

SERIES: VUMM-D400-D | **DESCRIPTION:** MEDICAL AC-DC POWER SUPPLY

FEATURES

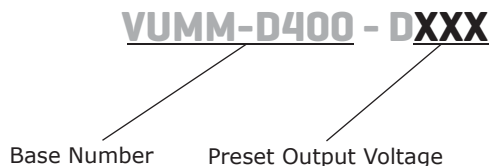
- medical approvals: EN/IEC/UL 60601-1 3rd edition
- universal input (90~264 Vac)
- dual output
- current monitoring and remote voltage adjustments (margin)
- compact 1U size and high power density: 5.56 W/inch³
- power factor corrected to EN 61000-3-2 Class D
- metal enclosed
- short circuit, overload, over voltage and over temperature protections
- optional IEC320 AC inlet or terminal block



| MODEL ¹ | output voltage ^{1,2,3} | output current ⁴ | ripple and noise ^{5,6} | efficiency |
|--------------------|---------------------------------|-----------------------------|---------------------------------|------------|
| | (Vdc) | max (A) | max (% Vp-p) | typ (%) |
| VUMM-D400-D312 | 3.3 12 | 40 25 | ±1 | 75 |
| VUMM-D400-D324 | 3.3 24 | 40 12.5 | ±1 | 75 |
| VUMM-D400-D512 | 5 12 | 40 25 | ±1 | 75 |
| VUMM-D400-D524 | 5 24 | 40 12.5 | ±1 | 75 |
| VUMM-D400-D1242 | 12 24 | 25 12.5 | ±1 | 75 |

- Notes:
1. output is fully isolated
 2. output voltage is measured at output power connector
 3. provides peak power of 700 W within 500 μs for all models
 4. must use external forced airflow min. 23 CFM to achieve maximum current
 5. 1% minimum load is required to maintain the ripple and regulation
 6. Ripple and noise is measured from 10 KHz to 20 MHz at output terminals with a 0.1 μF ceramic capacitor and a 22 μF electrolytic capacitor in parallel

PART NUMBER KEY



INPUT

| parameter | conditions/description | min | typ | max | units |
|-------------------------|--|-----|------|------|-------|
| voltage | | 90 | | 264 | Vac |
| frequency | | 47 | | 63 | Hz |
| current | at 90 Vac, full load | | | 6.35 | A |
| inrush current | at 230 Vac, full load, cold start | | | 35 | A |
| input fuse | built-in ac fuse. A blown fuse usually indicates permanent damage to the power supply serviceable by factory only. | | | | |
| power factor correction | at 230 Vac, full load | | 0.98 | | |

OUTPUT

| parameter | conditions/description | min | typ | max | units |
|---------------------------|---|-----|-----|-----|-------|
| total regulation | | | ±5 | | % |
| transient response | output voltage returns to within 1% in less than 2.5 ms for a 50% load change. Peak transient does not exceed 5%. | | | | |
| overshoot | turn-on and turn-off overshoot shall not exceed 5% over nominal voltage. | | | | |
| start-up time | at 230 Vac | | | 1 | s |
| hold-up time | at 80% load | 20 | | | ms |
| adjustment range | output user adjustable | | ±5 | | % |
| switching frequency | | | 30 | | kHz |
| remote sense ¹ | designated as RS+ and RS- on CN3. Total voltage compensation for cable losses with respect to the main output. | | | | |
| remote on/off | defined RSW on CN3, requiring a low signal to inhibit output. | | | | |
| LED display (LED 1) | green - the power supply is operating normally. orange - when any protection occurs or RSW is low. | | | | |
| power good | designated as PG on CN3. This signal goes high 100~500 ms after the output reaches regulation. It goes low at least 1 ms before loss of regulation. | | | | |

Notes: 1. Not available for current sharing models

PROTECTIONS

| parameter | conditions/description | min | typ | max | units |
|--------------------------------|---|-----|-----|-----|-------|
| input under voltage protection | power supply shuts down when ac input is under 80 ±5 Vac. When ac line reappears over 86 ±5 Vac, the power supply restarts automatically. | | | | |
| over voltage protection | shutdown and latches, ac input reset required to restart | | | 130 | % |
| over current protection | auto recovery | 110 | | 140 | %Io |
| short circuit protection | continuous, auto recovery upon removal of short | | | | |
| over temperature protection | shutdown, auto recovery | 85 | | | °C |

SAFETY & COMPLIANCE

| parameter | conditions/description | min | typ | max | units |
|-------------------|--|---------|-----|-----|-------|
| isolation voltage | primary to secondary at 2 mA for 3 seconds | 4,000 | | | Vac |
| | primary to transformer core at 2 mA for 3 seconds | 1,500 | | | Vac |
| | primary to earth ground at 2 mA for 3 seconds | 1,500 | | | Vac |
| safety approvals | EN/IEC/UL 60601-1 3rd edition | | | | |
| EMI/EMC | EMI/EMC, EN 60601-1, EN 61204-3 Class B conducted/radiated, EN 61000-3-(2,3), IEC 61000-4-(2,3,4,5,6,8,11) | | | | |
| leakage current | | | | 200 | μA |
| grounding test | allowable resistance measured when 40 A current is applied from the ground pin of the three prong plug to the farthest earthed connection point. | | | 0.1 | Ω |
| RoHS compliant | yes | | | | |
| MTBF | according to MIL-HBK-217F at 30°C | 100,000 | | | hours |

ENVIRONMENTAL

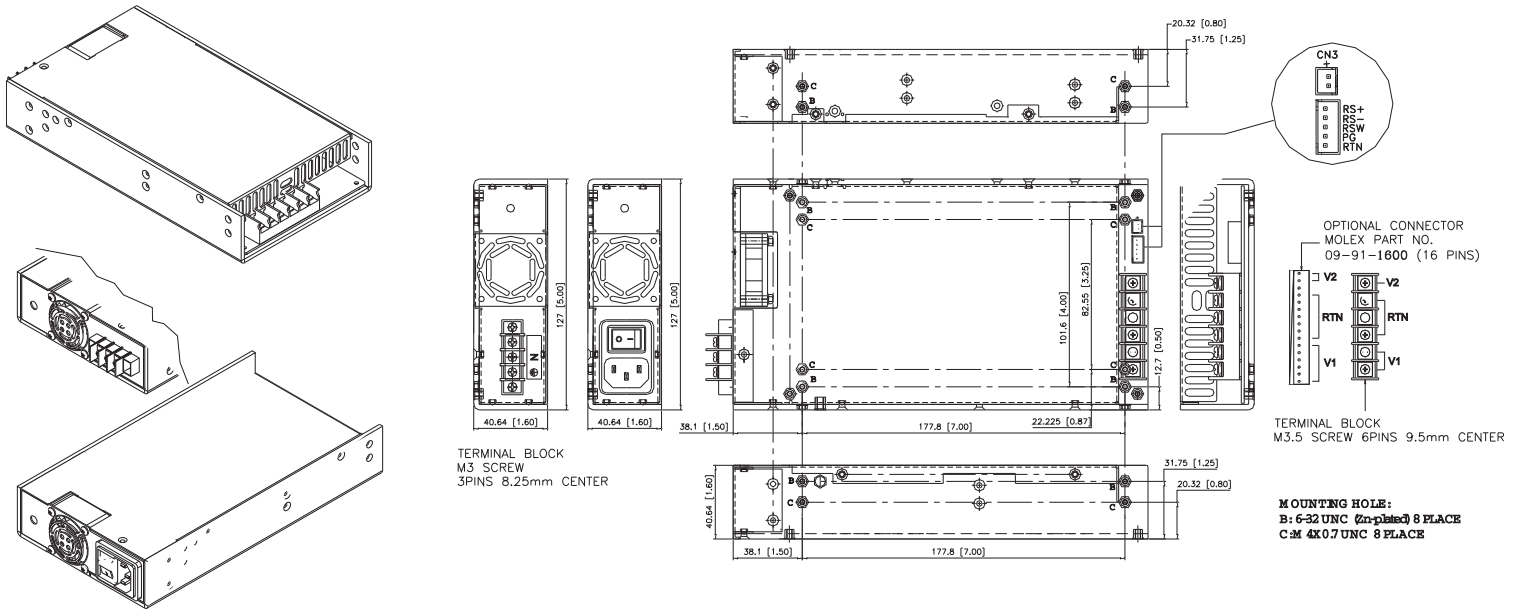
| parameter | conditions/description | min | typ | max | units |
|-----------------------|--|-----|-----|-----|-------|
| operating temperature | derating linearly at 2.5% from 50~70°C | 0 | | 70 | °C |
| storage temperature | | -20 | | 85 | °C |
| operating humidity | non-condensing | 5 | | 90 | %RH |
| storage humidity | non-condensing | 5 | | 95 | %RH |

MECHANICAL

| parameter | conditions/description | min | typ | max | units |
|-----------------|--------------------------------------|-----|-----|-----|-------|
| dimensions | 9 x 5 x 1.6 (228.6 x 127 x 40.64 mm) | | | | inch |
| weight | | | | 1.0 | kg |
| Mounting screws | 6-32, 1/4" or shorter | | | | |

MECHANICAL DRAWING

units: inches [mm]
 tolerance: inches: x.xx = ±0.02
 mm: x.xx = ±0.5



| INPUT CONNECTOR (CN1) | |
|---|--|
| IEC320 or equivalent snap-in mounting type (option 1) | DINKLE DT-35-A02W-03 (option 2) |
| Suggested mating plug IEC320 | Suggested mating connector Molex 19198-0016 or similar |

| OUTPUT CONNECTOR (CN2) | | | |
|--|----------|---|----------|
| Howder HD-121-6P (option 1) | | Molex 26-48-1161 (option 2) | |
| Suggested mating connector Molex 19198-0045 or similar | | Suggested mating connector Molex 09-91-1600 | |
| PIN | FUNCTION | PIN | FUNCTION |
| 1~2 | +Vo | 1~6 | +Vo |
| 3~5 | RTN | 7~13 | RTN |
| 6 | -Vo | 14~16 | -Vo |

| LOGIC CONNECTOR (CN3) | | FAN |
|---|------------------------|--|
| JS B5B-XH-A | | JS B2B-XH-A |
| Suggested mating connector JST XHP-5 or equivalent Contact: SXH-002T-P0.6 | | Suggested mating connector JST XHP-2 or equivalent, Contact: SXH-002T-P0.6 |
| PIN | FUNCTION | |
| 1 | RTN - return | |
| 2 | PG - power good signal | |
| 3 | RSW - remote on/off | |
| 4 | RS- - remote sense (-) | |
| 5 | RS+ - remote sense (+) | |

REVISION HISTORY

| rev. | description | date |
|------|---|------------|
| 1.0 | initial release | 07/10/2006 |
| 1.01 | new template applied, V-Infinity branding removed | 08/28/2012 |

The revision history provided is for informational purposes only and is believed to be accurate.



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