

CONNECTING OXIC INDUSTRIAL SWITCHING MODE POWER SUPPLIES IN PARALLEL

A. INTRODUCTION

There are occasions that require a higher current than the rated max.current from your power supply.

So if you have two or power supplies of the same power output rating, connecting them in parallel is the practical way to go. There are a few tips for successful application in equal sharing of the load .

1. Voltage drop in the wiring
Select proper size of wiring and make to use the same size , same length wiring for each power supply.
2. Whenever possible , do not use one of the power supplies as the common point for connecting to load and other power supplies. (We have Master & Slave Power Supplies designed for common point wiring connection)
3. Ohmic Contact
Use the same grade of terminal connectors for all connections to the output terminals of the power supplies.

The above practical tips are to ensure the output voltage of the power supplies are at the same level at the common point where they are connected together.

Of course, to get to and to keep a complete balance condition is not easy , since an imbalance of less than 100mV may cause the power supply with the highest output voltage to deliver most of the load current.

Three in parallel is the maximum , and be patient to fine tune the voltage controls.

In the following procedure we use 12.0V as an example as most of our power supplies have the 12.0V set point, of course other output voltage can be used.

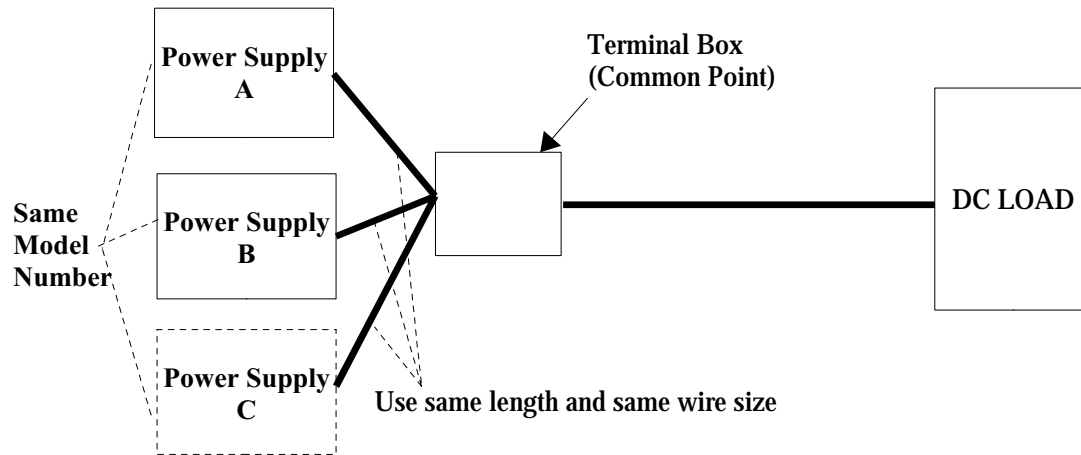
B. PROCEDURES

The following steps describe the method to parallel 3 power supplies.

1. Parallel 3 power supplies

- 1.1 Prepare 3 power supplies with same rating(A, B & C).
- 1.2 The fixed 12.0V output selection switch is located at the bottom of each unit. Switch it to fixed 12.0V position on power supply A.
- 1.3 Switch ON power supply A.
- 1.4 Use a voltmeter to verify the output voltage is 12.0V.
- 1.5 Prepare power supply B.
Make sure the fixed output selection switch located at the bottom of the unit is not switched to fixed 12.0V position.

- 1.6 Switch ON power supply B and adjust the control knob such that the output voltage is 12.0V. Verify it with a voltmeter.
- 1.7 Prepare another power supply C. Make sure the fixed output selection switch located at the bottom of the unit is not switched to fixed 12.0V position.
- 1.8 Switch ON power supply C and adjust the control knob such that the output voltage is 12.0V. Verify it with a voltmeter.
- 1.9 Switch OFF all the 3 power supplies, and setup as Fig.1
As it is a high current application, the contact between input(in DC Load)/output(Power Supplies) terminals and the connection wires is very important. Make sure the wire is screwed as tight as possible. Recheck the tightness by jiggling the cable.



Note: Power Supply C is for parallel 3 power supplies(section 3)

Fig.1 Block Diagram of setup

- 1.10 Switch ON power supplies A and B.
- 1.11 If their overload LEDs are ON, slightly adjust the control knob of power supply B until their overload LEDs go OFF.
- 1.12 Switch on the DC Load and check that the Current Meter on each power supply indicates the same sharing of output current. If the output current of the 2 power supplies is not the same, slightly adjust the control knob of power supply B until both power supplies share the same amount of output current.
- 1.13 Then the power supplies A & B are in parallel mode now.
- 1.14 To parallel A, B & C, switch OFF the DC load and then switch ON power supply C.
(Note: No need to switch OFF power supplies A & B)
- 1.15 If their overload LEDs are ON, slightly adjust the control knob of power supply C until their overload LEDs go OFF.
- 1.16 **Switch ON the DC load.**

- 1.17 Check that the Current Meter on each power supply indicates the same sharing of output current. If the output current of the 3 power supplies is not the same, slightly adjust the control knob of power supply C until all the power supplies share the same amount of output current.
- 1.18 Then the three power supplies A, B and C are in parallel mode now.