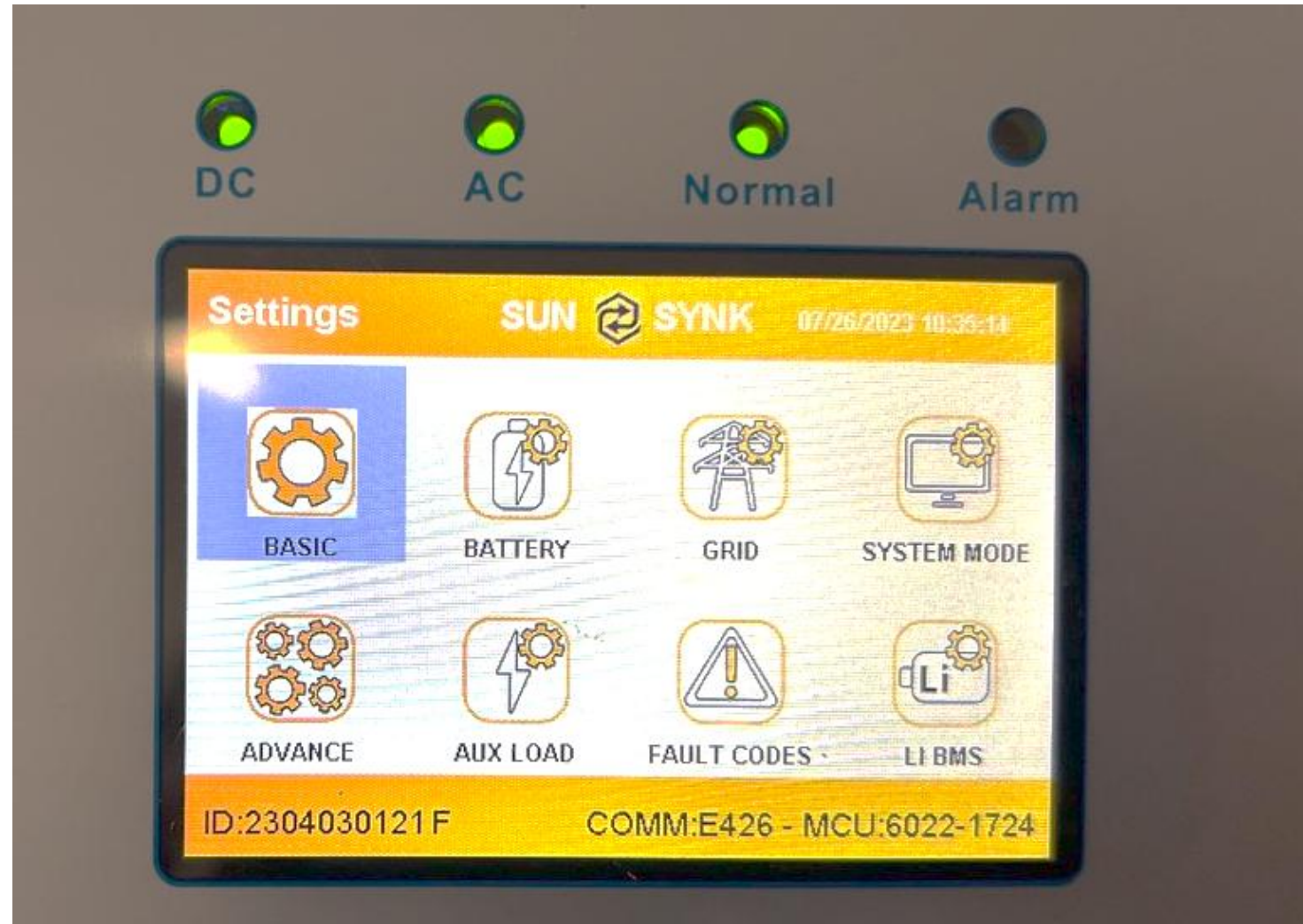
Loss Off Mains (LOM) detection
LOM detection AC input 1 disabled (not compliant)
LOM detection AC input 2 Type B (grid code compliant)

Note: Type B is preferred since it is suitable for a wider range of grids.
more info.

Get settings
Send settings

Changes require reset Password(s) required:

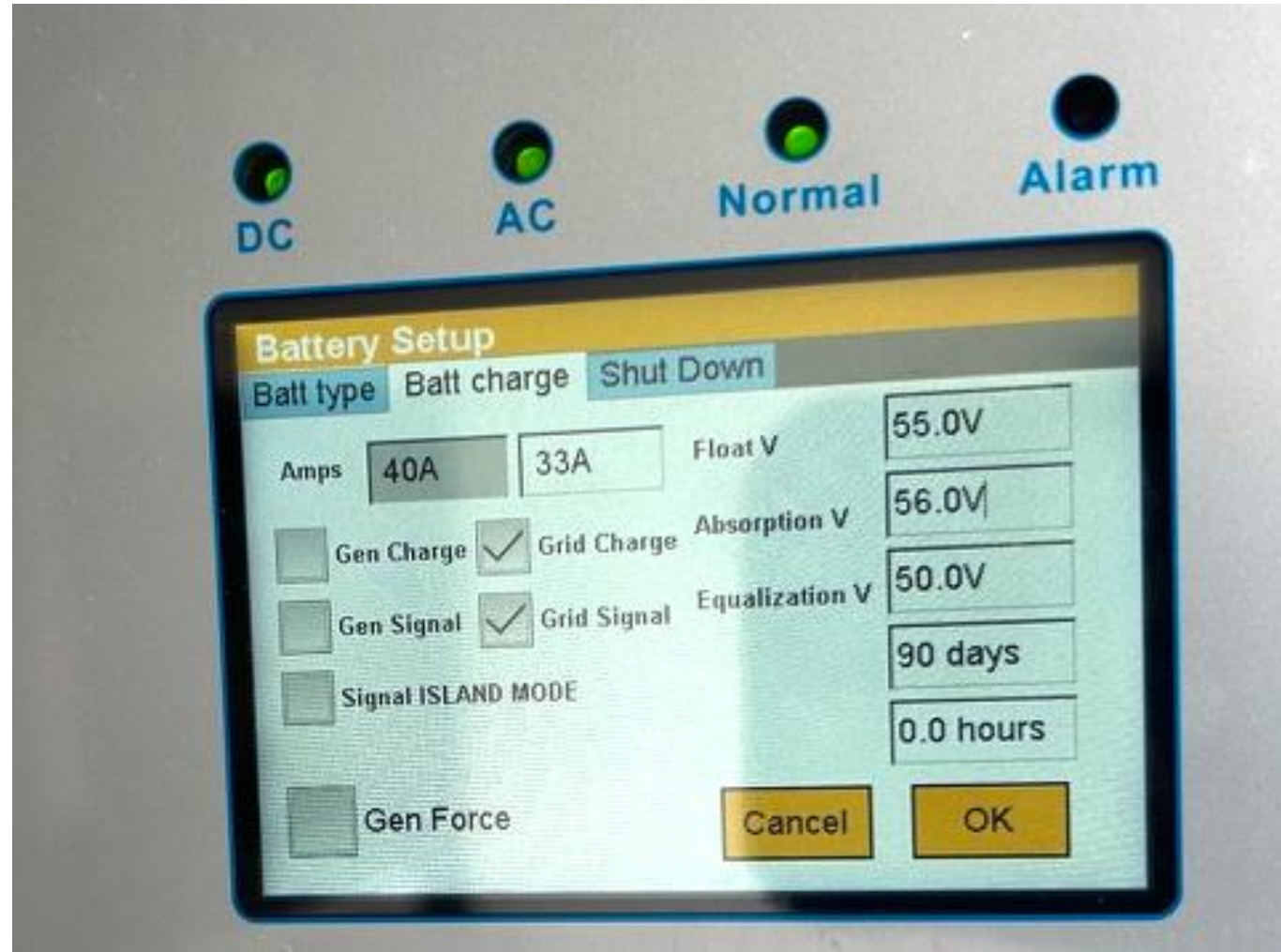
Inverter Commissioning for SSEG: Inverter User Interface Display



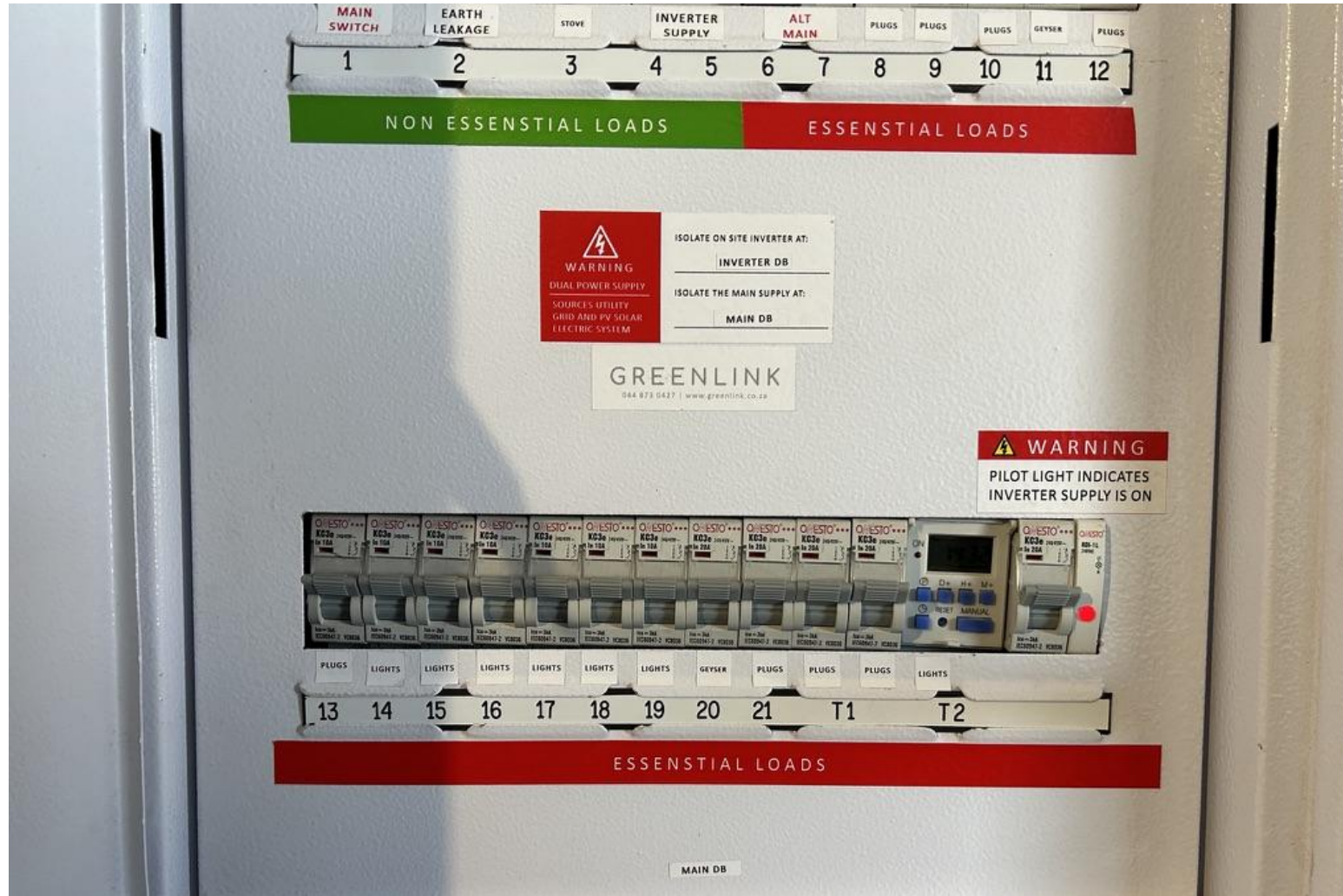
Inverter Commissioning for SSEG: NRS 097-2-1 Selection



Inverter Commissioning for SSEG: Battery Charging Setup



Inverter Commissioning for SSEG: Labeling



Inverter Commissioning for SSEG: Labeling

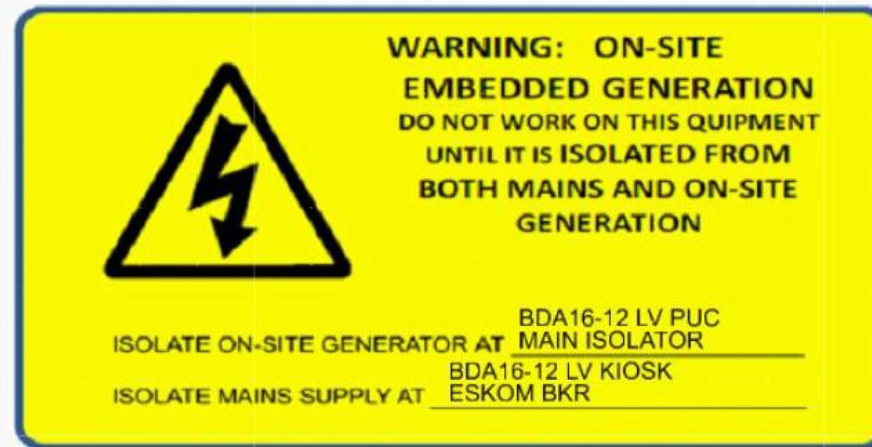


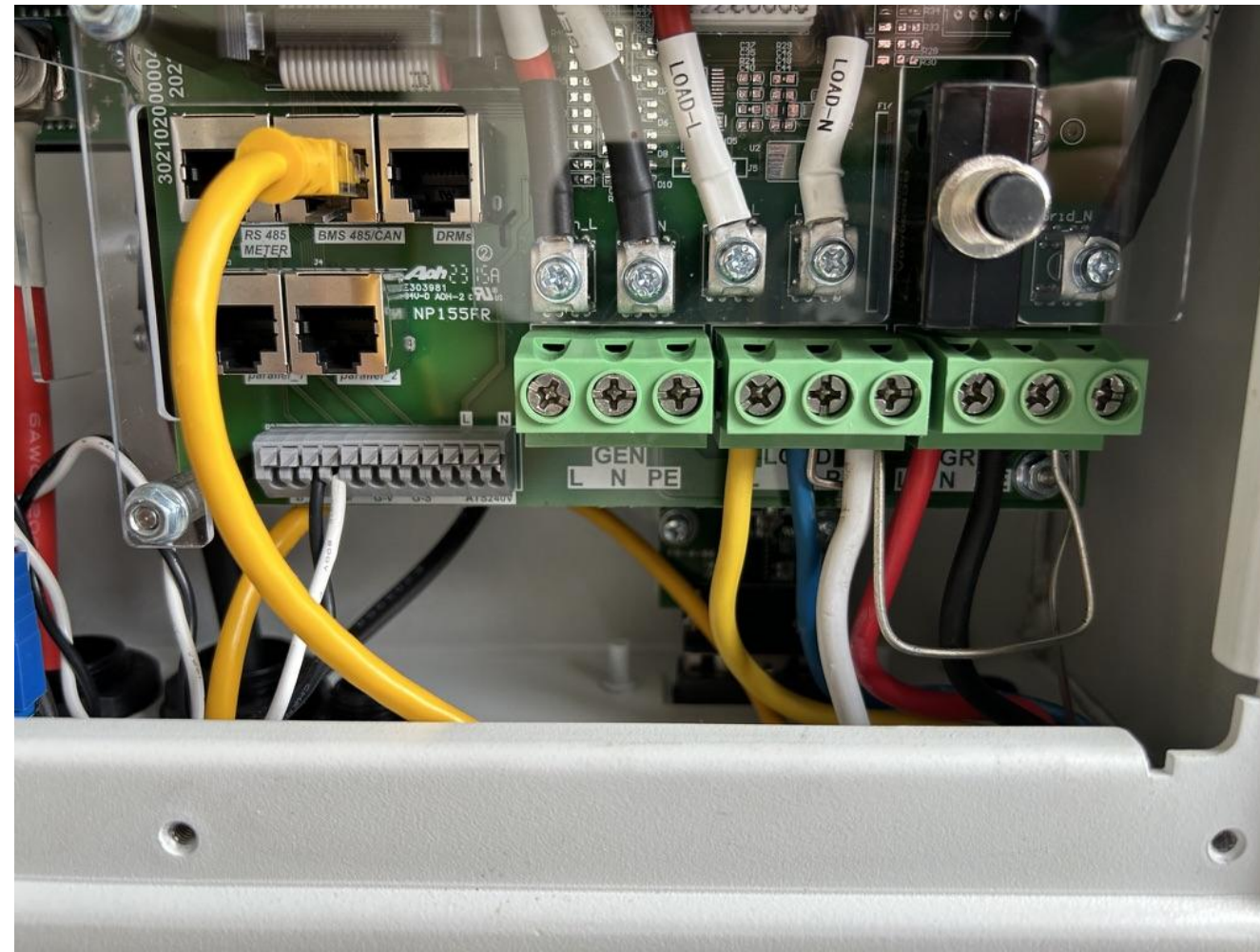
Figure 6 — Example of labelling (more isolation points to be added as required)

4.2.9.4 The absence of emergency shutdown capabilities will be indicated on signage in accordance with 4.2.2.



Figure 7 — Example of labelling for metering points (Colouring and other requirements to be confirmed with the utility).

Inverter Commissioning for SSEG: Neutral Earth Bridge/Bond



Extra Considerations

- For larger EG (For example > 350kW) It would be ideal if **power quality measurements** could be done for a few weeks prior and post to the commissioning mainly.
 - The existing power quality issues can be quantified
 - The effect of distributed generation can be identified
 - Provides a better understanding of how EG can influence the grid
- Operation and Switching philosophy; The operation of EG systems using a combination of solar PV, batteries and/or generators (Hybrid systems) need to be clearly explained and demonstrated.
- Diesel/back-up generators with synchronisation capabilities needs to be dealt with on a case by case and documented.

Commissioning Tests - Disclaimer

- **Disclaimer:**
- From a technical point of view the **Interconnection Specification test certificate covers these issues quite thoroughly**, so there are no safety concerns that REQUIRE the utility to do such tests as described here.
- Utilities may **perform such tests on selected (few)** installations for additional comfort on safety aspects.
- NB! - Utility employees may supply the testers but ***are not allowed to operate on electrical installations that is not part of their scope***. It's the facility owner's responsibility to delegate this function to capable people of their choice who will be responsible & liable for testing.

Take Home messages

- Commissioning of DG is necessary
- It allows for confirming details of DG
- Proper documentation improves safety and compliance