

Deka
duration®

BY MK BATTERY



DD5300

QUICK INSTALLATION GUIDE

15 MODULES OR LESS

This Quick Guide is not meant to replace the full I&O Manual

Product Overview



The DeKa Duration is a dual voltage Stackable Battery Module that can be used in Low Voltage configuration or High Voltage configuration.

Section 1 is for Low Voltage Application
Section 2 is for High Voltage Application



This Battery Module is designed to be used indoors.

About This Manual

This manual relates only to the DD5300 Stackable Battery up to 15 modules in Low Voltage applications and up to 16 modules in High Voltage applications. Only trained and authorized personnel should install, repair or charge these Battery Modules. For other configurations please refer to the full I&O Manual.

Battery Module Included Accessories

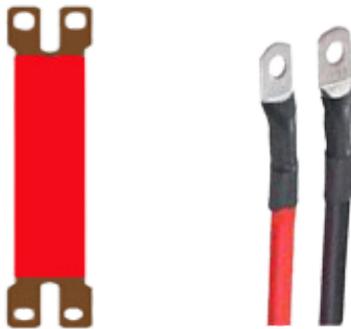
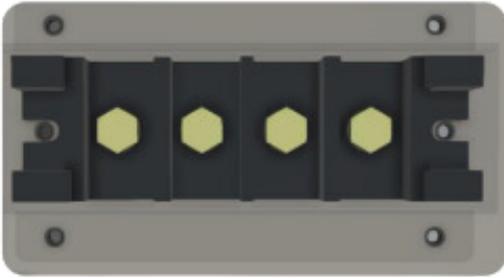
Wire Type	Cable Color	Cable Length	LV Kit Description	Quantity	Picture
#4 AWG	BLACK	250 cm	Both sides ring terminal diam 8mm for LV connection Not Required for HV Installation	1	
#4 AWG	RED	250 cm	Both sides ring terminal diam 8mm for LV connection Not Required for HV Installation	1	
CAT 5	BLUE	120 cm	RJ 45 RJ 9 BMS to Inverter CAN Not Required for HV Installation	1	
CAT 5	BLUE	120 cm	RJ 45 RJ 45 LV PARALLEL CABLE Not Required for HV Installation	1	
Wall Bracket			Wall Plate for Battery Support + 4 M10 Wall Plugs + Screws		
Removable Brackets			Set of 2 back brackets with M6 screws (Allen Key) for wall installation	Set	
Lifting Handles			2 X Lifting Handles	1 Set	
Insulated Rubber Support Pads w/ Adhesive			4 X Each Module	4	
Cable Diameter	Cable Color	Cable Length	HV Kit Description	Quantity	Picture
25mm ²	RED	25 cm	String double side fast connector, one side black – one side red For HV Serial Connection Only	1	
CAT 5	BLUE	20 cm	Link + CAN HV communication cable 2 sides RJ45 For HV Battery Data Communication Link	2	



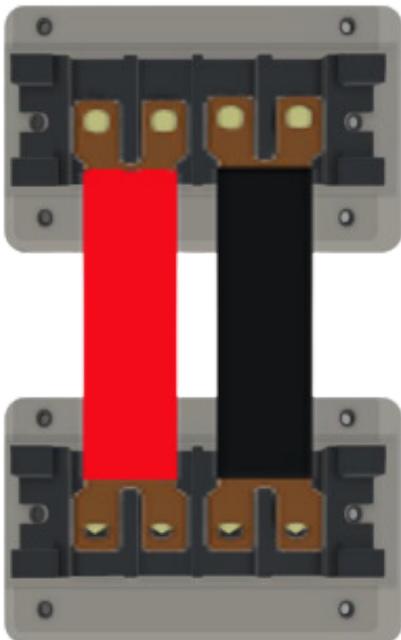
The battery is dual voltage – it can be installed in either a High Voltage configuration or a Low Voltage configuration, but never both at the same time.

Terminals and Connections

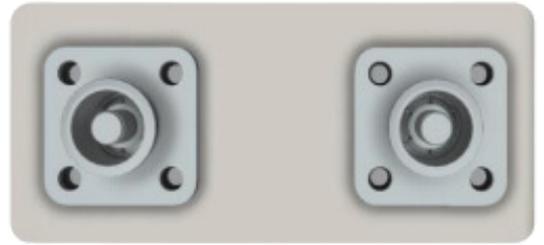
Low Voltage Only
Screw Terminal



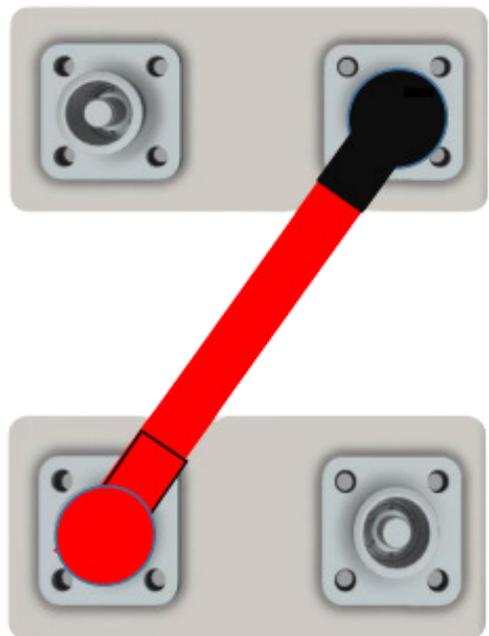
Low Voltage
Parallel Connection



High Voltage Only
Fast Connectors



High Voltage
Serial Connection



General Preparation

Before Installation:

Ensure that all the modules are turned OFF.

Battery installation location should be at least 20m away from sources of heat, sparks or other sources of extreme temperature.

Battery connecting cables shall be as short as possible to prevent excessive voltage drops. Batteries with different capacity, different type/model or design or from different manufacturers shall not be connected together.

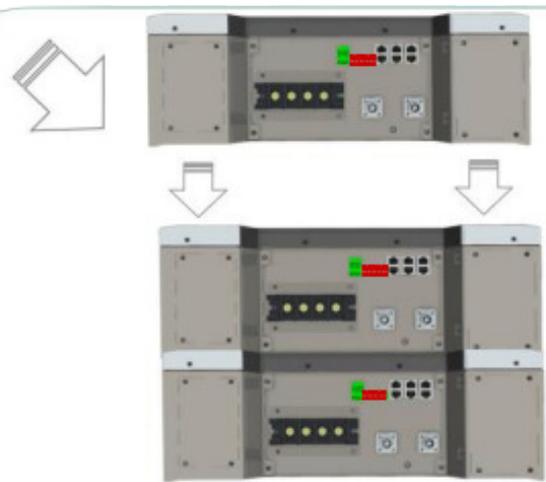
1. Before connecting the battery, the battery positive and negative poles shall be carefully checked to ensure correct installation.
2. The installation location must be on a flat level surface, in a dry, clean and protected room, away from water and humidity.



Before starting any operation on the battery, make sure to position the modules in their final position and structurally fix all the modules that make up the system.

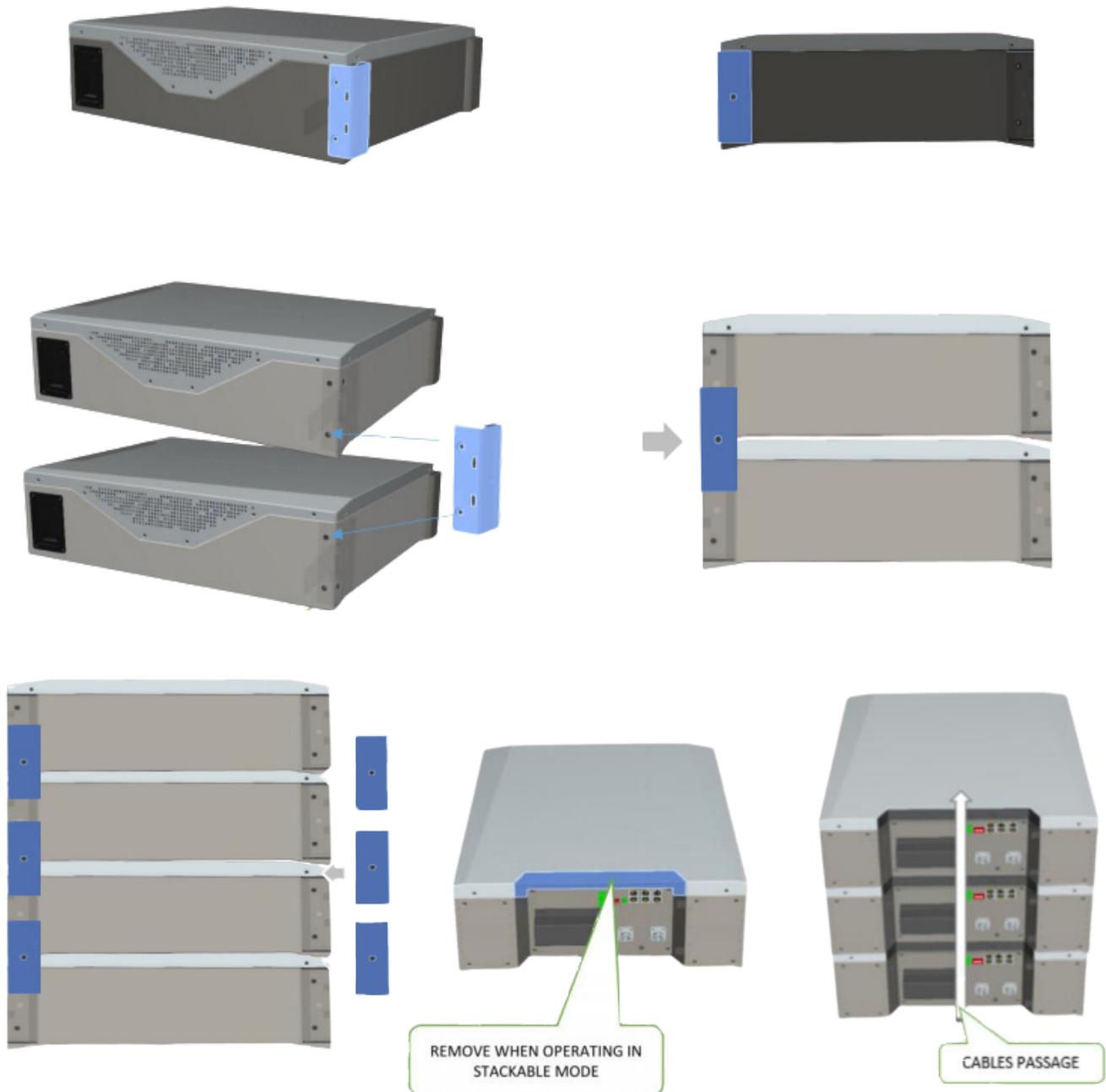


WALL/FLOOR



STACK

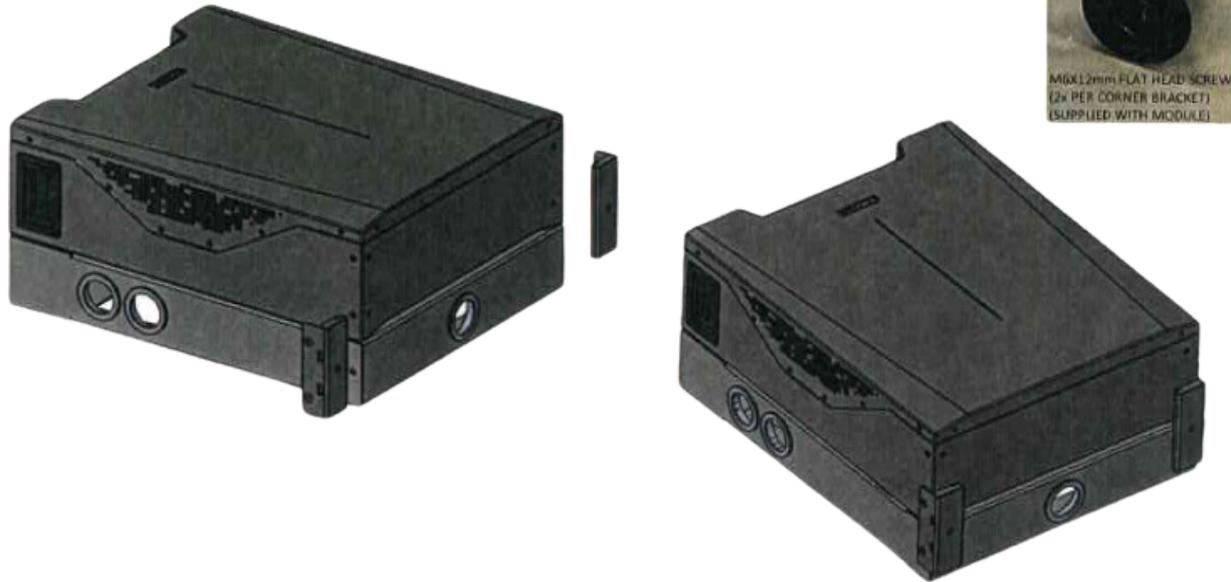
Stackable Installation



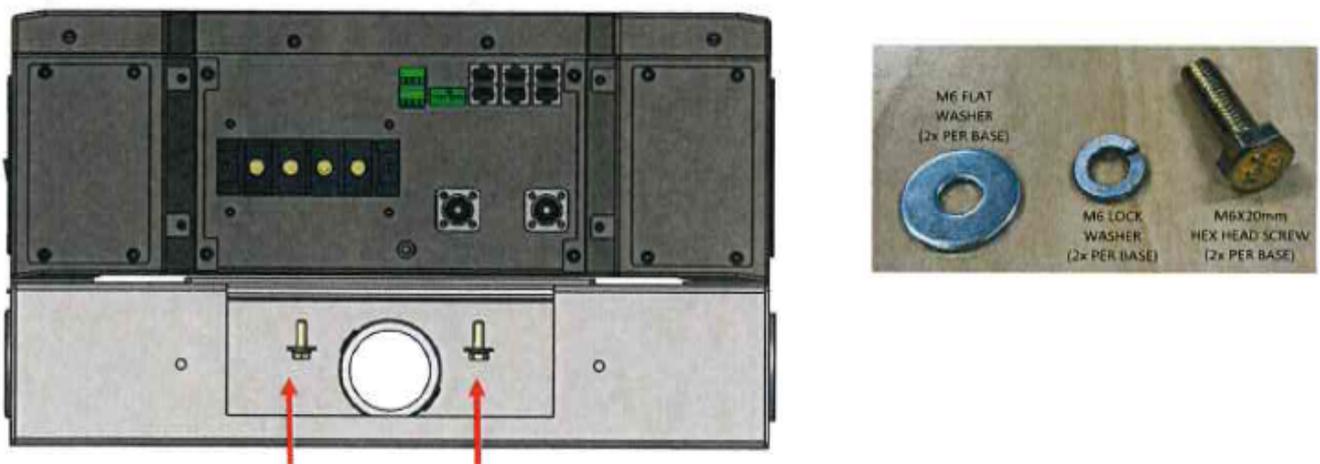
The DD5300 Battery Module has two terminals for connecting the power supply. The installer must pay the utmost attention to the respective functions.

Seismic Racking Installation

- Place the Battery Module on the base and secure it using the corner brackets. Use the hardware supplied with the corner brackets on the module.

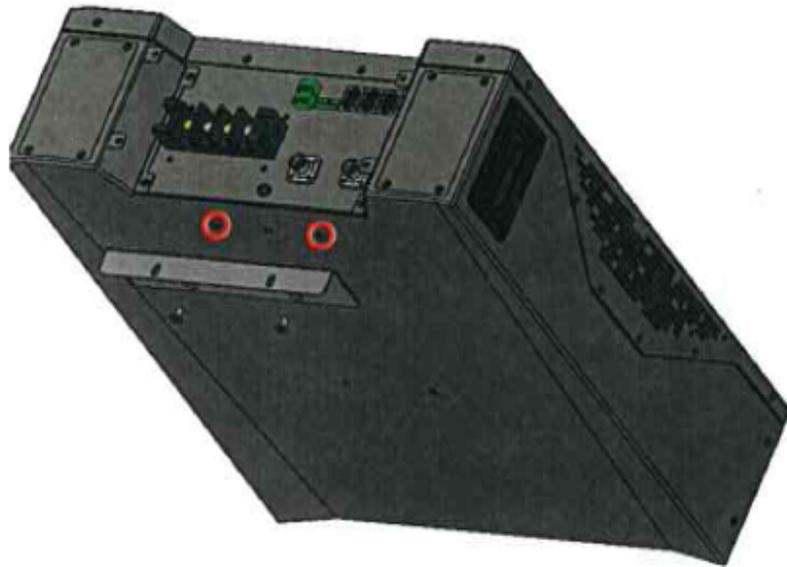


- Use the two M6 hex cap screws with the M6 flat and lock washers to fasten the front of the module to the base as shown below.

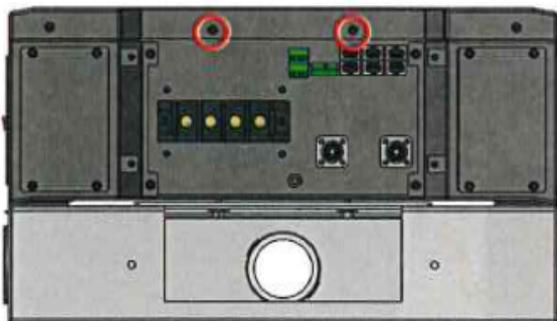


Seismic Racking Installation

- Before Stacking the next module, secure the L-bracket to the bottom of the battery using two M6 flat head screws. Use the two outside cutouts on the bottom of the module for the connection.

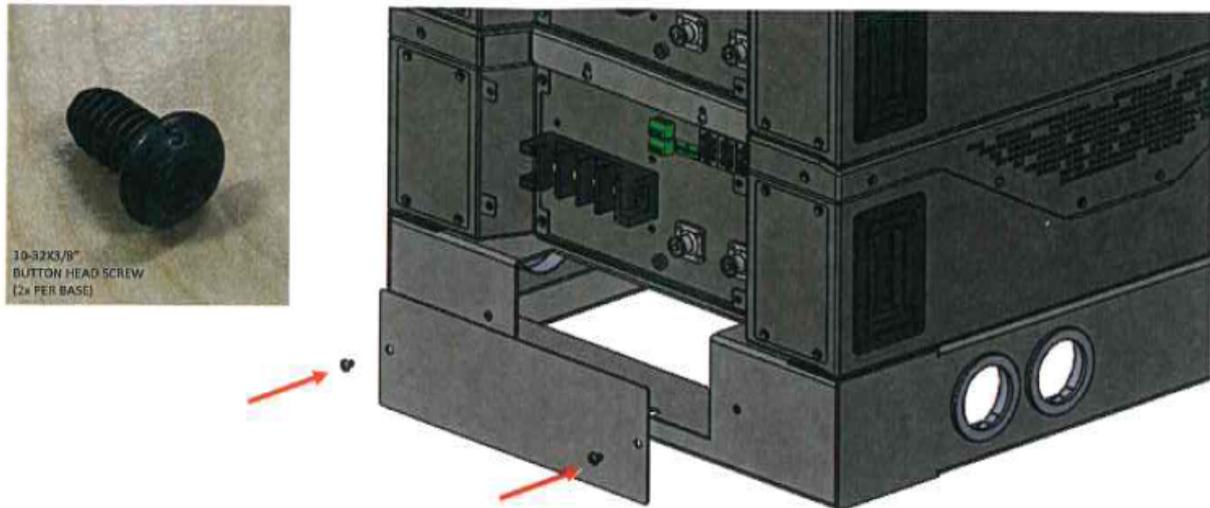


- Remove the two screws that are circled below for the L-bracket connections. Place the module on top and secure the L-bracket using the two M4 head screws in the position illustrated below.



Seismic Racking Installation

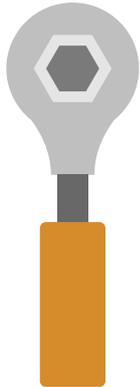
- Repeat the 2 previous steps for every module in the stack (MAX=8).
- Secure the front cover plate using the two (2) 10-24 screws.



Low Voltage Parallel Set Up



DD5300 can be connected in parallel up to 15 modules (in a single cluster), this process requires a full knowledge of the product.



9.5 Nm(7 ft lb)

Battery Terminal Block Power Cable Tightness
CHECK TORQUE EVERY THREE MONTHS



Dip switch configuration up to 15 modules in parallel.

From the 1st to the last module (or 15th) for a SINGLE CLUSTER in Low Voltage Configuration, the DIP switch setting of each battery must be set to “OFF” position as per the picture below:

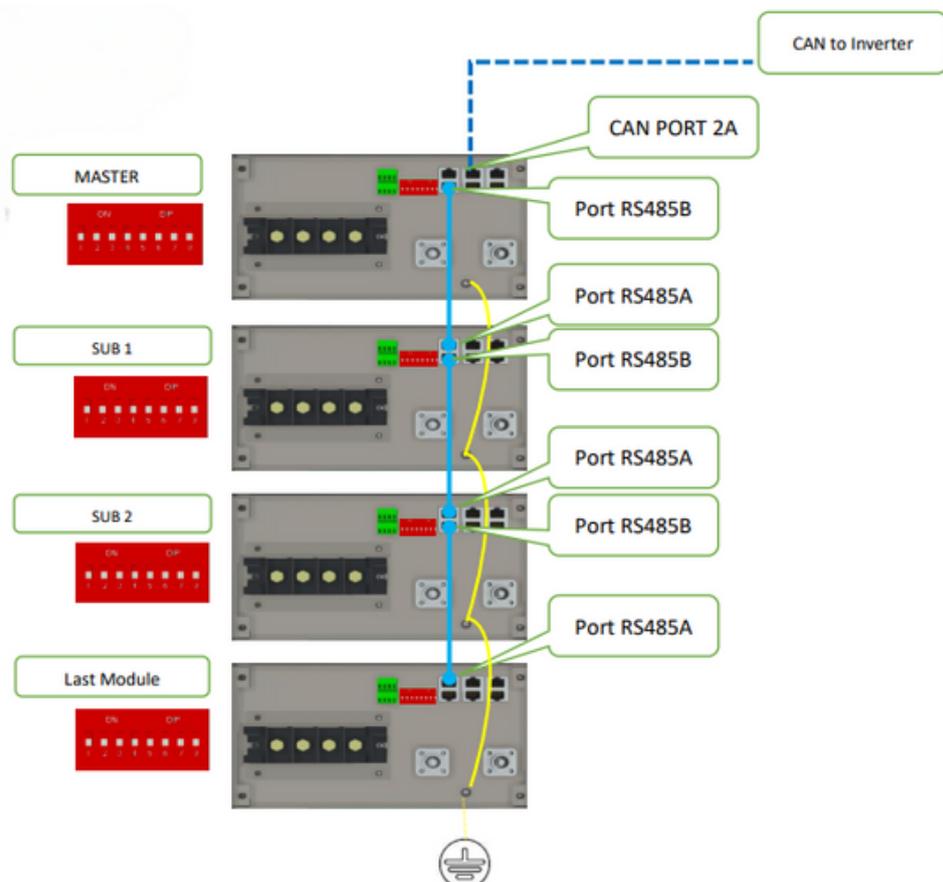


Low Voltage Set Up Steps



After setting the DIP Switch, the Battery Module must be restarted for the DIP switch changes to take effect.

- Set up the DIP switches for all the modules in the cluster.
- Connect of the earth terminal between the modules and the general earth rod.
- Connect the RS485 B Port of the Master battery with the RS485A Port of the SUB-1 battery using the RJ45 cable supplied.
- Continue to connect the RS485 ports in sequence up to the last module per the illustration below.
- Pinout the inverter communication cable per inverter manufacturer and connect the cluster to the inverter using CAN PORT 2A.

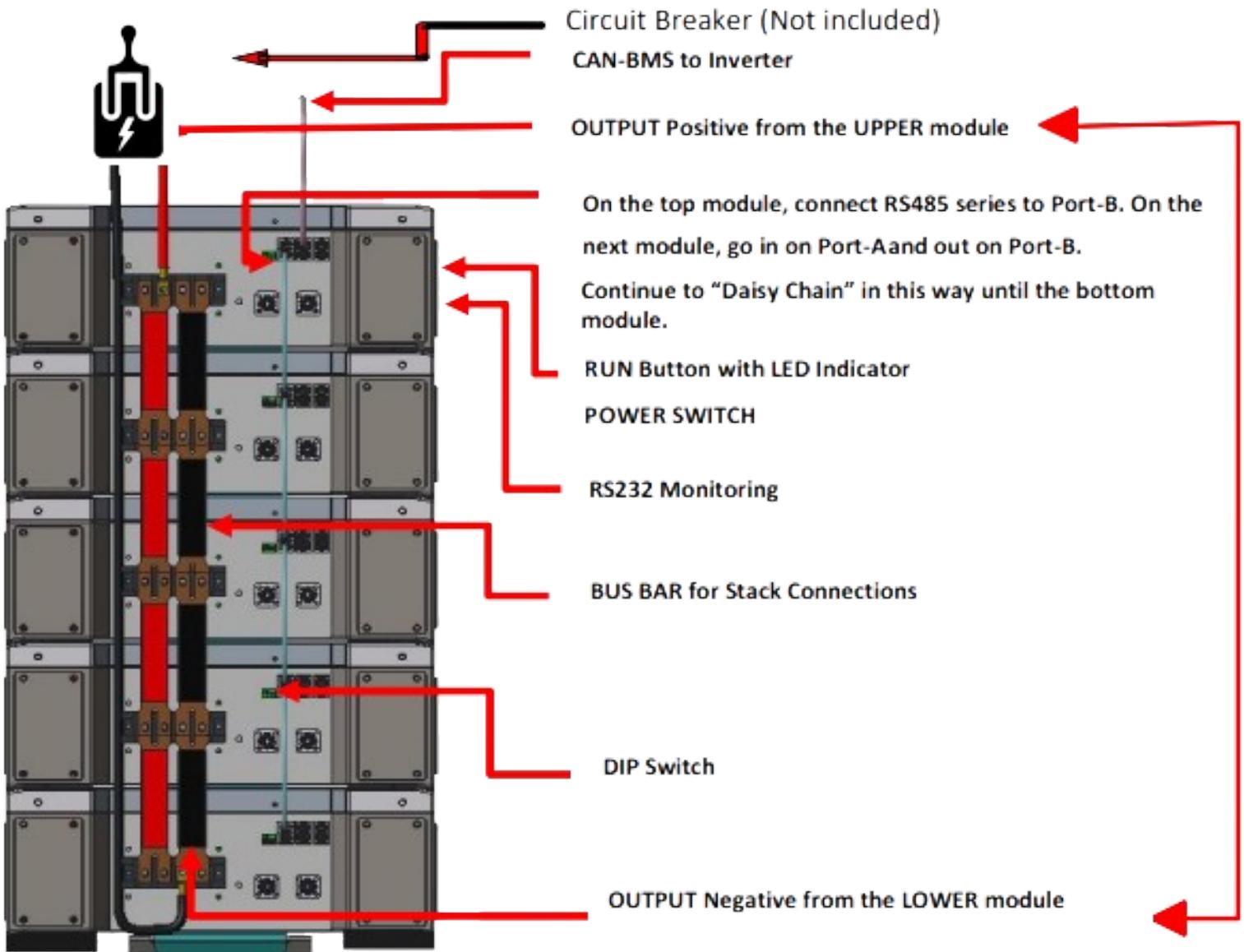


Low Voltage Set Up Steps



Screws, cables and bus bar power connections on the battery terminal block must be installed with due diligence, and the tightening of the connection terminal must be to 9.5 nm (7 ft lb). Each terminal should be inspected, and its torque checked every three months.

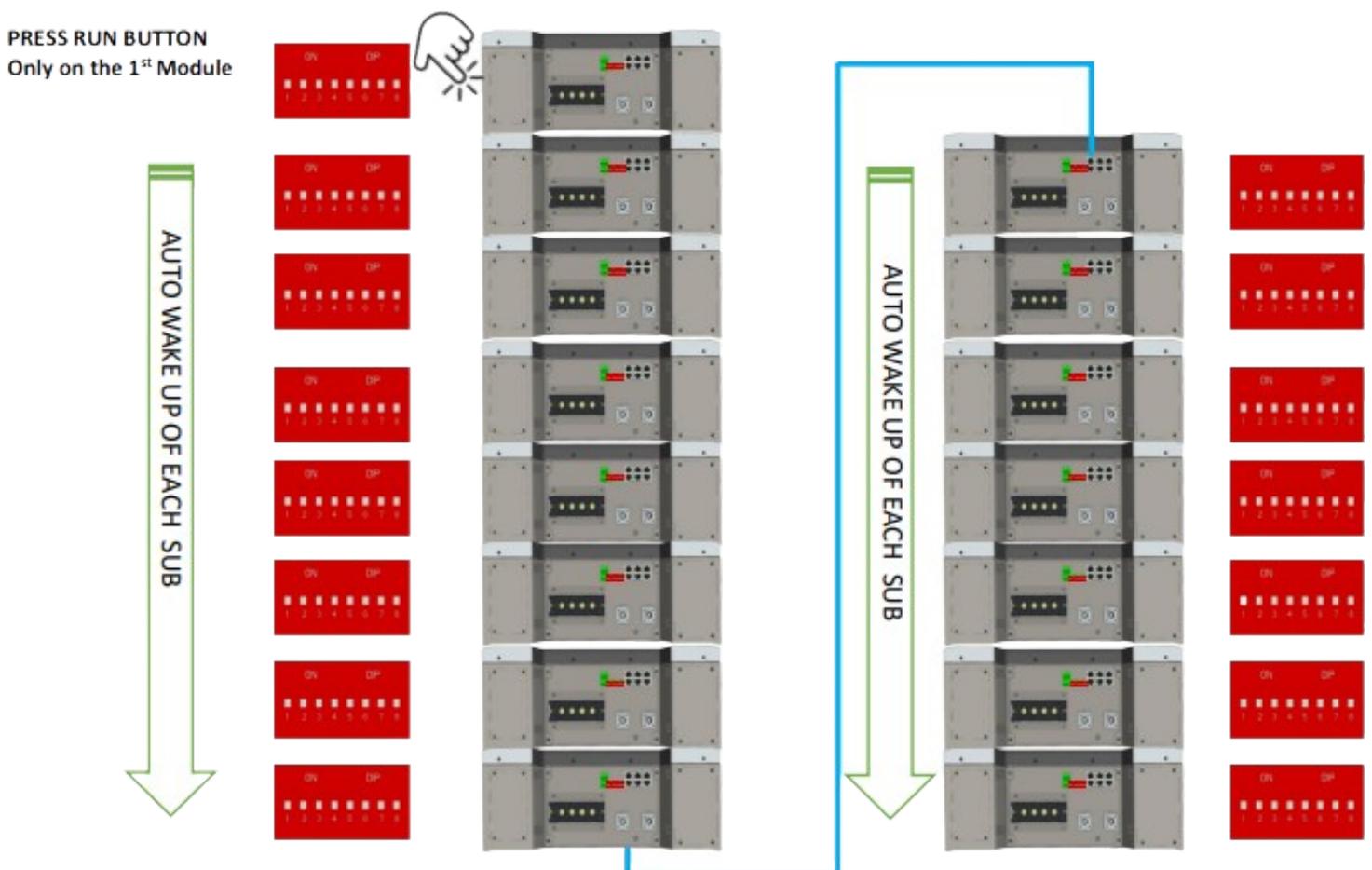
- Connect the power cables as indicated below, making sure that the batteries are OFF.



- Check all the communication and power cables.

Low Voltage Wake-Up Steps

- Turn the power switch on for all the batteries in the cluster.
- Press the RUN button on the master battery for 2-3 seconds.
- Wait for all the sub modules to wake up and all the run buttons are solid green
 - The process may take up to 30-45 seconds.
- Select inverter protocol using the PC software or Bluetooth app.



Low Voltage Cluster Shutdown

- Press and hold the Master Run Button for 5-seconds.
 - The GREEN RUN light should go off immediately.
 - The GREEN RUN lights on the sub batteries will not be extinguished immediately.
- The RED FAULT lights on the sub batteries' FRONT LED bars will start flashing after ten seconds and the GREEN RUN lights will remain on.
- Wait one minute for the RED Fault lights on the FRONT LED bars and the GREEN RUN Button lights on all sub batteries will go off. Turn OFF the POWER SWITCH of each battery.



When a master battery is offline in a fault state, or has been manually shutdown, the entire cluster will go offline until the Master comes back online.



In a parallel battery system, we strongly advise not to switch off individual sub batteries when the system is running either in Charge or Discharge Mode.



To restart the Cluster, it is mandatory to repeat the Cluster Start Up procedure. First make sure to shut down all batteries by setting the power switch to the off (0) position, then set all power switches to the ON (1) position and press the master RUN BUTTON to enable the startup process again.

High Voltage Configuration



It is mandatory to use the DD21002 HV box for this configuration.



High Voltage Accessories Included With The Battery

Cable Diameter	Cable Color	Cable Length	HV Kit Description	Quantity	Picture
25mm ²	RED	25 cm	String double side fast connector, one side black – one side red For HV Serial Connection Only	1	
CAT 5	BLUE	20 cm	Link + CAN HV communication cable 2 sides RJ45 For HV Battery Data Communication Link	2	

HV Box Included Accessories

Cable Diameter	Cable Color	Cable Length	DESCRIPTION	QTY.	
25mm ²	RED	20 cm	DD5300 1st Module to HV BOX double side fast connector, one side red – one side red	1	
25mm ²	BLACK	250 cm	DD5300 last Module to HV BOX double side fast connector, one side black – one side black	1	
25mm ²	RED	250 cm	Serial connection between towers double side fast connector, one side black – one side black	1	
DI/DO Terminals			DI/DO green Terminals	2	
10mm ²	RED	500 cm	From inverter to HV BOX power charging cable, one side fast connector black – one side STAUBLI blue	2	
CAT 5	BLUE	220 cm	CAT 5 LINK/CAN for towers connections 220 cm RJ 45	2	
10mm ²	BLACK	500 cm	From inverter to HV BOX power charging cable, one side fast connector black – one side STAUBLI blue	2	
10mm ²	GREEN or GREY	250 cm	RJ 45 CAN BMS from HV BOX to inverter	1	
Rubber Pads 10x50x20			Rubber insulated supports for tower 01 and tower 02	4+4	
Rubber Pads for Stack Installation			Rubber tape pads 70x70 5mm thickness, for single module insulation	4	

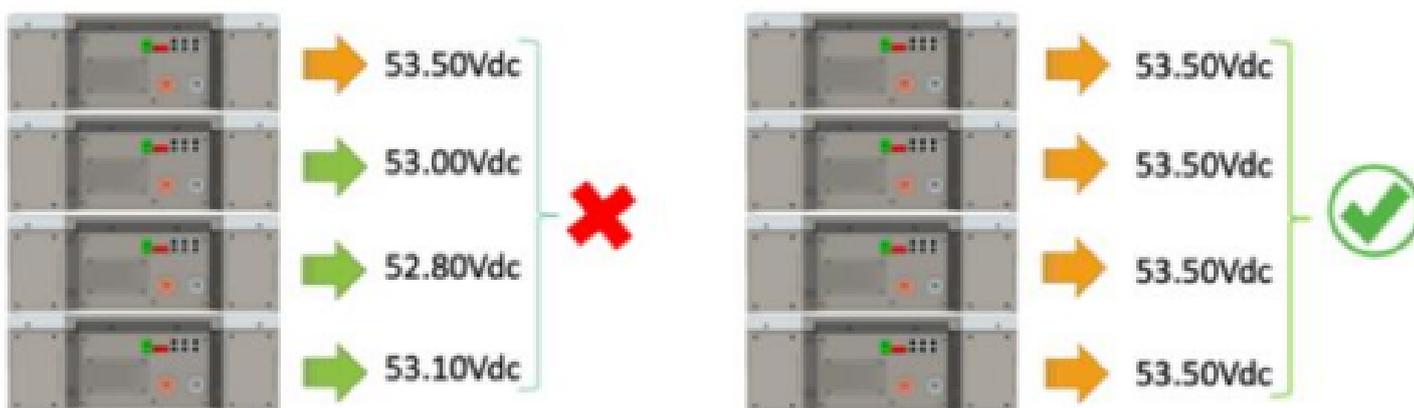
High Voltage Set Up Preparations

It is extremely important that every module within the system has the same voltage.

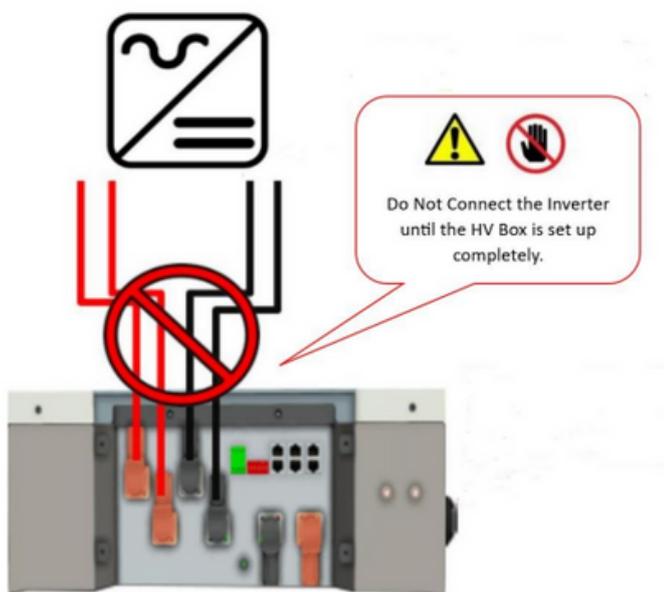
The installation of an HV system requires particular attention to preparation of the individual modules that make up a cluster.

A single module with a lower voltage than few MVOLTS compared to the others could result in a performance reduction of the entire system.

IT IS MANDATORY TO PREPARE EACH CLUSTER WITH MODULES HAVING VOLTAGE 53.5 +/- 0.2VDC

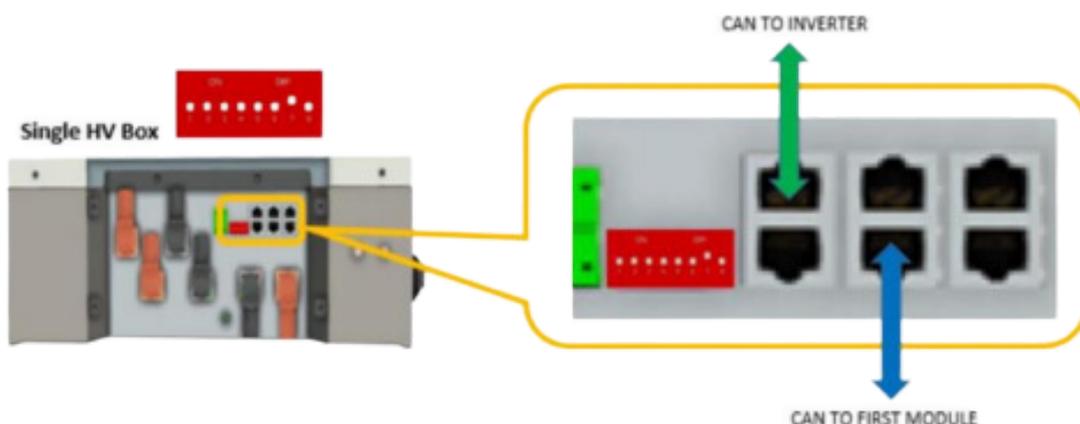


DD21002 HV Box can support maximum of 16 modules (934Vdc string Voltage)



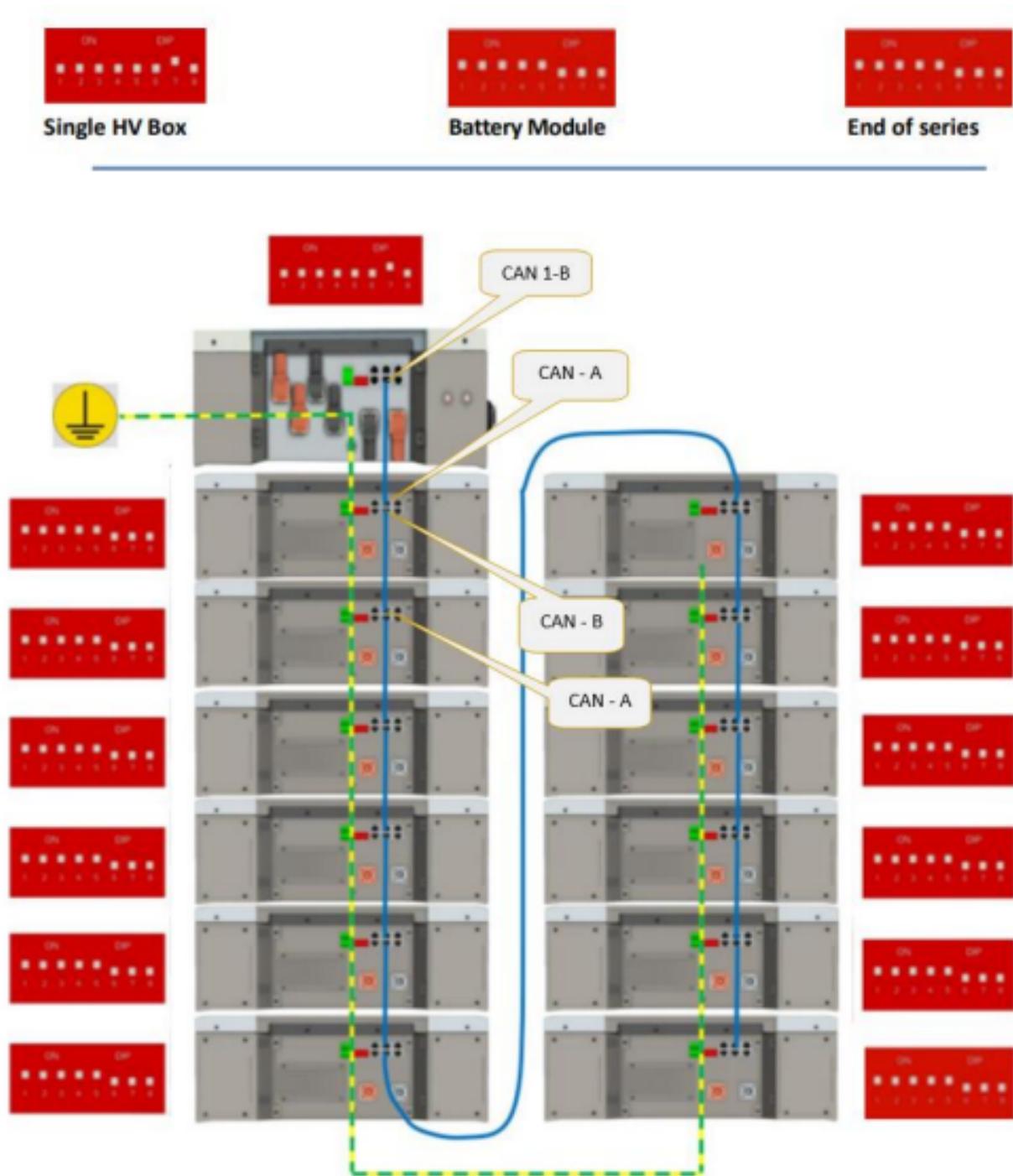
High Voltage Set Up Steps

- Turn the Solar Inverter OFF.
- Verify the HV Box main breaker is in the OFF position (located on the side).
- Arrange the cluster physically.
- Set the DIP Switches per illustration below for the modules and the HV BOX in a cluster.
- Connect the communication cable from HV BOX CAN1-B PORT to the first Battery Module CAN-A PORT.
- Connect the first battery module CAN-B PORT to the second battery module CAN-A PORT. Follow the same pattern until all the modules are connected.
- Connect ground cables between modules, HV Box and established ground per diagram below.
- Connect the positive terminal of the HV Box to the positive terminal of the 1st Battery Module.
- Proceed with the serial connection between all the modules using the provided string double sided fast connector (per illustration below).
- Connect the negative output of the last module to the negative input of the HV Box (per illustration below).
- Connect the CAN2-A PORT on the HV Box to the CAN PORT on the inverter.
- Connect the DC output to the Inverter (follow the inverter manual).



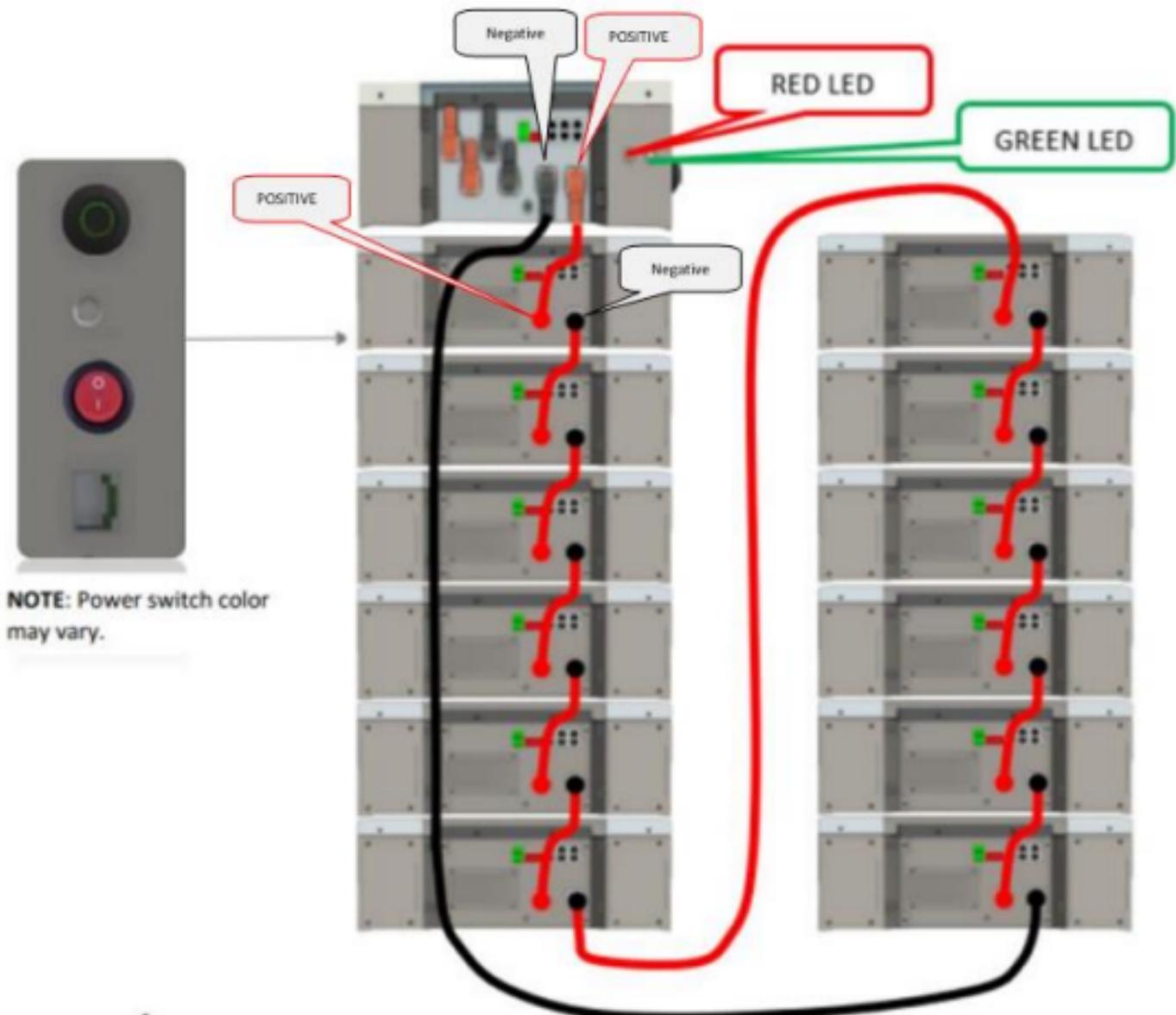
High Voltage Set Up Steps

Communication, Dip Switches and Ground Cables Connections



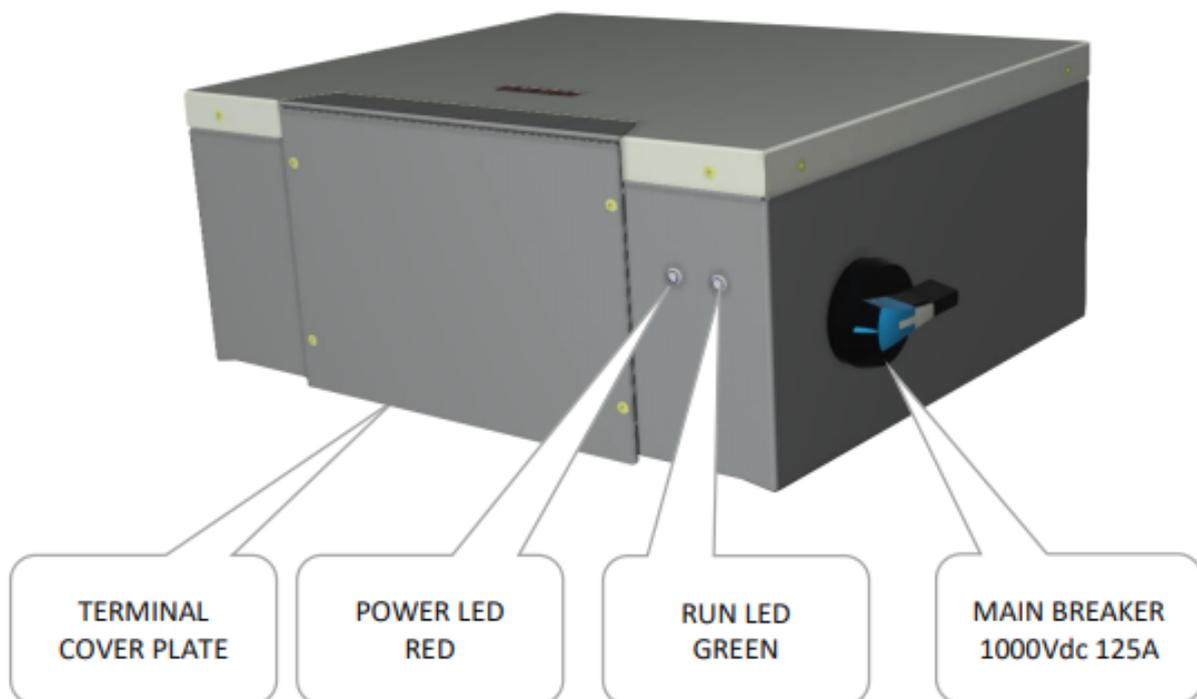
High Voltage Set Up Steps

Power Cable Connections



High Voltage Wake-up Steps

- Inspect all the power connections of each cluster.
- Turn on the power switch (only) on all Battery Modules in the cluster.
- Switch on the breaker of the first HV Box (ID00) and wait for the total start-up of the first cluster.
 - Each module in the cluster will turn on automatically and the side (run button) will blink for 3 seconds, then a fixed GREEN light will confirm the run status of each module.
 - If one or more modules do not turn on automatically, it is necessary to check all the COMM connections and restart the START- UP procedure.



DD5300 Firmware Update

- Visit www.dd5300-bms.com and download the UL PC software and the appropriate firmware.
- Plug RJ45 end of DD21004 into the operator port on the battery or the HV BOX and the USB into the computer.
- Select Low Voltage for individual battery and Low Voltage cluster upgrade or select High Voltage for HV BOX and High Voltage cluster upgrade.

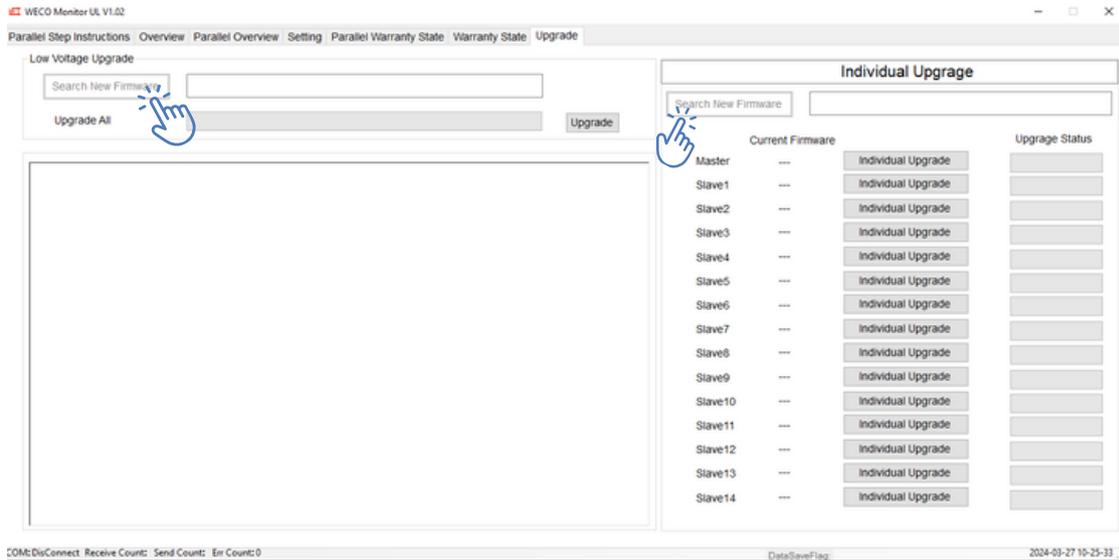


- Click on the overview tab, select the COM port, and click connect.

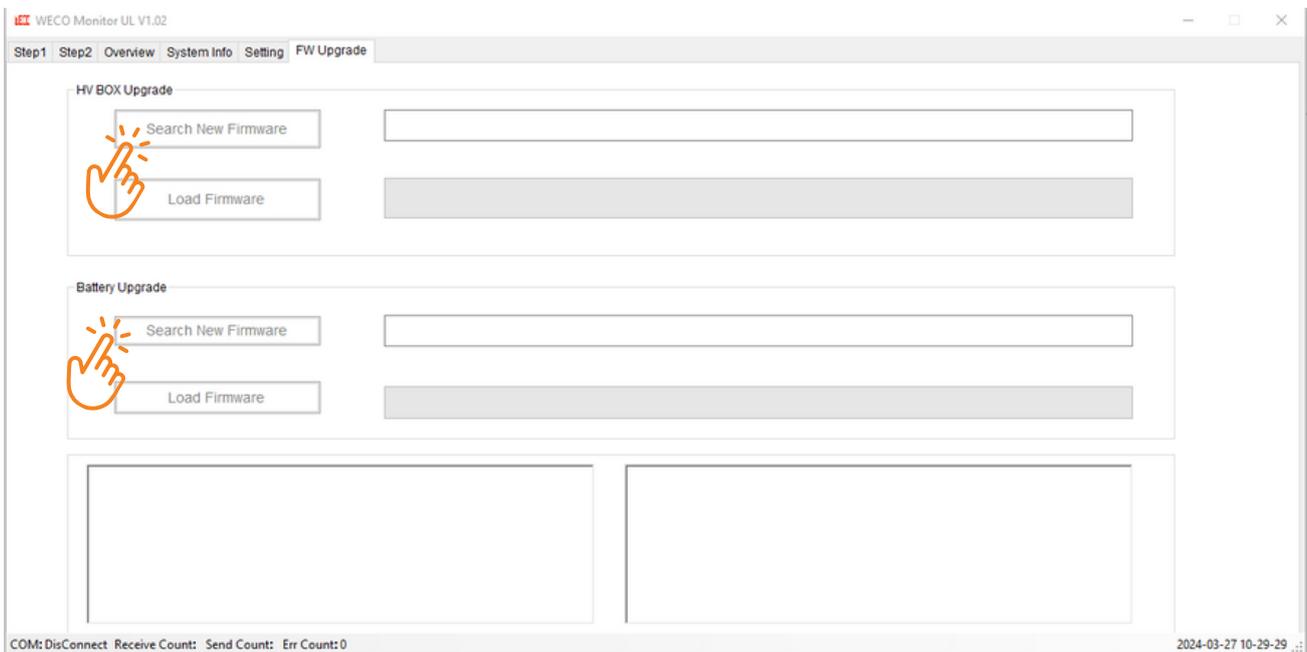


DD5300 Firmware Update

- Once the system is connected click on the upgrade tab.
- **Low Voltage:** Click on Search New Firmware to either upgrade all or individual upgrade.

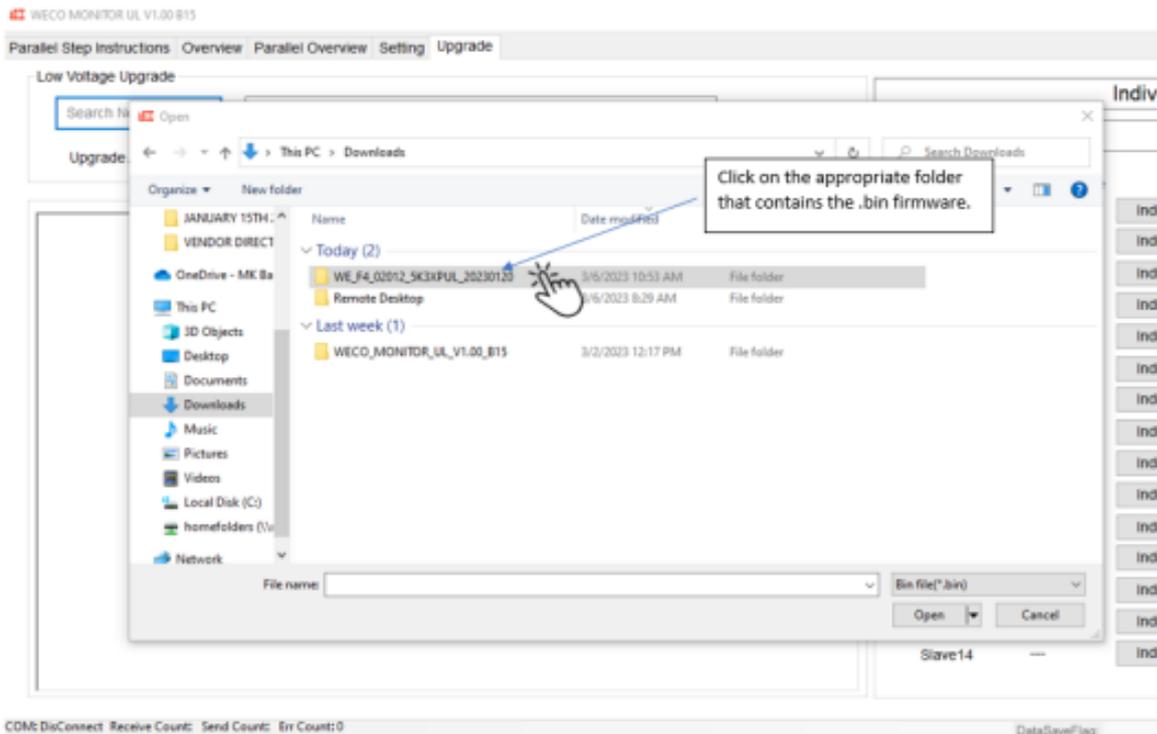


- **High Voltage:** Click on Search New Firmware to either upgrade the HV BOX or the full cluster.



DD5300 Firmware Update

- Click on the appropriate folder that contains the “.bin” firmware. HV BOX, LV Hub and Battery Firmware can be found at www.dd5300-bms.com



- Once the file populates in the PC software, click on Upgrade or Load Firmware.
- Dont exit the software or turn off the computer until upgrade is complete.



DD5300 Firmware Update

WECCO MONITOR UL V1.00 B15

Parallel Step Instructions Overview Parallel Overview Setting Upgrade

Low Voltage Upgrade

Search New Firmware C:\Users\...Downloads\WE_F4_02012_5K

Upgrade All Upgrade

2023.03.06 10:57:48 Sending 96 frame data
2023.03.06 10:57:49 Sending 97 frame data
2023.03.06 10:57:50 Sending 98 frame data
2023.03.06 10:57:50 Sending 99 frame data
2023.03.06 10:57:50 Sending 100 frame data
2023.03.06 10:57:51 Sending 101 frame data
2023.03.06 10:57:51 Sending 102 frame data
2023.03.06 10:57:51 Sending 103 frame data
2023.03.06 10:57:51 Sending 104 frame data
2023.03.06 10:57:52 Sending 105 frame data
2023.03.06 10:57:53 Upgrade file sending completed
2023.03.06 10:57:53 In the 1 send command to start system upgrade
2023.03.06 10:57:53 System upgrade command started successfully
2023.03.06 10:58:03 Successful master upgrade
2023.03.06 10:58:25 Successful Slave1 upgrade
2023.03.06 10:58:39 Slave2 offline
2023.03.06 10:58:54 Slave3 offline
2023.03.06 10:59:08 Slave4 offline
2023.03.06 10:59:23 Slave5 offline
2023.03.06 10:59:37 Slave6 offline
2023.03.06 10:59:51 Slave7 offline
2023.03.06 11:00:06 Slave8 offline
2023.03.06 11:00:20 Slave9 offline
2023.03.06 11:00:35 Slave10 offline
2023.03.06 11:00:49 Slave11 offline
2023.03.06 11:01:05 Slave12 offline
2023.03.06 11:01:19 Slave13 offline
2023.03.06 11:01:34 Slave14 offline
2023.03.06 11:01:50 In the 1 send app start command

Upgrade succeeded

OK

Individual Upgrade

	Current Firmware		Upgrade Status
Master	20.12	Individual Upgrade	
Slave1	20.12	Individual Upgrade	
Slave2	---	Individual Upgrade	
Slave3	---	Individual Upgrade	
Slave4	---	Individual Upgrade	
Slave5	---	Individual Upgrade	
Slave6	---	Individual Upgrade	
Slave7	---	Individual Upgrade	
Slave8	---	Individual Upgrade	
Slave9	---	Individual Upgrade	
Slave10	---	Individual Upgrade	
Slave11	---	Individual Upgrade	
		Individual Upgrade	
		Individual Upgrade	
		Individual Upgrade	

DO NOT EXIT THE SOFTWARE OR DISCONNECT RS232 UNTIL THE UPGRADE IS COMPLETE

COM3: Connect Receive Count: 1346 Send Count: 1347 Err Count: 0 DataSaveFlag True 2023-03-06 11:02:04



Warnings



The battery could explode and/or be severely damaged if dropped or crushed.



- This Battery Module is designed to be used indoors.
- The STANDARD IP20 degree of protection does not allow installation in outdoor environments even if sheltered from the weather.
- The Battery Modules must be stored indoors in a clean, dry, cool location in a limited access area.



The High Voltage configuration must have a minimum number of 4 modules in order to reach at least 200 vdc in series. The maximum number of modules that can be stacked is 8 high (due to the stack height and stability) and the maximum number of modules composing an hv string in series must not exceed 16.



The DD5300 Battery Module has two terminals for connecting the power supply. The installer must pay the utmost attention to the respective functions.



This product can expose you to chemicals including carbon black, which is known to the State of California to cause cancer, birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov.



There are several additional warnings and notices on the full I&O manual which can be found at www.mkbattery.com
Reading and acknowledging all the warnings is highly recommended.