

## 20 WATT GLOBAL PERFORMANCE SWITCHERS

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## Summary:

## - Industry's smallest 20 W switcher

- Business-card size ( $2.0 \times 3.5 \times 0.71$ ")
- Approved to UL60950, CSA-C22.2 No. 60950, EN60950, IEC60950 with CB Certificate
- EMI FCC Class B, CISPR22B
- Overvoltage protection standard
- RoHS compliant models available (G suffix)
- C E marked to LVD


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## C $\epsilon_{c} \mathbf{N M}_{u s}$ RoHS

## SPECIFICATIONS

Ac Input
90-264 Vac, $47-63 \mathrm{~Hz}$ single phase.

## Input Current

Maximum input current at minimum $120 \mathrm{Vac}, 60 \mathrm{~Hz}$ with full rated output load is 0.6 A.

## Hold-up Time

15 ms minimum from loss of ac input at full load, nominal line (115 Vac).

## Output Power

Normal continuous output power is $20 \mathrm{~W}, 24 \mathrm{~W}$ peak for 60 s maximum duration, $10 \%$ duty cycle. Factory set to begin power limiting at approximately 28 W.

## Output Regulation

Regulation from initial setpoint measured by changing load from 5\% load to $50 \%$ load or $50 \%$ load to full load in either direction. Initial setpoint tolerance is measured at $50 \%$ load. A minimum load of $5 \%$ of the output current is required to maintain proper regulation.

Overload Protection
Fully protected against short circuit and output overload. Short circuit protection is cycling type power limit

## Output Noise

$0.5 \% \mathrm{rms}, 1 \% \mathrm{pk}-\mathrm{pk}, 20 \mathrm{MHz}$ bandwidth, differential mode. Measured with scope probe directly across output terminals of the power supply with load terminated with 0.1 uF capacitor.

Transient Response
Main output: $750 \mu$ s typical response time for return to within $0.5 \%$ of final value for a $50 \%$ load step within the regulation limits of minimum and maximum load, $\Delta \mathrm{l} / \Delta \mathrm{t}<0.2 \mathrm{~A} / \mu \mathrm{s}$ Maximum voltage deviation is $3.5 \%$. Startup/ shutdown overshoot less than $2 \%$.

## Overvoltage Protection

Built in with firing point set per ratings table. OVP firing reduces voltage to less than $50 \%$ of nominal voltage in 50 ms .

## Turn-on time

Less than 1 second at $115 \mathrm{Vac}, 25 \mathrm{oC}$ (inversely proportionate to input voltage and thermistor temperature.

## Efficiency

$70 \%$ minimum at full rated load, nominal input voltage. Efficiency increases as output voltage increases.

Input Protection
Internal ac fuse provided on all units. Inrush Current
Inrush is limited by internal thermistor. The inrush at 230 Vac , averaged over the first ac half-cycle under cold start conditions will not exceed 32 A.

## Temperature Coefficient

$0.03 \% /{ }^{\circ} \mathrm{C}$ typical on all outputs.

## Environmental

Designed for 0 to $50^{\circ} \mathrm{C}$ operation at full rated output power; derate output current and total output power by $2.5 \%$ per ${ }^{\circ} \mathrm{C}$ above $50^{\circ} \mathrm{C}$. See Environmental Specifications on next page.

## EMI/EMC Compliance

All models include built-in EMI filtering to meet the following emissions requirements:

| EMI SPECIFICATIONS | COMPLIANCE LEVEL |
| :--- | :--- |
| Conducted Emissions <br> Static Discharge <br> RF Field Susceptibility <br> Fast Transients/Bursts <br> Surge Susceptibility | EN55022 Class B; FCC Class B |
| Commercial Safety |  |
| Condor D.C. Power Supplies, Inc. declares under our sole responsibility that all GSC <br> models are in conformity with the applicable requirements of EN60950 following <br> the provisions of the Low Voltage Directive 73/23/EEC. All GSC models are ap- <br> proved to UL60950, CSA-C22.2 No. 60950, EN60950, IEC60950 with CB Certificate. |  |


| Commercial Model | Output | Current | Load Regulation | Initial Setpoint Tolerance | OVP <br> Setpoint | Ripple and Noise |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| GSC20-5 | 5.1 V | 3.8 A | 0.75\% | 2.5\% | $6.2 \pm 0.6 \mathrm{~V}$ | 1.4\% |
| GSC20-12 | 12 V | 1.7 A | 0.75\% | 2.5\% | $14 \pm 1.1 \mathrm{~V}$ | 1\% |
| GSC20-15 | 15 V | 1.4 A | 0.75\% | 2.5\% | $18.5 \pm 1.5 \mathrm{~V}$ | 1\% |
| GSC20-24 | 24 V | 0.85 A | 0.75\% | 2.5\% | $28 \pm 2.5 \mathrm{~V}$ | 1\% |
| GSC20-28 | 28 V | 0.7 A | 0.75\% | 2.5\% | $34 \pm 2.8 \mathrm{~V}$ | 1\% |

* Add G suffix to model number for RoHS compliant model.


## GSC20 MECHANICAL SPECIFICATIONS

INPUT: J1 MOLEX P/N 22-43-8040
PIN 1) AC LINE
PIN 2) N/C
PIN 3) N/C
PIN 4) AC NEUTRAL
GND: 0.098 DIA. THRU HOLE
OUTPUT J2 MOLEX P/N 22-43-8040
PIN 1) OUTPUT \#1
PIN 2) OUTPUT \#1
PIN 3) COMMON
PIN 4) COMMON

MATING CONNECTOR MOLEX P/N
HOUSING 50-37-5043
CONTACT 08-70-1040

NOTE: 3A MAXIMUM RECOMMENDED CURRENT PER CONNECTOR PIN

WEIGHT 0.25 LB. [0.113 KG] MAX.
TOLERANCES:
X.XX $= \pm 0.030$ (0.76MM)
$X . X X X= \pm 0.010$ ( 0.25 MM )

| ENVIRONMENTAL SPECIFICATIONS | OPERATING | NON-OPERATING |
| :--- | :--- | :--- |
| Temperature (A) | See Individual Specs. | -40 to $+85^{\circ} \mathrm{C}$ |
| Humidity (A) | 0 to $95 \% \mathrm{RH}$ | 0 to $95 \% \mathrm{RH}$ |
| Shock (B) | $20 \mathrm{~g}_{\mathrm{pk}}$ | $40 \mathrm{~g}_{\mathrm{pk}}$ |
| Altitude | -500 to $10,000 \mathrm{ft}$ | -500 to $40,000 \mathrm{ft}$ |
| Vibration (C) | $1.5 \mathrm{~g}_{\text {rms }} 0.003 \mathrm{~g}^{2} / \mathrm{Hz}$ | $5 \mathrm{~g}_{\text {rms }} 0.026 \mathrm{~g}^{2} / \mathrm{Hz}$ |

A. Units should be allowed to warm up/operate under non-condensing conditions before application of power.
B. Random vibration- 10 to $2000 \mathrm{~Hz}, 6 \mathrm{~dB} /$ octave roll-off from 350 to $2000 \mathrm{~Hz}, 3$ orthogonal axes. Tested for 10 min ./axis operating and 1 hr ./axis non-operating.
C. Shock testing-half-sinusoidal, $10 \pm 3 \mathrm{~ms}$ duration, $\pm$ direction, 3 orthogonal axes, total 6 shocks.

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