













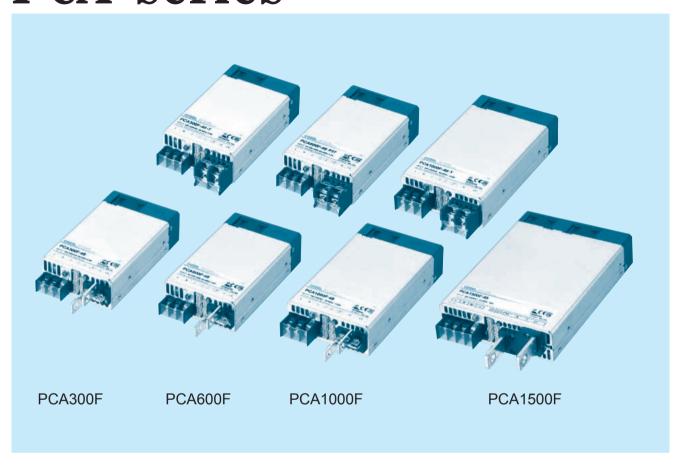








PCA-series



Feature

Low profile (41mm, 1.61 inch = meet 1U height)

Universal input 85 - 264VAC

(Refer to "Input vltage Derating")

DC input 88 - 370VDC possible: Excluding PCA1000F and

PCA1500F

(Refer to "Input vltage Derating")

For medical electric equipment

(ANSI/AAMI ES60601-1, EN60601-1 3rd)

Medical Isolation Grade 2MOPP

With AUX output 12V 0.1A (Voltage adjustable range 5 - 12V) Constant current function

Output voltage can be adjusted to near 0V (the item 2.6 on Instruction Manual)

With various alarms

Parallel Operation / N+1 Parallel Redundancy Operation possible Monitoring function and various setting values can be changed by communication (the item 2.11 on Instruction Manual)

Safety agency approval

· UL62368-1, C-UL (CSA62368-1), EN62368-1, ANSI/AAMI ES60601-1, EN60601-1 3rd

Up to 5-year warranty (Refer to Instruction Manual)

CE marking

Low Voltage Directive **RoHS** Directive

EMI

· PCA300F, PCA600F

Complies with FCC-B, CISPR32-B, EN55011-B, EN55032-B, VCCI-B

· PCA1000F, PCA1500F

Complies with FCC-A, CISPR32-A, EN55011-A, EN55032-A, VCCI-A

EMS Compliance : EN61204-3, EN61000-6-2

IEC60601-1-2 (2014), EN60601-1-2 (2015)

EN61000-4-2

EN61000-4-3

EN61000-4-4

EN61000-4-5

EN61000-4-6

EN61000-4-8

EN61000-4-11

PCA300F

300



- ①Series name ②Single output ③Output wattage ④Universal input
- ⑤Output voltage
- Orbut voltage
 Orbitonal *7
 C:with Coating
 G:Low leakage current
 T:Terminal Block Style
 - I :with PMBus interface
- F2:Reverse air exhaust type P3:Master-slave Operation
- W1:Alarm function

For option details, refer to instruction manual 6.1.

*Make sure necessary tests will be carried out on your end equipment with the power supply installed in accordance with any required EMC/EMI regulations.

MODEL	PCA300F-5	PCA300F-12	PCA300F-15	PCA300F-24	PCA300F-32	PCA300F-48
MAX OUTPUT WATTAGE[W]	300	324	330	336	320	336
DC OUTPUT	5V 60A	12V 27A	15V 22A	24V 14A	32V 10A	48V 7A

SPECIFICATIONS

	MODEL			PCA300F-5	PCA300F-12	PCA300F-15	PCA300F-24	PCA300F-32	PCA300F-48		
	VOLT4 05		[VAC]	85 - 264 1 φ	·		'	<i>'</i>			
	VOLTAGE		[VDC] *1	88 - 370							
	ALIDDENITAL		ACIN 100V	3.8typ							
	CURRENT[A]		ACIN 230V	1.6typ							
	FREQUENCY[H	lz]		50/60 (45 - 66)							
	_		(lo=50%)	86typ	87typ	87typ	88typ	88typ	88typ		
		ACIN 100V	(lo=100%)	87typ	88typ	88typ	89typ	89typ	89typ		
NPUT	EFFICIENCY[%]		(lo=50%)	87typ	88typ	88typ	89typ	89typ	89typ		
		ACIN 230V	(lo=100%)	89typ	90typ	90typ	91typ	91typ	91typ		
			ACIN 100V	0.98typ (lo=1009	· · · · · · · · · · · · · · · · · · ·		71	, ,,			
	POWER FACTO	DR	ACIN 230V	0.95typ (lo=1009	'						
			ACIN 100V*2	** '		h current / Seconda	arv inrush current) (More than 3 sec. to	re-start)		
	INRUSH CURRE	NT[A]	ACIN 230V*2	,,,		h current / Seconda					
	LEAKAGE CUF	RENTIMA	NI	** '		6, According to IEC		•			
	VOLTAGE[V]		•	5	12	15	24	32	48		
	CURRENT[A]			60	27	22	14	10	7		
	LINE REGULAT	TION[mV1		20max	48max	60max	96max	128max	192max		
	LOAD REGULA			40max	100max	120max	150max	150max	480max		
	RIPPLE[mVp-p] RIPPLE NOISE[mVp-p]		0 to +50°C *3*4	160max	240max	240max	240max	320max	480max		
			-20 to 0°C *3	280max	320max	320max	320max	420max	640max		
			0 to +50°C *3*4	240max	300max	300max	300max	400max	600max		
UTPUT			-20 to 0°C *3	320max	360max	360max	360max	480max	720max		
	TEMPERATURE REGULATION[mV] 0 to +50℃ *4			50max	120max	150max	240max	320max	480max		
				75max	180max	180max	290max	400max	600max		
			20max	48max	60max	96max	128max	192max			
	START-UP TIME[ms]				00/230V lo=100%)	Coman	- Coman	12011101	10211107		
	HOLD-UP TIME			20typ (ACIN 230V Io=80%) / 16typ (ACIN 230V Io=100%)							
	OUTPUT VOLTAGE A		RANGE[V]	3.00 to 6.00	7.20 to 14.40	9.00 to 18.00	14.40 to 28.80	19.20 to 38.40	28.80 to 57.6		
	OUTPUT VOLTA	-		5.00 to 5.05	12.00 to 12.12	15.00 to 15.15	24.00 to 24.24	32.00 to 32.32	48.00 to 48.4		
	OVERCURRENT				_	ers automatically, His		02.00 to 02.02	10.00 to 10.11		
	OVERVOLTAGE			6.25 to 7.00	15.00 to 16.80	18.75 to 21.00	30.00 to 33.60	40.00 to 44.80	60.00 to 67.20		
ROTECTION	REMOTE SENS		2.4[4]	Provided	10.00 to 10.00	10.70 to 21.00	00.00 to 00.00	10.00 to 11.00	00.00 to 07.2		
RCUIT AND	REMOTE ON/O		,	Provided Provided							
THERS	DC OK LAMP	()		LED (Blue)							
	ALARM LAMP			LED (Grange)							
	COMMUNICATION	ON FUNCT	ION	Provided (Extended UART)							
	INPUT-OUTPUT			AC4,000V 1minute, Cutoff current = 10mA, DC500V 50M Ω min (At Room Temperature) 2MOPP							
	INPUT-FG	-				= 10mA, DC500V 50					
OLATION	OUTPUT-FG					100mA, DC500V 50			•		
	OUTPUT - AUX · RC · PG ·	INFO · DS · ADDE	RO · ADDR1 · ADDR2			100mA, DC500V 50					
	OPERATING TEMP., F				- 90%RH (Non cor		(7 tt 1.00111	Tomporataro)			
	STORAGE TEMP.,HU				- 90%RH (Non cor						
NVIRONMENT	VIBRATION					period, 60minutes e	ach along X Y and	7 axis			
	IMPACT				11ms, once each		ac along A, T and	_ 0.110			
						alent to CAN/CSA-C	22 2 No 62368-1) 4	NSI/AAMI ES60601	I-1 FN60601-1 3		
AFETY	AGENCY APPF	ROVALS		,	, , ,	No.60601-1), Compl	,,		1, 21100001-10		
AND NOISE REGULATIONS	CONDUCTED	NOISE									
	HARMONIC ATTENUATOR *6			Complies with FCC Part15 classB, VCCI-B, CISPR32-B, EN55011-B, EN55032-B Complies with IEC61000-3-2 (class A)							

PCA-2 April 02, 2021





OTHERS	CASE SIZE/WEIGHT	89×41×152mm [3.50×1.61×5.98 inches] (without terminal block and screw) (W×H×D) / 840g max
UINERS	COOLING METHOD	Forced cooling (internal fan)

- *1 DC input safety agency approvals deleted.
- *2 The value is primary surge. The current of input surge to a built-in EMI/EMS Filter(0.2ms or less) is excluded.
- *3 Measured by 20MHz oscilloscope or Ripple-Noise meter (equivalent to KEISOKU-GIKEN:RM103). Please refer to the instruction manual 1.2.
- *4 5V output product, the maximum temperature of 40℃.

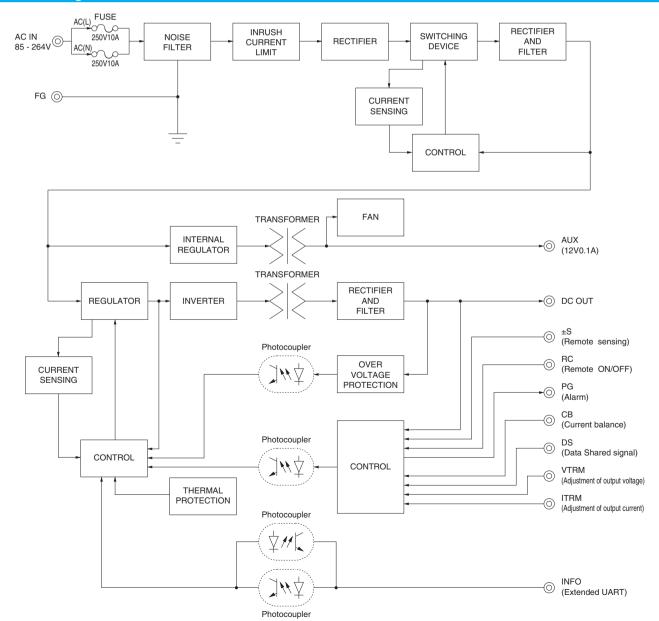
- Drift is the change in DC output for an eight hours period after a half-hour warm-up at 25°C.
- Please contact us about another class
- The listed options may affect the published standard specifications. Please contact us for detailed product specifications and safety approvals.
- A sound may occur from power supply at pulse loading.

Features

- · Low profile (41mm, 1.61 inch = meet 1U height)
- · Universal input 85 264VAC
- · DC input 88 370VDC possible
- · For medical electric equipment (ANSI/AAMI ES60601-1, EN60601-1 3rd, IEC60601-1-2 4th Ed.)
- · Medical Isolation Grade 2MOPP
- · With AUX output 12V 0.1A (Voltage adjustable range 5 -
- · Constant current function

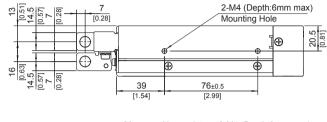
- · Output voltage can be adjusted to near 0V (the item 2.6 on Instruction Manual)
- · With various alarms
- Parallel Operation / N+1 Parallel Redundancy Operation possible
- · Monitoring function and various setting values can be changed by communication (the item 2.11 on Instruction Manual)
- · Complies with SEMI F47 (the item 2.1 on Instruction Manual)

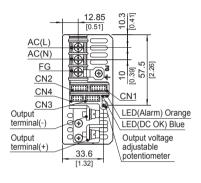
Block diagram

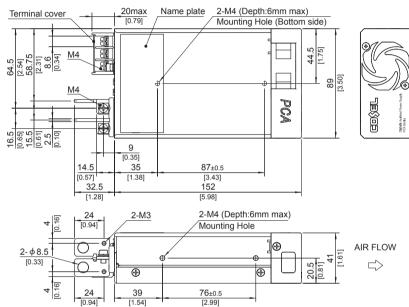




<PCA300F ☐ (Bus Bar Style) >







- % Tolerance : ± 1 [± 0.04]
- * Weight: 840g max
- \frak{W} PCB Material / thickness : FR-4 / 1.6mm [0.06]

- % Dimensions in mm, [] = inches
- $\ensuremath{\,\mathbb{X}\,}$ Input and output terminal screw tightening torque

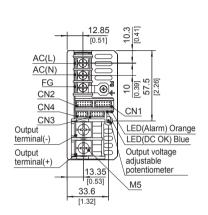
M3 0.6N·m max M4 1.6N·m max

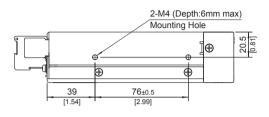
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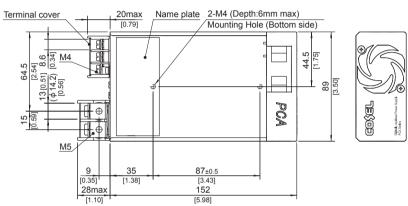


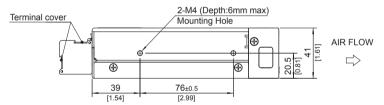


<PCA300F-_-T (Terminal Block Style) >









- ** Tolerance : ±1 [±0.04]
- * Weight: 840g max
- ※ PCB Material / thickness: FR-4 / 1.6mm [0.06]
- * Chassis Material: Aluminum
- ※ Fan cover Material : PBT
- ※ Dimensions in mm, [] = inches
- * Input and output terminal screw tightening torque

M4 1.6N·m max M5 2.5N·m max

 $\ensuremath{\mathbb{X}}$ Please connect safety ground to FG terminal on the unit.

PCA600F

600

Example recommended EMI/EMC filter NAC-16-472

High voltage pulse noise type : NAP series Low leakage current type : NAM series Low profile type : EAC series

*A higher current rating EMI/EMC filter may be recommended in view of the other devices that could be connected in parallel with the power supply.



① Series name ② Single output ③ Output wattage

4 Universal input

⑤Output voltage

 Orbut voltage
 Orbitonal *7
 C:with Coating
 G:Low leakage current
 T:Terminal Block Style (Only 12V, 15V, 24V, 32V and 48V)

I :with PMBus interface F2:Reverse air exhaust type

P3:Master-slave Operation

W1:Alarm function

For option details, refer to instruction manual 6.1.

*Make sure necessary tests will be carried out on your end equipment with the power supply installed in accordance with any required EMC/EMI regulations.

MODEL	PCA600F-5	PCA600F-12	PCA600F-15	PCA600F-24	PCA600F-32	PCA600F-48
MAX OUTPUT WATTAGE[W]	600	636	645	648	640	624
DC OUTPUT	5V 120A	12V 53A	15V 43A	24V 27A	32V 20A	48V 13A

SPECIFICATIONS

	MODEL			PCA600F-5	PCA600F-12	PCA600F-15	PCA600F-24	PCA600F-32	PCA600F-48			
	VOLTAGE		[VAC]	85 - 264 1 φ (Οι	utput derating is rec	uired at less than	90V. Refer to "Dera	ting")	•			
	VOLIAGE		[VDC] *1	88 - 370 (Output derating is required at less than 110V. Refer to "Derating")								
	CUDDENTIAL		ACIN 100V	7.3typ								
	CURRENT[A]		ACIN 230V	3.2typ								
	FREQUENCY[H	lz]		50/60 (45 - 66)								
		1001140014	(lo=50%)	90typ	91typ	91typ	91typ	91typ	91typ			
NEUT	EEEIOJENOVIO I	ACIN 100V	(lo=100%)	89typ	90typ	90typ	91typ	91typ	91typ			
NPUT	EFFICIENCY[%]	40111 0001/	(lo=50%)	92typ	92typ	92typ	93typ	93typ	93typ			
		ACIN 230V	(lo=100%)	91typ	92typ	92typ	93typ	93typ	93typ			
			ACIN 100V	0.98typ (lo=100°	%)		, ,,	, ,,				
	POWER FACTO	PR	ACIN 230V	0.95typ (lo=100°	%)			,	,			
			ACIN 100V*2	20/40 tvp (lo=10	00%) (Primary inrus	h current / Seconda	arv inrush current)	(More than 3 sec. to	re-start)			
	INRUSH CURRE	NT[A]	ACIN 230V*2					More than 3 sec. to				
	LEAKAGE CUF	RENTIMA	A 1	71 \	40V 60Hz, lo=1009		, ,		,			
	VOLTAGE[V]	<u> </u>		5	12	15	24	32	48			
	CURRENT[A]			120	53	43	27	20	13			
	LINE REGULAT	[ION[mV]		20max	48max	60max	96max	128max	192max			
	LOAD REGULA		1	40max	100max	120max	150max	150max	480max			
	RIPPLE[mVp-p] RIPPLE NOISE[mVp-p]	0 to +50°C *3*4	160max	240max	240max	240max	320max	480max				
-		-20 to 0°C *3	280max	320max	320max	320max	420max	640max				
			0 to +50°C *3*4	240max	300max	300max	300max	400max	600max			
OUTPUT		-20 to 0°C *3	320max	360max	360max	360max	480max	720max				
	TEMPERATURE REGULATION[mV]		0 to +50°C *4	50max	120max	150max	240max	320max	480max			
		-20 to +50°C *4	75max	180max	180max	290max	400max	600max				
-	DRIFT[mV]	DRIFT[mV]		20max	48max	60max	96max	128max	192max			
	DRIFT[mV] *5 START-UP TIME[ms]				00/230V lo=100%)	Coman	Comax	120max	10211107			
	HOLD-UP TIME[ms]			71 (OV Io=80%) / 16typ	(ACIN 230V Io=100	0%)					
	OUTPUT VOLTAGE ADJUSTMENT RANGE[V]			3.00 to 6.00	7.20 to 14.40	9.00 to 18.00	14.40 to 28.80	19.20 to 38.40	28.80 to 57.60			
	OUTPUT VOLTA			5.00 to 5.05	12.00 to 12.12	15.00 to 15.15	24.00 to 24.24	32.00 to 32.32	48.00 to 48.48			
	OVERCURRENT				% of rating (Recove			02.00 to 02.02	40.00 10 40.40			
	OVERVOLTAGE			6.25 to 7.00	15.00 to 16.80	18.75 to 21.00	30.00 to 33.60	40.00 to 44.80	60.00 to 67.20			
ROTECTION	REMOTE SENS		SI4[4]	Provided	13.00 to 10.00	10.73 to 21.00	00.00 to 00.00	1 40.00 10 44.00	00.00 10 07.20			
IRCUIT AND	REMOTE ON/O			Provided								
THERS	DC OK LAMP	11 (110)		LED (Blue)								
	ALARM LAMP			LED (Blue)								
	COMMUNICATION	ON FLINCT	ION	Provided (Extended UART)								
	INPUT-OUTPUT		1011	Provided (Extended UART) AC4,000V 1minute, Cutoff current = 10mA, DC500V 50MΩ min (At Room Temperature) 2MOPP								
	INPUT-FG			,				Temperature) 1MC				
SOLATION	OUTPUT-FG	-		,	e, Cutoff current = 1				71 1			
	OUTPUT - AUX · RC · PG ·	INEO · DS · ADD	DO - ADDD1 - ADDD2		e, Cutoff current = 1							
	OPERATING TEMP				- 90%RH (Non cor		MISS THIT (ALTIOOTI	Temperature)				
	STORAGE TEMP.,HU			,	- 90%RH (Non cor							
NVIRONMENT	VIBRATION	מוא. ז ווטווויי	ALITIODE		1/s² (2G) 3minutes i		ach along Y V and	I 7 avie				
	IMPACT				11ms, once each		auraiony A, r and	1 L axi5				
		OVALC					200 0 No 60060 4\	ANSI/AAMI ES6060	11 ENECCO 110			
SAFETY	AGENCY APPROVALS				, (] .		, ,		71-1, ENOUOU1-1 3			
AFETY				C-UL (equivalent to CAN/CSA-C22.2 No.60601-1), Complies with IEC60601-1-2 4th Ed. Complies with FCC Part15 classB, VCCI-B, CISPR32-B, EN55011-B, EN55032-B								
AFETY AND NOISE	CONDUCTED	IOISE		, ,				1 Z 101 Z 0.				

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OTHERS	CASE SIZE/WEIGHT	89×41×152mm [3.50×1.61×5.98 inches] (without terminal block and screw) (W×H×D) / 840g max
OTHERS	COOLING METHOD	Forced cooling (internal fan)

- *1 DC input safety agency approvals deleted.
- *2 The value is primary surge. The current of input surge to a built-in EMI/EMS Filter(0.2ms or less) is excluded.
- *3 Measured by 20MHz oscilloscope or Ripple-Noise meter (equivalent to KEISOKU-GIKEN:RM103). Please refer to the instruction manual 1.2.
- *4 5V output product, the maximum temperature of 40°C.

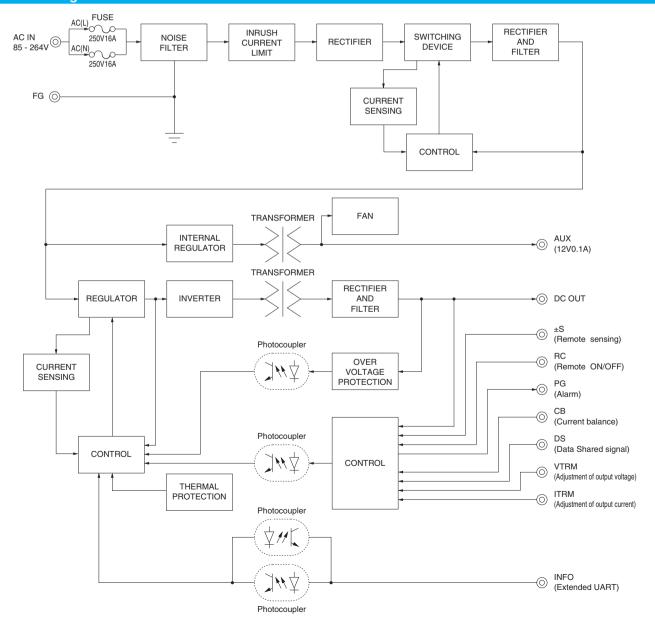
- Drift is the change in DC output for an eight hours period after a half-hour warm-up at 25°C.
- Please contact us about another class
- The listed options may affect the published standard specifications. Please contact us for detailed product specifications and safety approvals.
- A sound may occur from power supply at pulse loading.

Features

- · Low profile (41mm, 1.61 inch = meet 1U height)
- · Universal input 85 264VAC (Refer to "Derating", when using at 85 - 90VAC)
- · DC input 88 370VDC possible (Refer to when using at 88 - 110VDC)
- · For medical electric equipment (ANSI/AAMI ES60601-1, EN60601-1 3rd, IEC60601-1-2 4th Ed.)
- · Medical Isolation Grade 2MOPP
- · With AUX output 12V 0.1A (Voltage adjustable range 5 12V)
- · Constant current function

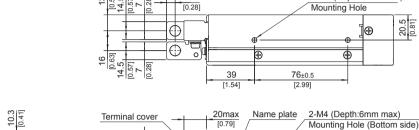
- · Output voltage can be adjusted to near 0V (the item 2.6 on Instruction Manual)
- · With various alarms
- · Parallel Operation / N+1 Parallel Redundancy Operation possible
- · Monitoring function and various setting values can be changed by communication (the item 2.11 on Instruction Manual)
- · Complies with SEMI F47 (the item 2.1 on Instruction Manual)

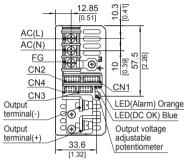
Block diagram

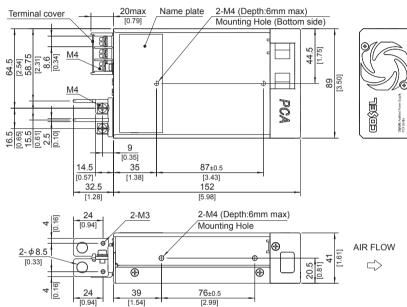




<PCA600F (Bus Bar Style) >







2-M4 (Depth:6mm max)

% Tolerance : ± 1 [± 0.04]

Weight: 840g max

 \frak{W} PCB Material / thickness : FR-4 / 1.6mm [0.06]

% Chassis Material : Aluminum% Fan cover Material : PBT

※ Dimensions in mm, [] = inches

* Input and output terminal screw tightening torque

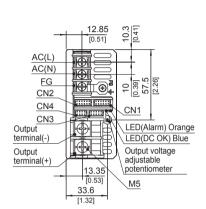
M3 0.6N·m max M4 1.6N·m max

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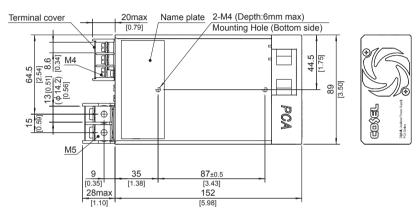


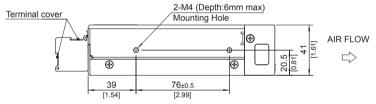


<PCA600F-_-T (Terminal Block Style) >



2-M4 (Depth:6mm max) Mounting Hole 20.5 • 39 [1.54] 76±0.5





- ** Tolerance : ±1 [±0.04]
- * Weight: 840g max
- \frak{W} PCB Material / thickness : FR-4 / 1.6mm [0.06]
- * Chassis Material: Aluminum
- ※ Fan cover Material : PBT
- ※ Dimensions in mm, [] = inches
- * Input and output terminal screw tightening torque

M4 1.6N·m max M5 2.5N·m max

 $\ensuremath{\mathbb{X}}$ Please connect safety ground to FG terminal on the unit.

PCA1000F

1000



①Series name ②Single output

3 Output wattage

4 Universal input

⑤Output voltage

©Optional *6
C:with Coating
G:Low leakage current
T:Terminal Block Style

(Only 24V, 32V and 48V)
I:with PMBus interface
F2:Reverse air exhaust type
P3:Master-slave Operation

W1:Alarm function

E1:EMI classB (Only 24V, 32V and 48V)

For option details, refer to instruction manual 6.1.

*Make sure necessary tests will be carried out on your end equipment with the power supply installed in accordance with any required EMC/EMI regulations.

MODEL	PCA1000F-5	PCA1000F-12	PCA1000F-15	PCA1000F-24	PCA1000F-32	PCA1000F-48
MAX OUTPUT WATTAGE[W]	1000	1056	1050	1056	1056	1056
DC OUTPUT	5V 200A	12V 88A	15V 70A	24V 44A	32V 33A	48V 22A

SPECIFICATIONS

	MODEL			PCA1000F-5	PCA1000F-12	PCA1000F-15	PCA1000F-24	PCA1000F-32	PCA1000F-48			
	VOLTAGE		[VAC]	. ,	tput derating is req	uired at less than 90	V. Refer to "Derati	ng")				
	CURRENT[A]		ACIN 100V	12.0typ								
	OOTHILITIA	-	ACIN 230V	5.3typ								
	FREQUENCY[H	lz]		50/60 (45 - 66)								
		ACIN 100V	(lo=50%)	90typ	91typ	91typ	91typ	91typ	91typ			
		ACIN 100V	(lo=100%)	89typ	90typ	90typ	91typ	91typ	91typ			
PUT	EFFICIENCY[%]	ACIN 230V	(lo=50%)	92typ	92typ	92typ	93typ	93typ	93typ			
		ACIN 230V	(lo=100%)	91typ	92typ	92typ	93typ	93typ	93typ			
	DOWED EACTO	\D	ACIN 100V	0.98typ (lo=100%	(o)				•			
	POWER FACTOR ACIN 230V			0.95typ (lo=100%	(o)							
	INDUAL OURDE		ACIN 100V*1	20/40 typ (lo=100)%) (Primary inrush	current / Seconda	ry inrush current) (More than 3 sec. to	re-start)			
	INRUSH CURRE	NI[A]	ACIN 230V*1	40/40 typ (lo=100	0%) (Primary inrush	current / Seconda	ry inrush current) (More than 3 sec. to	re-start)			
	LEAKAGE CUR	RENT[m/	A1	,,,	0.5max (ACIN 240V 60Hz, Io=100%, According to IEC60601-1)							
	VOLTAGE[V]			5	12	15	24	32	48			
	CURRENT[A]			200	88	70	44	33				
-	LINE REGULAT	[ION[mV]		20max	48max	60max	96max	128max				
	LOAD REGULA		1	40max	100max	120max	150max	150max	+			
			0 to +50°C *2*3	160max	240max	240max	240max	320max				
	RIPPLE[mVp-p]	-20 to 0°C *2	280max	320max	320max	320max	420max				
OUTPUT			0 to +50°C *2*3	240max	300max	300max	300max	400max	91typ 93typ 93typ 93typ 93typ 93typ 1to re-start) 48 22 192max 480max 480max 640max 600max 720max 480max 600max 192max 28.80 to 57.60 48.00 to 48.48 60.00 to 67.20			
	RIPPLE NOISE	[mVp-p]	-20 to 0°C *2	320max	360max	360max	360max	480max				
UIFUI			0 to +50°C *3	50max	120max	150max	240max	320max	_			
	TEMPERATURE REGU	LATION[mV]	-20 to +50°C *3	75max	180max	180max	290max	400max	91typ 93typ 93typ 93typ 93typ 93typ 0 re-start) 48 22 192max 480max 480max 640max 600max 720max 480max 600max 192max 48.00 to 48.48 60.00 to 67.20			
	DDIETIVI		*4	20max					_			
	DRIFT[mV] *4 START-UP TIME[ms]				48max	60max	96max	128max	192max			
				700typ (ACIN 100/230V lo=100%) 20typ (ACIN 230V lo=80%) / 16typ (ACIN 230V lo=100%)								
		HOLD-UP TIME[ms]		,,,				10.00 to 00.40	00 00 to 57 0			
		OUTPUT VOLTAGE ADJUSTMENT RANGE[V]		3.00 to 6.00	7.20 to 14.40	9.00 to 18.00	14.40 to 28.80	19.20 to 38.40	+			
				5.00 to 5.05	12.00 to 12.12	15.00 to 15.15	24.00 to 24.24	32.00 to 32.32	48.00 to 48.4			
	OVERCURRENT					s automatically, Hid	T '	1	T			
	OVERVOLTAGE F		ON[V]	6.25 to 7.00	15.00 to 16.80	18.75 to 21.00	30.00 to 33.60	40.00 to 44.80	60.00 to 67.20			
ROTECTION	REMOTE SENS			Provided								
RCUIT AND	REMOTE ON/O	FF (RC)		Provided								
THERS	DC_OK LAMP			LED (Blue)								
	ALARM LAMP			LED (Orange)								
	COMMUNICATIO		TION	Provided (Extended UART)								
	INPUT-OUTPUT	Г		AC4,000V 1minute, Cutoff current = 10mA, DC500V 50MΩ min (At Room Temperature) 2MOPP								
OLATION	INPUT-FG			AC2,000V 1minute, Cutoff current = 10mA, DC500V 50MΩ min (At Room Temperature) 1MOPP								
OLAHON	OUTPUT-FG	_		AC500V 1minute	, Cutoff current = 1	00mA, DC500V 50N	MΩ min (At Room	Temperature)				
	OUTPUT - AUX · RC · PG ·	INFO · DS · ADD	R0 · ADDR1 · ADDR2	AC500V 1minute	, Cutoff current = 1	00mA, DC500V 50I	MΩ min (At Room	Temperature)				
	OPERATING TEMP.,H	IUMIDITY.ANI	D ALTITUDE	-20 to +70°C, 20 ·	- 90%RH (Non con	densing)						
VIRONMENT	STORAGE TEMP.,HU	JMIDITY.AND	ALTITUDE	-20 to +75°C, 20	- 90%RH (Non con	densing)						
VINCIVICIVI	VIBRATION			10 - 55Hz 19.6m/	/s² (2G) 3minutes p	eriod, 60minutes ea	ach along X, Y and	Z axis				
	IMPACT			196.1m/s² (20G)	11ms, once each X	X, Y and Z axis						
	AGENCY APPR	ROVALS		UL62368-1, EN62	368-1, C-UL (equiva	alent to CAN/CSA-C2	22.2 No.62368-1), A	NSI/AAMI ES60601	-1, EN60601-1 3			
VETA				C-UL (equivalent t	to CAN/CSA-C22.2	No.60601-1), Compli	es with IEC60601-1	I-2 4th Ed.				
ND NOISE	CONDUCTED N	NOISE		Complies with FCC	Part15 classA, VCCI-	A, CISPR32-A, EN550	11-A, EN55032-A					
GULATIONS	HARMONIC ATTENUATOR *5			Complies with FCC Part15 classA, VCCI-A, CISPR32-A, EN55011-A, EN55032-A Complies with IEC61000-3-2 (class A)								

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OTHERS	CASE SIZE/WEIGHT	102×41×178mm [4.02×1.61×7.01 inches] (without terminal block and screw) (W×H×D) / 1.2kg max
	COOLING METHOD	Forced cooling (internal fan)

The value is primary surge. The current of input surge to a built-in EMI/EMS Filter(0.2ms or

- *2 Measured by 20MHz oscilloscope or Ripple-Noise meter (equivalent to KEISOKU-GIKEN: RM103). Please refer to the instruction manual 1.2.
- *3 5V, 12V, 15V output product, the maximum temperature of 40°C.

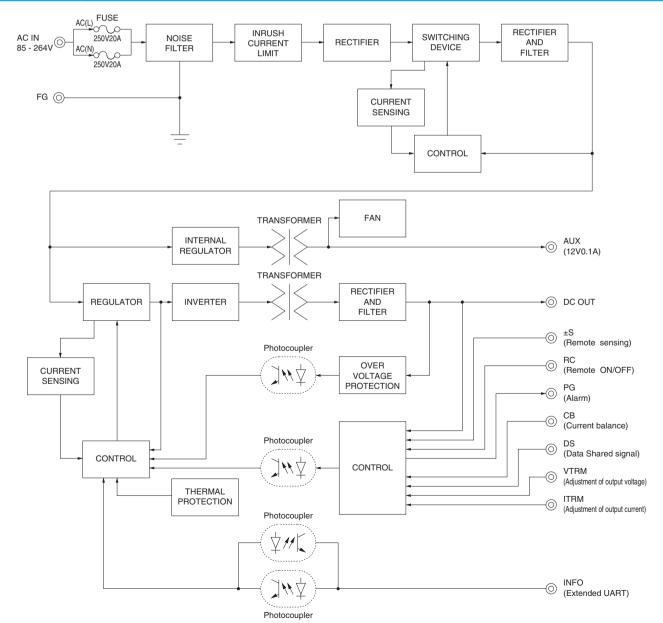
- Drift is the change in DC output for an eight hours period after a half-hour warm-up at 25°C.
- Please contact us about another class.
- *6 The listed options may affect the published standard specifications. Please contact us for detailed product specifications and safety approvals.
- A sound may occur from power supply at pulse loading.

Features

- · Low profile (41mm, 1.61 inch = meet 1U height)
- · Universal input 85 264VAC (Refer to "Derating", when using at 85 - 90VAC)
- · For medical electric equipment (ANSI/AAMI ES60601-1, EN60601-1 3rd, IEC60601-1-2 4th Ed.)
- · Medical Isolation Grade 2MOPP
- · With AUX output 12V 0.1A (Voltage adjustable range 5 -12V)
- · Constant current function

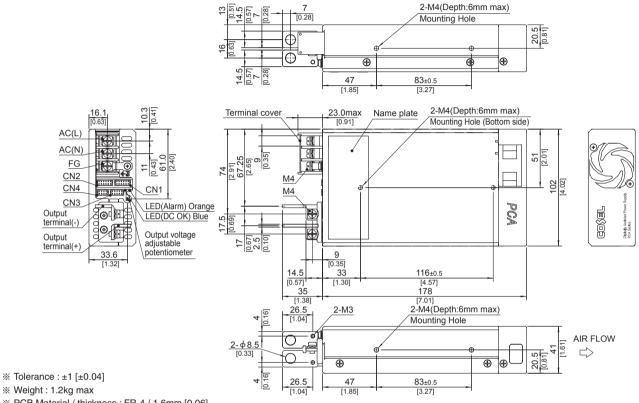
- · Output voltage can be adjusted to near 0V (the item 2.6 on Instruction Manual)
- · With various alarms
- · Parallel Operation / N+1 Parallel Redundancy Operation
- · Monitoring function and various setting values can be changed by communication (the item 2.11 on Instruction Manual)
- · Complies with SEMI F47 (the item 2.1 on Instruction Manual)

Block diagram





<PCA1000F- (Bus Bar Style) >



% PCB Material / thickness : FR-4 / 1.6mm [0.06]

% Chassis Material : Aluminum

※ Fan cover Material : PBT

※ Dimensions in mm, [] = inches

Mounting torque: 1.2N·m max

* Input and output terminal screw tightening torque

M3 0.6N·m max M4 1.6N·m max

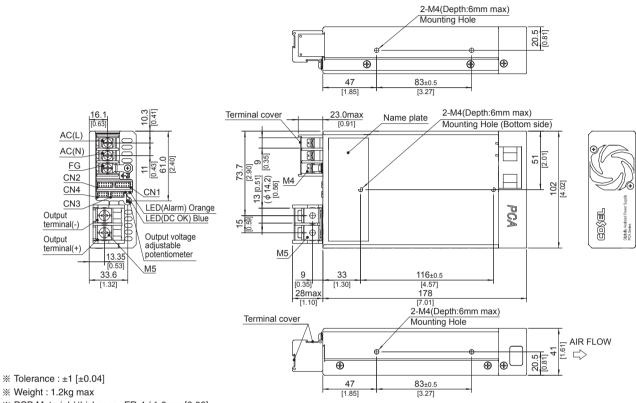
* Please connect safety ground to FG terminal on the unit.

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<PCA1000F- T (Terminal Block Style) >



- ※ Weight : 1.2kg max
- \frak{W} PCB Material / thickness : FR-4 / 1.6mm [0.06]
- * Chassis Material : Aluminum
- ※ Fan cover Material : PBT
- ※ Dimensions in mm, [] = inches
- Mounting torque: 1.2N⋅m max
- * Input and output terminal screw tightening torque

M4 1.6N·m max M5 2.5N·m max

 $\ensuremath{\mathbb{X}}$ Please connect safety ground to FG terminal on the unit.

PCA1500F

1500







Example recommended EMI/EMC filter NAC-30-472



High voltage pulse noise type : NAP series Low leakage current type : NAM series Low profile type : EAC series

*A higher current rating EMI/EMC filter may be recommended in view of the other devices that could be connected in parallel with the power supply.

- ①Series name ②Single output ③Output wattage ④Universal input
- ⑤Output voltage
- Optional *6
 C :with Coating
 G :Low leakage current
 - I :with PMBus interface
 - F2:Reverse air exhaust type
 - P3:Master-slave Operation
- W1:Alarm function

For option details, refer to instruction manual 6.1.

*Make sure necessary tests will be carried out on your end equipment with the power supply installed in accordance with any required EMC/EMI regulations.

MODEL		PCA1500F-5	PCA1500F-12	PCA1500F-15	PCA1500F-24	PCA1500F-32	PCA1500F-48
MAX OUTPUT WATTAGE[W]	ACIN 100V/230V	1500/1500	1500/1500	1500/1500	1560/1680	1504/1664	1536/1680
DC OUTPUT	ACIN 100V/230V	5V 300A/300A	12V 125A/125A	15V 100A/100A	24V 65A/70A	32V 47A/52A	48V 32A/35A

SPECIFICATIONS

N	MODEL			PCA1500F-5	PCA1500F-12	PCA1500F-15	PCA1500F-24	PCA1500F-32	PCA1500F-48		
١	/OLTAGE		[VAC]	85 - 264 1 φ (Οι	tput derating is req	uired at less than 9	5V. Refer to "Derati	ng")			
	NUDDENTIAL		ACIN 100V	18typ							
	CURRENT[A] ACIN 230V			7.8typ 8.5typ							
F	REQUENCY[H	lz]		50/60 (45 - 66)							
		1001140014	(lo=50%)	90typ	91typ	91typ	91typ	91typ	91typ		
		ACIN 100V	(lo=100%)	88typ	90typ	90typ	91typ	91typ	91typ		
PUT	FFICIENCY[%]	4011 0001	(lo=50%)	92typ	92typ	92typ	93typ	93typ	93typ		
		ACIN 230V	(lo=100%)	91typ	92typ	92typ	93typ	93typ	93typ		
Γ.	OWED EASTS		ACIN 100V	0.98typ (lo=100°	%)				•		
	POWER FACTO)K	ACIN 230V	0.95typ (lo=100%)							
Γ.	NDUGU GUDDE	IT (A)	ACIN 100V*1	20/40 typ (Io=100%) (Primary inrush current / Secondary inrush current) (More than 10 sec. to re-start)							
II.	NRUSH CURREN	NI[A]	ACIN 230V*1	40/40 typ (lo=10	0%) (Primary inrus	n current / Seconda	ry inrush current) (More than 10 sec. t	o re-start)		
L	EAKAGE CUR	RENT[m/	<u>\</u>]	40/40 typ (Io=100%) (Primary inrush current / Secondary inrush current) (More than 10 sec. to re-start) 0.5max (ACIN 240V 60Hz, Io=100%, According to IEC60601-1)							
\	/OLTAGE[V]			5	12	15	24	32	48		
(CURRENT[A]		ACIN 100V/230V	300/300	125/125	100/100	65/70	47/52	32/35		
L	INE REGULAT	ION[mV]		20max	48max	60max	96max	128max	192max		
L	OAD REGULA	TION[mV]		40max	100max	120max	150max	150max	480max		
	RIPPLE[mVp-p]	1	0 to +50°C *2*3	160max	240max	240max	240max	320max	480max		
Ľ	MEEEE[IIIVP-P	J	-20 to 0°C *2	280max	320max	320max	320max	420max	640max		
	RIPPLE NOISE[mVp-p]	0 to +50°C *2*3	240max	300max	300max	300max	400max	600max			
UTPUT		-20 to 0°C *2	320max	360max	360max	360max	480max	720max			
Ι,	EMPERATURE REGU	I ATION[mV]	0 to +50°C *3	50max	120max	150max	240max	320max	480max		
Γ,	TEMPENATONE NEGOCIATION[IIV]		-20 to +50°C *3	75max	180max	180max	290max	400max	600max		
[DRIFT[mV] *4		20max	48max	60max	96max	128max	192max			
8	START-UP TIME[ms]			700typ (ACIN 100/230V lo=100%)							
<u> </u>	HOLD-UP TIME[ms]			20typ (ACIN 230V Io=80%) / 16typ (ACIN 230V Io=100%)							
C	OUTPUT VOLTAGE A	DJUSTMENT	RANGE[V]	3.00 to 6.00	7.20 to 14.40	9.00 to 18.00	14.40 to 28.80	19.20 to 38.40	28.80 to 57.6		
(OUTPUT VOLTA	AGE SETT	ING[V]	5.00 to 5.05	12.00 to 12.12	15.00 to 15.15	24.00 to 24.24	32.00 to 32.32	48.00 to 48.4		
(OVERCURRENT	PROTECTI	ON	Works over 1059	6 of rating (Recove	rs automatically, Hi	ccup overcurrent)				
<u> </u>	OVERVOLTAGE F		N[V]	6.25 to 7.00	15.00 to 16.80	18.75 to 21.00	30.00 to 33.60	40.00 to 44.80	60.00 to 67.20		
	REMOTE SENS			Provided	,						
	REMOTE ON/O	FF (RC)		Provided							
<u> </u>	OC_OK LAMP			LED (Blue)	,						
<u> </u>	ALARM LAMP			LED (Orange)							
	COMMUNICATIO		ION	Provided (Extended UART)							
<u> </u>	NPUT-OUTPUT			AC4,000V 1minute, Cutoff current = 10mA, DC500V 50MΩ min (At Room Temperature) 2MOPP							
SOLATION ⊢	NPUT-FG				ite, Cutoff current =				PP		
	OUTPUT-FG			AC500V 1minute, Cutoff current = 100mA, DC500V 50MΩ min (At Room Temperature)							
	UTPUT - AUX · RC · PG ·				e, Cutoff current = 1		$MΩ$ min (At Room $\overline{}$	Temperature)			
_	PERATING TEMP.,H			,	- 90%RH (Non con						
IVIRONMENI —	STORAGE TEMP.,HU	IMIDITY.AND	ALTITUDE		- 90%RH (Non con						
_	/IBRATION				/s² (2G) 3minutes p		ach along X, Y and	Z axis			
	MPACT				11ms, once each >				. =		
AFETY A	AGENCY APPR	OVALS		,	2368-1, C-UL (equiv		,,,		-1, EN60601-1 3		
ND NOISE	CONDUCTED	IOICE			to CAN/CSA-C22.2						
EGULATIONS \vdash	CONDUCTED N		D 45		Part15 classA, VCCI-		no∠-A, EINOSUTT-A, EI	N00U3Z-A			
F	HARMONIC AT	IENUATO	H *5	Complies with IE	C61000-3-2 (class	A)					

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OTHERS	CASE SIZE/WEIGHT	140×41×203mm [5.52×1.61×7.99 inches] (without terminal block and screw) (W×H×D) / 2.0kg max
OTHERS	COOLING METHOD	Forced cooling (internal fan)

The value is primary surge. The current of input surge to a built-in EMI/EMS Filter(0.2ms or

- *2 Measured by 20MHz oscilloscope or Ripple-Noise meter (equivalent to KEISOKU-GIKEN: RM103). Please refer to the instruction manual 1.2
- *3 5V, 12V, 15V output product, the maximum temperature of 40°C.

- Drift is the change in DC output for an eight hours period after a half-hour warm-up at 25°C.
- Please contact us about another class.
- *6 The listed options may affect the published standard specifications. Please contact us for detailed product specifications and safety approvals.
- A sound may occur from power supply at pulse loading.

Features

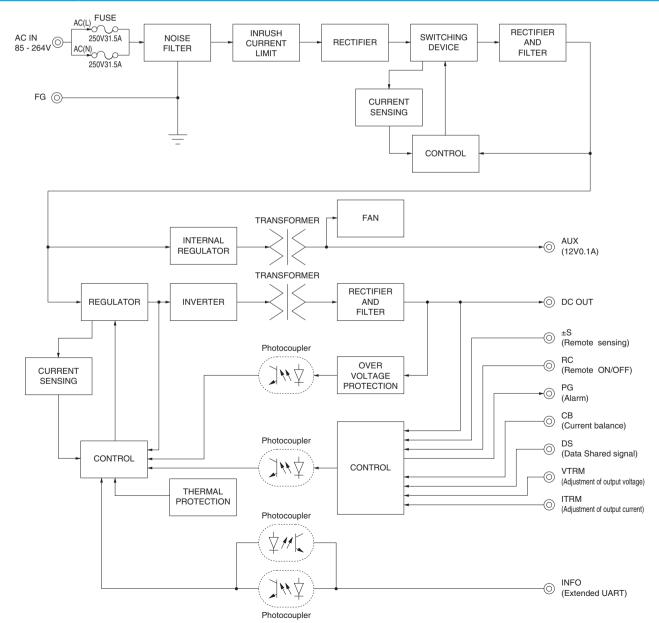
- · Low profile (41mm, 1.61 inch = meet 1U height)
- · Universal input 85 264VAC (Refer to "Derating", when using at 85 - 95VAC)
- · For medical electric equipment (ANSI/AAMI ES60601-1, EN60601-1 3rd. IEC60601-1-2 4th Ed.)
- · Medical Isolation Grade 2MOPP
- · With AUX output 12V 0.1A (Voltage adjustable range 5 12V)
- · Constant current function

- · Output voltage can be adjusted to near 0V (Refer to the item 2.6 on Instruction Manual.)
- · With various alarms
- · Parallel Operation / N+1 Parallel Redundancy Operation available
- · Monitoring function and various setting values can be changed by communication

(Refer to the item 2.11 on Instruction Manual.)

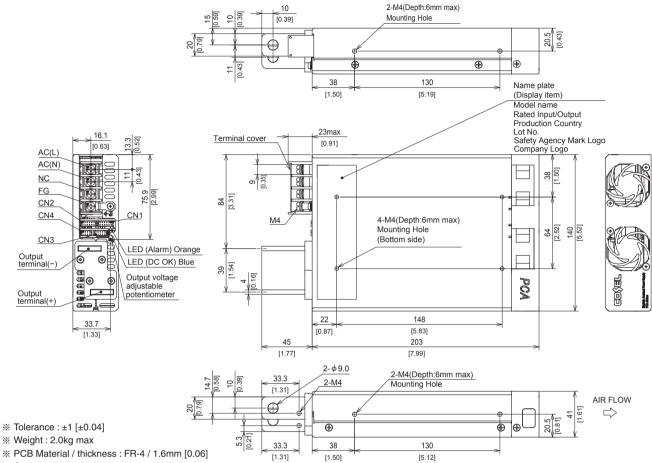
· Complies with SEMI F47 (Refer to the item 2.1 on Instruction Manual.)

Block diagram



COSEL | PCA1500F

External view



% Chassis Material : Aluminum

※ Fan cover Material : PBT

※ Dimensions in mm, [] = inches

Mounting torque: 1.2N·m max

 $\ensuremath{\,\mathbb{X}\,}$ Input and output terminal screw tightening torque

M3 0.6N·m max M4 1.6N·m max

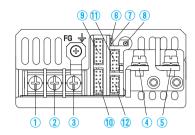
 $\ensuremath{\,\times\,}$ Please connect safety ground to FG terminal on the unit.

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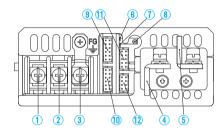


Terminal Blocks

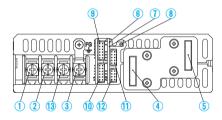
PCA300F, PCA600F

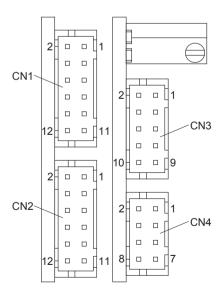


●PCA1000F



PCA1500F





Connector pin numbers

①AC (L) Input Terminals 85 - 264VAC 1 \$\phi\$45 - 66Hz

(2)AC (N) (M4) 88 - 370VDC (Excluding PCA1000F PCA1500F)

(3)Frame ground (M4)

(4)-Output

(5)+Output

(6)LED for fault condition detection (ALARM) Color: Orange

(7)LED for output voltage confirmation (DC OK) Color: Bule

(8)Output voltage adjustable potentiometer

(9)CN1

10CN2

Connectors (11)CN3

(12)CN4

(13)N.C.

Pin Configuration and Functions of CN1, CN2

Pin No.		Ground level			
1	+S	+Remote sensing	COM		
2	N.C.	No connection	-		
3	N.C.	No connection			
4	-S	-Remote sensing	COM		
5	VTRM	/TRM Adjustment of output voltage			
6	COM	Common ground (for signal) Extended UART signal	COM		
7	INFO	SGND			
8	CB Current Balance		COM		
9	DS	Data Shared signal	SGND		
10	SGND	Signal ground	SGND		
11	RC2	Remote ON/OFF	RCG		
12	RCG	Remote ON/OFF ground			

* Each terminal of CN1 and CN2 are connected inside the power supply.

Pin Configuration and Functions of CN3

Pin No.		Ground level			
1	AUX	Auxiliary output	AUXG		
2	AUXG	Auxiliary output ground	AUXG		
3	RC1	Remote ON/OFF			
4	AUXG	Auxiliary output ground	AUXG		
5	PG	Alarm	PGG		
6	PGG	Alarm ground	PGG		
7	ITRM	Adjustment of output current	COM		
8	COM	Common ground (for signal)	COM		
9	VTRM_EN	Enable Vtrm	COM		
10	SLV_EN	Enable Slave mode *1	COM		

Pin Configuration and Functions of CN4

Pin No.		Function	Ground level				
1	SDA	Serial data *2	SGND				
2	SGND	Signal ground	SGND				
3	SCL	Serial clock *2	SGND				
4	SMBA	SMBAlert *2	SGND				
5	ADDR0	Address bit 0	SGND				
6	ADDR1	Address bit 1	SGND				
7	ADDR2	Address bit 2	SGND				
8	SGND	Signal ground	SGND				

Matching connectors and terminals

Connector		Housing	Terminal	Mfr.	
CN1 CN2	S12B-PHDSS	PHDR-12VS	Reel: SPHD-002T-P0.5 Loose:BPHD-001T-P0.5 *3	1 C T	
CN3	S10B-PHDSS	PHDR-10VS		J.S. I	
CN4	S8B-PHDSS	PHDR-8VS	BPHD-002T-P0.5 *3		

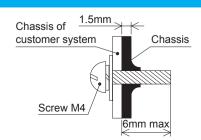
★1 For -P3 option.

*2 For -I option.

*3 The manufacturer prepares only the ratchet hand.

Assembling and Installation Method

■Please observe the mounting screw length in right figure to obtain enough isolation between screws and internal components.

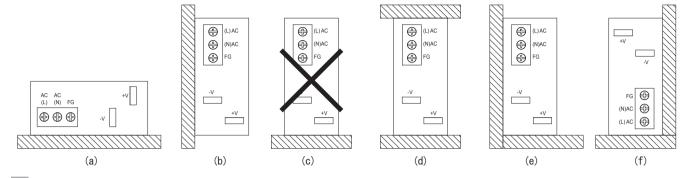




Assembling and Installation Method

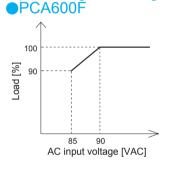
- ■Please do not block built-in fans and ventilation holes. When the power supply is mounted by screws, please consider its weight and set it in place. (Please see below.)
- ■Please avoid installing the power supply by only one narrow side like the Fig.(c).

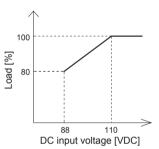
 In that case, another narrow side or the wide side should be also used to install as shown in Fig.(d), (e), and (f).
- If power supplies are used in a dusty environment, it might cause a failure. Please consider taking such countermeasures as installing an air filter near the suction area of the system to prevent a failure.



Derating

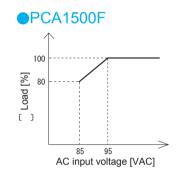
Input voltage Derating curve



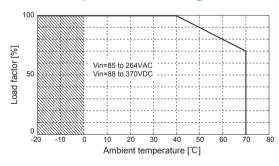


PCA1000F

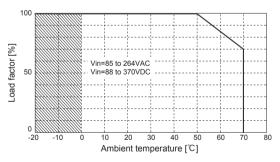
AC input voltage [VAC]



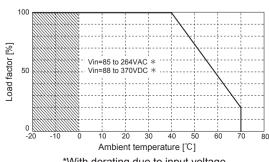
PCA300F-5 Ambient Temperature Derating Curve



●PCA300F-12, -15, -24, -32, -48 Ambient Temperature Derating Curve

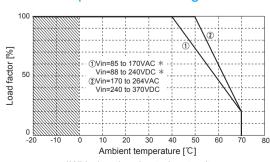


●PCA600F-5 Ambient Temperature Derating Curve



*With derating due to input voltage

●PCA600F-12, -15, -24, -32, -48 Ambient Temperature Derating Curve

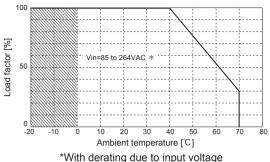


*With derating due to input voltage

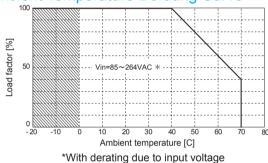


Derating

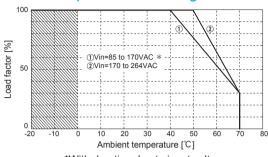
●PCA1000F-5, -12, -15 **Ambient Temperature Derating Curve**



PCA1500F-5,-12,-15 **Ambient Temperature Derating Curve**

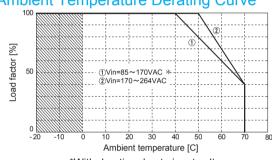


PCA1000F-24, -32, -48 **Ambient Temperature Derating Curve**



*With derating due to input voltage

PCA1500F-24,-32,-48 **Ambient Temperature Derating Curve**



*With derating due to input voltage

- ■Specifications for ripple and ripple noise are different in the hatched area.
- ■The ambient temperature is defined as the temperature of the air at air-intake side of the power supply.

Instruction Manual

◆ It is neccessary to read the "Instruction Manual" and "Before using our product" before you use our product.

Instruction Manual https://en.cosel.co.jp/product/powersupply/PCA/ Before using our product https://en.cosel.co.jp/technical/caution/index.html





Basic Characteristics Data

Model	Circuit method	Switching frequency [kHz]	Input current [A]	Rated input fuse	Inrush current protection circuit	PCB/Pattern		Series/Parallel operation availability		
Model						Material	Single sided	Double sided	Series operation	Parallel operation
	Active filter	15 - 400	3.8	250V 10A	Relay	FR-4	-	Yes	Yes	Yes
PCA300F	Buck converter	88								
	Full - bridge converter	44								
	Active filter	15 - 400	7.3	250V 16A	Relay	FR-4	-	Yes	Yes	Yes
PCA600F	Buck converter	88								
	Full - bridge converter	44								
	Active filter	15 - 400	12.0	250V 20A	Relay	FR-4	-	Yes	Yes	Yes
PCA1000F	Buck converter	88								
	Full - bridge converter	44								
	Active filter	15 - 400	18.0	250V 31.5A	Relay	FR-4	-	Yes	Yes	Yes
PCA1500F	Buck converter	88								
	Full - bridge converter	44								

The value of input current is at ACIN 100VAC and rated load.

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