COSEL AC-DC Power Supplies Medical type

GHA300F

Ordering information

GH ① A ② 300 ③ F ④ -□□ ⑤ -□ ⑧

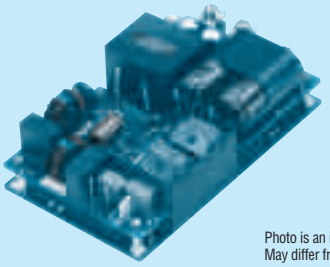


Photo is an image of the appearance.
May differ from the actual product.

Information the Home page is the latest.

Recommended EMI/EMC Filter
EAC-10-472



High voltage pulse noise type : EAP series
Low leakage current type : EAM series

*The EMI/EMC Filter is recommended to connect with several devices.

①Series name
②Single output
③Output wattage
④Universal input
⑤Output voltage
⑧Optional *6
T3 : mounting hole M3
J1 : VH(J.S.T.)connector type
R3 : with Subfeatures (5VAUX,12VAUX,Remote, Power good)

Specification is changed at option, refer to Instruction manual.

【Cautions】
- Forced air cooling is required for the maximum output power. Please see instruction manual.
- This power supply requires mounting on metal standoffs 5mm in height. Insulation sheet is required if standoff is not used or less than 5mm clearance is needed.
- Avoid applying stress to surface mount components.
- De-rating is required if the applied input voltage is 90-115VAC.
- The electrolytic capacitor has limited life span which is very much dependent on the actual operating conditions.
- Operating in the presense of chemical vapors or harsh environmnet can affect the power supply life expectnacy.
- Please make sure to read the instruction manual carefully before using this product.

It should be in the "Instruction Manual" not spec sheet.

MODEL			GHA300F-12	GHA300F-24	GHA300F-48
MAX OUTPUT WATTAGE[W]			300	300	302.4
DC OUTPUT	Forced air	at 50℃	12V 25A	24V 12.5A	48V 6.3A
	Convection	at 40℃	12V 8.4A	24V 4.2A	48V 2.1A
		at 50℃	12V 4.5A	24V 2.2A	48V 1.1A

SPECIFICATIONS

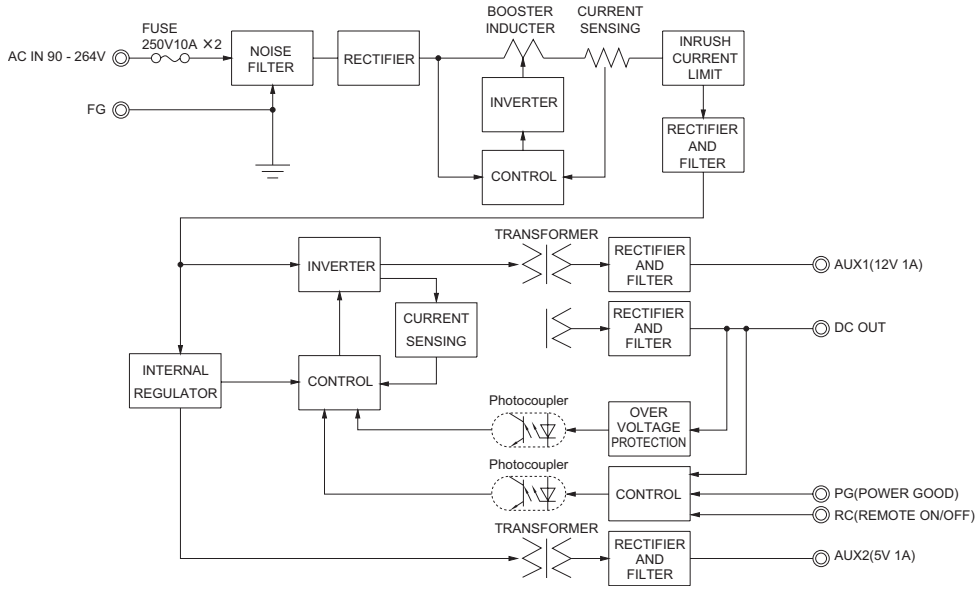
	MODEL		GHA300F-12	GHA300F-24	GHA300F-48
INPUT	VOLTAGE[V]		AC90 - 264 1φ (output derating is required at AC90V -115V *3)		
	CURRENT[A]	ACIN 120V	3.3typ		
		ACIN 230V	1.8typ		
	FREQUENCY[Hz]		50 / 60 (47 - 63)		
	EFFICIENCY[%]	ACIN 120V	89typ	90typ	90typ
		ACIN 230V	91typ	92typ	92typ
	POWER FACTOR (Io=100%)	ACIN 120V	0.95typ		
		ACIN 230V	0.90typ		
	INRUSH CURRENT[A]	ACIN 120V	20typ (Io=100%) (At cold start) (Ta=25℃)		
		ACIN 230V	40typ (Io=100%) (At cold start) (Ta=25℃)		
	LEAKAGE CURRENT[mA]		0.125/0.250max (ACIN 120V/240V 60Hz,Io=100%, According to IEC60601-1)		
OUTPUT	VOLTAGE[V]		12	24	48
	CURRENT[A]	Forced air	25	12.5	6.3
		Convection	4.5	2.2	1.1
	LINE REGULATION[mV] *4		48max	96max	192max
	LOAD REGULATION[mV] *4		100max	150max	240max
	RIPPLE[mVp-p] *1	0 to +50℃	240max	240max	300max
		-20 to 0℃	320max	320max	400max
	RIPPLE NOISE[mVp-p] *1	0 to +50℃	300max	300max	480max
		-20 to 0℃	360max	360max	500max
	TEMPERATURE REGULATION[mV]	0 to +50℃	120max	240max	480max
		-20 to +50℃	150max	290max	600max
	DRIFT[mV] *2		48max	96max	192max
	START-UP TIME[ms]		500typ (ACIN 120V, Io=100%)		
	HOLD-UP TIME[ms]		16typ (ACIN 120V, Io=100%)		
	OUTPUT VOLTAGE ADJUSTMENT RANGE[V]		10.80 to 13.20	21.60 to 26.40	43.20 to 52.80
	OUTPUT VOLTAGE SETTING[V]		12.00 to 12.48	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]		13.80 to 16.80	27.60 to 33.60	55.20 to 67.20
	AUX1 (12V1A)		Optional		
	AUX2 (5V1A)		Optional		
	REMOTE ON/OFF		Optional		
	PowerGood		Optional		
ISOLATION	INPUT-OUTPUT · RC · AUX *7		AC4,000V 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 · AUX-FG *7		AC500V 1minute, Cutoff current = 25mA, DC500V 50MΩ min (At Room Temperature)		
	OUTPUT-RC · AUX *7		AC500V 1minute, Cutoff current = 25mA, DC500V 50MΩ min (At Room Temperature)		
ENVIRONMENT	OPERATING TEMP.,HUMID.AND ALTITUDE		-20 to +70℃, 20 - 90%RH (Non condensing)		
	STORAGE TEMP.,HUMID.AND ALTITUDE		-30 to +75℃, 20 - 90%RH (Non condensing)		
	VIBRATION		10 - 55Hz, 19.6m/s² (2G), 3minutes period, 60minutes each along X, Y and Z axis		
	IMPACT		196.1m/s² (20G), 11ms, once each X, Y and Z axis		
SAFETY AND NOISE REGULATIONS	AGENCY APPROVALS		UL60950-1, ANSI/AMII ES60601-1, C-UL, EN60950-1, EN60601-1		
	CONDUCTED NOISE		Complies with FCC-B, VCCI-B, CISPR11-B, CISPR22-B, EN55011-B, EN55022-B		
	HARMONIC ATTENUATOR		Complies with IEC61000-3-2 (class A) *5		
OTHERS	CASE SIZE/WEIGHT		76.2×35×127mm [3.0×1.4×5.0 inches] (W×H×D) / 400g max		
	COOLING METHOD		Convection, Forced air (Require external fan)		

*1 This is the value that measured on measuring board with capacitor of 22μF at 150mm from output terminal.
Measured by 20MHz oscilloscope or Ripple-Noise meter (Equivalent to KEISOKU-GIKEN: RM103).
*2 Drift is the change in DC output for an eight hour period after a half-hour warm-up at 25℃, with the input voltage held constant at the rated input/output.
*3 Derating is required.
*4 Please contact us about dynamic load and input response.
*5 Please contact us about another class.
*6 Specification is changed at option, refer to Instruction Manual.
*7 Applicable when AUX and remote control (optional) is added.
* To meet the specifications. Do not operate over-loaded condition.
* Sound noise may be generated by power supply in case of pulse load.
* Parallel operation is not possible.

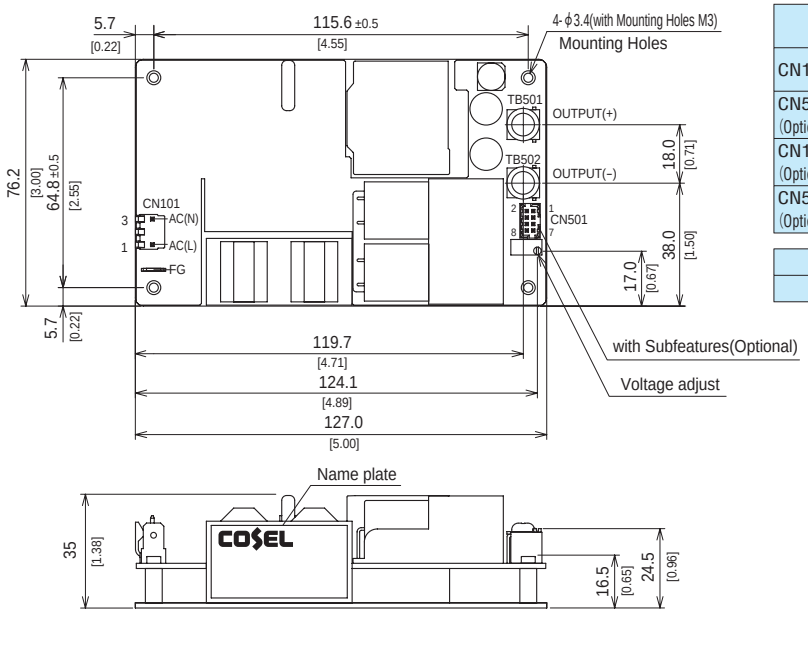
Features

- High Power density:14.3W/inch³
- High efficiency 92% typ (Input Voltage 230V, Output Voltage 24V)
- 3"× 5"standard footprint
- Fits 1U applications
- Industrial and Medical safety approvals
- Low leakage current
- With Remote On/Off (Optional)
- With AUX1 (5V), AUX2 (12V) (Optional)
- No minimum load is required

Block diagram



External view



※ Tolerance ±1 [±0.04]
※ Weight : 400g max
※ There is a total of four attachment holes.
※ This power supply requires mounting on metal standoffs 5mm in height.
(Insulating sheet is required if you do not use a spacer).
※ Dimensions in mm, [ ]=inches
※ Screw tightening torque : (TB501, 502) : 1.5N・m max
※ Mounting toque : 0.6N・m max
※ Avoid contact between TB501 and 502 wiring with mounting parts.
※ Option : -J1 : (J.S.T) connector type. Refer to Instruction Manual 5.

I/OConnector		Mating connector	Terminal	Mfr
CN101	A-41671-A03A197-2	09-50-8031	08-50-0105 08-65-0114	MOLEX
CN501 (Optional)	087831-0820	51110-0851	50394-8051	
CN101 (Optional)	B2P3-VH	VHR-3N	SVH-21T-P1.1	J.S.T.
CN501 (Optional)	B8B-PHDSS	PHDR-08VS	SPHD-002T-P0.5	

FG		Mating connector	Terminal	Mfr
-	250 Series	-	170603-2	Tyco Electronics

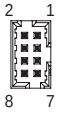
<Pin Assignments>

<CN101>

Pin No.	Input
1	AC(L)
2	
3	AC(N)

<CN501(Optional)>

Pin No.	Function
1	AUX1 : AUX1 (12V1A)
2	AUX1G: AUX1 (GND)
3	RC1 : REMOTE ON/OFF
4	RCG : REMOTE ON/OFF (GND)
5	PG : Power good
6	PGG : Power good (GND)
7	AUX2 : AUX2 (5V1A)
8	AUX2G: AUX2 (GND)



CN501

COSEL AC-DC Power Supplies Medical type

GHA500F

Ordering information

GH ① A ② 500 ③ F ④ -□□ ⑤ -□ ⑧

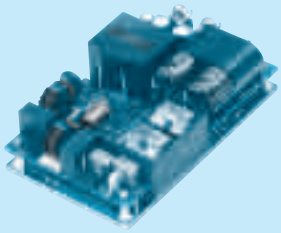


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Recommended EMI/EMC Filter
EAC-10-472



High voltage pulse noise type : EAP series
Low leakage current type : EAM series

*The EMI/EMC Filter is recommended to connect with several devices.

①Series name
②Single output
③Output wattage
④Universal input
⑤Output voltage
⑧Optional *6
T3 : mounting hole M3
J1 : VH(J.S.T.)connector type
R3 : with Subfeatures (5VAUX,12VAUX,Remote, Power good)
P : Pallarel Operation

Specification is changed at option, refer to Instruction manual.

【Cautions】
- Forced air cooling is required for the maximum output power. Please see instruction manual.
- Avoid applying stress to surface mount components.
- De-rating is required if the applied input voltage is 90-115VAC.
- The electrolytic capacitor has limited life span which is very much dependent on the actual operating conditions.
- Operating in the presense of chemical vapors or harsh environmnet can affect the power supply life expectnacy.
- Please make sure to read the instruction manual carefully before using this product.

It should be in the "Instruction Manual" not spec sheet.

MODEL			GHA500F-12	GHA500F-15	GHA500F-24	GHA500F-48
MAX OUTPUT WATTAGE[W]			500.8	501	504	504
DC OUTPUT	Forced air	at 50℃	12V 41.7A	15V 33.4A	24V 21.0A	48V 10.5A
	Convection	at 40℃	12V 12.5A	15V 10.0A	24V 6.3A	48V 3.2A
		at 50℃	12V 9.2A	15V 7.4A	24V 4.6A	48V 2.3A
	conduction cooling	at 0℃	12V 30.0A	15V 24.0A	24V 15.0A	48V 7.5A
		at 50℃	12V 16.7A	15V 13.4A	24V 8.4A	48V 4.2A

SPECIFICATIONS

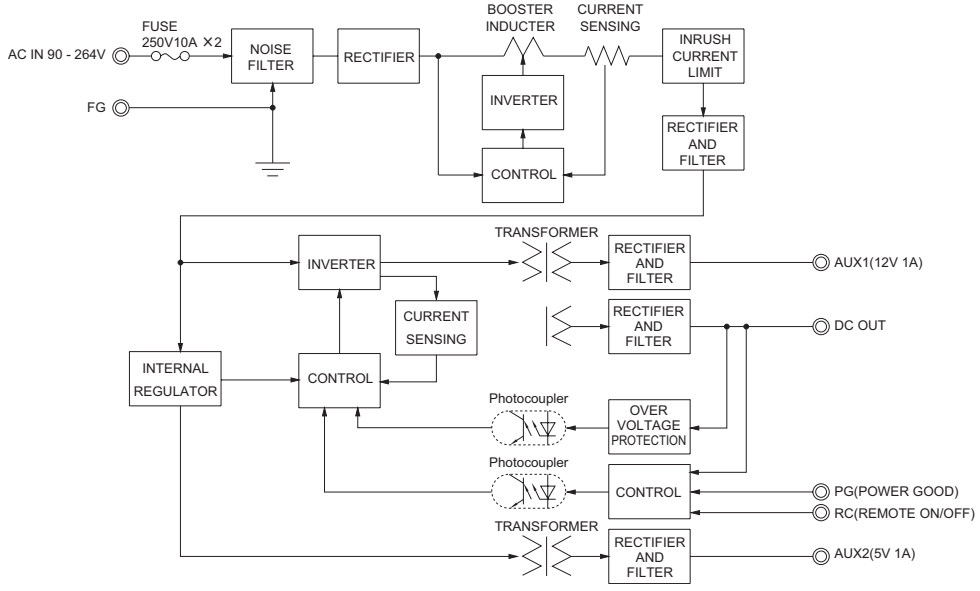
	MODEL		GHA500F-12	GHA500F-15	GHA500F-24	GHA500F-48
INPUT	VOLTAGE[V]		AC90 - 264 1φ (output derating is required at AC90V -115V *3)			
	CURRENT[A]	ACIN 120V	5.4typ			
		ACIN 230V	2.9typ			
	FREQUENCY[Hz]		50 / 60 (47 - 63)			
	EFFICIENCY[%]	ACIN 120V	88typ	90typ	90typ	90typ
		ACIN 230V	90typ	92typ	92typ	92typ
	POWER FACTOR (Io=100%)	ACIN 120V	0.95typ			
		ACIN 230V	0.90typ			
	INRUSH CURRENT[A]	ACIN 120V	20typ (Io=100%) (At cold start) (Ta=25℃)			
		ACIN 230V	40typ (Io=100%) (At cold start) (Ta=25℃)			
	LEAKAGE CURRENT[mA]		0.125/0.250max (ACIN 120V/240V 60Hz,Io=100%, According to IEC60601-1)			
OUTPUT	VOLTAGE[V]		12	15	24	48
	CURRENT[A]	Forced air	41.7	33.4	21.0	10.5
		Convection	9.2	7.4	4.6	2.3
		conduction cooling	16.7	13.4	8.4	4.2
	LINE REGULATION[mV] *4		48max	60max	96max	192max
	LOAD REGULATION[mV] *4		100max	120max	150max	240max
	RIPPLE[mVp-p] *1	0 to +50℃	240max	240max	240max	300max
		-20 - 0℃	320max	320max	320max	400max
	RIPPLE NOISE[mVp-p]*1	0 to +50℃	300max	300max	300max	480max
		-20 - 0℃	360max	360max	360max	500max
	TEMPERATURE REGULATION[mV]	0 to +50℃	120max	120max	240max	480max
		-20 to +50℃	150max	150max	290max	600max
	DRIFT[mV] *2		48max	60max	96max	192max
	START-UP TIME[ms]		500typ (ACIN 120V, Io=100%)			
	HOLD-UP TIME[ms]		16typ (ACIN 120V, Io=100%)			
	OUTPUT VOLTAGE ADJUSTMENT RANGE[V]		10.80 to 13.20	13.50 to 16.50	21.60 to 26.40	43.20 to 52.80
	OUTPUT VOLTAGE SETTING[V]		12.00 to 12.48	15.00 to 15.30	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]		13.80 to 16.80	17.25 to 21.00	27.60 to 33.60	55.20 to 67.20
	AUX1 (12V1A)		Optional			
	AUX2 (5V1A)		Optional			
	REMOTE ON/OFF		Optional			
	PowerGood		Optional			
ISOLATION	INPUT-OUTPUT · RC · AUX *7		AC4,000V 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 · AUX-FG *7		AC500V 1minute, Cutoff current = 25mA, DC500V 50MΩ min (At Room Temperature)			
	OUTPUT-RC · AUX *7		AC500V 1minute, Cutoff current = 25mA, DC500V 50MΩ min (At Room Temperature)			
ENVIRONMENT	OPERATING TEMP.,HUMID.AND ALTITUDE		-20 to +80℃, 20 - 90%RH (Non condensing)			
	STORAGE TEMP.,HUMID.AND ALTITUDE		-30 to +80℃, 20 - 90%RH (Non condensing)			
	VIBRATION		10 - 55Hz, 19.6m/s² (2G), 3minutes period, 60minutes each along X, Y and Z axis			
	IMPACT		196.1m/s² (20G), 11ms, once each X, Y and Z axis			
SAFETY AND NOISE REGULATIONS	AGENCY APPROVALS		UL60950-1, ANSI/AMII ES60601-1, C-UL, EN60950-1, EN60601-1			
	CONDUCTED NOISE		Complies with FCC-B, VCCI-B, CISPR11-B, CISPR22-B, EN55011-B, EN55022-B			
	HARMONIC ATTENUATOR		Complies with IEC61000-3-2 (class A) *5			
OTHERS	CASE SIZE/WEIGHT		76.2×35×127mm [3.0×1.4×5.0 inches] (W×H×D) / 420g max			
	COOLING METHOD		Convection, Forced air (Require external fan), Conduction cooling			

*1 This is the value that measured on measuring board with capacitor of 22μF at 150mm from output terminal.
Measured by 20MHz oscilloscope or Ripple-Noise meter (Equivalent to KEISOKU-GIKEN: RM103).
*2 Drift is the change in DC output for an eight hour period after a half-hour warm-up at 25℃, with the input voltage held constant at the rated input/output.
*3 Derating is required.
*4 Please contact us about dynamic load and input response.
*5 Please contact us about another class.
*6 Specification is changed at option, refer to Instruction Manual.
*7 Applicable when AUX and remote control (optional) is added.
* To meet the specifications. Do not operate over-loaded condition.
* Sound noise may be generated by power supply in case of pulse load.
* Parallel operation is not possible.

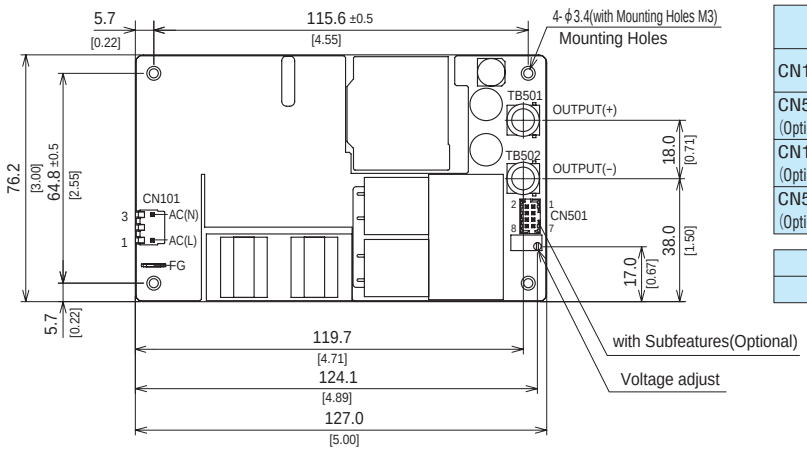
Features

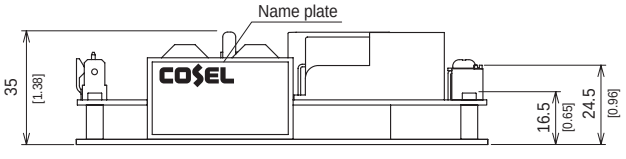
- Wattage 500W max
- High Power density:24.1W/inch³
- High efficiency 92% typ (Input Voltage 230V,Output Voltage 24V)
- Conduction cooling
- 3"× 5"standard footprint
- Fits 1U applications
- Industrial and Medical safety approvals
- Low leakage current
- With Remote On/Off (Optional)
- With AUX1 (5V), AUX2 (12V) (Optional)
- No minimum load is required

Block diagram



External view





※ Tolerance ±1 [±0.04]
※ Weight : 420g max
※ There is a total of four attachment holes.
※ Base Plate : Aluminum
※ Dimensions in mm, [ ]=inches
※ Screw tightening torque : (TB501, 502) : 1.5N・m max
※ Mounting toque : 0.6N・m max
※ Avoid contact between TB501 and 502 wiring with mounting parts.
※ Option : -J1 : (J.S.T) connector type. Refer to Instruction Manual 5.

I/OConnector		Mating connector	Terminal	Mfr
CN101	A-41671-A03A197-2	09-50-8031	08-50-0105 08-65-0114	MOLEX
CN501 (Optional)	087831-0820	51110-0851	50394-8051	
CN101 (Optional)	B2P3-VH	VHR-3N	SVH-21T-P1.1	J.S.T.
CN501 (Optional)	B8B-PHDSS	PHDR-08VS	SPHD-002T-P0.5	

FG		Mating connector	Terminal	Mfr
-	250 Series	-	170603-2	Tyco Electronics

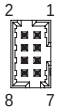
<Pin Assignments>

<CN101>

Pin No.	Input
1	AC(L)
2	
3	AC(N)

<CN501(Optional)>

Pin No.	Function
1	AUX1 : AUX1 (12V1A)
2	AUX1G: AUX1 (GND)
3	RC1 : REMOTE ON/OFF
4	RCG : REMOTE ON/OFF (GND)
5	PG : Power good
6	PGG : Power good (GND)
7	AUX2 : AUX2 (5V1A)
8	AUX2G: AUX2 (GND)



CN501