

## NPS20-M Series

40 Watts

**Total Power:** 25 - 40 Watts  
**Input Voltage:** 90 - 264 VAC  
127 - 300 VDC  
**# of Outputs:** Single



### Special Features

- Medical and ITE Safety Approvals
- Universal input
- Less than 1U high
- 2" x 4" footprint
- Remote sense
- Overload and short circuit protection
- Adjustable output voltage
- High efficiency
- High MTBF
- Built in EMI filter (CISPR 22 Class B)
- International Efficiency Level V, Energy Star 2.0 & CeC compliant (NPS22-M < 38 Watt output)
- Less than 300 mW no-load power consumption
- 0° C to +80° C operation
- Input power < 49 watts
- Complies with EN61000-3-2
- Class I approved
- Class II approved (with Class A EMI)
- LPX50 enclosure kit available
- Dual AC fuses

### Safety

- **TUV:** 60950, 60601-1
- **UL:** 60950, 60601-1
- **CSA:** 60950, 60601-1
- **NEMKO:** 60950, 60601-1
- **CB:** Certificate and report
- **CE:** Mark (LVD)
- **CQC:** Mark

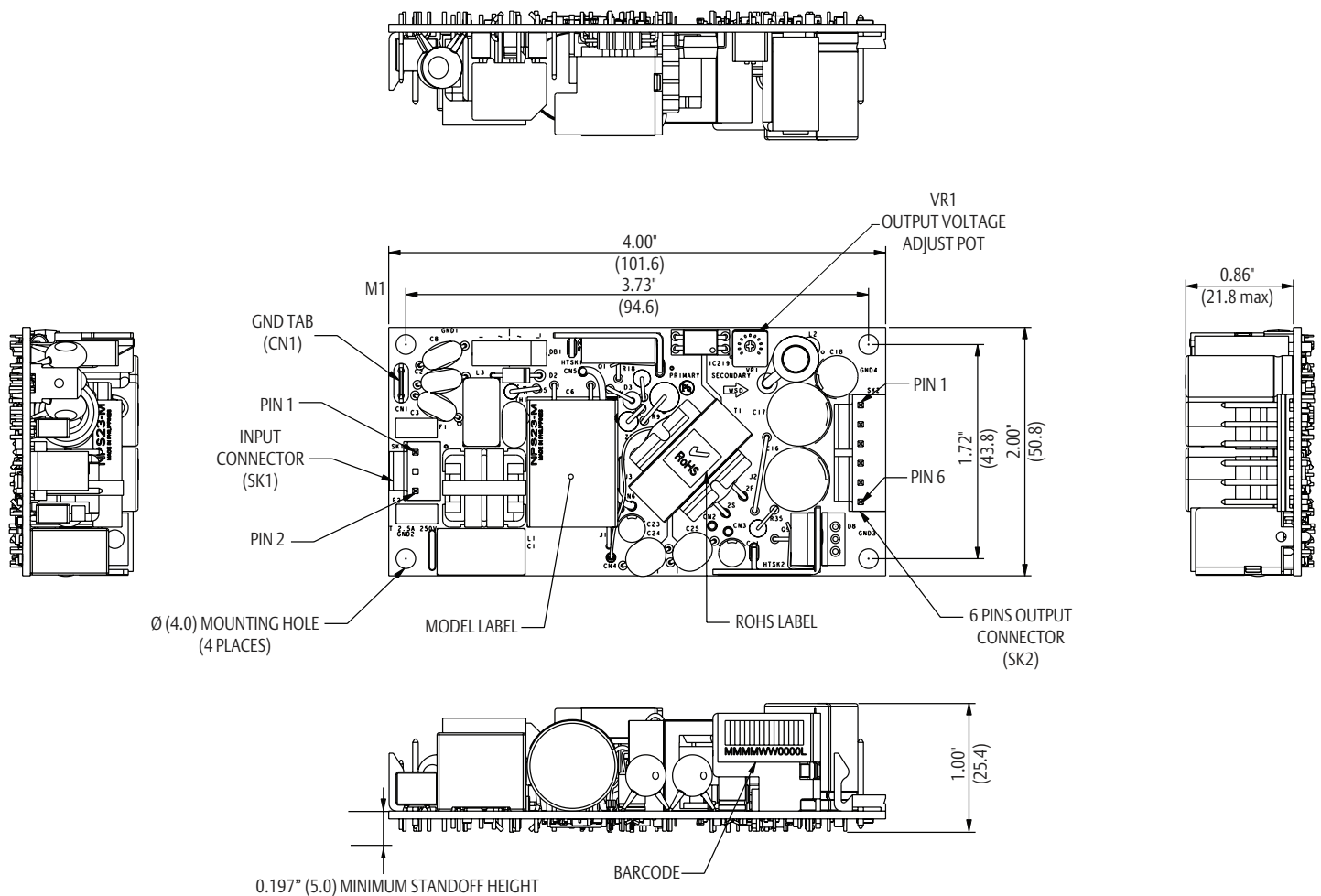
### Electrical Specifications

| Input                          |                                                                                                                         |
|--------------------------------|-------------------------------------------------------------------------------------------------------------------------|
| Input range:                   | 90 - 264 VAC (wide range) 127-300 Vdc                                                                                   |
| Frequency:                     | 47 - 440 Hz                                                                                                             |
| Inrush current:                | < 50 A peak @ 230 VAC, cold start @ 25 °C                                                                               |
| Input power:                   | < 49 Watts                                                                                                              |
| Efficiency:                    | 87% average (as per Energy Star 2.0 standard) (NPS22-M, 80%)                                                            |
| EMI/RFI:                       | FCC Class B conducted; CISPR 22 Class B conducted; EN55022 Class B conducted, VDE0878PT3 Class B conducted              |
| Safety ground leakage current: | 275uA @ 50/60 Hz; 264 VAC input                                                                                         |
| Output                         |                                                                                                                         |
| Maximum power:                 | 25 W for convection. 40 W with 200LFM forced air                                                                        |
| Adjustment range:              | ± 20% minimum (-10%, +20% for NPS22-M)                                                                                  |
| Hold-up time:                  | 10/20 ms 115/230 VAC input line                                                                                         |
| Overload protection:           | Short circuit protection on all outputs. Case overload protected @ 110-160% of normal rating, (110% - 190% for NPS28-M) |
| Overvoltage protection:        | 30-50% above nominal output                                                                                             |
| Remote sense:                  | Compensated for 0.5 V lead drop max. Will operate without remote sense connected. Reverse connection protected.         |

## Environmental Specifications

|                                 |                                                                                              |
|---------------------------------|----------------------------------------------------------------------------------------------|
| Operating temperature:          | 0° to 50 °C ambient derate each output at 2.5% per degree from 50° to 80 °C. -20 °C start up |
| Storage temperature:            | -45 °C to +85 °C                                                                             |
| Electromagnetic susceptibility: | Designed to meet EN61000-4; -2, -3, -4, -5, -6, -8, -11 Level 3                              |
| Humidity:                       | Operating; non-condensing 10% to 90% RH                                                      |
| Vibration:                      | IEC68-2-6 to the levels of IEC721-3-2                                                        |
| MTBF demonstrated:              | > 550,000 hours at full load and 25 °C ambient conditions                                    |

## Mechanical Drawing



## Ordering Information

| Model Number | Output Voltage | Minimum Load | Maximum Load with Convection Cooling | Maximum Load with 200LFM Forced Air | Peak Load <sup>1</sup> | Regulation <sup>2</sup> | Ripple P/P (PAR) <sup>3</sup> |
|--------------|----------------|--------------|--------------------------------------|-------------------------------------|------------------------|-------------------------|-------------------------------|
| NPS22-M      | 5 V            | 0 A          | 5 A                                  | 8 A                                 | 9 A                    | ± 2%                    | 50 mV                         |
| NPS23-M      | 12 V           | 0 A          | 2.1 A                                | 3.3 A                               | 4 A                    | ± 2%                    | 120 mV                        |
| NPS24-M      | 15 V           | 0 A          | 1.7 A                                | 2.7 A                               | 3 A                    | ± 2%                    | 150 mV                        |
| NPS25-M      | 24 V           | 0 A          | 1 A                                  | 1.8 A                               | 2 A                    | ± 2%                    | 240 mV                        |
| NPS28-M      | 48 V           | 0 A          | 0.52 A                               | 0.84 A                              | 1 A                    | ± 2%                    | 480 mV                        |

1. Peak current lasting < 15 seconds with a maximum 10% duty cycle.
2. At 25 °C including initial tolerance, line voltage, load currents and output voltages adjusted to factory settings.
3. Peak-to-peak with 20 MHz bandwidth and 10 µF (tantalum capacitor) in parallel with a 0.1 µF capacitor at rated line voltage and load ranges.

## Pin Assignments

| Connector | NPS22-M | NPS23-M | NPS24-M | NPS25-M | NPS28-M |
|-----------|---------|---------|---------|---------|---------|
| SK1-1     | Line    | Line    | Line    | Line    | Line    |
| SK1-3     | Neutral | Neutral | Neutral | Neutral | Neutral |
| SK2-1     | +5 V    | +12 V   | +15 V   | +24 V   | +48 V   |
| SK2-2     | +5 V    | +12 V   | +15 V   | +24 V   | +48 V   |
| SK2-3     | Common  | Common  | Common  | Common  | Common  |
| SK2-4     | Common  | Common  | Common  | Common  | Common  |
| SK2-5     | -Sense  | -Sense  | -Sense  | -Sense  | -Sense  |
| SK2-6     | +Sense  | +Sense  | +Sense  | +Sense  | +Sense  |

## Mating Connectors

AC Input: Molex 09-50-8031 (USA)  
09-91-0300 (UK)  
PINS: 08-52-0113

DC Outputs: Molex 09-50-8061 (USA)  
09-91-0600 (UK)  
PINS: 08-52-0113

Emerson Network Power Connector Kit #70-841-006, includes all of the above

### Notes:

1. Specifications subject to change without notice.
2. All dimensions in inches (mm), tolerance is ± 0.02" (± 0.5 mm)
3. Mounting holes M1 and M2 should be grounded for EMI purposes.
4. Mounting hole M1 is safety ground connection.
5. Specifications are for convection rating at factory settings at 115 VAC input, 25 °C unless otherwise stated.
6. For DC input an external DC safety rated fuse must be used.
7. Warranty: 2 year
8. Weight: 0.22 lbs/0.10 kg

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