

Paralleling Sanrex Power Supplies

Sanrex Inverter Power Supplies (CC or CV mode) may be paralleled to increase amperage output. Typical applications that might require paralleling are carbon arc gouging (CAC-A) with 1/4" diameter and larger carbons and submerged arc welding (SAW). Either CC or CV mode may be used.

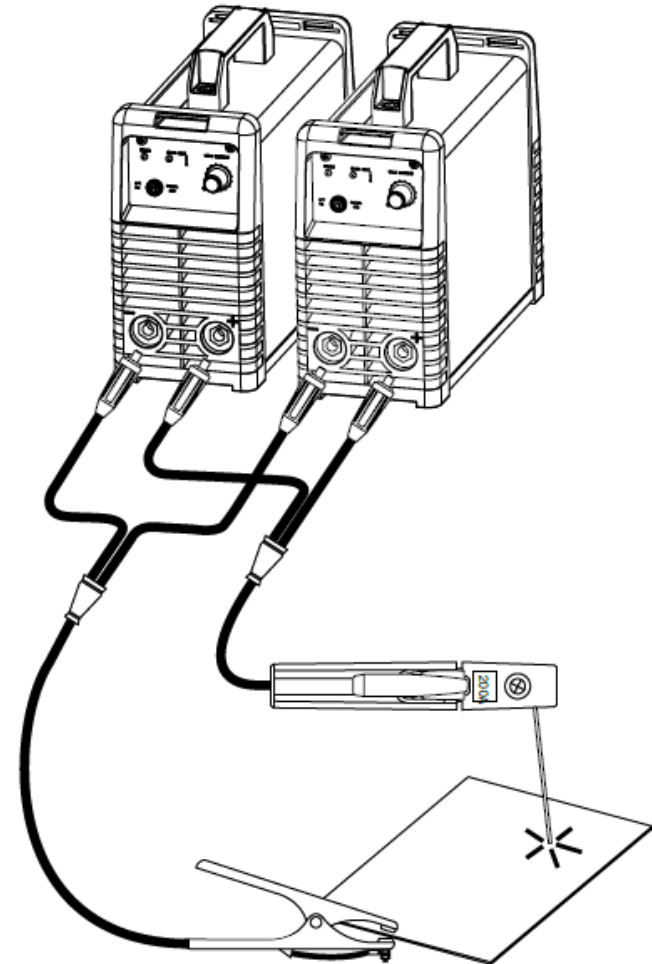
For use in the CC mode, set the amperage of each machine at 1/2 the total output required and the arc control should be set at 100%. Set the inductance at 0% if using CV. For example, if 600 amperes are required, each power supply should be set at 300 amps. The cable size, after the cables join, must be sized to properly carry the combined amperage of the two power supplies.

Constant Current Operation (STICK mode)

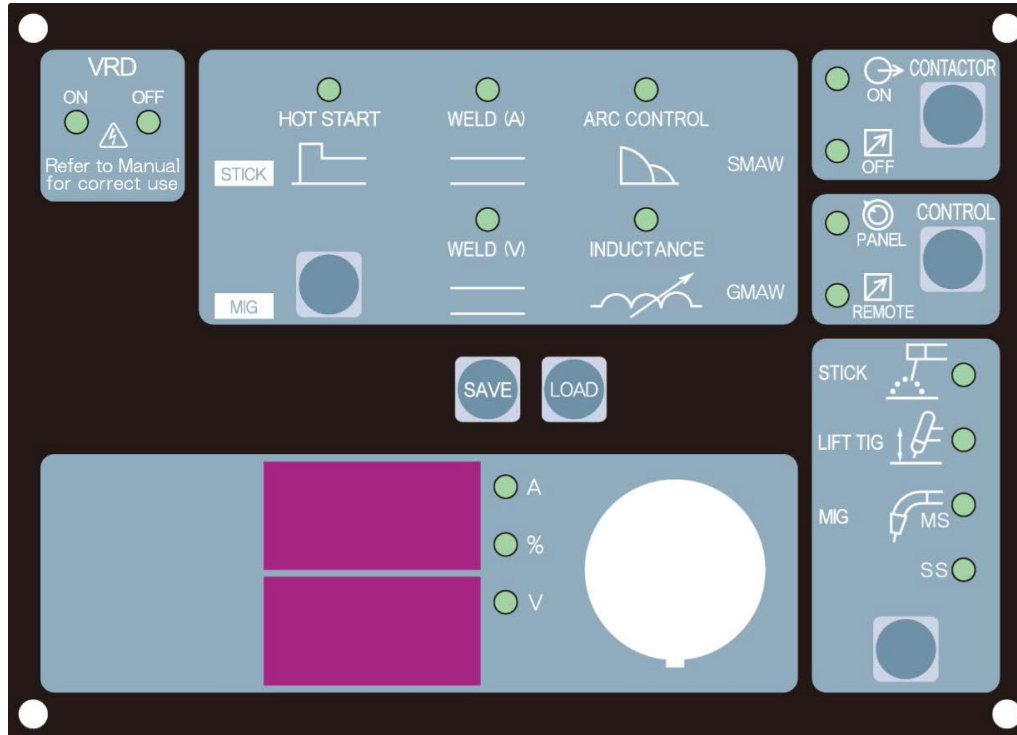
As set up in the Paralleling Systems diagram at the right, two of our 400M power supplies will produce a total of 600 amps at 60% duty cycle. Each power supply will produce 300 amps at 60% duty cycle. $300 + 300 = 600$ amps. This setting should be sufficient to operate 3/8" carbon rods for Carbon Arc Gouging. If the output is adjusted to higher settings, the duty cycle of the power supplies will be reduced.

Constant Voltage Operation (MIG mode)

The inductance control is set at 0% and the voltage at 32 volts. The voltage will remain the same, but the amperage that is available will be doubled, to approximately 600 amps. The duty cycle will be 60% at this setting, and 3/8" Carbon Arc gouging rods should perform well. If the output is adjusted to higher settings, the duty cycle of the power supplies will be reduced.



PARALLELING SYSTEMS DIAGRAM



AWG CABLE SIZE

Duty Cycle	Welding Current	Length of Welding Cable Circuit in Feet					
		50 ft	100 ft	150 ft	200 ft	300 ft	400 ft
Up to 60%	100	4	4	3	2	1	1/0
	150	3	3	2	1	2/0	3/0
	200	2	2	1	1/0	3/0	4/0
	250	2	2	1/0	2/0	4/0	-
	300	1	1	2/0	3/0	-	-
	350	1/0	1/0	3/0	4/0	-	-
	400	1/0	2/0	3/0	-	-	-
	450	2/0	3/0	4/0	-	-	-
60 – 100%	500	3/0	3/0	4/0	-	-	-
	400	4/0	4/0	-	-	-	-
	800	2 – 4/0	2 – 4/0	-	-	-	-
	1,200	3 – 4/0	3 – 4/0	-	-	-	-

Sanrex 400M Setup for Carbon Arc Gouging in the CC Mode.

Note: Set both power supplies the same. This is to balance the load to each power supply.

Setup for 3/8" carbon in CC Mode. From the Chart on slide 3 you will need at least 600 amps. This will take two 400M power supplies each set to share 300 amps.

- Set Contactor to ON
- Set Amperage control to PANEL
- Set process to STICK
- Set Hot Start to Maximum
- Set Arc Control to Maximum.
- Set Welding amperage of each machine to 300 Amps.
- Connect output terminals as seen in the diagram on slide one.

Note: You will need a minimum of 2/0 cable to the cable junction and 4/0 cable after the cable junction.

Sanrex 400M CAG Amperage				
Size	Process	Amps	Volts	Comments
1/4" (300-400 A)	CC	300	40	Low end, needs more power
	CC	350	40	OK
	CC	400	41	Good
	CV	180	31	Best, Voltage range 27 - 35
5/16" (350-450 A)	CC	350	39	Low end, but OK
	CC	450	43	Good
	CV	300	34	Best Voltage range 30 - 37
3/8" (450-600 A)	CC	450	40	Low end, but OK
	CC	500	41	Good
	CC	600	42	Good
	CV	440	42	Best Voltage range 30 - 42 Amps increase with volts