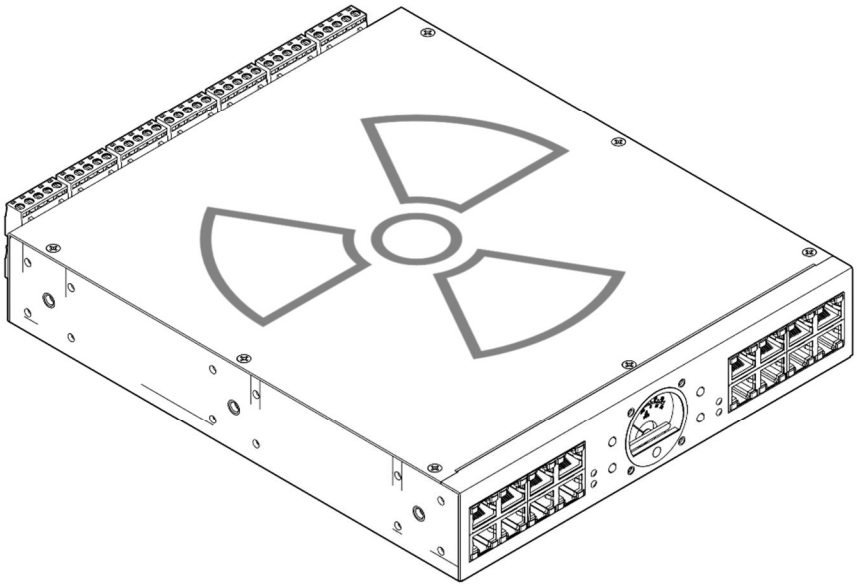
Modern Atomics™



REAKTOR™ DC22

22 DC SHADE POWER DISTRIBUTION UNIT

INSTRUCTION MANUAL

#RKT-DC22 / #RKT-DC22-BOND

Reaktor is not a PoE DEVICE and is NOT POWERED BY PoE

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Specifications are subject to change without notice

FCC Compliance Statement:

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Thank you for your purchase of Reaktor.

This manual is designed to provide all the necessary information for installation and deployment, however if you have any additional questions or need any additional information, please reach out to our Customer Support Teams.

TOLLFREE +1 (844) 771-8725 – 24/7/365

Throughout this manual you will find QR codes that when scanned will take you to a video for that section that may contain additional information. Scan the code or click on the QR code to bring up your default browser and take you to the video.

Contents

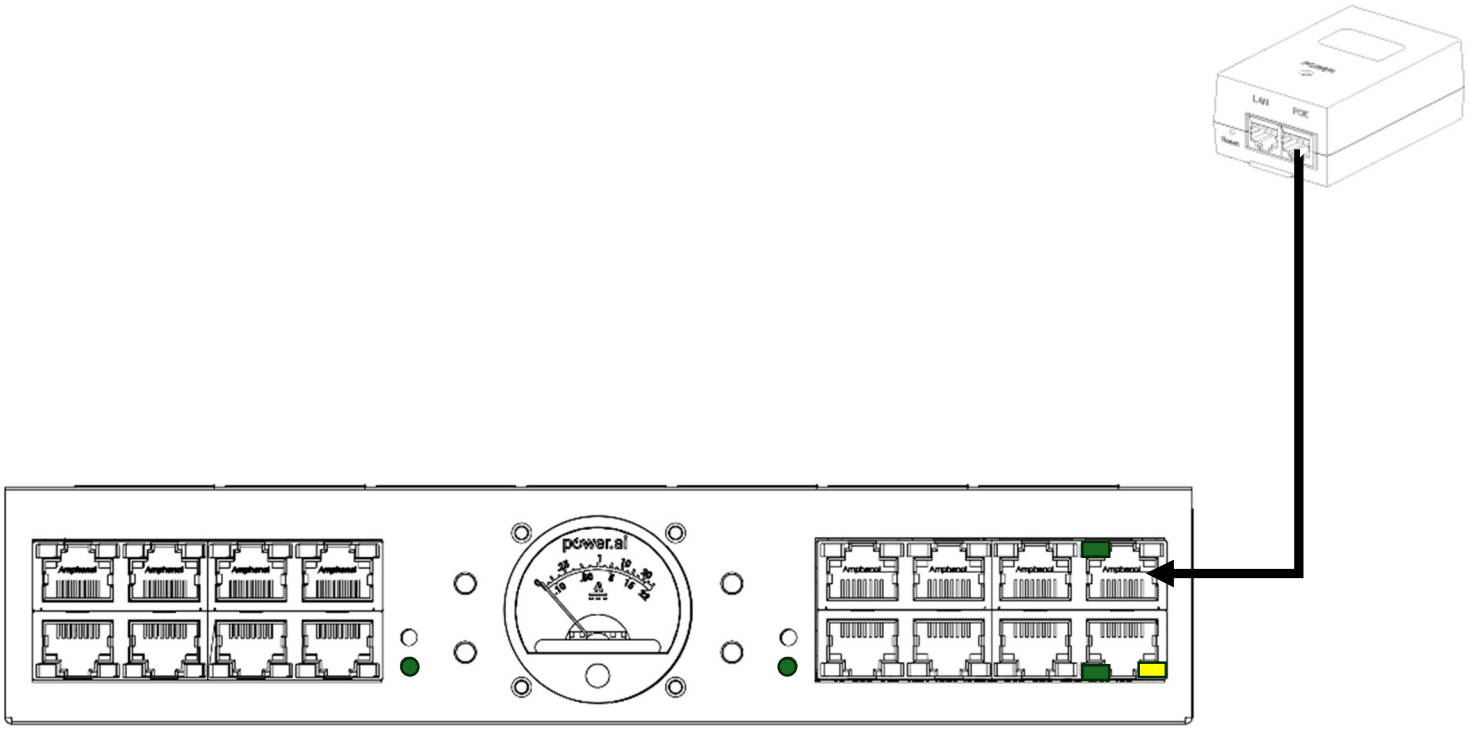
QUICK START BASIC USE:

Reaktor can be used as a standard shade low voltage power supply.

Simply connect the included passive DC injector to the BUS IN port on the front chassis.

This will automatically take the Reaktor out of Hibernation/delivery mode and switch it to the USER MODE.

You will see the LEDs on the BUS IN, the system status and ESM turn green, and no further action is needed to start shading.



You can now connect your low voltage 485 motors to the front and rear ports and use the supply like any other shade power supply.

Optionally you can use the 6 devices ports as a 485 data hub for your user controls and connect any IP gateway or hubs to the BUS OUT of the DATA (LAN) port on the passive DC injector.

Reaktor can be used as a standard shade low voltage power supply.

INTRODUCTION: COMPATIBLE MOTORS & CAPACITY?

This version of Reaktor is compatible with the following qualified 485 motors.

COMPATIBLE & QUALIFIED MOTORS	CONNECTION TYPE	MOTORS PER FRONT PORTS	MOTORS PER REAR PORTS	TOTAL PER (@21A) REAKTOR
Somfy® Sonesse® 30 RS485 24V DC #1241144	Weidmüller 5P@5.08mm	8 of 28	28 of 28***	28 (@.725A)
Somfy® Sonesse® ULTRA 504 A8 DC 485 #1134022	Weidmüller 5P@5.08mm	0	14 of 14*	14* (@1.5A)
Somfy® Sonesse® 506S2 RS485 AC #1002286	485 Data Cable #9018541-44	8 of 36	28 of 36**	36
Somfy® 512S2 RS485 AC #1002427	485 Data Cable #9018541-44	8 of 36	28 of 36**	36
Somfy® Sonesse® 510S2 RS485 AC #1002287	485 Data Cable #9018541-44	8 of 36	28 of 36**	36
Somfy® Sonesse® ULTRA 506A2 RS485 AC #1002566	485 Data Cable #9018541-44	8 of 36	28 of 36**	36
Somfy® 535A2 RS485 AC #1002288	485 Data Cable #9018541-44	8 of 36	28 of 36**	36
Somfy® Sonesse® 40 RS485 404R2 #1240562	UTP Cable****	8 of 36	28 of 36	36
Somfy® Sonesse® 40 RS485 406R2 #1240563	UTP Cable****	8 of 36	28 of 36	36
Somfy® Sonesse® 40 RS485 409R2 #1240564	UTP Cable****	8 of 36	28 of 36	36
Somfy® 30 RS485 DC #1000658 (Obsolete EOL)	Weidmüller 5P@5.08mm	0	11of 11*	11* (@1.8A)

*After programming, a maximum of 6 motors at a time during programming

**Use only 2 AC motors per rear port, consider using ferrules or optional #CAT-T adaptors and only use the data cable with 3 conductors (#9018541-44), DO NOT USE the data and power 4 conductor cable as damage to the motor may be caused.

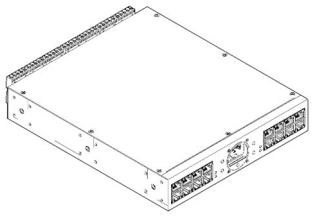
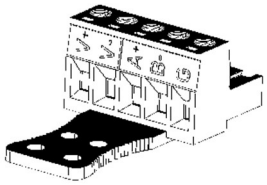
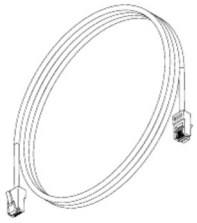
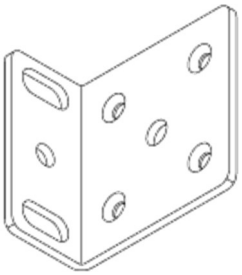
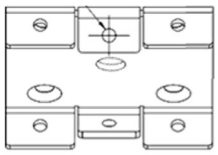
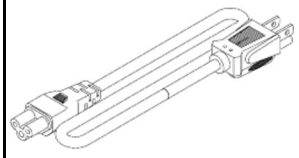
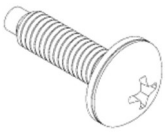
*** Use only 2 DC motors (#1241144 motors only) per rear port

****Do not connect pin 4 (power out from motor) as damage to the motor may be caused.

The motors listed above have all been qualified for use with Reaktor, it may be possible for other motors that are not listed above to operate however we have not qualified them and cannot officially support them.

The data in the chart above may not necessarily reflect the conditions on your job site. These are theoretical maximum limits, and you may need to account for tube and fabric weight, wire lengths and gauge. Source Somfy® website and motor databooks

PARTS INCLUDED IN THE BOX: (Replacement parts also sold on website)

 (1) REAKTOR PDU #RKT-DC22	 (14) 5.08 PITCH TERMINAL BLOCKS # TRM-BLC-5-081	 (1) STP CABLE #2M-SHL-CTG-CBL	 (2) UNIVERSAL RACK EARS # URE-NVR-RCK-EAR
 (2) UNIVERSAL DIN RAIL BRACKETS (TOP HAT) w/screws #UDB-NVR-DIN-RL	 (1) 24v PASSIVE DC INJECTOR # POE-PSS-NJC	 (14) CABLE TIES #4-CBL-TS-PAK	 (1) NEMA 5-15P to C5 CABLE
	 (4) RACK SCREWS #10-32	 (10) UNIVERSAL SCREWS M3.5 # M3-5-NVR-NCL	

This manual is NOT included in the box as part of our SAVe sustainability efforts. We have 3 QR CODE locations on the enclosure for digital downloads of this manual.

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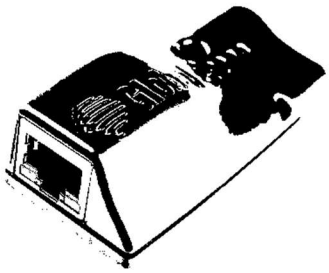
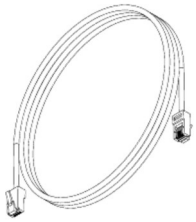
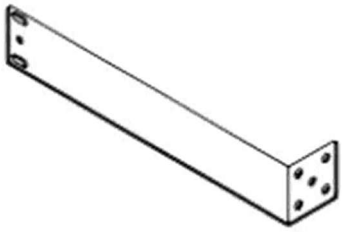
ADDITIONAL PARTS INCLUDED WITH BOND EDITION:

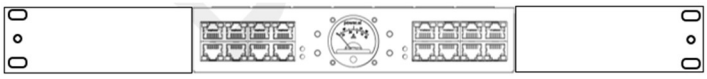
 PoE INTERFACE # FLX-IP-P	 3.5mm TSR # FLX-IP-P		

The Reaktor Customizable edition does not come with any other parts unless selected.

POPULAR OPTIONAL PARTS SOLD SEPARATELY:



LONG RACK EAR KIT #LNG-RCK-EAR

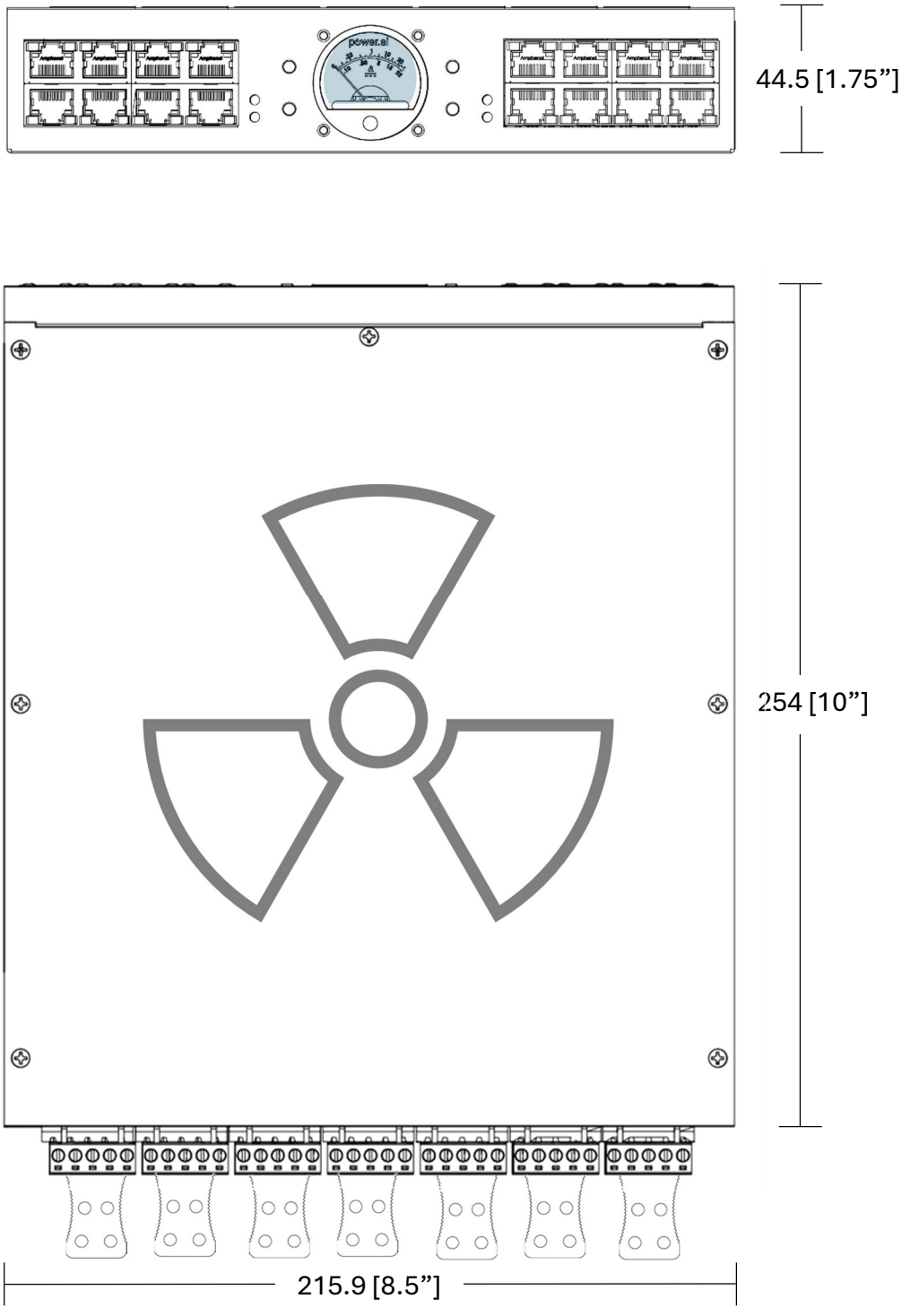


MID RACK EAR KIT # MID-RCK-RS

Universal Halk Rack Joining kit # EIA-TIA-FLL-RCK

Kit includes (1) 10” Din Rail, (1) RU1 Facia, (2) M5 Din Rail Screws, (2) M3.5 Facia Screws

INSTALLATION - DIMENSIONS:



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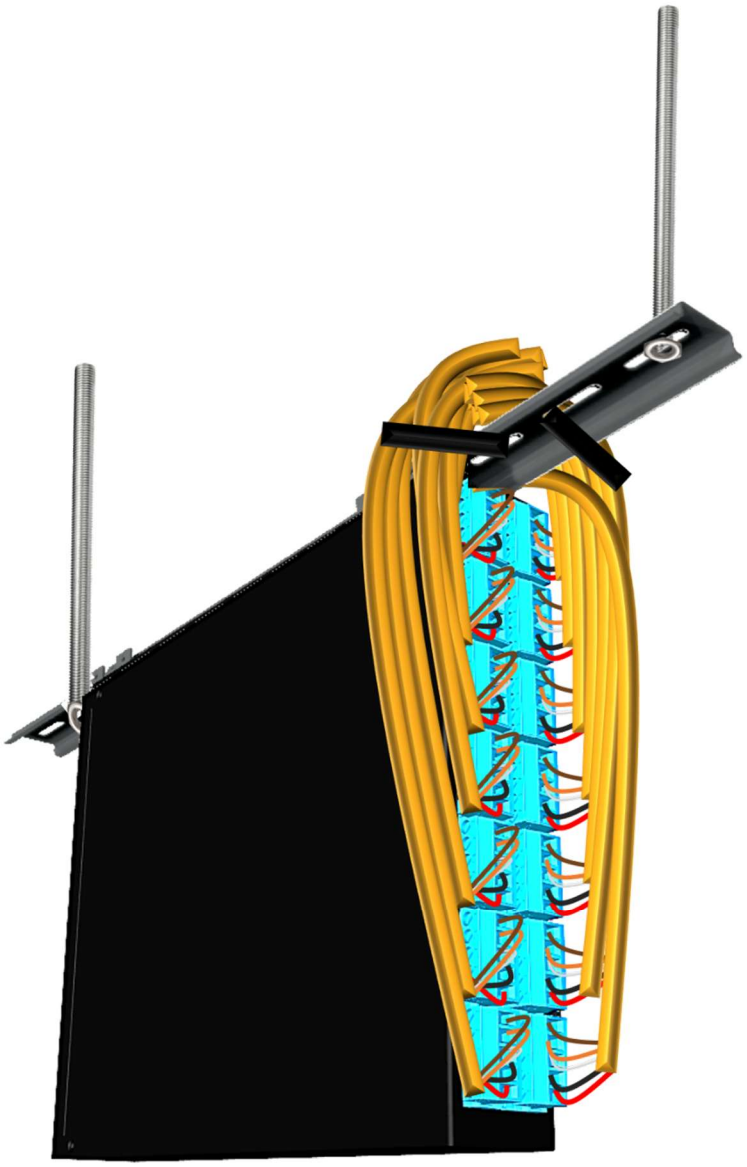
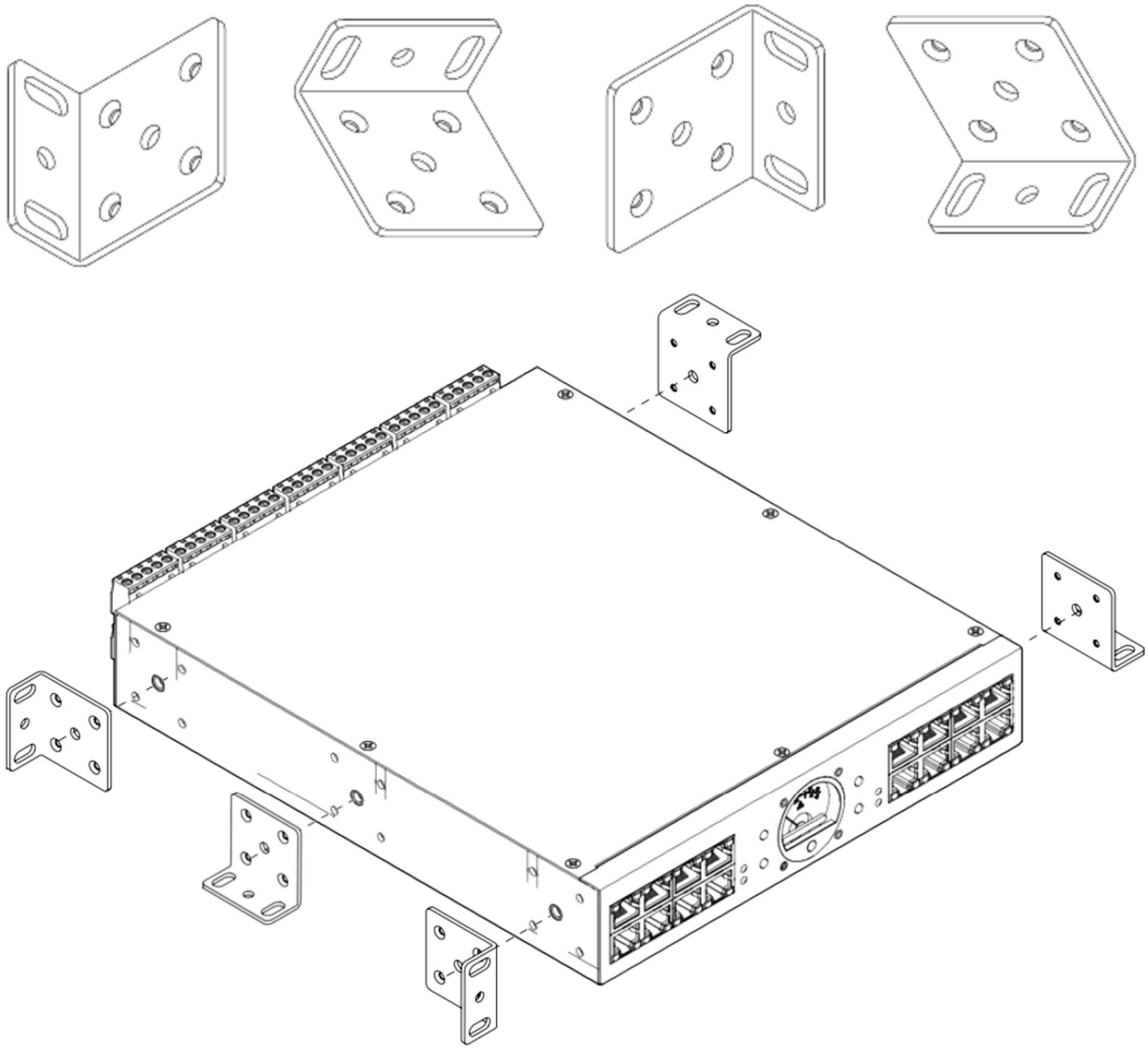
REAKTOR MOUNTING



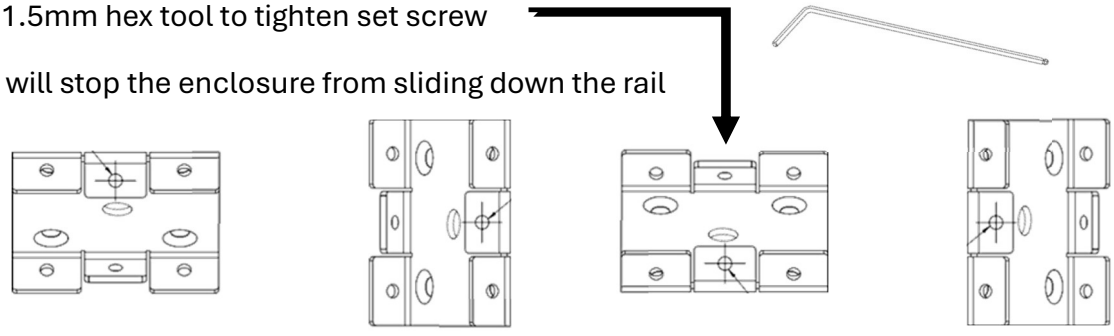
INSTALLATION – SYMMETRICAL RACK & DIN MOUNTING:

Using the included symmetrical rack ears and din rail brackets the unit can be mounted in a variety of ways. Including on wall or in wall box with screws through rack ears or on din rails



Use a 1.5mm hex tool to tighten set screw

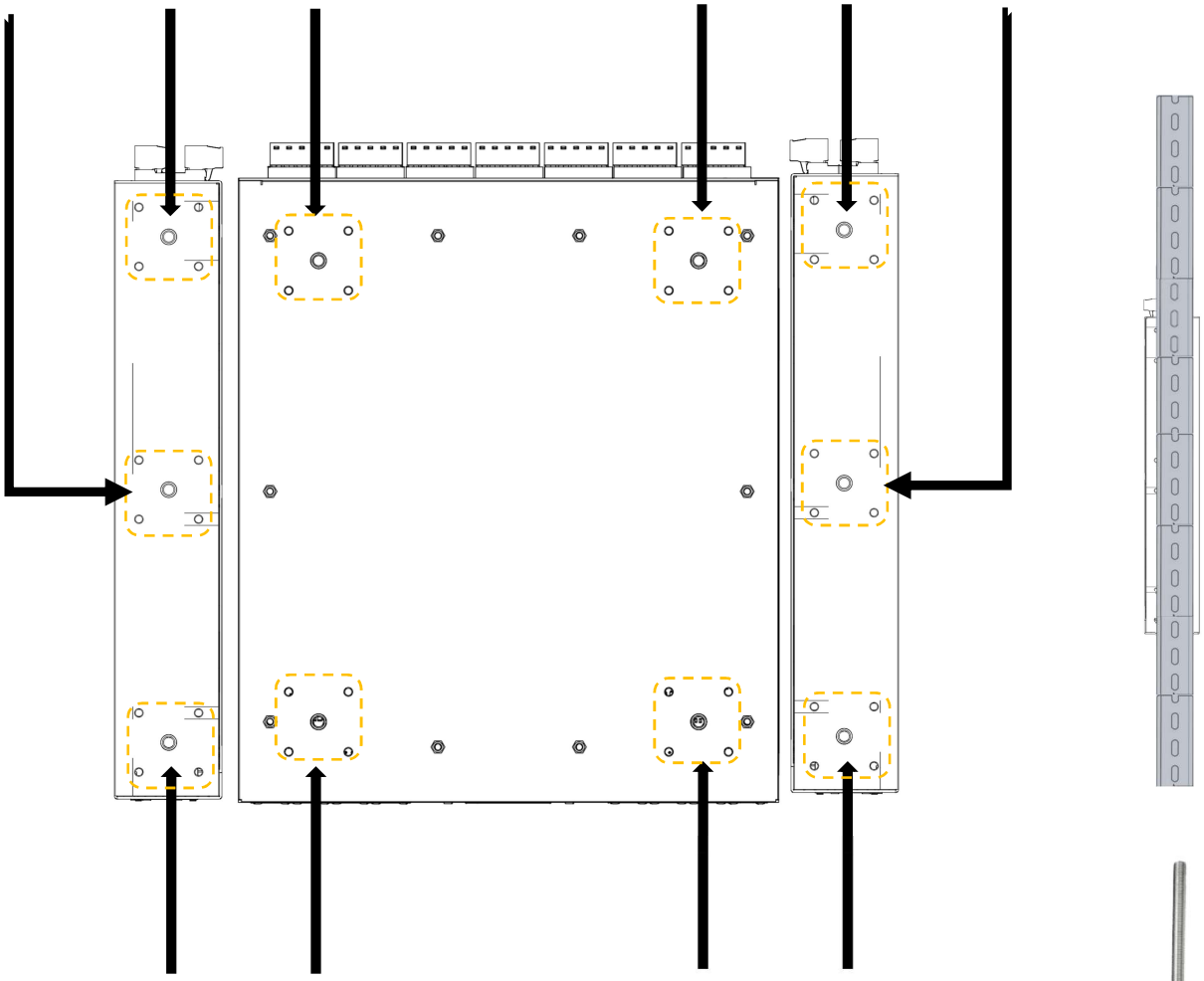
which will stop the enclosure from sliding down the rail



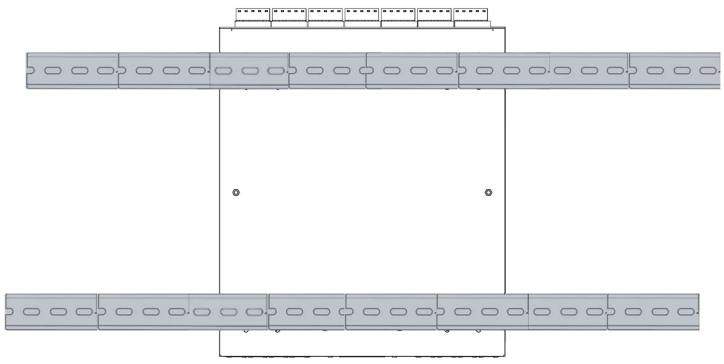
REAKTOR 10 MOUNTING POINTS

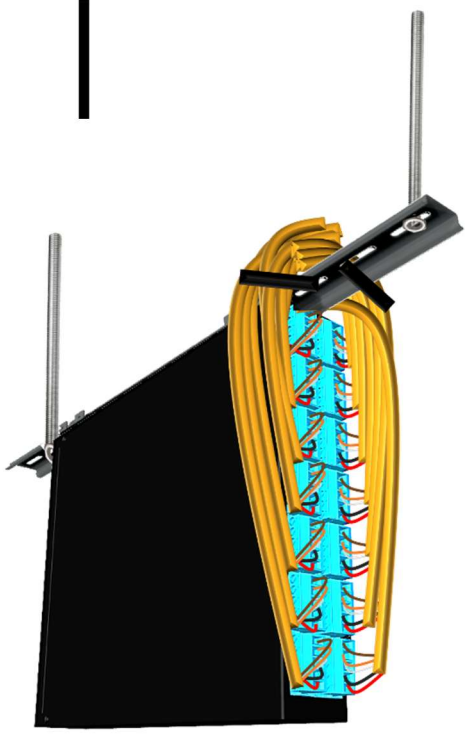
Reaktor is Plenum rated and has 10 Rack mount and Din rail bracket mounting points

Four on the bottom of the chassis

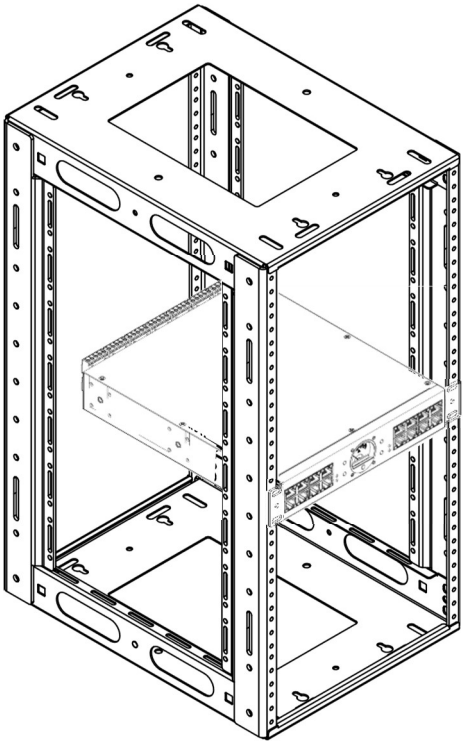


Some examples of DIN rail type mounting

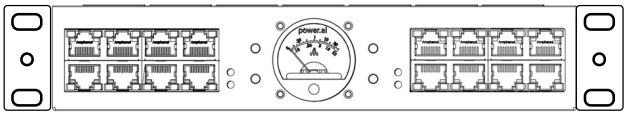




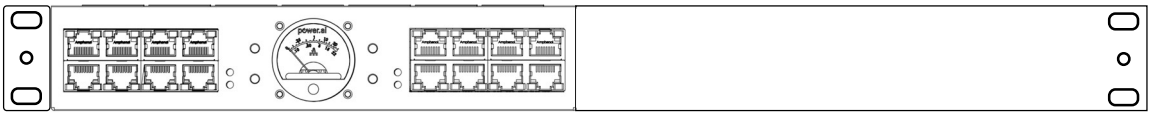
RACK MOUNTING EXAMPLES

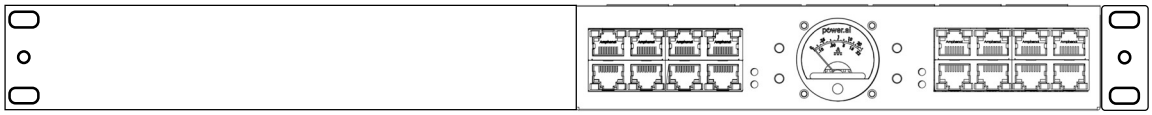


1RU Half rack enclosures – 1 Reaktor

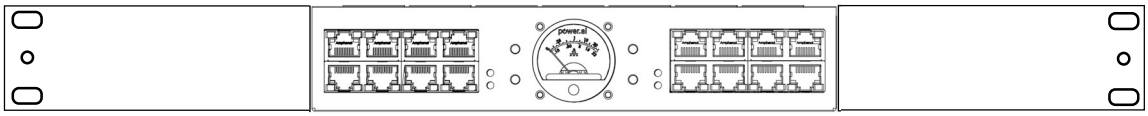


1RU Full rack – (1 Reaktor with optional Long Rack Ears* must use front & back due to weight)

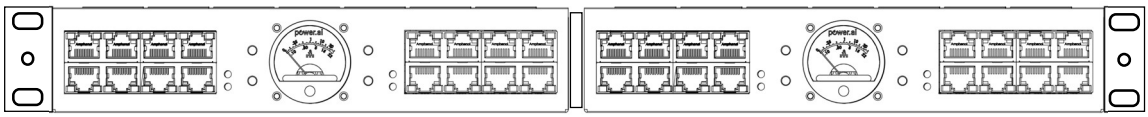




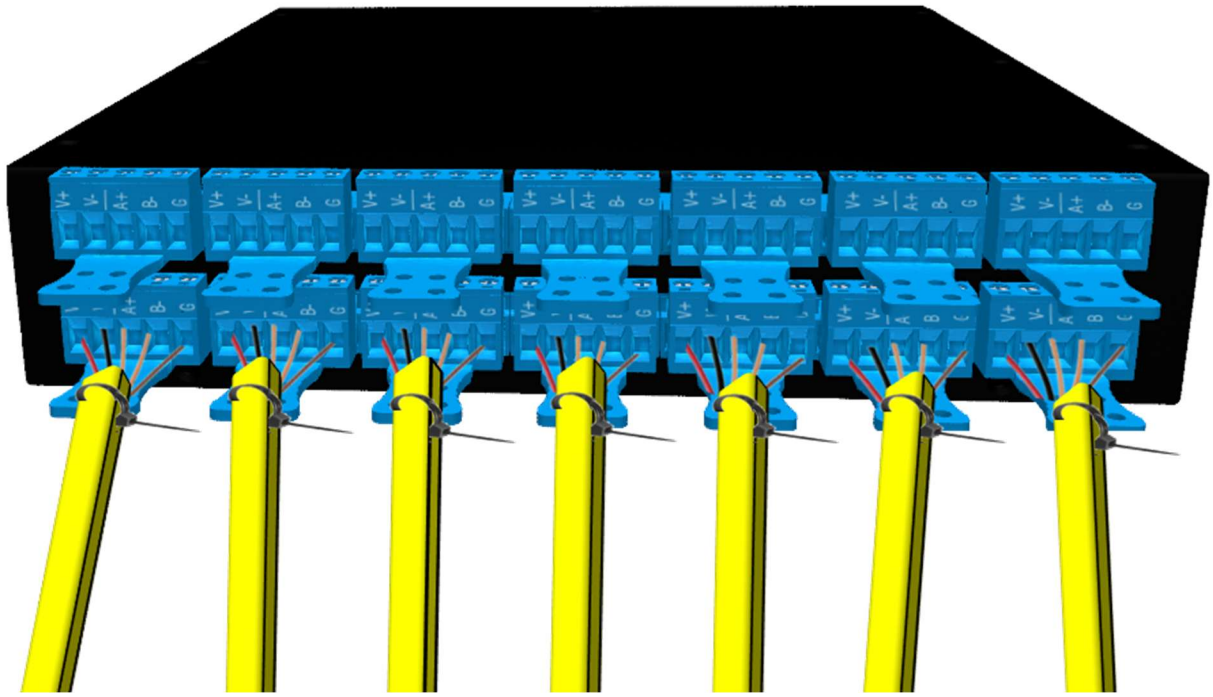
1RU Full rack – (1 Reaktor with optional Mid Rack Ears* must use front & back due to weight)



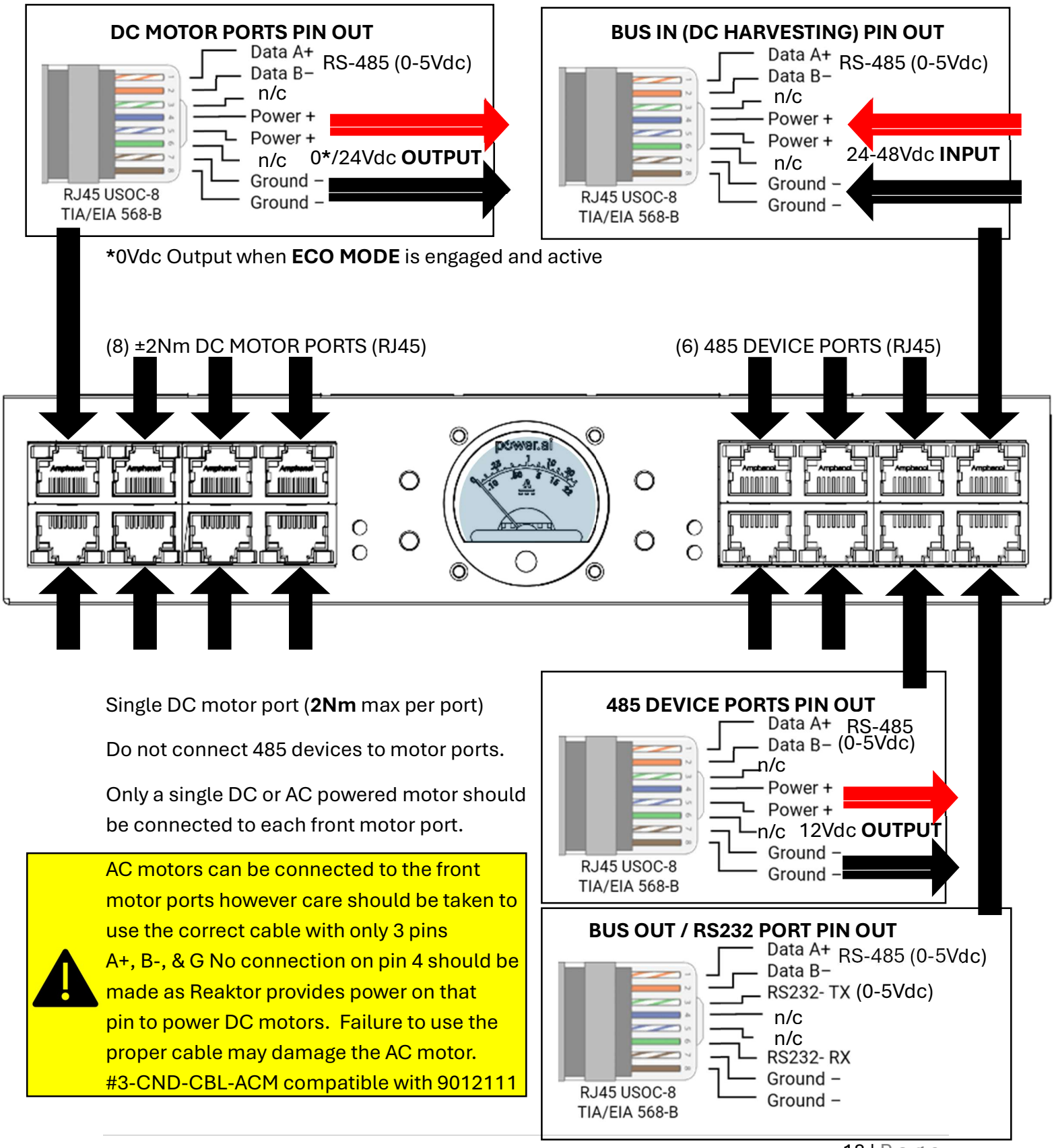
1RU Full rack – (2 Reaktors with optional 1RU Rack Joiner Kit)



REAKTOR CONNECTIONS



INSTALLATION - CONNECTIONS: FRONT PANEL



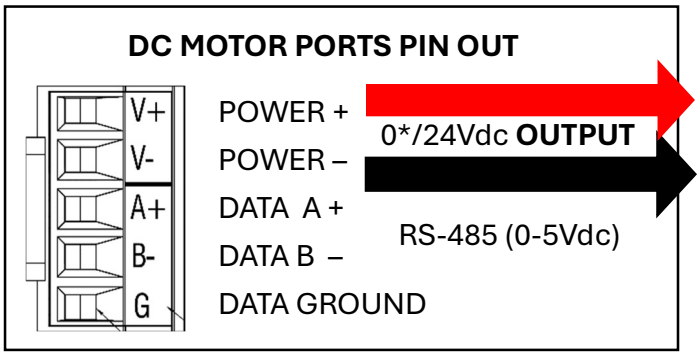
Single DC motor port (**2Nm** max per port)

Do not connect 485 devices to motor ports.

Only a single DC or AC powered motor should be connected to each front motor port.

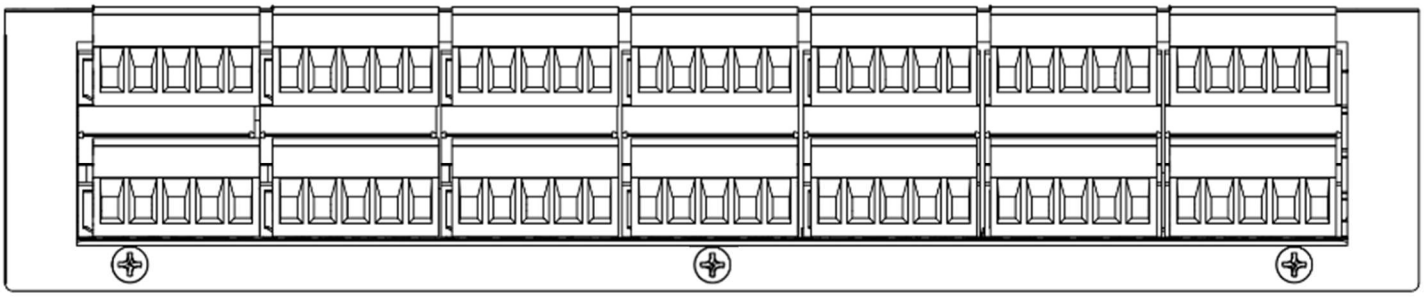
AC motors can be connected to the front motor ports however care should be taken to use the correct cable with only 3 pins A+, B-, & G No connection on pin 4 should be made as Reaktor provides power on that pin to power DC motors. Failure to use the proper cable may damage the AC motor. #3-CND-CBL-ACM compatible with 9012111

INSTALLATION - CONNECTIONS: REAR PANEL

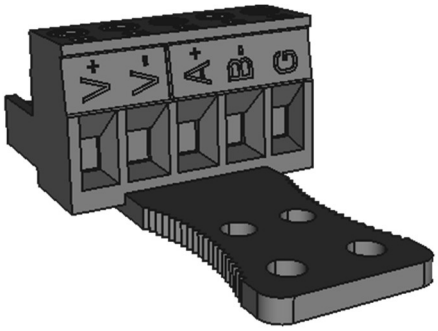


*0Vdc Output when **ECO MODE** is engaged and active

(14) ±4Nm MOTOR PORTS (5.08 – FIVE POSITION TERMINAL BLOCKS, 12-24 AWG wire)

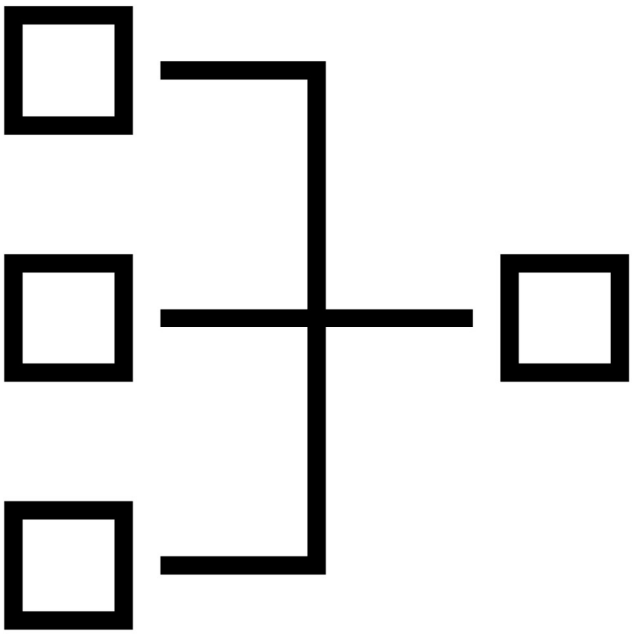


DC motor ports (**4Nm max** per port is supported)



14 - 5.08 pitch terminal blocks are included (The cable strain relief can be removed as needed)

REAKTOR 485 SEGMENTS



THREE 485 BUS SEGMENTS

Reaktor has three 485 BUS segments:

INTERNAL MOTOR 485 BUS SEGMENT FRONT PORTS

8 Low-Voltage / AC Motor Ports

Maximum 8 DC of a total 36 AC/DC motor per unit

Maximum 50M wire length per front ports @23AWG

Maximum 16Nm (2Nm per front port)

INTERNAL DEVICE 485 BUS SEGMENT

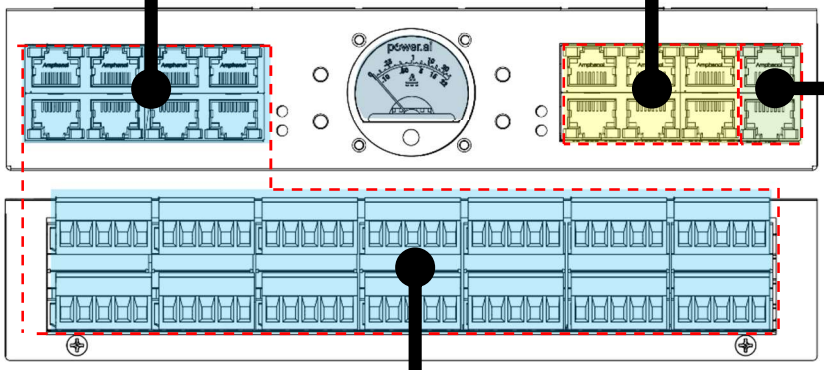
6 Device Ports

Maximum 128 Devices*/Groups (Via hubs)

Maximum 100M wire length per port @ 23AWG

Maximum 12 Bus Power Units (BPU)

*Add additional BUS P/S for more than 12 BPU



INTERNAL MOTOR 485 BUS SEGMENT REAR PORTS

14 Low-Voltage Motor Ports

Maximum of 36 AC & DC Motors per unit

Maximum 75M wire length per rear ports @12AWG

Maximum 4Nm per rear port

Compatible Motors:

AC 485 Motors

DC 485 Motors

EXTERNAL 485 BUS SEGMENT

1 BUS Input Port

1 BUS Output Port

Maximum 255 Devices on this segment

Maximum 485 wire length 100M per port @ 23AWG

Maximum RS-232 wire length 50M @ 23AWG

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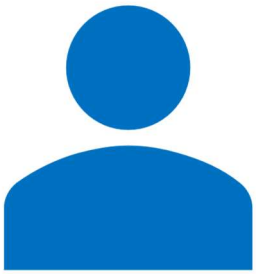
REAKTOR OPERATIONAL MODES

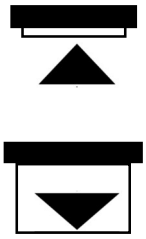
GROUP PROG. MODE

USER MODE



HIBERNATION MODE

LIMIT SETTING MODE



REAKTOR OPERATIONAL MODES – HIBERNATION (1of 4):

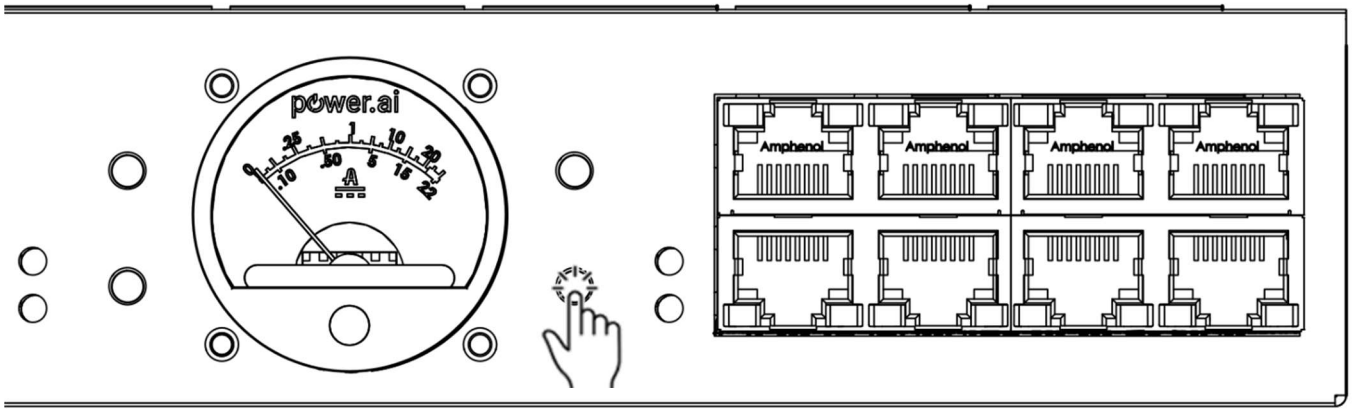
Reaktor has 4 operational modes (**HIBERNATION**, USER, GROUP/PROGRAMMING, & LIMIT)

MODE 1 of 4; HIBERNATION zZz MODE

This is the shipping/delivery mode that the unit is set at from the factory.

In this mode no power can be provided on any Motor or Device port.

In this deep-sleep mode the priority of processing is for ESM Balancing, and ultra-low energy support systems which are running in the background. The unit has countermeasures against unintended user intervention whether biological or artificial means such as during stressful movements or packaging ingress or crushing.



You can test (or demonstrate operational readiness) with a press of the reset Key. The unit is still in Hibernation mode, but will briefly turn on the ESM, and both BUS OUT LED's for UN38.3 international inspection or other EMEA nonproliferation inspection purposes.

Reaktor has two methods to switch out of Hibernation Mode.

#1 Connect a 24-48VDC power source to the BUS INPUT which will switch to USER MODE

(The unit ships with a passive DC injector, connect the output to the BUS IN)

or

#2 Hold the RESET Key for approximately 6 seconds until the ESM LED starts flashing & has now switched to USER MODE

Depending on any programming, and the number of 485 devices on the system, the Status LED will start flashing, please wait until the flashing stops before pressing any KEYs.

Any previously programmed keypads, and RF remotes as well as any 3rd party control system commands will work in the background while the system is busy.

REAKTOR OPERATIONAL MODES – USER (2 of 4):

Reaktor has 4 operational modes (HIBERNATION, **USER**, GROUP/PROGRAMMING, & LIMIT)

MODE 2 of 4; USER MODE

This is the normal run-time mode that Reaktor will be in for 99% of its operational life.

Three of the four user keys are locked by default in this mode to avoid unintentional motor movements. Check the user key section for details on how to unlock the keys for use.

Depending on the Reaktor set-up this mode can help save energy by eliminating all or some of the energy used by shade motors and you can enable or disable the JSON control.

You can switch to other modes using user key press and hold combinations or you can switch back to the Hibernation mode by holding the reset key for approximately 6 seconds.

This mode also has access to a special FORCED DISCOVERY function which you may need to enable in the event you are not able to discover one or more motors and or you have been instructed to perform a forced discovery from support.

To start the forced discovery, press and hold both the ECO KEY and the DOWN KEY until the STATUS LED starts to flash GREEN

Another function in this mode is the Factory Reset, this will reset all Reaktor functions (Groups, device bindings, eco mode status, JSON status) (this factory reset only affects the current Reaktor, and no other Reaktor or connected motors or user devices are changed)

To perform this factory reset press and hold the ECO KEY

TOGGLE JSON (SERIAL OUTPUT)

Once this is connected, hold the UP and DOWN keys in the USER MODE to toggle the JSON Integration feature.

REAKTOR OPERATIONAL MODES – GROUP PROG. (3 of 4):

Reaktor has 4 operational modes (HIBERNATION, USER, **GROUP/PROG.**, & LIMIT)

MODE 3 of 4; GROUP PROGRAMMING MODE

This is the mode used for motor and user interface commissioning.

Check the user key section for details on how to switch the Reaktor to this mode.

In this mode you can create motor groups, bind wall switches or RF remotes via RF receivers and transceivers

When you enter this mode, the Reaktor will perform an auto discovery of the motors. The PROGRAMMING LED will be flashing during this discovery and once complete all motors that have been discovered will start to jog. Some motors can have issues discovering on the 485 bus, so check to make sure all motors on this unit (up to a maximum of 36 AC & DC motors per Reaktor) are jogging. This is a special jogging, and the motors are not in sync, meaning the jogs will have a popcorn effect which allows us to confirm every motor has been discovered individually.

If any motor is ***NOT JOGGING,*** then check the wiring. If the wiring is ok, this could indicate that the motor could not be properly discovered which may be caused by a bus collision. Some motors have implemented a very basic collision avoidance.

In the rare event that this still does not discover the motor, we have a MANUAL FORCED DISCOVERY MODE that will discover any 485 connected motors 100% of the time. You can start this forced discovery by holding down the ECO KEY and the DOWN KEY and the same time. All connected motors will start to jog. Reconnect any motor that could not be discovered previously and it will now be discovered.

Once a motor is discovered Reaktor will retain its node ID and rediscovery will not be needed.

The Group Programming Mode is the only mode that can switch to the LIMIT SETTING MODE

Check the user key section for details on how to switch the Reaktor to this mode.

You can switch to other modes using user key press and hold combinations or you can switch back to the Hibernation mode by holding the reset key for approximately 6 seconds.

The GROUP PROGRAMMING MODE will time out after 50 minutes of the last KEY activity.

REAKTOR OPERATIONAL MODES – LIMIT SETTING (4 of 4):

Reaktor has 4 operational modes (HIBERNATION, USER, GROUP/PROGRAMMING, & **LIMIT**)

MODE 4 of 4; LIMIT SETTING MODE

This is a special mode used for adjusting limits to a single motor or changing the rotation.

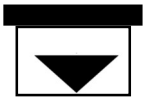
Check the user key section for details on how to switch the Reaktor to this mode.

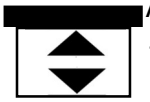
Reaktor will only enter this mode when a single motor is connected.

In this mode you can.


Change motor rotation (keep in mind this will remove any current limits on the motor)

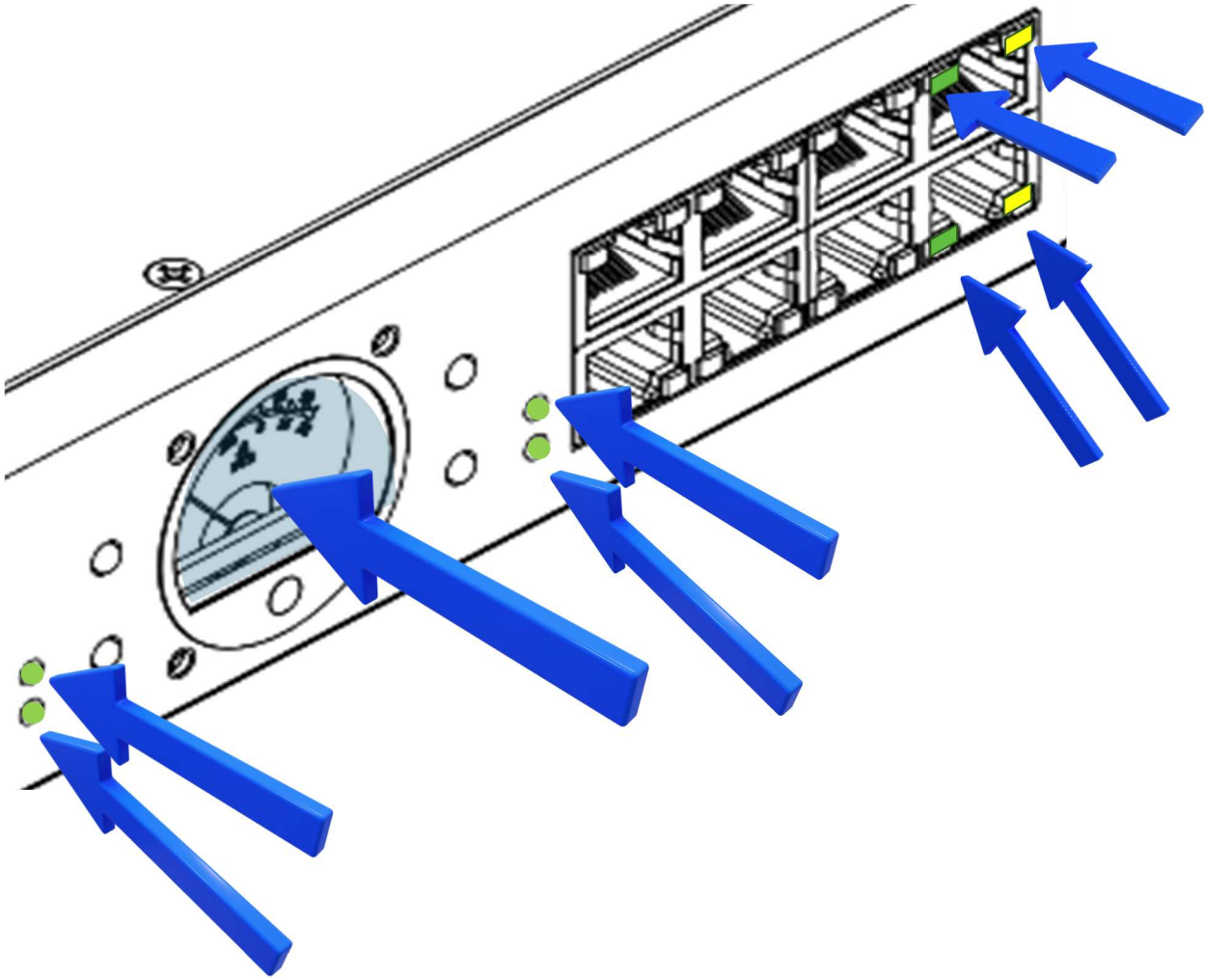

Set or adjust motor upper limit


Set or adjust motor lower limit

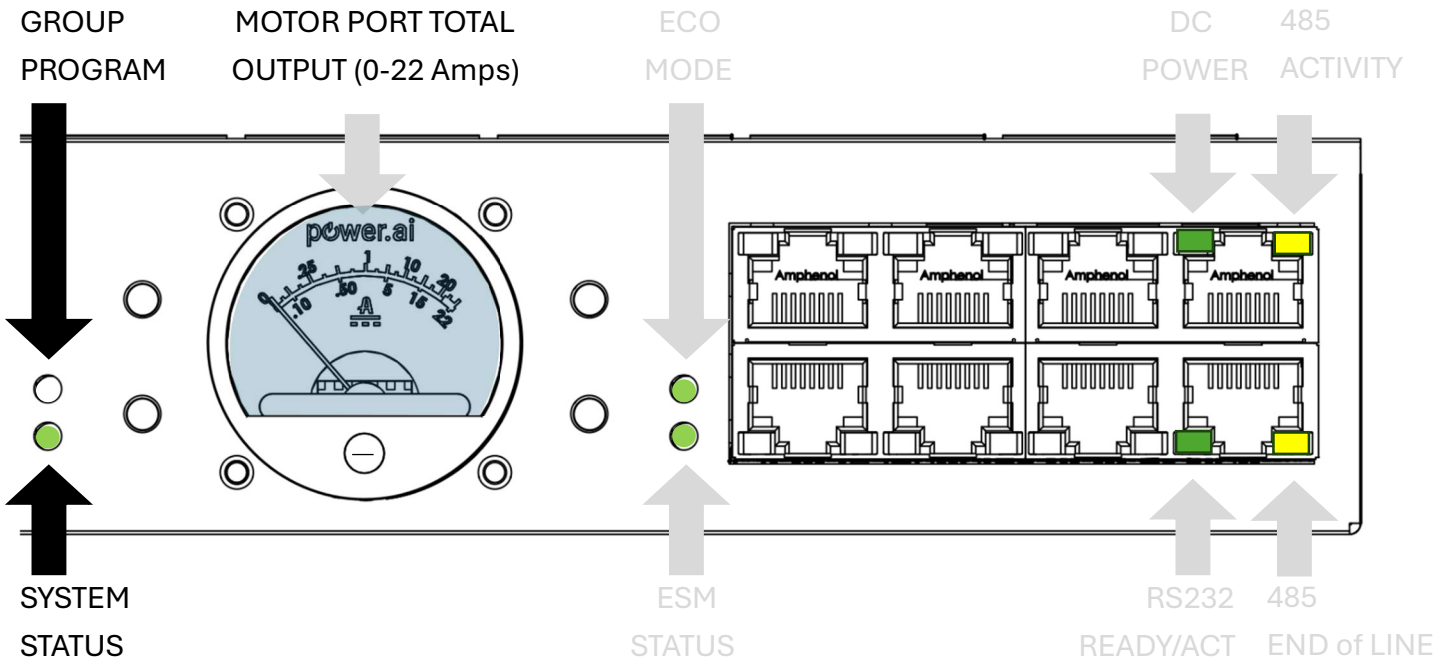

Auto set limits is a special feature which may be helpful for demo or other uses. To perform this feature, press the ECO key with a motor connected that has no limits. When doing this the current location is set as the upper limit, and the lower limit will be set at 1000 pulse below the current location.

You can exit this mode by holding the UP and ECO keys to switch to the USER MODE

REAKTOR INDICATORS (9)

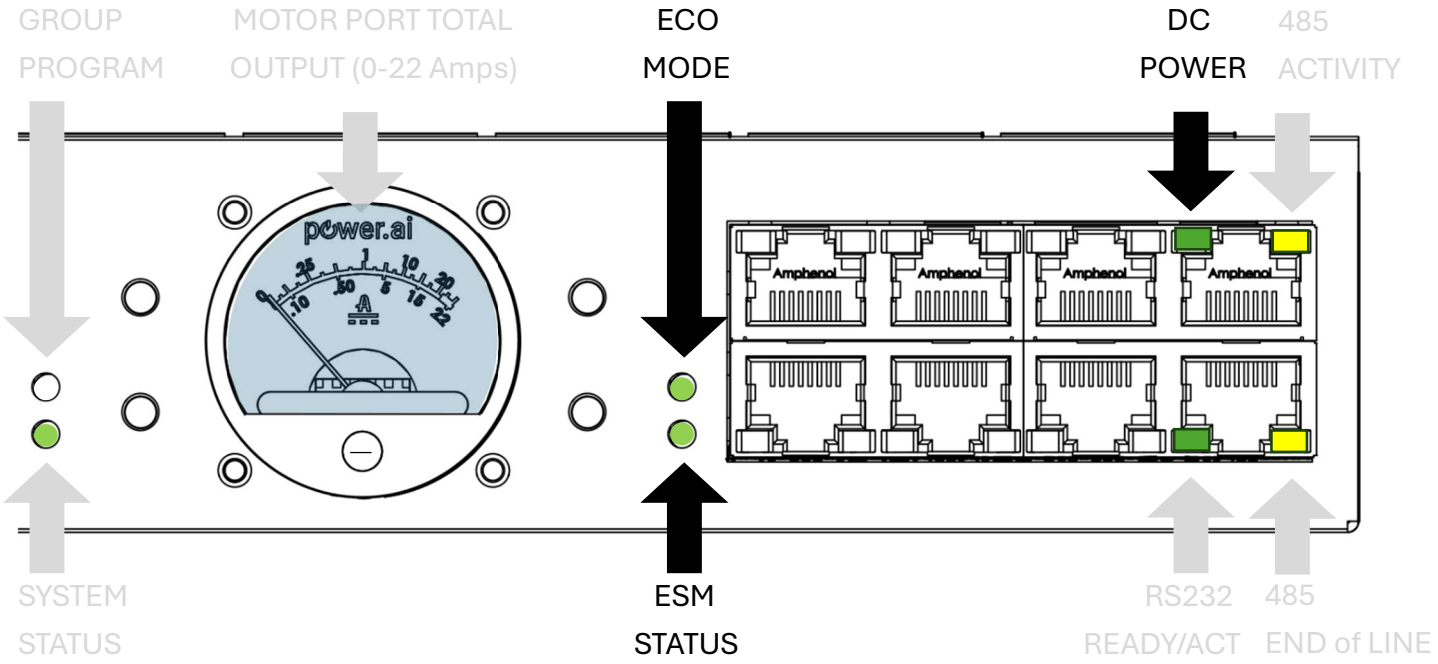


REAKTOR LEDS/INDICATORS – GRP/PROG. & SYSTEM STATUS:



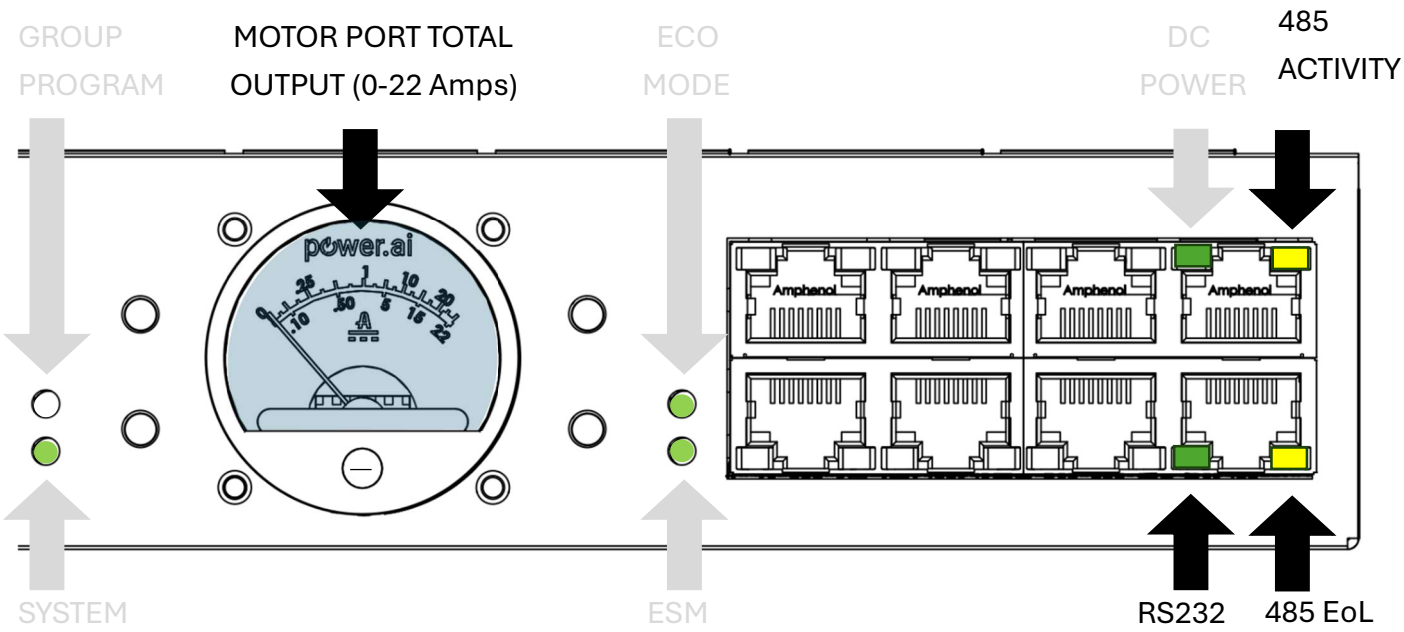
	LED COLOR				
	○ **NONE**	● **GREEN**	● **YELLOW**	● **AMBER**	● **RED**
GROUP/PROGRAMMING LED: This LED indicates programming Mode (if active)	UNIT IN USER OR HYBER. MODE	UNIT IN GROUP PROG MODE	N/A	UNIT IN LIMIT SETTING MODE	N/A
This LED also FLASHES during AI BUS activity (please wait for flashing to stop before proceeding)		❊		❊	
SYSTEM STATUS LED: This LED indicates overall system Status and Keylock status	○ UNIT IN HYBER. MODE	● UNIT IN USER MODE (KEYS LOCKED)	● N/A	● KEYS UNLOCKED	● SYSTEM ERROR*
This LED also FLASHES during AI BUS activity (please wait for flashing to stop before proceeding)		❊			
This LED also winks slowly if RS232 is enabled		☺		☺	

REAKTOR LEDS/INDICATORS – ECO/ESM/DC POWER STATUS:



	LED COLOR				
	NONE ○	**GREEN** ●	**YELLOW** ●	**AMBER** ●	**RED** ●
ECO MODE STATUS: This LED indicates the status of ECO MODE	Unit is In Hiber. Mode or ECO MODE Is INACTIVE	unit is in user mode & ECO MODE ACTIVE	N/A	Pending change to ECO ACTIVE (press reset to complete)	N/A
ESM STATUS: This LED indicates the status of the Energy Storage Module or ESM This LED also winks slowly when the ESM is harvesting power from BUS IN	○ Unit is in Hiber. Mode	● ESM Power Good ☺	● N/A	● ESM Charge pending	● ESM LOW
DC POWER STATUS: This LED indicates the status of any DC for the Reaktor to use for power & harvesting for the ESM	○ NO DC POWER DETECTED	● DC POWER IS PRESENT	● N/A	● N/A	● N/A

REAKTOR LEDS/INDICATORS – 232/BUS IN/BUS/AMMETER:



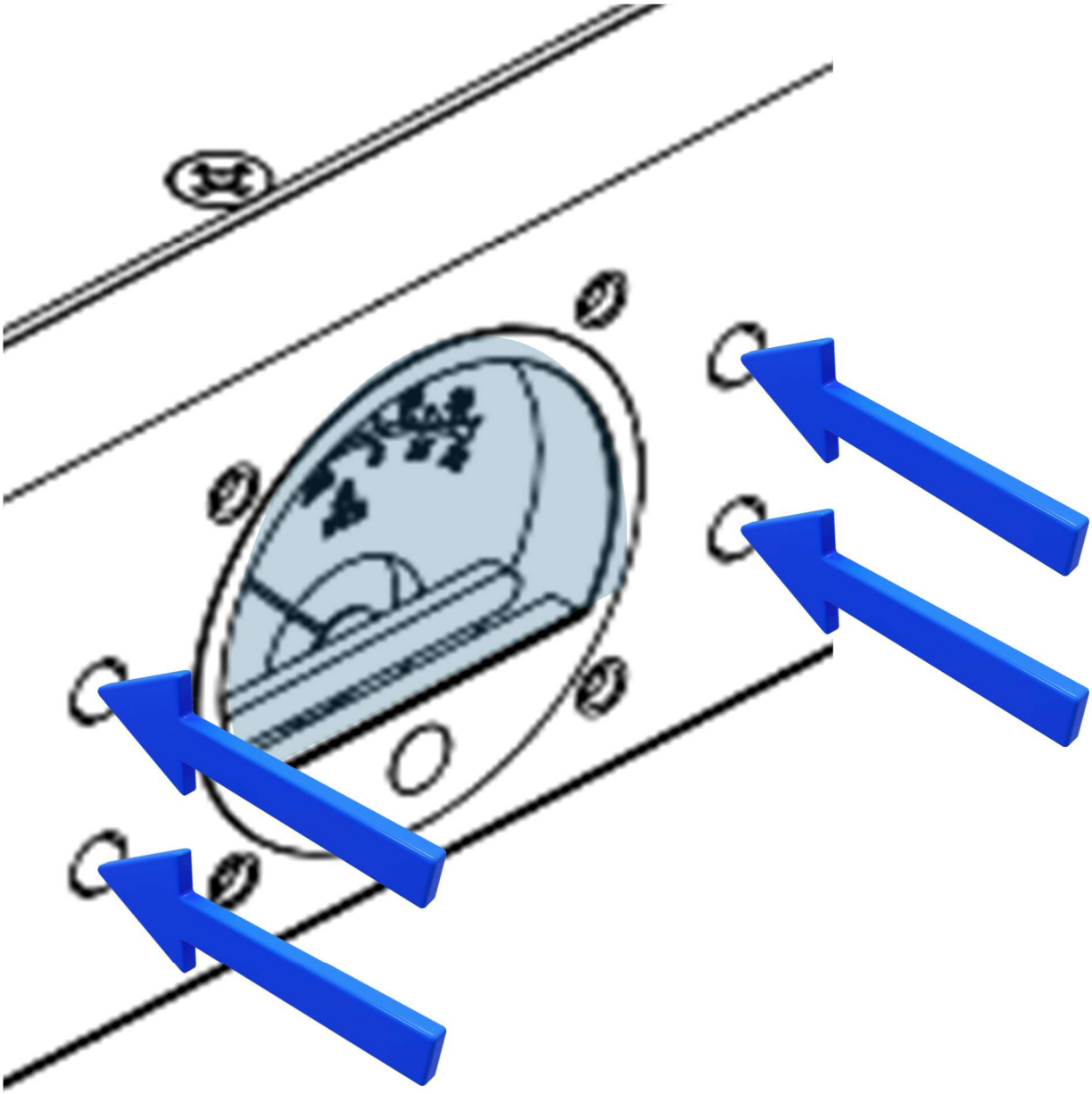
	LED COLOR				
	NONE	**GREEN**	**YELLOW**	**AMBER**	**RED**
RS-232 STATUS: This LED indicates if a connection To the RS232 port is detected And flashes on with data activity	RS232 Connection Detected	Flashes On with RS232 Data Activity	N/A	N/A	N/A
485 BUS STATUS (BUS IN): This LED Flashes on with 485 BUS Activity	NO DATA	On when Power present	Flashes on with Data Act.	N/A	N/A
485 BUS STATUS (BUS OUT): This LED indicates upstream 485 Node(s) detected or 485 End of Line	Upstream Node(s) Detected	ON when NO RS232 is connected	485 End of Line	N/A	N/A

MOTOR PORT AMMETER:

This analog gauge indicates the total amount of current flowing through the motor ports in amps. This meter is very precise and can show quiescent current loads as low as 2mA.

The blue backlighting comes on when 24V is present on the motor connectors and when it is not on then 0V will be present on these ports.

REAKTOR USER KEYS (4)

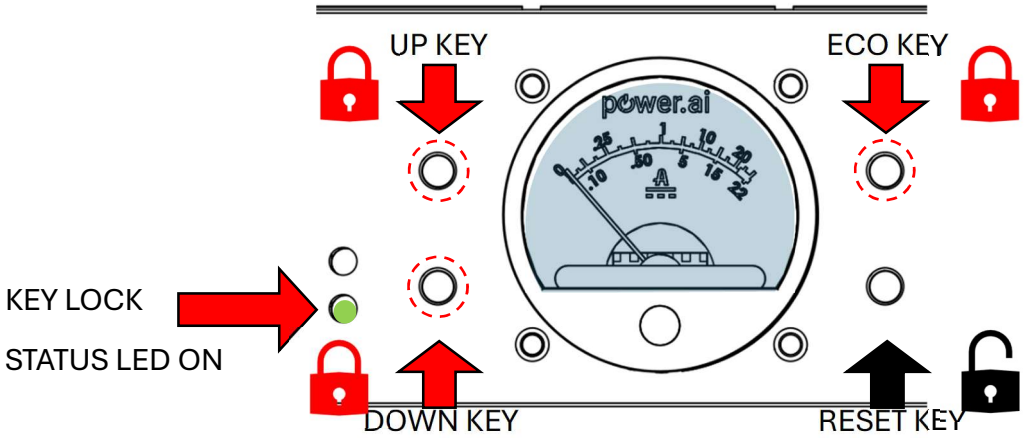


REAKTOR KEYS UP/DOWN/ECO/RESET (4):

Reaktor has 4 user keys. The UP, DOWN & ECO KEYS are LOCKED by default to avoid unintentional presses. The RESET key is never locked.

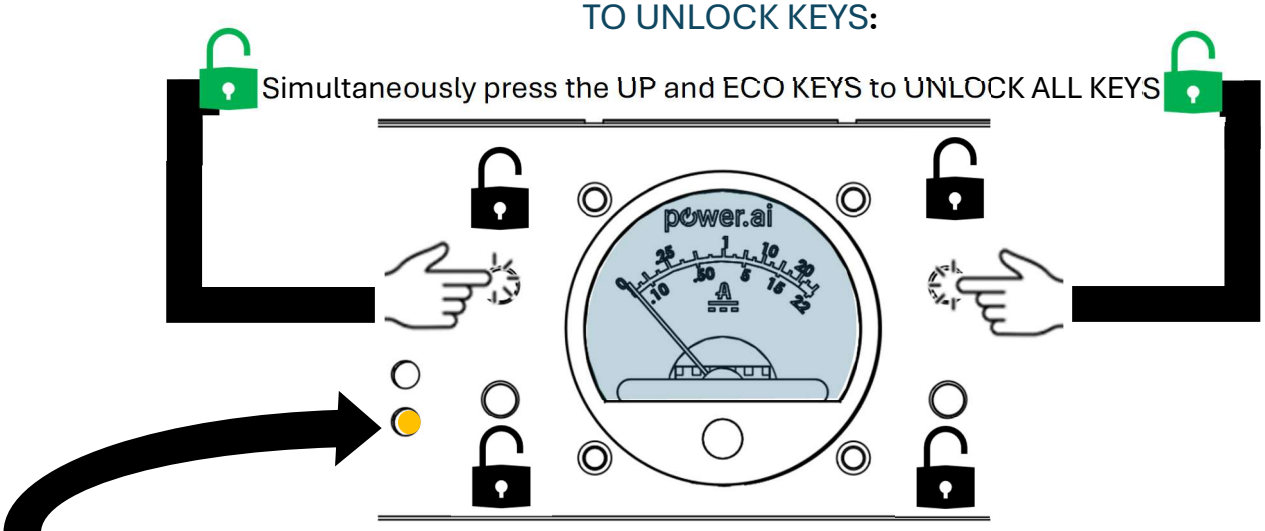
The black and white hand icon represents a KEY press & release

The solid orange hand icon represents a KEY press & hold, then release



TO UNLOCK KEYS:

Simultaneously press the UP and ECO KEYS to UNLOCK ALL KEYS



The Status LED will illuminate with a GREEN color when the keys are locked

The Status LED will illuminate with an AMBER color when the keys are unlocked.

Once keys are unlocked, they remain unlocked until 50 minutes after the last key activity.

REAKTOR KEY ACTIONS (HIBERNATE zZz MODE): 3 KEYS LOCKED

PRESS UP KEY; has no result

KEY LOCKED!

HOLD UP KEY; has no result

KEY LOCKED!

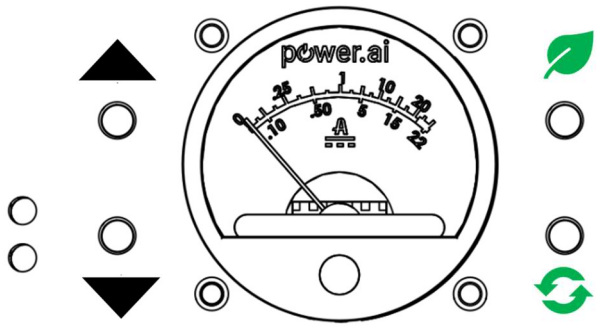
PRESS ECO KEY; has no result

KEY LOCKED!

HOLD ECO KEY; has no result

KEY LOCKED!

All LED's and BACKLIGHTING ARE OFF



KEYS ARE LOCKED:
(Default)

ECO MODE IS DISABLED:
(Default)

PRESS DOWN KEY; has no result

KEY LOCKED!

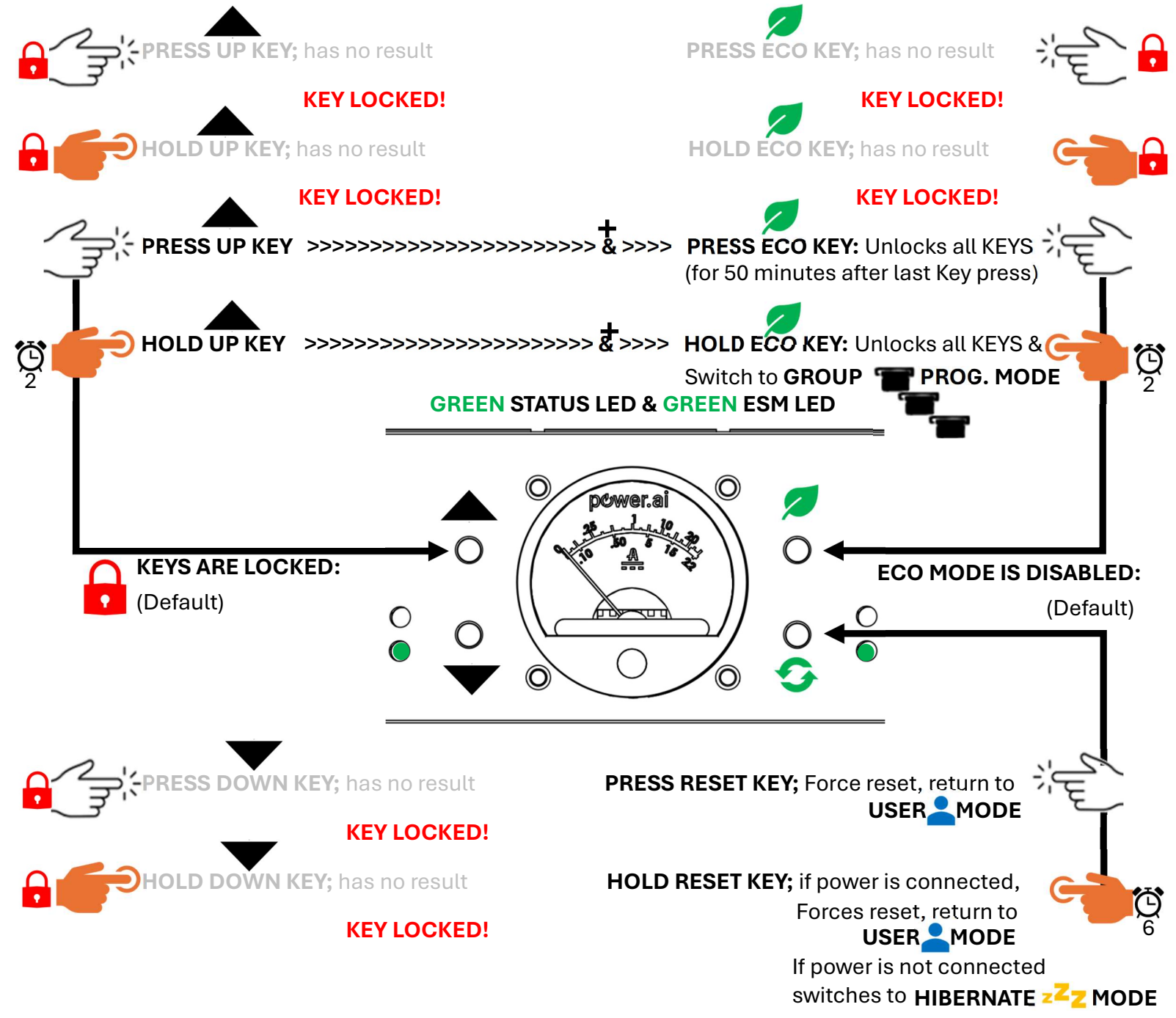
HOLD DOWN KEY; has no result

KEY LOCKED!

PRESS RESET KEY; Force reset, return to **HIBERNATE zZz MODE**

HOLD RESET KEY; Switch to **USER MODE**

REAKTOR KEY ACTIONS (USER MODE): 3 KEYS LOCKED



NOTE: The Ammeter Blue Backlighting will turn on once any movement command is sent on or to the internal local 485 segment (Motor Ports) and turn back off after 5 minutes of inactivity on the internal local 485 segment.

REAKTOR KEY ACTIONS (USER MODE): KEYS UNLOCKED

PRESS UP KEY; Sends move to upper limit to all motors on local unit

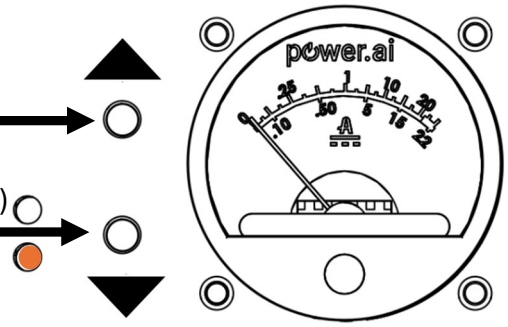
HOLD UP KEY; has no result

PRESS ECO KEY; to toggle **ECO MODE** (LED turns AMBER>press reset to start)

HOLD ECO KEY; has no result

HOLD UP KEY >>>>>>>>>>>>>>>>>>>>>>> **&** >>> **HOLD ECO KEY:** Switch to **GROUP PROG. MODE**

AMBER STATUS LED & GREEN ESM LED



KEYS ARE UNLOCKED: (For 50M after last press)

ECO MODE IS DISABLED: (Default)

PRESS DOWN KEY; Sends move to Lower limit to all motors on local unit

PRESS DOWN KEY & UP KEY, sends Stop movements to all motors on local unit

PRESS RESET KEY; Force reset, return to **USER MODE**

HOLD RESET KEY; if power is connected, Forces reset, return to **USER MODE**

If power is not connected switches to **HIBERNATE zZz MODE**

NOTE: The Ammeter Blue Backlighting will turn on once any movement command is sent on or to the internal local 485 segment (Motor Ports) and turn back off after 5 minutes of inactivity on the internal local 485 segment.

REAKTOR KEY ACTIONS (GROUP PROG. MODE): KEYS UNLOCKED

PRESS UP KEY; has no result

HOLD UP KEY; has no result

PRESS ECO KEY; CREATES GROUP

(Snapshot)

HOLD ECO KEY; Erases ALL GROUPS & control bindings

2 **HOLD UP KEY** >>>>>>>>>>>>>>>>>>>>>>>> + & >>> **HOLD ECO KEY:** Switch to **USER MODE** 2

AMBER STATUS LED & GREEN PROG. & ESM LED

KEYS ARE UNLOCKED:

(For 50M after last press)

ECO MODE IS DISABLED:

(Default)

&

PRESS DOWN KEY; Has no result

PRESS RESET KEY; Force reset, return to **USER MODE**

2 **HOLD DOWN KEY;** Switch to **LIMIT MODE*** (Will only switch with a single connected motor)

HOLD RESET KEY; If power is connected Forces reset, return to **USER MODE** 6

If power is not connected switches to **HIBERNATE zZZ MODE**

2 **HOLD DOWN KEY & UP KEY**, erases any Orphan Groups (Groups with no bindings)

REAKTOR KEY ACTIONS (LIMIT MODE): KEYS UNLOCKED

PRESS UP KEY; Sends UP Pulse(es) to motor

HOLD UP KEY; Sends UP FAST to motor
Sends stop on release

PRESS ECO KEY; Sets current position as new upper limit

HOLD ECO KEY; Sets current position as new lower limit

2

HOLD UP KEY >>>>>>>>>>>>>>>>>>>>>>>> & >>> **HOLD ECO KEY:** Switch to **USER MODE**

2

AMBER STATUS & PROG. LED & GREEN ESM LED

KEYS ARE UNLOCKED:
(For 50M after last press)

ECO MODE IS DISABLED:
(Default)

&

PRESS DOWN KEY; Sends UP Pulse(es) to Motor

HOLD DOWN KEY; Sends DOWN FAST to Motor, Sends stop on release

HOLD DOWN KEY & UP KEY, toggles motor Direction

2

PRESS RESET KEY; Force reset, return to **USER MODE**

HOLD RESET KEY; If power connected Forces reset, return to **USER MODE**
If power is not connected switches to **HIBERNATE zZZ MODE**

6

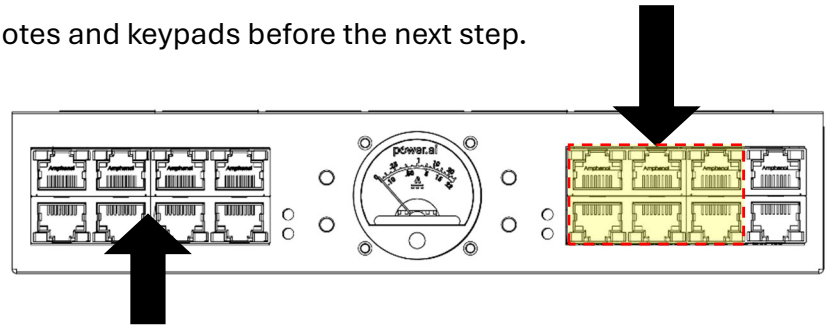
CAUTION, as changing the motor rotation will remove any currently set limits.

USER CONTROL GROUP PROGRAMMING

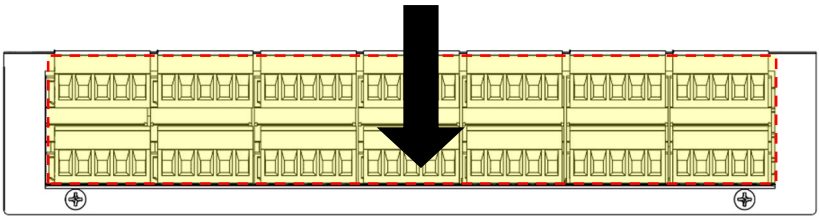
CONFIGURATION – MAKING GROUPS:

To set up user controls in Reaktor you need to create some groups in the GROUP PROGRAMMING MODE.

STEP #1 – Connect your user controls, wired keypads, RF receivers to the Reaktor device ports on the front of the unit. For RF receivers ensure you have already paired all your RF remotes and keypads before the next step.



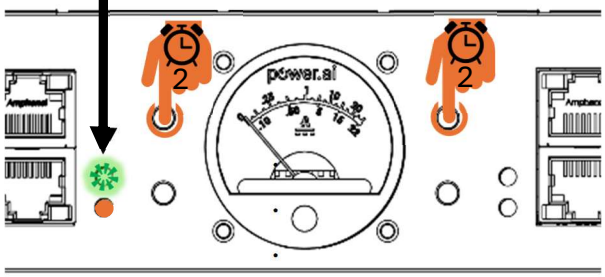
STEP #2 – Connect all motors to the front or rear motor ports on Reaktor.



STEP #3 – From the **USER** **MODE** switch to the GROUP PROG. MODE

+

Hold the **UP** and **ECO KEYS**, (does not matter if the keys are locked or not) the GROUP PROG. LED will start flashing. Depending on how many devices, length of the cables and number of groups on the motors this can take a couple minutes.



Once the LED stops flashing, all motors will start to jog.

Next disconnect all motors **except** the motors you want for your group and ensure all these motors are jogging. If not check the wiring of any motor not jogging, and if the motor is still not jogging press the **RESET KEY** on Reaktor and begin from Step #3 again. (See page 24 if all motors are not jogging)

STEP #4 – Press the **ECO KEY** or any stop button from one of your connected user controls to make the group. You can now BIND all your user controls.

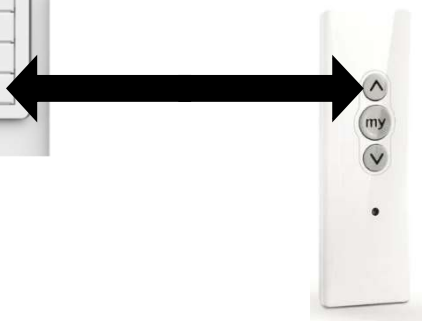
NOTE: On some user controls the STOP button may be labeled “MY”

CONFIGURATION – BINDING USER CONTROLS TO GROUPS:

Each Reaktor can have up to 128 groups, and or up to 128 devices.

Binding User Controls is the process of associating or mapping a user control device like a keypad or RF remote or a preset/channel of that control device to a group of motors for the purpose of controlling them from that device or preset.

When you are in the GROUP PROGRAMMING MODE and have just created a Group (and all group motors are still jogging) you can now BIND your user controls by pressing the UP button on all the control device(s) that you would like to control this group of shades.



The motors will stop jogging for approximately 2-3 seconds and once the motor jogging resumes the binding is complete.

To **TEST** the binding, you can PAUSE the GROUP PROGRAMMING MODE by **TWICE** pressing the **STOP** button on any user control.

When the programming is paused the motor jogging will slow down and you can test the group with your user controls to control the shades, up down & stop will all work as normal.

When you are done testing your group you can resume programming with another **TWICE** press of the **STOP** button and the motors resume jogging faster. If you are done creating groups, you can exit the programming mode by holding the **UP** and **ECO KEYS** on Reaktor or just press the **RESET KEY** which will reboot the Reaktor.

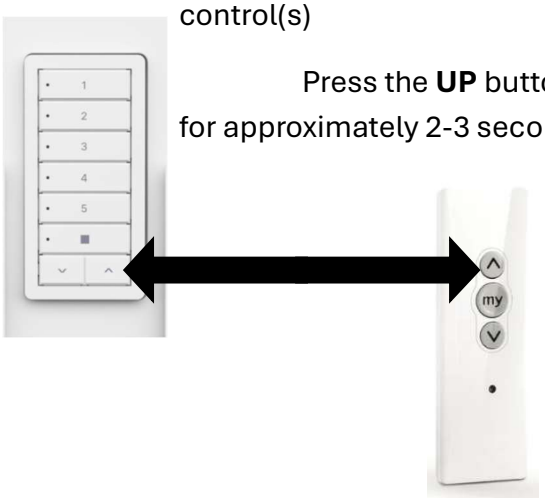
If you want to make more groups, disconnect the current motors, and connect the motors wanted for the next group and ensure they are all jogging and then go back to step #4 of creating a group. If any motor in your group is not jogging press the **RESET KEY** on Reaktor and begin from Step #3 of group programming again.

If you have just made a group, and you believe you have made a mistake, you can delete the current group by **THRICE PRESSING STOP** on one of your connected user controls.

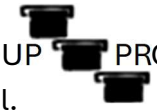
ADDING A NEW USER CONTROL TO A PREVISOULY MADE GROUP

If you want to add another user control to one of your already created groups, connect the new user control to the Reaktor and locate a user control that was already previously bound to that group and **QUARCE PRESS STOP** (press stop 4 times in a row) on the previous user control

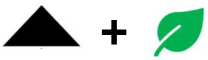
Reaktor will go back to the GROUP PROGRAMMING MODE and place the unit on the previously created group & the motors in the group will start to jog. To add the new user control(s)



Press the **UP** button on the new user control device. The motors will stop jogging for approximately 2-3 seconds & once the motor jogging resumes the binding is complete.

To **TEST** the binding, you can PAUSE the GROUP  PROGRAMMING MODE by **TWICE**  pressing the **STOP** button on any user control.

When the programming is paused the motor jogging will slow and you can test the group with your user controls to control the shades, up down & stop will all work as normal.

When you are done testing your group you can resume programming with another **TWICE**  press of the **STOP** button and the motors resume jogging faster. If you are done creating groups, you can exit the programming mode by holding the **UP** and **ECO KEYS** on Reaktor or just press the **RESET KEY** which will reboot the Reaktor. 

If you want to make more groups, disconnect the current motors, and connect the motors wanted for the next group and ensure they are all jogging and then go back to step #4 of creating a group. If any motor in your group is not jogging press the **RESET KEY** on Reaktor and begin from Step #3 of group programming again.

CONFIGURATION – BROADCAST ALIAS:

Reaktor can have **ONE** broadcast alias per unit. If you need another alias, you will need to add another Reaktor to your system.

In 485 networking, commands can be sent out as a broadcast command (similar to a multicast command over an IP network) These commands are "seen" by all nodes on the network typically using the "FFFFFF" addressing scheme and have some useful functionality. Since Reaktor has three 485 bus segments it can translate a broadcast command from one segment and translate it to a normal addressing scheme for use on other segments, this type of translation is called a broadcast alias.

What you can use an alias on a shade network is to make very basic sensors or generic purpose input and output GPI/O devices to control or trigger actions for shades such as a dry contact closure 12V trigger or even 0-10 volt applications. This is also very common on RF sensors.

Setting up an alias for Reaktor is very simple and you use the same method as binding a user control to a group that you have created.

Connect the motors you want in the group and connect the Alias device to a device port, then switch to the **GROUP** **PROGRAMMING MODE** and once your motors jogging, create the group and now trigger the associated GPI/O or sensor to bind it to the group. Use the **UP** to bind the sensor to the group in the same way you bind the user controls to the group. You can even pause the programming by triggering a stop on the GPI/O the same way that a STOP works on the user controls.

Common 485 GPI/O devices; FONTUS, VBYV, ZBDMI, TDMI, PEGASUS, MOAB, 0-10V

CONFIGURATION – MOTOR ECO MODE:

The Reaktor has a special shade motor energy savings mode called the **ECO MODE** which is inactive by default.

When the **ECO MODE** is active, Reaktor at times will remove the voltage to the motors which can help to reduce or eliminate operational quiescent current draw from the motors. Reaktor will also respond to non-movement 485 BUS queries intended for connected motors with the last known data in the response. These proxied data responses allow us to keep the operational current low. If any movement command is received Reaktor will turn back on the power to relay the command.

Some motors respond very quickly to the relayed command which may not be detected by an end-user, however in our testing the 50mm sized motors take longer to respond to the power up than the latest 30mm motors. This is why the feature is not active by default.

If saving the most amount of energy is important to the end-user, we suggest turning on the **ECO MODE** (See **ECO MODE** in the Reaktor **USER KEY** section for more details) and testing the user controls making sure the expectation from the use is acceptable.

One other note for large systems, if you have a shade system with 30mm and 50mm motors we recommend placing all the 50mm motors on the same Reaktor. If this is not possible, then all motors on that Reaktor will have the same delay as the 50mm motors have.

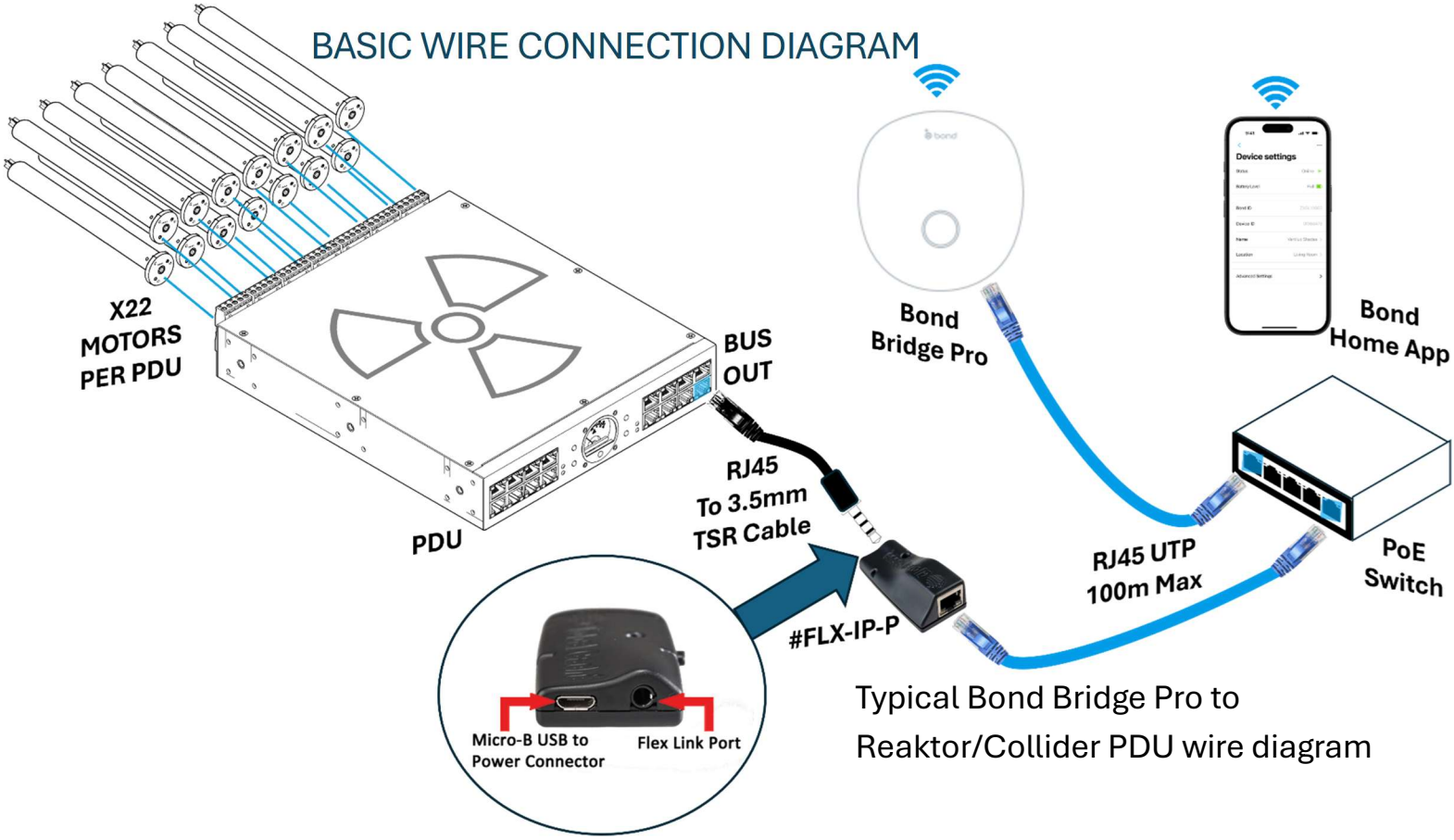
The **ECO MODE LED** will be a solid GREEN color when the **ECO MODE** is active.

To turn ECO MODE on, and with the USER KEYS unlocked, press the ECO MODE KEY once and the ECO MODE LED will turn AMBER indicating it is ready to toggle the ECO MODE. Next press the RESET KEY to activate ECO MODE and after the reboot, the ECO MODE LED will now be a solid GREEN color indicating that the ECO MODE is now ACTIVE.

To turn ECO MODE off, and with the USER KEYS unlocked, press the ECO MODE KEY once and the ECO MODE LED will turn AMBER indicating it is ready to toggle the ECO MODE. Next press the RESET KEY to deactivate ECO MODE and after the reboot, the ECO MODE LED will now be off indicating that the ECO MODE is now INACTIVE.

REAKTOR BOND CONFIGURATION

Reaktor is not a PoE DEVICE and is NOT POWERED BY PoE



Typical Bond Bridge Pro to Reaktor/Collider PDU wire diagram

From left to right, the motors are connected to the PDU with UTP or multi conductor cabling;

The #FLX-IP-P is connected to the BUS OUT port on the PDU via a custom RJ45 to 3.5mm TSR Cable which is included with the Bond Edition PDU's and or with the #FLEX-IP;

The #FLEX-IP-P is connected to a PoE switch (any type af/at/bt/) and or with the included USB power supply and an Ethernet connection to a Ethernet switch;

The Bond Bridge Pro is also connected to the PoE switch, or a USB power cable and an Ethernet connection to a switch;

The Bond Home App needs to be downloaded from your app store onto a compatible iOS or Android mobile device and normally needs to be connected to a WIFI connection which is also on the same logical segment of the Ethernet switch.

CONNECT MOTORS AND BUILD ALL GROUPS USING PDU FIRST

Using the PDU front keys connect your motors and start building your groups. (See pages 40-42 for more details on making groups)

A best practice would be to keep note of the order in which you connect your motors and create your groups as this will aid you in the naming process inside the Bond Home App.

Once the Bond Bridge Pro is connected and setup with your PDU, the motors and groups will start to appear in the app and they will be listed as Motor1, Motor 2, and Group1, Group2, Etc.

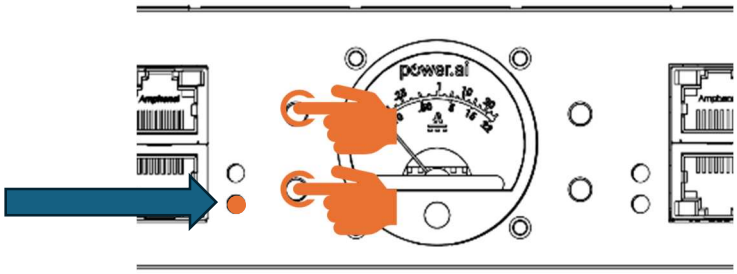
In the Bond Home app you can rename the motors and groups and assign them to rooms as needed.

The reason you will want groups made from the PDU is so that all the shades in each group move in unison with each other.

If you decide to make new groups inside of the Bond Home app and have not make them using the PDU the shades in your group will NOT move in unison with each other.

REAKTOR CONNECTION AND MULTI-PDU JSON SERIAL SET UP

If you have more than one PDU in your system you will need to turn on the multi-PDU JSON feature on the PDU with the #FLX-IP-P connected. If you only have a single PDU then you can skip this next step.



On the PDU with the #FLX-IP-P in the user mode and with the keys unlocked (You can tell the keys are unlocked when the bottom left status LED is Amber) Press and hold both the UP and DOWN KEYS for approximately 2 seconds.

The status LED will now blink every 3-4 seconds to indicate the multi-unit PDU JSON is running.

DISCOVERING IP-ADDRESS OF #FLX-IP-P

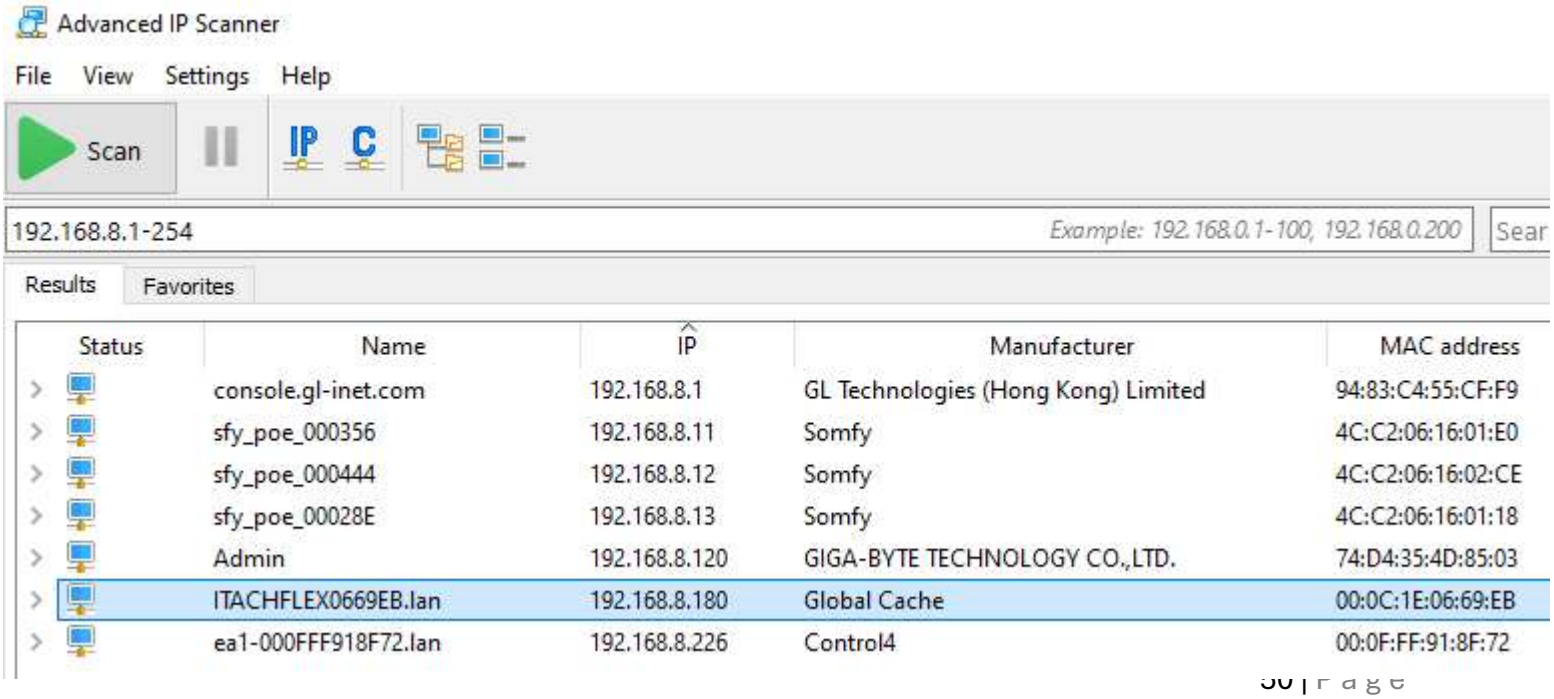
Discovering the IP Address

- The Flex IP will typically receive an IP address from your network's DHCP server.
- Windows users can find the IP address using our **iHelp** utility, available for download from our website.
- For other operating systems, locate the IP address via your router's interface or a third-party IP scanner, matching the MAC address found on the unit's label.
- If your network lacks a DHCP server, the default IP is set to **192.168.1.70**. It can be accessed directly with a PC and ethernet cable by configuring the IPv4 settings on the PC for an IP address in the same subnet range of the default IP. Example below:
  - TPC IP config: IP address: 192.168.1.85, Subnet Mask: 255.255.255.0, Gateway: NONE.
  - Disable any additional network connections, such as WiFi.
  - iHelp does not detect the unit while directly connected to a PC.

```
C:\Users\Apps-Station1>arp -a

Interface: 192.168.8.120 --- 0x12
  Internet Address      Physical Address      Type
  192.168.8.1           94-83-c4-55-cf-f9     dynamic
  192.168.8.11          4c-c2-06-16-01-e0     dynamic
  192.168.8.12          4c-c2-06-16-02-ce     dynamic
  192.168.8.13          4c-c2-06-16-01-18     dynamic
  192.168.8.180         00-0c-1e-06-69-eb     dynamic
  192.168.8.226         00-0f-ff-91-8f-72     dynamic
  192.168.8.255         ff-ff-ff-ff-ff-ff     static
  224.0.0.22            01-00-5e-00-00-16     static
  224.0.0.251           01-00-5e-00-00-fb     static
  224.0.0.252           01-00-5e-00-00-fc     static
```

THE #FLX-IP-P will be identified in many IP Scanners as \ITACHFLEX by Global Cache



Status	Name	IP	Manufacturer	MAC address
	console.gl-inet.com	192.168.8.1	GL Technologies (Hong Kong) Limited	94:83:C4:55:CF:F9
	sfy_poe_000356	192.168.8.11	Somfy	4C:C2:06:16:01:E0
	sfy_poe_000444	192.168.8.12	Somfy	4C:C2:06:16:02:CE
	sfy_poe_00028E	192.168.8.13	Somfy	4C:C2:06:16:01:18
	Admin	192.168.8.120	GIGA-BYTE TECHNOLOGY CO.,LTD.	74:D4:35:4D:85:03
	ITACHFLEX0669EB.lan	192.168.8.180	Global Cache	00:0C:1E:06:69:EB
	ea1-000FFF918F72.lan	192.168.8.226	Control4	00:0F:FF:91:8F:72

Reaktor is not a PoE DEVICE and is NOT POWERED BY PoE

#FLX-IP-P TELNET CONFIGURATION SETUP

Device Configuration

- Access device settings by entering the IP address into a browser.
- To assign a static IP in Network Settings, switch off DHCP and input your desired IP.
- To configure the Flex Link Cable settings, choose the type of cable connected and configure as necessary. Remember to save your changes.

Adjust the #FLX-IP-P to the following settings as shown in the image below.

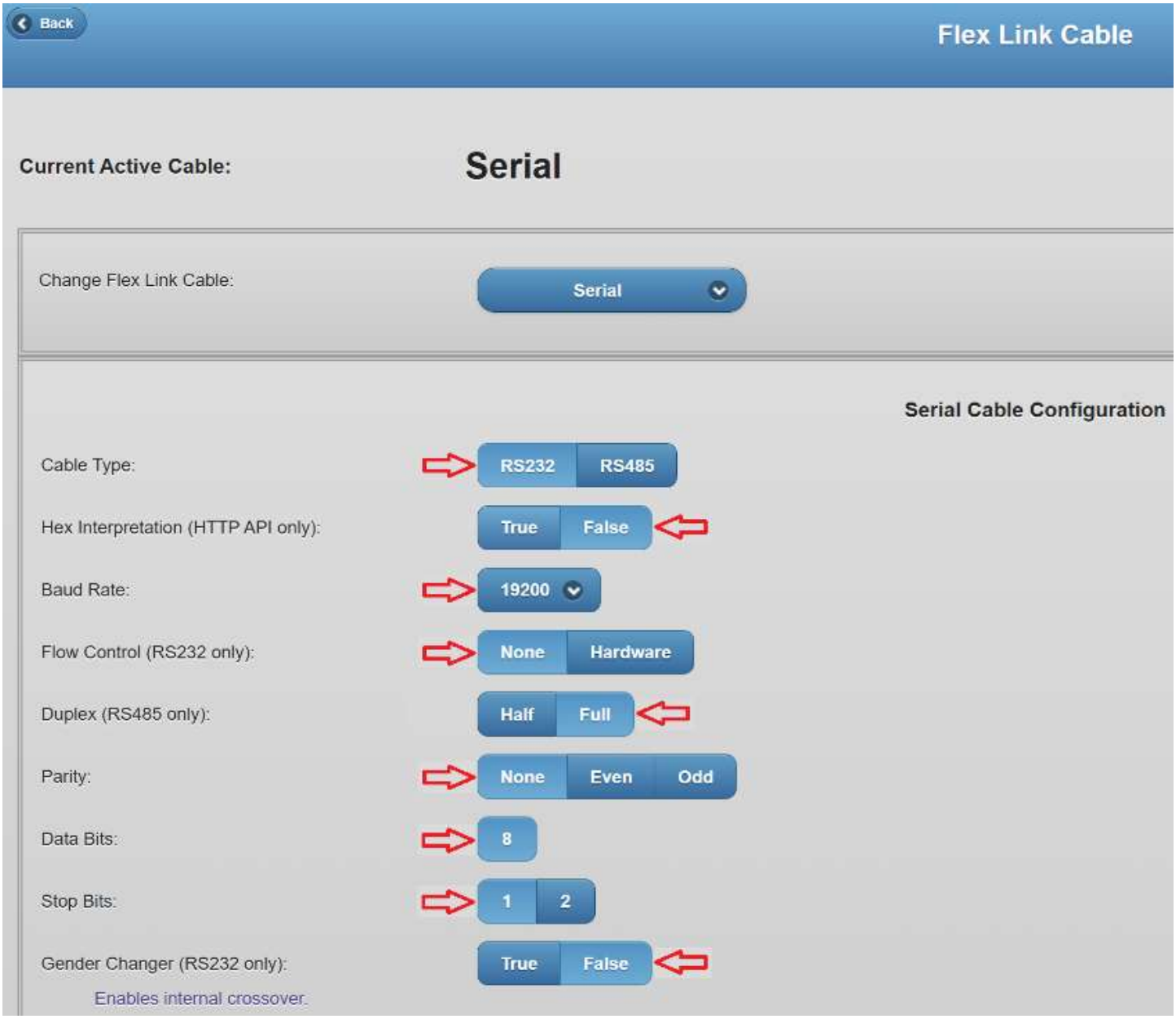
Cable (RS232)

Hex (False)

Baud Rate (19,200)

Flow (None) Data Bits (8) Stop Bits (1)

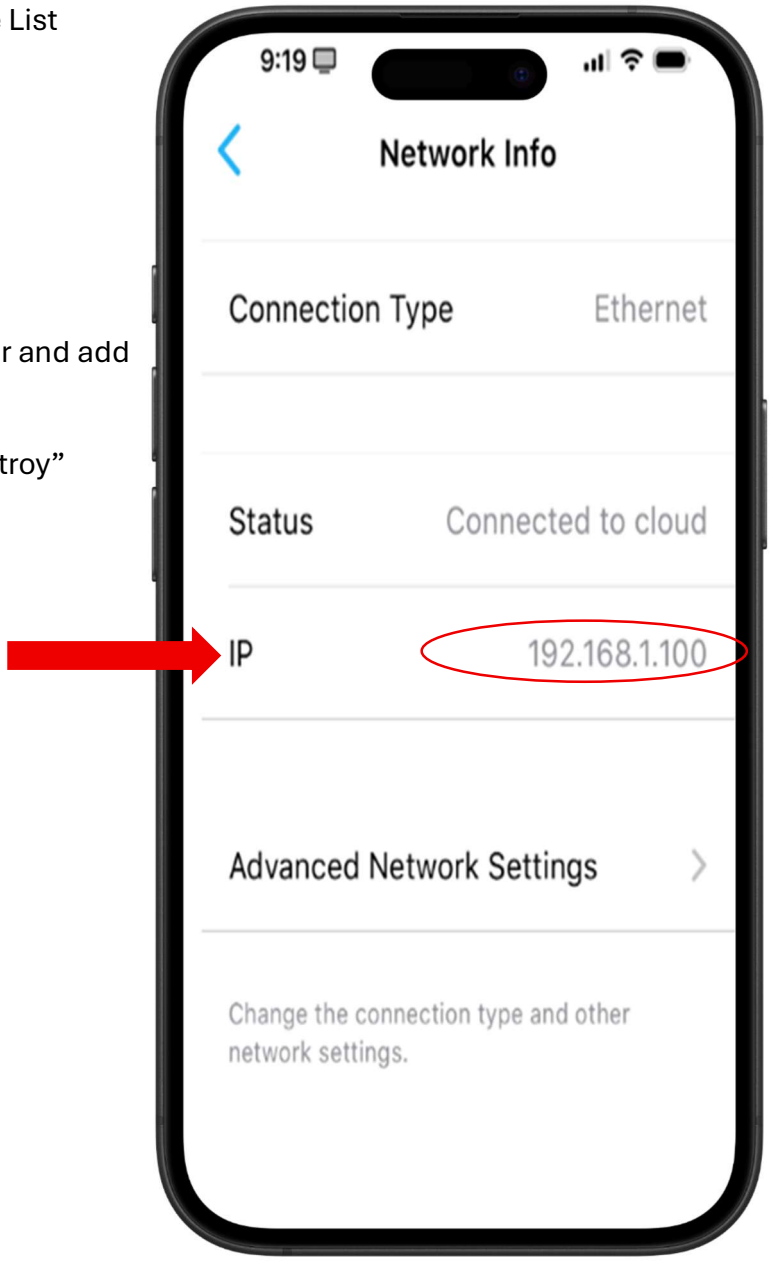
Gender Change (False)



BOND BRIDGE PRO TELNET CONFIGURATION

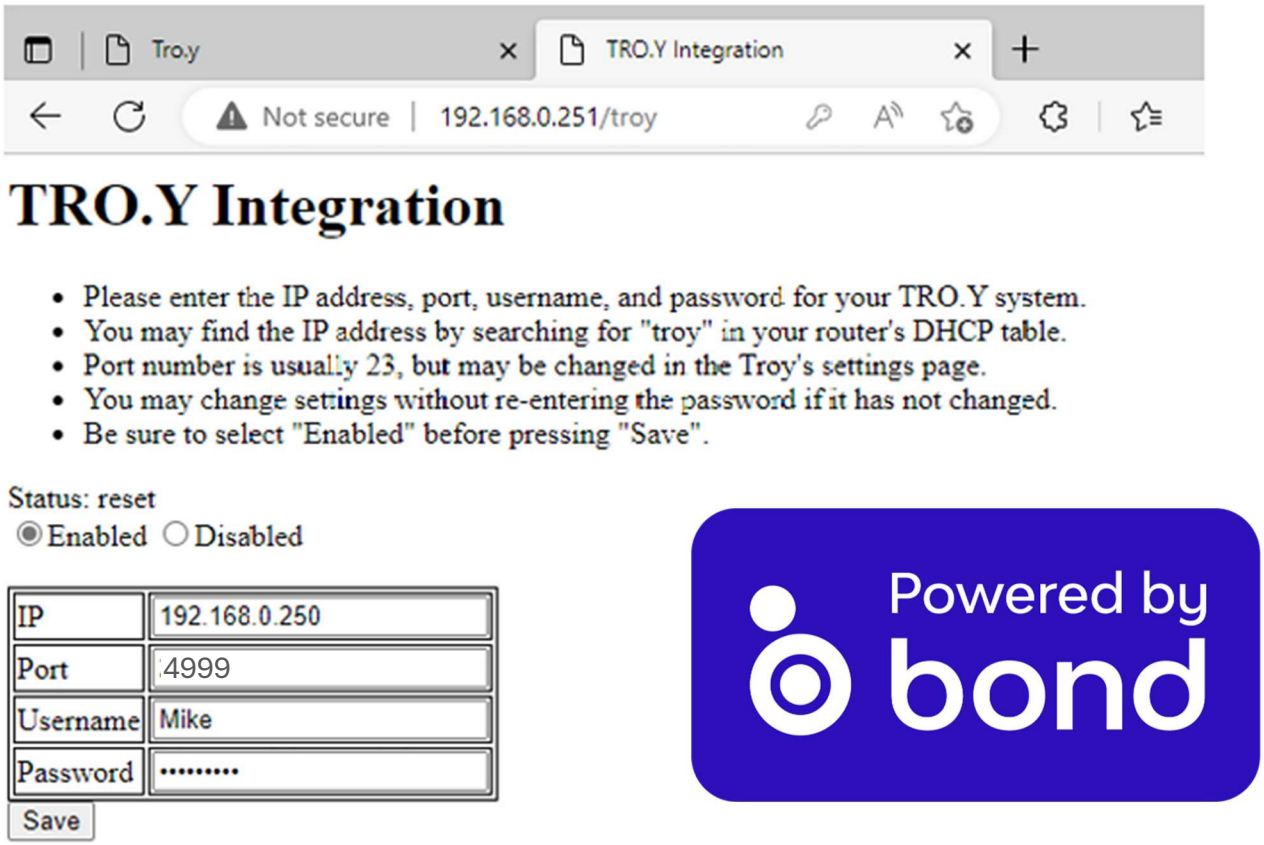
You will need to know the IP address of your Bond Bridge Pro for the next step

- Open your Bond app
- Select the Bond Bridge Pro in the Device List
- Click on the “Advanced Settings”
- Click on the “Network Info”
- Copy IP address
- Open a web browser
- Paste the IP address into the address bar and add the following /troy to the end of the IP
- Should look like this “XXX.XXX.XXX.XXX/troy”



BOND BRIDGE PRO TELNET CONFIGURATION

Using a browser that is connected to the same network as your Bond Bridge Pro, navigate to the Bond Bridge Pro IP address with a forward slash troy (Example 192.168.0.251/troy



You will need to click on the table and enter the IP address of the FLX-IP in the IP section of the table you found in the last step. Enter the port at 4999 and use anything you want in the Username and password

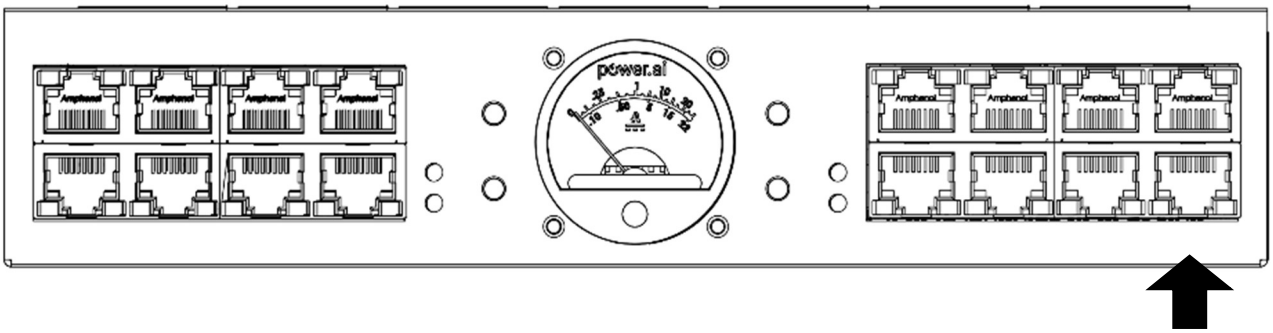
Reboot the Bond Bridge Pro and then reboot Reaktor and you're ready to control.

Your connected motors and any groups you have made will migrate to the Bond app within a few minutes.

If you add a new group or motor to the system, it will also migrate to your list of devices in the Bond Home app.

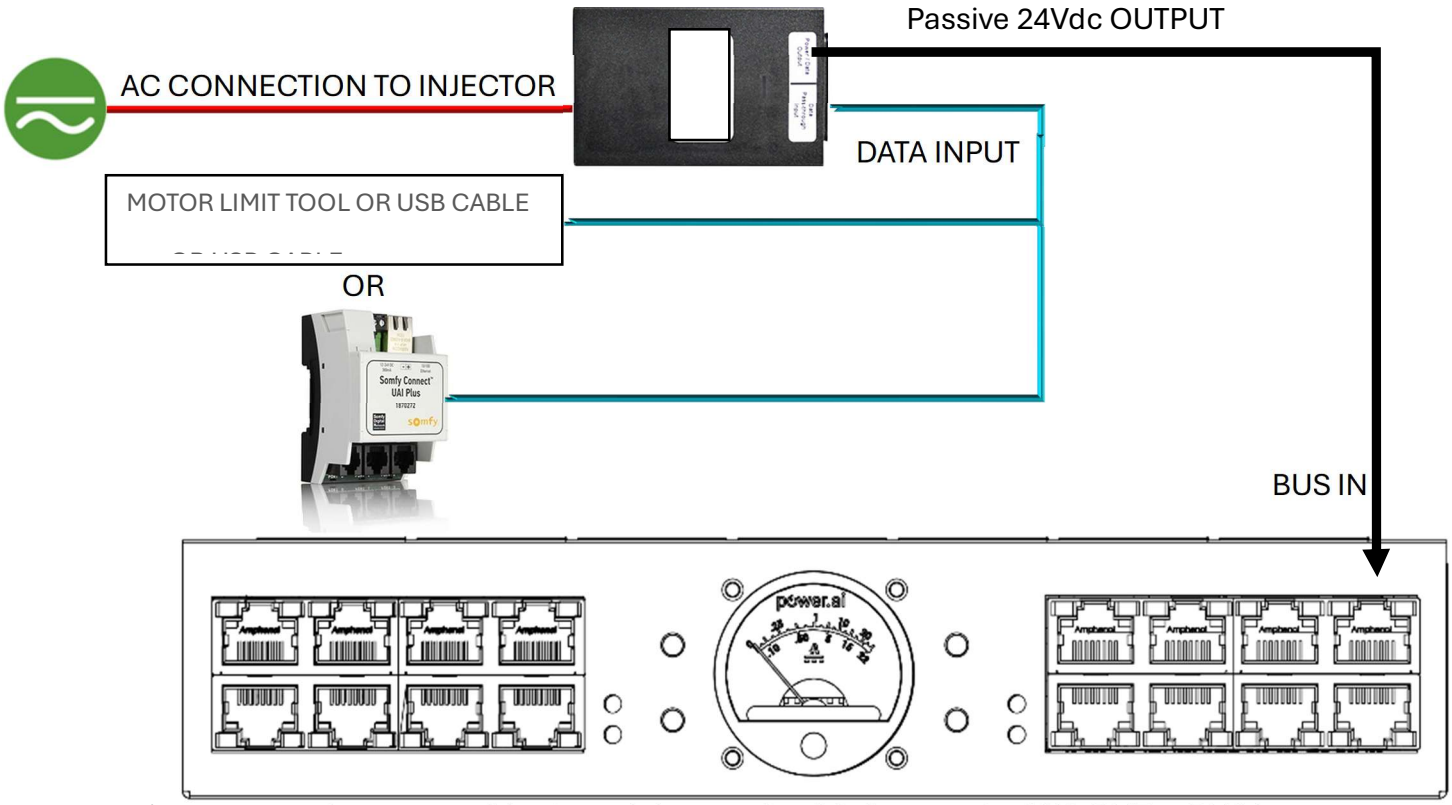
If you do not see your new motors or groups the app, power cycle the Bond Bridge Pro and this is force a new discovery.

MOTOR LIMIT TOOLS / 3rd PARTY CONTROL SYSTEMS:



When using motor limit setting tools, we recommend using either the BUS OUT if the tool has its own power like the 485BUSter or the SILABS 485 USB KIT.

You can also use the BUS IN, however since this is also how Reaktor is normally powered, you will want to connect to the data only port on the included passive PoE injector.



3rd party control systems with 485 serial ports should also use the BUS OUT or BUS in.

Toggle the JSON output feature by pressing the UP and DOWN KEYS in the USER MODE

If your control system needs an Ethernet connection then you will need a gateway device like Somfy UAI+, SILABS TRO.Y, or other interface and these kinds of hubs should connect through the BUS IN as outlined above.

NOTE: Some limit setting tools and cables provide power for user devices. If you are unsure, we recommend using the BUS OUT.

. BY PoE

COMPATIBLE RF DEVICES – USER CONTROLS

Reaktor is compatible with the following RF DEVICES:

RECEIVERS AND TRANSCEIVERS:

SOMFY® RTS Receiver for SDN V2 #1871471 (5 CHANNELS)

SILABS™ PEGASUS™ #302305 /#302208 (16 CHANNELS)

MODERN ATOMICS RF TRANSCEIVER #RF-TRN-302 (16 CHANNELS)

RF KEYPADS AND HANDHELD REMOTES:

SIDEKICK™ by Olibra (BOND) (all versions)

PICO® Remotes by LUTRON® (all versions)

SOMFY® RTS® all versions, including Smoove®, Telis®, Situo®, Decoflex®

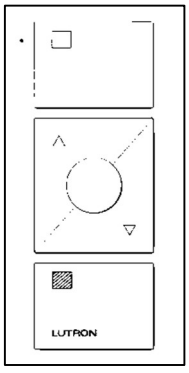
485 WIRED KEYPADS, HUBS:

SOMFY® SDN Decoflex® (all versions)

SOMFY® DATA HUBS (all versions)

SILABS™ SUITE XVI

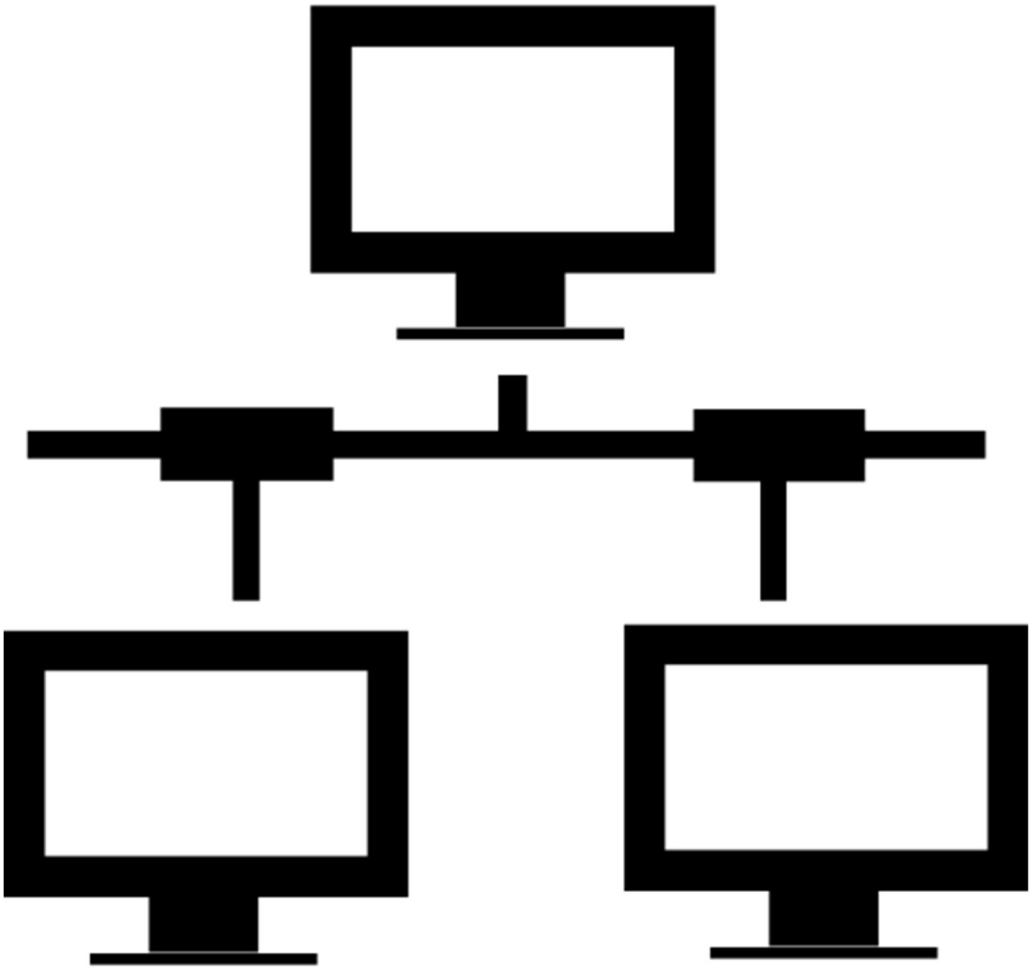
Modern Atomics™ 485 HUB



TROUBLESHOOTING **CALL US FOR HELP TOLLFREE +1 (844) 771-8725**

ISSUE	POTENTIAL CAUSE:	REMEDY ACTION:
Reaktor unit has no power	Passive DC not connected	Check AC input on passive DC, check cable from output to BUS IN on UNIT
Shades have no power	ECO MODE Enabled	A movement command must be sent on the bus to a connected motor for Reaktor to provide power to the motor, you can unlock the front KEYS and press an up, down or stop to force power on to the motor
Shades have a delay before they move	ECO MODE Enabled	Some 485 motors take time to receive a command after a power cycle, turn off ECO MODE to remove the delay
Shades start to move but then stop moving	ESM LED IS AMBER or RED	Check ESM LED, if the LED is not green, then the ESM needs time to harvest energy from the BUS IN, this can take a few hours
Shades start to move but then stop moving	ESM LED is GREEN	Ensure you are not overloading the motor port (Front motor ports 2Nm maximum per port, Rear motor ports 4Nm maximum per port) If you have more than the port can provide move a motor off this port to another port that is not used in the same group, or you may need additional Reaktors for this project
1 or more of the shades in my group is not moving with the group	485 BUS Collision	Check wiring of the motors not moving, then review FORCED DISCOVERY on pages 23-24 to get the shade working with your group
The Reaktor keeps going back to Hibernate mode	Passive PoE not providing power	Reaktor has a special feature to protect itself in the event of long power disruptions. Reaktor will shut down if input power is lost; **and** after 11 hours and 45 minutes; **and** the system (bus activity) has been idle for more than 30 minutes Or the input power is lost; **and** the system (bus activity) has been idle for more than 30 minutes and ESM is very low. To remedy, re-apply power to the passive PoE and or if you need to move shades, hold the reset KEY for approx. 6 seconds which will switch Reaktor back to USER MODE
I cannot set any limits on my motor	More than one motor is connected to Reaktor	Reaktor's Limit setting mode is only available if a single 485 motor is connected. Check to make sure no other motors are connected then you can enter Limit mode.
I cannot test the shades from the up/down keys or turn on the ECO mode	Reaktor KEYS locked	The Reaktor keys are locked by default, check system status LED, if the LED is GREEN then the keys are locked, press both the UP and ECO KEYS to unlock KEYS, and system LED will turn amber to indicate the keys are unlocked. The keys will automatically lock again after 50 minutes of non-user activity.

REAKTOR JSON COMMANDS



CONFIGURATION – JSON COMMAND LIST:

System Integration Id Request

```
{"method" : "status.intid", "id" : 7342}

{"result" : {"integrationID" : "54675"}, "id" : 7342}
```

Motor Ping Request

Returns a list of ALL motors (and groups)

```
{"method" : "sdn.status.ping", "params":{"targetID":"*"}, "id" : 7342}

{"result":["783644","786433","8745AA","AADD45","99DE34","1265AB","DF3272","00234
1"],"id":7342}
```

Info Request

```
{"method":"sdn.status.info","params":{"targetID":"001234"},"id":7342}

{"result":{"type":"motor","nativeID":"001234","label":"This is a label",
"assignedID":"001234","statusAvailable":false}, "id":7342}
```

Motor Move Down Command

```
{"method":"sdn.move.down","params":{"targetID":"123456","seq":44},"id":2323}

{"result":true, "id":2323}
```

Motor Move Up Command

```
{"method":"sdn.move.up","params":{"targetID":"123456","seq":44},"id":2323}

{"result":true, "id":2323}
```

Motor Stop Command

```
{"method":"sdn.move.stop","params":{"targetID":"123456","seq":44},"id":2323}

{"result":true, "id":2323}
```

Group Ping Request

Returns a list of ALL groups

```
{"method" : "sdn.status.ping", "params":{"groupID":"*"}, "id" : 7342}

{"result":["783644","786433","8745AA","AADD45","99DE34","1265AB","DF3272","00234
1"],"id":7342}
```

Group Move Down Command

```
{"method":"sdn.move.down","params":{"groupID":"123456","seq":44},"id":2323}

{"result":true, "id":2323}
```

Group Move Up Command

```
{"method":"sdn.move.up","params":{"groupID":"123456","seq":44},"id":2323}

{"result":true, "id":2323}
```

Stop Command

```
{"method":"sdn.move.stop","params":{"groupID":"123456","seq":44},"id":2323}

{"result":true, "id":2323}
```

Motor Move TO IP Command

```
{"method":"sdn.move.ip","params":[{"targetID":"AB3476",
"num":1},{"seq":3}],"id":987}

{"result":true, "id":987}
```

Move TO Command (0 % - 100 %)

```
{"method":"sdn.move.to","params":{"targetID":"AB3476","position":33},"id":987}

{"result":true, "id":987}
```

Non-Standard Methods:

Set Eco Mode to ON

```
{"method":"set.ecomode.on", "id":987}

{"result":true, "id":987}
```

Set Eco Mode to OFF

```
{"method":"set.ecomode.off", "id":987}

{"result":true, "id":987}
```

Get Eco Mode Value

```
{"method":"get.ecomode","id":987}

{"result":true, "ecoMode":"off", "id":987}
```

Local Reaktor System Info

```
{"method" : "status.about", "id" : 7342}

{"result":{"compiled":"Feb 13 2025, 14:10:59", "battV":"26.39", "inputV":"47.27"}, "id":7342}
```

Local Reaktor System Reset

```
{"method":"sysrst", "id":987}
```