



SERIES: PCM-400 | DESCRIPTION: AC-DC POWER SUPPLY

FEATURES

- up to 400 W continuous power
- universal input (90~264 Vac)
- active power factor correction
- peak power of 700W for 500 μ s duration (single output models only)
- built-in remote ON/OFF, power good, & fan fail alarm options
- over voltage, short circuit, over current, and over temperature protection
- efficiency up to 87%



| MODEL | | preset output voltage (Vdc) | customizable output range ⁷ (Vdc) | output current | | output power max (W) | ripple and noise ^{8,9} max (mVp-p) | efficiency typ (%) |
|------------------------------|-----|--|---|----------------------------|----------------------------|-----------------------------------|--|------------------------------|
| | | | | max (forced air) (A) | max (convection) (A) | | | |
| PCM-400-12 ^{1,2} | | 12 | 10~13.8 | 33.33 | 18.33 | 400 | 120 | 85 |
| PCM-400-15 ^{1,2} | | 15 | 14~15.5 | 26.67 | 14.67 | 400 | 150 | 85 |
| PCM-400-18 ^{1,2} | | 18 | 16~20 | 22.22 | 12.22 | 400 | 180 | 85 |
| PCM-400-24 ^{1,2} | | 24 | 21~26 | 16.67 | 9.17 | 400 | 240 | 87 |
| PCM-400-28 ^{1,2} | | 28 | 27~34 | 14.29 | 7.86 | 400 | 280 | 85 |
| PCM-400-36 ^{1,2} | | 36 | 35~42 | 11.11 | 6.11 | 400 | 360 | 87 |
| PCM-400-48 ^{1,2} | | 48 | 43~50 | 8.33 | 4.58 | 400 | 480 | 87 |
| PCM-400-54 ^{1,2} | | 54 | 51~60 | 7.41 | 4.07 | 400 | 540 | 87 |
| PCM-400-D0512 ^{3,4} | Vo1 | 5 | N/A | 30 | 15 | 320 | 50 | 87 |
| | Vo2 | 12 | | 20.83 | 13.33 | | 120 | |
| PCM-400-D0524 ^{3,4} | Vo1 | 5 | N/A | 30 | 15 | 320 | 50 | 87 |
| | Vo2 | 24 | | 10.42 | 6.67 | | 240 | |
| PCM-400-D0548 ^{3,4} | Vo1 | 5 | N/A | 30 | 15 | 320 | 50 | 87 |
| | Vo2 | 48 | | 5.21 | 3.33 | | 480 | |
| PCM-400-D1224 ^{5,6} | Vo1 | 12 | N/A | 20.83 | 12.5 | 400 | 120 | 87 |
| | Vo2 | 24 | | 10.42 | 8.33 | | 240 | |

- Notes:
1. For U-frame models, the maximum output power is 400W with a minimum of 27 CFM forced air, 220 W maximum with convection cooling.
 2. For CNF models, the maximum output is 220 W with convection cooling.
 3. For U-frame models, the total combined output power is 320W with a minimum of 27 CFM forced air, 180 W maximum with convection cooling.
 4. For CNF models, the maximum output is 180 W with convection cooling.
 5. For U-frame models, the total combined output power is 400W with a minimum of 27 CFM forced air, 200 W maximum with convection cooling.
 6. For CNF models, the maximum output is 200 W with convection cooling.
 7. Output can be custom set within range.
 8. Measured at 10 kHz ~ 20 MHz bandwidth, with a 22 μ F electrolytic and 0.1 μ F ceramic capacitor on the output.
 9. 1% minimum load is required to maintain ripple and regulation (10% for dual output models).

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 | | 8 | | A |
| inrush current | at 115 Vac, cold start | | | 35 | A |
| | at 230 Vac, cold start | | | 70 | A |
| leakage current | at 120 Vac | | | 300 | μA |
| | at 240 Vac | | | 500 | μA |
| power factor correction | at 230 Vac, full load | 0.9 | | | |
| remote ON/OFF | designated as INH on Pin 4 of CN1, requires a low signal to inhibit output | | | | |
| input fuse | T8 A/250 V on the input | | | | |

OUTPUT

| parameter | conditions/description | min | typ | max | units |
|----------------------------|--|-----|-----|-----|-------|
| total regulation | single output models | | ±1 | | % |
| | dual output models | | ±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 120 Vac | | | 1.5 | s |
| hold-up time | at 120 Vac, 75% load | 16 | | | ms |
| adjustability ¹ | built in trim pot | | ±5 | | % |
| | PFC | | 68 | | kHz |
| switching frequency | PWM | | 55 | | kHz |
| | all single output models & PCM-400-D1224 all other dual output models | | 50 | | kHz |
| fan drive | 12 Vdc/300 mA for external fan | | | | |
| fan fail (FF) | Designated as FF on Pin 3 of CN1, open collector output rated for 15Vdc/5mA max sink current. It goes high when a fan failure is detected. | | | | |
| power good (PG) | Designated as PG on CN1, TTL high 100~500 ms after DC regulation. It goes low at least 1 ms before loss of regulation. | | | | |
| power supply on | green LED designated as LED1 on the PCB | | | | |

Note: 1. U-Frame versions only

PROTECTIONS

| parameter | conditions/description | min | typ | max | units |
|-----------------------------|--|-----|-----|-----|-------|
| short circuit protection | auto restart | | | | |
| over current protection | auto restart | 110 | | 140 | % |
| over voltage protection | output latches, must recycle ac input to reset | | 130 | | % |
| over temperature protection | auto restart | 105 | 110 | 115 | °C |

SAFETY & COMPLIANCE

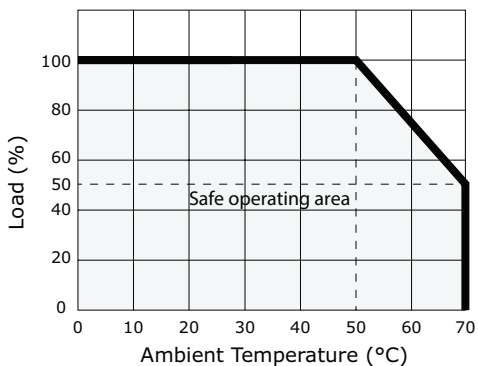
| parameter | conditions/description | min | typ | max | units |
|----------------------|--|---------|-----|-----|-------|
| isolation voltage | input to output, for 3 sec. | 3,000 | | | Vac |
| | input to core, for 3 sec. | 1,500 | | | Vac |
| | input to chassis (10 mA AC cut-off current), for 3 sec. | 1,500 | | | Vac |
| safety approvals | UL/cUL, TUV | | | | |
| safety standards | UL 60950-1, EN 60950-1 | | | | |
| EMI/EMC ² | EN 55022 Class B (conducted/radiated), EN 61000-3-(2,3), EN 55024, IEC 61000-4-(2, 3, 4, 5, 6, 11), CE | | | | |
| MTBF | as per MIL-HDBK-217F at 30°C | 100,000 | | | hrs |
| RoHS | 2011/65/EU | | | | |

Note: 2. The power supply is considered a component which will be installed into a final equipment. The final equipment must be re-confirmed that it still meets EMC directives.

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 | at 5~50 Hz, along the X, Y, and Z axis | | ±0.75 | | G |

DERATING CURVE



MECHANICAL

| parameter | conditions/description | min | typ | max | units |
|------------|---|-----|-----|-----|-------|
| dimensions | U-frame models: 152.40 x 101.60 x 38.10 | | | | mm |
| | CNF models: 152.40 x 101.60 x 39.90 | | | | mm |
| | CF models: 152.40 x 101.60 x 54.45 | | | | mm |
| | CFS models: 177.80 x 101.60 x 40.64 | | | | mm |
| weight | U-frame models | | 600 | | g |
| | CNF models | | 650 | | g |
| | CF models | | 800 | | g |
| | CFS models | | 750 | | g |

MECHANICAL DRAWING - SINGLE OUTPUT MODELS

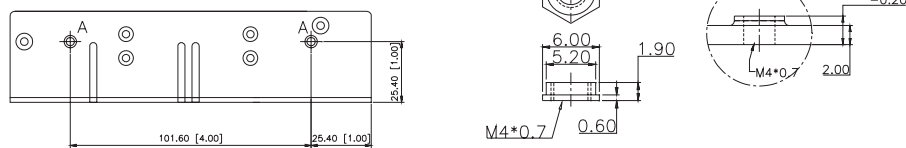
U-FRAME

units: mm[inch]

| CN1 | |
|-----|----------|
| PIN | Function |
| 1 | PG |
| 2 | RTN |
| 3 | FF |
| 4 | INH |

| CN2 | | | |
|----------------|----------|--------|----------|
| Terminal Block | | Header | |
| PIN | Function | PIN | Function |
| 1~2 | +Vo | 1~5 | +Vo |
| 3~4 | -Vo | 6~10 | -Vo |
| 5 | GND | 12 | GND |
| 6 | N | 14 | N |
| 7 | L | 16 | L |

| Fan1 | |
|------|----------|
| PIN | Function |
| 1 | +FAN |
| 2 | -FAN |



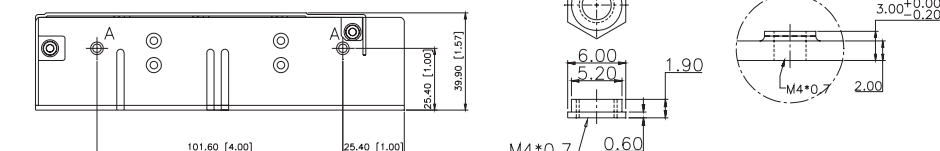
CNF

units: mm[inch]

| CN1 | |
|-----|----------|
| PIN | Function |
| 1 | PG |
| 2 | RTN |
| 3 | FF |
| 4 | INH |

| CN2 | | | |
|----------------|----------|--------|----------|
| Terminal Block | | Header | |
| PIN | Function | PIN | Function |
| 1~2 | +Vo | 1~5 | +Vo |
| 3~4 | -Vo | 6~10 | -Vo |
| 5 | GND | 12 | GND |
| 6 | N | 14 | N |
| 7 | L | 16 | L |

| Fan1 | |
|------|----------|
| PIN | Function |
| 1 | +FAN |
| 2 | -FAN |



- Notes:
1. CN1 mates with JST XHP-4 or equivalent (CHYAO SHIUNN JS-2001-04) and JST SXH-002T-P0.6 mating pins (30~26 AWG).
 2. CN2: Terminal Block option is Howder Part No. HD-121-7P. Header option mates with JST VHR-5 (input) and VHR-10 (output).
 3. Fan drive connector (Fan1) mates with JST Part No. XHP-2 or equivalent (CHYAO SHIUNN JS-2001-02).
 4. Mounting hole max screw depth is 2.0mm (M4x0.7 Inserts).

MECHANICAL DRAWING - SINGLE OUTPUT MODELS (CONTINUED)

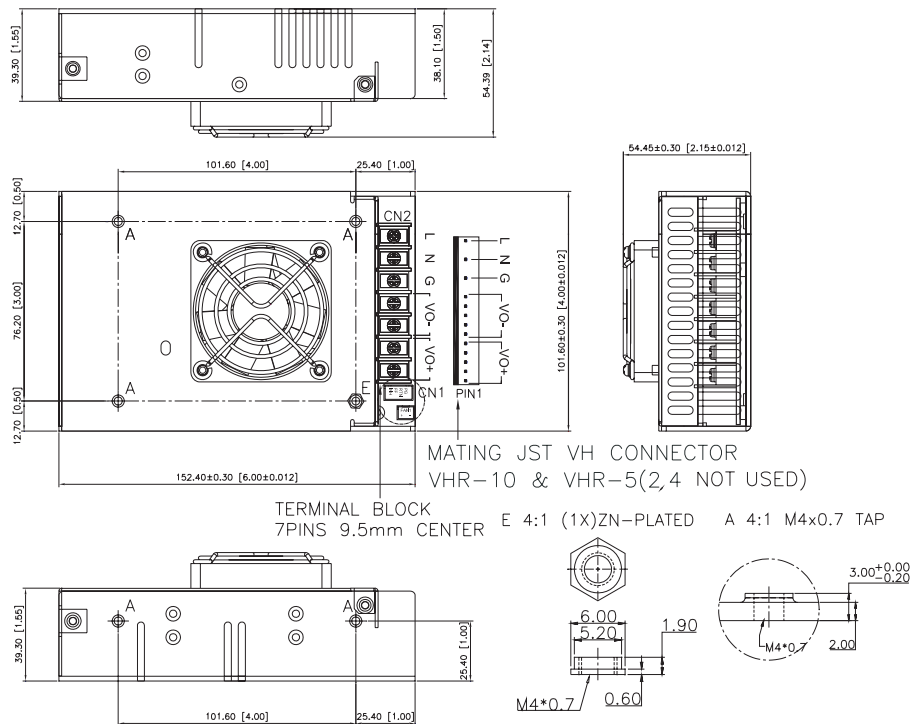
CF

units: mm[inch]

| CN1 | |
|-----|----------|
| PIN | Function |
| 1 | PG |
| 2 | RTN |
| 3 | FF |
| 4 | INH |

| CN2 | | | |
|----------------|----------|--------|----------|
| Terminal Block | | Header | |
| PIN | Function | PIN | Function |
| 1~2 | +Vo | 1~5 | +Vo |
| 3~4 | -Vo | 6~10 | -Vo |
| 5 | GND | 12 | GND |
| 6 | N | 14 | N |
| 7 | L | 16 | L |

| Fan1 | |
|------|----------|
| PIN | Function |
| 1 | +FAN |
| 2 | -FAN |



CFS

units: mm[inch]

| CN1 | |
|-----|----------|
| PIN | Function |
| 1 | PG |
| 2 | RTN |
| 3 | FF |
| 4 | INH |

| CN2 | | | |
|----------------|----------|--------|----------|
| Terminal Block | | Header | |
| PIN | Function | PIN | Function |
| 1~2 | +Vo | 1~5 | +Vo |
| 3~4 | -Vo | 6~10 | -Vo |
| 5 | GND | 12 | GND |
| 6 | N | 14 | N |
| 7 | L | 16 | L |

| Fan1 | |
|------|----------|
| PIN | Function |
| 1 | +FAN |
| 2 | -FAN |



- Notes:
1. CN1 mates with JST XHP-4 or equivalent (CHYAO SHIUNN JS-2001-04) and JST SXH-002T-P0.6 mating pins (30~26 AWG).
 2. CN2: Terminal Block option is Howder Part No. HD-121-7P. Header option mates with JST VHR-5 (input) and VHR-10 (output).
 3. Fan drive connector (Fan1) mates with JST Part No. XHP-2 or equivalent (CHYAO SHIUNN JS-2001-02).
 4. Mounting hole max screw depth is 2.0mm (M4x0.7 Inserts).

MECHANICAL DRAWING - DUAL OUTPUT MODELS

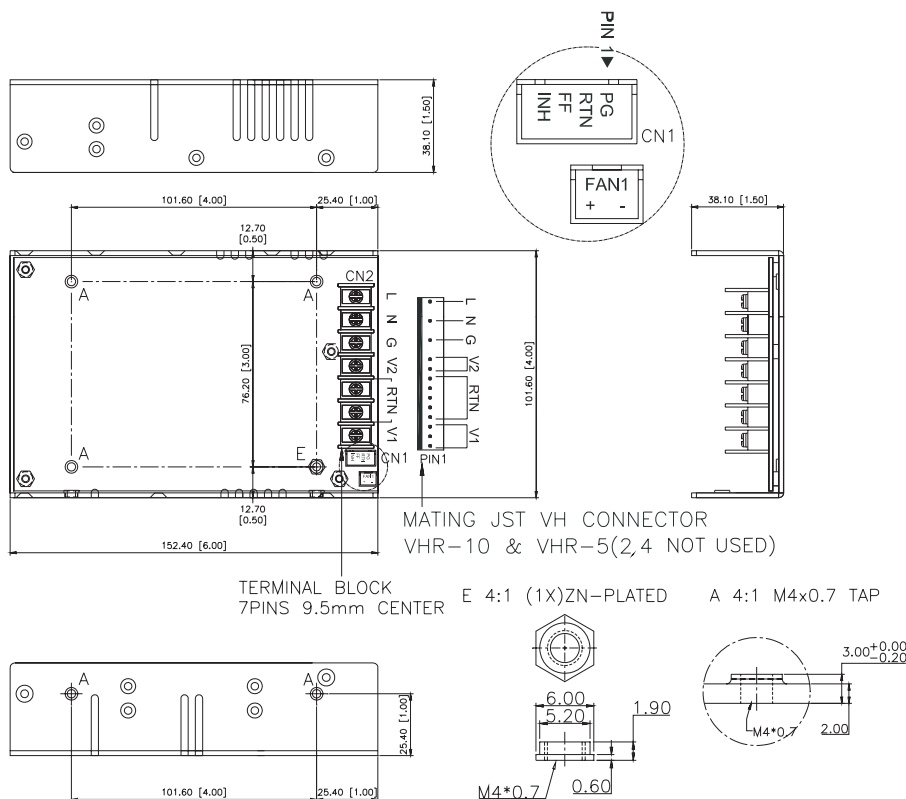
U-FRAME

units: mm[inch]

| CN1 | |
|-----|----------|
| PIN | Function |
| 1 | PG |
| 2 | RTN |
| 3 | FF |
| 4 | INH |

| CN2 | | | |
|----------------|----------|--------|----------|
| Terminal Block | | Header | |
| PIN | Function | PIN | Function |
| 1 | +Vo1 | 1~3 | +Vo1 |
| 2~3 | RTN | 4~8 | RTN |
| 4 | +Vo2 | 9~10 | +Vo2 |
| 5 | GND | 12 | GND |
| 6 | N | 14 | N |
| 7 | L | 16 | L |

| Fan1 | |
|------|----------|
| PIN | Function |
| 1 | +FAN |
| 2 | -FAN |



CNF

units: mm[inch]

| CN1 | |
|-----|----------|
| PIN | Function |
| 1 | PG |
| 2 | RTN |
| 3 | FF |
| 4 | INH |

| CN2 | | | |
|----------------|----------|--------|----------|
| Terminal Block | | Header | |
| PIN | Function | PIN | Function |
| 1 | +Vo1 | 1~3 | +Vo1 |
| 2~3 | RTN | 4~8 | RTN |
| 4 | +Vo2 | 9~10 | +Vo2 |
| 5 | GND | 12 | GND |
| 6 | N | 14 | N |
| 7 | L | 16 | L |

| Fan1 | |
|------|----------|
| PIN | Function |
| 1 | +FAN |
| 2 | -FAN |



- Notes:
1. CN1 mates with JST XHP-4 or equivalent (CHYAO SHIUNN JS-2001-04) and JST SXH-002T-P0.6 mating pins (30~26 AWG).
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 4. Mounting hole max screw depth is 2.0mm (M4x0.7 Inserts).

MECHANICAL DRAWING - DUAL OUTPUT MODELS (CONTINUED)

CF

units: mm[inch]

| CN1 | |
|-----|----------|
| PIN | Function |
| 1 | PG |
| 2 | RTN |
| 3 | FF |
| 4 | INH |

| CN2 | | | |
|----------------|----------|--------|----------|
| Terminal Block | | Header | |
| PIN | Function | PIN | Function |
| 1 | +Vo1 | 1~3 | +Vo1 |
| 2~3 | RTN | 4~8 | RTN |
| 4 | +Vo2 | 9~10 | +Vo2 |
| 5 | GND | 12 | GND |
| 6 | N | 14 | N |
| 7 | L | 16 | L |

| Fan1 | |
|------|----------|
| PIN | Function |
| 1 | +FAN |
| 2 | -FAN |



CFS

units: mm[inch]

| CN1 | |
|-----|----------|
| PIN | Function |
| 1 | PG |
| 2 | RTN |
| 3 | FF |
| 4 | INH |

| CN2 | | | |
|----------------|----------|--------|----------|
| Terminal Block | | Header | |
| PIN | Function | PIN | Function |
| 1 | +Vo1 | 1~3 | +Vo1 |
| 2~3 | RTN | 4~8 | RTN |
| 4 | +Vo2 | 9~10 | +Vo2 |
| 5 | GND | 12 | GND |
| 6 | N | 14 | N |
| 7 | L | 16 | L |

| Fan1 | |
|------|----------|
| PIN | Function |
| 1 | +FAN |
| 2 | -FAN |



- Notes:
1. CN1 mates with JST XHP-4 or equivalent (CHYAO SHIUNN JS-2001-04) and JST SXH-002T-P0.6 mating pins (30~26 AWG).
 2. CN2: Terminal Block option is Howder Part No. HD-121-7P. Header option mates with JST VHR-5 (input) and VHR-10 (output).
 3. Fan drive connector (Fan1) mates with JST Part No. XHP-2 or equivalent (CHYAO SHIUNN JS-2001-02).
 4. Mounting hole max screw depth is 2.0mm (M4x0.7 Inserts).

REVISION HISTORY

| rev. | description | date |
|------|-------------------|------------|
| 1.0 | initial release | 07/16/2014 |
| 1.01 | updated datasheet | 12/02/2014 |

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



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