

## Description:

SNP-954X-M1 series is a 40W, universal input switching power supply. It is with various output options, which includes triple outputs, dual outputs and single output. It is designed to comply with UL2601-1, EN 60601-1. It is ideal for small digitally based systems used in medical and dental patient environment.

## Model available:

- SNP-9541-M1 for $5 \mathrm{~V} / 3 \mathrm{~A}, 12 \mathrm{~V} / 2 \mathrm{~A},-12 \mathrm{~V} / 0.3 \mathrm{~A}$
- SNP-9546-M1 for 5V/8A
- SNP-9547-M1 for 12V/3.3A
- SNP-9548-M1 for $15 \mathrm{~V} / 2.6 \mathrm{~A}$
- SNP-9549-M1 for 24V/1.7A


## General Specifications:

Input voltage $\qquad$ 90VAC to 264 VAC
Input frequency 47 Hz to 63 Hz
Inrush current $\qquad$ less than 30 A at 115 VAC
(Cold start) less than 60A at 230 VAC
Efficiency $\qquad$ higher than 70\% at rated load and 115 VAC
Hold up time $\qquad$ at rated load and 115 VAC
Overload protection $\qquad$ auto recovery

Short circuit protection ................................. auto recovery
Over voltage protection $\qquad$ auto recovery
Operating temperature $\qquad$ 0 to $50^{\circ} \mathrm{C}$, rated load
Cooling $\qquad$ free air convection Storage temperature $\qquad$ $-20^{\circ} \mathrm{C}$ to $+85^{\circ} \mathrm{C}$
EMI $\qquad$ meet FCC docket 20780 curve " B " EN55011 "B"
Safety $\qquad$ UL 2601-1 (UL file no. E158990)

CSA 601-1 (CUL)
EN60601-1 (T9575002.07)

## Mechanical Specifications:

SNP-9547-M1


## Note:

1. Dimensions shown in mm as left. Tolerance specified is $\pm 0.4 \mathrm{~mm}$.
2. P.C.B. Size:
76.2 X $127 \times 31.2(\mathrm{~mm})$ for SNP-9541-M1
$3 \times 5 \times 1.23$ (inch)
$76.2 \times 127 \times 30.6(\mathrm{~mm})$ for others
Mounting Hole:
3. Mounting Hole:
64.8 X 115.6 (mm)
4. Packing:

Net weight: 250 g approx. / unit
Net weight: 250 g approx. / unit
Gross weight: 14 kg approx. / carton, 48 units / carton
Carton size (mm): 397 (L) $\times 339$ (W) $\times 327$ (H)
5. Connectors:

TB1 : Molex 5277-2 or equivalent for AC input
TB2 : Molex 5273-X or equivalent for DC output
6. DC output Pin Assignment

| MODEL | 1 | 2 | 3 | 4 | 5 | 6 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| SNP-9541-M1 | +12 V | +5 V | +5 V | GND | GND | -12 V |
| SNP-9546-M1 | +5 V | +5 V | +5 V | GND | GND | GND |
| SNP-9547-M1 | +12 V | +12 V | +12 V | GND | GND | GND |
| SNP-9548-M1 | +15 V | +15 V | +15 V | GND | GND | GND |
| SNP-9549-M1 | +24 V | +24 V | +24 V | GND | GND | GND |

## Output Specifications:

| MODEL NO. | OUTPUT RAIL | LOAD |  |  | VOLTAGE <br> ACCURACY | RIPPLE NOISE | $\begin{aligned} & \text { LINE } \\ & \text { REG. } \end{aligned}$ | $\begin{aligned} & \text { LOAD } \\ & \text { REG. } \end{aligned}$ |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | MIN. | RATED | PEAK |  |  |  |  |
| SNP-9541-M1 | $+5 \mathrm{~V}$ | 0A | 3A | 6A | +4.95V $\sim 5.05 \mathrm{~V}(\mathrm{adj})$ | 50 mVpp | $\pm 1 \%$ | $\pm 3 \%$ |
|  | $+12 \mathrm{~V}$ | 0A | 2 A | 4A | $+11.4 \mathrm{~V} \sim+12.6 \mathrm{~V}$ | 100 mVpp | $\pm 2 \%$ | $\pm 3 \%$ |
|  | -12V | 0A | 0.3A | 0.5A | -11.40V $\sim 12.6 \mathrm{~V}$ | 100 mVpp | $\pm 3 \%$ | $\pm 5 \%$ |
| SNP-9546-M1 | $+5 \mathrm{~V}$ | 0A | 8A | 12A | +4.75V $\sim+5.25 \mathrm{~V}(\mathrm{adj})$ | 50mVpp | $\pm 1 \%$ | $\pm 1 \%$ |
| SNP-9547-M1 | $+12 \mathrm{~V}$ | 0A | 3.3 A | 5A | $+11.90 \mathrm{~V} \sim+12.10 \mathrm{~V}(\mathrm{adj})$ | 100 mVpp | $\pm 1 \%$ | $\pm 1 \%$ |
| SNP-9548-M1 | $+15 \mathrm{~V}$ | 0A | 2.6 A | 4A | $+14.85 \mathrm{~V} \sim+15.15 \mathrm{~V}(\mathrm{adj})$ | 100 mVpp | $\pm 1 \%$ | $\pm 1 \%$ |
| SNP-9549-M1 | +24V | 0A | 1.7 A | 2.5 A | +23.8V $\sim 24.2 \mathrm{~V}(\mathrm{adj})$ | 240 mVpp | $\pm 1 \%$ | $\pm 1 \%$ |

## Note:

1. Each output can provide up to peak load temporarily. Continuous staying in more than rated load will reduce the reliability.
2. Voltage accuracy is measured with all outputs set at $60 \%$ rated load and main output is adjusted to $\pm 1 \%$.
3. Line Regulation measuring is done at rated loading and $\pm 10 \%$ of input voltage changing.
4. Load Regulation measuring is done by changing the measured output loading $\pm 40 \%$ from $60 \%$ rated load, and keep all other outputs at $60 \%$ rated load.
5. Ripple \& Noise measuring is done by 15 MHz band width limited oscilloscope and terminated each output with a 0.47 uF capacitor at rated loading.
6. Efficiency is measured at rated load.
7. Hold Up Time is measured from the end of the last full charging pulse to when the main output drop down to $95 \%$ output voltage.

## -James-

## Performance for SNP-9547-M1:

1. Switching frequency ripple

2. Output turn on wave form

3. Hold-up time

4. Line frequency ripple

5. Output turn off wave form

6. Over voltage protection

7. Transient response

8. FCC B

9. EN 55022 B

