



## 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 $\mu$ 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 <sup>7</sup>  (Vdc)	output current		output power  max (W)	ripple and noise <sup>8,9</sup>  max (mVp-p)	efficiency  typ (%)
				max (forced air) (A)	max (convection) (A)			
PCM-400-12 <sup>1,2</sup>		12	10~13.8	33.33	18.33	400	120	85
PCM-400-15 <sup>1,2</sup>		15	14~15.5	26.67	14.67	400	150	85
PCM-400-18 <sup>1,2</sup>		18	16~20	22.22	12.22	400	180	85
PCM-400-24 <sup>1,2</sup>		24	21~26	16.67	9.17	400	240	87
PCM-400-28 <sup>1,2</sup>		28	27~34	14.29	7.86	400	280	85
PCM-400-36 <sup>1,2</sup>		36	35~42	11.11	6.11	400	360	87
PCM-400-48 <sup>1,2</sup>		48	43~50	8.33	4.58	400	480	87
PCM-400-54 <sup>1,2</sup>		54	51~60	7.41	4.07	400	540	87
PCM-400-D0512 <sup>3,4</sup>	Vo1	5	N/A	30	15	320	50	87
	Vo2	12		20.83	13.33		120	
PCM-400-D0524 <sup>3,4</sup>	Vo1	5	N/A	30	15	320	50	87
	Vo2	24		10.42	6.67		240	
PCM-400-D0548 <sup>3,4</sup>	Vo1	5	N/A	30	15	320	50	87
	Vo2	48		5.21	3.33		480	
PCM-400-D1224 <sup>5,6</sup>	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  $\mu$ F electrolytic and 0.1  $\mu$ 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 <sup>1</sup>	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

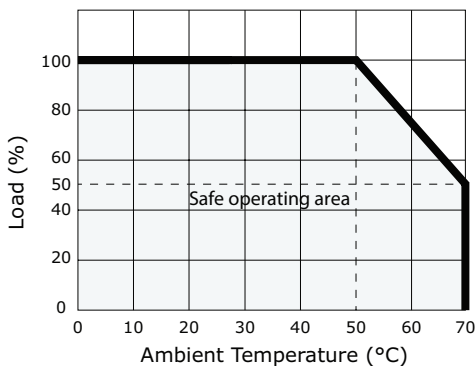
parameter	conditions/description	min	typ	max	units
isolation voltage	input to output, for 3 sec.	3,000			Vac
	input to core, for 3 sec.	1,500			Vac
	input to chassis (10 mA AC cut-off current), for 3 sec.	1,500			Vac
safety approvals	UL/cUL, TUV				
safety standards	UL 60950-1, EN 60950-1				
EMI/EMC <sup>2</sup>	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

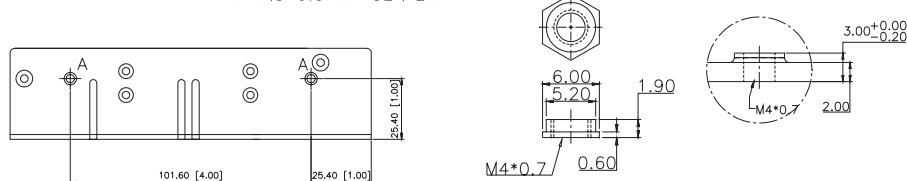
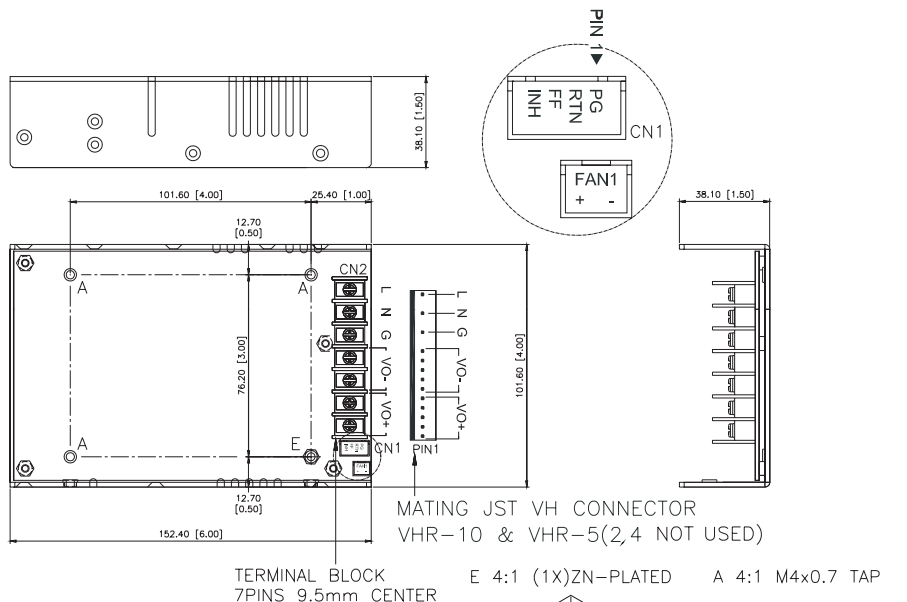
### U-FRAME

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



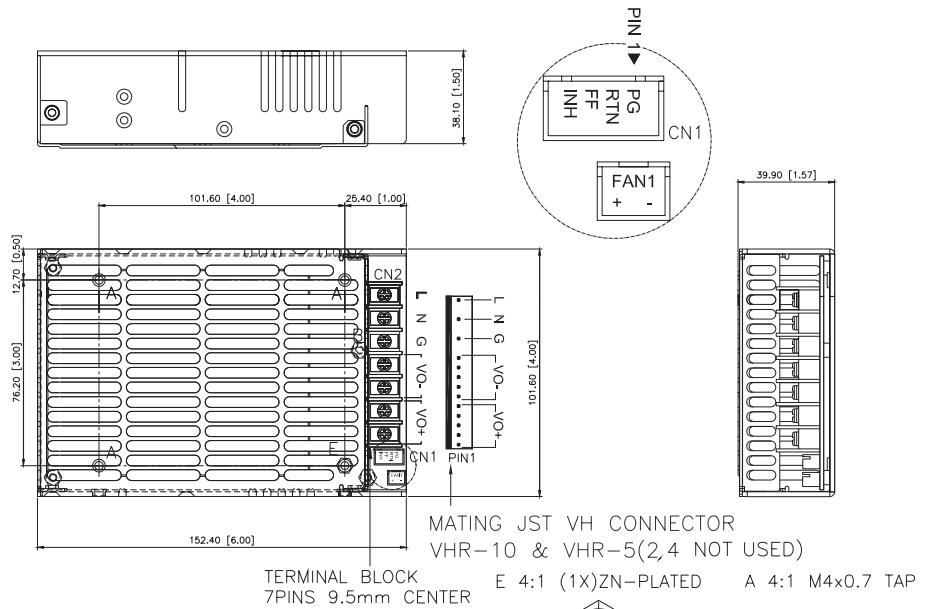
### CNF

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)

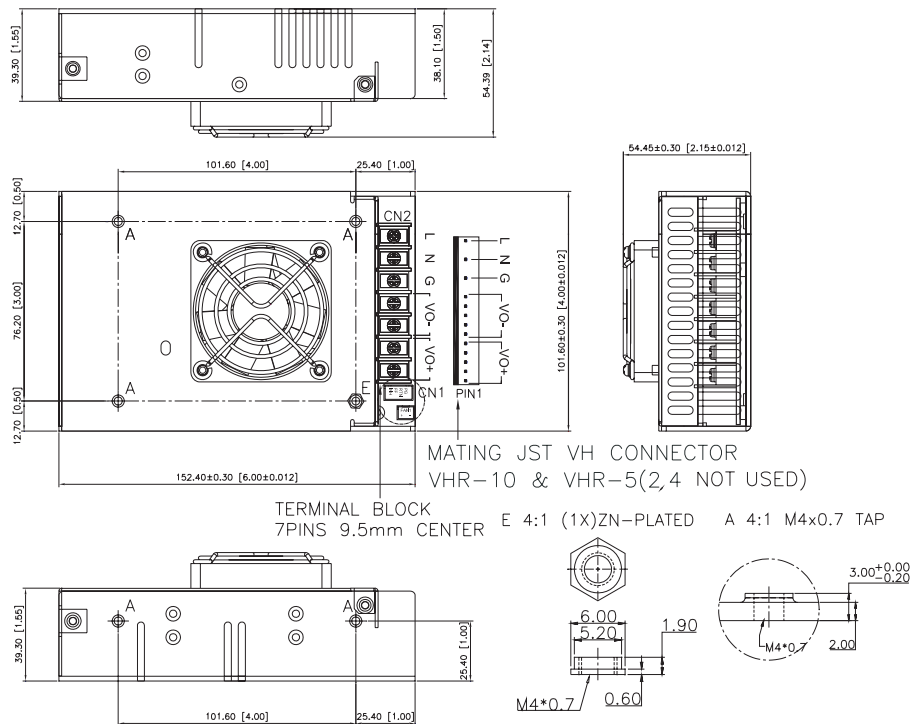
## CF

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

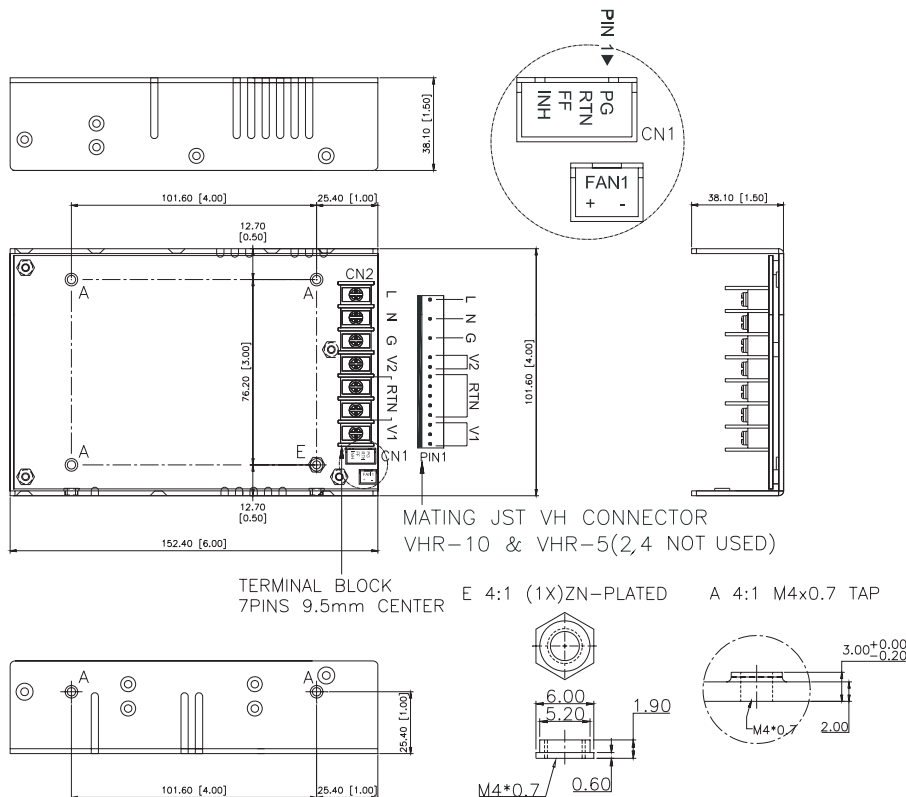
### U-FRAME

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).
  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 (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



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  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.



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

Fax 503.612.2383  
**cui.com**  
techsupport@cui.com

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Телефон: 8 (812) 309-75-97 (многоканальный)

Факс: 8 (812) 320-03-32

Электронная почта: [ocean@oceanchips.ru](mailto:ocean@oceanchips.ru)

Web: <http://oceanchips.ru/>

Адрес: 198099, г. Санкт-Петербург, ул. Калинина, д. 2, корп. 4, лит. А