

# AC/DC DIN Rail Mounted Power Supply, 30W



## Features

For factory automation, traffic & transportation systems and other industrial applications

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



## Electrical

| Part Number   | Nominal Input Voltage | Output Voltage | Output Current | Ripple (Typ.) | Efficiency (Typ.) | Certificate |
|---------------|-----------------------|----------------|----------------|---------------|-------------------|-------------|
| RND 315-00003 | 100-240VAC            | 5V             | 5A             | 32mV          | 78%               | CE          |
| RND 315-00004 | 100-240VAC            | 24V            | 1.3A           | 46mV          | 87%               | CE          |

### 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°C at rated input voltage and rated load;
2. The efficiency values are measured under ambient temperature 25°C at rated input voltage and rated load.

# AC/DC DIN Rail Mounted Power Supply



## 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   |     | 0.65<br>0.35 |          | A<br>A |
| Inrush current             | Cold start, Vin=115Vac Cold start, Vin=230Vac   |     |              | 30<br>60 | A<br>A |
|                            | <p>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;</p> <p>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</p> |     |              |          |        |
| Stand-by power consumption | Vin=230Vac  |     | 1            |          | W      |
| Surge voltage              | L-N   |     | 2            |          | KV     |

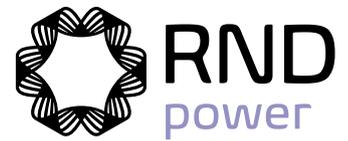
# AC/DC DIN Rail Mounted Power Supply



## Output

| Parameter                       | Conditions   | MIN | TYP       | MAX | UNITS |
|---------------------------------|--|-----|-----------|-----|-------|
| Output voltage accuracy         |  |     | ±1        |     | %     |
| Output voltage adjustment range | RND 315-00003  |     | 4.5-5.3   |     | V     |
|                                 | RND 315-00004  |     | 23.5-24.5 |     | 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   |           |     | A     |
| Line regulation                 | Vin from 100Vac to 240Vac  |     | 1         |     | %     |
| Load regulation                 | Vout from min. to max.   |     | 1         |     | %     |
| Turn-on delay time              | Full load, Vin=115Vac  |     | 100       |     | ms    |
| Hold up time                    | Full load, Vin=115Vac  |     | 20        |     | ms    |

# AC/DC DIN Rail Mounted Power Supply



## Protection

|                  |   |
|------------------|---|
| Short circuit    | Hiccup mode, it will recover automatically after fault condition is removed   |
| Over voltage     | RND 315-00003: over voltage protection value 6.5V<br>RND 315-00004: over voltage protection value 30V   |
|                  | (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;<br>(2) The power supply will recover after the power is turned on again |
| Over current     | RND 315-00003: over current protection value 6A<br>RND 315-00004: over current protection value 2.2A  |
|                  | (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;<br>(2) The power supply will recover automatically after the fault condition is removed            |
| Over temperature | Over temperature protection value: 100±10°C   |
|                  | (1) When the ambient temperature exceeds above over temperature protection value, the protection will be started and the output voltage will be cut off in order to protect the power supply;<br>(2) The power supply will recover after the power is turned on again               |

# AC/DC DIN Rail Mounted Power Supply



## Environment

| PARAMETER                     | CONDITIONS  | MIN | TYP | MAX | UNITS |
|-------------------------------|---|-----|-----|-----|-------|
| Ambient operating temperature | Startup at rated voltage  | -25 |     | +70 | °C    |
| Operating relative humidity   | Non condensing  | 20  |     | 95  | %     |
| Storage temperature           | Humidity 5 ~ 95% RH   | -40 |     | +85 | °C    |
| MTBF                          | Full load, 220Vac input, 25°C ambient temperature   | 200 |     |     | Khrs  |
| DC-OK led                     | LED(Green)<br>DC OK LED light will be ON when the power supply is properly operated   |     |     |     |       |
| DC-Low led                    | LED(Red)<br>DC Low LED light will be ON:<br>(1) when output voltage is below 85%(±2.5%) from the rated output voltage;<br>(2) when get over voltage, over current, over temperature and short circuit fault |     |     |     |       |
| Cooling                       | Free air convection   |     |     |     |       |
| Mounting method               | Vertical  |     |     |     |       |
| Dimension(W x H x D)          | 36.0 x 95.0 x 108.0mm (1.42 x 3.74 x 4.25inch)  |     |     |     |       |
| Weight                        | 250g  |     |     |     |       |

# AC/DC DIN Rail Mounted Power Supply

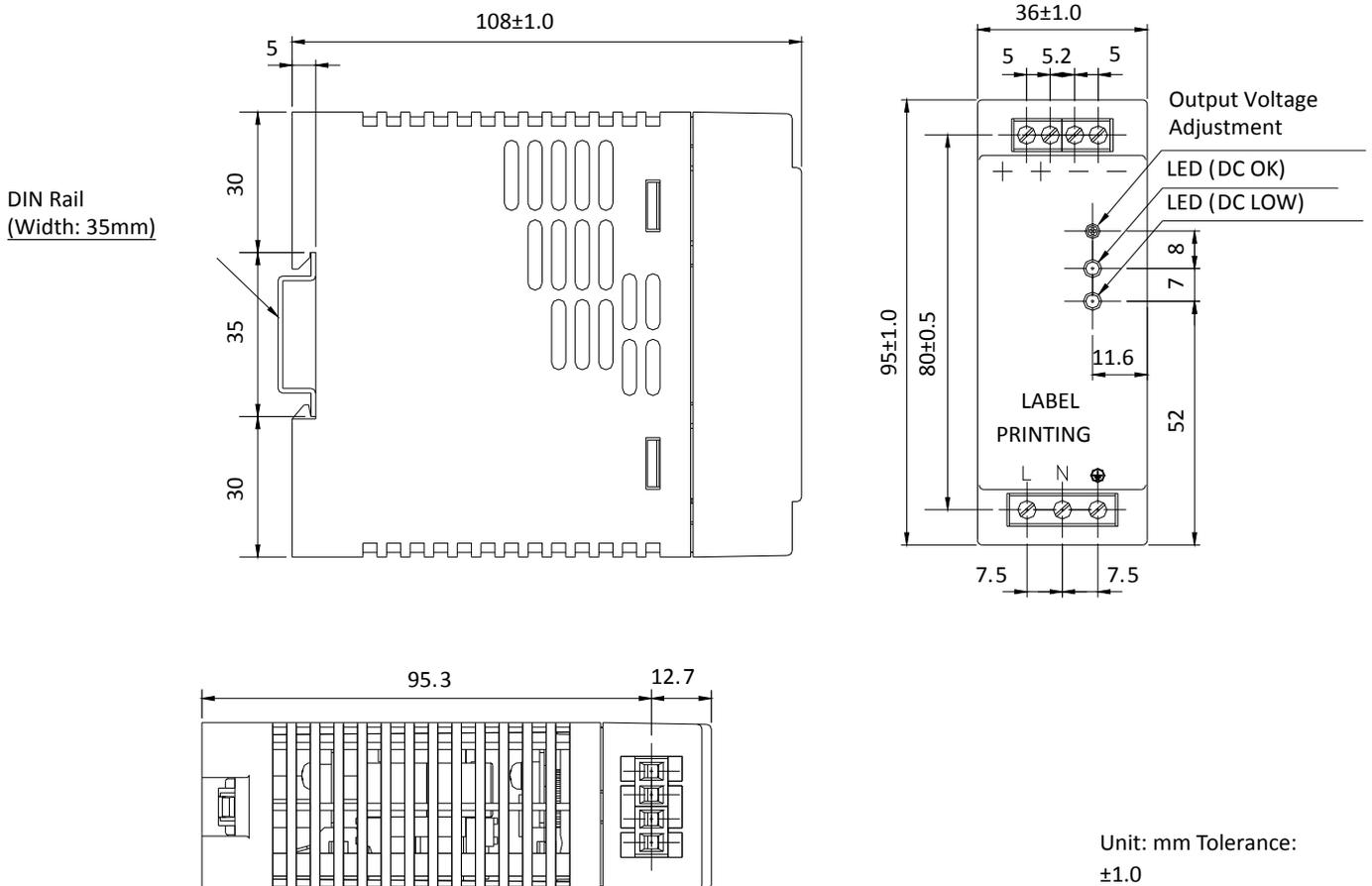


## Safety/EMC

|                       |   |
|-----------------------|---|
| Isolation voltage     | I/P-O/P: 3KVac, I/P-FG: 1.5KVac, O/P-FG: 1.5KVac  |
| Insulation resistance | 100MΩ Max./500VDC   |
| Safety                | Design refer to UL60950-1, EN60950-1  |
| EMC                   | EN 55022:2010+AC:2011 (CISPR 22:2008) ClassB<br>EN 61000-3-2:2014 (IEC 61000-3-2:2014)<br>EN 61000-3-3:2013 (IEC 61000-3-3:2013)<br>EN 55024:2010 (CISPR 24:2010) |

**Note:** Unless otherwise specified, all the above parameters are measured at ambient temperature of 25°C and  $V_{in}$ =100Vac to 240Vac.

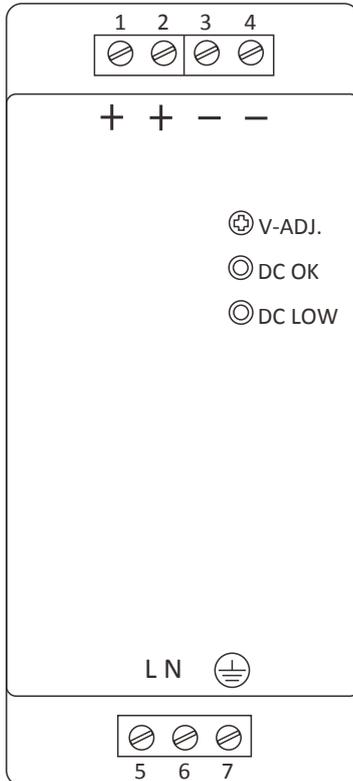
## Mechanical



# AC/DC DIN Rail Mounted Power Supply



## Mechanical

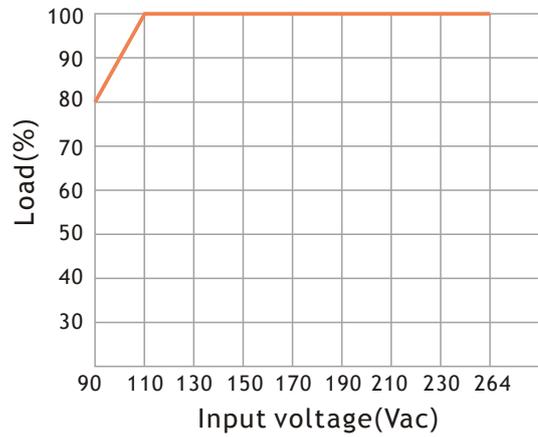
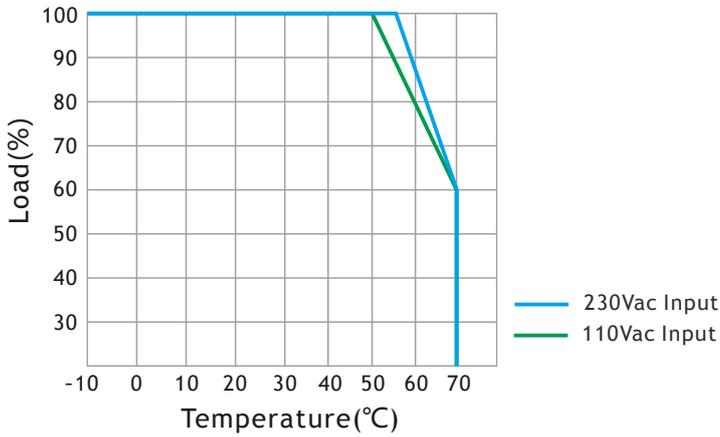


| Marking | No. | Assignment                           |
|---------|-----|--------------------------------------|
| +       | 1   | DC(+) Output Terminal                |
| +       | 2   |                                      |
| -       | 3   | DC(-) Output Terminal                |
| -       | 4   |                                      |
| 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)    |

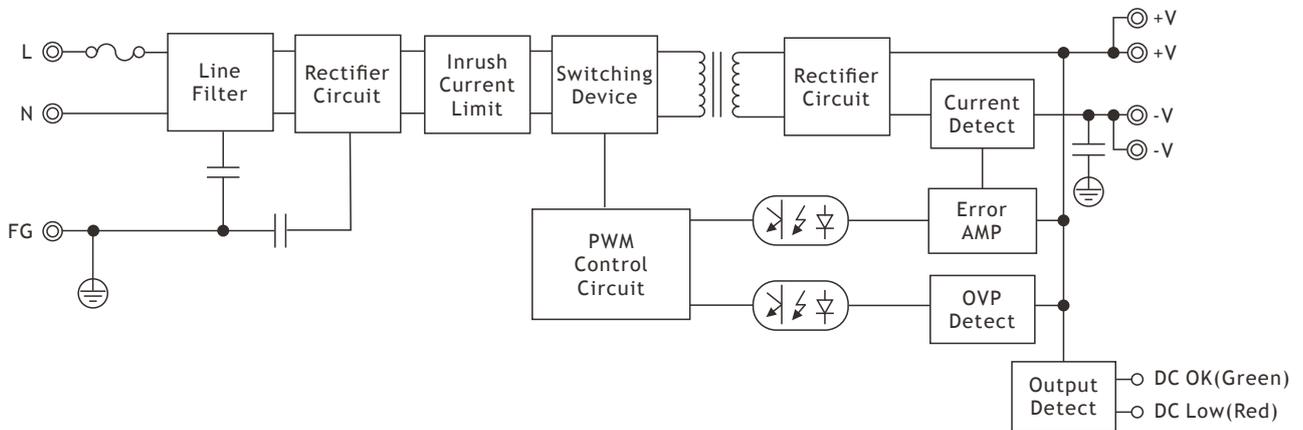
# AC/DC DIN Rail Mounted Power Supply



## Electrical Curve



## Block Diagram

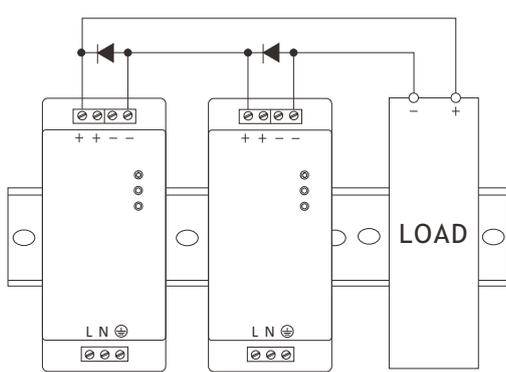


# AC/DC DIN Rail Mounted Power Supply

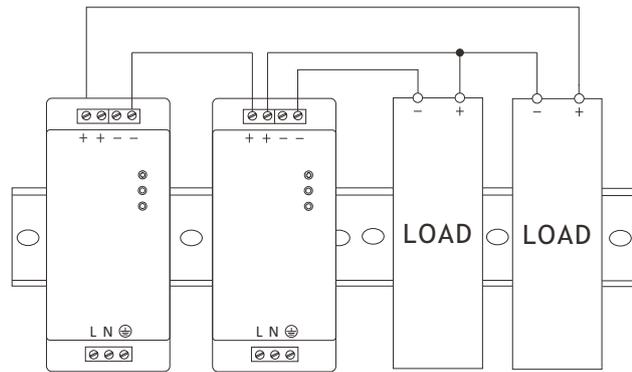


## Application Note

### 1. Series Operation



Series Operation A

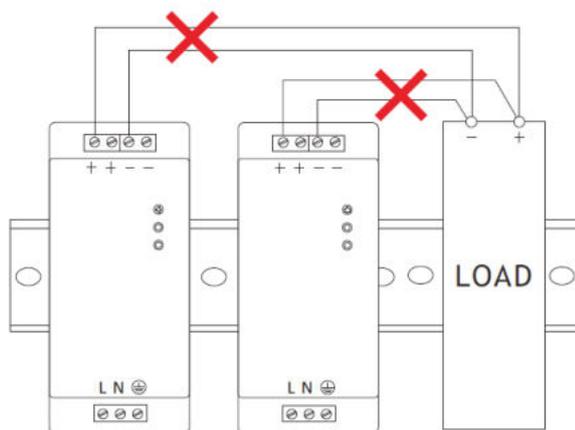


Series Operation B

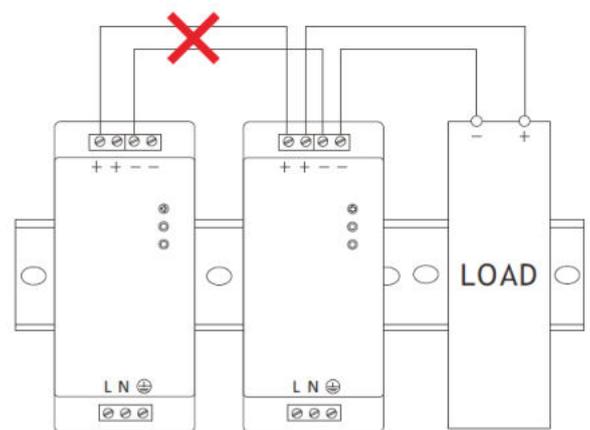
#### Note:

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.

### 2. Parallel Operation



Parallel Operation A (Unable to use)

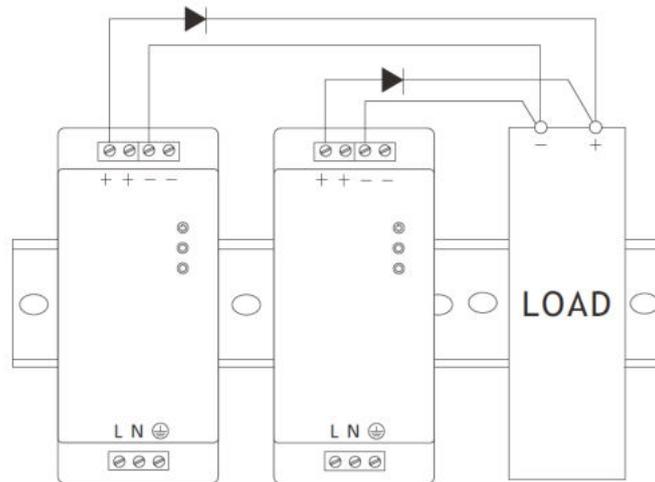


Parallel Operation B (Unable to use)

# AC/DC DIN Rail Mounted Power Supply



## Application Note



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 its voltage drop, output voltage and current capacity.

# AC/DC DIN Rail Mounted Power Supply

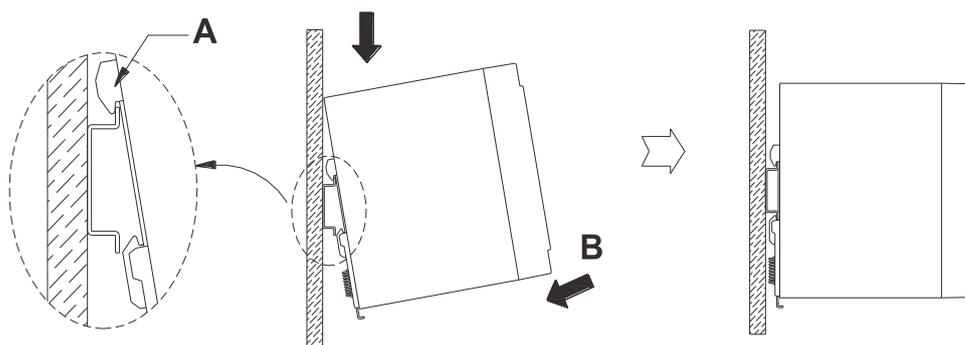


## Application Note

### 3. Mounting Method

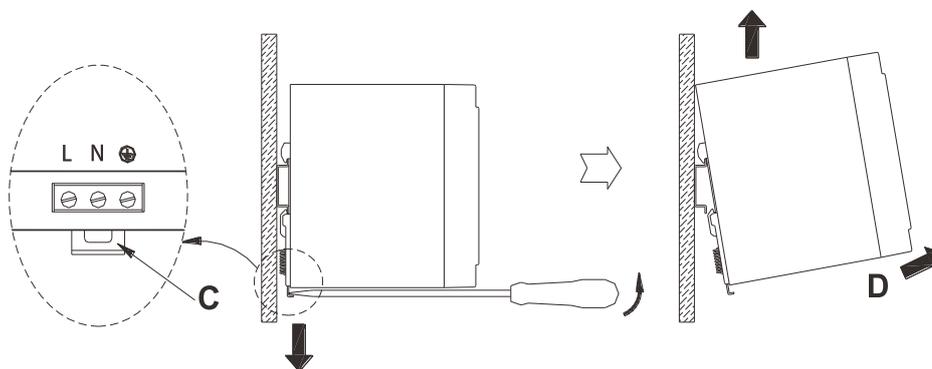
#### (1) How to fix

Firstly hang A part on the top of Rail as shown in below, then push the power supply into B di-rection 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 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.

