(7) RAID Modes

RAID 0 (Striping) combines data evenly across both drives simultaneously; dramatically increasing performance. RAID 0 will be viewed as one single storage unit. If one disk in the RAID System fails, all data in installed disks will be lost.

RAID 1 (Mirroring) consists of two drives storing duplicate copies of the same data. In this mode, the data is simultaneously written to both drives. The speed of operation is slow in comparison to RAID 0; however if one drive fails, no data is lost. Simply replace the failed drive. The total capacity = one drive. For example, if installing 2 x 1TB drives, the total capacity will be 1TB.

JBOD (Clear) is simply a collection of drives that are recognized as separate drives by the OS. JBOD provides no performance increase or redundancy. This is the **default** setting.

Big (Span) combines both hard drives into a single logical unit. Spanning does not increase performance or safety. "Big" mode is considered a legacy mode and may cause a decrease in drive performance. It is not recommended for use in most applications.

(8) Formatting

After setting a new RAID mode, you must format the volume. Formatting can be performed using Disk Utility (Mac) or Disk Management (Windows). Note: RAID 0/1 or Span will appear as a single drive in the OS.

For instructions, visit: http://oyendigital.com/format

(9) Sleep

The MiniPro RAID V4 does not have an auto-sleep timer. However, it will follow the sleep settings of the computer. When your computer enters sleep mode, the MiniPro will sleep and the HDDs will spin down.

(10) RAID 1 Rebuild

If one of the drives fail, the D1 or D2 LED will turn RED. A new drive can be installed and will automatically rebuild with data (if configured for RAID 1).

1. Power down the MiniPro and remove the failed drive indicated by the red LED. (see section 4 for assembly instructions).
2. Install the new drive. Connect the MiniPro to a computer and power it on.
3. The D1/D2 LED will blink about 3-4 times per second, which indicates a rebuild in progress.
4. Leave the MiniPro connected to the computer until the rebuild completes. The LEDs will be solid blue when the rebuild is finished.

Note: An SSD rebuild will take about 1 hour per Terabyte. An HDD rebuild will take about 3 hours per Terabyte.

(11) Troubleshooting and FAQ

1) I set the RAID. How do I know the RAID was configured properly?
If using Windows, open Device Manager > Disk Drives. If using Mac, open Disk Utility, then View > Show All Devices. The MiniPro will be shown with the RAID mode in the title. E.g. *MiniPro RAID V4* **RAID 0**.

2) Does a "Clear" procedure delete data from RAID 1 or JBOD drive(s)?
If a Clear procedure is performed on RAID 1 or JBOD drives, the existing data on the drives will not be deleted. It wil delete data only if clearing a RAID 0 or Big mode.

3) Can I remove a drive from the RAID and install it in another enclosure for access to the files?
Yes, only if using RAID 1(Mirroring) or JBOD.

4) How many MiniPro RAID V4 can be connected in a chain?
A total of six devices may be connected in a chain.

5) Can a bus-powered drive be connected to the HUB ports?
Yes, up to 15W of bus power is available for drives connected to the HUB ports. However, for maxumim power, we recommend using the external power adapter when connecting bus-powered devices to the hub ports.

6) How long does a RAID 1 rebuild take?
It depends on several factors including the size of the drive and whether it is an HDD or SSD. An SSD RAID will rebuild at a rate of about 1 hour per Terabyte. For example, a 4TB SSD RAID will rebuild in about 4 hours. An HDD RAID will rebuild at a rate of about 3 hours per Terabyte. For example, a 4TB HDD RAID will rebuild in about 12 hours.

For other questions please contact tech support or visit the section of our Web site (www.oyendigital.com/support).

Technical Support: support@oyendigital.com

(12) Warranty Information

This product includes a three (3) year repair/replacement warranty provided by Oyen Digital. This warranty is non-transferable and is limited to the original purchaser. Warranty service may be requested at: oyendigital.com/support

MiniPro RAID V4
User Guide

For more information, visit our website at www.oyendigital.com

Table of Contents

(1) Specifications

Main Port	• USB Type-C (Up to 10Gbps)
Hub Ports	• USB Type-C (Up to 10Gbps) • USB Type-A (Up to 10Gbps)
Internal Storage	• 2 x 2.5" SATA HDDs or SSDs
RAID Modes	• RAID 0 Striping • RAID 1 Mirroring • JBOD Clear (independent drives) • BIG (non-RAID single volume)
System Requirements	• Windows, Mac, Linux
Operating Environment	• Temperature: 5°C ~ 65°C • Humidity: 10%RH ~ 80%RH
Power	DC +12V/3A ; or bus power
Enclosure Size	7.0 x 5.7 x 1.4 inches

(2) Detailed View (without Bumper)
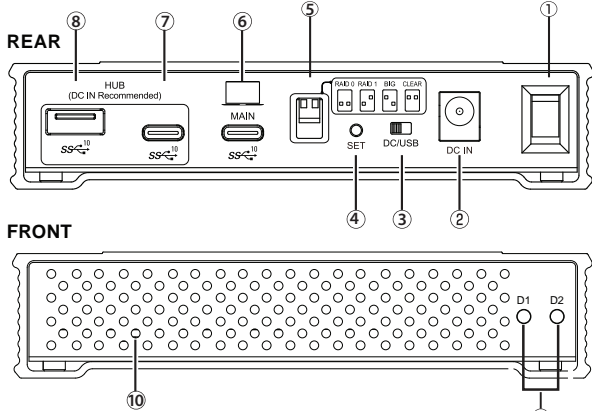
REAR

FRONT

1. ON/OFF Switch
2. DC Input
3. Power Selector (bus-power or external power)
4. Set Button
5. RAID Mode Switch
6. Main Port (to computer)
7. USB-C Hub Port
8. USB-A Hub Port
9. Drive 1&2 Status LEDs
10. Power LED

LED indicators

State	Power LED	Drive 1 (D1)	Drive 2 (D2)
Powered & ready	Solid White	Solid Blue	Solid Blue
Read/Write activity	Solid White	Fast rapid flickering	Fast rapid flickering
Drive Error or missing	Solid White	Red	Red
HDD Sleep	Solid White	Off	Off
RAID 1 Rebuilding	Solid White	Blink 3-4 times per second	Blink 3-4 times per second

* Note: D1 & D2 LEDs will be OFF when the MiniPro is not connected to a computer.

(3) Power

The MiniPro can be powered from the included DC adapter or bus power. To choose the power source, slide the selector switch to the desired position. **DC** = External Power Adapter, **USB** = Bus Power

Note:
   • USB-C or Thunderbolt host ports will generally provide sufficient power without the need for the external power adapter.
   • If connecting bus-powered drives to the HUB ports of the V4, we recommend connecting the external power adapter with the DC/USB switch in the DC position. This ensures full power for all devices.

(4) Installing Drives (Enclosure Version)

Follow the steps to install 2.5-inch SATA drives in the MiniPro RAID V4 enclosure.

a) Slowly stretch the rubber bumper over each corner of the MiniPro until loose. Remove the bumper from the enclosure.
b) Remove the screws located at the bottom of the case and slide out the circuit board bracket from the enclosure.
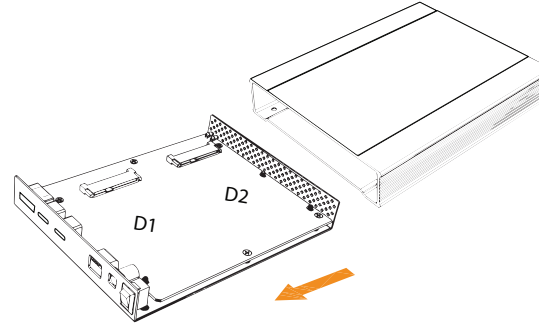
c) Install the drives in the D1 & D2 slots on the circuit board.

d) With your hand holding the drives into the bracket, flip it over to view the screw holes.

e) Attach the drives to the bracket using the included screws.

(5) Connections
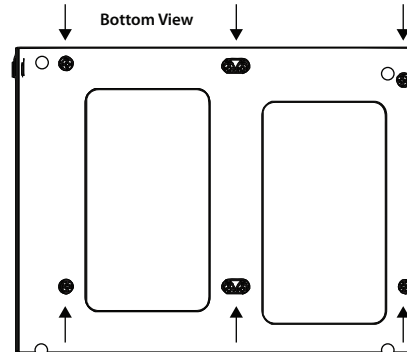
f) Slide the bracket back into the enclosure and fasten using the 4 exterior screws removed in step b.

g) Insert the front of the MiniPro into the rubber bumper. Stretch the corners of the bumper around the MiniPro.

Note: The **red dot** inside the rubber indicates the front bottom.

1. Connect the USB-C cable to the **MAIN** port on the MiniPro.
2. Connect the other end of the cable to the host computer.
3. (Optional) Connect additional MiniPros or other USB devices to the **HUB** ports as shown.

The illustration shows two MiniPro in a daisy-chain configuration.
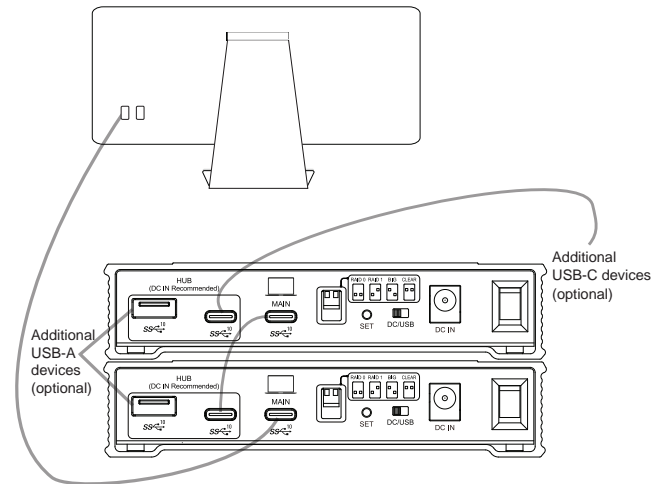
(6) System Setup

The default mode is JBOD, which is two independent drives formatted as exFAT for Windows and Mac. If you desire a mode other than JBOD, perform a 'Set RAID':

Set RAID:
1. Set the switches on the MiniPro to the desired mode.
2. Connect the MiniPro to the host computer and turn on. Wait for the D1 and D2 lights to turn blue.
3. Using the tip of the screwdriver, press the SET button for at least 5 seconds.
4. Release the SET button. The RAID is configured and ready for formatting (section 8).

If changing or deleting a RAID mode, perform a "Clear" procedure.

Clear Procedure:
1. Set the switches on the MiniPro to Clear.
2. Connect the MiniPro to the host computer. Wait for the D1 and D2 lights to turn blue.
3. Using the tip of the screwdriver, press the SET button for at least 5 seconds.
4. Release the SET button. Any previous RAID mode is removed and the drives are now set for JBOD mode.