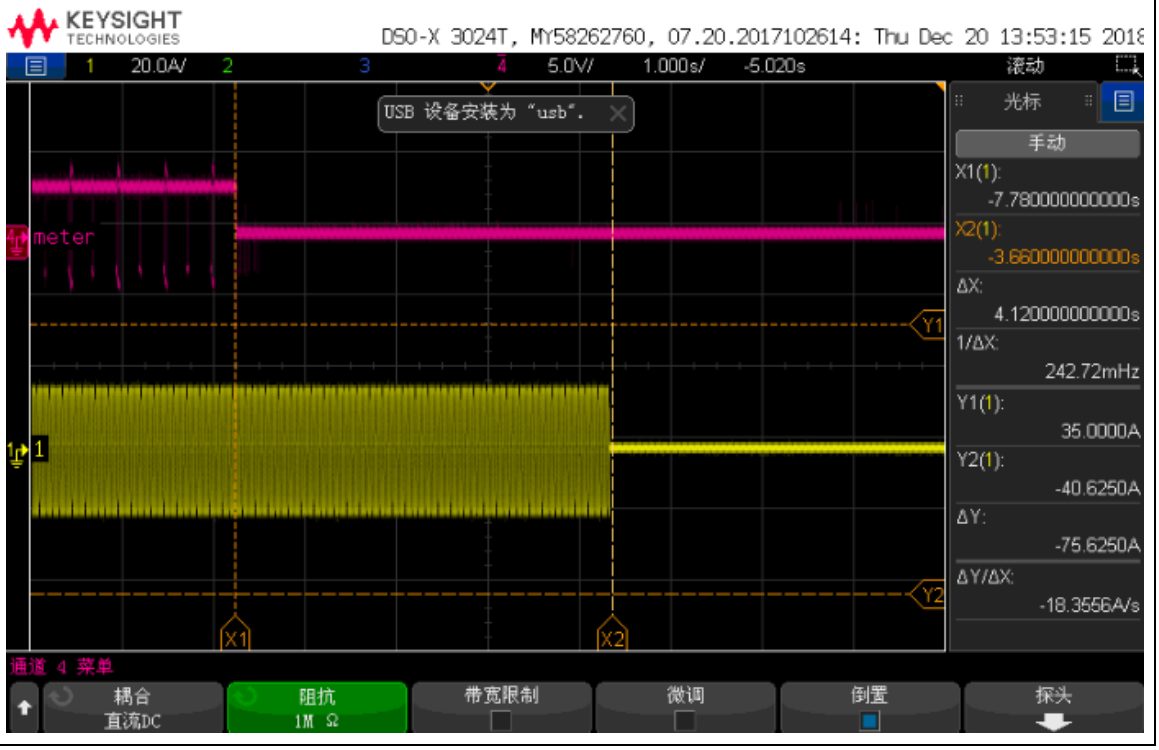
Annex A
Fail safe Tests

A1. Unplug communications cable between Inverter and Meter

Test Procedure	Unplug communications cable between Inverter and Meter
Expected response	System turns off
Pass/fail criteria	System fails safe in less than 5s

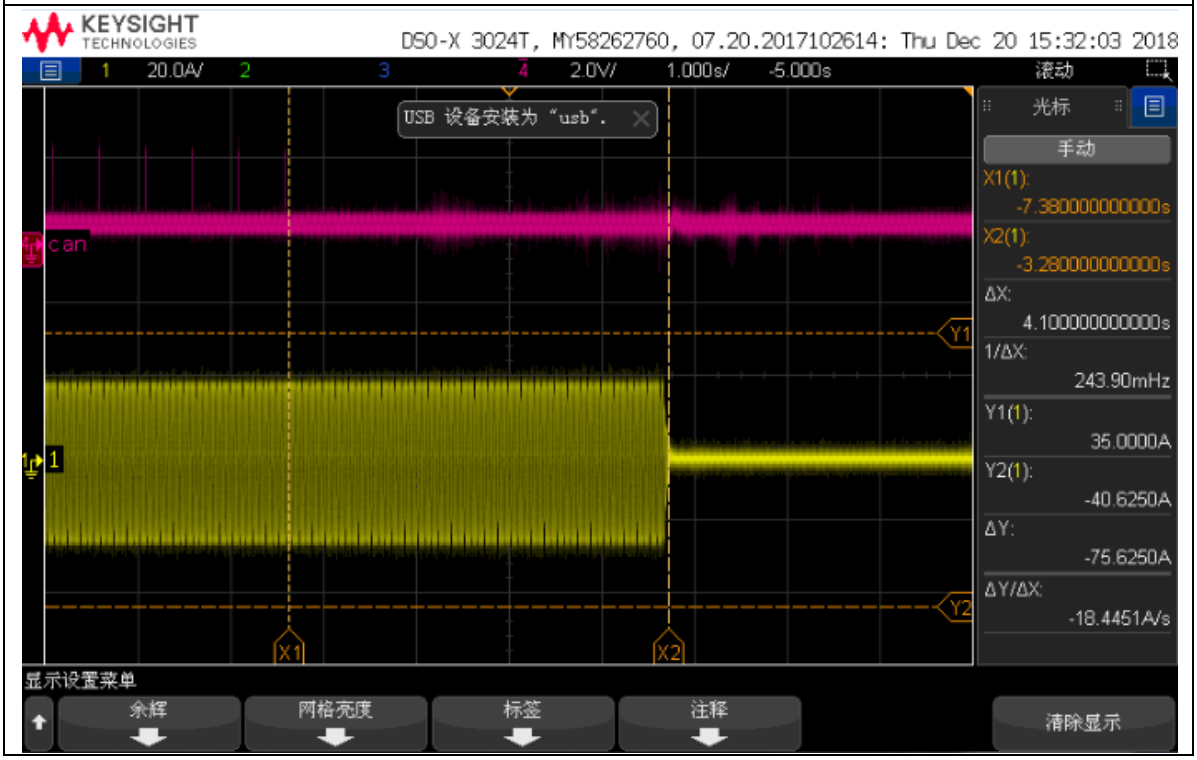
- Test: Unplug communications cable between Inverter and Meter
- Scope: Pink trace is RS485 communications from the Meter , yellow shows current at output of AC current
- Reaction time: 4.12s
- Pass/fail: **PASS**



A2.Unplug communications cable between Inverter and Battery

Test Procedure	Unplug communications cable between Inverter and Battery
Expected response	System turns off
Pass/fail criteria	System fails safe in less than 5s

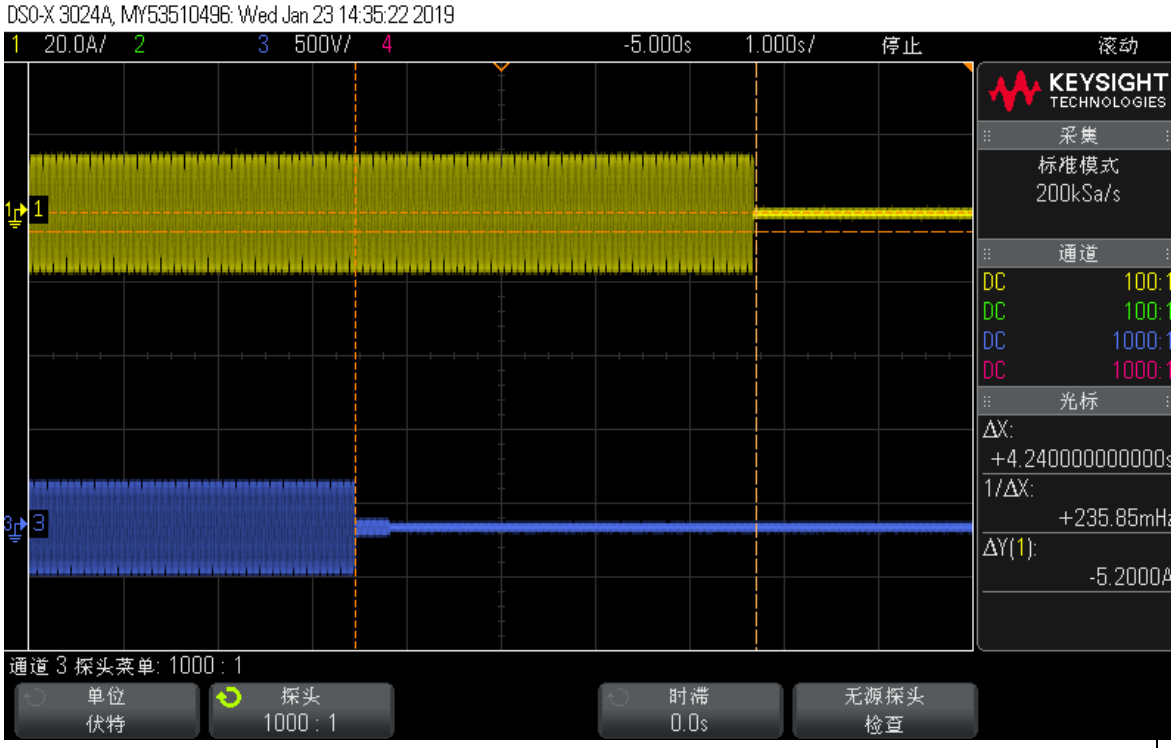
- Test: Unplug communications cable between Inverter and Battery
- Scope: Pink trace is CAN communications from the Battery, yellow shows current at output of EPS current
- Reaction time: 4.10s
- Pass/fail: **PASS**



A3.Remove power to meter

Test Procedure	Remove power supply to Meter
Expected response	System turns off
Pass/fail criteria	System fails safe in less than 5s

- Test: Remove 230V AC supply to meter
- Scope: Blue trace is AC voltage to Meter, yellow shows current at output of AC current
- Reaction time: 4.24s
- Pass/fail: **PASS**



A4.Under normal operating conditions, Inverter response time is less than 5s

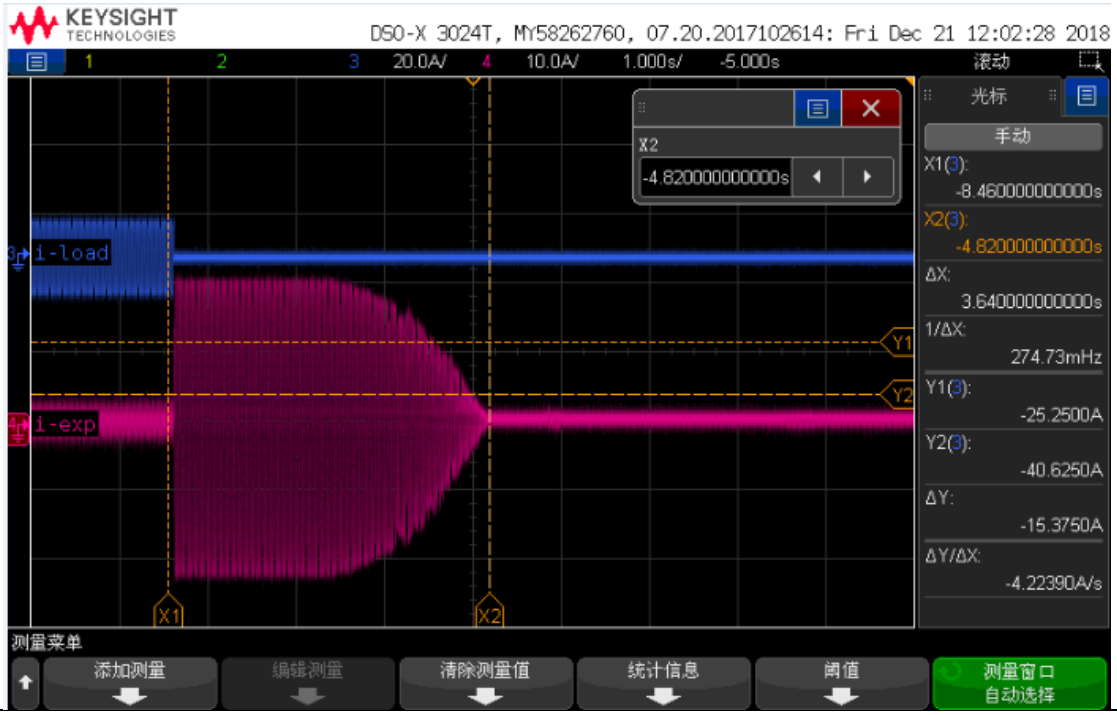
1)

Test Procedure	Set user value to 0W
Expected response	The Pgrid value is reduced to 0W
Pass/fail criteria	The Pgrid value is reduced to 0W within 5 seconds

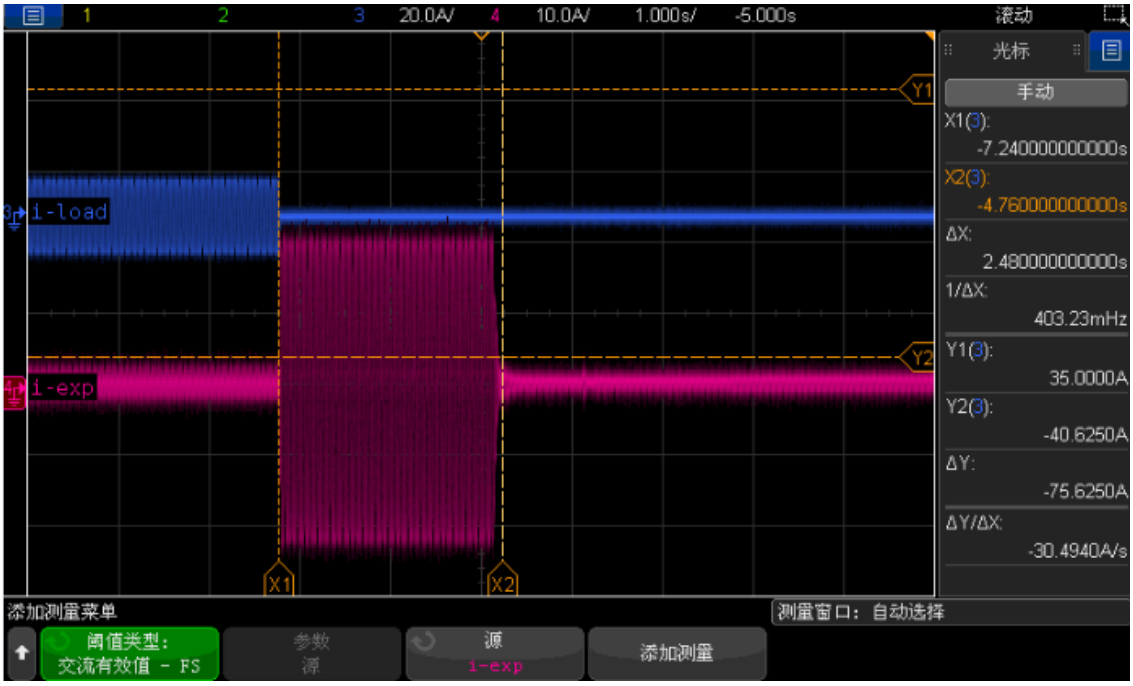
Test procedure： Input the maximum power to the PV terminal of the inverter to make the inverter output the maximum power.
The inverter is connected to the maximum load.
Turn on the load switch so that the Pgrid value is equal to zero.
Then turn off the load switch and observe the time required for the grid current to be limited to 0A.

- Test: Set user value to 0W
- Scope: Blue trace is AC current of load, pink shows current at output of AC current
- Pass/fail: **PASS**

Test Category: Only the photovoltaic (pv)
Reaction time: 3.64S

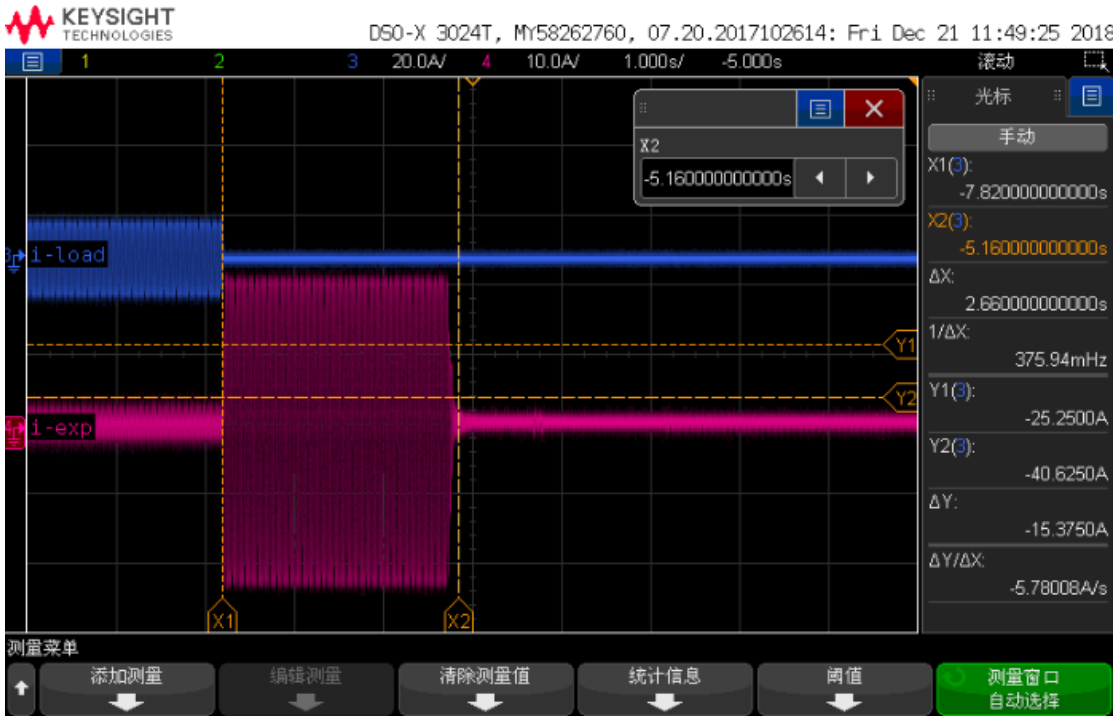


Test Category: Only the battery
Reaction time: 2.48S

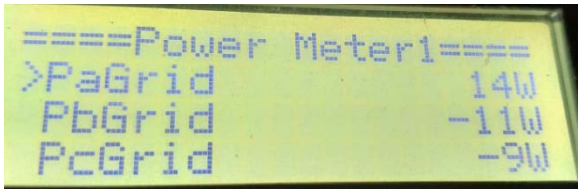


Test Category: Both batteries and photovoltaic cells

Reaction time: 2.66S



EXP Value（meter）：



2)

Test Procedure	Set user value to 5000W
Expected response	The Pgrid value is reduced to 5000W
Pass/fail criteria	The Pgrid value is reduced to 5000W within 5 seconds

- Test: Set user value to 5000W
- Scope: Blue trace is AC current of load, pink shows current at output of AC current
- Pass/fail: **PASS**

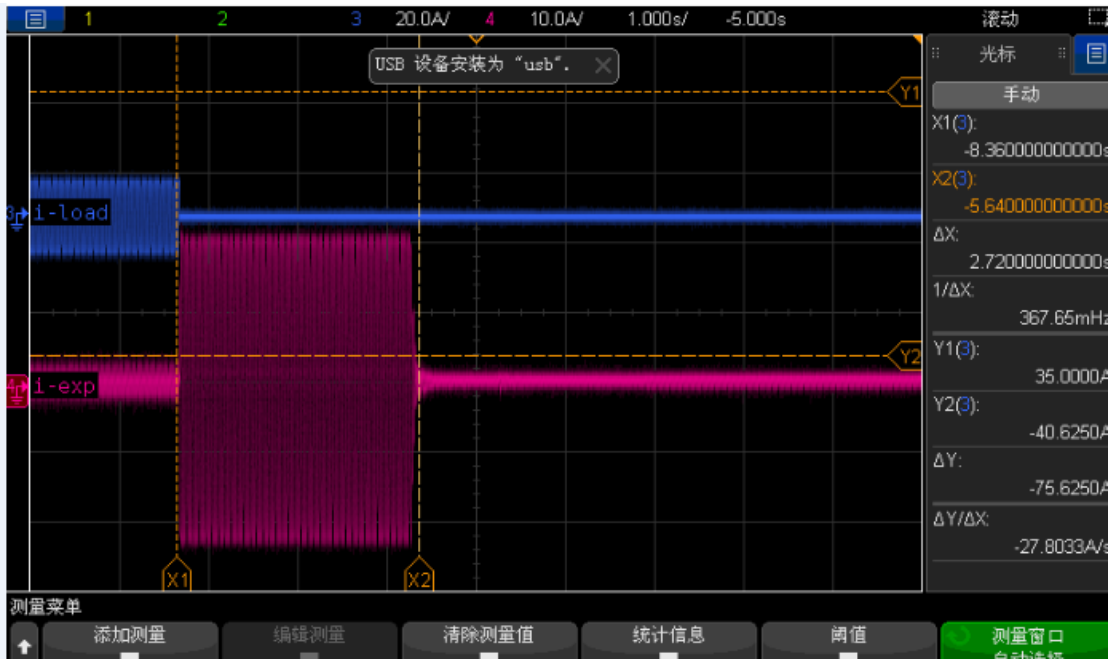
Test Category: Only the photovoltaic (pv)

Reaction time: 4.82S

Test Category: Only the battery

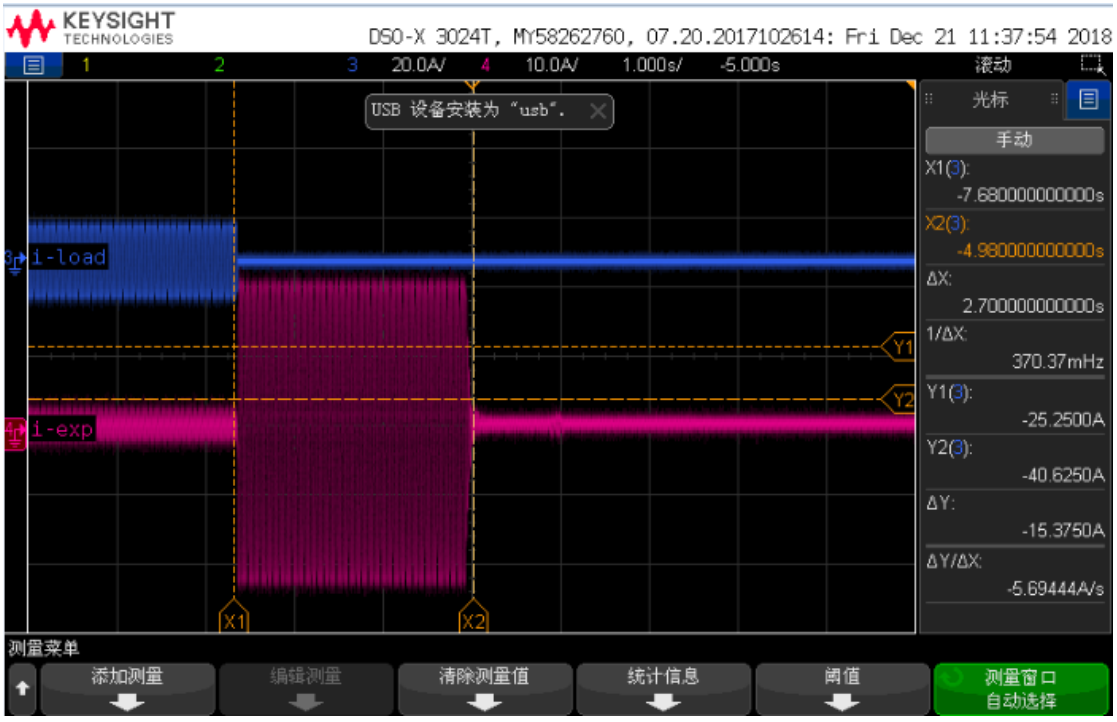
Reaction time: 2.72S

The battery does not actively release energy to the grid, so the grid-connected power is zero.

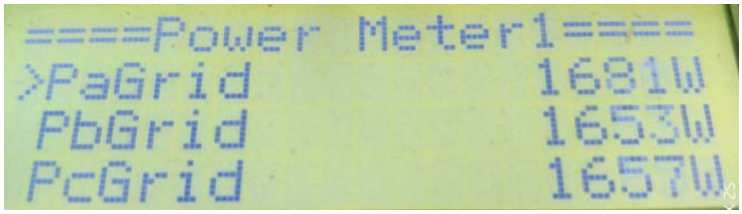


Test Category: Both batteries and photovoltaic cells

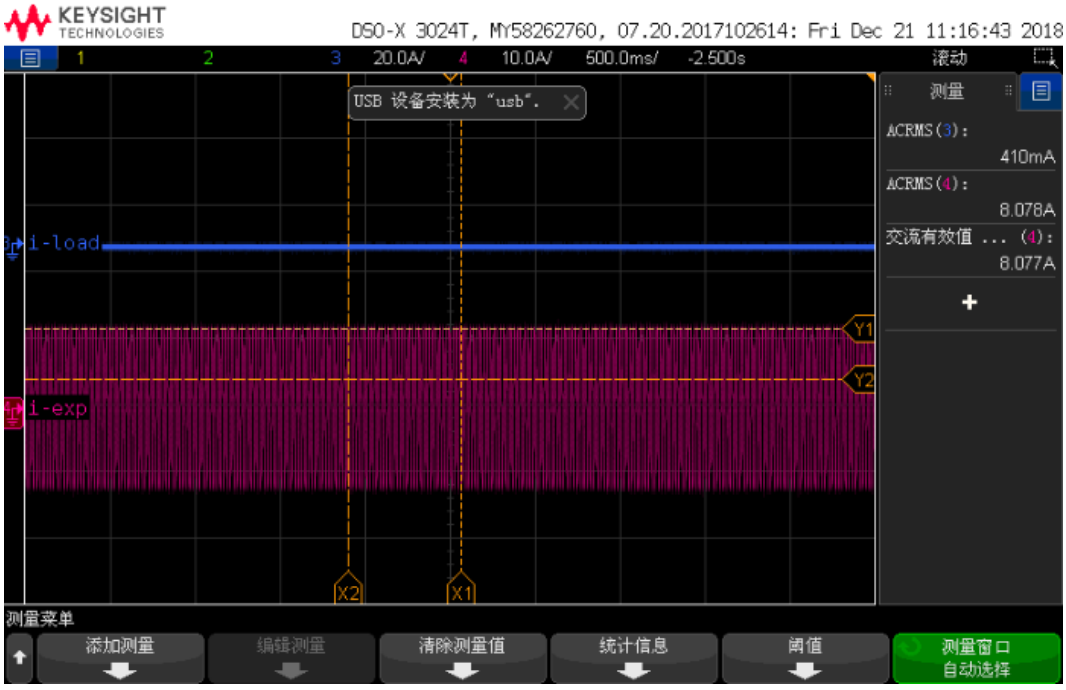
Reaction time: 2.70S



EXP Value（meter）：



Y1 is a reference axis for the 5000w EXP.



Meter model and picture：

Meter model	picture
SDM630M	

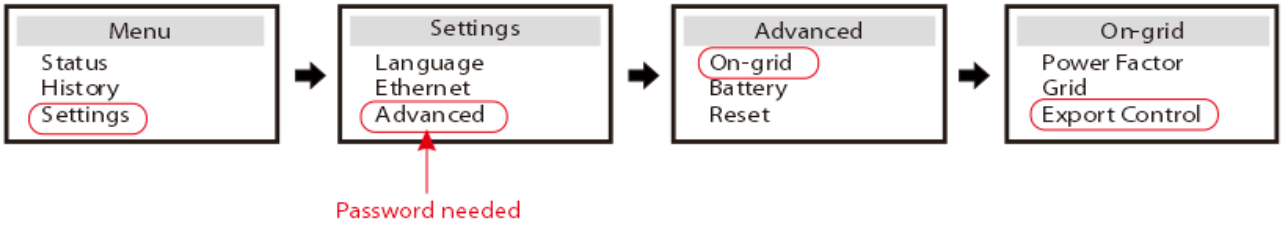
Password protection

All X3-Hybrid Series inverter export limit settings are password protected.

LCD display operation

Customer should set “export control” function on the LCD display. “Export Control” setting can be found according to path below.

- Menu — Setting — Advanced — On-grid — Export Control.



- This value can be set from 0-300000W.
  For example, if it is set 0W, it means no power can be exported to the grid; If it is set 2000W, it means the power exported to the grid can not exceed 2000W.

Setting path