

# Y-PWR

Hot Swap, Load Sharing Controller

## Quick Installation Guide

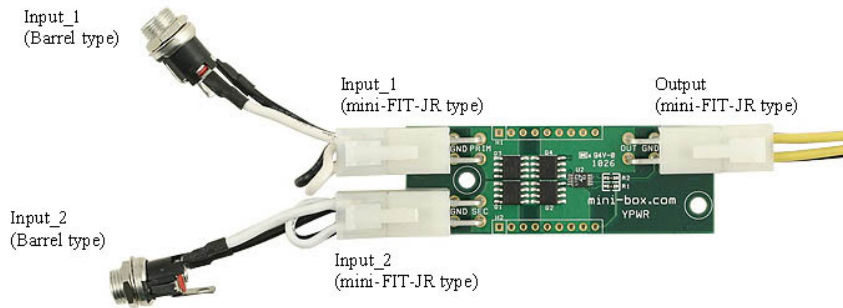
Version 1.0a

P/N Y-PWR

### Introduction

The Y-PWR is a 20A, 30V ideal diode OR controller. Two power sources such as AC/DC adapters of equal voltage can be used to sum (load sharing) the output power into a single, high power channel. This versatile device can be used as a Hot Swap, Load Sharing / High Availability or Power Path Controller resulting in a low loss, high efficiency solution for AC/DC and/or battery solution.

## Quick installation Instructions



1. Connect the 1<sup>st</sup> power source to Input\_1
2. Connect the 2<sup>nd</sup> power source to Input\_2
3. Connect the output of Y-PWR to input of your device.

## Typical configurations

The Y-PWR is a versatile power path controller. Here are several configuration scenarios:

1. Summing two power sources: If **input\_1** and **input\_2** have the same output voltage, the Y-PWR board can integrate the current from both inputs, up to 10A per channel. Small differences in output voltage are OK as the internal resistance of the wires will tend to equalize the load. As the two supplies differ by more than 100mV, 100% of the load will come from the higher of **input\_1** and **input\_2**.
2. HOT SWAP: Two input power source can be hot-swapped without any power loss at the output.
3. AC/DC adapter + battery scenario: the higher voltage will always get routed at the output. For example, if the AC/DC adapter is set for 16V and the SLA battery is at 13.5V, the 16V input will always get routed to the output. Once the AC/DC source drops below 13.5V, the battery will automatically get routed to the output. When the AC/DC voltage reaches a voltage above battery voltage the power path will be automatically switched to the highest voltage.
4. For more sophisticated operation, each channel can be fully blocked via control pins such as control from a microprocessor. Please consult [the schematic\\*](#) (see Vprim and Vsec control) for more information regarding control of the device.

\*<http://resources.mini-box.com/online/PWR-Y-PWR/Y-PWR-schematics.zip>

**Specifications, Y-PWR, power path controller**

Volts (V)	Max Load, per channel (A)	Peak Load (A)	Combined output (max)
5-30V	10A	15A	20A
MOSFETS are rated at 3.9mOhm. At 10amps they produce 40mwatts each. At max load, forced air ventilation is required. For fan less operation de-rate the outputs by ~40%. Peak load should not exceed 60 seconds.			

**Input Requirements:**

5-30V, min=0A, max=10A (load dependent).

**Size:**

65 mm(L) \* 23 mm(W) (1U compliant)

**Weight:**

50grams, including cable harness

**DC-Jack:**

Female, panel mount, 2.5\*5.5\*10 mm.

Mini-FIT-JR mating receptacle: Molex 39-01-2040, CONN RECEPT 4POS DUAL, connector (aWG dependent) can be found here:

<http://search.digikey.com/scripts/DkSearch/dksus.dll?Detail&name=WM3701-ND>

**Remote ON/OFF control:**

Consult schematics from:

<http://resources.mini-box.com/online/PWR-Y-PWR/Y-PWR-schematics.zip>

**Operating environment:**

Temperature: -20 to 85 degree centigrade.

Relative Humidity: 10 to 90 percent, non-condensing.

**Efficiency, MTBF:**

95%. MTBF=100K hours at 65Celsius.

**Shipping and storage:**

Temperature -40 to +90 degree centigrade. Relative humidity 5 to 95 percent, non-condensing

**Warranty**

1 Year Limited Warranty statement.

Warranty is void if maintenance or calibration is performed by end-user or by use in conjunction with power modules not provided by manufacturer.