Mildoo

MPC3000- □ Series

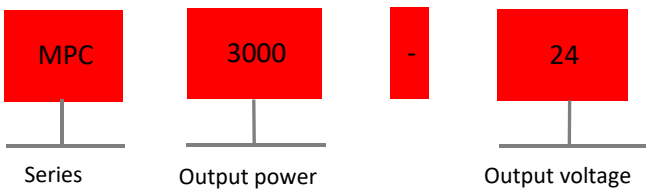
▲ Features

AC input 180~264VAC
Built-in active PFC function
Forced air cooling by built-in DC fan
Efficiency >91.5%
Active current sharing up to 9000W（2+1）
Output voltage programmable
Protections:short circuit/overload/over voltage/over temperature
Built-in remote ON-OFF control/remote sense/auxiliary power/DC OK signal
5 years warranty

▲ Applications

△ Industrial control or automation apparatus
△ Test and measurement instrument
△ Laser related machine
△ Burn-in facility
△ Digital broadcasting
△ RF application

▲ Model Encoding



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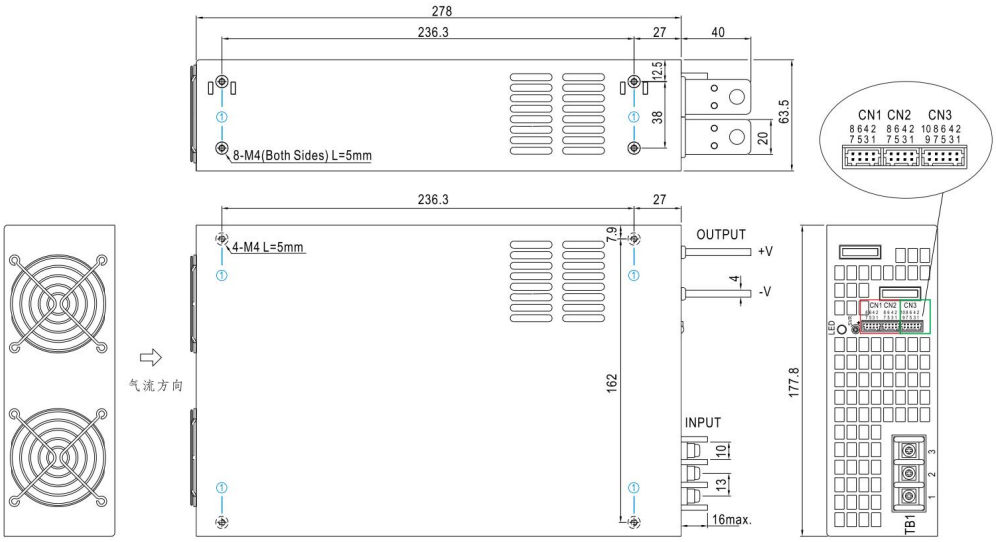
Specification

Input			
Inpout voltage	180-264VAC 254-370VDC		
AC current	20A/180VAC 16A/230VAC		
Frequency range	47-63Hz		
Inrush current(max.)	60A/230VAC		
Output			
DC voltage	12V	24V	48V
Rated current	200A	125A	62.5A
Current range	0-200A	0-125A	0-62.5A
Rated power	2400W	3000W	3000W
Ripple & noise(max.) *2	150mVp-p	150mVp-p	200mVp-p
Voltage ADJ. range	10.8-13.2V	22-28V	43-56V
Voltage tolerance *3	±1%	±1%	±1%
Line regulation	±0.5%	±0.5%	±0.5%
Load regulation	±0.5%	±0.5%	±0.5%
Efficiency	87.50%	91%	92%
Start up, rise time	1000ms 80ms(@Full load)		
Hold up time	10ms(@Full load)		
Status indicator	Green LED		
Protection			
Overload	100%~112% of rated output power		
	Adjust continuous constant current limiting or constant current limiting with delay shutdown in 5s, repower on to recover		
Over voltage (V)	13.8-16.8V	28.8-33.6V	57.6-67.2V
	Shut down O/P voltage , re-power on to recover		
Over temperature	Shut down O/P voltage，automatically recover after the temperature goes down		
Output voltage programmable（PV）	2.4-13.2V	4.8-28V	9.6-56V
	Refer to function manual please		
Current sharing	Up to 9000W or（2+1）units，Refer to function manual please		
Auxiliary power(AUX)	12V@0.1A(Only for remote ON-OFF control)		
Remote sense	Refer to function manual please		
Alarm signal output	DC OK signal，Refer to function manual please		
Safety & EMC			
Withstand voltage	I/P-O/P:3KVAC I/P-FG:2KVAC O/P-FG:0.5KVAC		
Isolation resistance	I/P-O/P，I/P-FG, O/P-FG:>100M Ohms/500VDC/25℃/70%RH		
Safety standards	Design refer to EN IEC 62368-1、GB4943.1		
EMC emission	**Parameter**	**Standard**	**Test level**
	Conducted	EN 55032	Class B
	Radiated	EN 55032	Class A
	Voltage Flicker	EN 61000-3-3	Design refer to Class A
	Harmonic Current	EN IEC 61000-3-2	Class A
EMC immunity	**Parameter**	**Standard**	**Test level**
	ESD	EN 61000-4-2	Level 3 8KV air;Level 2 4KV contact
	Radiated Susceptibility	EN 61000-4-3	Level 2 3V/m
	EFT/Burest	EN 61000-4-4	Level 3 2KV
	Surge	EN 61000-4-5	Level 3 2KV/Line-Line;Level3 4kV/Line-Line-FG
	Conducted	EN 61000-4-6	Level 2 3V
	Magnetic Field	EN 61000-4-8	Level 2 3A/m
	Voltage Dips and interruptions	EN 61000-4-11	<5% residual voltage for 0.5 cycles ,70% residual voltage for 25 cycles ,<5% residual voltage for 250 cycles
Environment			
Operating temperature	- 20～+70 ℃（Refer to "Derating curve"）		
Storage temp & humidity	- 40～+85℃, 10～95%RH		
Operating humidity	20～90%RH,Non-condensing		
Vibration	10-500Hz,2G 10min/1 cycle, 60 min along with each X,Y,Z axes		

Others		
MTBF	≥223.8Khrs MIL-HDBK-217F(25℃)	
Installation	TS35 Din-rail	
Protection class	IP20	
Weight	~4kg	
Dimension	278*177.8*63.5mm(L*W*H)	
Data	**Description**	**Model**
	MPC 2400W 200A/12V	MPC3000-12
	MPC 3000W 125A/24V	MPC3000-24
	MPC 3000W 62.5A/48V	MPC3000-48

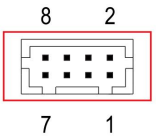
Installation instruction



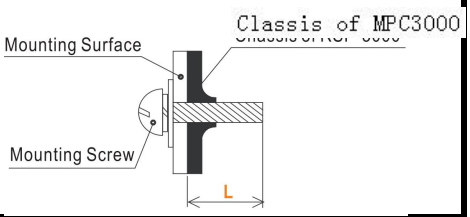
Mounting instruction

Hole No.	Recommended screw size	Max. penetration depth L	Recommended mounting torque
①	M4	5mm	7~10Kgf-cm

Control PIN No. assignment(CN1,CN2):HRS DF11-8DP-2DS or equivalent



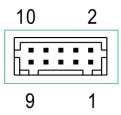
Mating housing	HRS DF11-8DS or equivalent
Terminal	HRS DF11-**SC or equivalent



CN1 & CN2 internal connection

Pin No.	Assignment	Description
1	RCG	Remote On-Off Ground
2	RC	Remote On-Off
3	PV	Connection for output voltage programming
4	PS	Reference voltage terminal
5,7	-S	Negative remote sensing signal
6	CS(Current Share)	Current share
8	+S	Positive remote sensing signal

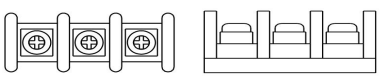
Control PIN No. assignment(CN3):HRS DF11-10DP-2DS or equivalent



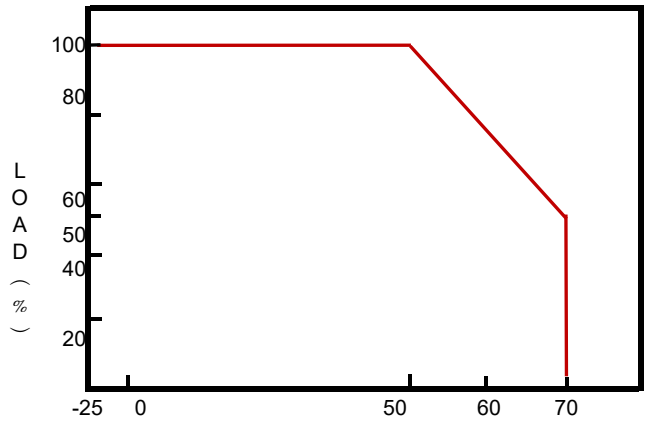
Mating housing	HRS DF11-10DS or equivalent
Terminal	HRS DF11-**SC or equivalent

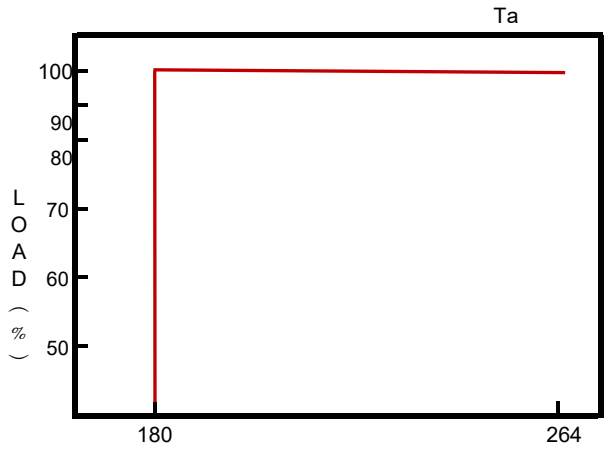
Pin No.	Assignment	Description
1	P OK GND	Power OK Ground
2	P OK	Power OK Signal(Relay Contact)
3	P OK GND2	Power OK Ground
4	P OK2	Power OK Signal(TTL Signal)
5	RCG	Remote ON-OFF Ground
6	RC	Remote ON-OFF
7	AUXG	Auxiliary Ground
8	AUX	Auxiliary Output
9	OLP	Overload (OLP) type select
10	OL-SD	

AC input terminal Pin assignment

Pin No.	Assignment	Diagram	Max. mounting torque
1	AC/L		18Kgf-cm
2	AC/N		
3	FG⏚		

Derating curve





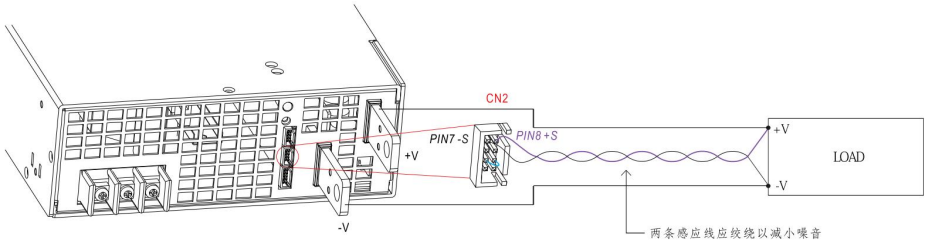
Note:
1.All parameters are measured at 230VAC input,rated load and 25℃ of ambient temperature unless otherwise specified.
2.Ripple & noise are measured at 20MHZ of bandwidth by using a 12' twisted pair-wire terminated with a 0.1uf & 47uf parallel capacitor.
3.Tolerance:includes set up tolerance,line regulation and load regulation.
4.The ambient temperature derating of 3.5℃/1000m with fanless models and of 5℃/1000m with fan models for operating altitude higher than 2000m(6500ft).

Function Manual

1.Remote sensing

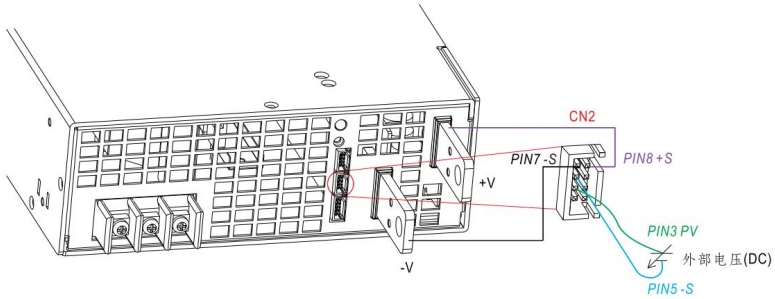
The remote sense compensates voltage drop on the load wiring up to 0.25V

Caution：The default setting of the power supply by factory is shipped with -S&-V on CN2, as well as +S&+V, shorted by connector。When the remote sense is activated, +S should be connected to positive terminal of the load and -S to negative terminal

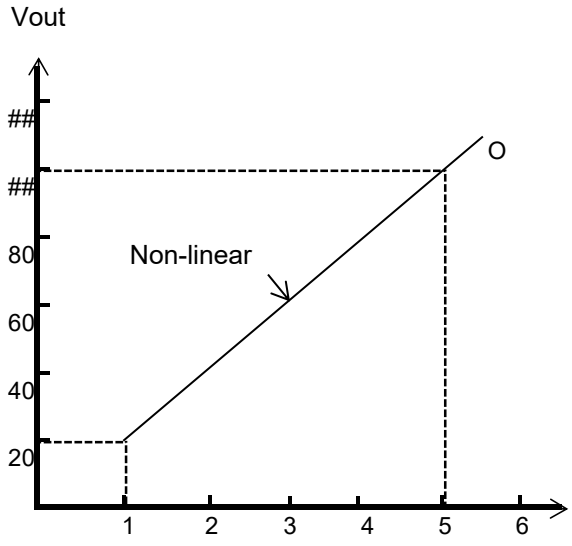


2.Output voltage programming（Or PV/remote voltage programming/remote adjust/margin programming/dynamic voltage trim）

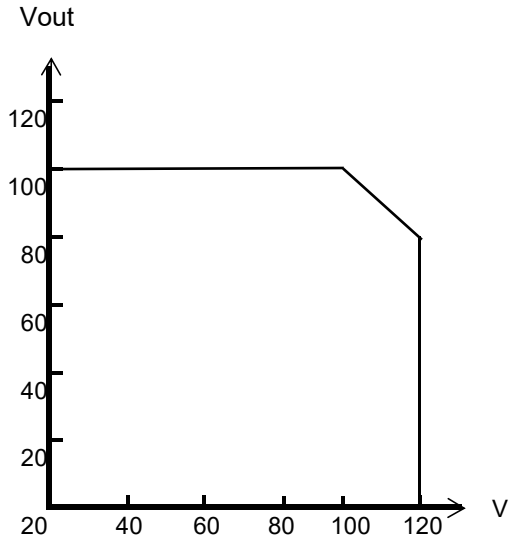
In addition to the adjustment via the built-in potentiometer, the output voltage can be trimmed to 20-110% of the nominal voltage by applying External Voltage



Connecting ab external DC source beween PV& -S on CN2, and +S&+V,-S&-V also need to be connected as shown at the diagram



Don't adopt PWM signal as the external voltage



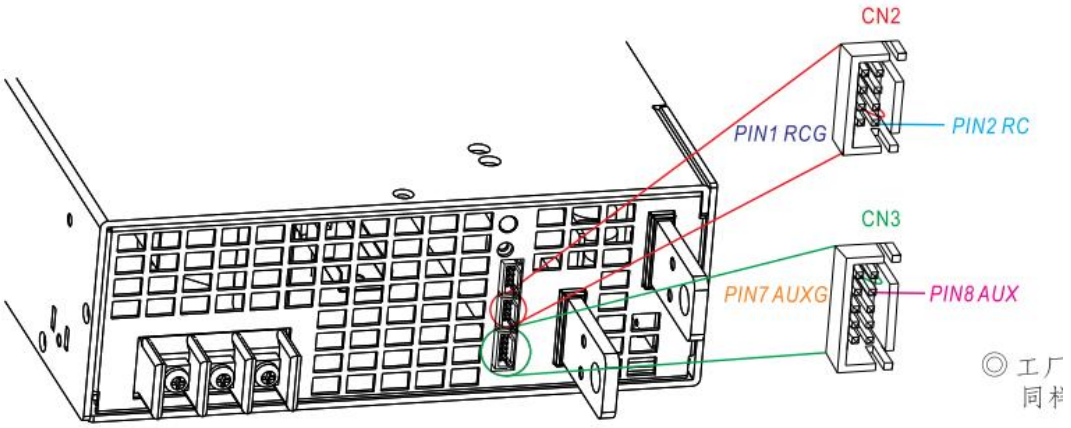
The tated current should change with the output voltage programming accordingly

Caution：(1)By factory default, the Output Voltage Programming is not activated, and PV(PIN3) and PS(PIN4) of CN2 are shorted by connector. Whenever this function is not needed to activate, as assumed in other sections' diagrams, please keep PV(PIN3) and PS(PIN4) of CN2 shorted ; otherwise, the power supply will have no output.

(2)PV(PIN3) and PS(PIN4) of CN1 or CN2 must be disconnected if "Output Voltage Programming" function is used; otherwise, the internal electrical components may be damaged, and the power supply unit may thus be out of order.

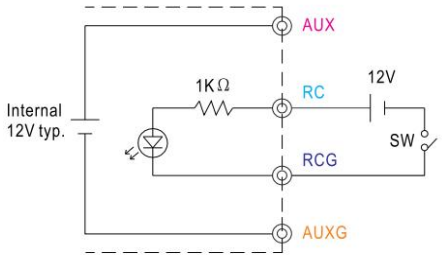
3.Remote On-Off

The remote On-Off is activated by the configulation of CN1、CN2、CN3 as shown in the following diagram

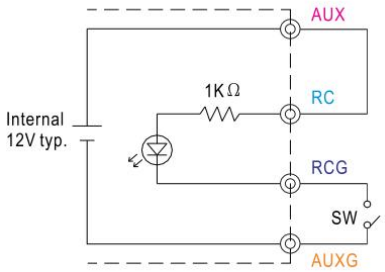


By factory default, PV(PIN3) and PS(PIN4) on CN2 are shorted by connector; likewise, OLP(PIN9) and OL-SD(PIN10) on CN3 are shorted when shipped.

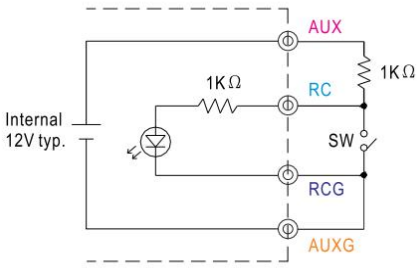
Example.3.2(A): Using external voltage source



Example 3.2(B): Using internal 12V auxiliary output



Example 3.2(C):Using internal 12V auxiliary output

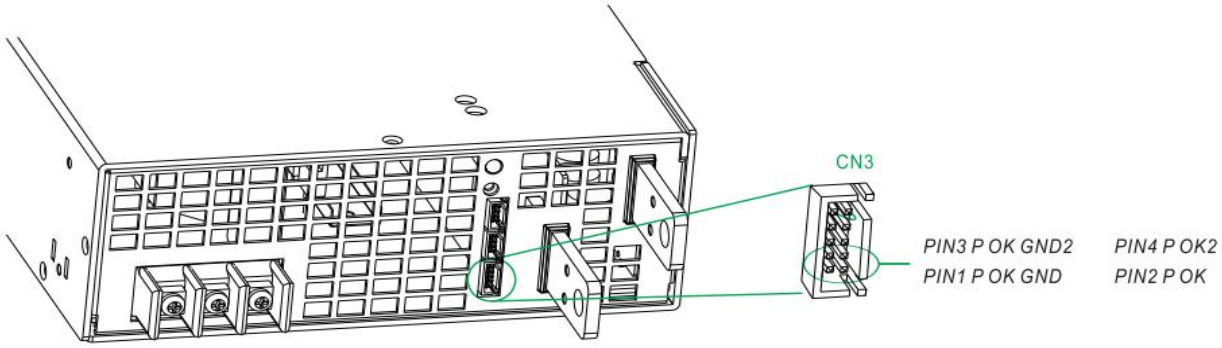


Connection method：

		Example3.2（A）	Example3.2（B）	Example3.2（C）
SW Logic	Power supply output ON	SW Open	SW Open	SW Close
	Power supply output OFF	SW Close	SW Close	SW Open

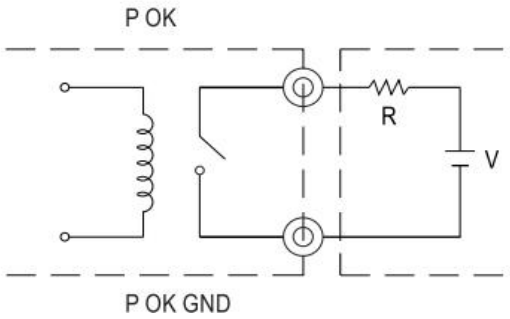
4.Alarm signal output

Alarm signal is sent out through " P OK" & "P OK GND" and P OK2 & P OK GND2 pins on CN3. Please acknowledge an external voltage source is required for this function.



By factory default, OLP(PIN9) and OL-SD(PIN10) on CN3 are shorted by connector when shipped.

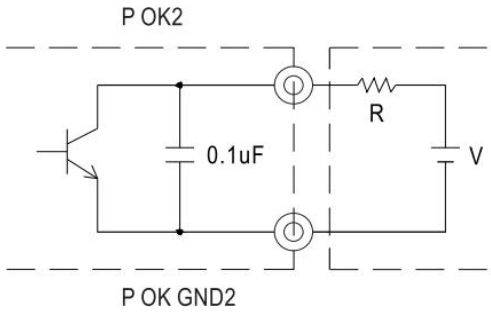
Function	Description	Alarm output(P OK, relay contact)	Alarm output(P OK2,TTL signal)
P OK	The signal is "Low" when the power supply is above 80% of the rated output voltage, or, say, Power OK	Low(0.5V Max. at 500mA)	Low (0.5V Max. at 10mA)
	The signal turns to be "High" when the power supply is under 80% of the rated output voltage, or, say, Power Fail	High or Open(External applied voltage, 500mA Max.)	High or Open(External applied voltage, 10mA Max.)



Example voltage and resistance

（The max. sink current is 500mA and voltage 20V）

Fig.4.1Internal curcuit of P OK(Relay，total 10W)



Example voltage and resistance

（The max. sink current is 10mA and voltage 30V）

Fig.4.21 Internal curcuit of P OK2(Open collector method)

5. Overload protection mode

(1)Insert the shorting connector on CN3 as shown at Fig 5.1,the over load protection mode will be "constant current limiting with delay shutdown in 5s, repower on to recover"

(2)Remove the shorting connector from CN3 as shown at Fig.5.2. the overload protection mode will change to "continuous constant current limiting"

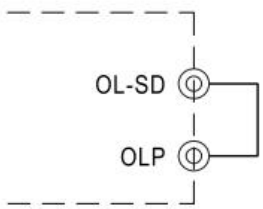


Fig.5.1 Insert the CN3

Overload protection mode:constant current limiting with delay in 5s

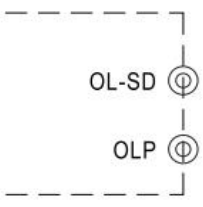


Fig.5.2 Remove the CN3

Overload protection mode:constant current limiting

6.Current sharing with remote sense

MPC3000 has the built-in active current sharing function and can be connected in parallel, up to 3 units, to provide higher output power as shown below :

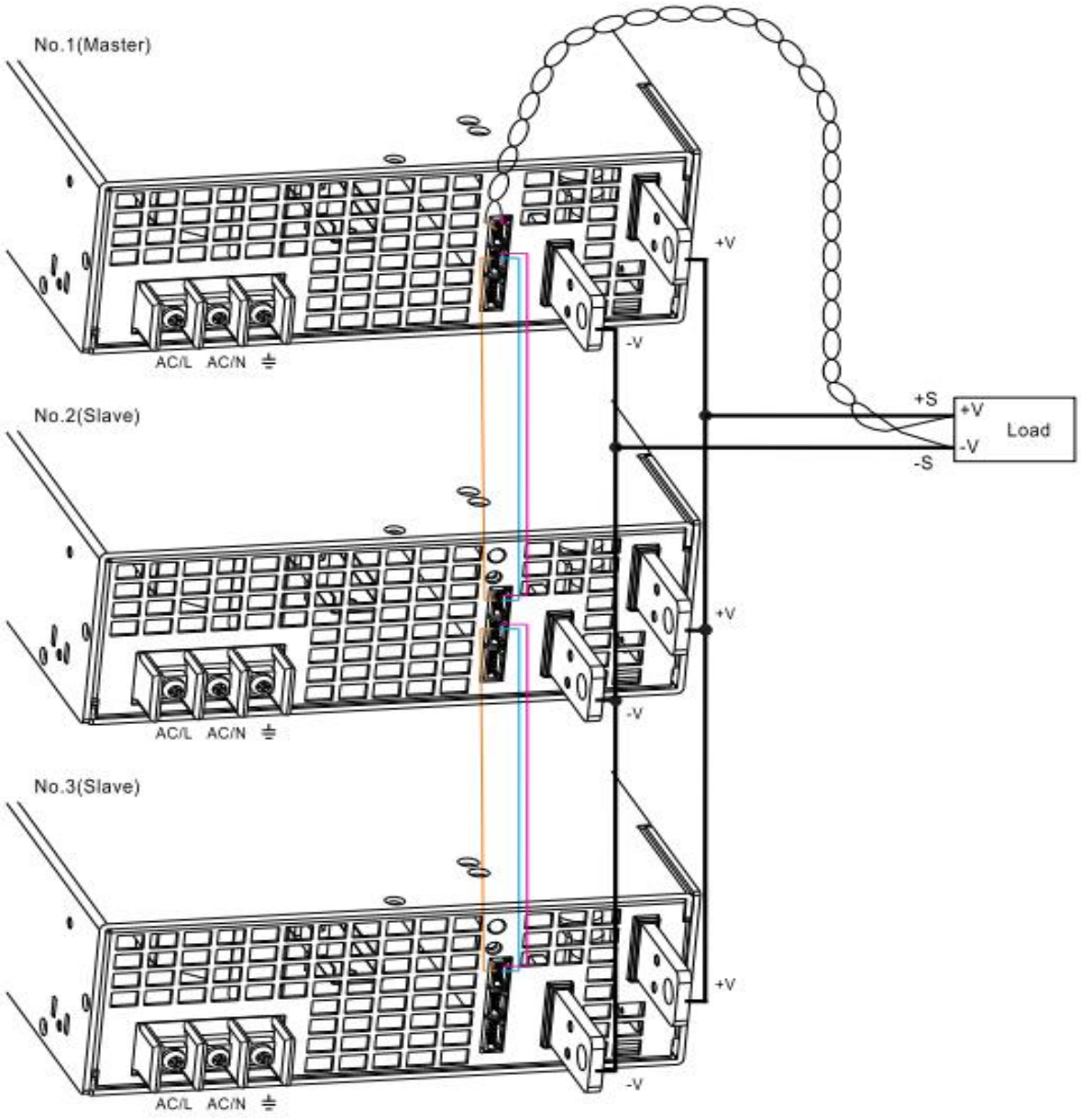
#The power supplies should be parallelled using short and large diameter wire and then connected to the load

#The difference of output voltage among paralleled units should be less than 0.2V

#The total output current must not exceed the value of following equation

Max. output current at parallel operation=(Rated current per unit)×(Number of unit)×0.9

#When the total output current is less than 3% of the total rated current, or say (3% of Rated current per unit)×(Number of unit) the current shared among units may not be fully balanced.



When remote sensing is used in parallel operation, the sensing wire must be connected only to the master unit

Sense lines should be twisted in pairs to minimize noise pick-up.

+S,-S and CS on CN1 or CN2are connected mutually in parallel.

Under parallel operation, the "output voltage programming" function is not available.

7. Three phase connection

Users can exploit three units of MPC-3000 to work with 3φ power system. Please refer to following diagrams for configuration

Fig.A: 3φ 3-wire 220VAC system

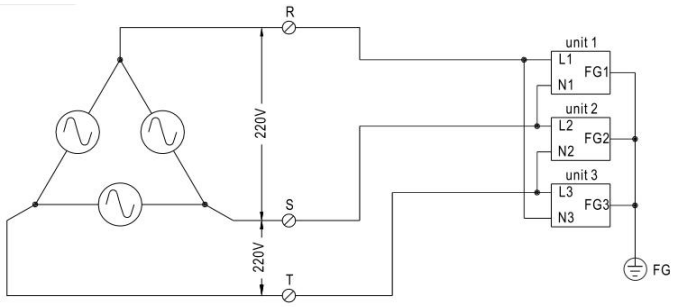
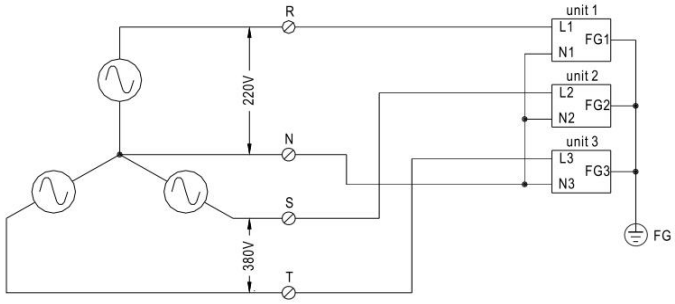


Fig. B:3φ 4-wire 220/380VAC system



图C:3φ 4-wire 190/110VAC system