

4U RACKMOUNT WATER-BOX

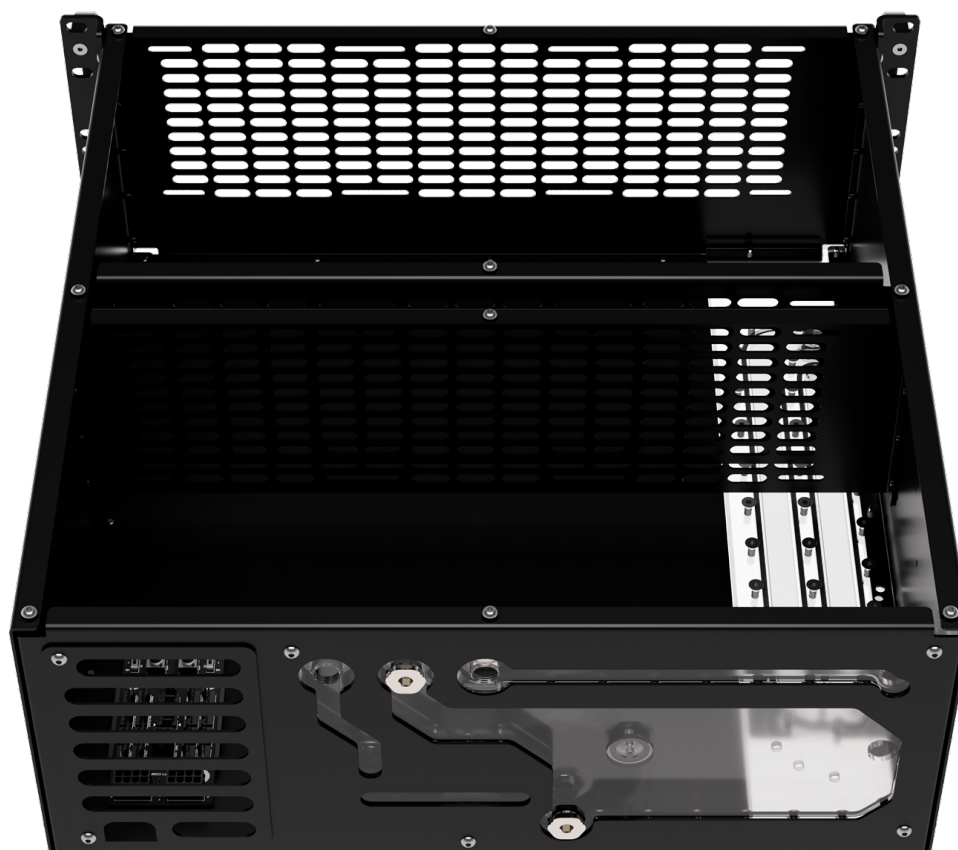


Assembly Manual

Revision 1.0

Table of Contents

Introduction	2
Features.....	2
4U Rackmount Water-box Specifications	3
Parts List.....	4
Assembly Manual.....	5
Step 1: Preparing the Radiator Panels.....	5
Step 2: Assembling the Main Frame.....	6
Step 3: Securing the Rear, Front and Radiator Panels	8
Step 4: Installing the Pump Distribution Plate and rear cover	9
Step 5: Installing Rack Mounts and Handles.....	10
Step 6: Installing the Top Panel.....	11
Recommended Loop Layout & Port Information	12



Introduction

Possibly the most requested product line by our customers is finally here, we introduce the Singularity Computers Rack Case and Rack-mount Water-box which were designed to work together in pairs but they can also be used as standalone products. The SC Rackmount Water-box fits up to 3x 360mm radiators and has a built-in reservoir and distribution plate with dual pumps for redundancy and higher coolant flow. It also features a Singularity Computers Mega-Node for fan and pump speed control based on the coolant temperature for 100% system independence. The Rackmount Water-box uses 4U space.

Features

- **PWM Integration**

The Mega-Node is a custom designed Singularity Computers active powered PWM hub with high quality components and a 4-layer PCB. The PCB and connectors are black with white logos and labelling. It has PWM inputs for the fans and pumps. Only the outputs labelled FAN-1-OUT-RPM and PUMP-1-OUT-RPM display RPM so there are no RPM conflicts from the other PWM connections. The hub has 2 active PWM control circuits to adjust the speed of the connected fans and pumps based on the temperature of the coolant without the need of a motherboard. The potentiometers adjust the PWM speed response to the temperature reading while the switches allow choosing between motherboard and temperature-based local PWM speed control. It also has a dedicated 4pin ATX connector to power up to 2x pumps.

- **High End Components**

It is designed to fit up to 3x 360mm radiators with easy loop routing using a radiator distribution panel.

- **Radiator Adjustment**

The radiators have +/-10mm horizontal adjustability.

- **Storage**

The case has no drive positions.

4U Rackmount Water-box Specifications

Case Components	Steel panels, stainless steel fasteners. Acrylic distribution plates. Magnetic dust filter.
Mega-Node Electronics Integration Cables	24pin x1, 8pin EPS x2, 8pin PCIe x4, 12V2X6 x2, 6pin PCIe x1. PWM FAN x6 and ARGB x5 headers. PSU jumpstart switch and Touch Power Button (Horten Module) header.
Case Form Factor	Pump 4pin ATX power cable included with 2x SATA and 2x MOLEX connectors.
Package Dimensions	4U Rack. 480mm(L) x 620mm(W) x 150mm(H). Case is flat packed and requires assembly.
Package Weight	13 kg.
Case Dimensions	450mm(L) / 492mm(L) with handles x 441mm(W) x 177mm(H).
Case Weight	11.5 kg.
Radiators	3x 360mm radiators up to 60mm thickness with up to 30mm thick fans.
Ports	2x G1/4" ports for inlet and outlet.
Max. GPU Height (Horizontal)	116mm without standoffs, 132mm with 1x standoff and 147mm with 2 standoffs, etc.
Distribution Plate	2x D5 pumps required. Fill/Bleed & Drain ports available.
Materials	Steel, stainless steel, aluminium, PVC, TPU, acrylic and PCB.
Manufacturing Process	Metal folding & CNC machining.
Assembly	Flat packed and needs to be assembled by the customer.
Accessories	M3 Hex Key x1 & M4 hex key x1.



Parts List

	Item	Quantity
4U Rackmount Water-box	Pump Distribution Plate	1
	Radiator Distribution Plate	1
	Mega-Node	1
	Rear Panel	1
	Front Panel	1
	Left Panel	1
	Right Panel	1
	Bottom Panel	1
	Top Panel	1
	2nd Radiator Mount	1
	3rd Radiator Mount	1
	Handles	2
	Rack Mounts	2
	Exhaust Cover	1
	SFX PSU Cover	1
	D5 Cover	2
	Radiator Filter	1
	M4 4mm BH	49
	M4 8mm BH	21
	M4 12mm CS	4
	M3 & M4 Hex Key	1



Assembly Manual

Step 1: Preparing the Radiator Panels

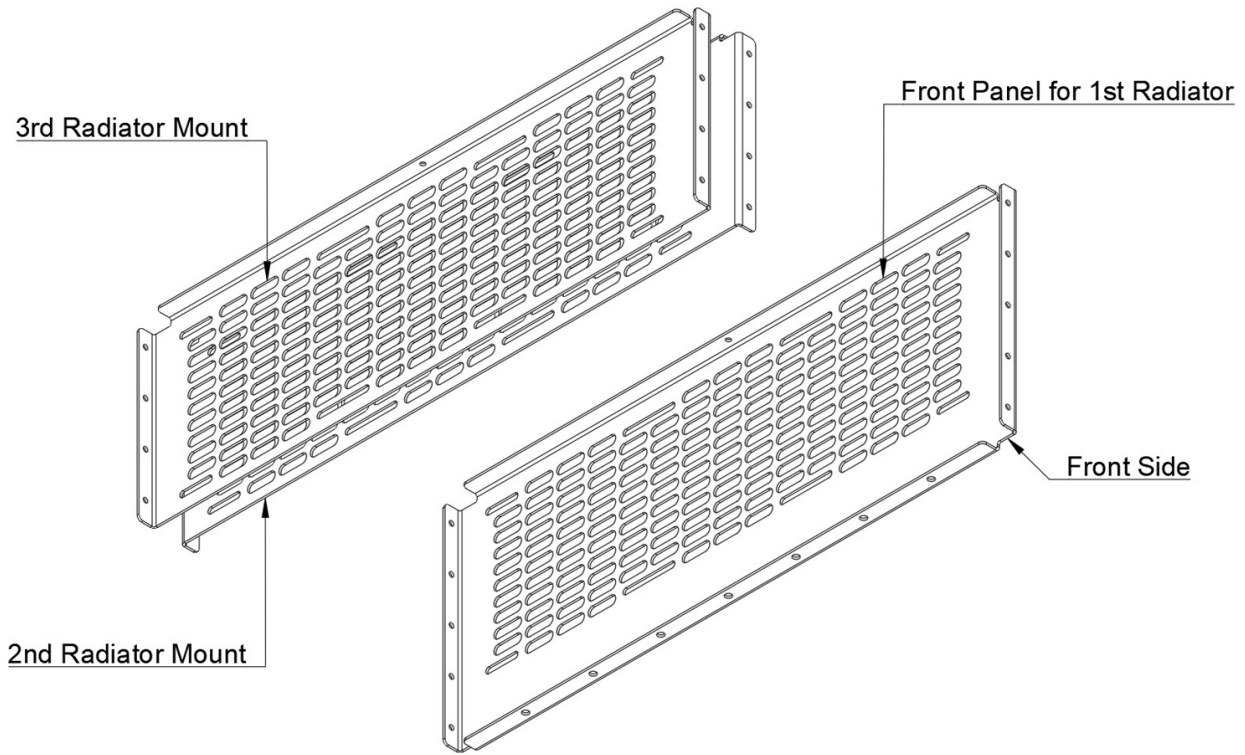


Figure 1

- Step 1: Install radiators and fans to the Front Panel, 2nd Radiator Mount and 3rd Radiator Mount. The radiator is installed on the inside of the folded edges. Installing a radiator to the front panel is not mandatory, it can mount just fans for increased airflow.



Step 2: Assembling the Main Frame

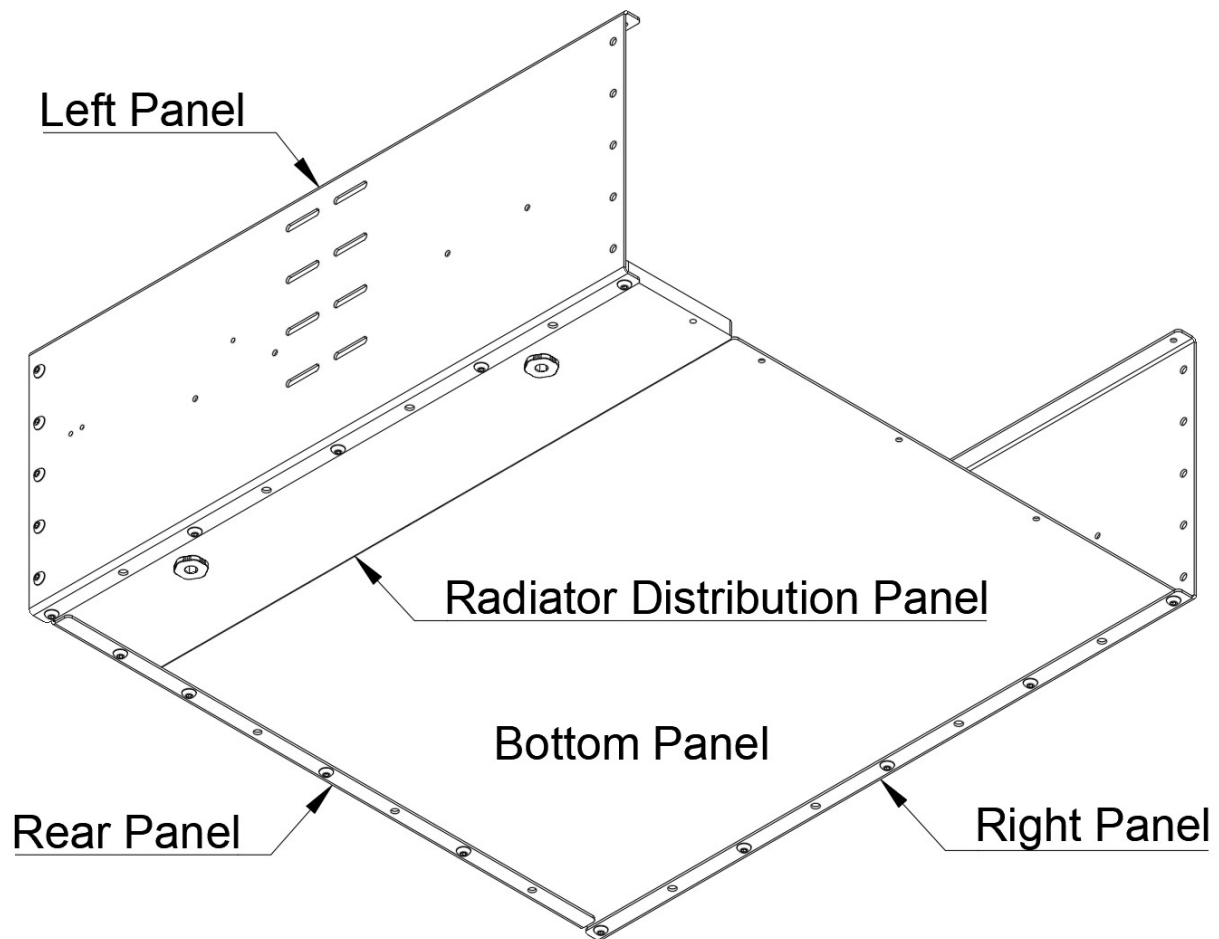


Figure 2A

- Step 2: Install the Left Panel, Right Panel and Rear Panel to the Bottom Panel with M4 4mm BH x8 and to the Radiator Distribution Panel with M4 8mm BH x6.



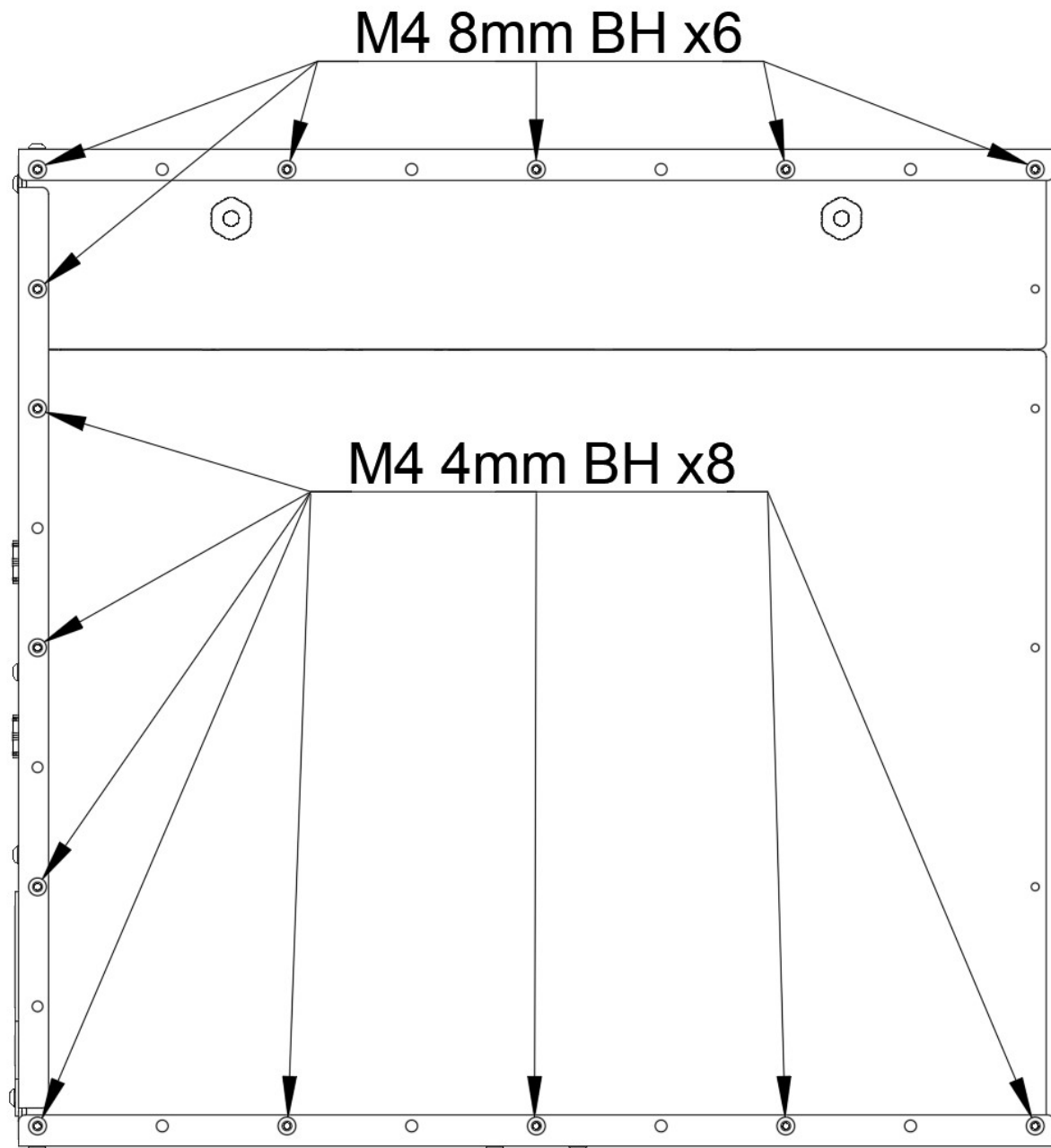


Figure 2B

Step 3: Securing the Rear, Front and Radiator Panels

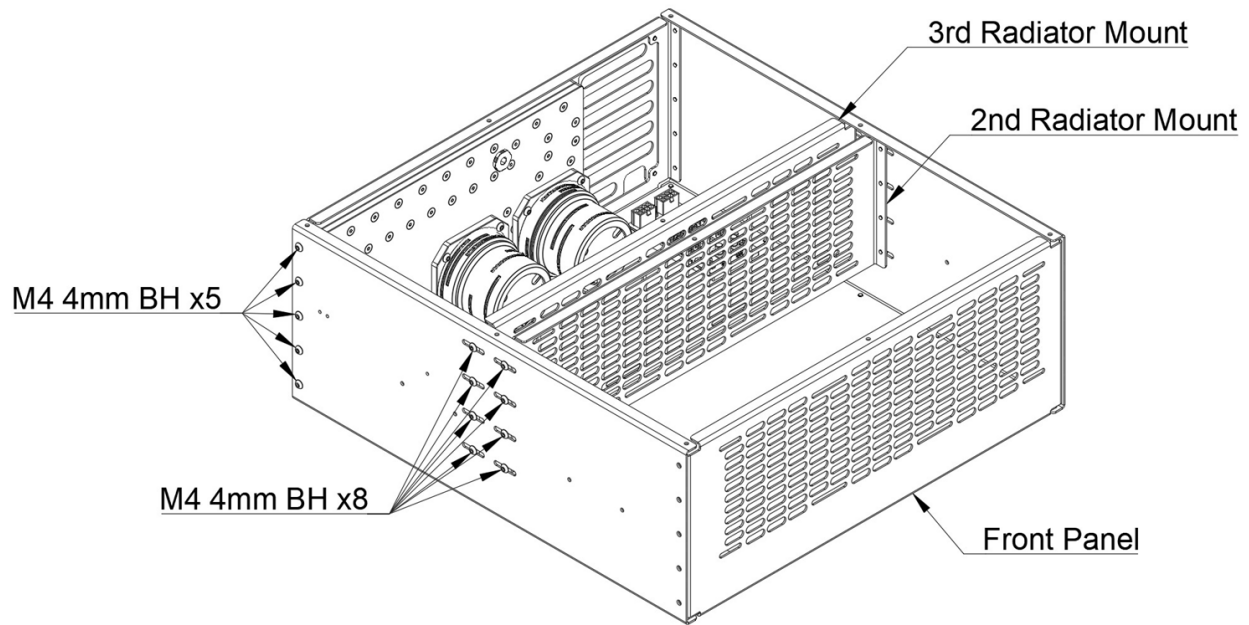


Figure 3A

- Step 3A: Secure the Left and Right Panels to the Rear Panel with M4 4mm BH x5 on both sides.
- Step 3B: Install the 3rd Radiator Mount then the 2nd Radiator Mount by sliding them in from the front and securing them with M4 4mm BH x8 on both sides. *Not all of these fasteners are needed and some will not fit if a sliding rail is installed.*



Step 4: Installing the Pump Distribution Plate and rear cover

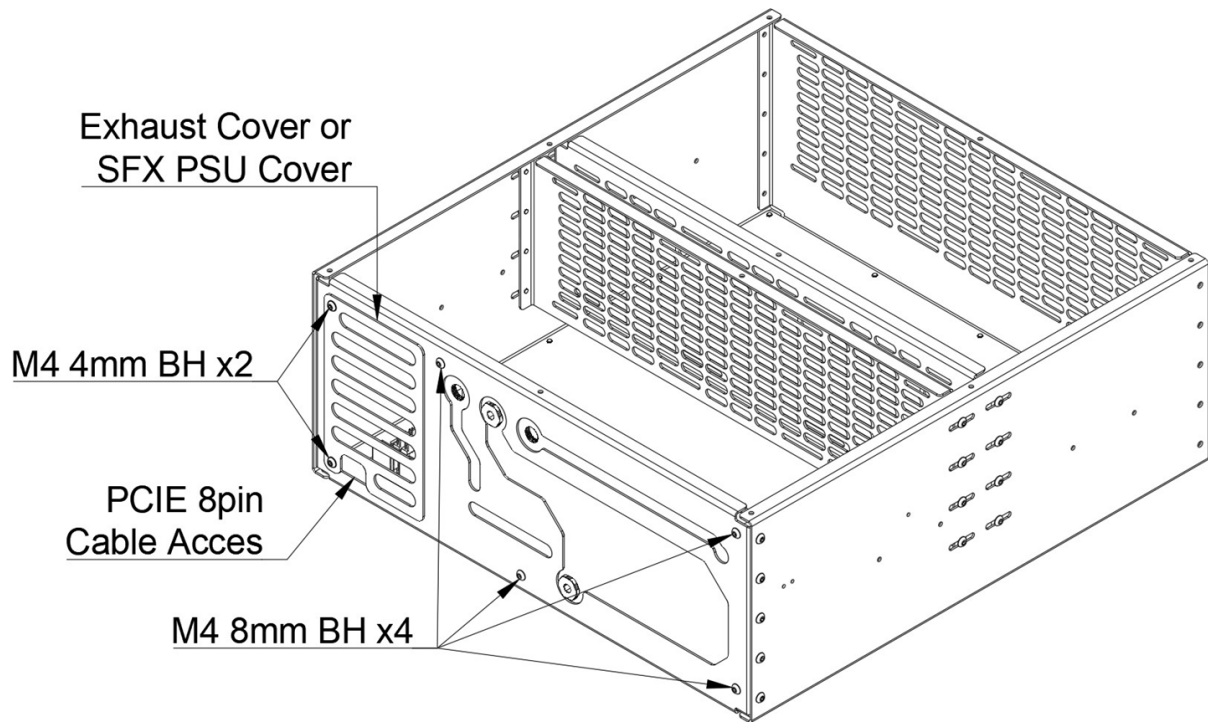
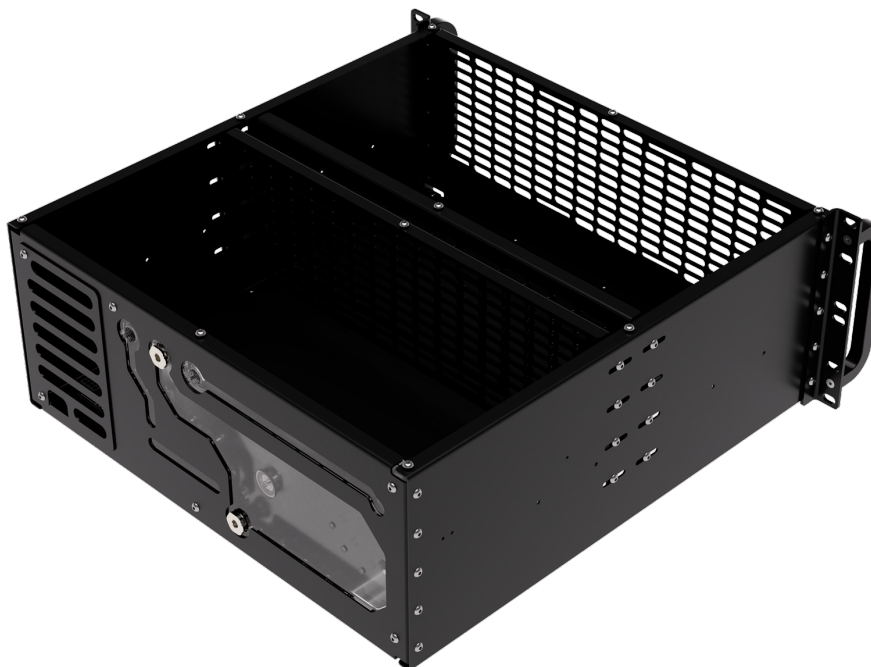


Figure 4

- **Step 4A:** Install the Rack Mounts to the Left and Right Panels with M4 8mm BH x5 on each side.
- **Step 4B:** Install the Exhaust Cover or SFX PSU Cover with M4 4mm BH x2. The SFX PSU Cover also uses the top left M4 8mm BH fastener from the Pump Distribution Plate.
- **Step 4C:** Attach the Mega-Node where its location is convenient with its included double-sided tape.



Step 5: Installing Rack Mounts and Handles

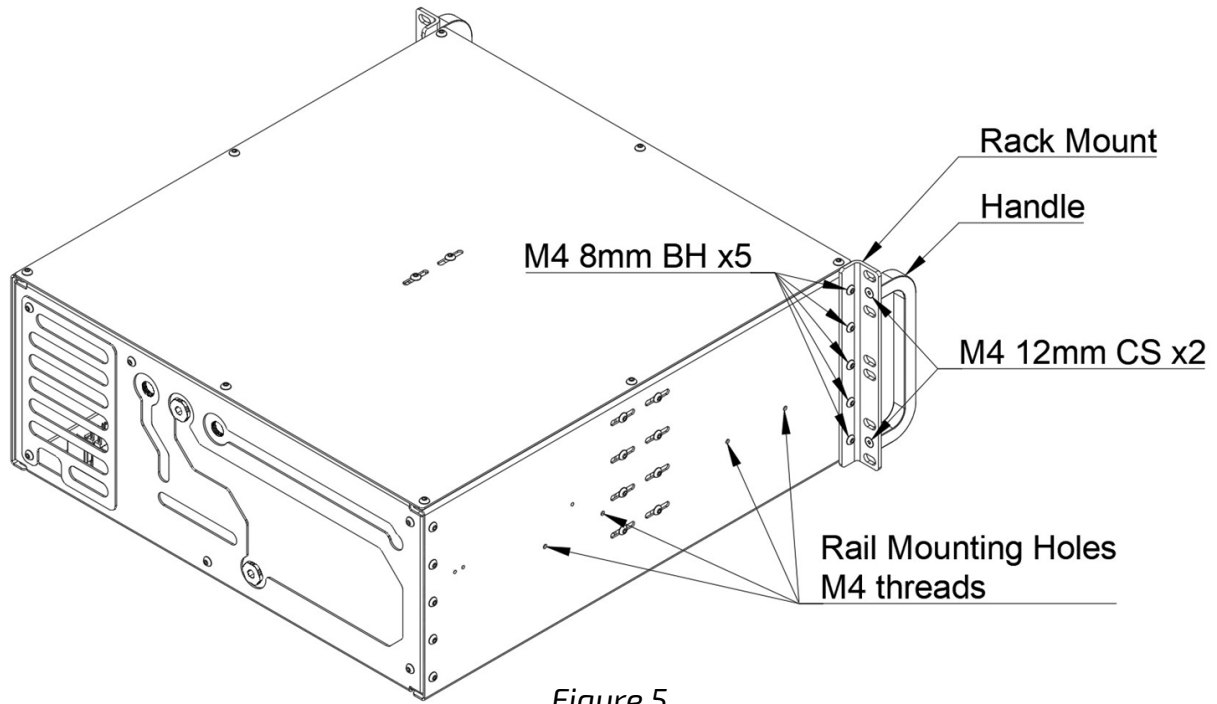


Figure 5

- **Step 5A:** Install the Rack Mounts to the Left and Right Panels with M4 8mm BH x5 on each side.
- **Step 5B (Optional):** Install the Handles to the Rack Mounts using M4 12mm CS x2.
- **Step 5C (Optional):** Install a sliding rail to each side using the M4 threaded holes on the Left and Right Panels.



Step 6: Installing the Top Panel

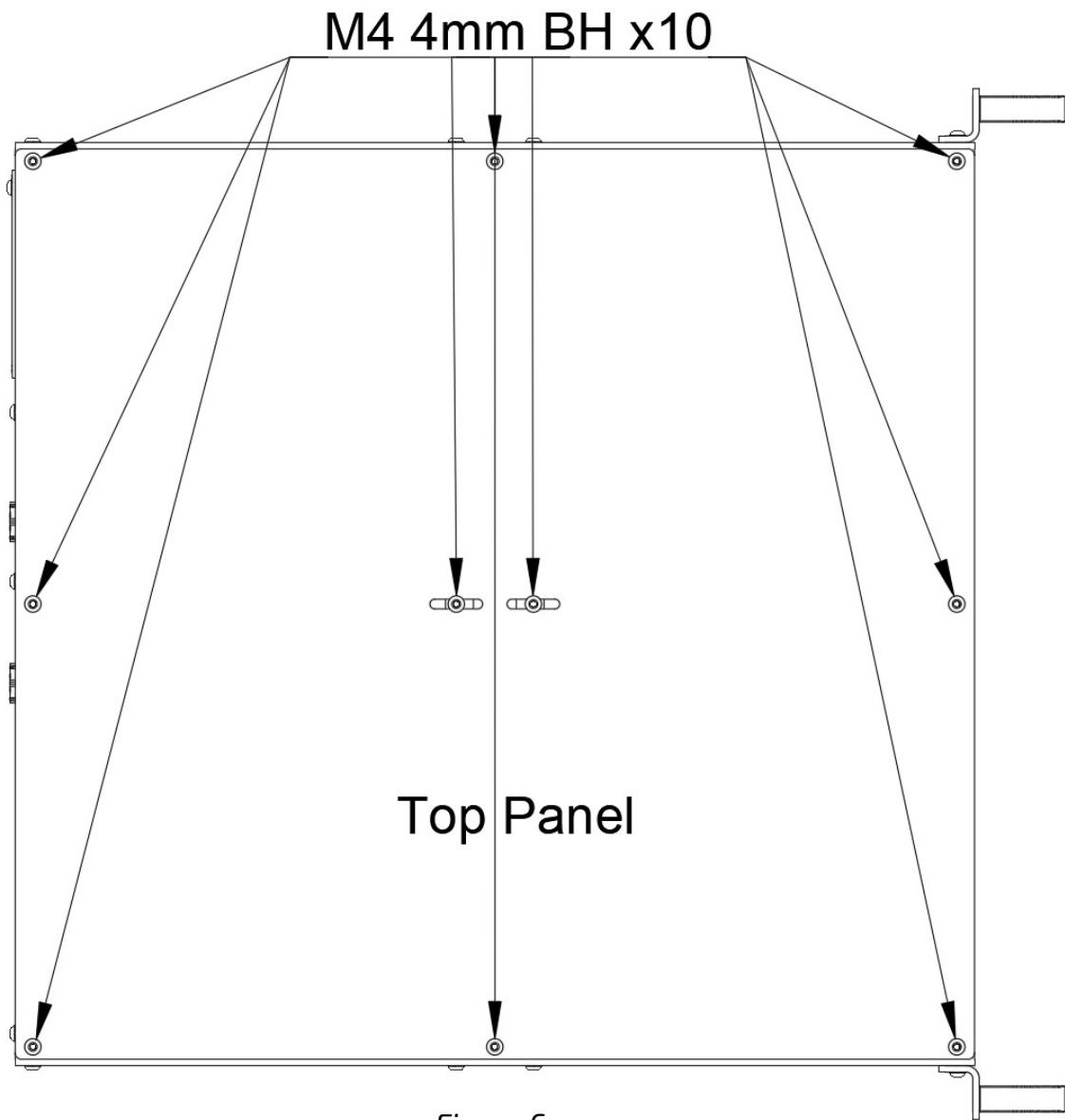


Figure 6

- Step 6: Install the Top Panel using M4 4mm BH x10.

Recommended Loop Layout & Port Information

