COSEL AC-DC Power Supplies Enclosed Type

PJA100F

Ordering information

PJ	A	100	F	-□	-□
①	②	③	④	⑤	⑧

Example recommended EMI/EMC filter
NAC-04-472

High voltage pulse noise type : NAP series
Low leakage current type : NAM 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
⑥Optional ＊6
C : with Coating
R : Remote on/off (Required external power source)
J : Connector interface
T : Vertical terminal block
N2: with DIN rail

See 5.1 in Instruction Manual.

＊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.

SPECIFICATIONS

＊ Please consider "PBA100F-5-N" about 5V output with case cover.

	MODEL		PJA100F-12	PJA100F-15	PJA100F-24	PJA100F-36	PJA100F-48
INPUT	VOLTAGE[V]		AC85 - 264 1φ (Output derating is required at AC85V - 115V. See 1.1 and 3.2 in Instruction Manual)				
	CURRENT[A]	ACIN 100V	1.2typ (Io=90%)				
		ACIN 115V	1.1typ (Io=100%)				
		ACIN 230V	0.6typ (Io=100%)				
	FREQUENCY[Hz]		50 / 60 (47 - 63)				
	EFFICIENCY[%]	ACIN 100V	82typ (Io=90%)	83typ (Io=90%)	85typ (Io=90%)	86typ (Io=90%)	86typ (Io=90%)
		ACIN 115V	82typ (Io=100%)	83typ (Io=100%)	85typ (Io=100%)	86typ (Io=100%)	86typ (Io=100%)
		ACIN 230V	85typ (Io=100%)	86typ (Io=100%)	88typ (Io=100%)	89typ (Io=100%)	89typ (Io=100%)
	POWER FACTOR	ACIN 100V	0.98typ (Io=90%)				
		ACIN 115V	0.98typ (Io=100%)				
		ACIN 230V	0.90typ (Io=100%) ＊ Power factor correction is stopped at AC250V or more.				
	INRUSH CURRENT[A]	ACIN 100V	16typ (Io=90%) Ta=25℃ at cold start				
		ACIN 115V	16typ (Io=100%) Ta=25℃ at cold start				
		ACIN 230V	32typ (Io=100%) Ta=25℃ at cold start				
	LEAKAGE CURRENT[mA]		0.75max (ACIN 240V, 60Hz, Io=100%, According to IEC62368-1 and DEN-AN)				
OUTPUT	VOLTAGE[V]		12	15	24	36	48
	CURRENT[A]	ACIN 85-115V	Output derating is required at ACIN 115V or less (refer to instruction manual 3.2)				
		ACIN 115V-264V	8.4	6.7	4.3	2.8	2.1
	WATTAGE[W]	ACIN 85-115V	Output derating is required at ACIN 115V or less (refer to instruction manual 3.2)				
		ACIN 115V-264V	100.8	100.5	103.2	100.8	100.8
	LINE REGULATION[mV] ＊3		48max	60max	96max	144max	192max
	LOAD REGULATION [mV] ＊3	Io=30 to 100%	100max	120max	150max	150max	300max
		Io=0 to 30%	Burst operation (Please contact us about detail)				
	RIPPLE[mVp-p] ＊1 Io: load factor	0 to +40℃	120max	120max	120max	150max	150max
		-10 to 0℃	160max	160max	160max	200max	400max
		Io=0 to 30%	500max	500max	500max	500max	500max
	RIPPLE NOISE[mVp-p] ＊1 Io: load factor	0 to +40℃	150max	150max	150max	200max	200max
		-10 to 0℃	180max	180max	180max	240max	500max
		Io=0 to 30%	600max	600max	600max	600max	600max
	TEMPERATURE REGULATION[mV]	0 to +40℃	120max	150max	240max	360max	480max
		-10 to +40℃	180max	180max	290max	440max	600max
	DRIFT[mV] ＊2		48max	60max	96max	144max	192max
	START-UP TIME[ms]		500typ (ACIN 115V, Io=100%) Ta=25℃				
	HOLD-UP TIME[ms]		20typ (ACIN 115V, Io=100%)				
	OUTPUT VOLTAGE ADJUSTMENT RANGE[V]		10.80 to 13.20	13.50 to 16.50	21.60 to 26.40	32.40 to 39.60	43.20 to 52.80
	OUTPUT VOLTAGE SETTING[V]		12.00 to 12.48	15.00 to 15.60	24.00 to 24.96	36.00 to 37.44	48.00 to 49.92
PROTECTION CIRCUIT AND OTHERS	OVERCURRENT PROTECTION		Works over 105% of rating and recovers automatically				
	OVERVOLTAGE PROTECTION[V]		13.80 to 16.80	17.25 to 21.00	27.60 to 33.60	41.40 to 50.40	54.00 to 67.20
	OPERATING INDICATION		LED (Green)				
	REMOTE SENSING		Not provided				
	REMOTE ON/OFF		Optional (Required external power source. Option -R)				
ISOLATION	INPUT-OUTPUT • RC ＊8		AC3,000V 1minute, Cutoff current = 10mA, DC500V 50MΩ min (At room temperature)				
	INPUT-FG		AC2,000V 1minute, Cutoff current = 10mA, DC500V 50MΩ min (At room temperature)				
	OUTPUT • RC-FG ＊8		AC500V 1minute, Cutoff current = 100mA, DC500V 50MΩ min (At room temperature)				
	OUTPUT-RC ＊8		AC500V 1minute, Cutoff current = 100mA, DC500V 50MΩ min (At room temperature)				
ENVIRONMENT	OPERATING TEMP.,HUMID.AND ALTITUDE ＊4		-20 to +70℃ (Output derating is required), 20 - 90%RH (Non condensing), 3,000m (10,000 feet) max				
	STORAGE TEMP.,HUMID.AND ALTITUDE		-20 to +75℃, 20 - 90%RH (Non condensing), 9,000m (30,000 feet) max				
	VIBRATION		10 - 55Hz, 19.6m/s² (2G), 3minutes period, 60minutes each along X, Y and Z axes				
	IMPACT		196.1m/s² (20G), 11ms, once each X, Y and Z axes				
SAFETY AND NOISE REGULATIONS	AGENCY APPROVALS		UL62368-1, C-UL (CSA62368-1), EN62368-1, UL508 (Except option -J) Complies with DEN-AN				
	CONDUCTED NOISE		Complies with FCC-B, VCCI-B, CISPR22-B, EN55011-B, EN55022-B				
	HARMONIC ATTENUATOR ＊7		Complies with IEC61000-3-2 class A				

SPECIFICATIONS

OTHERS	CASE SIZE/WEIGHT	41×97×109mm [1.61×3.82×4.29 inches] (Excluding terminal block and screw) (W×H×D) / 500g max
	COOLING METHOD	Convection
WARRANTY	WARRANTY ＊5	5 years (subject to the operating conditions)

＊1 This is the result of measurement of the testing board with capacitors of 22 μF and 0.1 μF placed at 150 mm from the output terminals by a 20 MHz oscilloscope or a ripple-noise meter equivalent to Keisoku-Giken RM103.
See 1.6 of Instruction Manual for more details.
When the load factor is 0 - 30%, the switching power loss is reduced by burst operation, which will cause ripple and ripple noise to go beyond the specifications.

＊2 Drift is the change in DC output for an eight hour period after a half-hour warm-up at 25℃.

＊3 Consult us about dynamic load and input response. Measure the output voltage by using the average mode of the tester to deal with the burst operation at 30% load or less.

＊4 Output power derating is required. See 3.2 in Instruction Manual.

＊5 See 3.3 in Instruction Manual for more details.

＊6 Consult us about safety agency approvals for the models with optional functions.

＊7 Consult us about other classes.

＊8 The RC terminal is added to option –R models. The RC terminal is isolated from input, output, and FG.

＊ Do not use the power supply in overcurrent conditions or in unspecified input voltage ranges. Otherwise the internal components may be damaged.

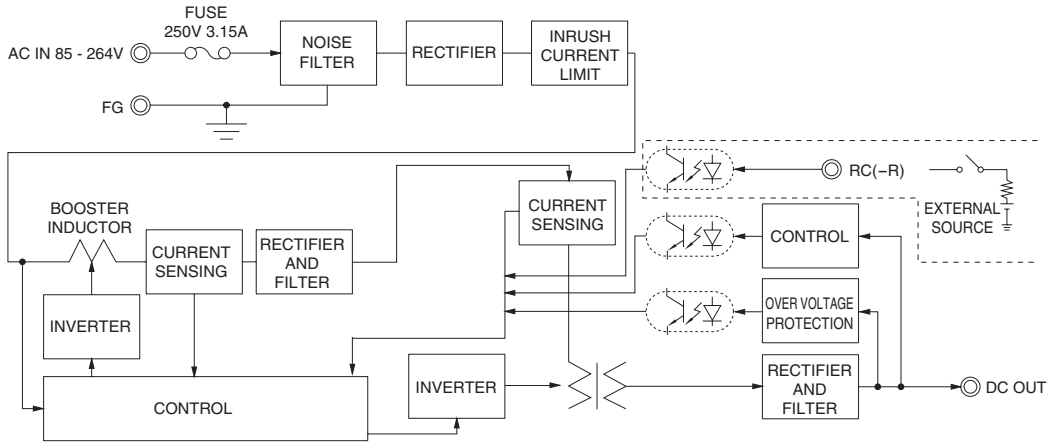
＊ Parallel operation is not possible with this mode.

＊ Sound noise may be heard from the power supply when used for pulse load.

Features

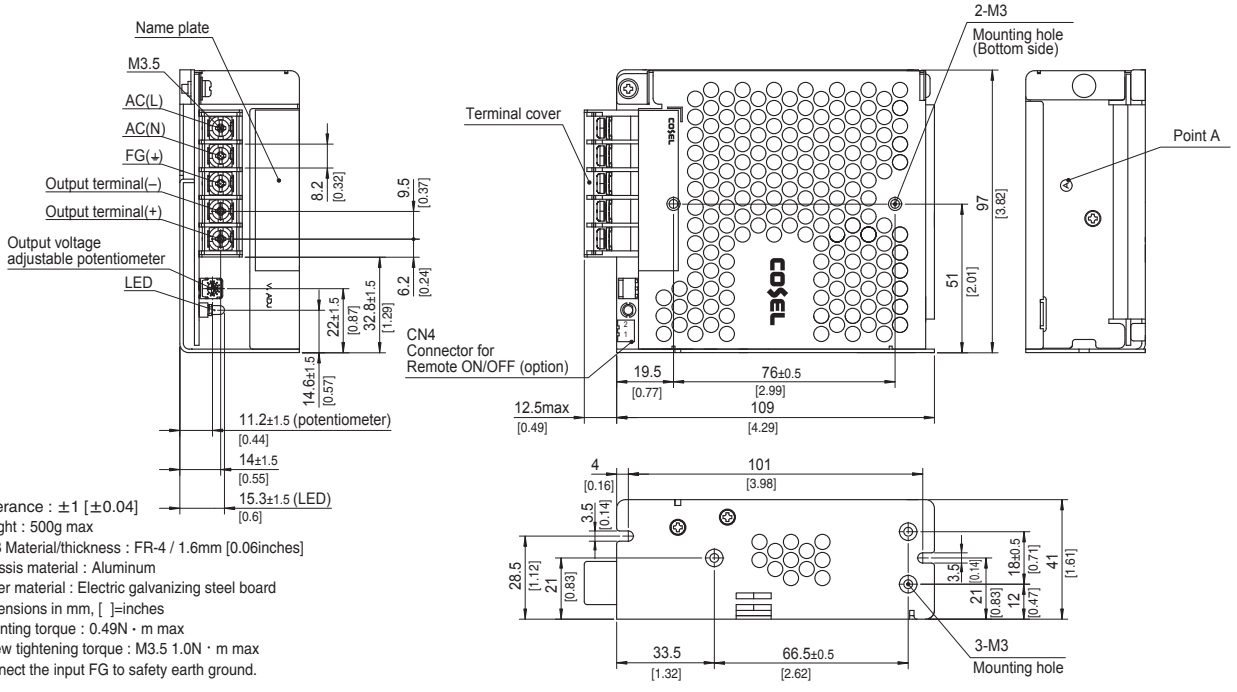
- **Compact design (Depth: 109mm 4.29inches)**
- **High efficiency (88%typ PJA100F-24, AC230Vin, 100% load)**
- **Low power consumption (1.5W typ AC240Vin, no load at standard model)**
- **UL508 approved (Except option -J), and complies with SEMI F47 (see instruction manual 1.1)**
- **Various connection interface options (vertical terminal [-T], AMP connector [-J])**

Block diagram



External view

The external size of –R option, –J option, –N2 option and –T option models is different from the standard model. See “5. Options and Others” in Instruction Manual for more details.



※ Tolerance : ±1 [±0.04]
※ Weight : 500g max
※ PCB Material/thickness : FR-4 / 1.6mm [0.06inches]
※ Chassis material : Aluminum
※ Cover material : Electric galvanizing steel board
※ Dimensions in mm, [ ]=inches
※ Mounting torque : 0.49N・m max
※ Screw tightening torque : M3.5 1.0N・m max
※ Connect the input FG to safety earth ground.

COSEL AC-DC Power Supplies Enclosed Type

PJA150F

Ordering information

PJ	A	150	F	-□	-□
①	②	③	④	⑤	⑧

Example recommended EMI/EMC filter
NAC-04-472

High voltage pulse noise type : NAP series
Low leakage current type : NAM 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
⑥Optional ＊6
C : with Coating
R : Remote on/off (Required external power source)
J : Connector interface
T : Vertical terminal block
N2: with DIN rail

See 5.1 in Instruction Manual.

＊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.

SPECIFICATIONS

＊ Please consider "PBA150F-5-N" about 5V output with case cover.

	MODEL		PJA150F-12	PJA150F-15	PJA150F-24	PJA150F-36	PJA150F-48
INPUT	VOLTAGE[V]		AC85 - 264 1φ (Output derating is required at AC85V - 115V. See 1.1 and 3.2 in Instruction Manual)				
	CURRENT[A]	ACIN 100V	1.7typ (Io=90%)				
		ACIN 115V	1.6typ (Io=100%)				
		ACIN 230V	0.8typ (Io=100%)				
	FREQUENCY[Hz]		50 / 60 (47 - 63)				
	EFFICIENCY[%]	ACIN 100V	84typ (Io=90%)	84typ (Io=90%)	87typ (Io=90%)	87typ (Io=90%)	87typ (Io=90%)
		ACIN 115V	84typ (Io=100%)	84typ (Io=100%)	87typ (Io=100%)	87typ (Io=100%)	87typ (Io=100%)
		ACIN 230V	87typ (Io=100%)	87typ (Io=100%)	90typ (Io=100%)	90typ (Io=100%)	90typ (Io=100%)
	POWER FACTOR	ACIN 100V	0.98typ (Io=90%)				
		ACIN 115V	0.98typ (Io=100%)				
		ACIN 230V	0.93typ (Io=100%) ＊ Power factor correction is stopped at AC250V or more.				
	INRUSH CURRENT[A]	ACIN 100V	16typ (Io=90%) Ta=25℃ at cold start				
		ACIN 115V	16typ (Io=100%) Ta=25℃ at cold start				
		ACIN 230V	32typ (Io=100%) Ta=25℃ at cold start				
	LEAKAGE CURRENT[mA]		0.75max (ACIN 240V, 60Hz, Io=100%, According to IEC62368-1 and DEN-AN)				
OUTPUT	VOLTAGE[V]		12	15	24	36	48
	CURRENT[A]	ACIN 85-115V	Output derating is required at ACIN 115V or less (refer to instruction manual 3.2)				
		ACIN 115V-264V	12.5	10	6.4	4.2	3.2
	WATTAGE[W]	ACIN 85-115V	Output derating is required at ACIN 115V or less (refer to instruction manual 3.2)				
		ACIN 115V-264V	150.0	150.0	153.6	151.2	153.6
	LINE REGULATION[mV] ＊3		48max	60max	96max	144max	192max
	LOAD REGULATION [mV] ＊3	Io=30 to 100%	100max	120max	150max	150max	300max
		Io=0 to 30%	Burst operation (Please contact us about detail)				
	RIPPLE[mVp-p] ＊1 Io: load factor	0 to +40℃	120max	120max	120max	150max	150max
		-10 to 0℃	160max	160max	160max	200max	400max
		Io=0 to 30%	500max	500max	500max	500max	500max
	RIPPLE NOISE[mVp-p] ＊1 Io: load factor	0 to +40℃	150max	150max	150max	200max	200max
		-10 to 0℃	180max	180max	180max	240max	500max
		Io=0 to 30%	600max	600max	600max	600max	600max
	TEMPERATURE REGULATION[mV]	0 to +40℃	120max	150max	240max	360max	480max
		-10 to +40℃	180max	180max	290max	440max	600max
	DRIFT[mV] ＊2		48max	60max	96max	144max	192max
	START-UP TIME[ms]		500typ (ACIN 115V, Io=100%) Ta=25℃				
	HOLD-UP TIME[ms]		20typ (ACIN 115V, Io=100%)				
	OUTPUT VOLTAGE ADJUSTMENT RANGE[V]		10.80 to 13.20	13.50 to 16.50	21.60 to 26.40	32.40 to 39.60	43.20 to 52.80
	OUTPUT VOLTAGE SETTING[V]		12.00 to 12.48	15.00 to 15.60	24.00 to 24.96	36.00 to 37.44	48.00 to 49.92
PROTECTION CIRCUIT AND OTHERS	OVERCURRENT PROTECTION		Works over 105% of rating and recovers automatically				
	OVERVOLTAGE PROTECTION[V]		13.80 to 16.80	17.25 to 21.00	27.60 to 33.60	41.40 to 50.40	54.00 to 67.20
	OPERATING INDICATION		LED (Green)				
	REMOTE SENSING		Not provided				
	REMOTE ON/OFF		Optional (Required external power source. Option -R)				
ISOLATION	INPUT-OUTPUT • RC ＊8		AC3,000V 1minute, Cutoff current = 10mA, DC500V 50MΩ min (At room temperature)				
	INPUT-FG		AC2,000V 1minute, Cutoff current = 10mA, DC500V 50MΩ min (At room temperature)				
	OUTPUT • RC-FG ＊8		AC500V 1minute, Cutoff current = 100mA, DC500V 50MΩ min (At room temperature)				
	OUTPUT-RC ＊8		AC500V 1minute, Cutoff current = 100mA, DC500V 50MΩ min (At room temperature)				
ENVIRONMENT	OPERATING TEMP.,HUMID.AND ALTITUDE ＊4		-20 to +70℃ (Output derating is required), 20 - 90%RH (Non condensing), 3,000m (10,000 feet) max				
	STORAGE TEMP.,HUMID.AND ALTITUDE		-20 to +75℃, 20 - 90%RH (Non condensing), 9,000m (30,000 feet) max				
	VIBRATION		10 - 55Hz, 19.6m/s² (2G), 3minutes period, 60minutes each along X, Y and Z axes				
	IMPACT		196.1m/s² (20G), 11ms, once each X, Y and Z axes				
SAFETY AND NOISE REGULATIONS	AGENCY APPROVALS		UL62368-1, C-UL (CSA62368-1), EN62368-1, UL508 (Except option -J) Complies with DEN-AN				
	CONDUCTED NOISE		Complies with FCC-B, VCCI-B, CISPR22-B, EN55011-B, EN55022-B				
	HARMONIC ATTENUATOR ＊7		Complies with IEC61000-3-2 class A				

SPECIFICATIONS

OTHERS	CASE SIZE/WEIGHT	41×97×129mm [1.61×3.82×5.08 inches] (Excluding terminal block and screw) (W×H×D) / 600g max
	COOLING METHOD	Convection
WARRANTY	WARRANTY ※5	5 years (subject to the operating conditions)

※1 This is the result of measurement of the testing board with capacitors of 22μF and 0.1μF placed at 150 mm from the output terminals by a 20 MHz oscilloscope or a ripple-noise meter equivalent to Keisoku-Giken RM103.
See 1.6 of Instruction Manual for more details.
When the load factor is 0 - 30%, the switching power loss is reduced by burst operation, which will cause ripple and ripple noise to go beyond the specifications.

※2 Drift is the change in DC output for an eight hour period after a half-hour warm-up at 25℃.

※3 Consult us about dynamic load and input response. Measure the output voltage by using the average mode of the tester to deal with the burst operation at 30% load or less.

※4 Output power derating is required. See 3.2 in Instruction Manual.

※5 See 3.3 in Instruction Manual for more details.

※6 Consult us about safety agency approvals for the models with optional functions.

※7 Consult us about other classes.

※8 The RC terminal is added to option –R models. The RC terminal is isolated from input, output, and FG.

※ Do not use the power supply in overcurrent conditions or in unspecified input voltage ranges. Otherwise the internal components may be damaged.

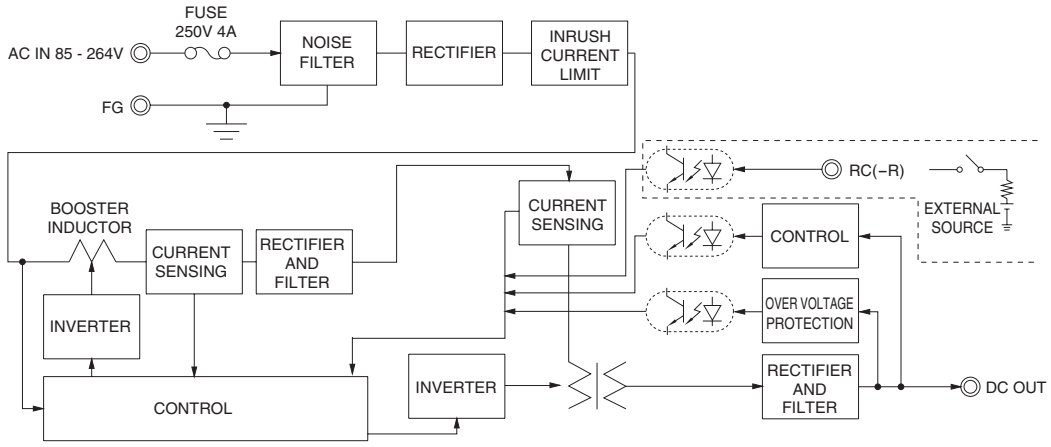
※ Parallel operation is not possible with this mode.

※ Sound noise may be heard from the power supply when used for pulse load.

Features

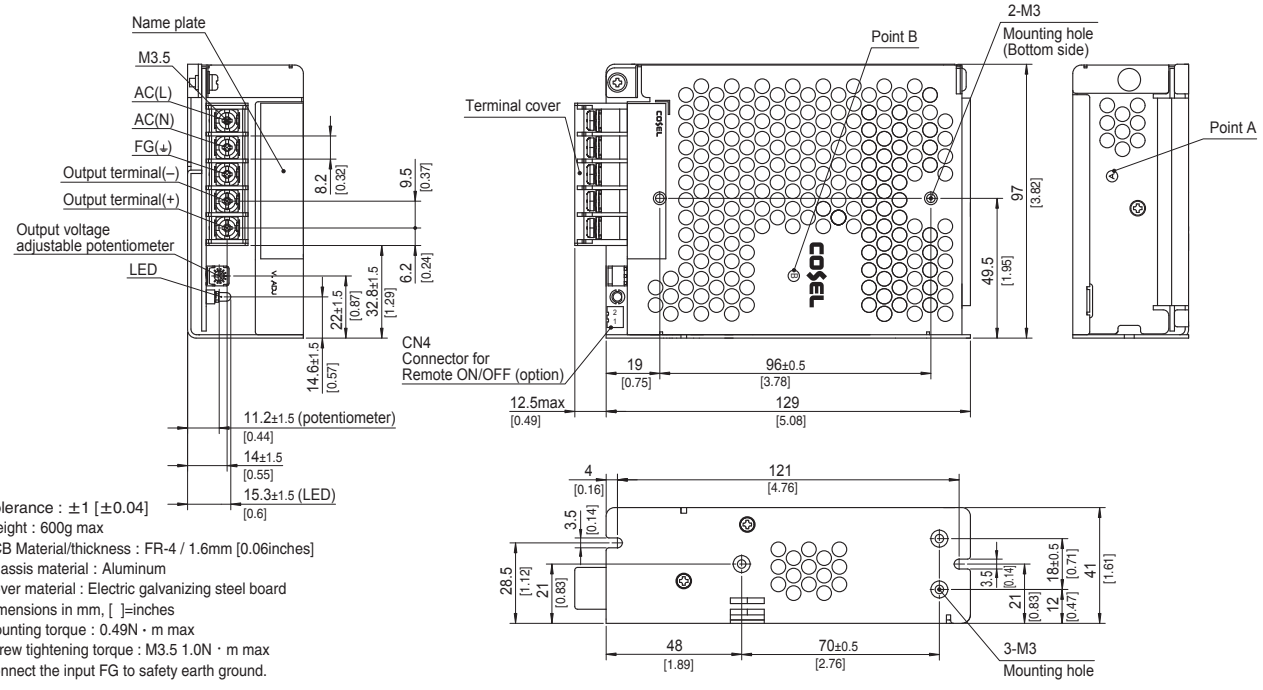
- **Compact design (Depth: 129mm 5.08inches)**
- **High efficiency (90%typ PJA150F-24, AC230Vin, 100% load)**
- **Low power consumption (1.5W typ AC240Vin, no load at standard model)**
- **UL508 approved (Except option -J), and complies with SEMI F47 (see instruction manual 1.1)**
- **Various connection interface options (vertical terminal [-T], AMP connector [-J])**

Block diagram



External view

The external size of –R option, –J option, –N2 option and –T option models is different from the standard model. See “5. Options and Others” in Instruction Manual for more details.



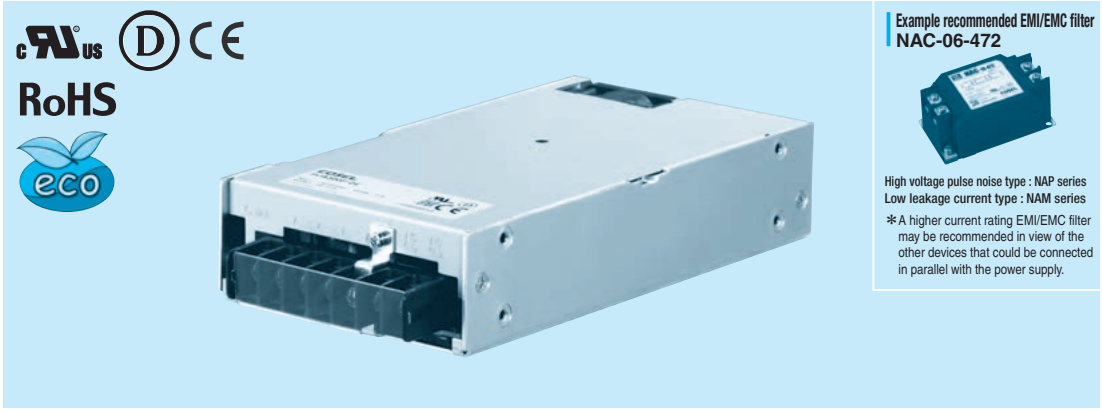
※ Tolerance : ±1 [±0.04]
※ Weight : 600g max
※ PCB Material/thickness : FR-4 / 1.6mm [0.06inches]
※ Chassis material : Aluminum
※ Cover material : Electric galvanizing steel board
※ Dimensions in mm, [ ]=inches
※ Mounting torque : 0.49N・m max
※ Screw tightening torque : M3.5 1.0N・m max
※ Connect the input FG to safety earth ground.

COSEL AC-DC Power Supplies Enclosed Type

PJA300F

Ordering information

PJ	A	300	F	-□	-□
①	②	③	④	⑤	⑧



Example recommended EMI/EMC filter
NAC-06-472

High voltage pulse noise type : NAP series
Low leakage current type : NAM 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
⑥Optional ＊6
C : with Coating
G : Low leakage current
V : External potentiometer for output voltage adjustment
R : Remote on/off (Required external power source)
F4: Low speed fan

See 5.1 in Instruction Manual.

＊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.

SPECIFICATIONS

	MODEL		PJA300F-5	PJA300F-12	PJA300F-15	PJA300F-24	PJA300F-36	PJA300F-48
INPUT	VOLTAGE[V]		AC85 - 264 1φ (Output derating is required at AC85V - 100V. See 1.1 and 3.2 in Instruction Manual)					
	CURRENT[A]	ACIN 100V	3.5typ (Io=100%)	3.9typ (Io=100%)				
		ACIN 115V	3.0typ (Io=100%)	3.3typ (Io=100%)				
		ACIN 230V	1.5typ (Io=100%)	1.7typ (Io=100%)				
	FREQUENCY[Hz]		50 / 60 (47 - 63)					
	EFFICIENCY[%]	ACIN 100V	73typ (Io=100%)	79typ (Io=100%)	81typ (Io=100%)	82typ (Io=100%)	83typ (Io=100%)	82typ (Io=100%)
		ACIN 115V	74typ (Io=100%)	80typ (Io=100%)	82typ (Io=100%)	83typ (Io=100%)	83typ (Io=100%)	83typ (Io=100%)
		ACIN 230V	77typ (Io=100%)	82typ (Io=100%)	84typ (Io=100%)	86typ (Io=100%)	87typ (Io=100%)	86typ (Io=100%)
	POWER FACTOR	ACIN 100V	0.99typ (Io=100%)					
		ACIN 115V	0.98typ (Io=100%)					
		ACIN 230V	0.95typ (Io=100%)					
	INRUSH CURRENT[A]	ACIN 100V	20typ (Io=100%) Ta=25℃ at cold start					
		ACIN 115V	20typ (Io=100%) Ta=25℃ at cold start					
		ACIN 230V	40typ (Io=100%) Ta=25℃ at cold start					
	LEAKAGE CURRENT[mA]		0.75max (ACIN 240V, 60Hz, Io=100%, According to IEC62368-1 and DEN-AN)					
OUTPUT	VOLTAGE[V]		5	12	15	24	36	48
	CURRENT[A]	ACIN 85-100V	Output derating is required at ACIN 100V or less (refer to instruction manual 3.2)					
		ACIN 100V-264V	50	25	20	12.5	8.4	6.3
	WATTAGE[W]	ACIN 85-100V	Output derating is required at ACIN 100V or less (refer to instruction manual 3.2)					
		ACIN 100V-264V	250	300	300	300	302.4	302.4
	LINE REGULATION[mV] ＊3		20max	48max	60max	96max	144max	192max
	LOAD REGULATION[mV] ＊3		40max	100max	120max	150max	150max	300max
	RIPPLE[mVp-p] ＊1	0 to +50℃	80max	120max	120max	120max	150max	150max
		-10 to 0℃	140max	160max	160max	160max	160max	400max
	RIPPLE NOISE[mVp-p] ＊1	0 to +50℃	120max	150max	150max	150max	200max	200max
		-10 to 0℃	160max	180max	180max	180max	240max	500max
	TEMPERATURE REGULATION[mV]	0 to +50℃	50max	120max	150max	240max	360max	480max
		-10 to +50℃	75max	180max	180max	290max	440max	600max
	DRIFT[mV] ＊2		20max	48max	60max	96max	144max	192max
	START-UP TIME[ms]		300typ (ACIN 100V, Io=100%)					
	HOLD-UP TIME[ms]		20typ (ACIN 100V, Io=100%)					
	OUTPUT VOLTAGE ADJUSTMENT RANGE[V]		4.50 to 5.50	10.80 to 13.20	13.50 to 16.50	21.60 to 26.40	32.40 to 39.60	43.20 to 52.80
	OUTPUT VOLTAGE SETTING[V]		5.00 to 5.15	12.00 to 12.48	15.00 to 15.60	24.00 to 24.96	36.00 to 37.44	48.00 to 49.92
PROTECTION CIRCUIT AND OTHERS	OVERCURRENT PROTECTION		Works over 105% of rating and recovers automatically					
	OVERVOLTAGE PROTECTION[V]		5.75 to 7.00	13.80 to 16.80	17.25 to 21.00	27.60 to 33.60	41.40 to 50.40	55.20 to 67.20
	OPERATING INDICATION		LED (Green)					
	REMOTE SENSING		Not provided					
	REMOTE ON/OFF		Optional (Required external power source. Option -R)					
ISOLATION	INPUT-OUTPUT • RC ＊9		AC3,000V 1minute, Cutoff current = 10mA, DC500V 50MΩ min (At room temperature)					
	INPUT-FG		AC2,000V 1minute, Cutoff current = 10mA, DC500V 50MΩ min (At room temperature)					
	OUTPUT • RC-FG ＊9		AC500V 1minute, Cutoff current = 100mA, DC500V 50MΩ min (At room temperature)					
	OUTPUT-RC ＊9		AC500V 1minute, Cutoff current = 100mA, DC500V 50MΩ min (At room temperature)					
ENVIRONMENT	OPERATING TEMP.,HUMID.AND ALTITUDE ＊4		-20 to +70℃ (Output derating is required), 20 - 90%RH (Non condensing), 3,000m (10,000 feet) max					
	STORAGE TEMP.,HUMID.AND ALTITUDE		-20 to +75℃, 20 - 90%RH (Non condensing), 9,000m (30,000 feet) max					
	VIBRATION		10 - 55Hz, 19.6m/s² (2G), 3minutes period, 60minutes each along X, Y and Z axes					
	IMPACT		196.1m/s² (20G), 11ms, once each X, Y and Z axes					
SAFETY AND NOISE REGULATIONS	AGENCY APPROVALS		UL62368-1, C-UL (CSA62368-1), EN62368-1 Complies with DEN-AN					
	CONDUCTED NOISE		Complies with FCC-B, VCCI-B, CISPR22-B, EN55011-B, EN55022-B					
	HARMONIC ATTENUATOR ＊8		Complies with IEC61000-3-2 class A					

SPECIFICATIONS

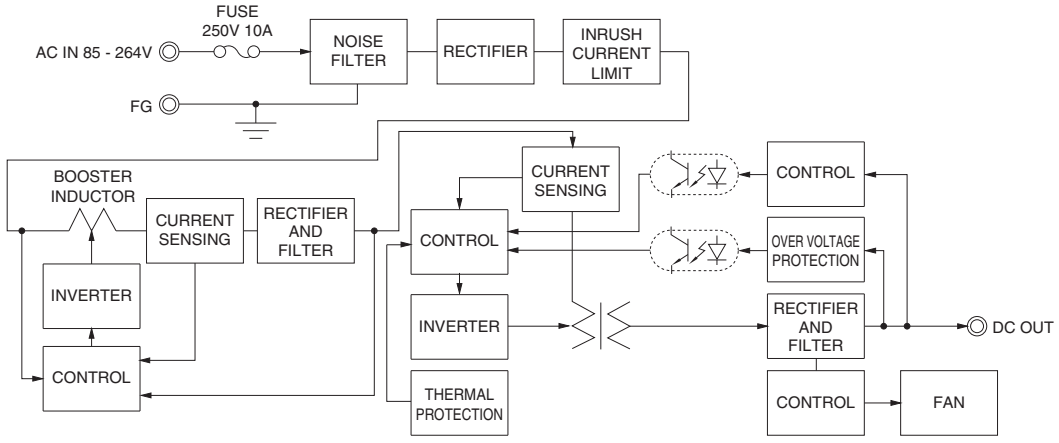
OTHERS	CASE SIZE/WEIGHT		102×41×190mm [4.02×1.61×7.48 inches] (Excluding terminal block and screw) (W×H×D) / 1.0kg max
	COOLING METHOD	✻7	Forced cooling (internal fan)
WARRANTY	WARRANTY	✻5	5 years (subject to the operating conditions)

✻1 This is the result of measurement of the testing board with capacitors of 22μF and 0.1μF placed at 150 mm from the output terminals by a 20 MHz oscilloscope or a ripple-noise meter equivalent to Keisoku-Giken RM103.
See 1.6 of Instruction Manual for more details.
✻2 Drift is the change in DC output for an eight hour period after a half-hour warm-up at 25℃.
✻3 Consult us about dynamic load and input response.
✻4 Output power derating is required. See 3.2 in Instruction Manual.
✻5 See 3.3 in Instruction Manual for more details.
✻6 Consult us about safety agency approvals for the models with optional functions.
✻7 The fan speed slows down at no load.
✻8 Consult us about other classes.
✻9 The RC terminal is added to option –R models. The RC terminal is isolated from input, output, and FG.
✻ Do not use the power supply in overcurrent conditions or in unspecified input voltage ranges. Otherwise the internal components may be damaged.
✻ Parallel operation is not possible with this mode.
✻ Sound noise may be heard from the power supply when used for pulse load.

Features

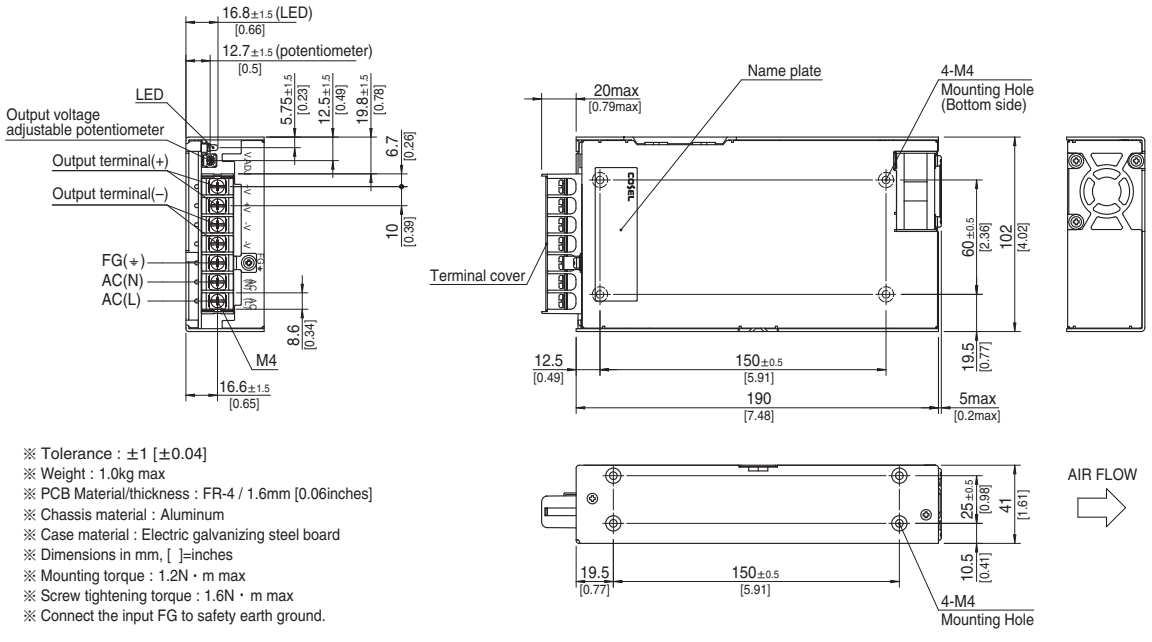
- **Cost-effective**
- **Longer life (see Instruction Manual)**
- **Low profile (meets 1U height = 41 mm or 1.61 inches)**
- **Wide operating temperature range (-20℃ to +70℃ see instruction manual)**
- **Slow fan speed at no load**
- **Complies with SEMI F-47**
- **Many optional functions**

Block diagram



External view

The external size of –V option and –R option models is different from the standard model. See “5. Options and Others” in Instruction Manual for more details.



※ Tolerance : ±1 [±0.04]
※ Weight : 1.0kg max
※ PCB Material/thickness : FR-4 / 1.6mm [0.06inches]
※ Chassis material : Aluminum
※ Case material : Electric galvanizing steel board
※ Dimensions in mm, [ ]=inches
※ Mounting torque : 1.2N・m max
※ Screw tightening torque : 1.6N・m max
※ Connect the input FG to safety earth ground.

COSEL AC-DC Power Supplies Enclosed Type

PJA600F

Ordering information

PJ	A	600	F	-□	-□
①	②	③	④	⑤	⑧

Example recommended EMI/EMC filter
NAC-16-472

High voltage pulse noise type : NAP series
Low leakage current type : NAM 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
⑧Optional ＊6
C : with Coating
G : Low leakage current
V : External potentiometer for output voltage adjustment
W: Parallel operation, LV alarm Remote sensing
R : Remote on/off (Required external power source)
F4: Low speed fan

See 5.1 in Instruction Manual.

＊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.

SPECIFICATIONS

	MODEL		PJA600F-5	PJA600F-12	PJA600F-15	PJA600F-24	PJA600F-36	PJA600F-48
INPUT	VOLTAGE[V]		AC85 - 264 1φ (Output derating is required at AC85V - 100V. See 1.1 and 3.2 in Instruction Manual)					
	CURRENT[A]	ACIN 100V	6.7typ (Io=100%)	7.5typ (Io=100%)				
		ACIN 115V	5.7typ (Io=100%)	6.5typ (Io=100%)				
		ACIN 230V	2.8typ (Io=100%)	3.2typ (Io=100%)				
	FREQUENCY[Hz]		50 / 60 (47 - 63)					
	EFFICIENCY[%]	ACIN 100V	76typ (Io=100%)	81typ (Io=100%)	82typ (Io=100%)	84typ (Io=100%)	85typ (Io=100%)	85typ (Io=100%)
		ACIN 115V	77typ (Io=100%)	82typ (Io=100%)	82typ (Io=100%)	85typ (Io=100%)	86typ (Io=100%)	85typ (Io=100%)
		ACIN 230V	79typ (Io=100%)	84typ (Io=100%)	85typ (Io=100%)	88typ (Io=100%)	88typ (Io=100%)	88typ (Io=100%)
	POWER FACTOR	ACIN 100V	0.99typ (Io=100%)					
		ACIN 115V	0.98typ (Io=100%)					
		ACIN 230V	0.95typ (Io=100%)					
	INRUSH CURRENT[A]	ACIN 100V	20/40typ (Io=100%) (Primary inrush current /Secondary inrush current) (More than 3sec to re-start)					
		ACIN 115V	20/40typ (Io=100%) (Primary inrush current /Secondary inrush current) (More than 3sec to re-start)					
		ACIN 230V	40/40typ (Io=100%) (Primary inrush current /Secondary inrush current) (More than 3sec to re-start)					
	LEAKAGE CURRENT[mA]		1.5max (ACIN 240V, 60Hz, Io=100%, According to IEC62368-1 and DEN-AN)					
OUTPUT	VOLTAGE[V]		5	12	15	24	36	48
	CURRENT[A]	ACIN 85-100V	Output derating is required at ACIN 100V or less (refer to instruction manual 3.2)					
		ACIN 100V-264V	100	50	40	25	16.7	12.5
	WATTAGE[W]	ACIN 85-100V	Output derating is required at ACIN 100V or less (refer to instruction manual 3.2)					
		ACIN 100V-264V	500	600	600	600	601.2	600
	LINE REGULATION[mV] ＊7		20max	48max	60max	96max	144max	192max
	LOAD REGULATION[mV] ＊7		40max	100max	120max	150max	150max	300max
	RIPPLE[mVp-p] ＊1	0 to +50℃	80max	120max	120max	120max	150max	150max
		-20 to 0℃	140max	160max	160max	160max	160max	400max
	RIPPLE NOISE[mVp-p] ＊1	0 to +50℃	120max	150max	150max	150max	200max	200max
		-20 to 0℃	160max	180max	180max	180max	240max	500max
	TEMPERATURE REGULATION[mV]	0 to +50℃	50max	120max	150max	240max	360max	480max
		-20 to +50℃	75max	180max	180max	290max	440max	600max
	DRIFT[mV] ＊2		20max	48max	60max	96max	144max	192max
	START-UP TIME[ms]		300typ (ACIN 100V, Io=100%)					
	HOLD-UP TIME[ms]		20typ (ACIN 100V, Io=100%)					
	OUTPUT VOLTAGE ADJUSTMENT RANGE[V]		4.50 to 5.50	10.80 to 13.20	13.50 to 16.50	21.60 to 26.40	32.40 to 39.60	43.20 to 52.80
	OUTPUT VOLTAGE SETTING[V]		5.00 to 5.15	12.00 to 12.48	15.00 to 15.60	24.00 to 24.96	36.00 to 37.44	48.00 to 49.92
PROTECTION CIRCUIT AND OTHERS	OVERCURRENT PROTECTION		Works over 105% of rating and recovers automatically					
	OVERVOLTAGE PROTECTION[V]		5.75 to 7.00	13.80 to 16.80	17.25 to 21.00	27.60 to 33.60	41.40 to 50.40	55.20 to 67.20
	OPERATING INDICATION		LED (Green)					
	REMOTE SENSING		Optional (Option -W)					
	REMOTE ON/OFF		Optional (Required external power source. Option -R)					
ISOLATION	INPUT-OUTPUT • RC ＊3		AC3,000V 1minute, Cutoff current = 10mA, DC500V 50MΩ min (At room temperature)					
	INPUT-FG		AC2,000V 1minute, Cutoff current = 10mA, DC500V 50MΩ min (At room temperature)					
	OUTPUT • RC-FG ＊3		AC500V 1minute, Cutoff current = 100mA, DC500V 50MΩ min (At room temperature)					
	OUTPUT-RC ＊3		AC500V 1minute, Cutoff current = 100mA, DC500V 50MΩ min (At room temperature)					
ENVIRONMENT	OPERATING TEMP.,HUMID.AND ALTITUDE ＊4		-20 to +70℃ (Output derating is required), 20 - 90%RH (Non condensing), 3,000m (10,000 feet) max					
	STORAGE TEMP.,HUMID.AND ALTITUDE		-20 to +75℃, 20 - 90%RH (Non condensing), 9,000m (30,000 feet) max					
	VIBRATION		10 - 55Hz, 19.6m/s² (2G), 3minutes period, 60minutes each along X, Y and Z axes					
	IMPACT		196.1m/s² (20G), 11ms, once each X, Y and Z axes					
SAFETY AND NOISE REGULATIONS	AGENCY APPROVALS		UL62368-1, C-UL (CSA62368-1), EN62368-1 Complies with DEN-AN					
	CONDUCTED NOISE		Complies with FCC-B, VCCI-B, CISPR22-B, EN55011-B, EN55022-B					
	HARMONIC ATTENUATOR ＊9		Complies with IEC61000-3-2 class A					

SPECIFICATIONS

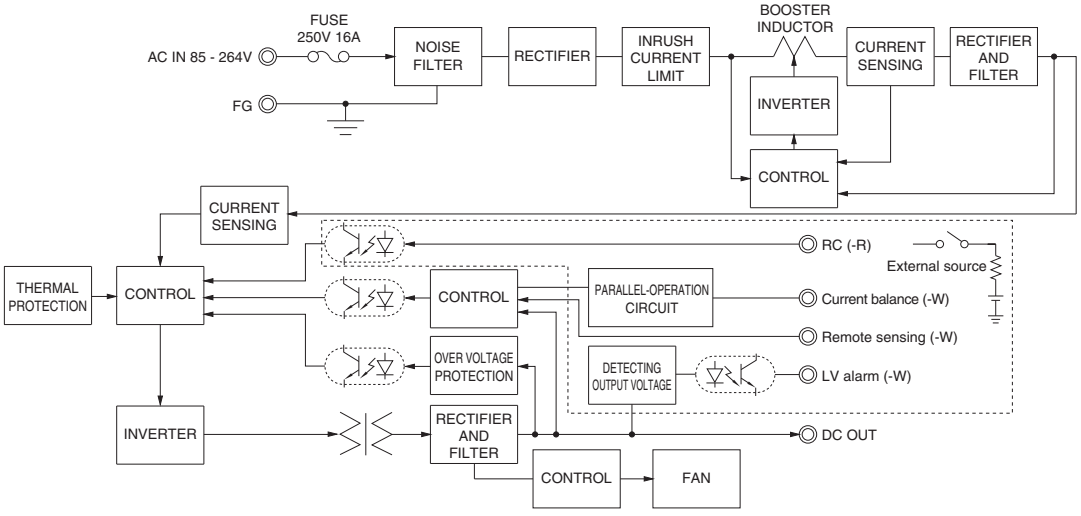
OTHERS	CASE SIZE/WEIGHT		120×61×215mm [4.72×2.40×8.46 inches] (Excluding terminal block and screw) (W×H×D) / 2.0kg max
	COOLING METHOD	✻8	Forced cooling (internal fan)
WARRANTY	WARRANTY	✻5	5 years (subject to the operating conditions)

✻1 This is the result of measurement of the testing board with capacitors of 22μF and 0.1μF placed at 150 mm from the output terminals by a 20 MHz oscilloscope or a ripple-noise meter equivalent to Keisoku-Giken RM103.
See 1.6 of Instruction Manual for more details.
✻2 Drift is the change in DC output for an eight hour period after a half-hour warm-up at 25℃.
✻3 The RC terminal is added to option –R models. The RC terminal is isolated from input, output, and FG.
✻4 Output power derating is required. See 3.2 in Instruction Manual.
✻5 See 3.3 in Instruction Manual for more details.
✻6 Consult us about safety agency approvals for the models with optional functions.
✻7 Consult us about dynamic load and input response.
✻8 The fan speed slows down at no load.
✻9 Consult us about other classes.
✻ Do not use the power supply in overcurrent conditions or in unspecified input voltage ranges. Otherwise the internal components may be damaged.
✻ Parallel operation is allowed for PLA600FA models with the –W option only.
✻ Sound noise may be heard from the power supply when used for pulse load.

Features

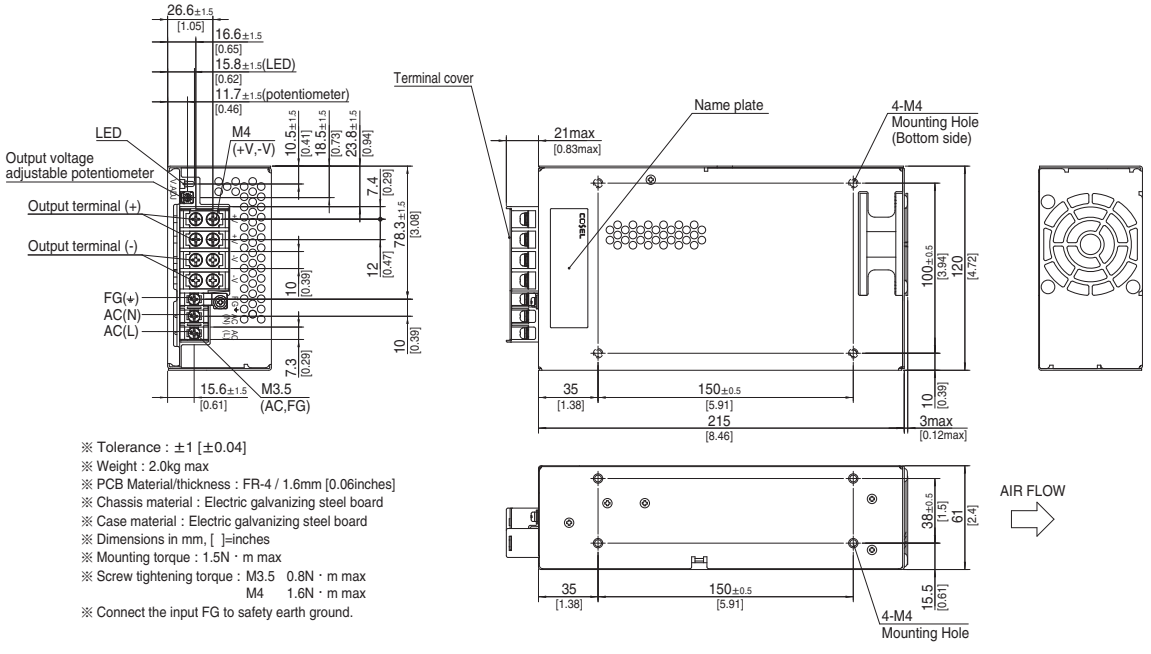
- Cost-effective
- Longer life (see Instruction Manual)
- Low profile (meets 2U height = 61 mm or 2.40 inches)
- Wide operating temperature range (-20℃ to +70℃ see instruction manual)
- Slow fan speed at no load
- Complies with SEMI F-47
- Many optional functions

Block diagram



External view

The external size of –V option, –W option and –R option models is different from the standard model. See “5. Options and Others” in Instruction Manual for more details.



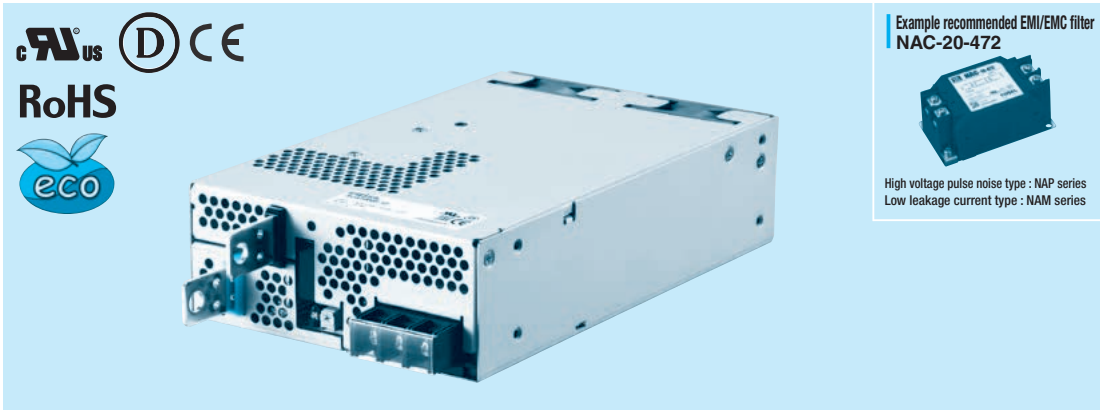
※ Tolerance : ±1 [±0.04]
※ Weight : 2.0kg max
※ PCB Material/thickness : FR-4 / 1.6mm [0.06inches]
※ Chassis material : Electric galvanizing steel board
※ Case material : Electric galvanizing steel board
※ Dimensions in mm, [ ]=inches
※ Mounting torque : 1.5N · m max
※ Screw tightening torque : M3.5 0.8N · m max
M4 1.6N · m max
※ Connect the input FG to safety earth ground.

COSEL AC-DC Power Supplies Enclosed Type

PJA1000F

Ordering information

PJ ① A ② 1000 ③ F ④ -□ ⑤



Example recommended EMI/EMC filter
NAC-20-472

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

①Series name
②Single output
③Output wattage
④Universal input
⑤Output voltage

*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.

SPECIFICATIONS

	MODEL		PJA1000F-24	PJA1000F-48
INPUT	VOLTAGE[V]		AC85 - 264 1φ (Output derating is required at AC85V - 115V. See 1.1 and 3.2 in Instruction Manual)	
	CURRENT[A]	ACIN 100V	12.5typ (Io=90%)	
		ACIN 115V	11.0typ (Io=100%)	
		ACIN 230V	5.5typ (Io=100%)	
	FREQUENCY[Hz]		50 / 60 (47 - 63)	
	EFFICIENCY[%]	ACIN 100V	84typ (Io=90%)	84typ (Io=90%)
		ACIN 115V	85typ (Io=100%)	85typ (Io=100%)
		ACIN 230V	88typ (Io=100%)	88typ (Io=100%)
	POWER FACTOR	ACIN 100V	0.98typ (Io=90%)	
		ACIN 115V	0.98typ (Io=100%)	
		ACIN 230V	0.95typ (Io=100%)	
	INRUSH CURRENT[A]	ACIN 100V	15/30typ (Io=90%) (Primary inrush current /Secondary inrush current) (More than 10sec to re-start)	
		ACIN 115V	15/30typ (Io=100%) (Primary inrush current /Secondary inrush current) (More than 10sec to re-start)	
		ACIN 230V	30/30typ (Io=100%) (Primary inrush current /Secondary inrush current) (More than 10sec to re-start)	
	LEAKAGE CURRENT[mA]		1.5max (ACIN 240V, 60Hz, Io=100%, According to IEC62368-1 and DEN-AN)	
OUTPUT	VOLTAGE[V]		24	48
	CURRENT[A]	ACIN 85-115V	Output derating is required at ACIN 115V or less (refer to instruction manual 3.2)	
		ACIN 115V-264V	42	21
	WATTAGE[W]	ACIN 85-115V	Output derating is required at ACIN 115V or less (refer to instruction manual 3.2)	
		ACIN 115V-264V	1008	1008
	LINE REGULATION[mV] *2		96max	192max
	LOAD REGULATION[mV] *2		150max	300max
	RIPPLE[mVp-p] *1	0 to +50℃	120max	200max
		-20 to 0℃	160max	500max
	RIPPLE NOISE[mVp-p] *1	0 to +50℃	150max	300max
		-20 to 0℃	180max	600max
	TEMPERATURE REGULATION[mV]	0 to +50℃	240max	480max
		-20 to +50℃	290max	600max
	DRIFT[mV] *3		96max	192max
	START-UP TIME[ms]		800typ (ACIN 115V, Io=100%)	
	HOLD-UP TIME[ms]		20typ (ACIN 115V, Io=100%)	
	OUTPUT VOLTAGE ADJUSTMENT RANGE[V]		20.40 to 28.50	40.80 to 55.20
	OUTPUT VOLTAGE SETTING[V]		24.00 to 24.96	48.00 to 49.92
PROTECTION CIRCUIT AND OTHERS	OVERCURRENT PROTECTION		Works over 105% of rating and recovers automatically	
	OVERVOLTAGE PROTECTION[V]		28.80 to 34.80	57.00 to 67.20
	OPERATING INDICATION		LED (Green)	
ISOLATION	INPUT-OUTPUT		AC3,000V 1minute, Cutoff current = 25mA, DC500V 50MΩ min (At room temperature)	
	INPUT-FG		AC2,000V 1minute, Cutoff current = 25mA, DC500V 50MΩ min (At room temperature)	
	OUTPUT-FG		AC500V 1minute, Cutoff current = 100mA, DC500V 50MΩ min (At room temperature)	
ENVIRONMENT	OPERATING TEMP.,HUMID.AND ALTITUDE *4		-20 to +70℃ (Output derating is required), 20 - 90%RH (Non condensing), 3,000m (10,000 feet) max	
	STORAGE TEMP.,HUMID.AND ALTITUDE		-20 to +75℃, 20 - 90%RH (Non condensing), 9,000m (30,000 feet) max	
	VIBRATION		10 - 55Hz, 19.6m/s² (2G), 3minutes period, 60minutes each along X, Y and Z axes	
	IMPACT		196.1m/s² (20G), 11ms, once each X, Y and Z axes	
SAFETY AND NOISE REGULATIONS	AGENCY APPROVALS		UL62368-1, C-UL (CSA62368-1), EN62368-1 Complies with DEN-AN	
	CONDUCTED NOISE		Complies with FCC-B, VCCI-B, CISPR22-B, EN55011-B, EN55022-B	
	HARMONIC ATTENUATOR *5		Complies with IEC61000-3-2 class A	

SPECIFICATIONS

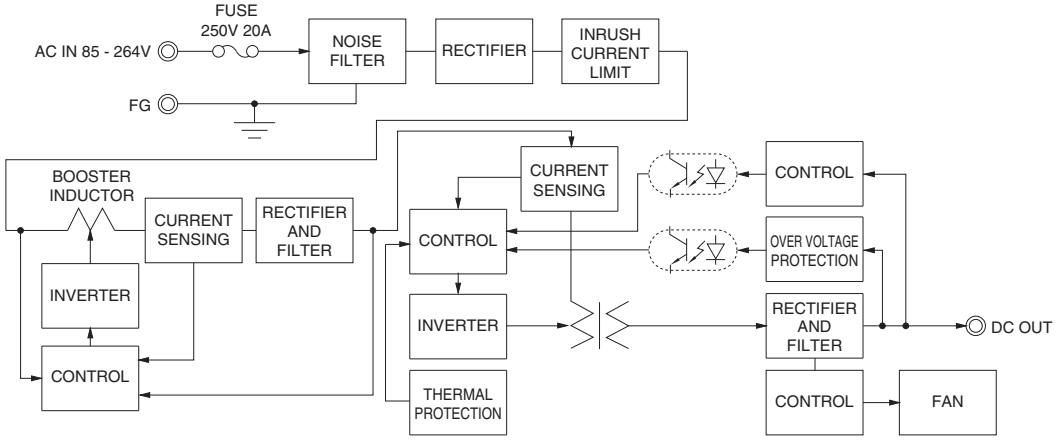
OTHERS	CASE SIZE/WEIGHT		150×61×240mm [5.91×2.40×9.45 inches] (Excluding terminal block and screw) (W×H×D) / 2.8kg max
	COOLING METHOD	※6	Forced cooling (internal fan)
WARRANTY	WARRANTY	※7	5 years (subject to the operating conditions)

※1 This is the result of measurement of the testing board with capacitors of 22μF and 0.1μF placed at 150 mm from the output terminals by a 20 MHz oscilloscope or a ripple-noise meter equivalent to Keisoku-Giken RM103.
See 1.6 of Instruction Manual for more details.
※2 Consult us about dynamic load and input response.
※3 Drift is the change in DC output for an eight hour period after a half-hour warm-up at 25℃.
※4 Output power derating is required. See 3.2 in Instruction Manual.
※5 Consult us about other classes.
※6 The fan speed slows down or stops at no load.
※7 See 3.3 in Instruction Manual for more details.
※ Do not use the power supply in overcurrent conditions or in unspecified input voltage ranges. Otherwise the internal components may be damaged.
※ Parallel operation is not possible with this mode.
※ Sound noise may be heard from the power supply when used for pulse load.

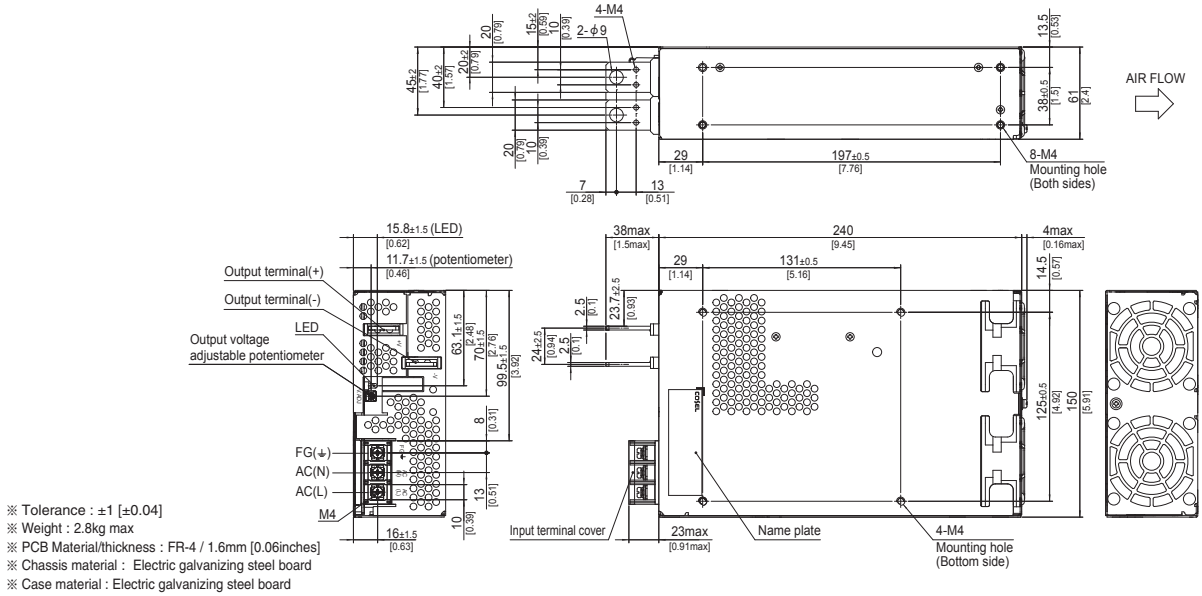
Features

- Cost-effective
- Longer life (see Instruction Manual)
- Low profile (meets 2U height = 61 mm or 2.4 inches)
- Wide operating temperature range (-20℃ to +70℃ see instruction manual)
- Stop or slow fan speed at no load

Block diagram



External view



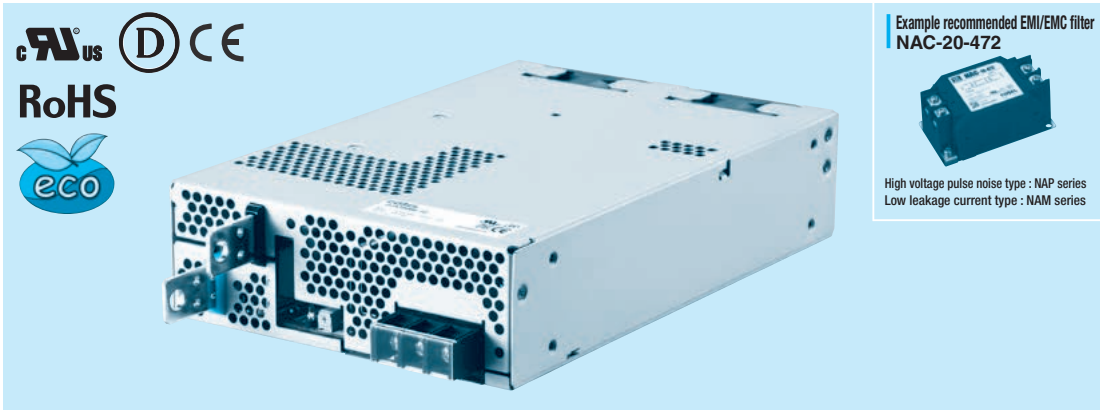
※ Tolerance : ±1 [±0.04]
※ Weight : 2.8kg max
※ PCB Material/thickness : FR-4 / 1.6mm [0.06inches]
※ Chassis material : Electric galvanizing steel board
※ Case material : Electric galvanizing steel board
※ Dimensions in mm, [ ]=inches
※ Mounting torque : 1.5N・m max
※ Screw tightening torque : 1.6N・m max
※ Output terminal M4 tightening torque : 1.2N・m max
※ Connect the input FG to safety earth ground.

COSEL AC-DC Power Supplies Enclosed Type

PJA1500F

Ordering information

PJ ① A ② 1500 ③ F ④ -□ ⑤



Example recommended EMI/EMC filter
NAC-20-472

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

①Series name
②Single output
③Output wattage
④Universal input
⑤Output voltage

*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.

SPECIFICATIONS

	MODEL		PJA1500F-24	PJA1500F-48
INPUT	VOLTAGE[V]		AC85 - 264 1φ (Output derating is required at AC85V - 115V. See 1.1 and 3.2 in Instruction Manual)	
	CURRENT[A]	ACIN 100V	18typ (Io=90%)	
		ACIN 115V	16typ (Io=100%)	
		ACIN 230V	8typ (Io=100%)	
	FREQUENCY[Hz]		50 / 60 (47 - 63)	
	EFFICIENCY[%]	ACIN 100V	84typ (Io=90%)	84typ (Io=90%)
		ACIN 115V	85typ (Io=100%)	84typ (Io=100%)
		ACIN 230V	88typ (Io=100%)	87typ (Io=100%)
	POWER FACTOR	ACIN 100V	0.98typ (Io=90%)	
		ACIN 115V	0.98typ (Io=100%)	
		ACIN 230V	0.95typ (Io=100%)	
	INRUSH CURRENT[A]	ACIN 100V	15/30typ (Io=90%) (Primary inrush current /Secondary inrush current) (More than 10sec to re-start)	
		ACIN 115V	15/30typ (Io=100%) (Primary inrush current /Secondary inrush current) (More than 10sec to re-start)	
		ACIN 230V	30/30typ (Io=100%) (Primary inrush current /Secondary inrush current) (More than 10sec to re-start)	
	LEAKAGE CURRENT[mA]		1.5max (ACIN 240V, 60Hz, Io=100%, According to IEC62368-1 and DEN-AN)	
OUTPUT	VOLTAGE[V]		24	48
	CURRENT[A]	ACIN 85-115V	Output derating is required at ACIN 115V or less (refer to instruction manual 3.2)	
		ACIN 115V-264V	64	32
	WATTAGE[W]	ACIN 85-115V	Output derating is required at ACIN 115V or less (refer to instruction manual 3.2)	
		ACIN 115V-264V	1536	1536
	LINE REGULATION[mV] *2		96max	192max
	LOAD REGULATION[mV] *2		150max	300max
	RIPPLE[mVp-p] *1	0 to +50℃	120max	200max
		-20 to 0℃	160max	500max
	RIPPLE NOISE[mVp-p] *1	0 to +50℃	150max	300max
		-20 to 0℃	270max	600max
	TEMPERATURE REGULATION[mV]	0 to +50℃	240max	480max
		-20 to +50℃	290max	600max
	DRIFT[mV] *3		96max	192max
	START-UP TIME[ms]		800typ (ACIN 115V, Io=100%)	
	HOLD-UP TIME[ms]		20typ (ACIN 115V, Io=100%)	
	OUTPUT VOLTAGE ADJUSTMENT RANGE[V]		20.40 to 28.50	40.80 to 55.20
	OUTPUT VOLTAGE SETTING[V]		24.00 to 24.96	48.00 to 49.92
PROTECTION CIRCUIT AND OTHERS	OVERCURRENT PROTECTION		Works over 105% of rating and recovers automatically	
	OVERVOLTAGE PROTECTION[V]		28.80 to 34.80	57.00 to 67.20
	OPERATING INDICATION		LED (Green)	
ISOLATION	INPUT-OUTPUT		AC3,000V 1minute, Cutoff current = 25mA, DC500V 50MΩ min (At room temperature)	
	INPUT-FG		AC2,000V 1minute, Cutoff current = 25mA, DC500V 50MΩ min (At room temperature)	
	OUTPUT-FG		AC500V 1minute, Cutoff current = 100mA, DC500V 50MΩ min (At room temperature)	
ENVIRONMENT	OPERATING TEMP.,HUMID.AND ALTITUDE *4		-20 to +70℃ (Output derating is required), 20 - 90%RH (Non condensing), 3,000m (10,000 feet) max	
	STORAGE TEMP.,HUMID.AND ALTITUDE		-20 to +75℃, 20 - 90%RH (Non condensing), 9,000m (30,000 feet) max	
	VIBRATION		10 - 55Hz, 19.6m/s² (2G), 3minutes period, 60minutes each along X, Y and Z axes	
	IMPACT		196.1m/s² (20G), 11ms, once each X, Y and Z axes	
SAFETY AND NOISE REGULATIONS	AGENCY APPROVALS		UL62368-1, C-UL (CSA62368-1), EN62368-1, Complies with DEN-AN	
	CONDUCTED NOISE		Complies with FCC-A, VCCI-A, CISPR22-A, EN55011-A, EN55022-A, additional EMI/EMC Filter required for meeting class B	
	HARMONIC ATTENUATOR *5		Complies with IEC61000-3-2 class A	

SPECIFICATIONS

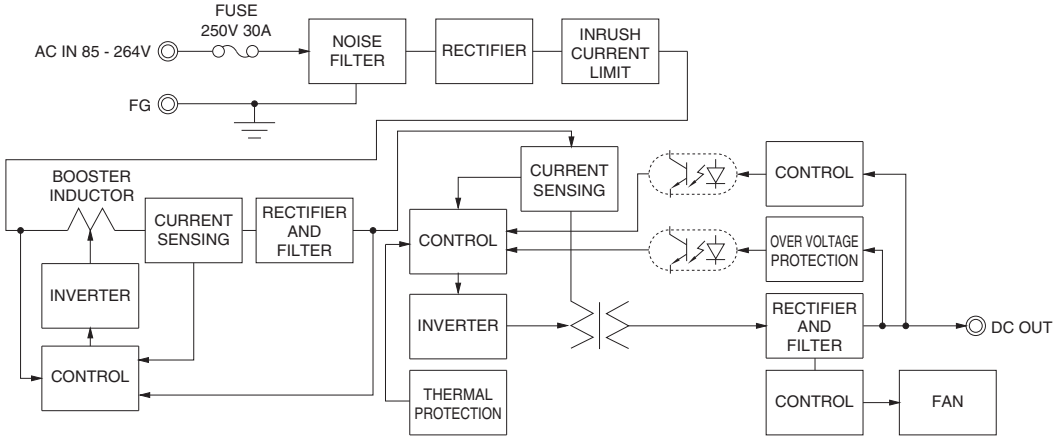
OTHERS	CASE SIZE/WEIGHT		178×61×268mm [7.01×2.40×10.55 inches] (Excluding terminal block and screw) (W×H×D) / 3.5kg max
	COOLING METHOD	※6	Forced cooling (internal fan)
WARRANTY	WARRANTY	※7	5 years (subject to the operating conditions)

※1 This is the result of measurement of the testing board with capacitors of 22μF and 0.1μF placed at 150 mm from the output terminals by a 20 MHz oscilloscope or a ripple-noise meter equivalent to Keisoku-Giken RM103.
See 1.6 of Instruction Manual for more details.
※2 Consult us about dynamic load and input response.
※3 Drift is the change in DC output for an eight hour period after a half-hour warm-up at 25℃.
※4 Output power derating is required. See 3.2 in Instruction Manual.
※5 Consult us about other classes.
※6 The fan speed slows down or stops at no load.
※7 See 3.3 in Instruction Manual for more details.
※ Do not use the power supply in overcurrent conditions or in unspecified input voltage ranges. Otherwise the internal components may be damaged.
※ Parallel operation is not possible with this mode.
※ Sound noise may be heard from the power supply when used for pulse load.

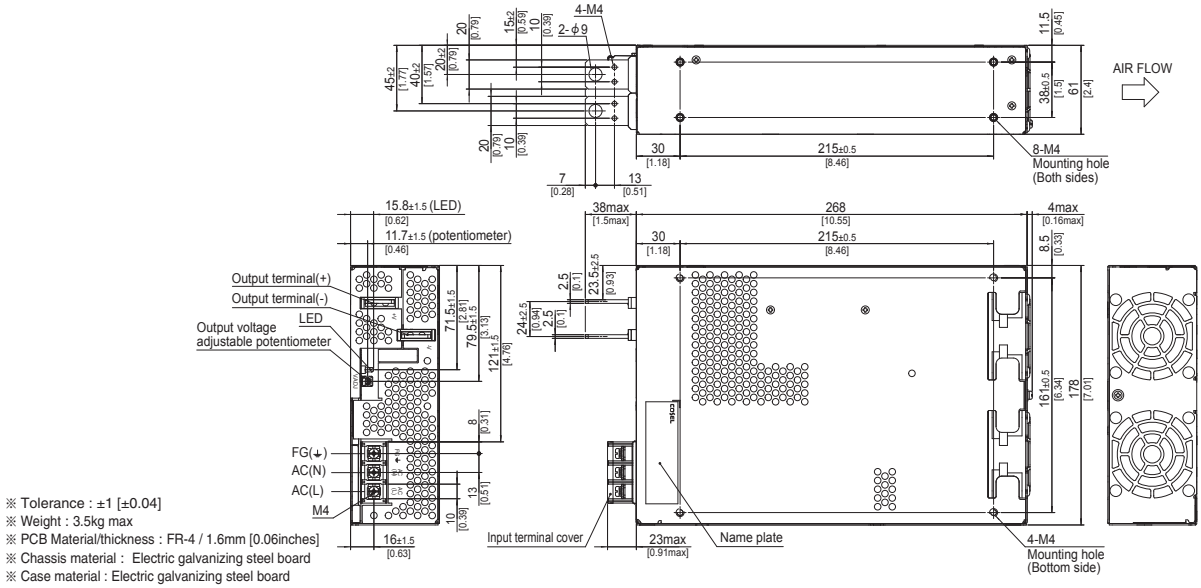
Features

- Cost-effective
- Longer life (see Instruction Manual)
- Low profile (meets 2U height = 61 mm or 2.4 inches)
- Wide operating temperature range (-20℃ to +70℃ see instruction manual)
- Stop or slow fan speed at no load

Block diagram



External view



※ Tolerance : ±1 [±0.04]
※ Weight : 3.5kg max
※ PCB Material/thickness : FR-4 / 1.6mm [0.06inches]
※ Chassis material : Electric galvanizing steel board
※ Case material : Electric galvanizing steel board
※ Dimensions in mm, [ ]=inches
※ Mounting torque : 1.5N・m max
※ Screw tightening torque : 1.6N・m max
※ Output terminal M4 tightening torque : 1.2N・m max
※ Connect the input FG to safety earth ground.