



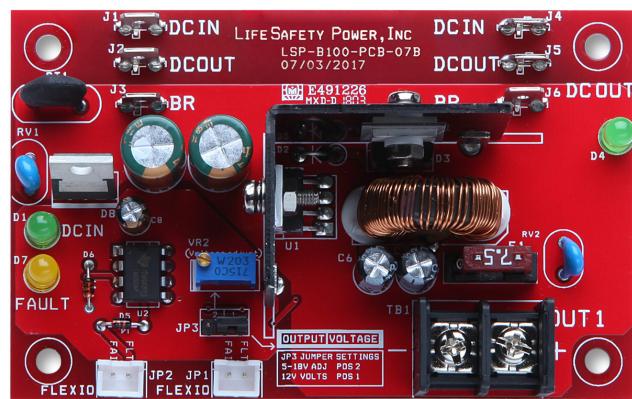
Power is knowledge.™

## B100 Installation Manual

**LifeSafety Power®**



**FLEXPOWER®**



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## Description

The B100 provides an additional voltage in a FlexPower system. This voltage can either be accessed directly via the B100's terminals or through other FlexPower Accessory Boards. The B100's input is typically supplied by the B1 buss in the system, allowing the FPO's battery set to back up the B100's output voltage without the need for a second battery set. Output settings for the B100 include a fixed 12V setting and an adjustable setting of 5 to 18V. Multiple B100s can be added to a system for virtually unlimited voltage combinations.

## Specifications

Input	Voltage	8-25V (Must be at least 3V above output voltage setting)
	Current	3.5A maximum
	Standby Current	35mA
Output	Voltage	4.7-23V
	Current	4A maximum (Class 2 Power Limited)
Fuse	7.5A ATM automotive style	
Size		4.00" x 2.50" x 1.75" (102mm x 64mm x 45 mm)
Weight		0.20lb (0.09kg)

## Regulatory Information

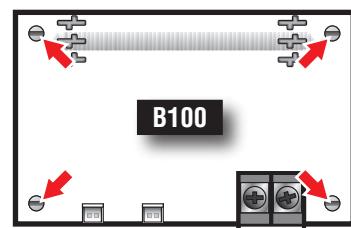
The equipment discussed within this manual has been tested to the following standards:

- UL294, UL603, UL1076
- ULC S318, ULC S319
- CSA C22.2 #205
- CSFM Approved

## Mounting the B100 Secondary Power Supply

Mounting of the B100 Board to an enclosure is via the four snap-in standoffs supplied.

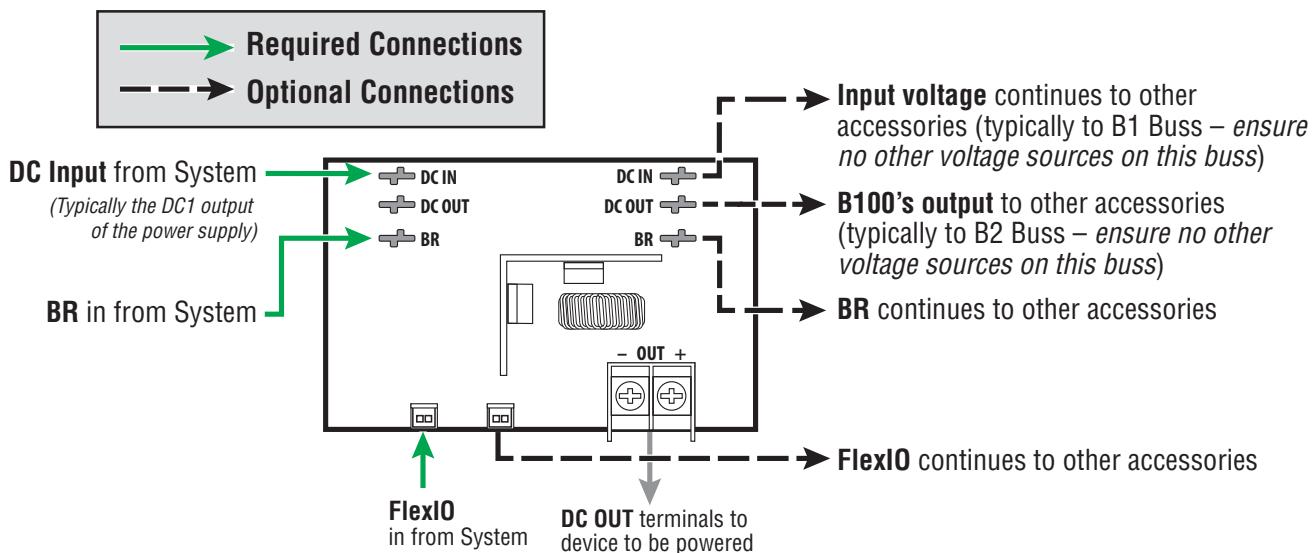
1. Locate the appropriate mounting holes in the enclosure and snap the standoffs into the holes.
2. Align the board mounting holes with the standoffs (be sure the PC board is properly oriented) and snap the board onto the standoffs.



## Connecting the B100 Secondary Power Supply

**⚠ Remove all AC and battery power from the FPO system before adding or replacing a B100 board.**

**⚠ Observe polarity of the DCIN and BR Connections or damage to the system could occur.**

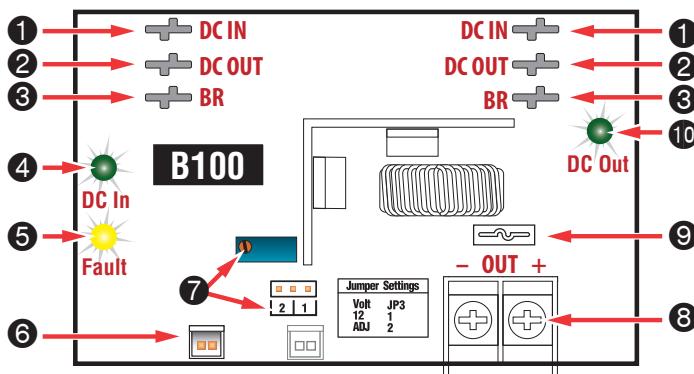


**⚠** The DC In, DC Out, and BR terminals run through the board for daisy chaining and each terminal set is interchangeable from a functional standpoint.

Either DC IN may be used, either DC Out may be used or either BR may be used interchangeably.



## B100 – Secondary Power Supply



### 1 DC IN Connectors (J1 & J4)

These fastons are the input to the B100. Either faston may be used as the input. Two connections are provided to allow this voltage to pass through to other accessory boards in the system. This input voltage must always be at least 3 volts above the output voltage setting for the B100 to maintain its output.

### 2 DC OUT Connectors (J2 & J5)

These fastons are the output of the B100 for connection to other accessories in the system. This output may be considered as an equivalent to the DC1 faston of an FPO power supply.

Either or both DC OUT fastons may be used in the system.

**⚠️ Ensure there are no other voltage sources connected to the buss before powering the system or damage WILL occur.**

### 3 BR Connectors (J3 & J6)

The DC Common buss in the system. All boards in the system must have their BR fastons wired together for proper operation (except for between the DC and AC sections of an FPX hybrid system).

### 4 DC IN LED (D1) – Green

This LED indicates the availability of voltage on the DC IN Buss. When voltage is available on the buss, the LED is lit. This LED is bi-color and indicates the input voltage as follows:

- **Green** – 12V Input
- **Blue** – 24V Input

**⚠️ NOTE** LED colors are range based. Voltage Less than 13V will show Green. Voltage above 20V will show Blue. Voltage between 13 and 20 may show either voltage or a combination Green & Blue. Always verify voltage with a voltmeter.

### 5 FAULT LED (D7) – Yellow

This LED lights when the B100 detects a fault condition. This fault condition also transmits to the FPO power supply.

Fault conditions detected include ruptured output fuse, no output, output overload, or output voltage out of regulation.

### 6 FlexIO Connectors (JP1 & JP2)

These connectors allow the fault status of the B100 to be transmitted to the FPO power

Class 2 power limited wiring must be separated from non-power limited wiring by a minimum of 1/4 inch and must use separate knockouts.

The installation and all wiring methods shall be in accordance with ANSI/NFPA70 and all local codes.

For ULC compliance, installation and all wiring methods shall be in accordance with the Canadian Electrical Code, C22.1, Part I, Section 32.

All input wiring to the module shall be located within the same room (3m max.).

supply and pass the FlexIO buss on to other accessory boards in the system.

### 7 Output Voltage Selection (JP3 & VR1)

This jumper selects the output voltage for the B100 and the potentiometer sets the output voltage when in the adjustable range. In adjustable range, voltage may be set from 5 to 18VDC.

Possible jumper settings are as follows:

- **12V Out** JP3 Position 1
- **Adjustable Output** JP3 Position 2

**⚠️** The VR1 potentiometer will have no effect unless the jumper is set for the adjustable range.

Note that the input must be at least 3V above the output voltage setting or the B100 will display a fault condition. It may be helpful to temporarily set the input power supply to 24V (Remove load devices first) before setting the B100 output voltage.

### 8 DC Output

This is the output terminal strip. This terminal strip is non-removable and accepts wire sizes from AWG12 – AWG22. The terminals are labeled on the PC board by the terminal strip.

**⚠️ CAUTION** When powering magnetic loads such as maglocks, door strikes, solenoids, etc, each of these loads must have a reverse protection diode either built-in or external to the device.

### 9 Output Fuse (F1)

This fuse protects the DC Output terminals. It does not protect the DC OUT faston.

### 10 DC OUT LED (D4) – Green

This LED indicates the availability of voltage on the DC IN Buss. When voltage is available on the buss, the LED is lit. This LED is bi-color and indicates the input voltage as follows:

- **Green** – 12V Output
- **Blue** – 24V Output

**⚠️ NOTE** LED colors are range based. Voltage Less than 13V will show Green. Voltage above 20V will show Blue. Voltage between 13 and 20 may show either voltage or a combination Green & Blue. Always verify voltage with a voltmeter.



## B100 Current Loading

Power drawn from the B100 subtracts from the power available from the FPO supplying the B100. The most accurate way to determine the draw from the FPO is to calculate the actual power draw and factor in the efficiency of the B100.

$$P_1 = P_0 * 1.15$$

Where:

**P<sub>1</sub>** = Input power of the B100

**P<sub>0</sub>** = Output power draw on the B100

## B100 Current Load Examples

### Example: 1

An FPO250 set for 24V is powering a B100. The B100 is set for an output of 12V and has a 3A total load connected.

$$P_0 = 12V * 3A = 36W$$

$$P_1 = 36W * 1.15 = 41.4W$$

In this example, the B100 will draw 41.4W from the FPO250

This leaves 208.6W available from the FPO250

### Example: 3

What size FPO do I need to create a dual voltage power supply providing 12V@1A and 24V@3A?

$$12V \times 1A \times 1.15 = 13.8 \text{ Watts}$$

$$24V \times 3A = 72 \text{ Watts}$$

$$13.8W + 72W = 85.8W$$

The next greater FPO to 84 is 150

Use an FPO150 power supply with the B100 converter

### Example: 2

What size FPO do I need to create a dual voltage power supply providing 12V@4A and 24V@6A?

$$12V \times 4A \times 1.15 = 55.2 \text{ Watts}$$

$$24V \times 6A = 144 \text{ Watts}$$

$$144W + 55.2W = 199.2W$$

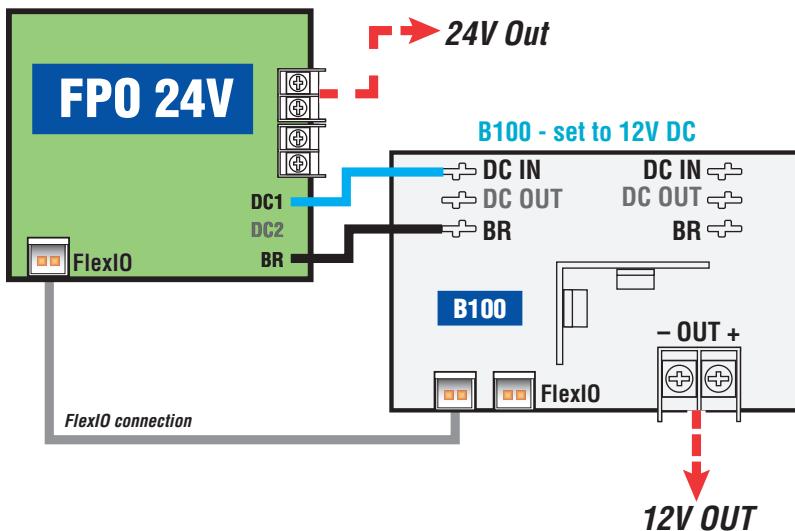
The next greater FPO to 199.2 is 250

Use an FPO250 power supply with the B100 converter

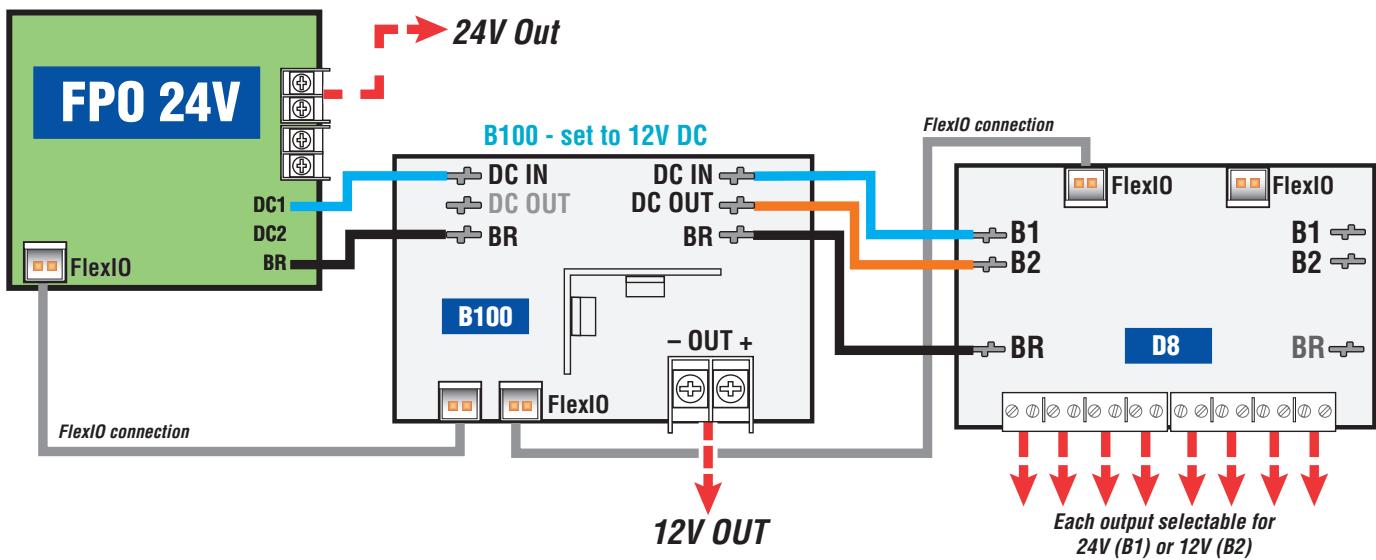


## B100 Application Examples

### Dual Voltage (24V/12V) using one FPO, one B100



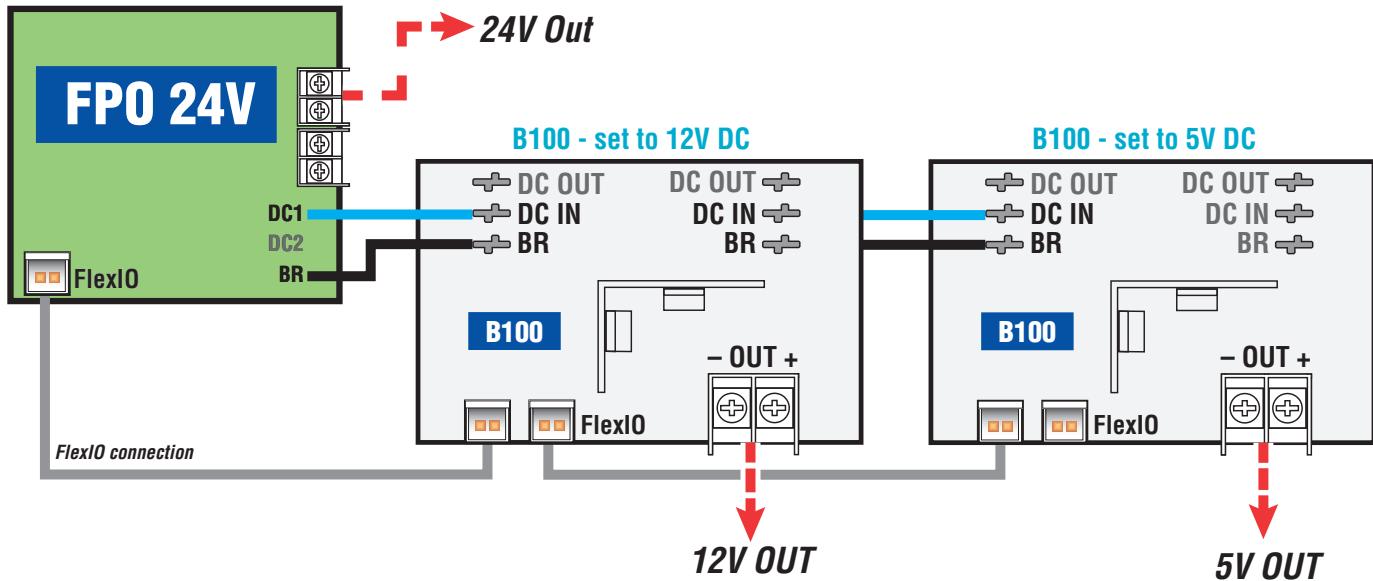
### Dual Voltage (24V/12V) using one FPO, one B100 with 8 output distribution



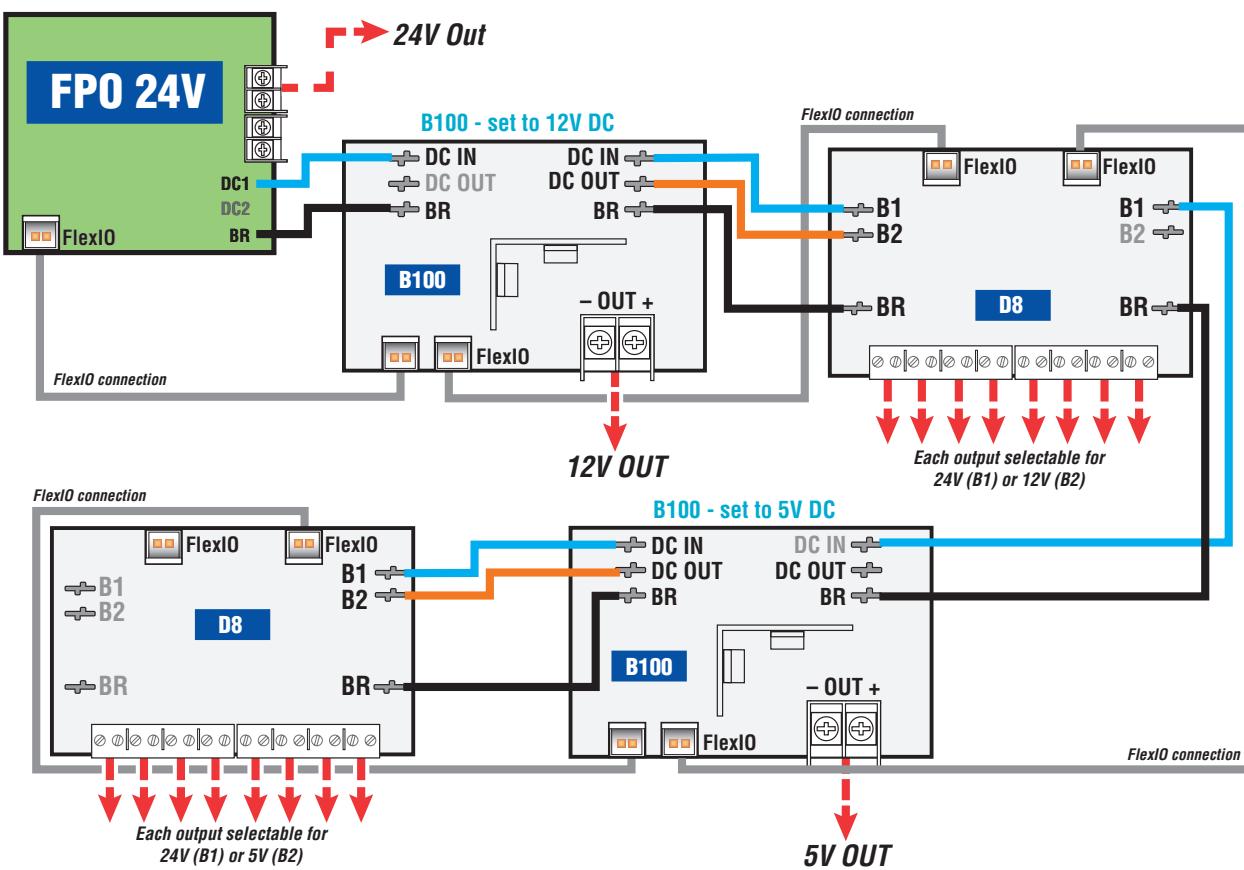


## B100 Application Examples

### Triple Voltage (24V/12V/5V) using one FPO, two B100's



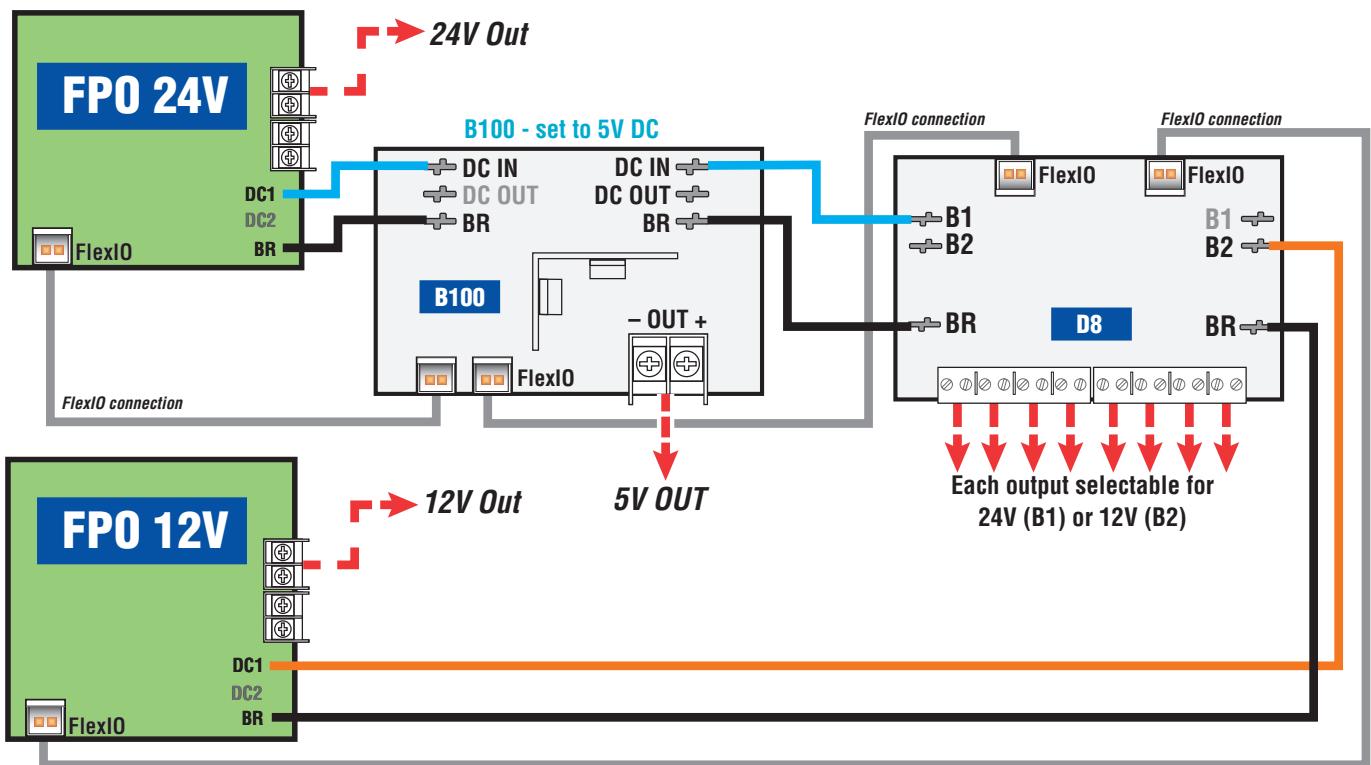
### Triple Voltage (24V/12V/5V) using one FPO, two B100's with 16 output distribution





## B100 Application Examples

### Triple Voltage (24V/12V/5V) using two FPO's, one B100 with 8 output distribution





## FlexPower System Replacement Parts

<b>Board Kits</b>	<b>Description</b>
FPO250	FPO250 replacement board
FPO150	FPO150 replacement board
FP075	FP075 replacement board
B100	DC-DC Converter (12VDC or adjustable 5 to 18VDC) replacement board
D8	Simple distribution replacement board
D8P	Simple distribution (Class 2) replacement board
F8	FAI controlled distribution replacement board
F8P	FAI controlled distribution (Class 2) replacement board
C4	Four zone power control replacement board
C4P	Four zone power control (Class 2) replacement board
C8	Eight zone power control replacement board
C8P	Eight zone power control (Class 2) replacement board
M8	Eight zone managed power control replacement board
M8P	Eight zone managed power control (Class 2) replacement board
NL2	Two Port NetLink network communication board (used in FPO systems)
NL4	Four Port NetLink network communication board (used in FPO systems)
RB2	2A Relay, 12VDC or 24VDC input range, DP/DT
RB5	5A Relay, 12VDC or 24VDC input range, DP/DT
RB8	8A Relay, 12VDC or 24VDC input range, DP/DT

<b>Hardware</b>	<b>Description</b>
BDM	Battery Disconnect Module cable
AC Cable	AC Input Cable for FPO Power Supply
Battery Cable	Battery Harness – 24"
Module Cable - 12"	Accessory board cable set – 12"
Module Cable - 18"	Accessory board cable set – 18"
Fuse - 3A	ATM-3A Fuse – Bag of 25
Fuse - 5A	ATM-5A Fuse – Bag of 25
Fuse - 7.5A	ATM-7.5A Fuse – Bag of 25
Fuse - 10A	ATM-10A Fuse – Bag of 25
Fuse - 15A	ATM-15A Fuse – Bag of 25
Fuse - 30A	ATM-30A Fuse – Bag of 25
Standoffs	Nylon Standoffs – Bag of 25
Camlock Set	Key and Lock fits LSP "E" enclosure

**IMPORTANT**

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