

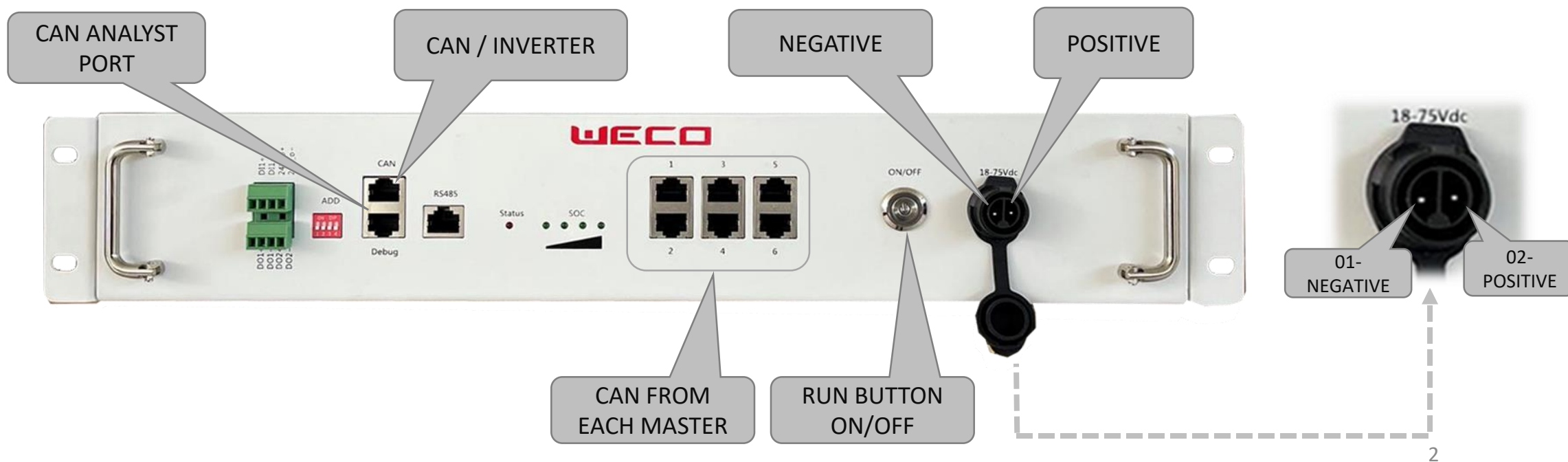


We-HUB & SUPE-RHUB configuration manual

Low Voltage HUB for WeCo 4K4 and 5K3 Lithium Modules



PRODUCT OVERVIEW





Note:

This Manual is divided in two sections:

Single We-HUB settings (section 1 – 3)
SUPER HUB settings (section 4)

This manual is intended for expert installer only

This is an integration for the 4K4 and 5K3 Installation Manual

To install and monitor the We-HUB are necessary two types of converters:

1. USB/RS232 WeCo Code> Ztek232_WeCo
2. USB/CAN WeCo Code>CAN_USB_LV

You can request the WeHUB software as approved installer by requesting it to weco@weco.uk.com

USB/232 and USB/CAN are available from WeCo, if you need to purchase them or requests the drivers or Firmware please contact us on service@weco.uk.com



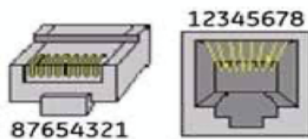
Tools Required to Set up the We-HUB and SUPERHUB

WeCo MONITOR 232 / USB PC CONNECTION

Screw Terminal Side	Cable 232 / RJ45
PIN 1	-
PIN 2 T/R-	PIN 7
PIN 3 RXD+	PIN 6
PIN 4	-
PIN 5	GND
PIN 6	-

RJ 45 TO WIRE - PIN DEFINITION-

PIN 01 = TX
 PIN 02 = RX
 PIN 03 = GND
 PIN 04 = none
 PIN 05 = none
 PIN 06 = none
 PIN 07 = none
 PIN 08 = none



CAN to USB WeCo Converter PIN DEFINITION Only for Authorized Service partner





FW NOMENCLATURE



CL_448.hex
Valid for both models



WE HUB

HUB_V117.hex

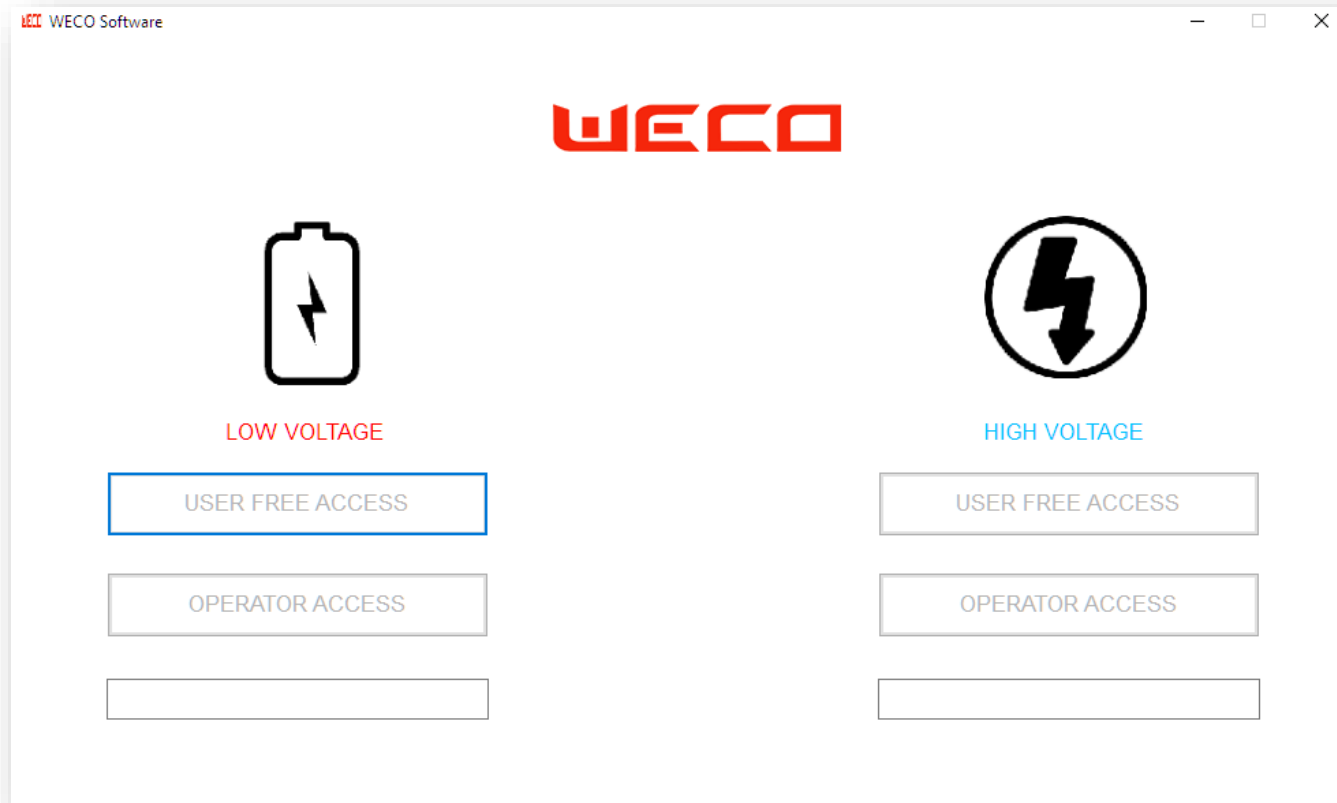


SPHUB_V701.hex



SINGLE WeHUB CONFIGURATION

- Launch the WeCo Software
- Select the **Restricted Access**
- Digit the Installer password (in case of lost password, write to weco@weco.uk.com)
- Access to the programmer page



- Select the Module Setting Program and Click to access



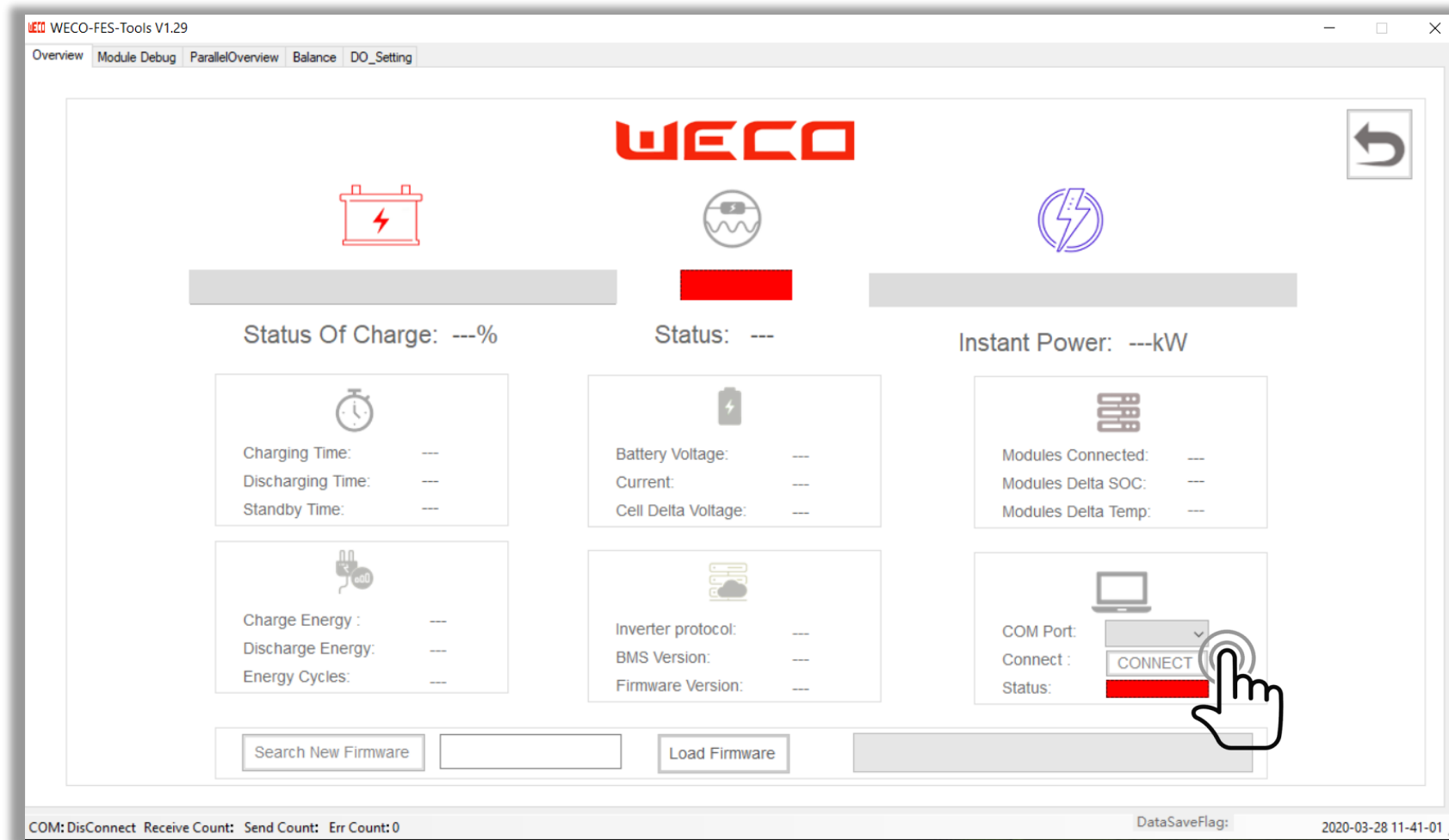


For this setting use only the WeCo ZTEK RS 232 CONVERTER

Order code :CNV-Z-TEK



- Connect the RS 232 WeCo Converter to the RS 232 Port of the each Battery (port Operator Only on the 5K3 model)
 - Select the COM port and wait for the connection and Battery data information.
- For more info about this section please Check the "WeCo Monitor Guide"



- Click on **Module Debug** to know the single module information

WECO-FES-Tools V1.29

Overview | **Module Debug** | ParallelOverview | Balance | Setting | DO_Setting | Production setting | Production Test

Cell Information

Cell Vol/(V)	1	2	3	4	5
1-5	3.309	3.309	3.309	3.311	3.310
6-10	3.311	3.312	3.311	3.307	3.307
11-15	3.306	3.307	3.307	3.304	3.311
16-20	3.309				
Tmp /(°C)	1	2	3		
1-3	10.00	10.00	10.00		

Battery Information

Total Voltage: 52.94V
 Current: -1.68A
 SOC: 40.8%
 Capacity: 80Ah
 Running Time: 13h.2766s
 Charge-Discharge State: Discharging
 Cell Voltage Difference: 0.008V
 Temperature Difference: 00°C
 Battery Cycle: 0
 Discharge Ah: 0.0Ah
 Charge Energy: 0KWh
 Discharge Energy: 0KWh
 Charge Time: 0h.0min
 Discharge Time: 0h.0min
 Standby Time: 0h.0min

Battery State

Cell Voltage High Warning: 3.650V
 Cell Voltage High Fault: 3.800V
 Cell Voltage Low Warning: 2.900V
 Cell Voltage Low Fault: 2.500V

Charge TEMP High Warning: 50°C
 Charge TEMP High Fault: 55°C
 Discharge TEMP High Warning: 55°C
 Discharge TEMP High Fault: 60°C
 Charge TEMP Low Warning: 0°C
 Charge TEMP Low Fault: -5°C
 Discharge TEMP Low Warning: -15°C
 Discharge TEMP Low Fault: -20°C

Discharge Current High Warning: 80.0A
 Discharge Current High Fault: 0.0A
 Charge Current High Fault: -70.0A
 Battery Voltage High Fault: 0.0V
 Battery Voltage Low Fault: 0.0V

Other State

Cell Voltage Diff Warning:
 Cell Voltage Diff Fault:
 SOC Low Warning:
 Serious Ov_vol warning:
 BMS Internal Fault:
 Pack Vol Imbalance:
 Voltage normal
 Temperature normal
 BMS normal reading
 Conext Inverter Comm

Parameter

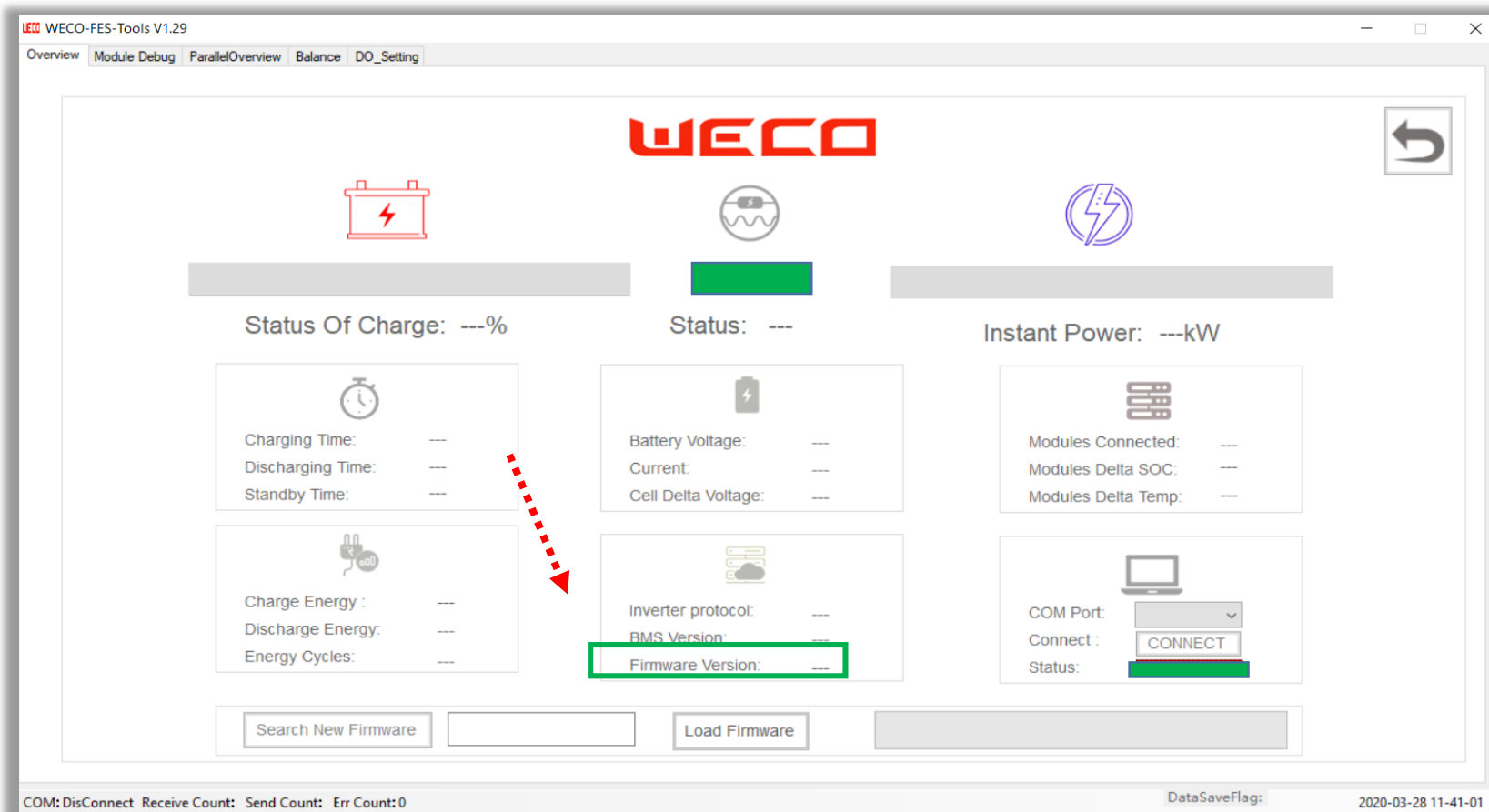
Battery Model:
 Battery SN:
 Address: 1
 Battery Type: LFP battery
 Cell Number: 16
 Inverter Protocol: ZCSCAN
 BMS Type: S-FES-16P
 BMS SN: 000036
 BMS Date: 2019.6.20
 Firmware Version: 4.45
 PCB(BMS) Version: 0.40
 Bootloader Version: 0.01
 DO1_SOC1: 0%
 DO1_SOC2: 0%
 DO2_SOC1: 0%
 DO2_SOC2: 0%
 Inverter Protocol: ZCSCAN
 SOC: 41%
 Set
 Set

COM4: Connect Receive Count: 142 Send Count: 152 Err Count: 9

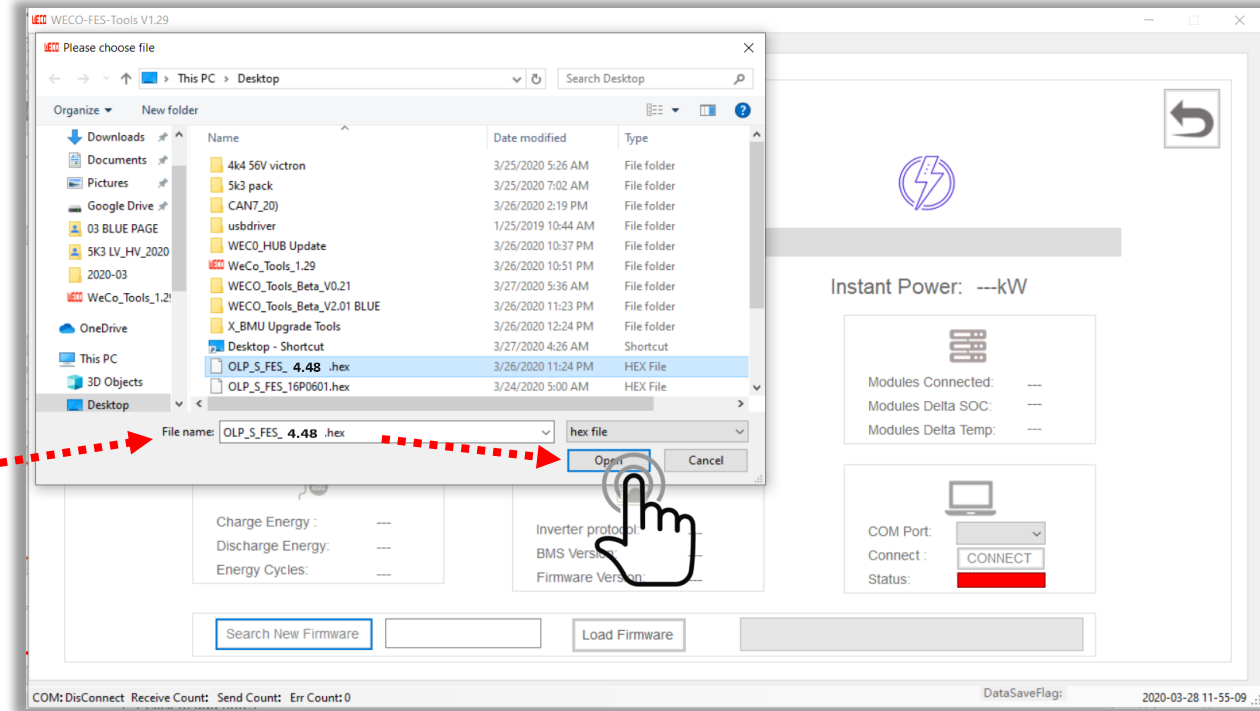
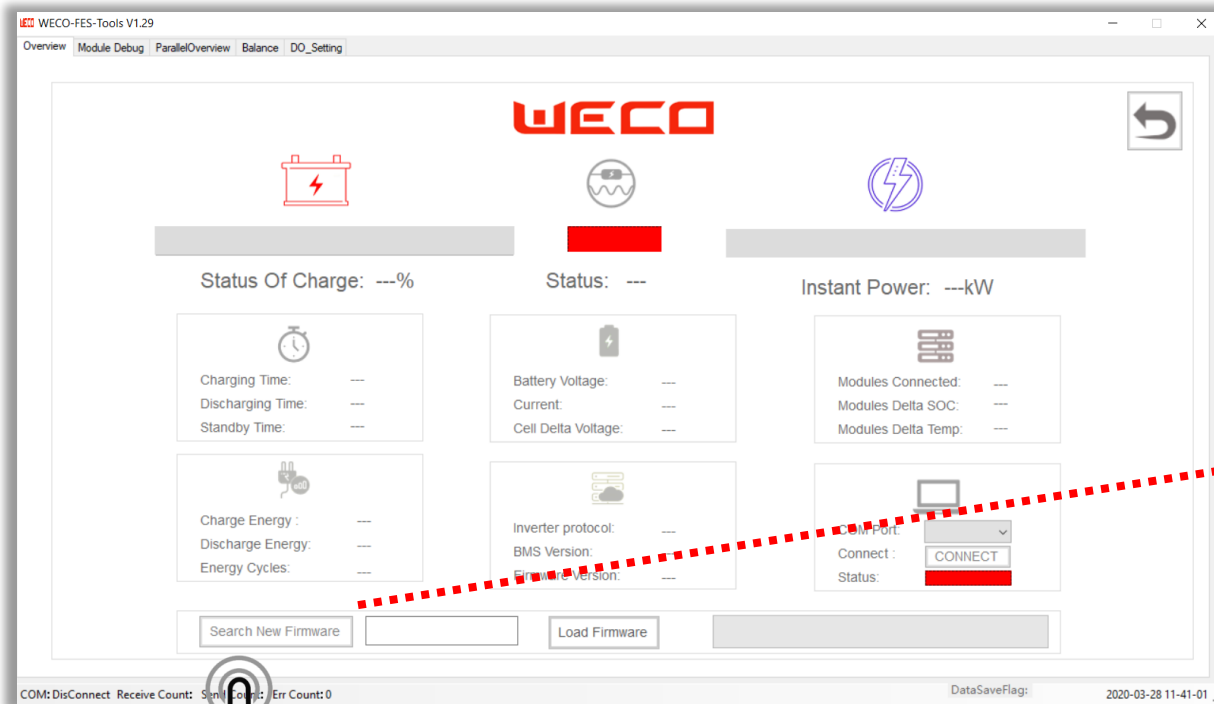
DataSaveFlag: True 2020-03-27 05:22:33

UPGRADE TO FW 4.48

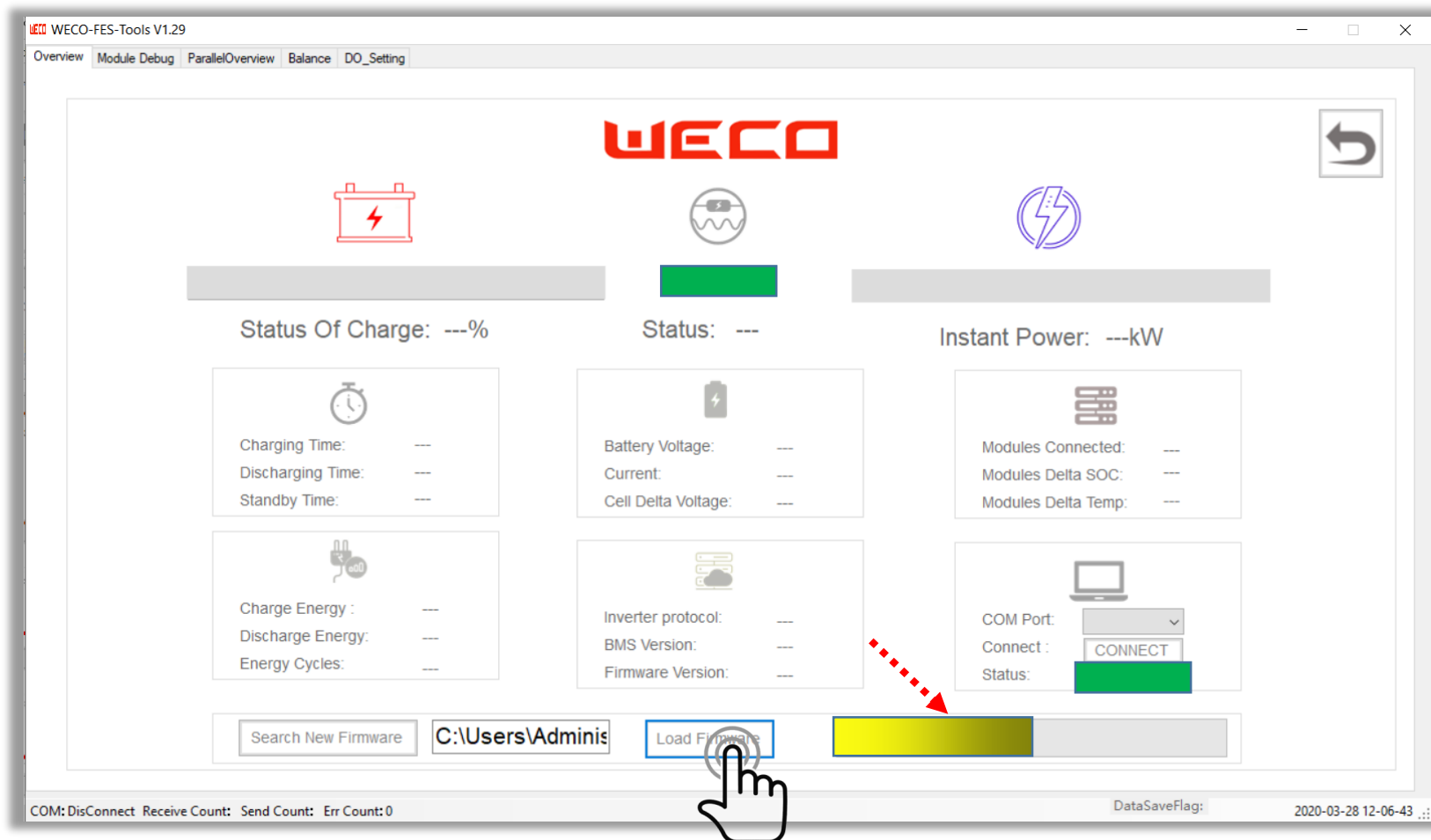
- Check the Firmware Version installed on your Battery
- This inspection must be performed on each module of each cluster
- All the modules of the system **must have the same FW version**
- The Specific FW for the HUB usually is released by email from WeCo to their distributors.
- Any Installer can request for the latest version by writing to service@weco.uk.com



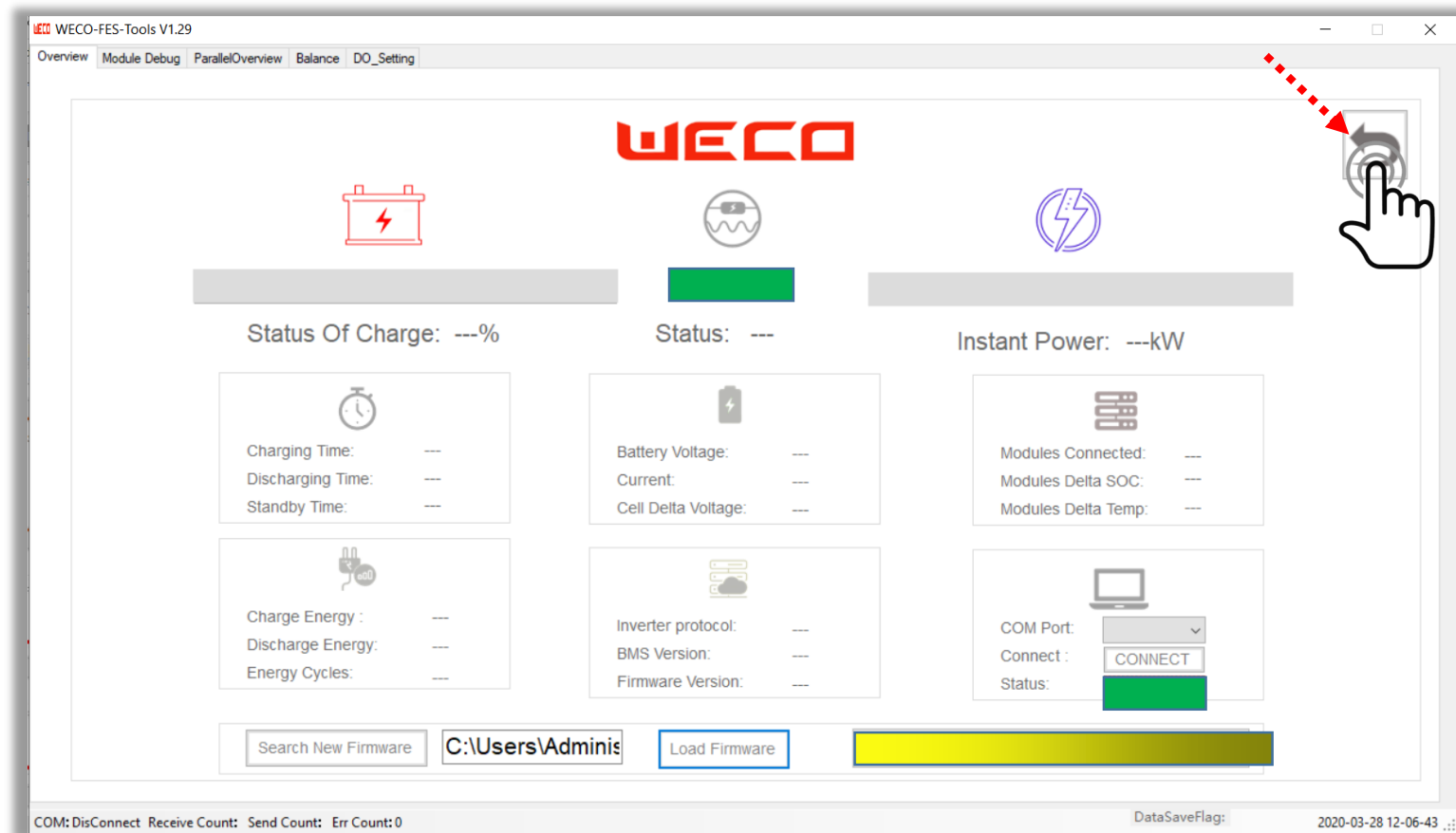
- Each module must have a specific HUB Firmware version that starts with 4.xx The latest version is Available on the Web Site
- **HUB working method** it is subsequent to the single module new Firmware
- Press **Search New Firmware**
- Select the HUB Firmware provided by WeCo(in case of necessity write to service@weco.uk.com)
- Select the firmware provided by clicking Open on the Pop Up Window.



- Once the correct Firmware has been detected proceed to the upload
- Press **"Load Firmware"** and wait for the upgrade completion
- The Green Bar will show the upgrading Status.



- Once the correct Firmware has been upgraded proceed with the others modules by repeating the same actions for each single module .
- Once all the modules of each cluster have been upgraded pass to the SECTION 02
- Press the Back Arrow to return to the Main Page



- Select the **Cluster Setting Program** and Click to access





SECTION 2 Cluster Set Up

- Unplug and reconnect the USB of the RS232 USB converter
- Connect the 232 converter to the cluster **Master Unit**
- Choose the COM port and press Connect.
- Wait for the each module information

The screenshot displays the WECO_Cluster_Tools application window. The interface is divided into several sections:

- Top Left:** Information panel with fields for Actual ID, Online Num, and Status, all showing "--".
- Top Center:** WECO logo and a "CLUSTER OVERVIEW" button.
- Top Right:** Configuration panel with "CLUSTER ID" set to 1, a "COM Port" dropdown menu, a "Connect" button, and a "Status" indicator.
- Middle Section:** Three columns of data for Master and Slave units (Slave#1 to Slave#4). Each column includes fields for FW Version, SoC Status, and Vdc Value, all showing "--".
- Bottom Section:** Three red warning boxes indicating "Firmware incoherence", "SOC incoherence", and "Voltage incoherence". Each box has a yellow warning icon and a "CHARGE INDIVIDUALLY" button.
- Bottom Bar:** A large red bar labeled "CLUSTER IMBALANCE".
- Footer:** A status bar showing "COM: Disconnect", "Receive Count", "Send Count", "Err Count: 0", and "Time".

- Make sure that all the Firmwares version are consistent
- Make sure that all the SoC are at the same Value * suggested 100%
- Make sure that the modules voltage are levelled

If one of the the above values is not aligned with the others, the installer must clear the imbalance by acting indivisually on each module

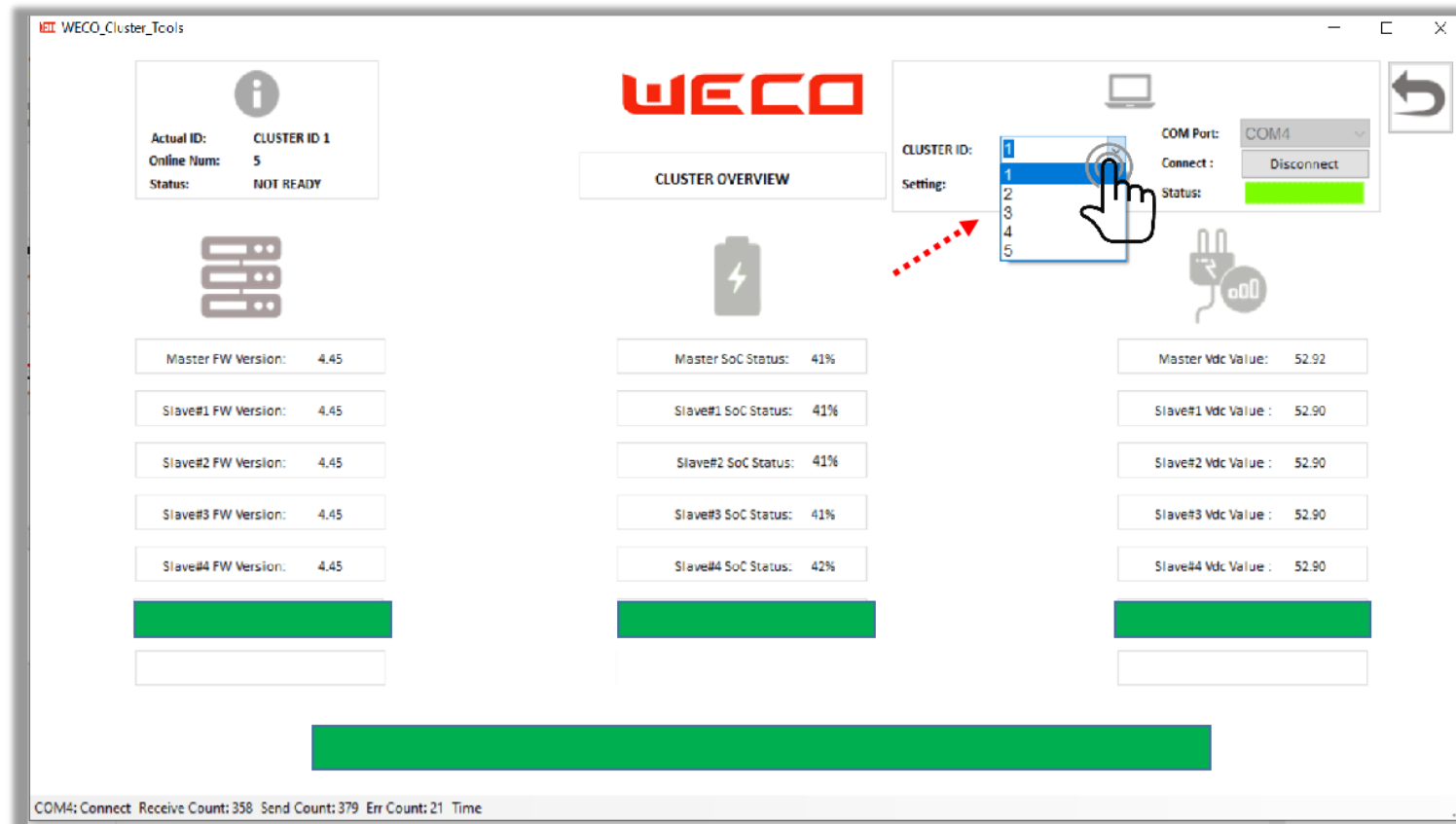
- When all of the three section are in **Green Status** will be possible to proceed to the next step

The screenshot displays the WECO_Cluster_Tools application window. The interface is divided into several sections:

- Top Left:** Information box showing 'Actual ID: CLUSTER ID 1', 'Online Num: 5', and 'Status: NOT READY'.
- Top Center:** WECO logo and 'CLUSTER OVERVIEW' title.
- Top Right:** Controls for 'CLUSTER ID' (dropdown menu showing 1-5), 'COM Port' (COM4), 'Connect' (Disconnect button), and 'Status' (green bar).
- Left Column:** Firmware status for Master and four slaves, all showing version 4.45. A green checkmark icon is present. Below this is a green bar labeled 'Firmware Conformity'.
- Center Column:** SoC status for Master and four slaves. Master is at 41%, while slaves are at 52%, 52%, 41%, and 42% respectively. A red 'X' icon is present. Below this is a red bar labeled 'SOC incoherence' and a yellow warning icon with the text 'CHARGE INDIVIDUALLY'.
- Right Column:** Voltage status for Master and four slaves, all showing values around 52.92V to 52.90V. A green checkmark icon is present. Below this is a green bar labeled 'Voltage Conformity'.
- Bottom:** A large red bar labeled 'CLUSTER IMBALANCE' spans the width of the data columns.
- Bottom Status Bar:** Shows 'COM4: Connect', 'Receive Count: 358', 'Send Count: 379', 'Err Count: 21', and 'Time'.

Red dashed arrows point from the 'Firmware Conformity', 'SOC incoherence', and 'Voltage Conformity' bars towards the 'CLUSTER IMBALANCE' bar, indicating that these individual checks are part of the overall cluster balance assessment.

- Select the **Cluster ID** section and Assign the ID 1 at the Master Unit of the Cluster 1
- Press SET to confirm and assign the ID of the 1st Cluster Master Module
- Each master of each cluster must have an ID assigned.



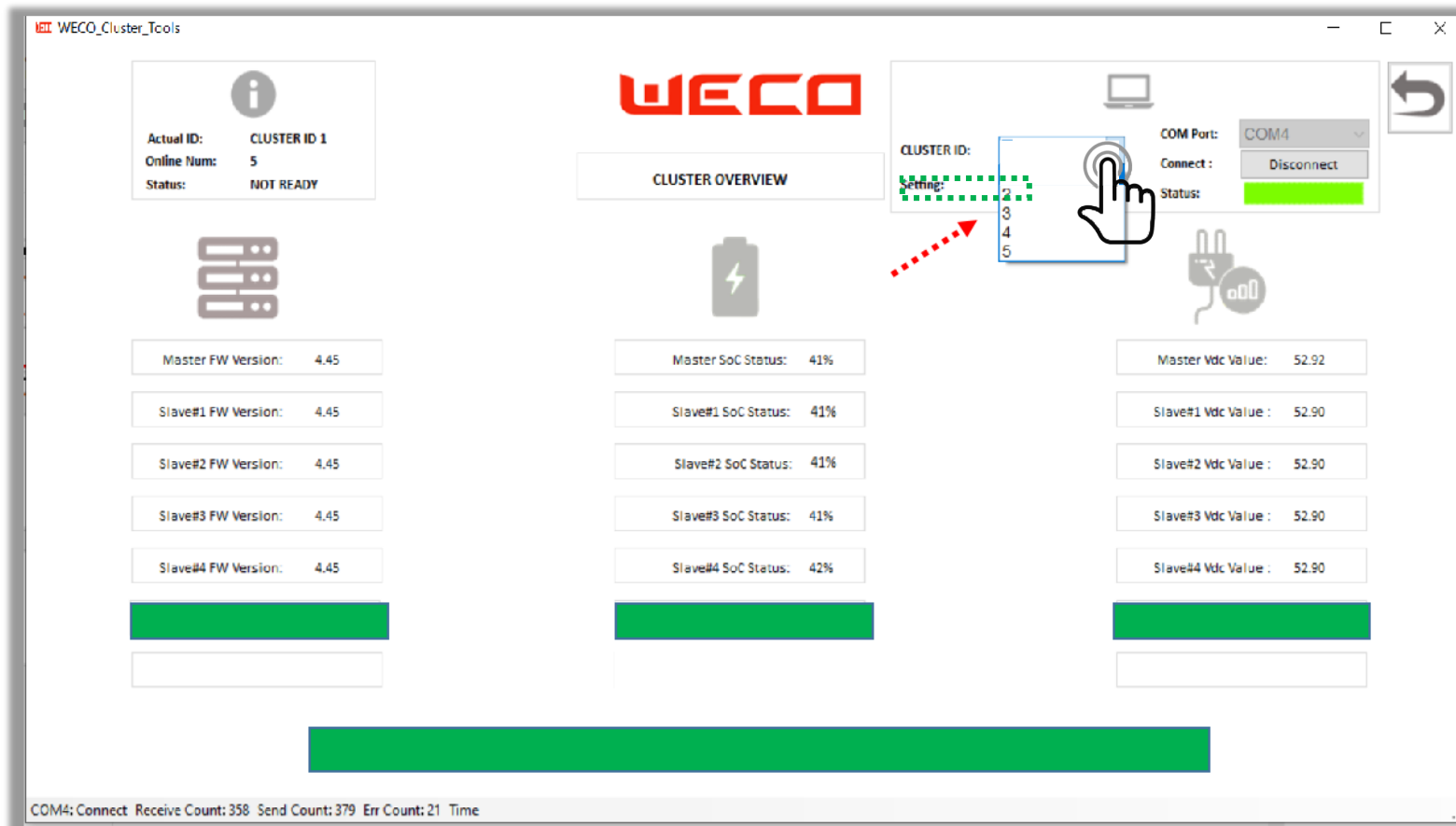
- Repeat this action for all the clusters of the system
- Make sure set the same SOC on each cluster
- WeCo suggest to fully charge each module up to 100%, then proceed to the next step
Set all the modules at 100% at the start up phase will prevents further imbalances

The screenshot displays the WECCO Cluster Tools software interface. The main window is titled "WECCO" and "CLUSTER OVERVIEW". It features three columns of data for Cluster ID 1, Cluster ID 2, and Cluster ID 3. Each column includes a status bar (green with a checkmark), a list of module versions (Master FW Version, Slave#1 FW Version, Slave#2 FW Version, Slave#3 FW Version, Slave#4 FW Version), and a list of module SoC Status (Master SoC Status, Slave#1 SoC Status, Slave#2 SoC Status, Slave#3 SoC Status, Slave#4 SoC Status). The status bar for Cluster ID 1 is green, while the others are grey. Red dotted arrows point to the status bars of Cluster ID 1, 2, and 3. The bottom status bar shows "COM4: Connect Receive Count: 358 Send Count: 379 Err Count: 21 Time".

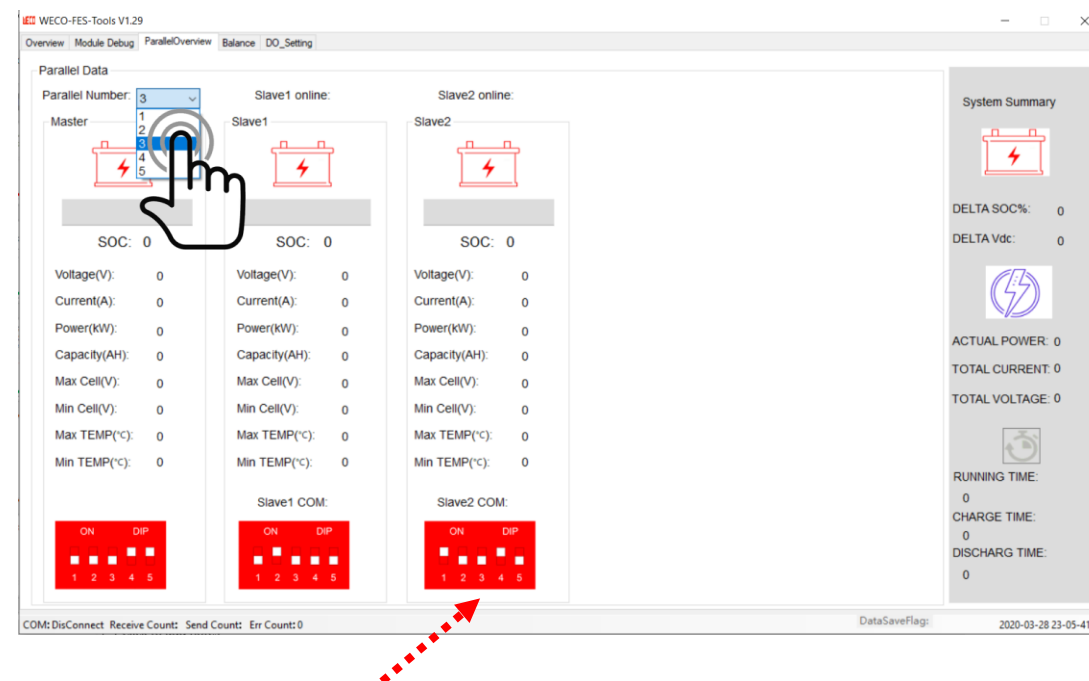
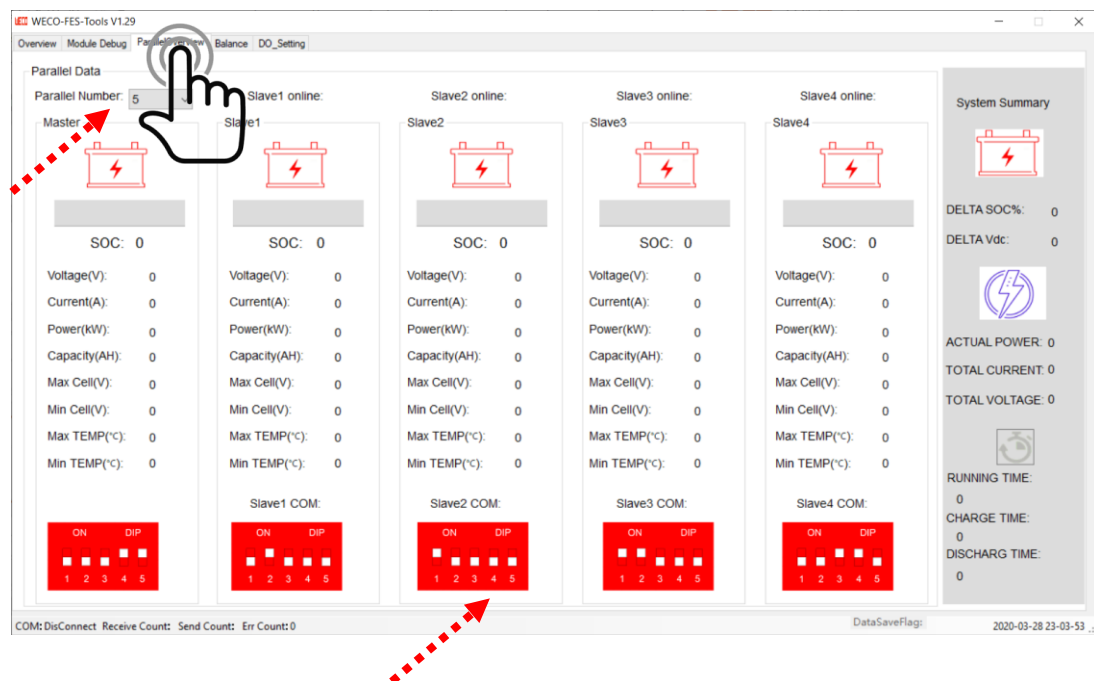
Cluster ID	Actual ID	Online Num	Status	Master FW Version	Slave#1 FW Version	Slave#2 FW Version	Slave#3 FW Version	Slave#4 FW Version	Master SoC Status	Slave#1 SoC Status	Slave#2 SoC Status	Slave#3 SoC Status	Slave#4 SoC Status	Master Vdc Value	Slave#1 Vdc Value	Slave#2 Vdc Value	Slave#3 Vdc Value	Slave#4 Vdc Value
1	CLUSTER ID 1	5	NOT READY	4.45	4.45	4.45	4.45	4.45	41%	41%	41%	41%	42%	52.92	52.90	52.90	52.90	52.90
2																		
3																		
4																		
5																		

COM4: Connect Receive Count: 358 Send Count: 379 Err Count: 21 Time

- Unplug the RJ45 RS 232 from the Master unit of the Cluster 1 and connect the Master Unit of the Cluster 2
- Assign the ID 2 to the Master Unit of the Cluster 2
- Proceed with the same method up the ID 05 of the Cluster 05 (or up to the last cluster if you have less than 5)
- If you have less the 5 Cluster simply stop at your lastest Cluster
- **Make sure not to have clusters with the same ID**
- Installer MUST assign the cluster ID to any master module of each cluster



- For each cluster assign the Master and Slave sequence
- Select the number of modules that compose your cluster in order to have the right DIP Sequence
- If you have a cluster of 3 modules MUST SELECT -PARALLEL NUMBER 3- (Example Only)
- The DIP sequences changes according with the number of modules selected.
- Manually set the DIP of each module and restart all the modules after the wiring
- Connect the parallel Communication cable from the Port B of the master as per Daisy Chain method
- For more information follow the Modules Manual



- This section is reserved to Expert installers in possession of the WeCo CAN ANALYST RED VERSION
- Back to the main page and select the **HUB Setting Program**
- To proceed with the next steps the needs a USB/CAN converter
- USB CAN converter can be provided by WeCo if the installer by writing an email to service@weco.uk.com





For this setting use only the WeCo RS 232 CONVERTER

Order code :CAN_NLT



- The We-HUB must be set up as per the system design
- Through the USB/CAN converter it is possible to upgrade Firmware and Change Inverter protocol or reset the system configuration
- Connect the USB/CAN ANALYST Converter then press **CONNECT** the status bar will pass from RED to GREEN



- From the Protocol List Select the protocol to match your inverter
- After the protocol has been selected press **SET** and the HUB will open the communication protocol selected.

WECO WECO_HUB_Tools

WECO

System SOC%: 48%
System Voltage: 52.8V
System Current: -14.1A
System Status: RUN
System Power: -0.7kW

Protocol List: **OLPCAN**
Press to Set:
Num of Cluster:
Num of Parallel:
Press to Set:

- OLPCAN
- SMACAN
- SOLAXCAN
- GOODWECAN
- STUDERCAN
- VICTRONCAN
- ZCSCAN**
- INVTCAN
- IMEONCAN
- VOLTRONICCAN
- GROWATTTCAN
- KEHUACAN
- CONEXTCAN

Connect: **DISCONNECT**
Status:

Cluster 1

ID 01
SOC 44.8%
Vdc 52.8V
Adc -7.8A

Cluster 2

ID 02
SOC 51.6%
Vdc 52.8V
Adc -6.3A

Cluster 3

ID 03
SOC --
Vdc --
Adc --

Cluster 4

ID 04
SOC --
Vdc --
Adc --

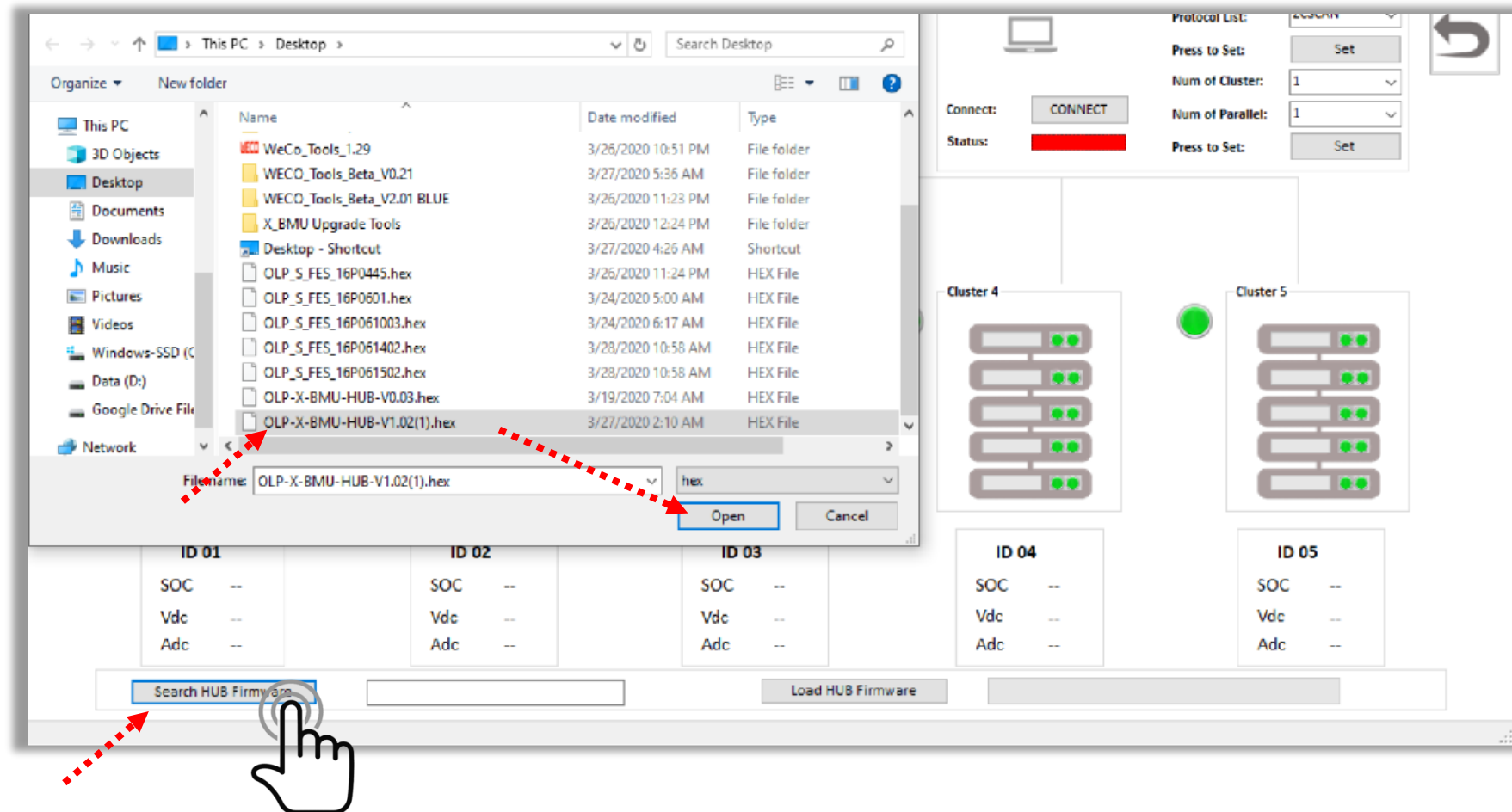
Cluster 5

ID 05
SOC --
Vdc --
Adc --

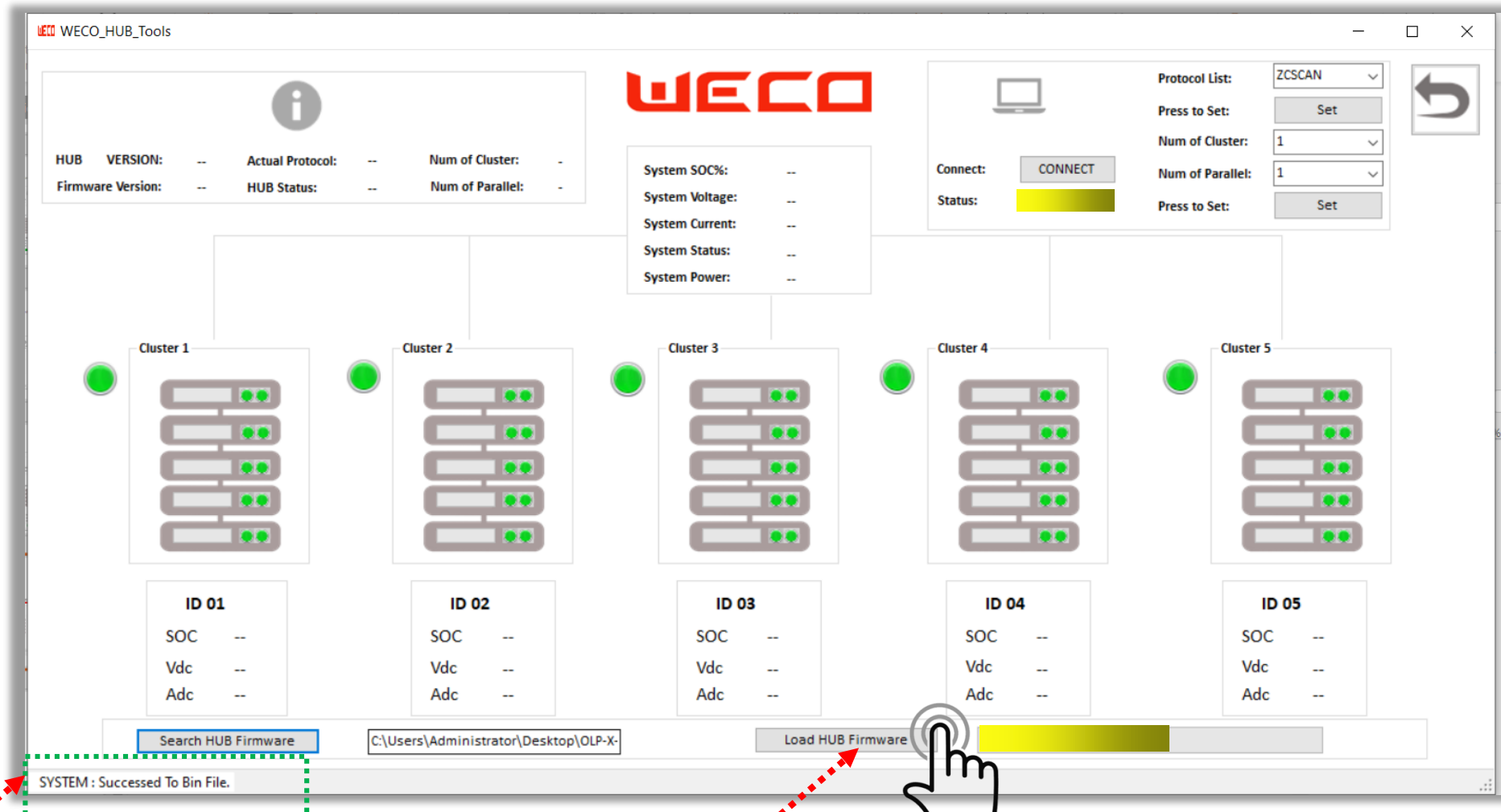
Search HUB Firmware C:\Users\Administrator\Desktop\OLP-X- Programmer

SYSTEM : Succesd Updata,Using Seconds:17

- To upgrde the HUB Firmware press on Search HUB Firmware. (The new Firmware can be requested by email writing to service@weco.uk.com)
- Search for the BMU-HUB Firware and press **OPEN**
- Set the Number of Modules connected to the HUB and press **SET**



- Once the new HUB firmware has been identified and uploaded the SYSTEM will show > Successed to Bin File
- Press **Load HUB Firmware** to transfer the Firmware from the PC to the HUB
- The Green Bar will show the upgrade status



- Set the systems specs such how many Clusters and how many modules in parallel are connected on each cluster.
- Set the Number of Clusters connected to the HUB and press **SET**
- Set the Number of Modules connected to the HUB and press **SET**

Cluster Settings



Modules Settings





- If you have a single We HUB assign the Address 0 and press SET (see red selection)
- If you have a SUPER HUB assign the WeHUB ID for this devices, further information are available in section 2





- Select and confirm the right number of clusters connected to your HUB (Red Selection)
- Select and confirm the right number of modules that compose your clusters (Blue Selection)



- The results of the previous settings will be displayed in the INFO section
- **Actual Protocol**
- **Number of Clusters**
- **Number of Parallel**

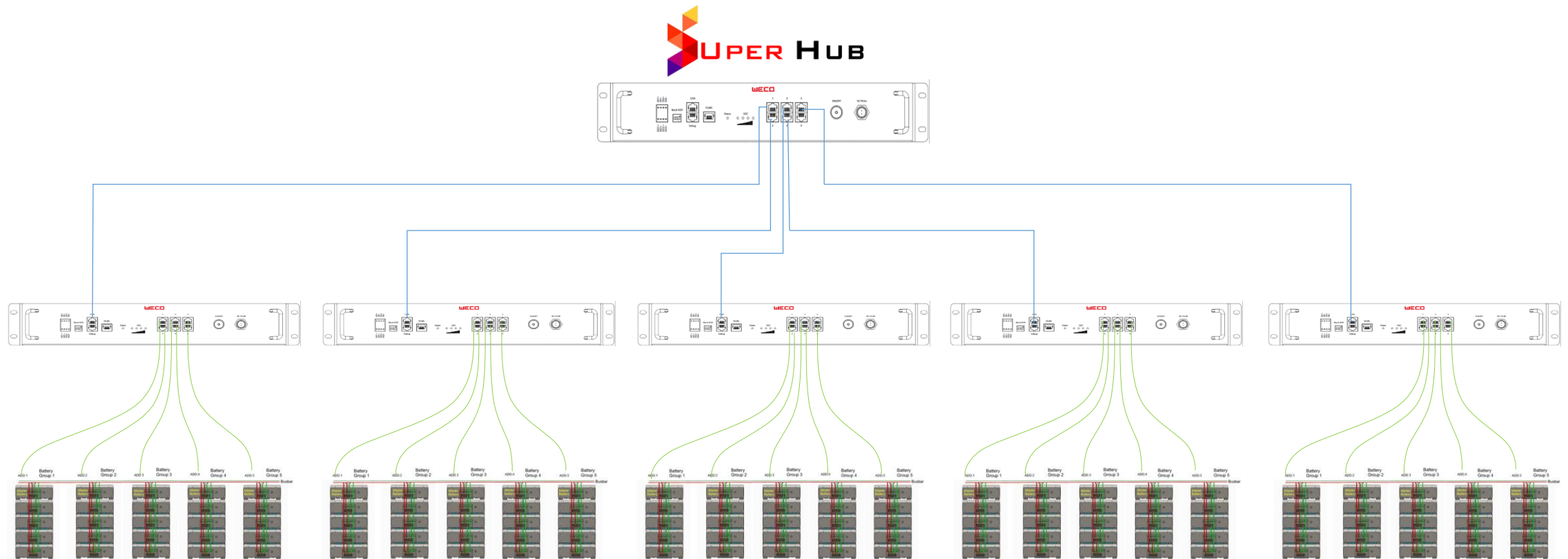




SuperHub it is required when the user need to install more than 40 batteries and a maximum of 100



SYSTEM ARCHITECTURE FOR SUPER HUB

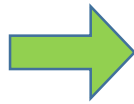




FIRMWARE UPGRADE TO MAKE THE We-HUB a SUPERHUB

We-HUB and SUPERHUB are the same device but in order enable a We HUB as SUPERHUB it is required to install a special firmware to enable the SUPERHUB

We-HUB



FIRMWARE UPGRADE



WeHUB FW Version is **HUB_V117.hex**

SUPERHUB FW Version is **HUB_SPHUB_V701.hex**



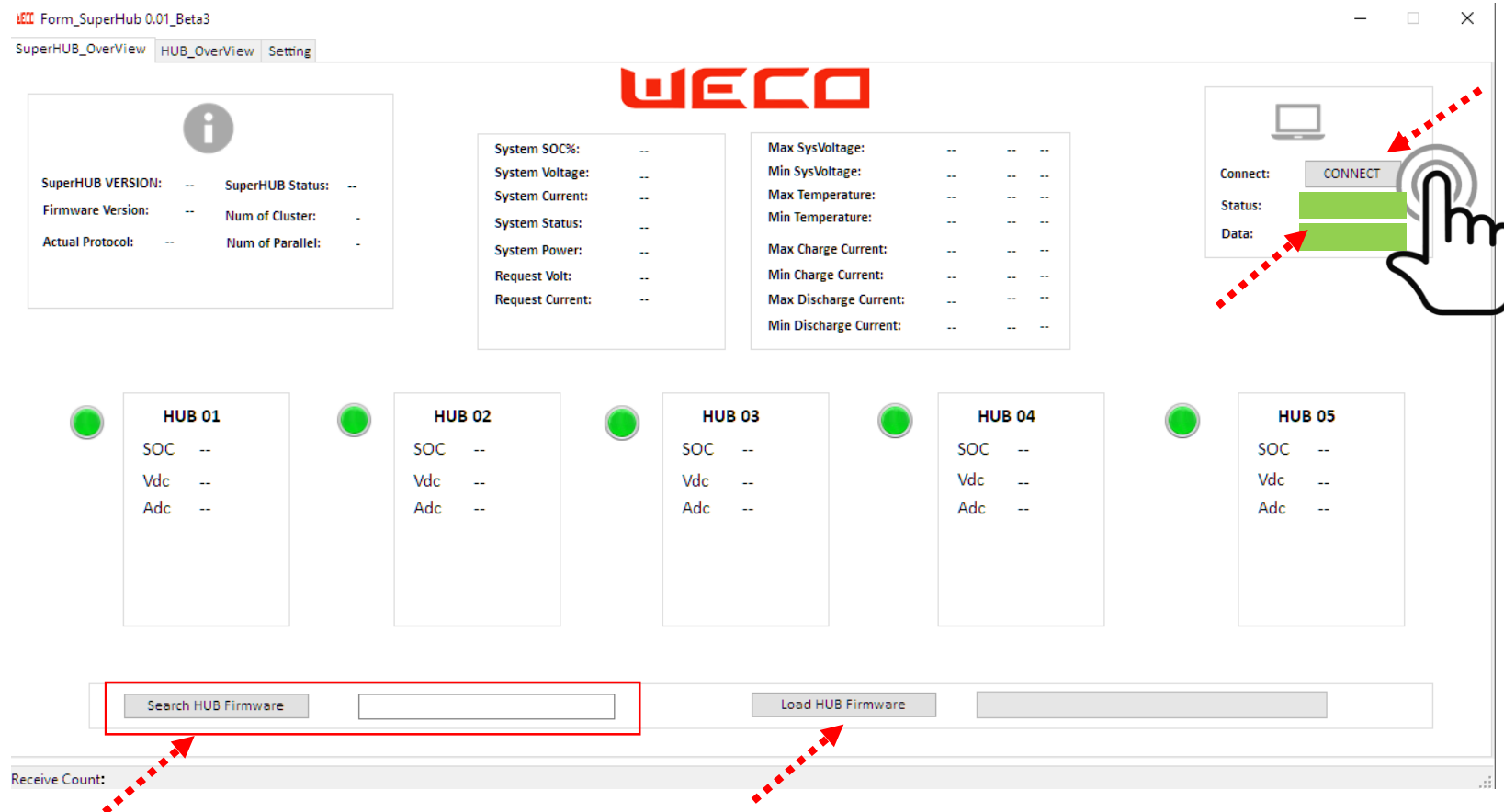
- Use the WeCo CAN ANALYST to connect with your We HUB
- Search for the latest FW to Enable the SUPER HUB function
- Power On the We HUB as usual and proceed with the UPGRADE

CAN to USB WeCo Converter PIN DEFINITION
Only for Authorized Service partner



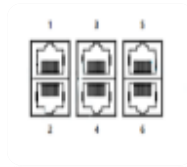


- Press CONNECT and the STATUS and DATA bar will become Green
- Select the latest FW for SUPER HUB (V7.01)
- Launch the upgrade and wait for the process completion

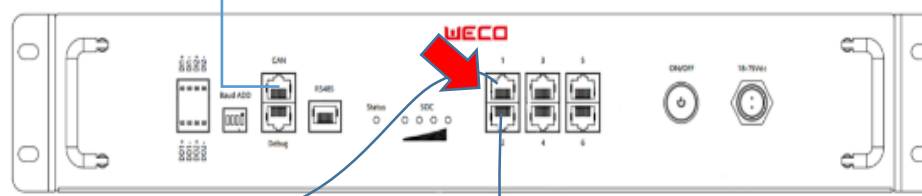
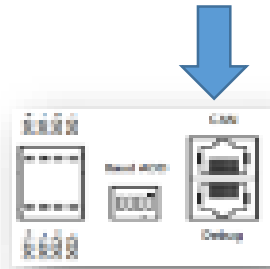




Connect each WE HUB from the CAN PORT
to the SUPERHUB INPUT



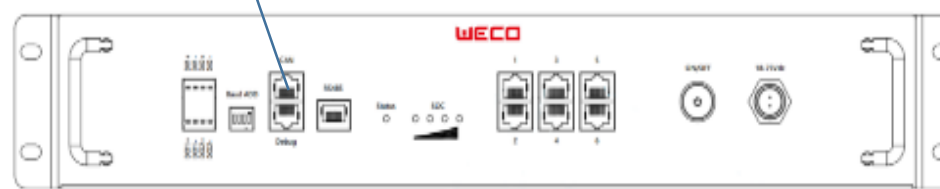
INVERTER CAN



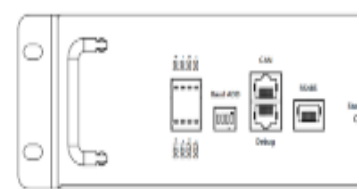
WeHUB ID01



WeHUB ID 02



WeHUB ID XY





Select the desired Protocol and press set
Restart the SUPERHUB and RESTART all WeHUB installed in your system

