OVERVIEW

A common power application in the security industry is providing both 12 and 24VDC within a single system.

Traditionally two independent power supplies have been used for this purpose, which although a working solution, is not economical, either in cost, space or reliability (due to added heat in the cabinet).

An excellent solution to this application is the combination of a LifeSafety Power FPO AC-DC power supply and a B100 secondary DC-DC converter.

OPERATION

24V DC is fed from the FPO power supply into the B100. The B100 converts the 24V to 12V applying 12V to the Buss 2 output and the field wiring terminals of the B100 and 24V to Buss 1 for any accessory modules that may be required.

FLEXPOWER COST SAVINGS

Typical equipment cost savings using an FPO/B100 combination is greater than 25-35% over traditional applications that use dual AC-DC power sources to generate the required 12V and 24V DC outputs. Additional cost savings can be had in the battery set required. Unlike dual AC-DC 12V and 24V systems that require dual battery backup, the FPO/B100 system only requires a 24V standby battery set to back up both the 24V and 12V output voltages.

FLEXPOWER DUAL VOLTAGE SYSTEM BENEFITS

- 4A current on 12V
- Single AC connection reduces install time
- Only 24V battery back up needed for 12V and 24V DC outputs
- High efficiency operation for greater reliability
- Small power supply form factor increases battery space inside cabinet
- Adding distribution modules to FPO/B100 enables per zone programming of 12V or 24V output, failsafe / failsecure or FAI over ride
- System listed to power Access Control, Fire, Security, and CCTV
- The FPO power supply’s computer / network interface, enables programming and monitoring of core power supply functions
- PowerCom software allows fault delay programming and signals alerts on AC or system fault conditions
- Field upgrades retain agency listings

FLEXPOWER STANDARD FEATURE SET

- SureCharge Microprocessor controlled battery charging
- PowerCom Power supply programming / monitoring software
- VSelect Installer selectable output voltage
- TruWatt Delivers twice the current at 12V than at 24V
- FlexConnect Pre-wired accessory board interconnects
- Reliability+ Full fault protection / high efficiency / fiberglass pcb
- GreenSmart RoHS compliant, lead free, energy efficient design
- DataLink USB or Network communication interface
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.

\[ P_I = P_O \times 1.15 \]

Where:

- \( P_I \) = Input power of the B100
- \( P_O \) = 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.

- \( P_O = 12V \times 3A = 36W \)
- \( P_I = 36W \times 1.15 = 41W \)

In this example, the B100 will draw 41W from the FPO250.

This leaves 208W available from the FPO250.

**Example 2**

What size FPO do I need to create a dual voltage power supply providing 12V@2A and 24V@2A?

- 12V x 2A x 1.15 = 27 Watts
- 24V x 2A = 48 Watts
- 27W + 48W = 75W

Use an FPO75 (75W) power supply with the B100 converter.

**Example 3**

What size FPO do I need to create a dual voltage power supply providing 12V@4A and 24V@8A?

- 12V x 4A x 1.15 = 55 Watts
- 24V x 8A = 192 Watts
- 55W + 192W = 247W

Use an FPO250 (250W) power supply with the B100 converter.

**FPO / B100 Dual Voltage Wiring Diagram**

![Diagram showing wiring connections for dual voltage systems with B100 converters.](image-url)