POWER

# CNS650-M Series

## 650 Watt AC-DC Power Supplies

**Data Sheet**

**Total Power:** 650 Watts
**Input Voltage:** 90 - 264 V
**# of Outputs:** Single

80 PLUS PLATINUM INDUSTRIAL

## SPECIAL FEATURES

- Designed for forced air and natural convection cooling
- Medical and ITE safety approvals, 2x MOPP
- PMBus® interface
- Active current share with OR-ing FET
- Dual fused
- Type BF ready
- Active Power Factor Correction, 61000-3-2 compliant
- Built-in Class B EMI filter
- Less than 1U high
- 4" x 6" U-channel construction (open-frame or end-fan variants available for 12 V)
- <500 mW no-load power consumption
- 80 PLUS® certified (-ME model)
- Three-year warranty (consult factory for extended terms)

## SAFETY

- UL/CSA ES60601-1/C22.2 No. 60601-1 UL 60950-1/C22.2 No. 60950-1
- TÜV EN 60601-1
- DEMKO EN 60950-1
- CB IEC 60950-1 IEC 60601-1 IEC 62368-1
- CCC GB4943.1/GB9254; GB17625.1
- CE LVD, RoHS

## Electrical Specifications

| | |
|---|---|
| **Input** | |
| Input voltage range | 90 - 264 Vrms |
| Frequency | 47 - 63 Hz (360 - 440 Hz with higher leakage) |
| Inrush current | 50 Apk, cold start |
| Leakage current | <300 µA |
| No load power | < 500 mW |
| **Output** | |
| Maximum power | 650 W, forced-air cooling (750 W peak)<br>400 W, free-air natural convection cooling (650 W peak) |
| Adjustment range | -0% / +15% |
| Holdup time | 20 ms @ 400 W |
| Fan output | 12 V @ 1.0 A (forced air)<br>12 V @ 0.5 A (natural convection) |
| Standby output | 5 V @ 2.0 A (forced air)<br>5 V @ 1.0 A (natural convection) |

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## Electrical Specifications (continued)

| Control and Protection | |
|---|---|
| Serial bus interface | PMBus® |
| Current share | Active |
| Remote sense | 2-wire (+ and -) |
| Remote inhibit | Pull inhibit low = main & fan output OFF (5 V standby is ON)<br>Pull inhibit high (or floating) = all outputs ON |
| AC OK | Active high when normal AC input is present (with internal 10k ohm pull up to 3.3 Vdc) |
| DC OK | Active high when main O/P is within regulation (with internal 10k ohm pull up to 3.3 Vdc) |
| Smart fan control | Monitor, control and override |
| Overvoltage protection | Latching / AC recyle or inhibit toggle required for PSU restart |
| Overload protection | Auto-recovery (Constant current mode down to 50% Vout) |
| Overtemperature protection | Auto-recovery with hysteresis |

## Environmental Specifications

| | |
|---|---|
| **Operating temperature** | -20 °C to +80 °C (derate at 50 °C), startup at -40 °C |
| **Storage temperature** | -40 °C to +85 °C |
| **Operating humidity** | 5% to 95% (non-condensing) |
| **Non-operating humidity** | 5% to 95% (non-condensing) |
| **Maximum altitude** | 5000 m (3000 m for medical), derating may apply |

## Other Specifications

| | |
|---|---|
| **Isolation** | 4000 Vac (input to output)<br>1500 Vac (input to PE; output to PE) |
| **Line harmonics** | 61000-3-2, Class A |
| **ESD immunity** | 61000-4-2; ±15kV (air)/±8kV (contact); Criterion A |
| **Conducted EMI** | Level B, CISPR 22 and FCC Part 15 |
| **Radiated EMI** | Level B, CISPR 22 and FCC Part 15 (with cover) |
| **Surge immunity** | 61000-4-5, Level 3 - Criterion A; Level 4 - Criterion C |
| **Medical EMC** | 60601-1-2, Edition 4 (cover maybe required for some tests) |
| **MTBF**<br>**(Telcordia, Issue 3, Method 1, Case 3)** | > 950 KHrs, 25 °C, 410 W natural convection<br>> 1.3 MHrs, 25 °C, 650 W forced air |