Appendix B – 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		Fronius Export Limitation	
Manufacturer name		Fronius International GmbH	
Address		*Guenter Fronius Str 1* *4600 Wels-Thalheim, Austria*	
Tel	+43-7242-241-0	Web site	www.fronius.com
E:mail	pv@fronius.com		
Signed		On behalf of	Fronius International GmbH

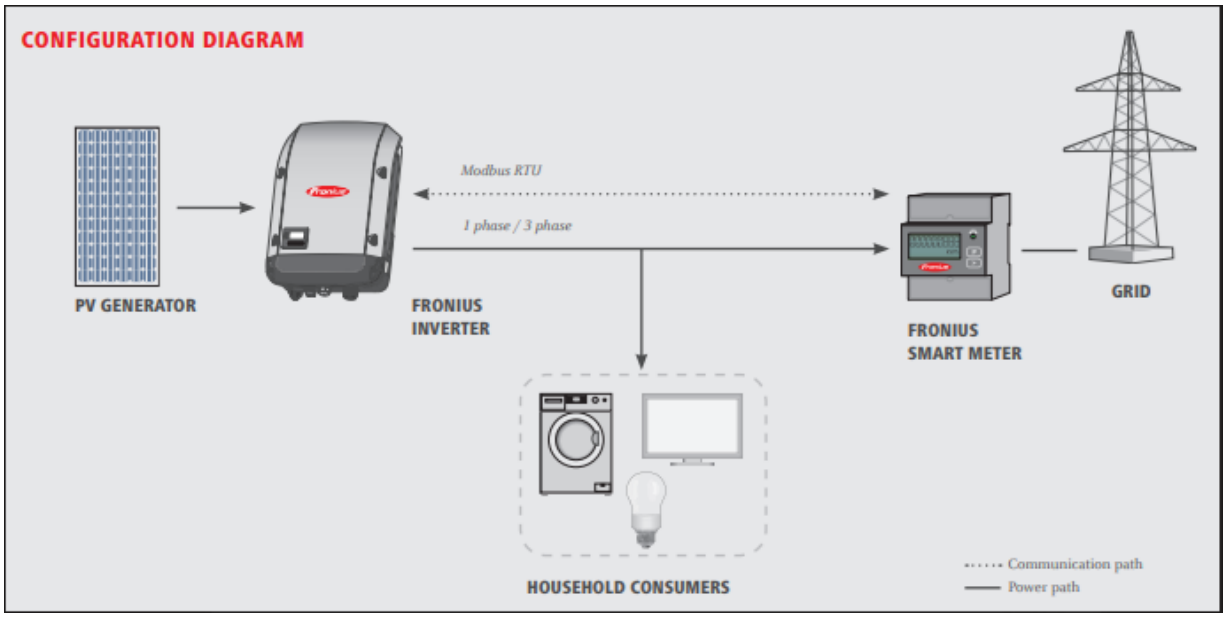
Installer's name			
Address			
Tel		Web site	
E:mail			

Export/Import capabilities

Export	Y	Import	N

Description of Operation

EREC G100 section 4.2 requires a description of the **CLS**, and schematic diagram, to be provided to the **Customer**. Please provide that description and the diagram here.



Preliminary explanation (related on SnapINverter):

CLS is a combination of the Fronius inverter + the Fronius Smart Meter TS100A-1.

Two inverters were connected in parallel to show that the requirements on the export limitation can be fulfilled with more than one inverter.

Export Limitation can be configured in an installer password protected area of the inverter UI. A power limitation per phase can be configured. A current limit must be converted into a power per phase limit (e.g.: 26,1A limit -> 26,1A*230V=6000W).

Under all conditions (load jumps; communication failures; loss of supply; internal failures) state 2 will always be < 15 seconds.

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.

Communication for CLS operation between inverter and smart meter is Modbus RTU. The CLS logic is fully integrated in the inverter, so no additional communication is necessary.

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 4.7.

See document “Cybersecurity Statement”

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.

See G99 report of the applied Fronius Inverter.

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.

The export limitation is configured at the inverter. In case there is a loss of communication from the smart meter, the inverter automatically immediately falls back in the limitation mode of the inverter AC output to the value set for the export limitation. This guarantees that the export is always below the limit (below MEL).

Failure of the inverter itself automatically causes a stop of production of the inverter, and so prevents form violating any export limitation.		
Communication and power supply failures between **Components** and **Devices**. Please document here compliance with EREC G100 section 5.5.		
Component/Device number/description	Communication failure test	Power supply failure test
Smart Meter	Cable disconnection: Power Limitation within 3 seconds. Inverter shows failure “Smart Meter communication error”	Disconnection of communication connection: Power reduction of the inverter to the export limit. Limitation within 3seconds.
Inverter	Communication failure to smart meter. Cable disconnection: Power Limitation within 3 seconds. Inverter shows failure “Smart Meter communication error”	Loss of inverter power supply automatically results in no export from the inverter.

The power supply of the smart meter TS 100A-1 is made internally by installation of the phase and neutral conductors, if this connection will be opened, the power supply of the inverter is opened and the inverter will shut down. Voltage and current measurements were performed internal of the housing of the smart meter, no external measurements that could be disconnected.

Operational Tests

In accordance with EREC G100 section 5.6 undertake the tests A to D 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.

The device is tested with Manual Load Control. The test-load (position of the “household load” in the circuit diagram above) is changed in a way to exactly reach the export levels defined in Table 5-4.

Tested combination:

2 times Primo 8.2-1 + Smart Meter TS 100A-1

The communication interface of the inverter is the Datamanager Card, which can be installed in all Fronius SnapINverters (Fronius Symo, Fronius Symo Advanced, Fronius Primo, Fronius ECO).

Test A						
Nominal Export Limit (for type tests this will be at maximum, minimum and one intermediate setting) in Amp:						Primo 8.2-1: two units working in parallel. 6000W
Nominal Import Limit (for type tests this will be at maximum, minimum and one intermediate setting) in Amp:						-
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	Export: 95% of 26,1A Inverter: 105% of 26,1A Load: 10% of 26,1A	Load: off (Load-jump = 10%)	Inverter output power reduction	Response is a current reduction of 5%	58 sec	Inverter is reducing power = state 2 (<10sec.)
2	Export: 95% of 26,1A Inverter: 110% of 26,1A Load: 15% of 26,1A	Load: off (Load-jump = 15%)	Inverter output power reduction	Response is a current reduction of 10%	58 sec	Inverter is reducing power = state 2 (<10sec.)
3	Export: 95% of 26,1A Inverter: 120% of 26,1A Load: 25% of 26,1A	Load: off (Load-jump = 25%)	Inverter output power reduction	Response is a current reduction of 20%	58 sec	Inverter is reducing power = state 2 (<15sec.)
4	NA					
5	NA					
6	NA					
Test B						

Nominal Export Limit:						Primo 8.2-1: two units working in parallel. 6000W
Nominal Import Limit						
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	Export: 95% of 26,1A Inverter: 105% of 26,1A Load: 10% of 26,1A	Load: off (Load-jump = 10%)	Inverter output power reduction	Response is a current reduction of 5%	62 sec	Inverter is reducing power = state 2 within 10 sec -> state 3 is never reached
8	NA					

State 3 Reset

These tests are to demonstrate compliance with section EREC G100 4.5.2.

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.

State 3 is never reached, as correct state 2 control can be guaranteed. Therefore, no reset is required. Test B 7 shows that without reaching state 3 getting back to state 1 works correctly. Automatic reset in case of communication loss is tested verified in the communication tests.