RND power

USER MANUAL

RND 315-00017
RND 315-00018

AC-DC DIN RAIL MOUNTED POWER SUPPLY

480W

AC-DC Din Rail Mountable Power Supply
SINGLE PHASE INPUT

Features

- Universal Input 90~264Vac
- 100% Full Load Burn-in Test
- Cooling by Free Air Convection
- All Round Protections: Short Circuit, Over Voltage, Over Current, Over Temperature
- LED Indicator for DC Power On
- LED Indicator for DC Low

Applications

- ✓ Process Control
- ✓ Factory Automation
- ✓ Traffic & Transportation System
- ✓ Other Industrial Applications

Electrical

Part Number	Nominal Input Voltage	Output Voltage	Output Current	Ripple (Max.)	Efficiency		Certificate
						Typ	
RND 315-00017	100-240VAC	24V	20A	1%Vo mVp-p		94%	CE, UL
RND 315-00018	100-240VAC	48V	10A	1%Vo mVp-p		94%	CE, UL

NOTE:
1. The ripple values are measured at 20MHz of bandwidth by using a 12'' twisted pair-wire terminated with 0.1uF & 47uF parallel capacitor under ambient temperature 25℃ at rated input voltage and rated load;
2. The efficiency values are measured under ambient temperature 25℃ at rated input voltage and rated load.

INPUT

PARAMETER	CONDITIONS	MIN	TYP	MAX	UNITS
Input voltage		90		264	Vac
Input frequency		47		63	Hz
Input current	Full load, Vin=115Vac Full load, Vin=230Vac			5 2.5	A A
Inrush current	Cold start, Vin=115Vac Cold start, Vin=230Vac			40 80	A A
	1. This product is built in inrush limiting circuit to protect the circuit from surge current damages when the power is turned on. Malfunction can occur by repeating the input voltage on and off rapidly. Therefore, sufficient interval should be given between turning on and off the power; 2. To avoid connecting the switch or fuse to input terminal(outside of the power supply), more consideration should be given when selecting the parts that can endure the inrush current				
Power factor(PF)	Full load, Vin=115Vac Full load, Vin=230Vac		0.99 0.97		
Stand-by power consumption	Vin=230Vac			5	W
Surge voltage	L-N			2	KV

OUTPUT

PARAMETER	CONDITIONS	MIN	TYP	MAX	UNITS
Output voltage accuracy				2	%
Output voltage adjustment range	RND 315-00017 RND 315-00018		22-27 43-52		V V
	Output voltage can be adjusted within above range by V-ADJ. variable resistance inside of the power supply. When output voltage exceeds the range, the power supply will be in failure or get into over voltage protection mode. To avoid the case that the output voltage is higher than rated voltage, output current should be used under rated current				
Minimum load		0			%
Line regulation	Vin from 100Vac to 240Vac			2	%
Load regulation	Vout from min. to max.			3	%
Turn-on delay time	Full load, Vin=115Vac		3600		ms
Hold up time	Full load, Vin=115Vac		20		ms

Protection

Short circuit	Hiccuo mode, it will recover automatically after fault condition is removed
Over voltage	RND 315-00017: over voltage protection value 32V RND 315-00018: over voltage protection value 62V
	(1) When output voltage exceeds above over voltage protection value or reversal voltage occurs, the protection will be started and the output voltage will be cut off in order to protect the power supply; (2) The power supply will recover after the power is turned on again
Over current	RND 315-00017: over current protection value 30A RND 315-00018: over current protection value 15A
	(1) When output voltage exceeds above over current protection value, the protection will be started and the output voltage will be cut off in order to protect the power supply; (2) The power supply will recover automatically after the fault condition is removed
Over temperature	Over temperature protection value: 110±10℃
	(1) When the ambient temperature exceeds above over temperature protection value, the protection will be started and go into hiccup mode; (2) The power supply will recover automatically after the fault condition is removed

Environment

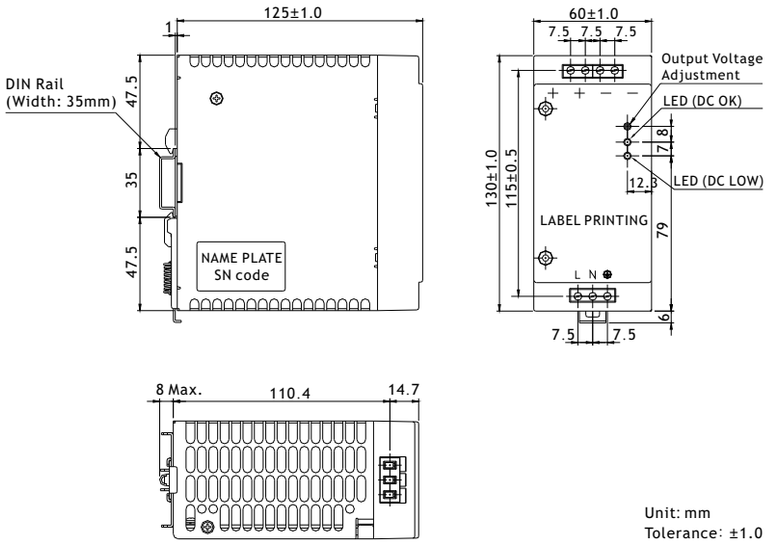
PARAMETER	CONDITIONS	MIN	TYP	MAX	UNITS
Ambient operating temperature	Startup at rated voltage	-25		+70	℃
Operating relative humidity	Non condensing	20		95	%
Storage temperature	Humidity 5 ~ 95% RH	-40		+85	℃
MTBF	Full load, 220Vac input, 25℃ ambient temperature	230			Khrs
DC-OK led	LED(Green) DC OK LED light will be ON when properly operated				
DC-Low led	LED(Red) DC Low LED light will be ON: (1) when output voltage is below 85%(±2.5%) from the rated output voltage; (2) when get over voltage, over current, over temperature and short circuit fault				
Colling	Free air convection				
Mounting method	Vertical				
Dimension(W x H x D)	60.0 x 130.0 x 125.0mm (2.36 x 5.12 x 4.92inch)				
Weight	1000g				
Packing	11pcs/12.5kg/0.7cuft/carton Carton size 620 x 260 x 175mm(LxWxH)				

Safety/EMC

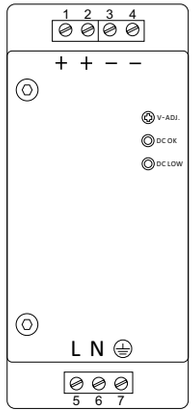
Isolation voltage	I/P-O/P: 3KVac, I/P-FG: 1.5KVac, O/P-FG: 0.5KVac
Insulation resistance	100MΩ Max./500VDC
Safety	Design refer to UL60950-1, EN60950-1
EMC	EN 55032:2015 EN 61000-3-2:2014 (IEC 61000-3-2:2014) EN 61000-3-3:2013 (IEC 61000-3-3:2013) EN 55024:2010+A1:2015

NOTE: Unless otherwise specified, all the above parameters are measured at ambient temperature of 25℃ and Vin=100Vac to 240Vac.

Mechanical

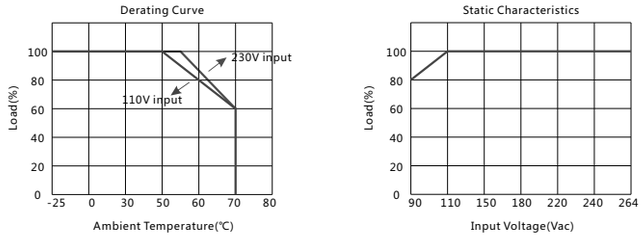


Unit: mm
Tolerance: ±1.0

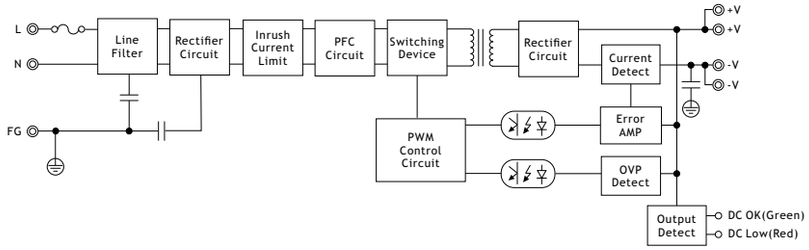


Marking	No.	Assignment
+	1	DC(+) Output Terminal
+	2	
−	3	DC(-) Output Terminal
−	4	
L	5	AC(L) Input Terminal
N	6	AC(N) Input Terminal
⏚	7	AC Grounding Terminal
V-ADJ.	/	DC Output voltage adjustment trimmer
DC OK	/	DC Output OK indication LED(Green)
DC LOW	/	DC Output Low indication LED(Red)

Electrical Curve

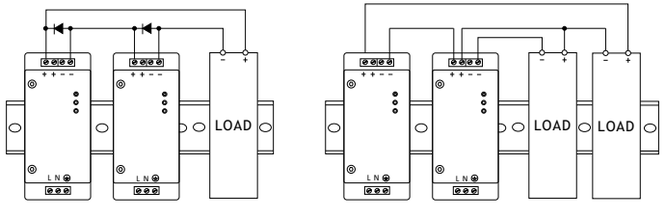


Block Diagram



Application Note

1. Series Operation



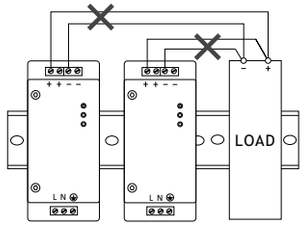
Series Operation A

Series Operation B

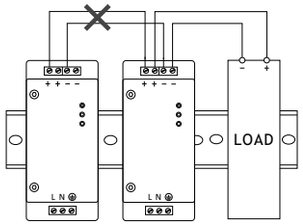
Note:
1. Series operation can be connected as shown in above;
2. Load current should be less than the current value of the product with the lowest output current specified at the product specification with the power supply at series connection.

Application Note

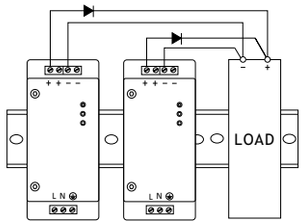
2. Parallel Operation



Parallel Operation A
(Unable to use)



Parallel Operation B
(Unable to use)



Parallel Operation C
(Backup)

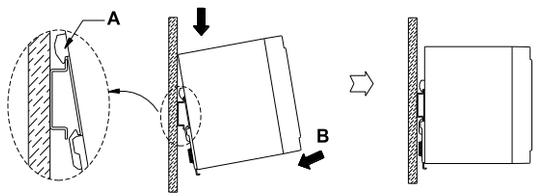
Note:
1. Parallel operation should be composed with the same products, while the connection should be as shown as “Parallel operation C”;
2. In parallel operation C, current capacity cannot be increased, while it should be used for backup only. Moreover, diode that is to be added during parallel operation should be selected after considering it’s voltage drop, output voltage and current capacity.

Application Note

3. Mounting Method

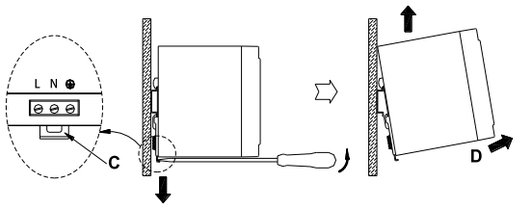
(1) How to fix

Firstly hang A part on the top of Rail as shown in below, then push the power supply into B direction to fix it.



(2) How to remove

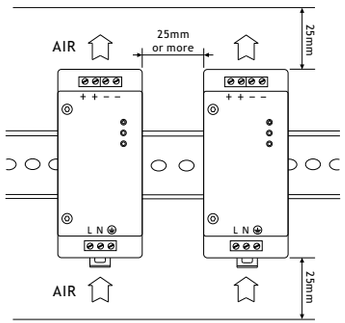
Remove the power supply to D direction, pulling C part by using tools, such as a screwdriver, to downward direction.



3. Mounting Method

(3) Mounting Spacing

Mounting method should be considered with airflow. Leave enough space between the units when several units are mounted together. Forced air cooling makes protection against heat better.



Application Note

4. Cautions

(1) Please confirm if the capacity of the product is suitable for your intended application before putting it in use;

(2) Only the rated input voltage specified on the product should be used;

(3) Only the wires with rated capacity should be connected to this product, as allowable voltage and current is varied according to each type of wire;

(4) Ground terminal of the power supply must be grounded before use to prevent electric shock or electromaganetic interference;

(5) Be cautions to keep the product clean as foreign matter near the input & output terminal or inside if the product could cause series damages;

(6) If a fuse installed in the product blows off, the product should experience damages not only to the fuse but also to other parts as well. Therefore, the product is to be required for maintenance work from customer service department as well as replacement of the fuse;

(7) Due to constant leakage current flows within the product, extra caution should be made if multiple number of products are used connecting to each other as total leakage current could be amounted beyond the capacity;

(8) Be sure to avoid any physical contact with the product since some of the parts inside of the product are being functioned at high voltage, which could cause serious electric shock;

(9) For the purpose of safety as well as reliability of the product, please avoid using the product at the following sites:
- A place near water or fire
- A place with high room temperature and poor ventilation
- A place with a presence of foreign subject or dust
- A place near volatile or flammable compounds
- A place with high humidity
- A place vulnerable for vibration or shock

(10) Do not inspect or repair the product while the power is applied;

(11) Unauthorized modification should be avoided in order to prevent series injury or physical loss due to any malfunction;

(12) In case of power outage while in operation, be sure to turn off the power supply.

Application Note

5. Warranty

(1) Repair service will be provided for free upon any mechanical, technical or functional defects during the guaranteed warranty, however, any defects or malfunction due to international infliction or negligence by customers will be repaired at the customer's expense;

(2) Guaranteed warranty of the product runs for 3 years, while appearance and specification of the product is subject for change without any prior notification for the purpose of quality improvement of the product.