Manufacturer's CLS Product Information

This form is available in a Microsoft Word version from the ENA's website.

G100/2 - Form B - Compliance Verification Report for Customer Export or Import Limitation Schemes

This form shall be used by the **Manufacturer** to demonstrate and declare compliance with the requirements of EREC G100. The form can be used in a variety of ways as detailed below:

1. For **Fully Type Tested** status

   The **Manufacturer** can use this form to obtain **Fully Type Tested** status for a **CLS** by registering this completed form with the Energy Networks Association (ENA) Type Test Register.

2. To obtain **Type Tested** status for a product

   The **Manufacturer** can use this form to obtain **Type Tested** status for one or more **Components** which are used in a **CLS** by registering this form with the relevant parts completed with the Energy Networks Association (ENA) Type Test Register.

3. One-off Installation

   The **Installer** can use this form to confirm that the **CLS** has been tested to satisfy the requirements of this EREC G100. This form shall be submitted to the **DNO** before commissioning.

A combination of (2) and (3) can be used as required, together with Form C where compliance of the **CLS** is to be demonstrated on site.

Note:

If the **CLS** is **Fully Type Tested** and registered with the Energy Networks Association (ENA) Type Test Register, Form C shall include the **Manufacturer**'s reference number (the Type Test Register system reference), and this form does not need to be submitted.

Where the **CLS** is not registered with the ENA Type Test Register or is not **Fully Type Tested** this form (all or in parts as applicable) shall be completed and provided to the **DNO**, to confirm that the **CLS** has been tested to satisfy all or part of the requirements of this EREC G100.

CLS Designation		Type Tested	
Manufacturer name		GivEnergy	
Address		Unit 1, Osprey House, Brymbo Rd, Newcastle-under-Lyme, ST5 9HX	
Tel	01377252874	Web site	https://www.givenergy.co.uk/
E:mail	info@givenergy.co.uk		
Installer's name			
Address			

Tel		Web site	
E:mail			

Export/Import capabilities			
Export	Y ~~/ N~~	Import	Y ~~/ N~~

Description of Operation

EREC G100 section **Error! Reference source not found.** requires a description of the **CLS**, and schematic diagram, to be provided to the **Customer**. Please provide that description and the diagram here.

Product Details – GIV-AIO-AC-13.5-5.0, GIV-AIO-AC-13.5.GIV-AIO-GW1
Tested using firmware version D605-A605 and Gateway version GAA004

CLS Operation – The CLS consists of a MODBus connected meter utilising a CT on the incoming grid supply, housed within the Gateway unit**.** The GEM120CT transmits measured Active Power values, one averaged value per second to the GivEnergy EMS (Energy Management System) over CANBus to the EMS located in the power generation unit. The GIV-EMS sends new set points and controls the AC output power from the inverter.

Configuring the CLS - The CLS may be programmed with a site export limit in W and is can only be set by engineering level access to prevent system owner override *(G100/2 para 4.2)*.

CLS Response Time - The CLS will detect an excursion to the set limit and reduce the export to the Agreed Export Capacity or less within 5 seconds. Export power is on average 5% lower than the set limit, to prevent further breaches of the limit.

CLS State 1,2,3 - The GEM120CT meets the requirements (timing and allowable number of excursions) for state 1, 2 and 3 requirements, as required in the G100/2 policy.

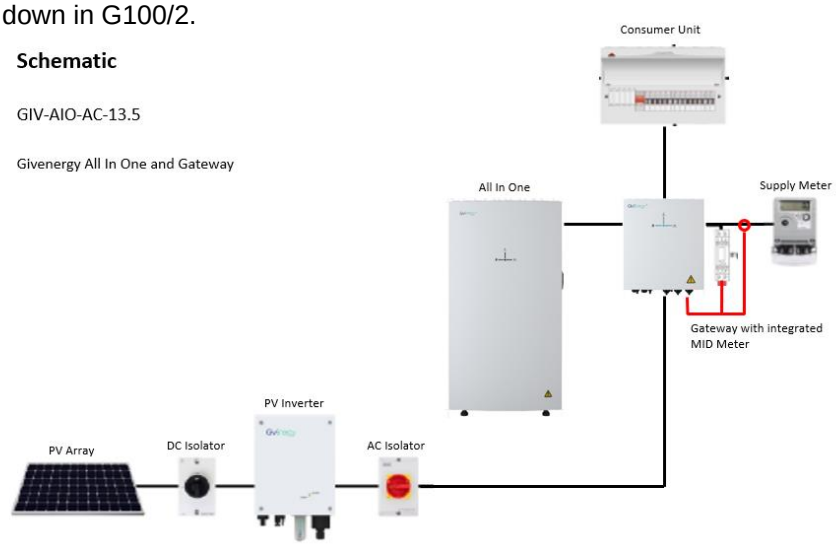
CLS Connection Method – The GEM120CT, located inside the gateway unit, is hard wired to the generation system using cat5 shielded cable, to always ensure guaranteed communications.

Power Quality – The GEM120CT in conjunction with the generation/storage system meets all the requirements laid down in G100/2.

Schematic

GIV-AIO-AC-13.5

Givenergy All In One and Gateway



Communications Media

Document the provisions made for the use of various communication media, and both the inherent characteristics and the design steps made to ensure security and reliability.

CLS Internal communication – All components of the CLS to generation and/or energy storage use the following: -

1. Hard wired ModBus RS485 protocol internal to the gateway. Using screened twisted pair cable.
2. Hard wired dedicated CT. Located inside the gateway device.
3. Gateway to generation device is via screened Cat5/6 cable. Utilising CANBus protocols.

Cyber Security

Confirm that the **Manufacturer** or **Installer** of the **CLS** has provided a statement describing how the **CLS** has been designed to comply with cyber security requirements, as detailed in section **Error! Reference source not found.**.

The Generation and/or energy storage system complies with the requirements laid down in ETSI EN303 645 V2.1.1. See separate Cyber security declaration.

Power Quality Requirements

Where the **CLS** includes the power electronics that controls generation or loads (as opposed to the power electronics being included in **Devices** that are subject to their own power quality compliance requirements) please submit the harmonic and disturbance information here as required by EREC G5 and EREC P28.

Power quality requirements are met in their respective G98 & G99 declarations. Separately provided, along with test reports.

Fail Safe

CLS internal failure: please submit here the description of the internal **Fail Safe** design and operation. Please also document how it has been demonstrated, including the non-volatile recording of times and numbers of state 2 operations, and confirm the overall response of the **CLS** to this internal failure.

Failure Modes – the following detail describes why the GivEnergy CLS is a failsafe scheme Declaration: G100/2 Compliance Certificate. *Ref. Para 4.3.3*

1. Should the gateway and energy storage device loose communication with each other, the gateway opens the grid relay, disconnecting the power generation device from the grid.

2.If the Energy meter itself were to fail, the RS485 communications would be lost, the gateway would signal to the generation and energy storage solution to permanently reduce output to the site export limit which has been set. Rendering there no change the Export limit can be breached.

3.If the gateway was to loose power, the grid relay would open, disconnecting the generation device from the grid supply.

4.If the CANBus communication connections cable is damaged, then the CANBus signal would be lost, the gateway would open the grid relay, disconnecting the power generation device from the grid supply.

5.If an individual inverter fails (In a paralleled configuration), then that inverter is bypassed due to a parallel connection and does not affect the operation of other components (If Present) which would continue to limit the system to the export limit which has been set.

6.If the current transformer wiring is removed, or the signal is lost, the inverters would permanently reduce output to the site export limit which has been set.

In summary – All components of the CLS are hard wired, an utilise heartbeat monitoring for correct communication flow. If this heartbeat is lost, missing or corrupted, the Generation and or energy storage solution will revert to fail safe mode and permanently reduce it output to that set.

Communication and power supply failures between **Components** and **Devices**. Please document here compliance with EREC G100 section **Error! Reference source not found.**.

Component/Device number/description	Communication failure test	Power supply failure test
GEM120CT Meter	Generation system reduced Inverter output to the Export limit	Generation system reduced Inverter output to the Export limit
Gateway	Grid relay is opened, disconnecting the power generation device from the grid	Grid relay is opened, disconnecting the power generation device from the grid but then allowing the Generating unit to run in island mode in parallel with the home consumer unit.

Operational Tests

In accordance with EREC G100 section **Error! Reference source not found.** undertake the tests A and B to confirm correct operation in state 1 and state 2, that transition into state 3 occurs as required, and that behaviour in state 3 is also as required.

Test A

Nominal Export Limit (for type tests this will be at maximum, minimum and one intermediate setting) in Amp:	3600W 16A
Nominal Import Limit (for type tests this will be at maximum, minimum and one intermediate setting) in Amp:	N/A

No	Starting level	Step value	**CLS** registers change in level?	**CLS** and/or **Component** and/or **Device** initiates correct response of ≥ 5%?	Duration of step in test	Correct state 1/ state 2 operation

1	Below Export Limit (EL)	105% of EL	Yes. Power output is reduced so that the meter measured at or below the EL	Yes	30 seconds	Yes
2	Below Export Limit (EL)	110% of EL	As above	Yes	30 seconds	Yes
3	Below Export Limit (EL)	120% of EL	As Above	Yes	30 seconds	Yes
Test B						
Nominal Export Limit:						3600W 16A
Nominal Import Limit						N/A
No	Starting level	Step value	**CLS** registers change in level?	**CLS** and/or **Component** and/or **Device** initiates correct response of ≥ 5%?	Duration of step in test	Correct state 3 operation
7	Below Export Limit (EL)	105% of EL	Yes. CLS initially adopts stage 2 and reduced output to the EL or below. 60 seconds later, Gateway raises communication fault and opens the grid relay, cutting the supply to the grid.	Yes	65 seconds	Yes
8						

State 3 Reset

These tests are to demonstrate compliance with section EREC G100 **Error! Reference source not found.**.

Please document how the reset from state 3 to state 1 has been demonstrated. Please include how the reset is achieved.

Please confirm that for **CLSs** to be installed in **Domestic installations** three (3) resets causes lockout or that for non-domestic installations lockout can only be reset after four hours. Please explain how lockout is reset.
If the generation and/or energy storage solution enters stage 3 (FailSafe). Normal operation cannot return till the system is reset/rebooted. On reboot the fault condition will be verified clear. Only once clear will normal operation, the grid relay closed & stage 1 and 2 be allowed. The reset is achieved only by logging onto the portal and sending a reset Inverter command. If the inverter is restarted 3 times within 1 hour, the portal will force logout for the user. The user will not be able to log in for a set duration.