# *Three Phase DIN Rail Mountable Switching Power Supply*

Output Power 120 watts




***Technical Data***
***Installation and Operation***

## DEFINITION OF MODELS

SPD241203

24 : Output Voltage
12 .... 12Vdc output
24 .... 24Vdc output

***Fig. 1***

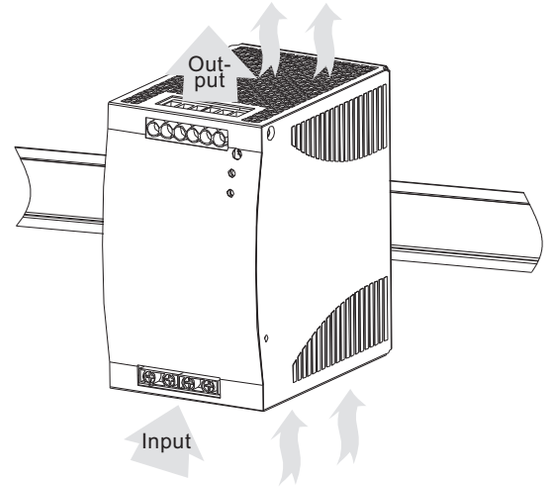



***Fig. 2***

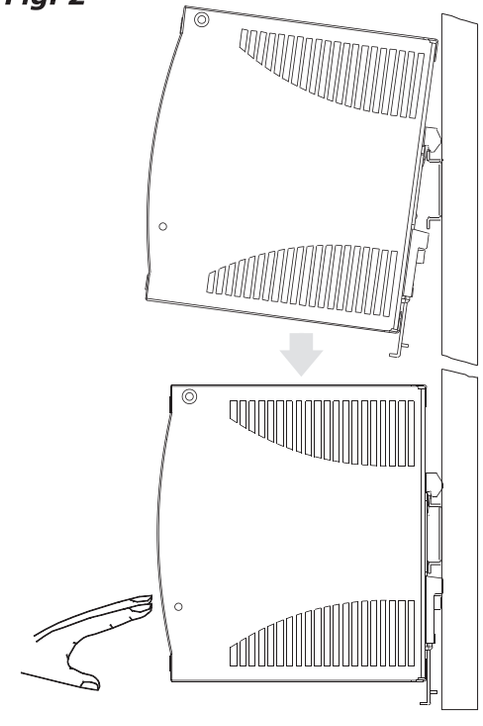
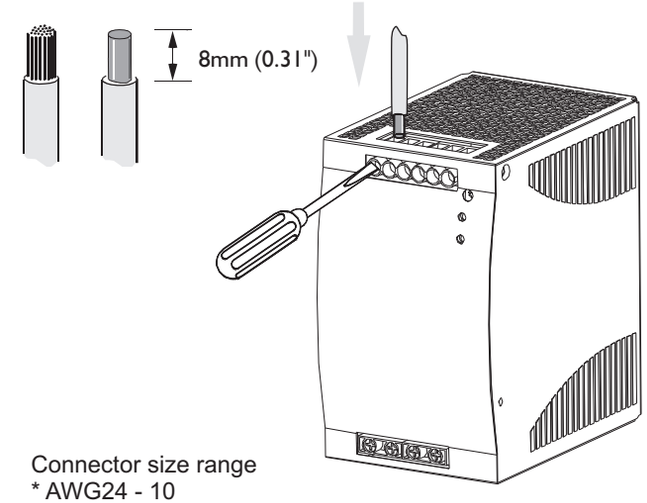


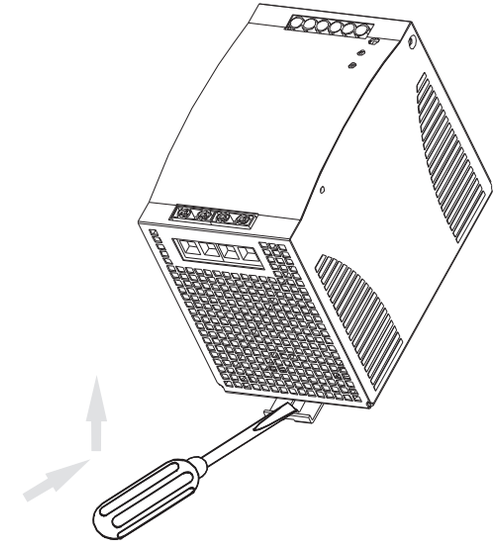
***Fig. 3***




Connector size range
* AWG24 - 10
- Input connector can withstand torque at maximum 1.01Nm (9lb-in)
- Output connector can withstand torque at maximum 0.621Nm (5.5lb-in)

Use copper conductors only, 60/75 ˚C (140/167 ˚F)
Max. surrounding air temperature 55 ˚C (122 ˚F) for UL508

***Fig. 4***



# Safety notes

## Read Instructions!

Before working with this unit, read these instructions carefully and completely. Make sure that you have understood all the information!

## Disconnect system from supply network

Before any installation, maintenance or modification work:
Disconnect your system from the supply network. Ensure that cannot be re-connected inadvertently!

## Before start of operation
## Ensure appropriate installation

Warning! Improper installation / operation impair safety and result in operational difficulties or complete failure of the unit.
The unit must be installed and put into service appropriately by qualified personnel. Compliance with the relevant regulations must be ensured. Before operation is begun the following conditions must be ensured, in particular:

- Connection to main power supply in compliance with VDE0100 and EN50178.
- With stranded wires: all strands must be secured in the terminal blocks (Potential danger of short circuit).
- Unit and power supply cables must be properly fused; if necessary a manually controlled disconnecting element must be used to disengage from supply mains.
- The non-fused earth conductor must be connected to the " ⏚ " terminal (protection class 1).
- All output lines must be rated for the power supply output current and must be connected with the correct polarity.
- Sufficient air-cooling must be ensured.
- Use in a pollution degree 2 environment.
- This equipment is suitable for use in class I, division 2, groups A, B, C, and D or non hazardous locations only.
- Warning-explosion hazard-substitution of components may impair suitability for class I, division 2.
- Warning-explosion hazard-do not disconnect equipment unless power has been switched off or it is known to be the non-hazardous area.

## In operation: No modifications!

As long as the unit is in operation: do not modify the installation! The same applies also to the secondary side. Risk of electric arcs and electric shock (fatal)!

**Only (dis) connect plug connectors when the power is off!**

## Convection cooling

**Do not cover** any ventilation holes!
**Leave sufficient space** around the unit **for cooling!**
See supplementary sheet "Technical Data" and Fig. 1

## Warning: High voltage! Store energy!

The unit contains unprotected conductors carrying a lethal high voltage, and components storing substantial amounts of energy. Improper handling may result in an electric shock or serious burn!

- The unit must not be opened except appropriately trained personnel!
- Do not introduce any object into the unit!
- Keep away from fire and water!

# Installation

## Application

This unit is a primary switched-mode power supply designed **for use in panel-board installations or building-in applications** where access to the supply is restricted (shock-hazard protection). It must only be installed and put into service appropriately by qualified personnel.

# Mounting

## Mounting

Permissible mounting position: see Fig. 1 keep free ventilation hole, leave space for cooling! Recommended to have 25mm free space at all sides for ventilation / cooling:
see supplementary sheet "Technical Data".

## Snap on support rail (See Fig. 2)

- Tilt the unit slightly rearwards.
- Fit the unit over top hat rail.
- Slide it downward until it hits the stop.
- Press against the bottom front side for locking.
- Shake the unit slightly to check the locking action.

# Front elements

## Operation indicator

The green LED lights up while the PSU working properly.

## DC output low indicator

The red LED lights up while the output voltage is too low.

## Potentiometer

Setting the output voltage.

# Connection / Internal fuse

## Connection

- Data for permitted loads, cable cross-sections and stripping: see enclosed leaflet " Technical Data " (See Fig. 3).
- Use only commercial cables designed for the indicated voltage and current values!
- With flexible cables: make sure that all stranded cable are secured in the terminal.
- Ensure proper polarity at output terminals!

## Grounding

- **Do not operate without PE connection!** To comply with EMC and safety standards (CE mark, approvals), the unit must only be operated if the PE terminal ⏚ is connected to the non-fused earth conductor.
- Secondary side is not earthed; if necessary the ⊕ or ⊖ terminal can be earthed optionally.

## Internal fuse

The internal input fuse serves to protect the unit and must not be replaced by the user. In case of an internal defect, the unit must be returned to the manufacturer for safety reasons.

## External circuit breaker

- For input line protection observe national regulations; recommended recommended circuit breaker: Mitsubishi, Type NF30-CS, rated 20A max or equipollent of TUV/VDE/UL approved sources.

# Removal

## Removal from DIN Rail

Insert a flat screwdriver into the slot in the clamp. Pull down the clamp out until the clamp clicks, and turn the switching power supply bottom out. (See Fig. 4)

# Technical Data

All specifications are typical at norminal line, full load, 25°C; Unless otherwise noticed.

| Output Power | Vo [V] | Io [A] | Eff. [typ.] | Inrush Current |
|---|---|---|---|---|
| | | | | 400/500Vac |
| 120 | 12 | 10 | 87% | < 12A |
| | 24 | 5 | 89% | |

## General Specification

| | |
|---|---|
| Isolation | 3000 Vac / 4242 Vdc |
| Isolation Resistance | 100 M ohm |
| Operation amb. Temperature | -40 ~ +71 ℃ |
| Storage Temperature | -40 ~ +85 ℃ |
| Derating | +61 ~ +71 ℃ (see Fig. 5) |
| Relative Humidity | 20 ~ 95% RH |
| Cooling | Free air convection |
| Temperature Coefficient | 0.03% / ℃ |
| Dimension | L124 x W74.3 x D118.8 [mm] |
| Weight | 800g |

## Input Specification

| | |
|---|---|
| Rated Input Voltage | 3ø 400-500 Vac |
| Input Voltage Range | (1) 3ø AC IN 340 ~ 575 Vac 47-63Hz<br>(2) 2ø AC IN 340 ~ 575 Vac 47-63Hz<br>(but output is power derated to 75%)<br>(3) DC IN 480 ~ 820 Vdc |
| Rated Input Current | 0.5A |
| Line Frequency | 47 - 63 Hz |
| Power Factor | 0.55 |

## Output Specification

| | |
|---|---|
| Output Accuracy | +0 ~ 1% |
| Line Regulation | ± 1% |
| Load Regulation | ± 1 % |
| Ripple & Noise | 100 mV |
| Voltage Trim Range | 11.4 ~ 14.5 Vdc for 12V model<br>22.5 ~ 28.5 Vdc for 24V model |
| DC ON Indicator | Green LED |
| DC LOW Indicator | Red LED |
| Turn on time | <1000ms |
| Fall time | <150ms |
| Rise time | <150ms |
| Hold Up Time | >20ms |
| Case material | Metal |

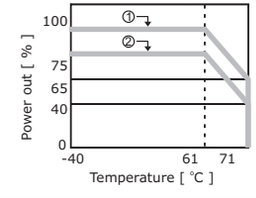
## Control And Protection

| | |
|---|---|
| Input Internal Fuse | 2A / 600 Vac internal / phase |
| Output Short Circuit | Hiccup mode |
| Output Over Load | 115 % ~ 135 % |

## Approvals And Standard

| | |
|---|---|
| UL / cUL | UL 508 Listed, UL 60950-1 Recognized |
| TUV. | ISA 12.12.01<br>EN 60950-1<br>EN 61558-1, EN 61558-2-17 |
| CE | EN 61000-6-3, EN 55022 class B<br>EN 61000-3-2, EN61000-3-3<br>EN 61000-6-2, EN 55024<br>EN 61000-4-2, -3, -4, -5, -6, -8, -11<br>EN 61204-3 |

## Fig. 5 Derating




① Three phase
② Dual phase