

# TOKAMAK™ DC-8+

DC HARVETER & SHADE POWER DISTRIBUTION UNIT

INSTRUCTION MANUAL

#TOK-DC-8-PLUS



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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

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.



DIN5XTRACK  
MOUNTING  
POINT

**Switching Power Adaptor  
ADAPTOR/CA/CC  
MODEL NO. FSP270-RAAN3**

**AC INPUT:** 100-240V~, 3.5A 50-60Hz  
**DC OUTPUT:** 24.0V 11.25A 270.0W

**CAUTION/Attention:**  
For indoor use only. For use with Information Technology Equipment.  
Para uso em equipamentos de tecnologia informática somente. Conque uniquement pour un usage intérieur Pour les équipements de traitement de l'information.  
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.

CAN ICES-3(B)/NMB-3(B)

Tested to Comply With FCC Standards FOR HOME OR OFFICE USE

EFFICIENCY LEVEL VI RoHS

**MADE IN TEXAS, USA**

**LOAD** **NEUTRAL** **POWER SWITCH**

**1 COMBI-PORT (7) BUS IN  
BUS IN WHEN USED  
WITH REAR MOTOR PORTS**

**PDU BUS OUT/DEVICE PORTS**

SCAN QR CODE FOR MANUAL

**8 PDU HARVESTING BUS OUT PORTS  
OR 7 DEVICE PORTS AND 1 BUS IN**

DIN5XTRACK  
MOUNTING  
POINT

**PIN OUTS  
ANSI/TIA/EIA  
568-B PINOUT**

RS-485 DATA A+  
RS-485 DATA B-  
N/C  
VOLTAGE DC (POS)  
VOLTAGE DC (POS)  
N/C  
GROUND DC (NEG)  
GROUND DC (NEG)

**Tokamak™**  
**TOK-DC-8**  
**1(844)771-8725 TOLLFREE**  
**24 / 7 / 365 LIVE SUPPORT**  
OR EMAIL [MIKE@ModernAtomics.com](mailto:MIKE@ModernAtomics.com)  
CELL: +1 (512)-774-1477

*Paul Bryson* [www.ModernAtomics.com](http://www.ModernAtomics.com)

**8 CLASS 2 DC MOTOR PORTS / AUTO FUSED  
MOTORS WITH A MAX. OF 8Nm TOTAL LOAD PER PORT**

(V+) VOLTAGE OUTPUT  
(V-) VOLTAGE OUTPUT  
(A+) 485 DATA A+ (DC-8)  
(B-) 485 DATA B- (DC-8)  
(G) 485 DATA GROUND (DC-8)  
5.08 PITCH  
(5) POSITION  
12-24 AWG WIRE

DIN5XTRACK  
MOUNTING  
POINT

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## QUICK START BASIC USE:

Tokamak can be used to harvest energy for Modern Atomics PDU's equipped with Energy Storage Modules or ESM's and it also can be used as a standard shade low voltage power supply.

Simply connect the included AC power cable on the rear chassis.

Make all PDU/User devices and shade connections first, then flip the recessed power switch to on which is located on the rear panel next to the AC power input.

You will see the white Backlighting on the optional Voltmeter come on, and the pointer moves to the voltage output based on your order option. Valid options are 12V, 19V, 24V, and 36V.

Your PDU's or shades are now ready to use.



DC-8 Rear Panel

## INTRODUCTION: COMPATIBLE MOTORS & CAPACITY?

The chart below shows the different voltage options and maximum amperage output which will be the limit on how many DC motors can be connected

12V version has a total maximum output current of 20A (240W)

19V version has a total maximum output current of 14A (270W)

24V version has a total maximum output current of 11.25A (270W)

36V version has a total maximum output current of 9.25A (270W)

48V version has a total maximum output current of 5.62A (270W)

54V version has a total maximum output current of 5A (270W)

In all versions each rear port has a maximum output of 2.5A

Check your motor's voltage and amperage load to determine the number of motors that can be used with this unit.



## QUICK START BASIC USE:

Tokamak DC-8 is a 8 Shade motor Power Distribution Unit and can also be used to harvest energy for Modern Atomix PDU's equipped with Energy Storage Modules or ESMs.

Simply connect the included AC power cable on the bottom right of the chassis.

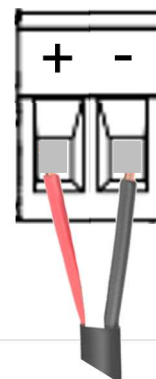
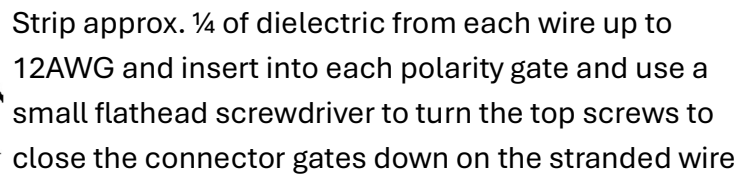
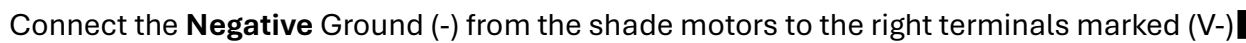
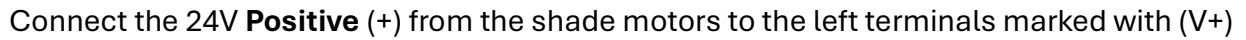
Make all Shade motor and PDU/User devices connections first, then flip the recessed power switch to on which is located on the rear panel next to the AC power input.

Your Shades are now ready to use.

DC-8 Unit bottom side view



Each of the 8 connectors are 5.08 pitch with 6 positions that can support up to 12AWG wire



For best results ensure the gates are only closed onto the wire and not the dielectric

## INTRODUCTION: GENERAL FEATURES

[A] – AC Power LED (Blue =AC Power is on)

[B] – Optional Voltmeter

[C] – 8 VERSI=PORTS for 485 SHADES / DEVICES / or PDU's

[D] – BUS IN and BUS OUT (non-powered)

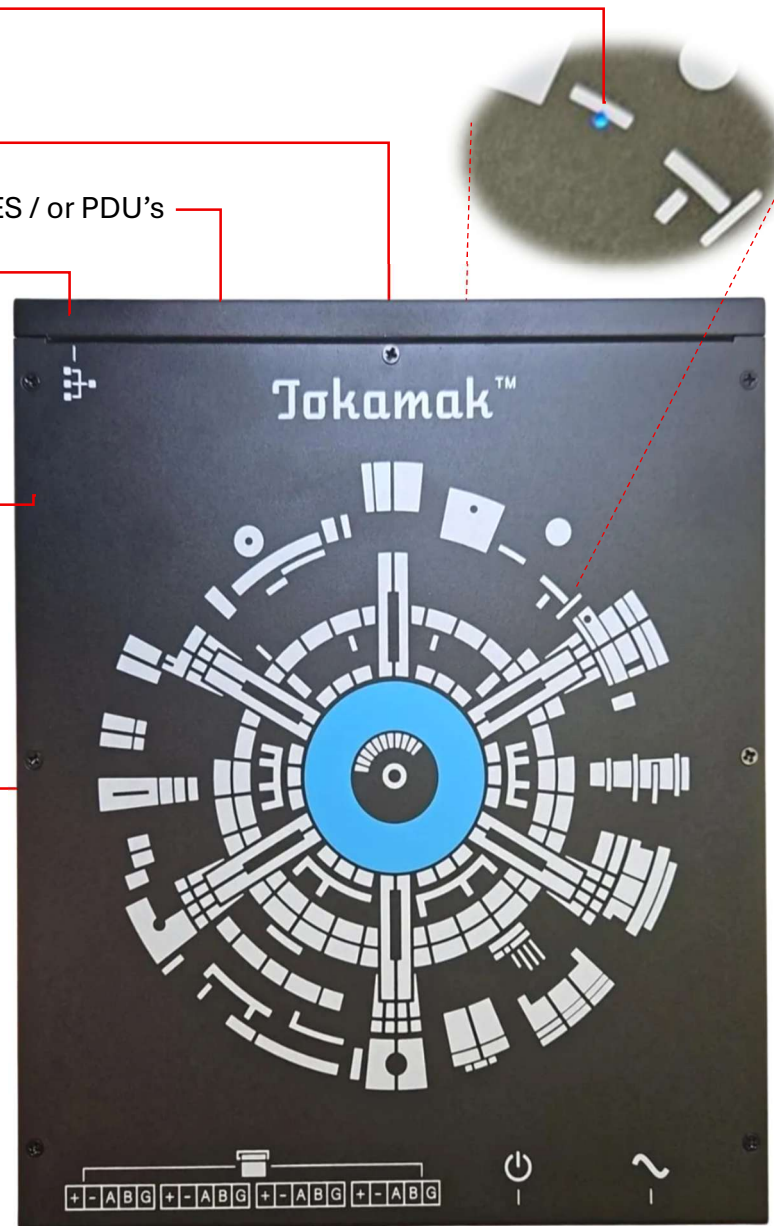
[E] – QR CODE located on side of chassis to Download Installation Manual

[F] – Plenum rated chassis

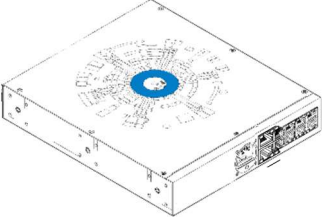
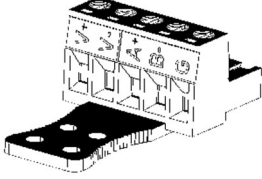
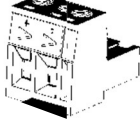
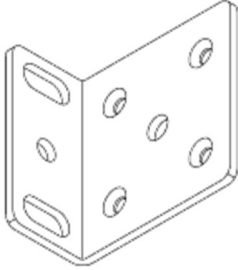
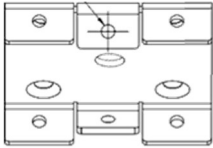

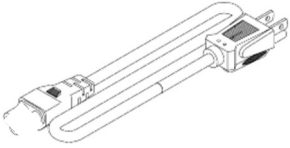
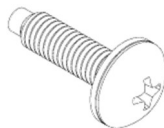

[G] – 5 position 5.08 pitch shade connectors

[H] – AC Power Switch (On is positioned down toward the wall enclosure)

[I] – AC Power input IEC C14 (Compatible with IEC C13 cables)



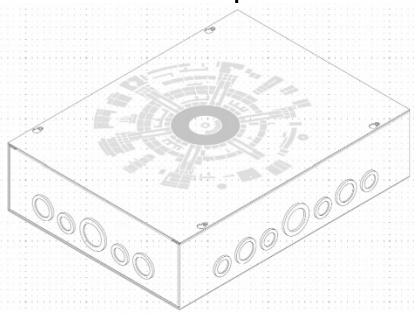
## DC-8 PARTS INCLUDED IN BOX: (Replacement parts also sold on website)

 <p>(1) TOKAMAK PDU #TOK-DC-8 / DC-10</p>	<p>#TOK-DC-8 ONLY</p>  <p>(8) 5.08 PITCH TERMINAL BLOCKS # TRM-BLC-5-081</p>	<p>#TOK-DC-10 ONLY</p>  <p>(10) 5.08 PITCH TERMINAL BLOCKS # TRM-BLC-2-081</p>	 <p>(2) UNIVERSAL RACK EARS # URE-NVR-RCK-EAR</p>
 <p>(2) UNIVERSAL DIN RAIL BRACKETS (TOP HAT) w/screws #UDB-NVR-DIN-RL</p>		 <p>(8) CABLE TIES #4-CBL-TS-PAK</p>	 <p>(1) NEMA 5-15P to C13 CABLE AC CABLE</p>
	 <p>(4) RACK SCREWS #10-32</p>	 <p>(10) UNIVERSAL SCREWS M3.5 # M3-5-NVR-NCL</p>	

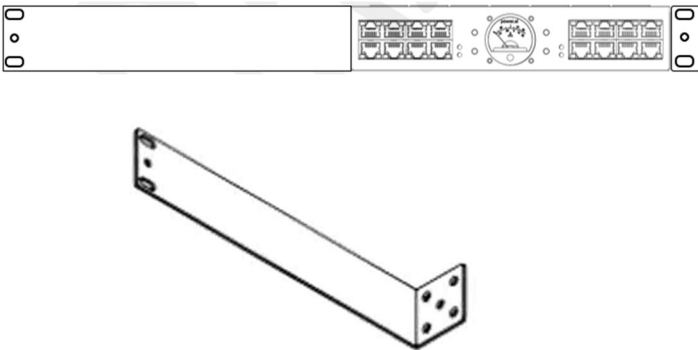
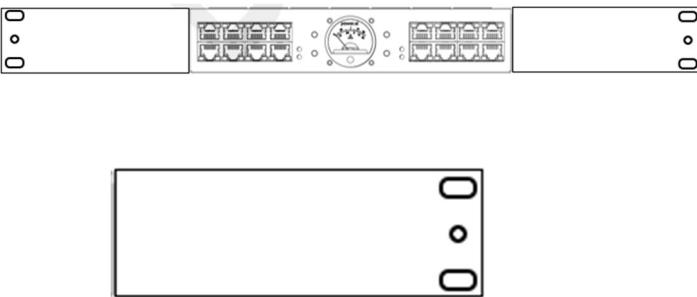
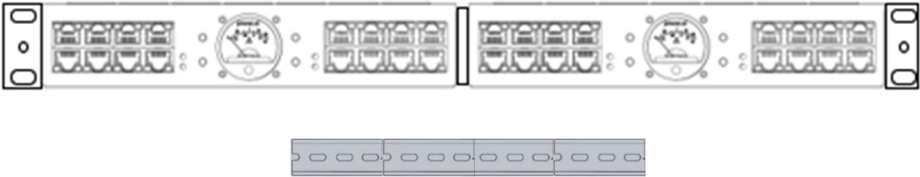


This manual is NOT included in the box as part of our SAVE sustainability efforts. We have 3 QR CODE locations on the enclosure for digital downloads of this manual.

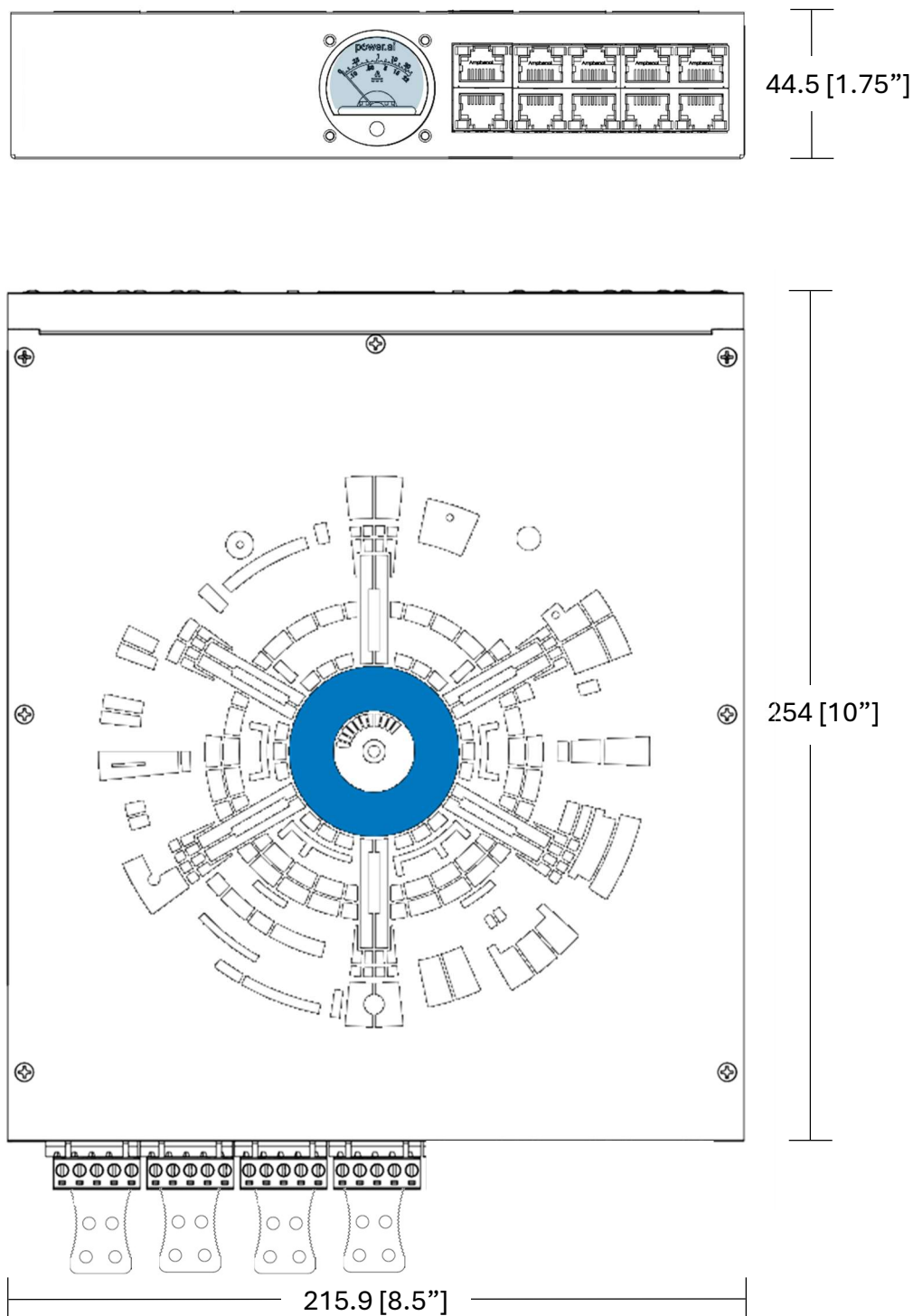
DC-10 OPTIONAL PARTS:

 <p>Wall Mounted Enclosure # TKM-16x12x4</p>	<p>Enclosure Lid</p>	<p>4 Enclosure lid screws</p>	
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POPULAR OPTIONAL PARTS SOLD SEPARATELY:

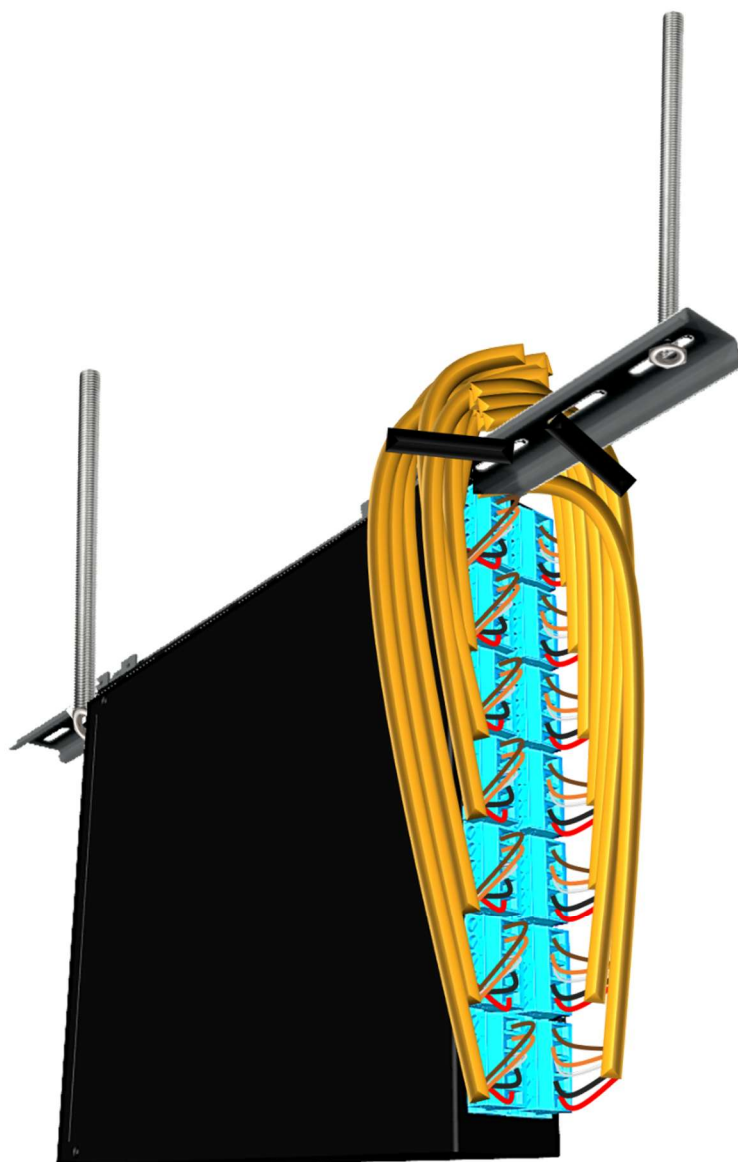
 <p>LONG RACK EAR KIT #LNG-RCK-EAR</p>	 <p>MID RACK EAR KIT # MID-RCK-RS</p>
<p>Universal Halk Rack Joining kit # EIA-TIA-FLL-RCK</p>  <p>Kit includes (1) 10” Din Rail, (1) RU1 Facia, (2) M5 Din Rail Screws, (2) M3.5 Facia Screws</p>	

## INSTALLATION - DIMENSIONS:





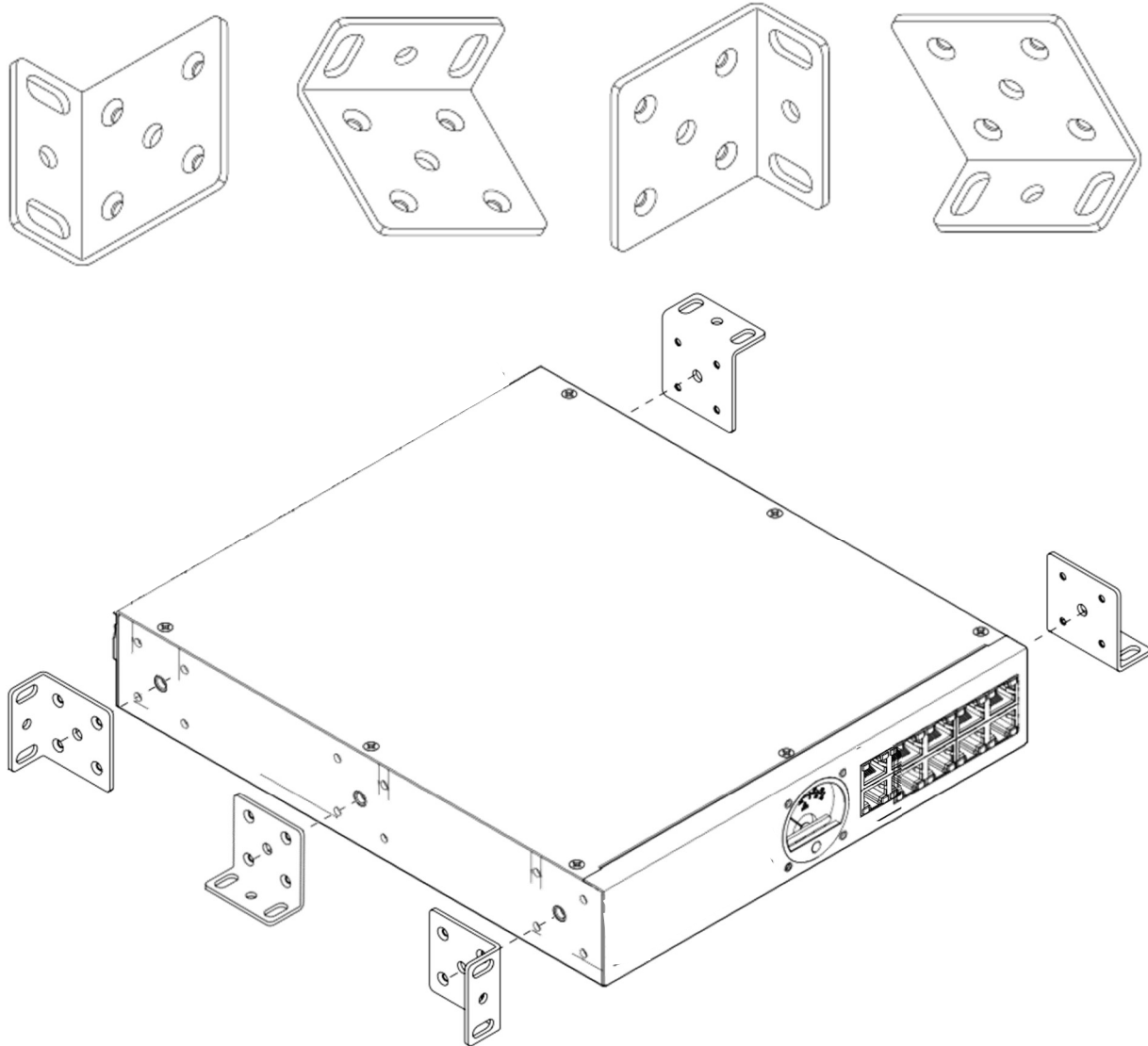
## TOKAMAK MOUNTING



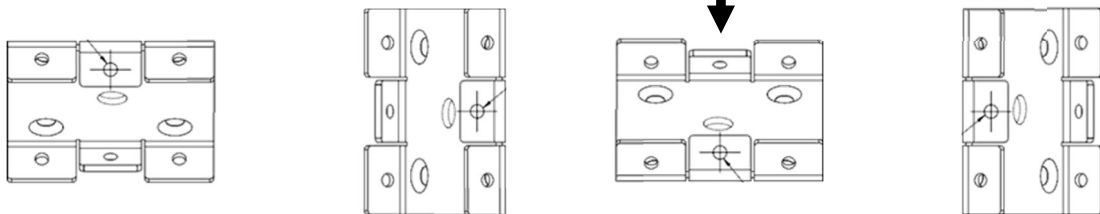


## INSTALLATION – SYMMETRICAL RACK & DIN MOUNTING:

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



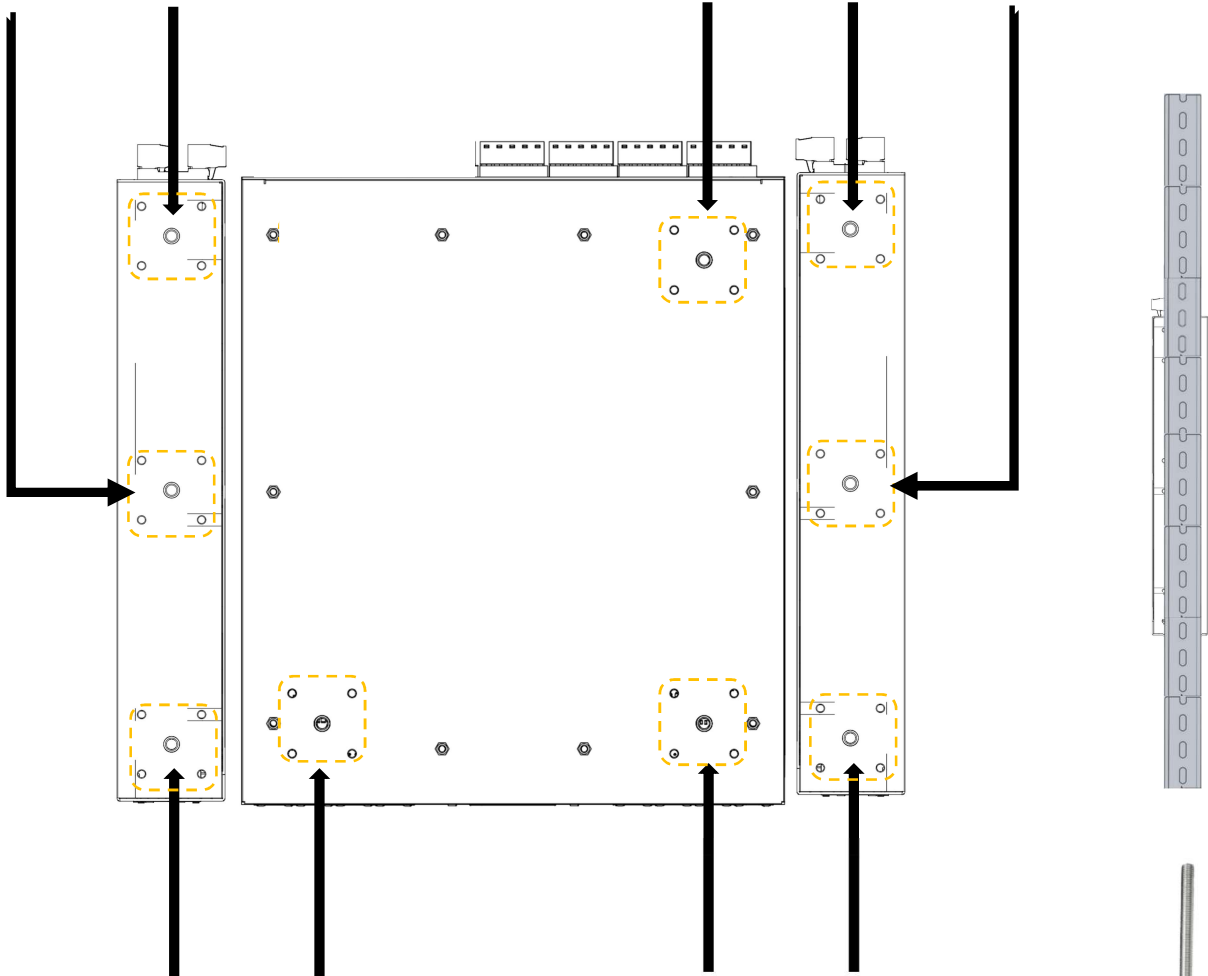
Use a 1.5mm hex tool to tighten set screw  
which will stop the enclosure from sliding down the rail



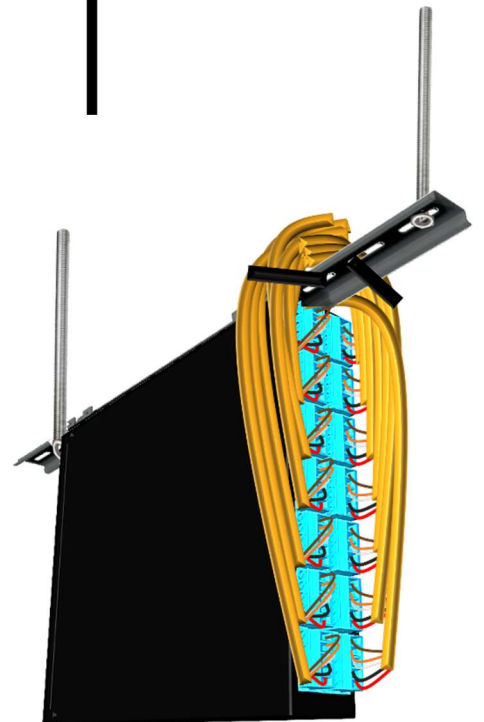
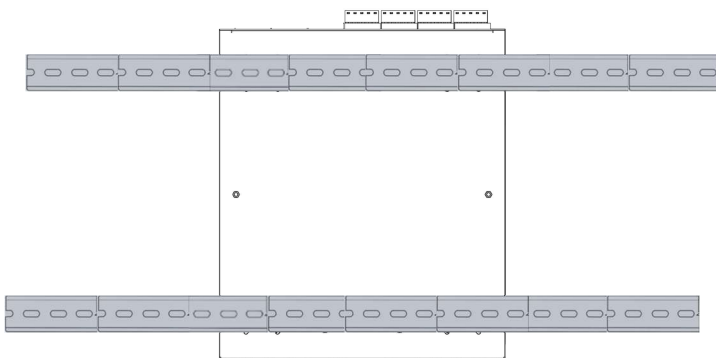
## TOKAMAK 9 MOUNTING POINTS

Tokamak is Plenum rated and has 9 Rack mount and Din rail bracket mounting points

Four on the bottom of the chassis

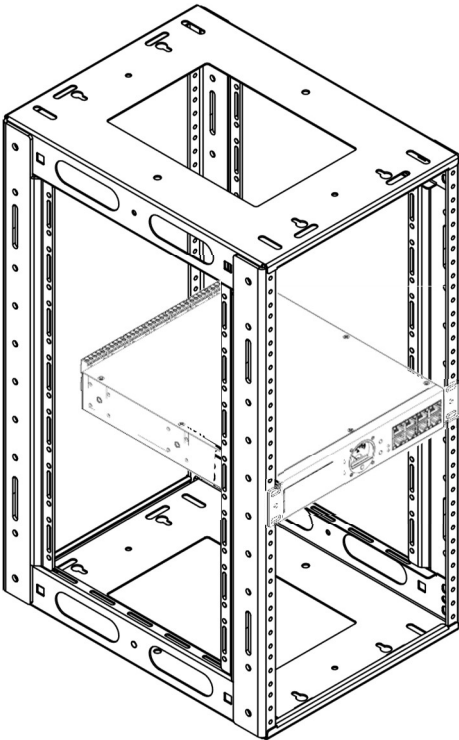
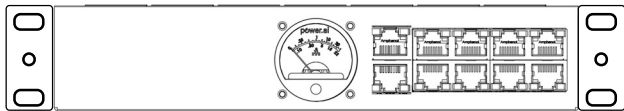


Some examples of DIN rail type mounting

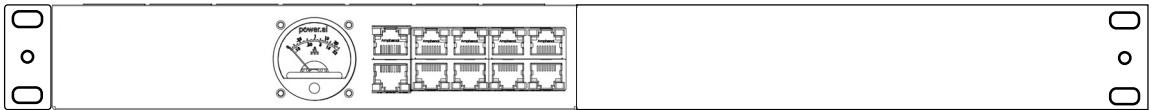


RACK MOUNTING EXAMPLES

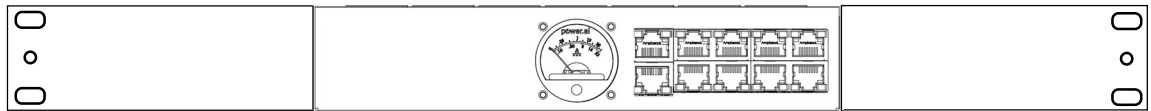
1RU Half rack enclosures – 1 Tokamak



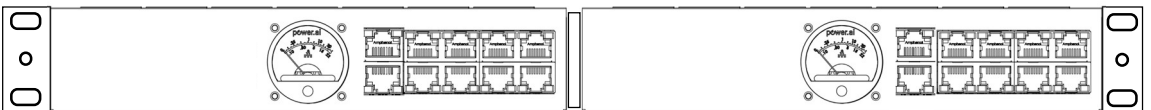
1RU Full rack – (1 Tokamak with optional Long Rack Ears\* must use front & back due to weight)



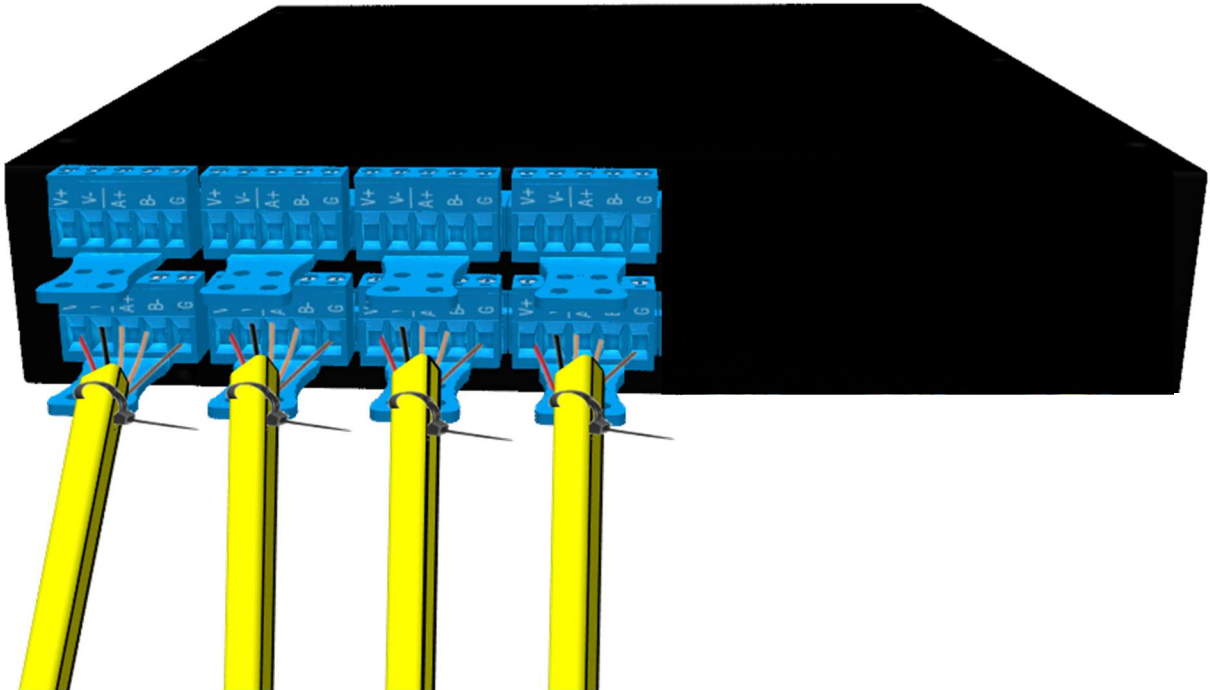
1RU Full rack – (1 Tokamak with optional Mid Rack Ears\* must use front & back due to weight)



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

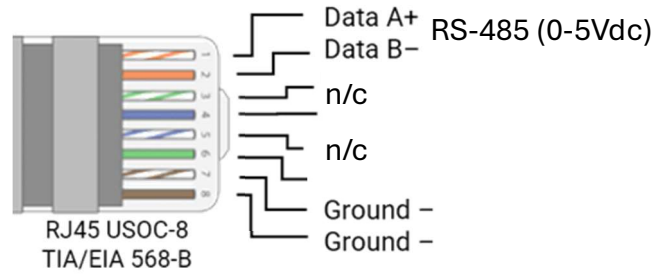


## TOKAMAK CONNECTIONS

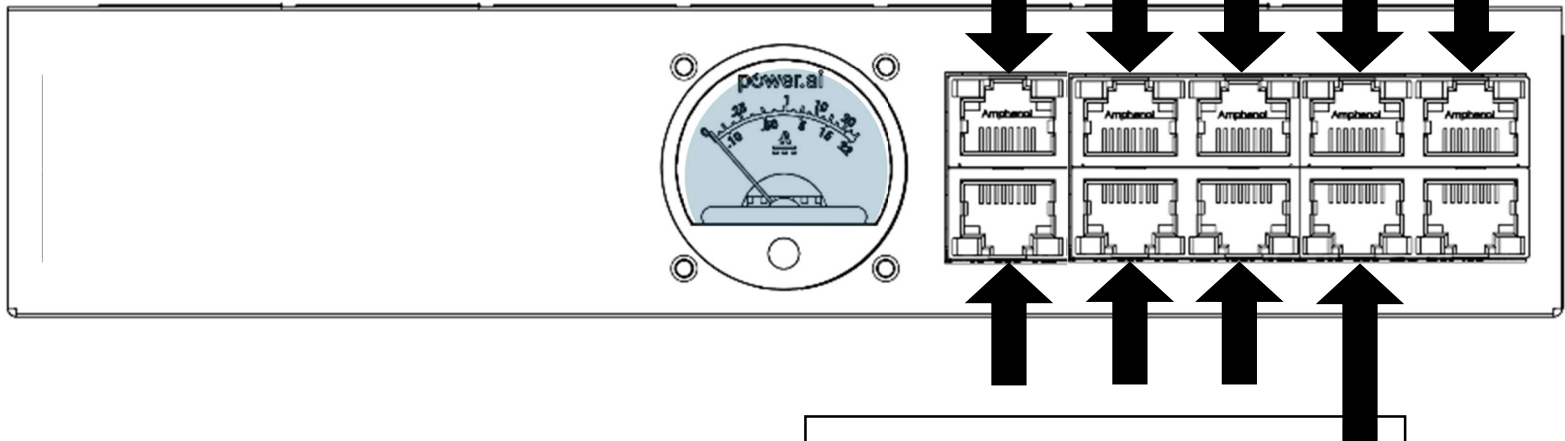


## INSTALLATION - CONNECTIONS: FRONT PANEL

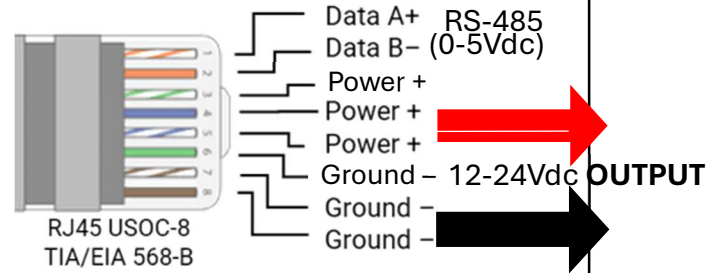
### BUS OUT/BUS IN PIN OUT



(8) COMBI PORTS 485 MOTORS/ DEVICES / PDU's (RJ45)



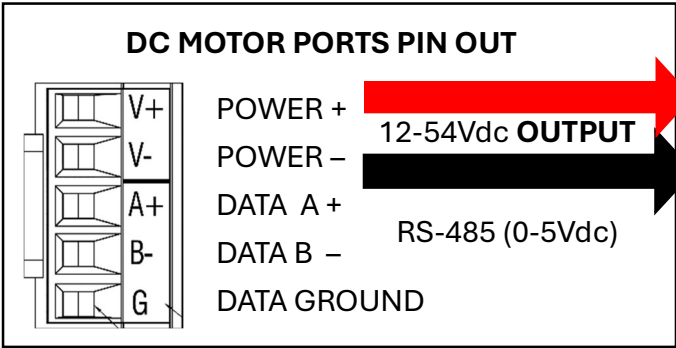
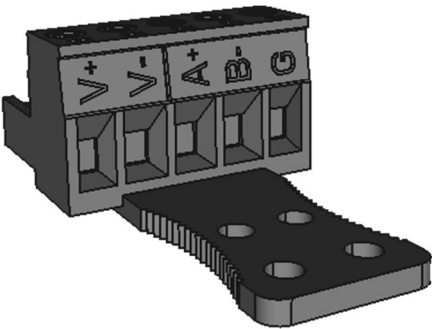
### 485 COMBI-PORTS PIN OUT



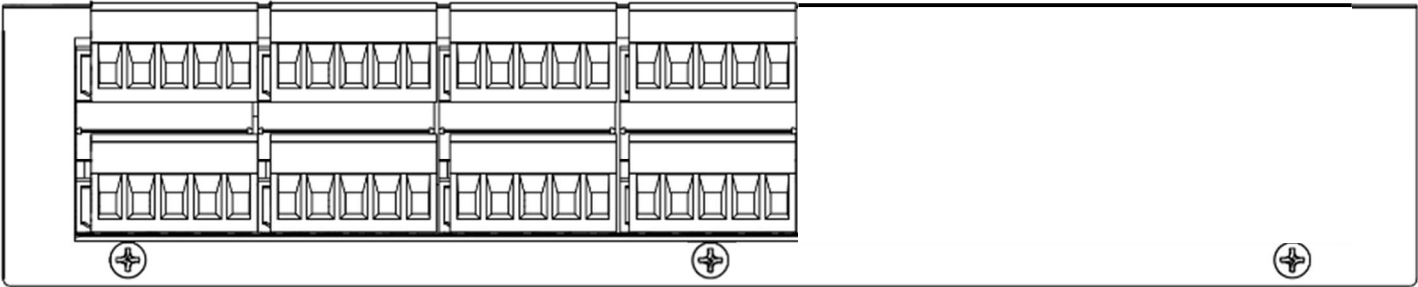
If using a Tokamak with higher voltage options  
Such as 36V, 48V and 54V options  
**DO NOT CONNECT ANY STANDARD 485  
DEVICES TO THE BUS OUTS AND DO NOT  
USE WITH ANY OTHER MODERN ATOMICS  
PDU'S**



INSTALLATION - CONNECTIONS: REAR PANEL

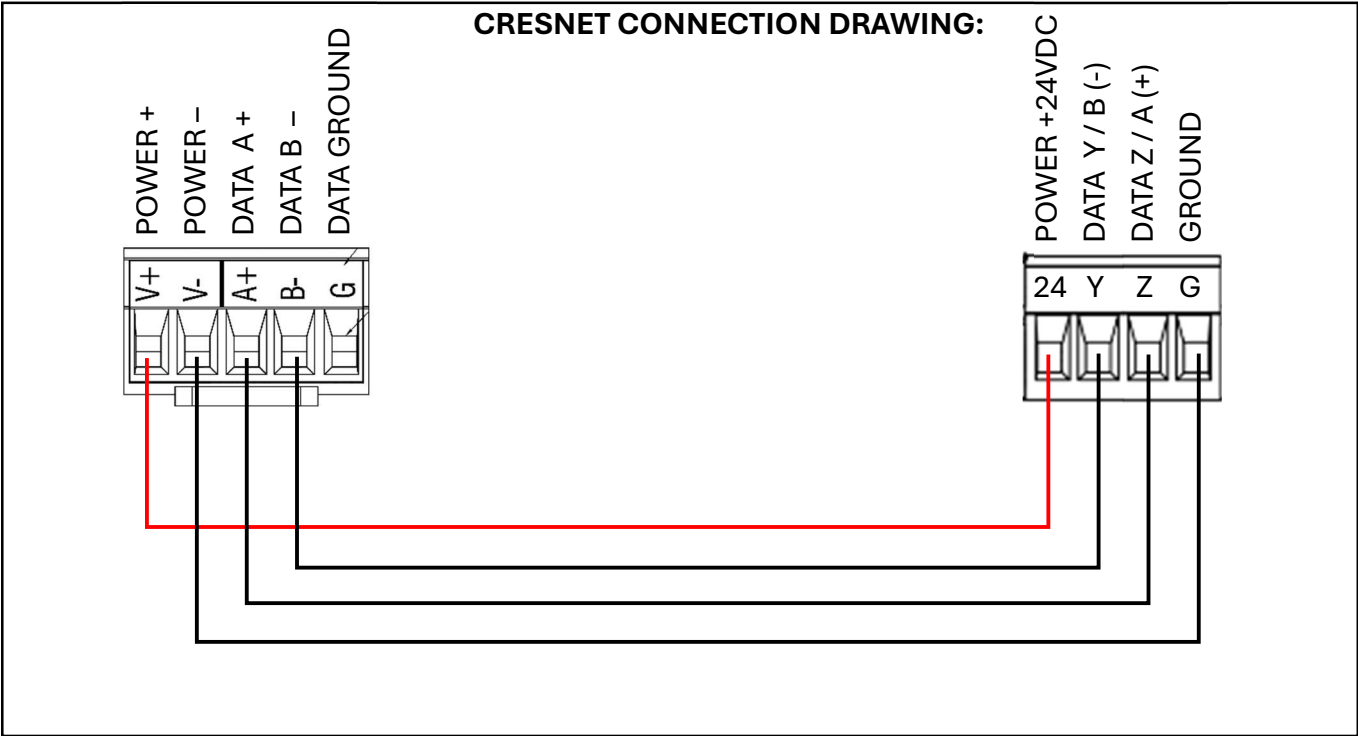


±10Nm MOTOR PORTS (5.08 – TERMINAL BLOCKS, 12-24 AWG wire)

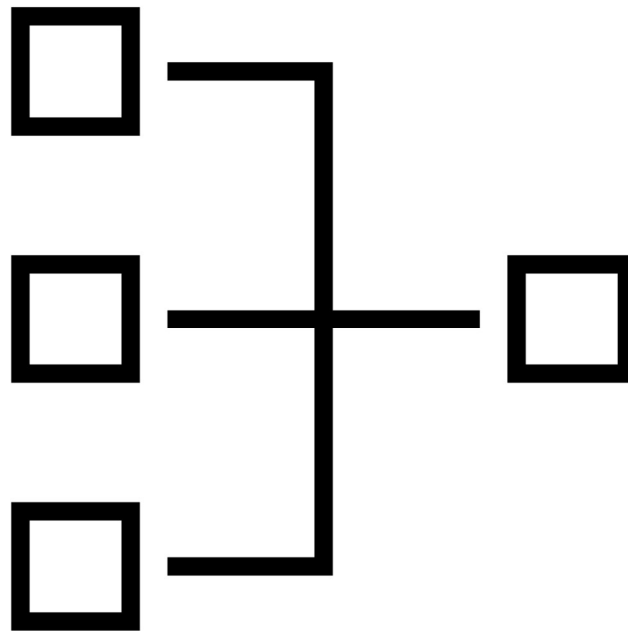


DC motor ports (**10Nm max** per port is supported)

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



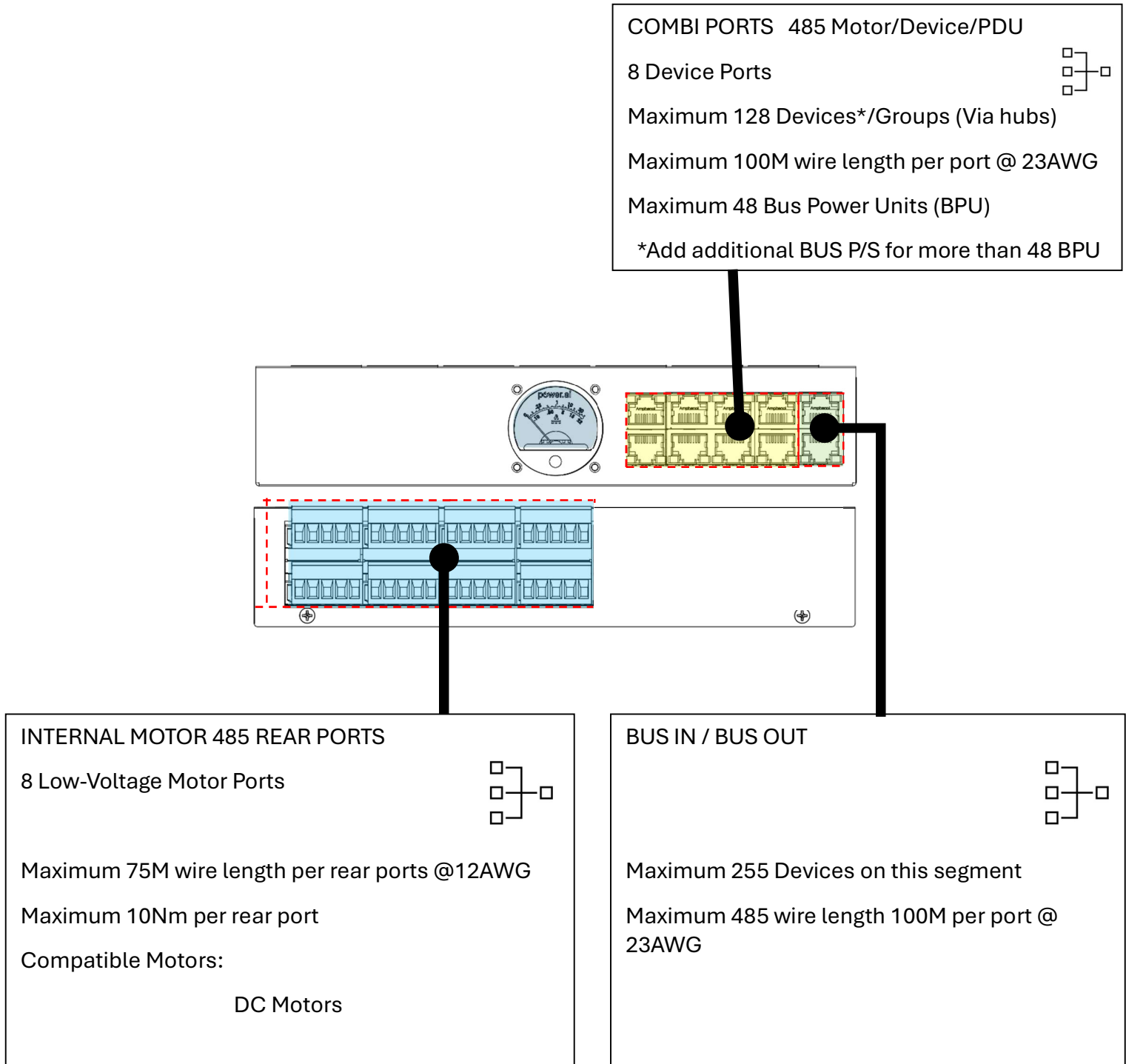
## TOKAMAK 485 SEGMENT



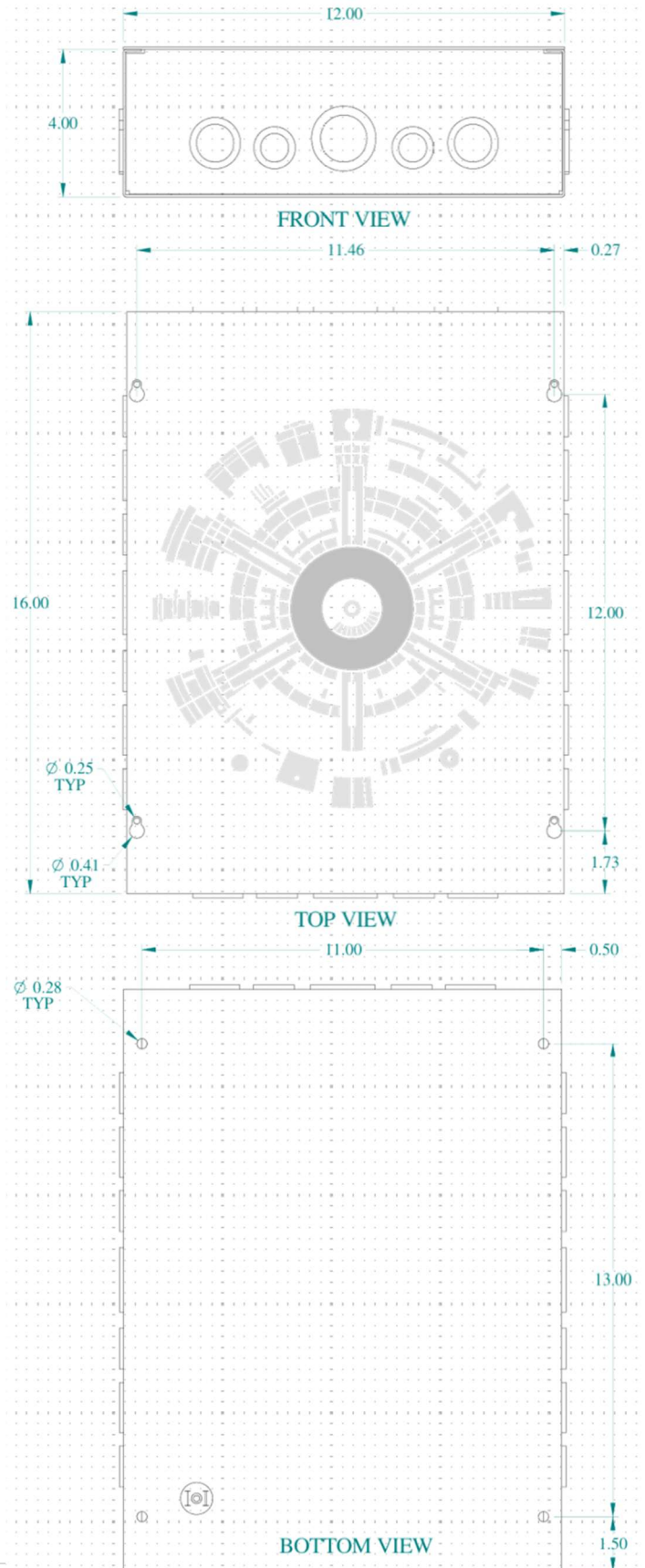


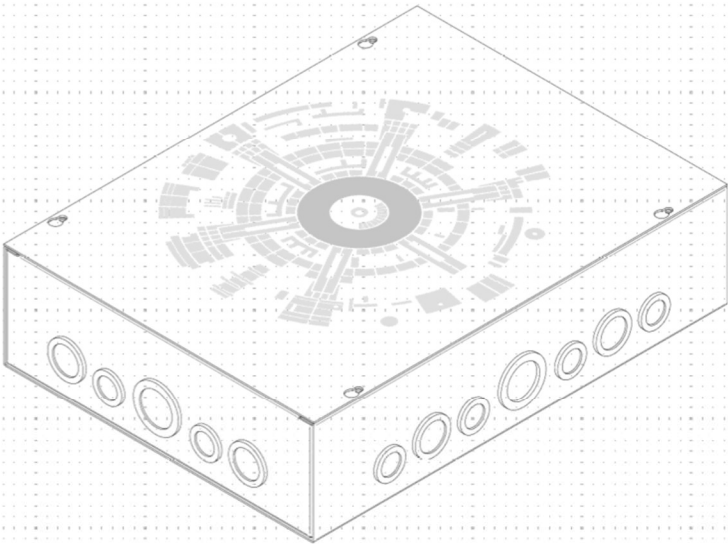
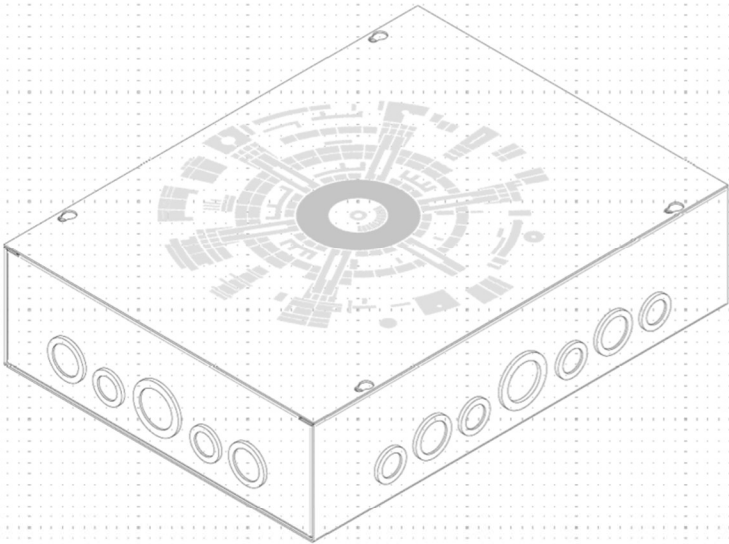
## 485 BUS SEGMENT

Tokamak has a single 485 BUS segment:

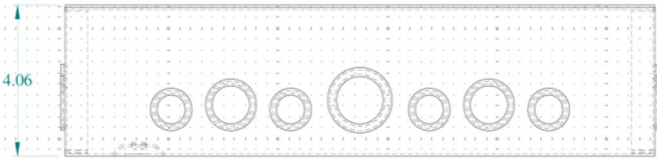


## REAKTOR DC-10 OPTIONAL ENCLOSURE

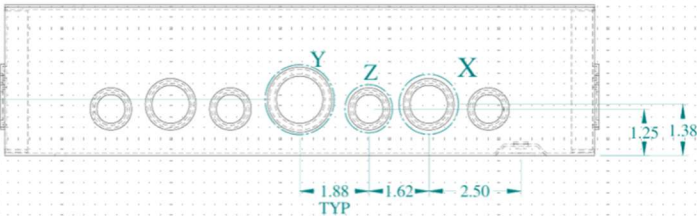




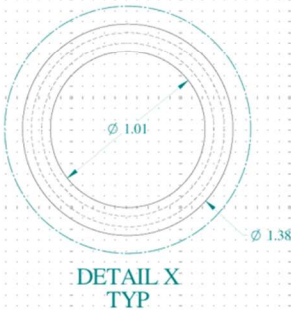
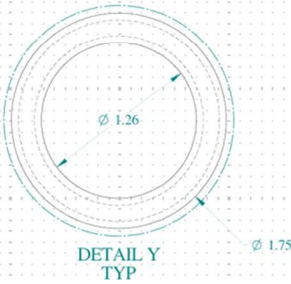
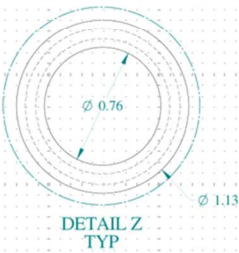
ISOMETRIC VIEWS

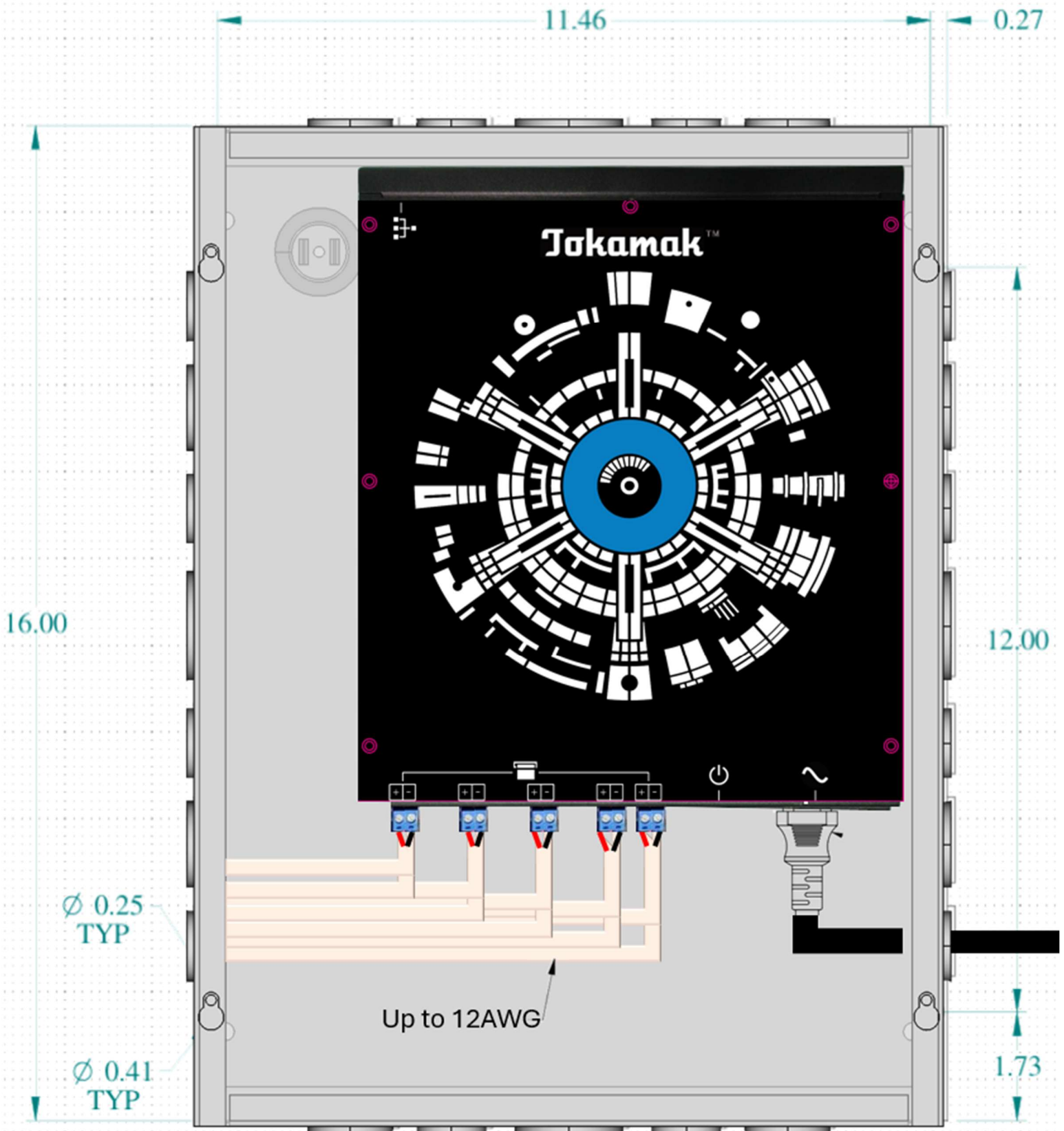


SIDE VIEW



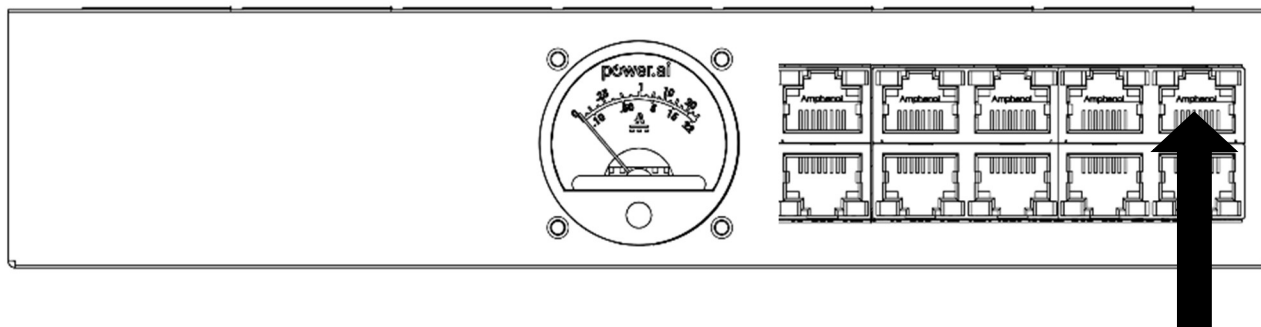
SIDE VIEW







## MOTOR LIMIT TOOLS / 3rd PARTY CONTROL SYSTEMS:



When using motor limit setting tools, we recommend using the BUS IN. Power is NOT provided on this port for using devices like the Somfy UAI+ if the tool has its own power like the 485BUSTer or the SILABS 485 USB KIT they will work perfectly.

These BUS IN and BUS OUT ONLY contains the TX, and RX (pins 1 &2, and pins 7&8 for data ground only!).

MOTOR LIMIT TOOL OR USB CABLE

OR



**NOTE:** Some limit setting tools and cables provide power for user devices. If you are unsure, we recommend making a connection cable with ONLY pins 1,3 and 8.





# COMPATIBLE RF DEVICES – USER CONTROLS

Tokamak 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)



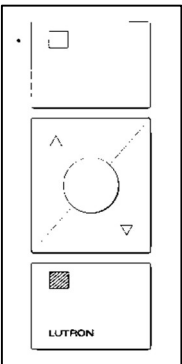
## RF KEYPADS AND HANDHELD REMOTES:

- 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:
Tokamak unit has no power	AC Cable	Check to make sure the AC power cable is connected to a working AC outlet
Tokamak unit has no power	POWER SWITCH SET TO OFF	Check to ensure the Power switch is in the ON position

