

Crystal Computing

25th February 2023 by Victor Wyffels

Algemeen

After swapping inverter 08 on 25/01/2023 the conclusion was made that the inverter manager couldn't be repaired.

It had to be swapped.

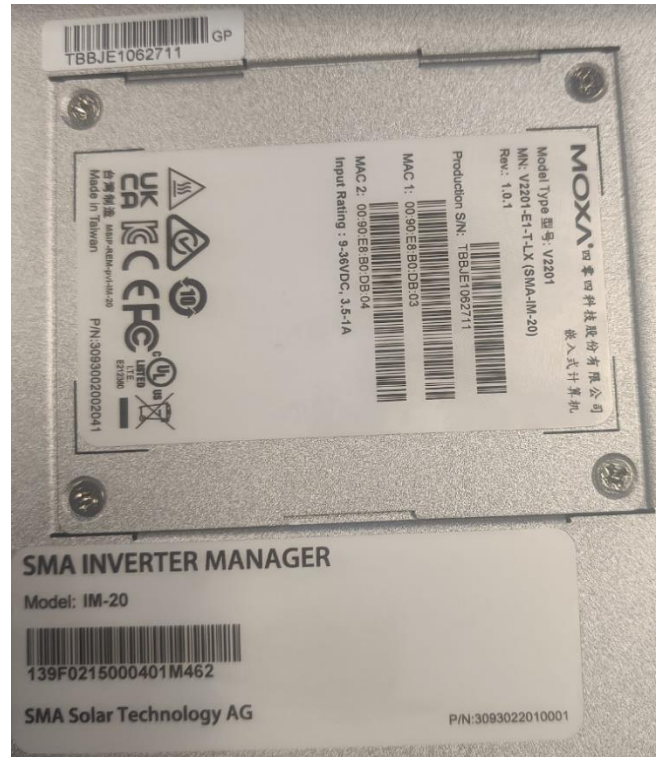
This intervention was planned 15/02/2023. The report below are a summary of the findings and actions taken during this intervention.

Findings and actions taken:

1. Physical swap of the inverter manager.
 - 1.1. Remove tension from inverter manager: fuse 9Q1
 - 1.2. Remove all cables

Old serial number: 139F0215014301KS06

New serial number: 139F0215000401M462



1.3. Swap inverter manager

1.4. Reconnect all cables

1.4.1. Lan 1: connection with router

1.4.2. Lan 2: connection with switch and from switch to inverters.

1.4.3. RS485: connection with irradiation sensor

1.4.4. Power and ground connection

1.5. Switch on fuse 9Q1

2. Connection with invertermanager

2.1. Connect pc to router or switch on which Lan1 from the inverter manager is connected.

2.2. Install LCS tool

Note:

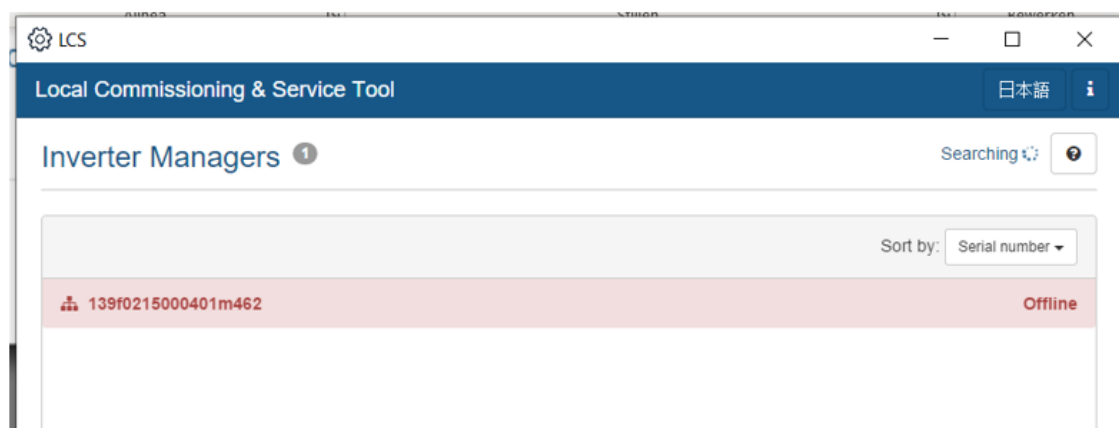
2.2.1. There are different versions of the LCS tool.

If it's the inverter manager has an old firmware you have to install LCS tool 2.00.19

download link: https://files.sma.de/downloads/SMA_LCS_2_00_019.zip

Or <https://www.sma.de/en/service/downloads> and search: LCS.

2.2.2. If the 2.00.19 doesn't find the inverter manager or the inverter manager is shown with status offline:



You may have to install the newer version: LCS tool 2.04.019:

https://files.sma.de/downloads/LCS-Tool-STP60_STP60-JP_SHP75_STPS60-FW_Update-2-04.zip

2.2.3. The inverter manager in Crystal Computing can be accessed with LCS tool 2.04.019.

2.3. When the inverter manager is accessible you should see this screen:

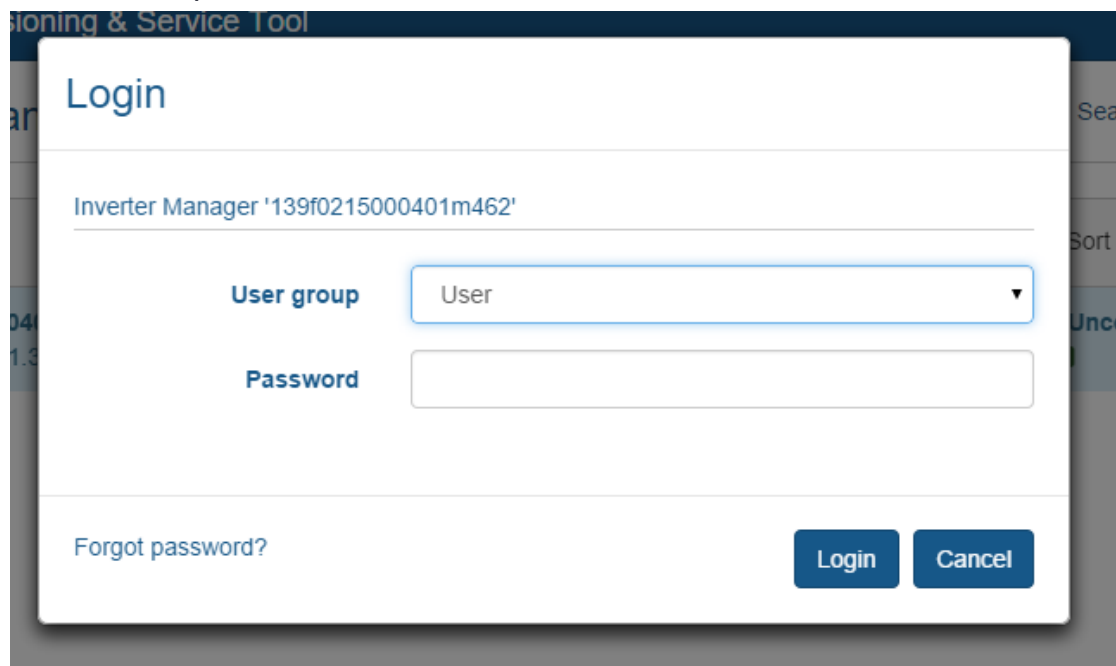


3. Commissioning new inverter manager

3.1. Set user and installer password:

3.1.1. User: Crystalc-user1

3.1.2. Installer: Crystalc-admin1



- 3.3.1.4. Switch DC on. Switch on the inverters closest to the inverter manager (first on the bus). Follow the communication drawing attached.
- 3.3.1.5. Check if inverter screen turns on and if the inverter restarts.
- 3.3.2. Af there the inverters are reset, check if you see uncommissioned inverters. If not you also have to reset the inverter manager
 - 3.3.2.1. Switch off the power and wait 1min
 - 3.3.2.2. Switch on the power.
- 3.3.3. When starting the LCS tool again you should see:



3.4. The commissioning of the inverter manager will now restart.

3.4.1. Do the time settings again and continue.

3.5. Let the inverter manager find the inverter and click next, this can take 5min.

Commissioning Wizard for 139f0215000401m462

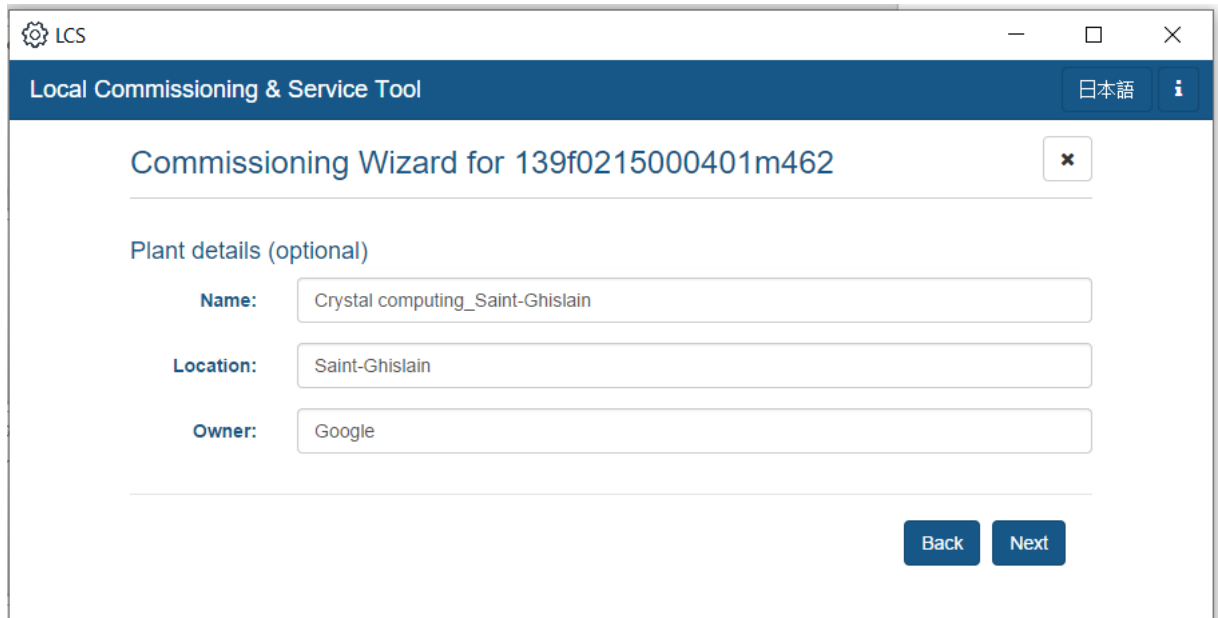
Connected inverters 36 Searching ?

Serial Number	Battery IP	Battery Software Version	Battery Serial Number	Battery Strings
139F5003649501N517		Not Available	Not Available	0
139F5003654801N027		Not Available	Not Available	0
139F5003711001N047		Not Available	Not Available	0
139F5003711601N047		Not Available	Not Available	0
139F5003712101N047		Not Available	Not Available	0
139F5003712301N047		Not Available	Not Available	0
139F5003717001N057		Not Available	Not Available	0

Back

Next

3.6. Fill the plant details:

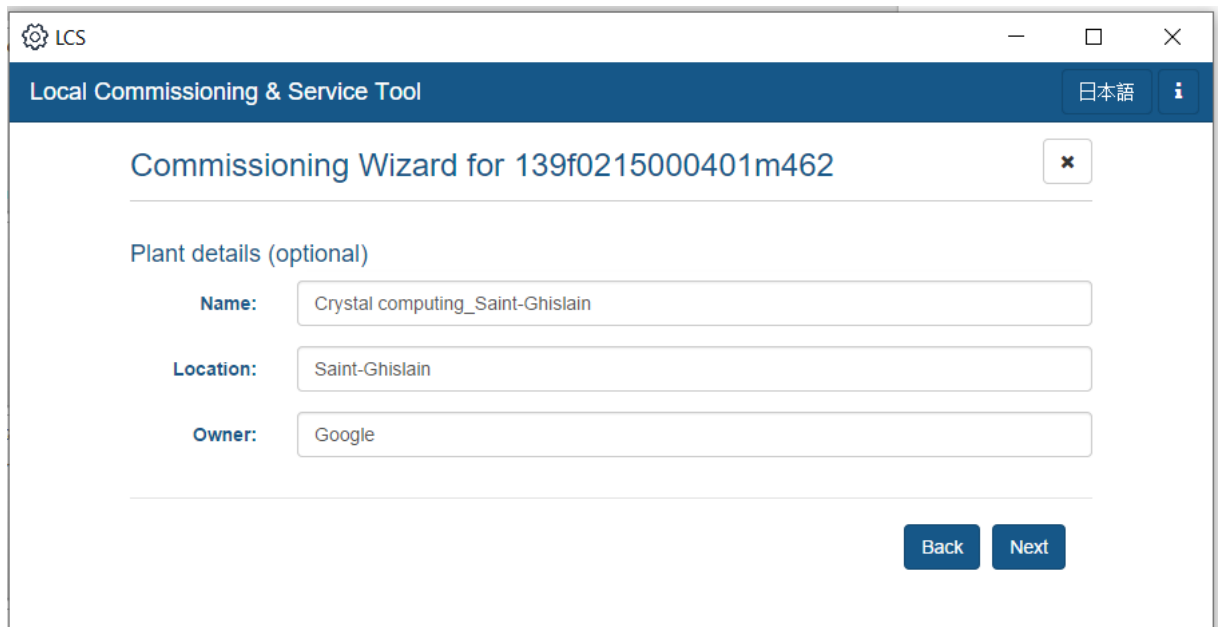


The screenshot shows a web application window titled 'Local Commissioning & Service Tool'. The main heading is 'Commissioning Wizard for 139f0215000401m462'. Below this, there is a section for 'Plant details (optional)'. The fields are filled as follows:

Field	Value
Name:	Crystal computing_Saint-Ghislain
Location:	Saint-Ghislain
Owner:	Google

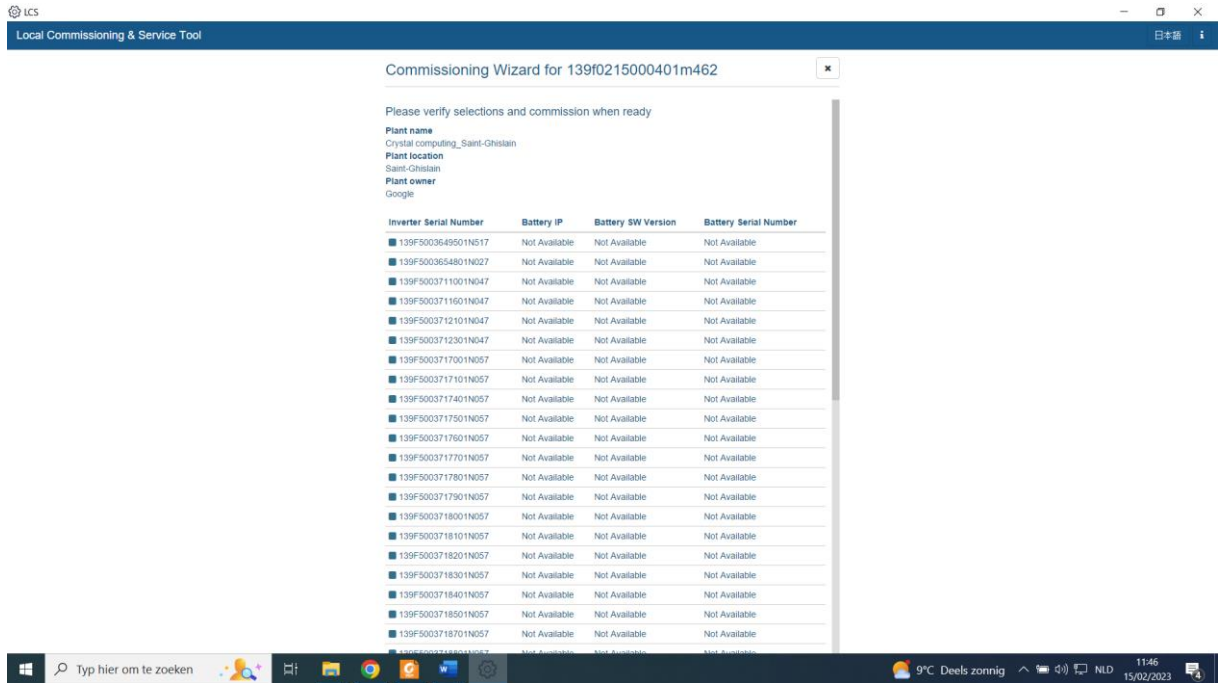
At the bottom right, there are 'Back' and 'Next' buttons.

3.7. Select grid code:



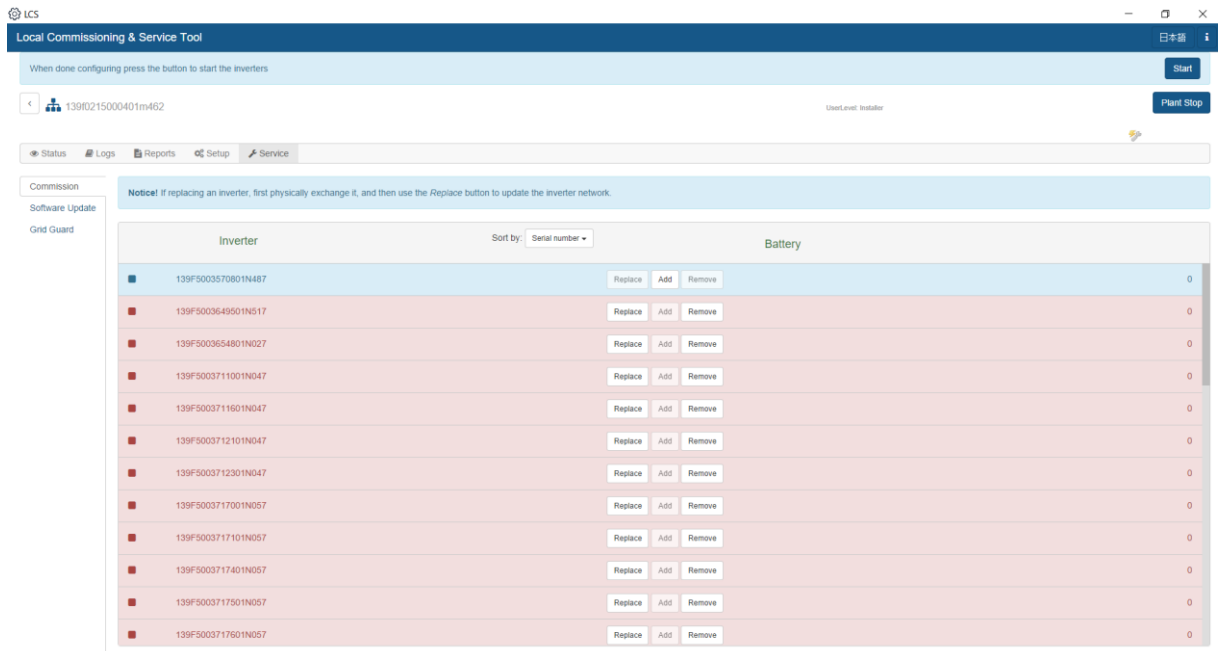
This screenshot is identical to the one above, showing the 'Local Commissioning & Service Tool' window with the 'Commissioning Wizard for 139f0215000401m462'. The 'Plant details (optional)' section contains the same filled-in fields: Name (Crystal computing_Saint-Ghislain), Location (Saint-Ghislain), and Owner (Google). The 'Back' and 'Next' buttons are also present at the bottom right.

3.8. After this the commissioning of the manager is finished:

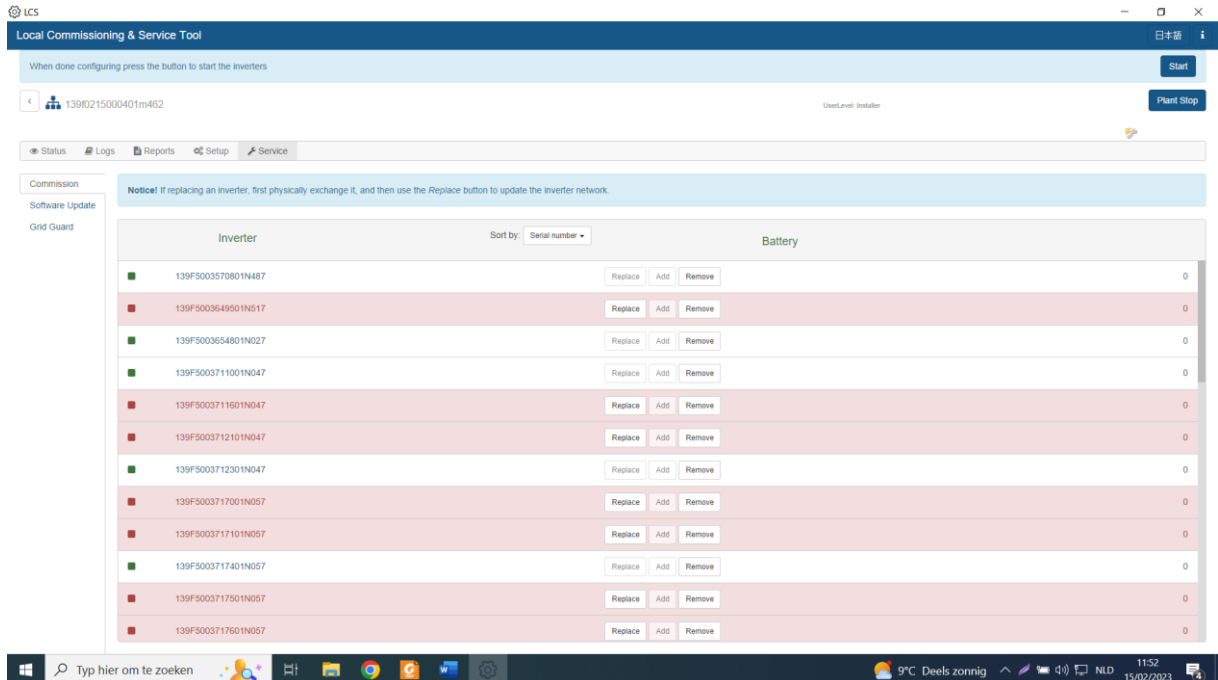


4. Commissioning of the inverters

4.1. Go to Services → Commission



4.2. Click add inverter and after some time inverters will connect to the manager.



Local Commissioning & Service Tool

When done configuring press the button to start the inverters Start

139K0215000401m402 UserLevel: Installer Plant Stop

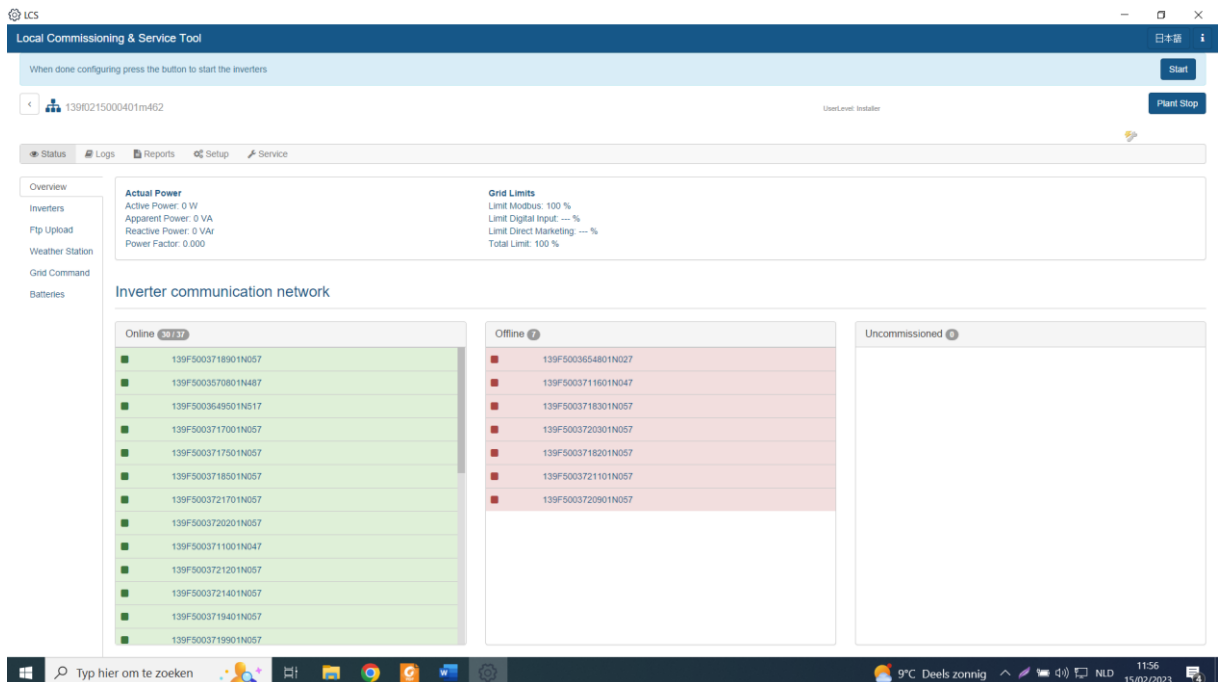
Status Logs Reports Setup Service

Commissioning
Software Update
Grid Guard

Notice! If replacing an inverter, first physically exchange it, and then use the Replace button to update the inverter network.

Inverter	Battery	Actions
139F5003570801N487	0	Replace Add Remove
139F5003649501N517	0	Replace Add Remove
139F5003654801N027	0	Replace Add Remove
139F5003711001N047	0	Replace Add Remove
139F5003711601N047	0	Replace Add Remove
139F5003712101N047	0	Replace Add Remove
139F5003712301N047	0	Replace Add Remove
139F5003717001N057	0	Replace Add Remove
139F5003717101N057	0	Replace Add Remove
139F5003717401N057	0	Replace Add Remove
139F5003717501N057	0	Replace Add Remove
139F5003717601N057	0	Replace Add Remove

4.3. If you go to status → overview, you see the inverters who are still offline and may need a reset.



Local Commissioning & Service Tool

When done configuring press the button to start the inverters Start

139K0215000401m402 UserLevel: Installer Plant Stop

Status Logs Reports Setup Service

Overview
Inverters
Ftp Upload
Weather Station
Grid Command
Batteries

Actual Power
Active Power: 0 W
Apparent Power: 0 VA
Reactive Power: 0 VAr
Power Factor: 0.000

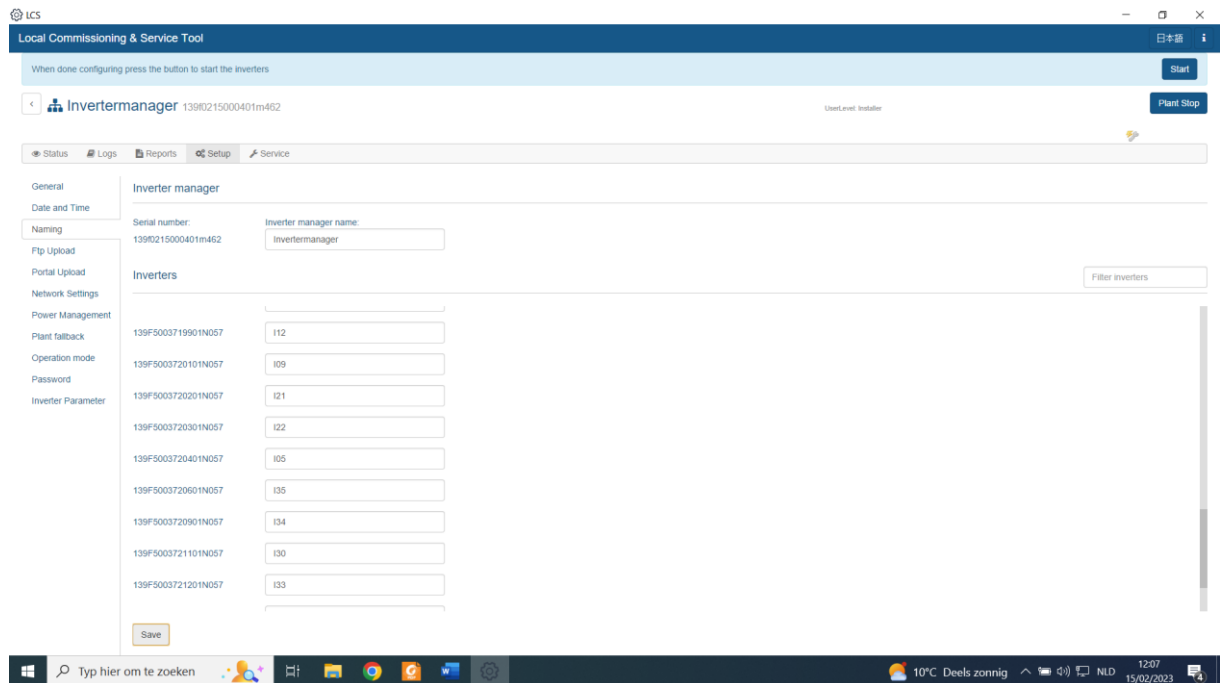
Grid Limits
Limit Mvobus: 100 %
Limit Digital Input: --- %
Limit Direct Marketing: --- %
Total Limit: 100 %

Inverter communication network

Online (12)	Offline (7)	Uncommissioned (1)
139F5003718901N057	139F5003654801N027	
139F5003570801N487	139F5003711601N047	
139F5003649501N517	139F5003718301N057	
139F5003717001N057	139F5003720301N057	
139F5003717501N057	139F5003718201N057	
139F5003718501N057	139F5003721101N057	
139F5003721701N057	139F5003720901N057	
139F5003720201N057		
139F5003711001N047		
139F5003721201N057		
139F5003721401N057		
139F5003719401N057		
139F5003719901N057		

4.4. To be able to identify which inverter is which you can give the inverter a name.

Go to Setup → Naming:

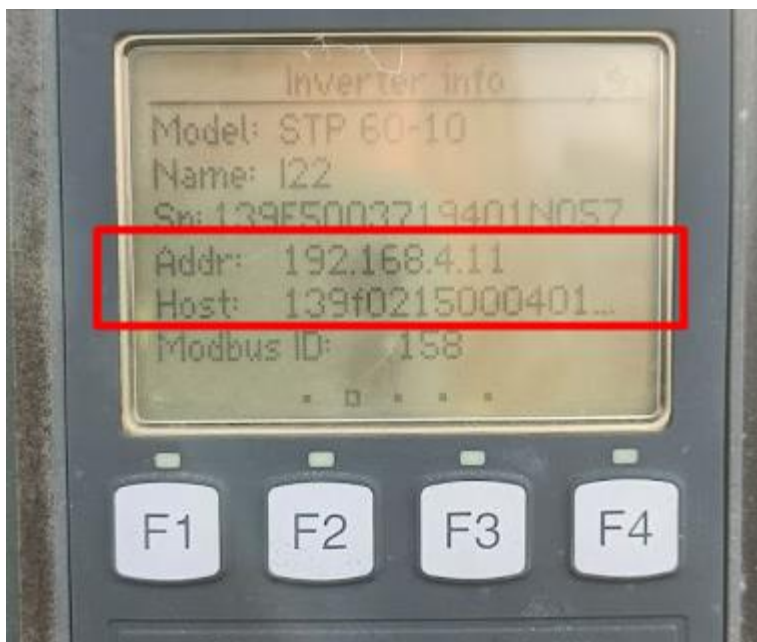


4.5. If you have to reset an inverter first reset the inverter who is closest to the inverter manager.

Follow the communication drawing attached.

Because we have a ring network you can start from inverter 1 or from inverter 28.

At the inverter you can check if the communication is ok by checking if the inverter got an IP-adres and a Host, this is the serial number of the inverter manager.



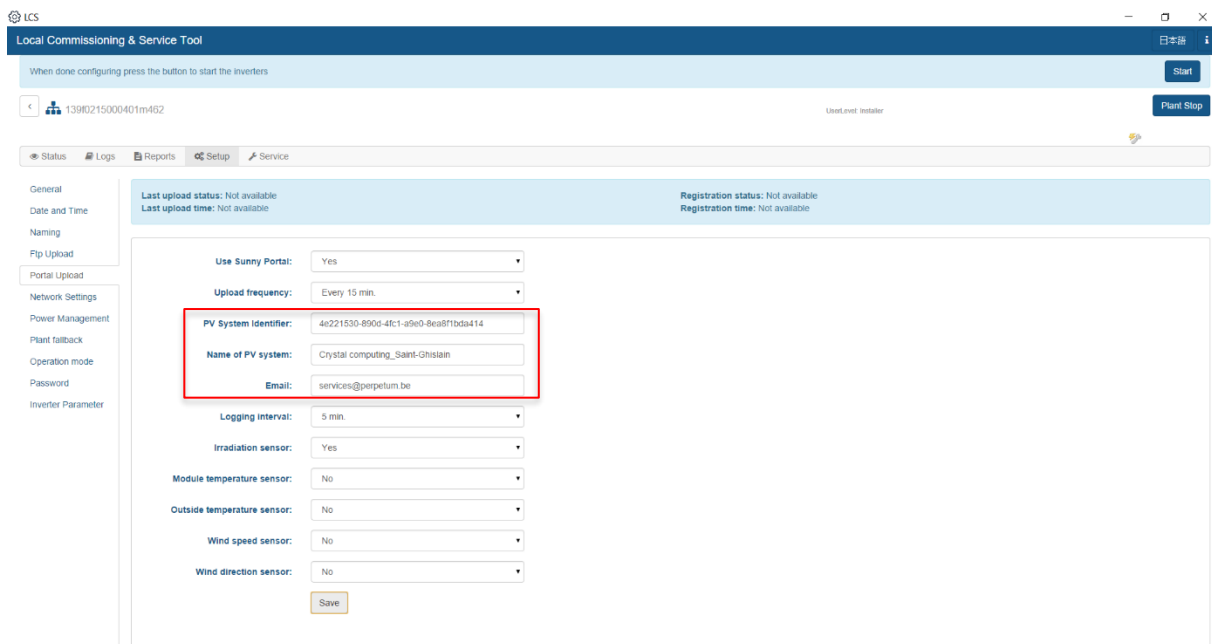
If the Ip adres and the host are filled, the communication should be fine.
And you can check the next inverter.
Follow the steps above until all the inverters are online.

5. Connecting the new inverter manager to sunny portal.

5.1. Set the portal upload info.

Now the inverter manager has to know to which sunny portal plant he has to send the data.

Setup → Portal upload



5.2. Swap inverter manager on sunny portal:

After step 5.1. go to sunny portal.

The site show's it detect a new device, which has to be registered.

See steps below:

Installatieselectie

Crystal computing_Sal...

Overzicht van de installatie

Installatieprofiel

Energie en vermogen

Systeemdiensten

Sensorisch systeem

Performance ratio

Jaarvergelijking

Installatiebewaking

Installatieboek: 0

Analyse

Visualisatie

Configuratie

Visualisatie

Installatie-eigenschappen

Installatiepresentatie

Overzicht apparaten

Overzicht nieuwe apparaten



Er is een nieuw apparaat in deze installatie herkend.

Met welke configuratie wilt u het nieuwe apparaat aan deze Sunny Portal-installatie toevoegen?



Als installatie-uitbreiding (aanvullend apparaat)

(configuratieassistent wordt geopend)

- Bewerken van de apparaatnaam
- Aanpassen van het generatorvermogen






Als vervangend apparaat

(configuratieassistent wordt geopend)

- Selectie van het te vervangen apparaat
- Overbrengen van de gegevens naar het vervangende apparaat

Belangrijke attentie: Een foutieve toewijzing van nieuwe apparaten kan tot foutieve weergave leiden!

Apparaat	Productgroep	Serienummer	Configuratie
	Inverter Manager 20	139f0215000401m462	 

1

Selectie van het te vervangen apparaat

2

Apparaatnaam

3

Samenvatting

Inverter Manager 20 - Vervangend apparaat



Serienummer: 139f0215000401m462

Kies het apparaat dat u wilt vervangen door het nieuwe apparaat.

Geef vermeldingen weer


<input type="radio"/>	Productgroep	Apparaatnaam	Serienummer
<input checked="" type="radio"/>	Inverter Manager 20	IM-20 506	139F0215014301K506

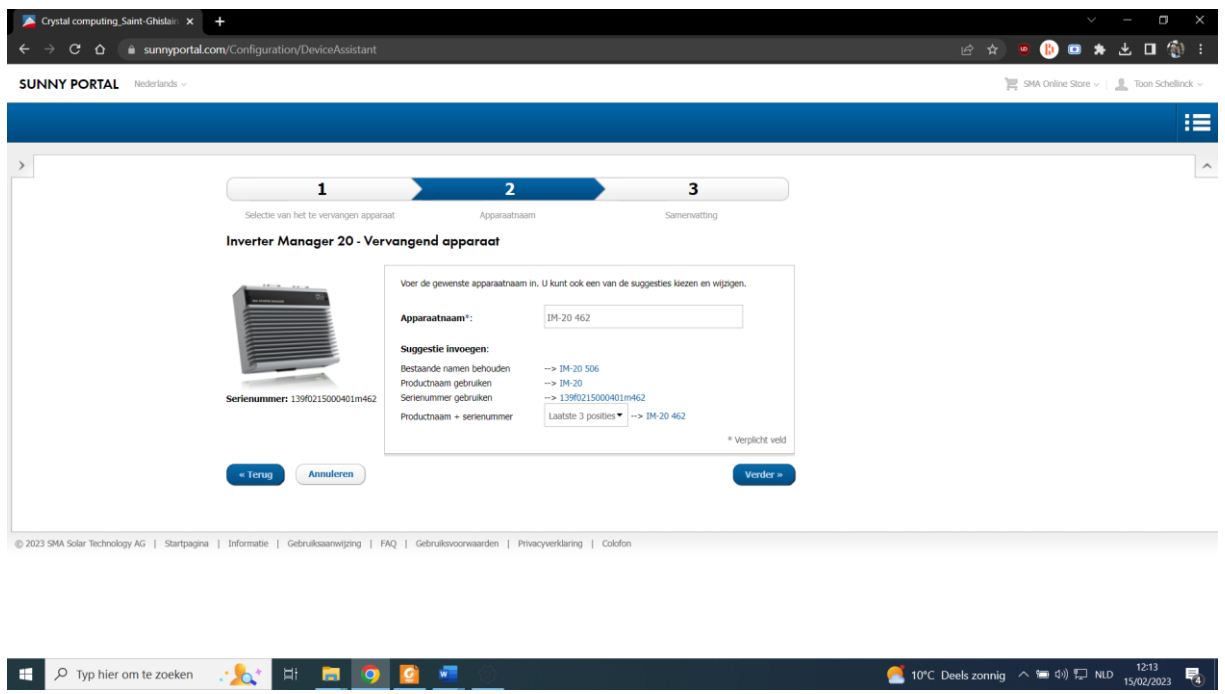
1 tot 1 van 1 vermeldingen

« Eerste pagina < Vorige pagina 1 Volgende pagina > Laatste pagina »

« Terug

Annuleren

Verder »



1
2
3

Selectie van het te vervangen apparaat
Apparaatnaam
Samenvatting

Inverter Manager 20 - Vervangend apparaat



Serienummer: 139f0215000401m462

Kies "Voltoeien", als de gegevens juist zijn.

Apparaatnaam: IM-20 462_Com20230215

Naam van bestaand apparaat: IM-20 506

« Terug
Annuleren
Voltoeien

6. Weather station

On the site crystal computing there is also a weather station connected.
 The communication between the station en the manager go via RS485.
 After the swap check: Status → weather station.
 Check if the data is still received.

7. Inverter fallback value's

To make sure the inverters don't stop producing when a communication problem occurs the fallback values are changed.

These settings can be don via: Setup→Inverter parameter→ Fallback

Power Management
Plant fallback
Operation mode
Password
Inverter Parameter

Fallback

FallbackDelay (FallbackDelay) 0 - 30 (s)

FallbackEnabled (FallbackEnabled) ☒ 1 0 - 1

FallbackMaxDuration (FallbackMaxDuration) 0 - 8840000 (s)

FallbackPref (FallbackPref) 0 - 100 - 100 (%)

FallbackGref (FallbackGref) 0 - 100 - 100 (%)

FallbackPrefMod (FallbackPrefMod) disabled

Reactive power as a function of voltage

Reactive power as a function of power

Serial numbers inverters:

01-I01 - 712301N047	139F5003712301N047
02-I02 - 711001N047	139F5003711001N047
03-I03 - 712101N047	139F5003712101N047
04-I37 - 711601N047	139F5003711601N047
05-I36 - 654801N027	139F5003654801N027
06-I35 - 720601N057	139F5003720601N057
07-I34 - 720901N057	139F5003720901N057
08-I33 - 721201N057	139F5003721201N057
09-I32 - 721301N057	139F5003721301N057
10-I31 - 721401N057	139F5003721401N057
11-I30 - 721101N057	139F5003721101N057
12-I29 - 721701N057	139F5003721701N057
13-I11 - 718901N057	139F5003718901N057
14-I12 - 718801N057	139F5003718801N057
15-I13 - 719901N057	139F5003719901N057
16-I14 - 718101N057	139F5003718101N057
17-I16 - 717901N057	139F5003717901N057
18-I09 - 717101N057	139F5003717101N057
19-I15 - 718001N057	139F5003718001N057
20-I10 - 720101N057	139F5003720101N057
21-I19 - 718701N057	139F5003718701N057
22-I18 - 718501N057	139F5003718501N057
23-I08 - 70801N487	139F5003570801N487
24-I17 - 718401N057	139F5003718401N057
25-I22 - 719401N057	139F5003719401N057
26-I21 - 717801N057	139F5003717801N057
27-I20 - 717001N057	139F5003717001N057
28-I07 - 717601N057	139F5003717601N057
29-I24 - 720301N057	139F5003720301N057
30-I23 - 720201N057	139F5003720201N057

31-I05 - 717701N057	139F5003717701N057
32-I06 - 720401N057	139F5003720401N057
33-I25 - 717501N057	139F5003717501N057
34-I04 - 718301N057	139F5003718301N057
35-I26 - 718201N057	139F5003718201N057
36-I27 - 717401N057	139F5003717401N057
37-I28 - 649501N517	139F5003649501N517

Communication plan:



