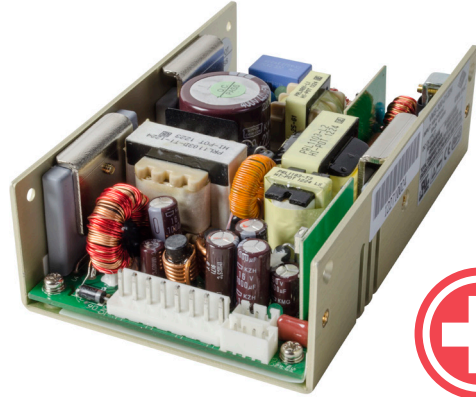


SERIES: VMS-300 | DESCRIPTION: AC-DC POWER SUPPLY
FEATURES

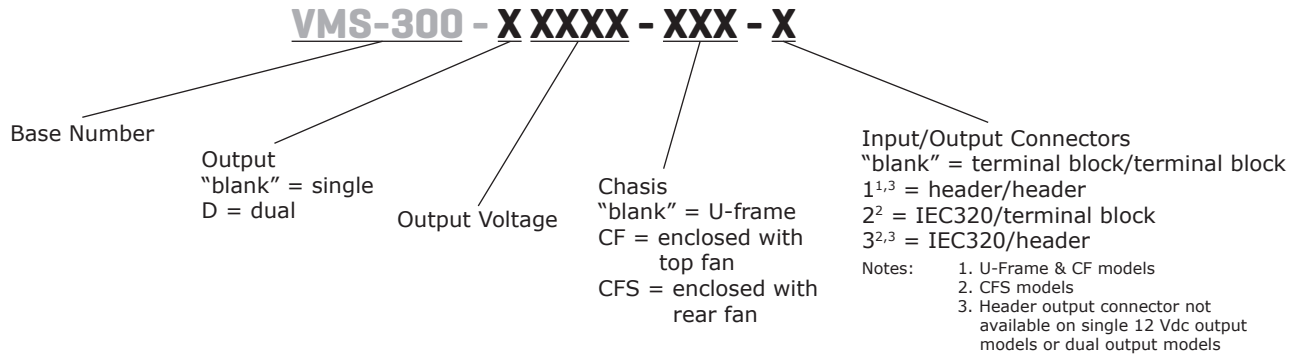
- up to 300² W continuous power
- 12.5 W/in³ power density
- universal input (90~264 Vac)
- 12 Vdc auxiliary fan output
- over voltage, short circuit, and over temperature protections
- built-in active PFC function
- efficiency up to 85%



| MODEL | output voltage | | output current | output power | ripple and noise ^{4, 5} | efficiency |
|--------------------|----------------|----|--------------------|------------------|----------------------------------|------------|
| | (Vdc) | | max (A) | max (W) | max (mVp-p) | min (%) |
| VMS-300-12 | 12 | | 25 ² | 300 ² | 120 | 82 |
| VMS-300-15 | 15 | | 20 ² | 300 ² | 150 | 82 |
| VMS-300-24 | 24 | | 12.5 ² | 300 ² | 240 | 83 |
| VMS-300-36 | 36 | | 8.33 ² | 300 ² | 360 | 84 |
| VMS-300-48 | 48 | | 6.25 ² | 300 ² | 480 | 84 |
| VMS-300-D0512* | V1 | 5 | 24 ³ | 240 ³ | 50 | 80 |
| | V2 | 12 | 13.33 ³ | | 120 | |
| VMS-300-D1224 | V1 | 12 | 13.33 ³ | 240 ³ | 120 | 85 |
| | V2 | 24 | 6.67 ³ | | 240 | |
| VMS-300-12-CF | 12 | | 25 | 300 | 120 | 82 |
| VMS-300-15-CF | 15 | | 20 | 300 | 150 | 82 |
| VMS-300-24-CF | 24 | | 12.5 | 300 | 240 | 83 |
| VMS-300-36-CF | 36 | | 8.33 | 300 | 360 | 84 |
| VMS-300-48-CF | 48 | | 6.25 | 300 | 480 | 84 |
| VMS-300-D0512-CF* | V1 | 5 | 24 | 240 ³ | 50 | 80 |
| | V2 | 12 | 13.33 | | 120 | |
| VMS-300-D1224-CF | V1 | 12 | 13.33 | 240 ³ | 120 | 85 |
| | V2 | 24 | 6.67 | | 240 | |
| VMS-300-12-CFS | 12 | | 25 | 300 | 120 | 82 |
| VMS-300-15-CFS | 15 | | 20 | 300 | 150 | 82 |
| VMS-300-24-CFS | 24 | | 12.5 | 300 | 240 | 83 |
| VMS-300-36-CFS | 36 | | 8.33 | 300 | 360 | 84 |
| VMS-300-48-CFS | 48 | | 6.25 | 300 | 480 | 84 |
| VMS-300-D0512-CFS* | V1 | 5 | 24 | 240 ³ | 50 | 80 |
| | V2 | 12 | 13.33 | | 120 | |
| VMS-300-D1224-CFS | V1 | 12 | 13.33 | 240 ³ | 120 | 85 |
| | V2 | 24 | 6.67 | | 240 | |

- Notes:
1. Peak power of 600 W within 500 μ s only applies to single output models
 2. Total continuous output power will not exceed 300 W with 25 CFM forced air, 150 W without fan.
 3. Total combined continuous output power will not exceed 240 W with 25 CFM forced air, 120 W without fan.
 4. Measured at 10 kHz ~ 20 MHz, with 0.1 μ F ceramic and 22 μ F electrolytic parallel capacitors
 5. 1% minimum load is required to maintain the ripple and regulation (10% for dual output models)
 6. * Discontinued model.

PART NUMBER KEY



INPUT

| parameter | conditions/description | min | typ | max | units |
|-------------------------|----------------------------------------------------------------------------|-----|------------|----------|--------|
| voltage | | 90 | | 264 | Vac |
| frequency | | 47 | | 63 | Hz |
| current | at 90 Vac, cold start | | | 5 | A |
| inrush current | at 115 Vac, cold start at 230 Vac, cold start | | | 35 70 | A A |
| power factor correction | single output models pass EN61000-3-2 Class D dual output models | | -- 0.95 | | |
| leakage current | at 264 Vac | | | 0.3 | mA |
| input fuse | 5 A / 250 V inserted in primary | | | | |
| remote ON/OFF | designated as INH on pin 4 of CN3, requires a low signal to inhibit output | | | | |

OUTPUT

| parameter | conditions/description | min | typ | max | units |
|---------------------|------------------------------------------------------------------------------------------------------------------------------------------------|----------------|----------|----------------|-------------------|
| load regulation | single output models dual output models | | ±1 ±5 | | % % |
| transient response | returns to within 1% in <2.5 ms for a 50% load change and the peak transient does not exceed 5% | | | | |
| start-up time | at 230 Vac | | | 1 | s |
| hold-up time | at 120 Vac, 80% load | 16 | | | ms |
| adjustability | user adjustable | | ±5 | | % |
| switching frequency | PFC PWM PWM dual output models | 50 65 45 | | 70 75 55 | kHz kHz kHz |
| fan drive | 12 Vdc / 300 mA for external fan | | | | |
| fan fail (FF) | designated as FF on pin 3 of CN3, open collector output rated for 28 Vdc/5 mA sink current max., goes high when a fan failure is detected | | | | |
| power good (PG) | designated as PG on pin 1 of CN3, open collector, goes high 100-500 ms after DC regulation and goes low at least 1ms before loss of regulation | | | | |

PROTECTIONS

| parameter | conditions/description | min | typ | max | units |
|-----------------------------|--------------------------------------------------------|-----|-----|-----|-------|
| over voltage protection | latch down and auto restart | | | 130 | % |
| over current protection | auto restart | 110 | | 140 | % |
| short circuit protection | auto restart with no damage from a short on any output | | | | |
| over temperature protection | auto restart | | 110 | | °C |

SAFETY & COMPLIANCE

| parameter | conditions/description | min | typ | max | units |
|-------------------|----------------------------------------------------------------------------------------------|---------|-----|-----|-------|
| isolation voltage | primary to secondary at 10 mA for 3 seconds | 4,000 | | | Vac |
| | primary to chassis at 10 mA for 3 seconds | 1,500 | | | Vac |
| | primary to core at 10 mA for 3 seconds | 1,500 | | | Vac |
| safety approvals | UL 60601-1, EN 60601-1, IEC 60601-1 (Edition 3.1) | | | | |
| EMI/EMC | EN 60601-1-2 (4th Edition), EN 55011 Class B, EN 61000-3-(2,3), IEC 61000-4-(2,3,4,5,6,8,11) | | | | |
| MTBF | as per MIL-HDBK-217F at 30°C | 100,000 | | | hours |
| RoHS | 2011/65/EU | | | | |

ENVIRONMENTAL

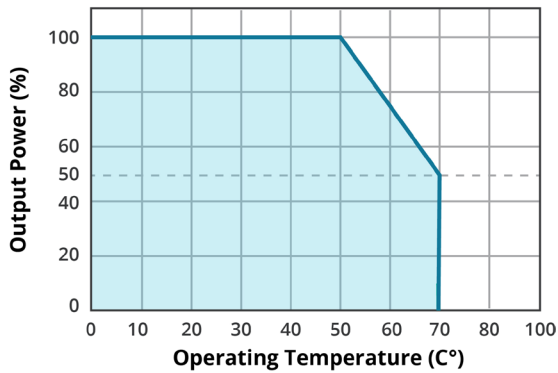
| parameter | conditions/description | min | typ | max | units |
|-----------------------|---------------------------------------------------|-----|-----|-----|-------|
| operating temperature | see derating curve | 0 | | 70 | °C |
| storage temperature | | -20 | | 85 | °C |
| operating humidity | non-condensing | 5 | | 90 | % |
| storage humidity | non-condensing | 5 | | 95 | % |
| vibration | 5 ~ 50 Hz, acceleration ± 7.35 m/s*s per axis | | | | |

CONNECTORS

| parameter | conditions/description |
|--------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| input connector (CN1) | U-frame and CF Terminal Block: Howder M3 screws 3 pin 6.35 mm center Part No. HD-601-3P; PCB Labeling: L=Line; N=Neutral; G=Chassis Ground Header: CHYAO SHIUNN JS-1120-05 Mating: JST VHR-5N or equivalent (5 pin, 3 used) |
| | CFS Terminal Block: Howder HD-602-3P Input plug: IEC320 Inlet |
| output connector (CN2) | single output models Terminal block: Dinkle P830N, M5 screws Header: CHYAO SHIUNN JS-1120-06 Mating: JST VHR-6N or equivalent (6 pin) |
| | dual output models Terminal block: Howder HD-816-3P, M3 screws |
| output pin assignment | single output models Terminal block: Pin 1 = -V, Pin 2 = +V Header: Pins 1~3 = V-, Pins 4~6 = V+ |
| | dual output models Terminal block: Pin 1 = V2, Pin 2 = RTN, Pin 3 = V1 |
| logical signal connector (CN3) | Mating JST XHP-4 or equivalent (CHYAO SHIUNN JS-2001-04); Mating Pins: JST SXH-002T-P0.6 FOR AWG 30 to 26 |
| fan driver connector (FAN1) | Mating connector is JST P/N XHP-3 (3 pins 0.98 pitch) or equivalent (CHYAO SHIUNN JS-2001-03) |

DERATING CURVE

TEMPERATURE DERATING CURVE



Single Output

U-Frame at 300 W max. with 25 CFM forced air cooling, at 150 W max. convection
 CF up to 300 W max.
 CFS up to 300 W max.

Dual Output

U-Frame at 240 W max. with 25 CFM forced air cooling, at 120 W max. convection
 CF up to 240 W max.
 CFS up to 240 W max.

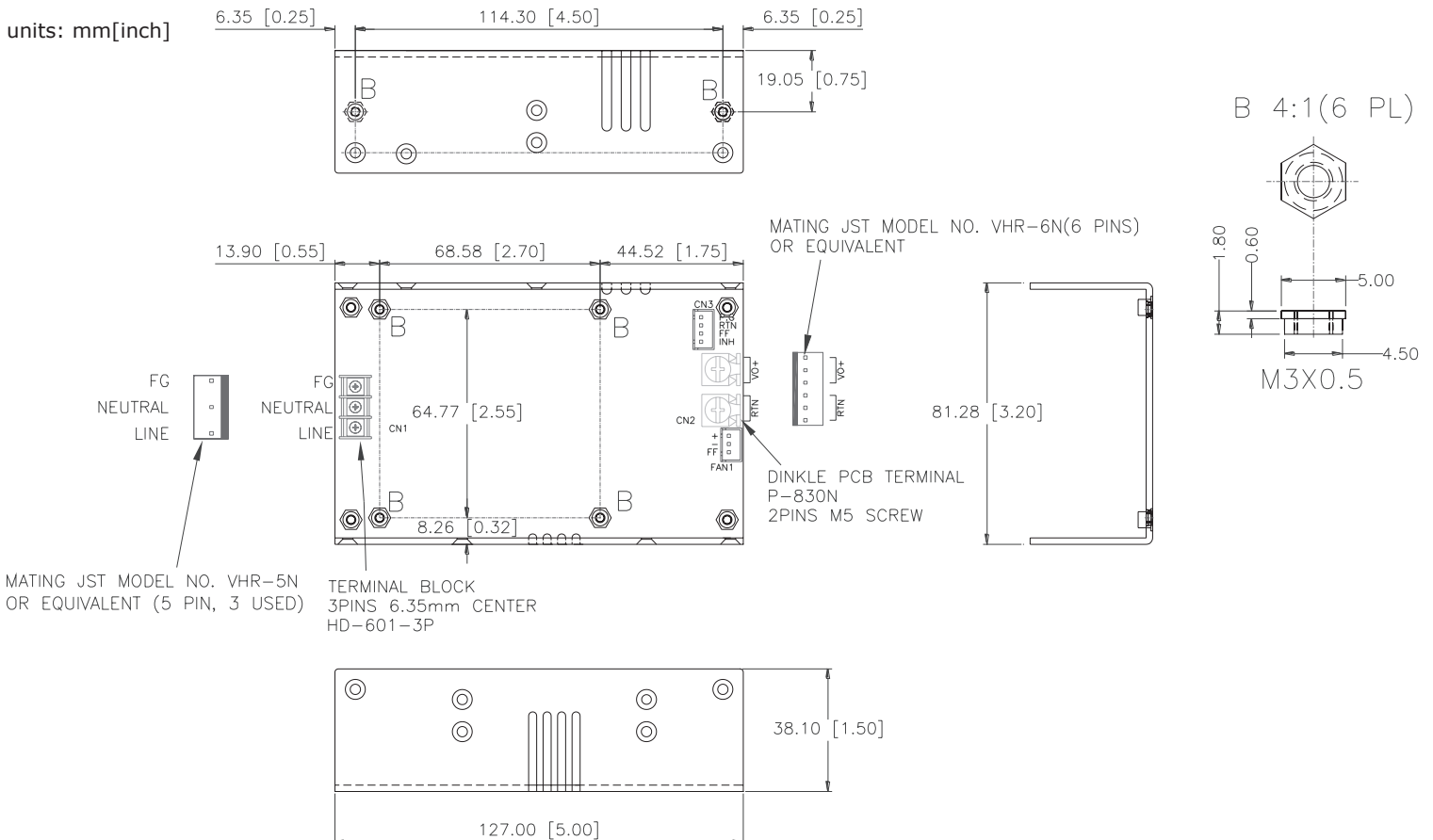
MECHANICAL

| parameter | conditions/description | min | typ | max | units |
|------------|---------------------------------------------------|-----|-----|-----|-------|
| dimensions | U-Frame: 127 x 81.28 x 38.1 (5 x 3.2 x 1.5 inch) | | | | mm |
| | CF: 127 x 81.28 x 50.8 (5 x 3.2 x 2 inch) | | | | mm |
| | CFS: 165.1 x 81.28 x 40.64 (6.5 x 3.2 x 1.6 inch) | | | | mm |
| weight | U-frame | | | 500 | g |
| | CF | | | 600 | g |
| | CFS | | | 650 | g |

MECHANICAL DRAWING - SINGLE OUTPUT MODELS

U-FRAME

units: mm[inch]

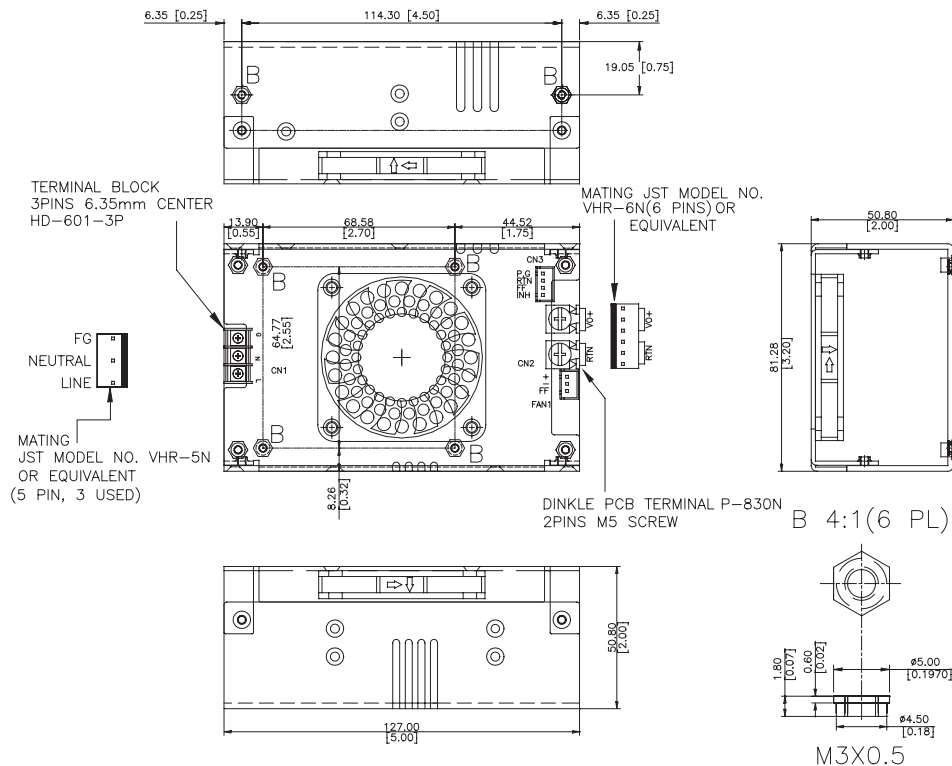


Note: 1. Mounting hole max screw depth is 4.0mm (M3x0.5 Inserts).

MECHANICAL DRAWING - SINGLE OUTPUT MODELS (CONTINUED)

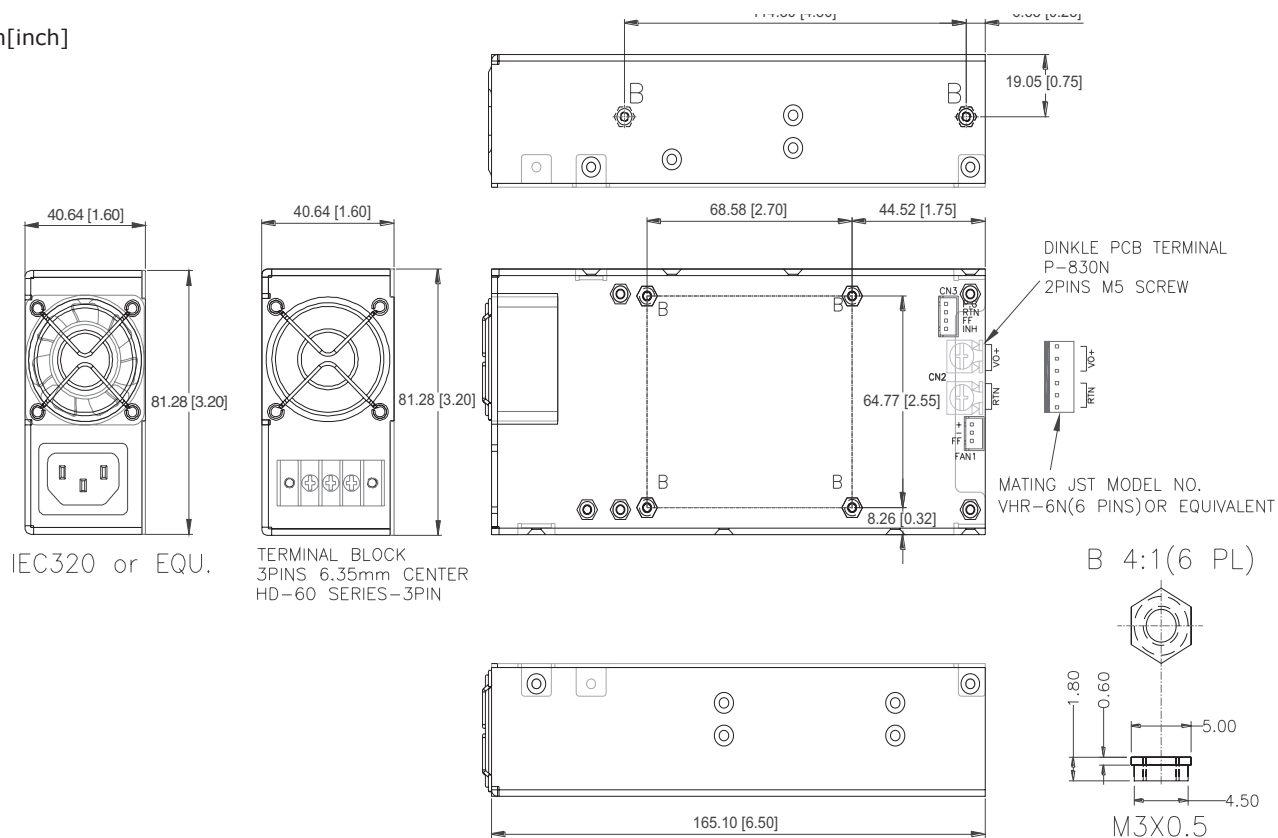
CF

units: mm[inch]



CFS

units: mm[inch]

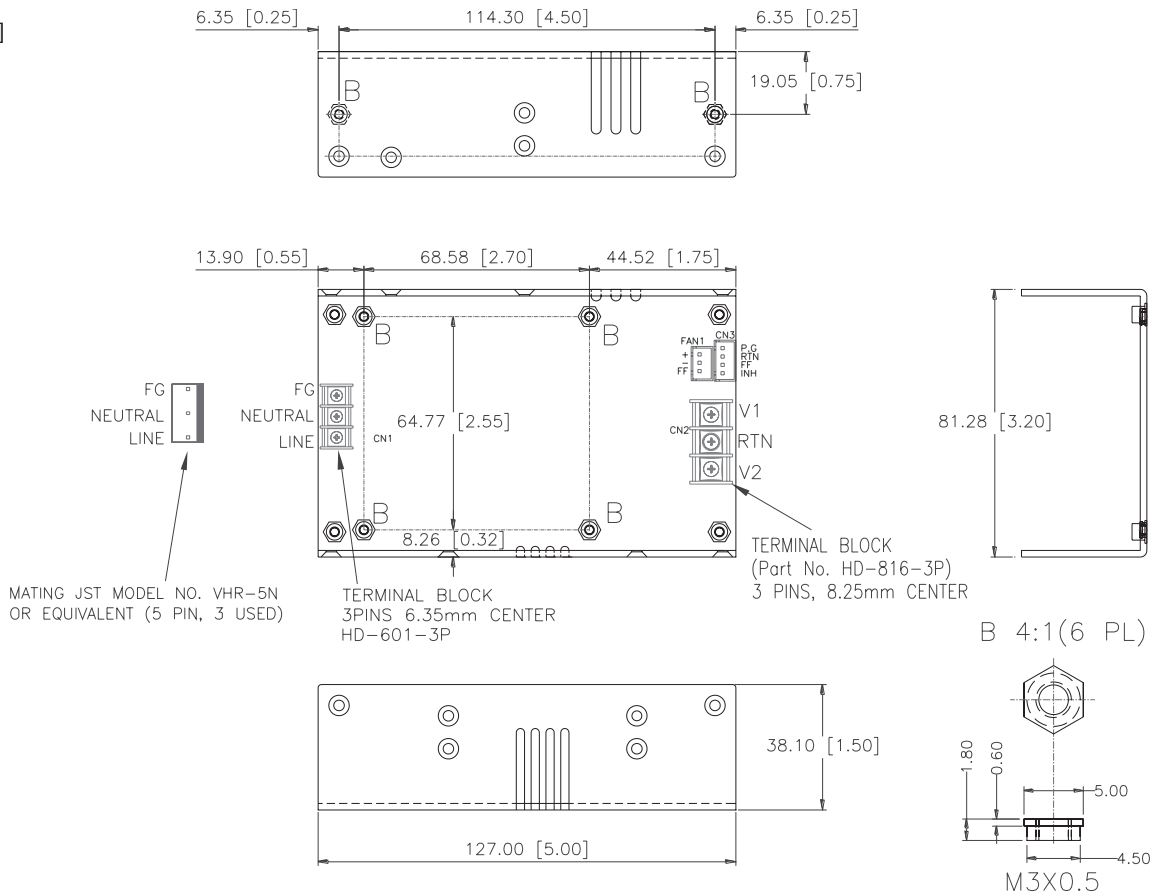


Note: 1. Mounting hole max screw depth is 4.0mm (M3x0.5 Inserts).

MECHANICAL DRAWING - DUAL OUTPUT MODELS

U-FRAME

units: mm[inch]

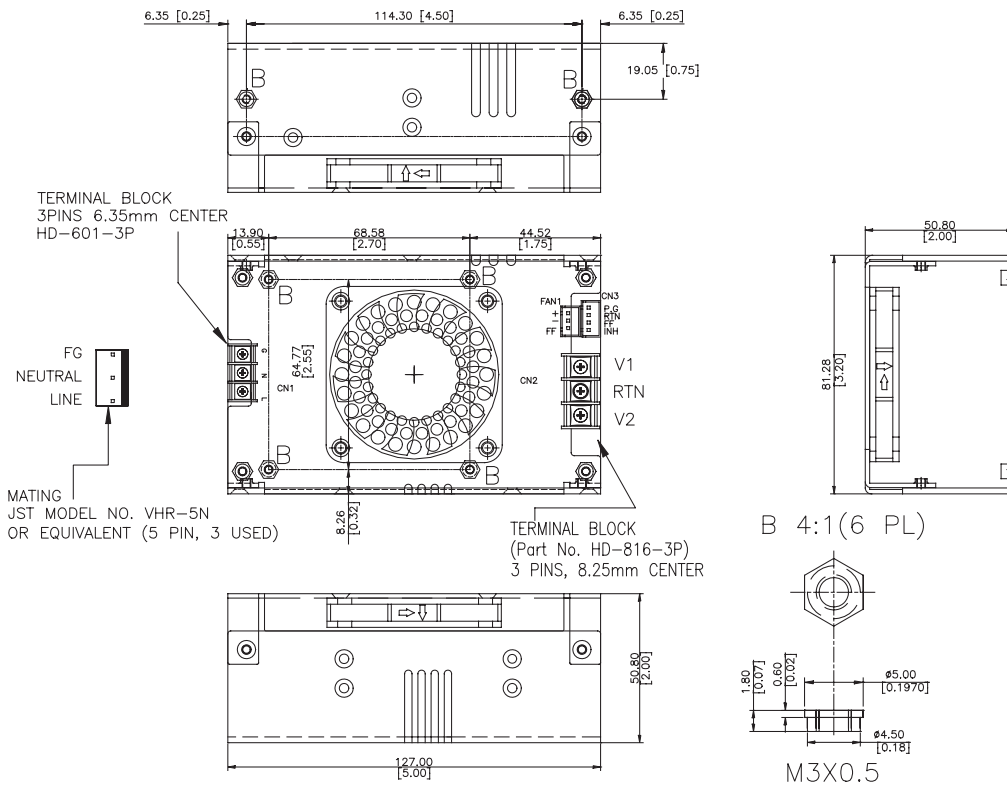


Note: 1. Mounting hole max screw depth is 4.0mm (M3x0.5 Inserts).

MECHANICAL DRAWING - DUAL OUTPUT MODELS (CONTINUED)

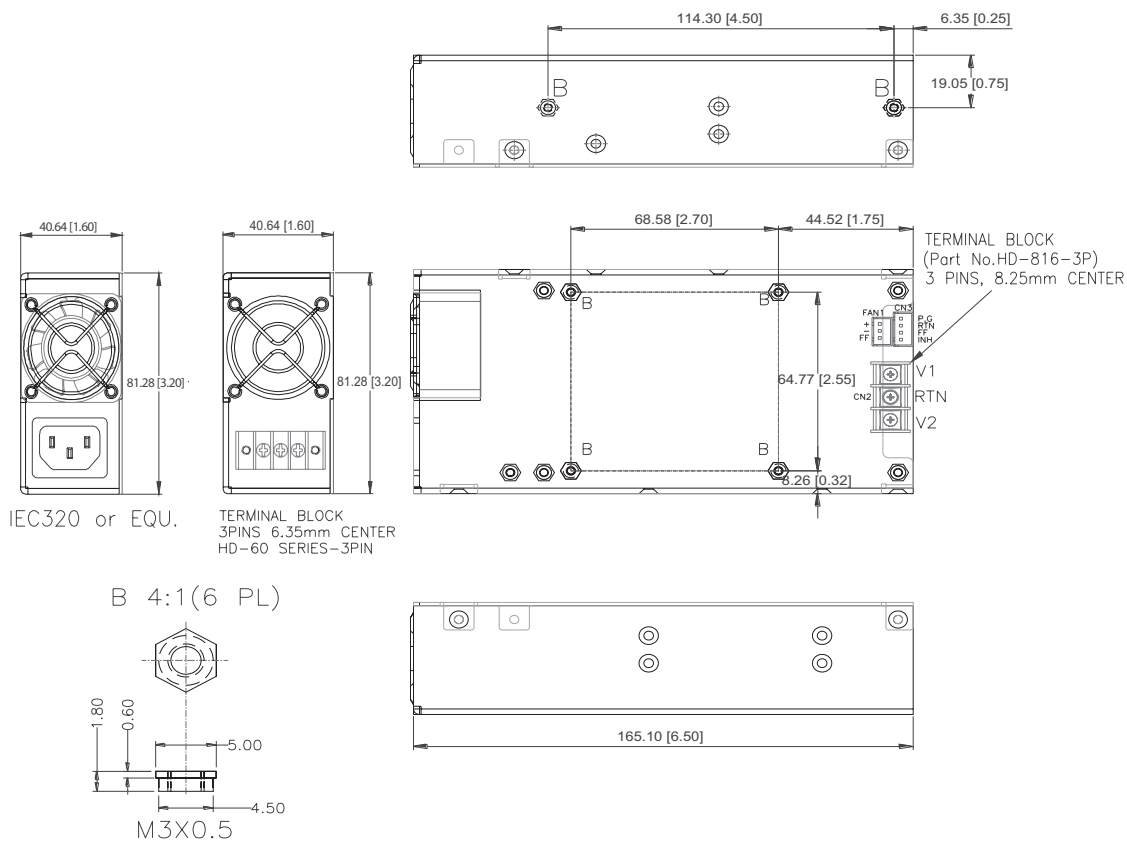
CF

units: mm[inch]



CFS

units: mm[inch]



Note: 1. Mounting hole max screw depth is 4.0mm (M3x0.5 Inserts).

REVISION HISTORY

| rev. | description | date |
|------|------------------------------------------------------------------------|------------|
| 1.0 | initial release | 08/14/2012 |
| 1.01 | updated part number key, derating curve, misc. updates | 09/24/2012 |
| 1.02 | updated spec | 04/25/2013 |
| 1.03 | updated spec | 07/03/2013 |
| 1.04 | removed connector options | 08/05/2013 |
| 1.05 | added connector options | 10/21/2013 |
| 1.06 | added 2 mounting holes for internal fan on "CF" models | 04/23/2015 |
| 1.07 | updated datasheet | 05/05/2016 |
| 1.08 | updated to safety Edition 3.1 and EMC 4th Edition | 07/24/2018 |
| 1.09 | company logo updated | 12/17/2020 |
| 1.10 | derating curve updated | 05/05/2021 |
| 1.11 | discontinued model VMS-300-D0512, VMS-300-D0512-CF & VMS-300-D0512-CFS | 06/07/2022 |

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



Headquarters
20050 SW 112th Ave.
Tualatin, OR 97062
800.275.4899

Fax 503.612.2383
cui.com
techsupport@cui.com

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