

Open Frame Type Switching Power Supply

FEATURES

- Both ITE & Medical Approvals
- High Power density, 400W in 5" x 3.2" footprint.
- Medical applications Protection: Means of Patient Protection (MOPP).
- Altitude during operation: ITE up to 5000m ,Medical Below 3000m.
- Meet Medical BF rated.
- Main output and Standby output Power ON LED indicators.
- 3 years warranty.

ELECTRICAL SPECIFICATIONS

- Input range : 90 - 264VAC (Refer to derating curve).
- Frequency : 47 - 63Hz
- Power Factor : > 0.95 @115VAC; > 0.90 @230VAC @full load
- Inrush current : < 45A peak @115VAC; < 80A peak @230VAC cold start @25°C
- Input current (rms) : 4.2A @115VAC; 2.1A @230VAC max.
- Efficiency : > 91% typical @full load, 230VAC
- Touch current < 100uA @264VAC.
- Maximum output power : 400Watts forced air, 250Watts convection cooling.
- Hold-up time : > 10ms typical 50% load, 115VAC
- Short circuit protection : Auto-recovery
- Over power protection : 105% to 150% maximum rating, Auto-recovery
- Over voltage protection : Auto-recovery
- 5Vsb meet ErP Lot 6 0.5W @ No load.
- Remote control (Inhibit) function.

ENVIRONMENTAL

- Operating temperature : -20 to +70°C. (Refer to "Derating Curve")
- Operating Humidity: Non-condensing 10% to 90%.
- Storage temperature: -20°C to +85°C.
- Storage Humidity: Non-condensing 0% to 90%.
- MTBF : > 250,000 hours @full load and 25°C ambient temperature per telcordia(Bellcore TR-332).

DC OUTPUT & FEATURES

Model No.	Output Voltage (V1)	Maximum Load (V1)		Output Regulation (V1)	Ripple Noise (V1)	Standby supply (V2)	FAN output (V3)	Convection total power	Forced air total power 25CFM
		Convection	Forced Air 25CFM						
PW-400B-1Y120CM	+12V	20.84A	33.33A	±3%	240mV	5V/0.3A	12V/0.25A	250W	400W
PW-400B-1Y240CM	+24V	10.42A	16.66A	±3%	300mV	5V/0.3A	12V/0.25A	250W	400W
PW-400B-1Y280CM	+28V	8.93A	14.28A	±3%	300mV	5V/0.3A	12V/0.25A	250W	400W
PW-400B-1Y480CM	+48V	5.21A	8.33A	±3%	300mV	5V/0.3A	12V/0.25A	250W	400W
PW-400B-1Y540CM	+54V	4.63A	7.40A	±3%	300mV	5V/0.3A	12V/0.25A	250W	400W
PW-400B-1Y120TM	+12V	33.33A	--	±3%	240mV	5V/0.3A	12V/0.25A	400W	--
PW-400B-1Y240TM	+24V	16.66A	--	±3%	300mV	5V/0.3A	12V/0.25A	400W	--
PW-400B-1Y280TM	+28V	14.28A	--	±3%	300mV	5V/0.3A	12V/0.25A	400W	--
PW-400B-1Y480TM	+48V	8.33A	--	±3%	300mV	5V/0.3A	12V/0.25A	400W	--
PW-400B-1Y540TM	+54V	7.40A	--	±3%	300mV	5V/0.3A	12V/0.25A	400W	--

Note: 1. Ripple and noise are measured at oscilloscope 20MHz bandwidth by a 100uF electrolytic capacitor

and a 0.1uF ceramic capacitor in parallel at output connector.

2. Regulation shows the percentage of absolute value of nominal output voltage.
3. Model option : C = E, E-Type (U Channel with cover) · C = U, U-Type (U Channel)
4. -1 to -20°C ambient temperature and EMS Immunity worse case O/P Regulation ≤ +/-10%
5. Standby supply (V2) O/P Regulation +/-10% · Ripple and noise 150mV.
6. The switching frequency of this series is set within 58 to 75KHz at full load.

400Watts ITE & Medical Single Output



RoHS compliant
U-Type (U Channel)
 L127 x W81 x H38.1mm
 Weight : 575g (1.27lbs.)



RoHS compliant
E-Type (U Channel with cover)
 L127 x W81 x H42.1mm
 Weight : 617g (1.36lbs.)



RoHS compliant
T-Type (Top mounted fan)
 L127 x W81 x H68mm
 Weight : 657g (1.45lbs.)

SAFETY STANDARDS

UL60601-1 3.1rd Edition
 TUV EN60601-1 3.1rd Edition
 CB IEC60601-1 3.1rd Edition
 UL/c-UL UL62368-1
 TUV EN62368-1
 CB IEC62368-1

EMC STANDARDS

EN60601-1-2 Ed4:2015
 IEC60601-1-2 Ed4:2014
 EN55011 Class B
 EN55032 Class B
 EN55024 Class B
 FCC Part 15 Class B
 FCC Part 18 Class B
 CE



SAFETY AGENCY CERTIFICATIONS

Safety and EMC Performance

Description	Safety	EMC
Medical equipment	IEC 60601-1:2005+A1 Third Edition (IEC 60601-1:2012 reprint) EN 60601-1:2006+A11+A1+A12 ANSI/AAMI ES60601-1:2012+A1+A2 CAN/CSAC22.2 No. 60601-1:14 Edition 3	EC/EN 60601-1-2 Ed4:2014 & EN55011 and FCC Part 18
Audio/video, ITE equipment	IEC 62368-1:2014 (Second Edition) EN 62368-1:2014+A11 UL 62368-1, 2nd Edition, 2014-12-01 CAN/CSA C22.2 No. 62368-1-14, 2nd Edition	EN55032 & EN55024 & FCC part 15 (*) and ICES-003

Tests for conformance to this requirement will be performed with final system

(*) FCC PART15 compliance information and warnings:

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions:

- (1) This device may not cause harmful interference, and**
- (2) this device must accept any interference received, including interference that may cause undesired operation**

Insulation level and dielectric withstand (HI-POT)

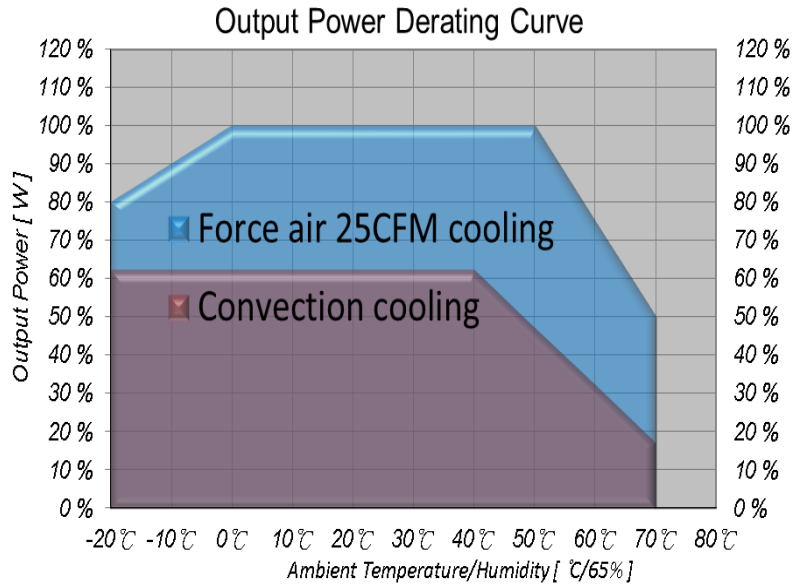
Medical equipment	Isolation voltage	Means of patient protection
Primary circuits to secondary circuits	5656Vdc	2MOPP
Primary circuits to earth ground	2121Vdc	1MOPP
Secondary circuits to earth ground	2121Vdc	1MOPP

Audio/video, ITE equipment	Isolation voltage	Grade insulation
Primary circuits to secondary circuits	4242Vdc	Reinforced
Primary circuits to earth ground	2121Vdc	Basic
Secondary circuits to earth ground	2121Vdc	Basic

Note: Production testing use dc voltage test 4 Sec.

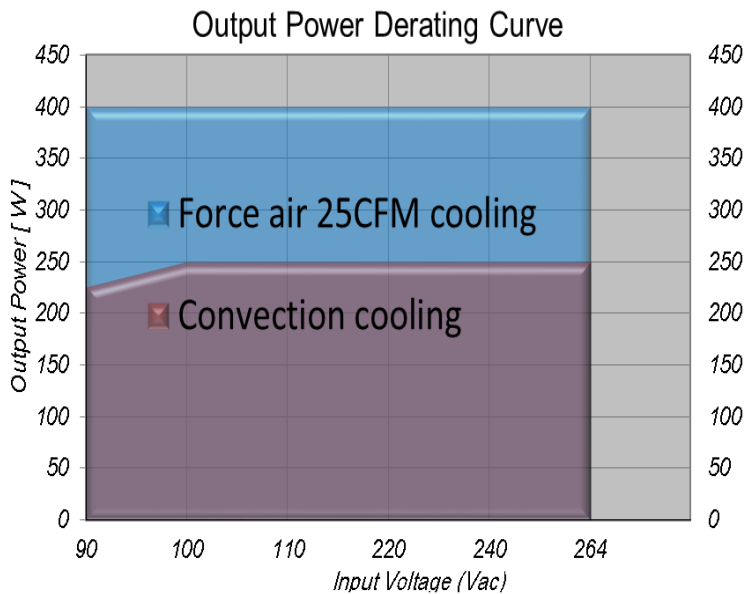


Derating Curve



400W forced air cooling : Derate linearly 2.5% per°C from 51 to 70°C.
Derate linearly 1% per°C from -1 to -20°C.

250W convection cooling : Derate linearly 1.5% per°C from 41 to 70°C.

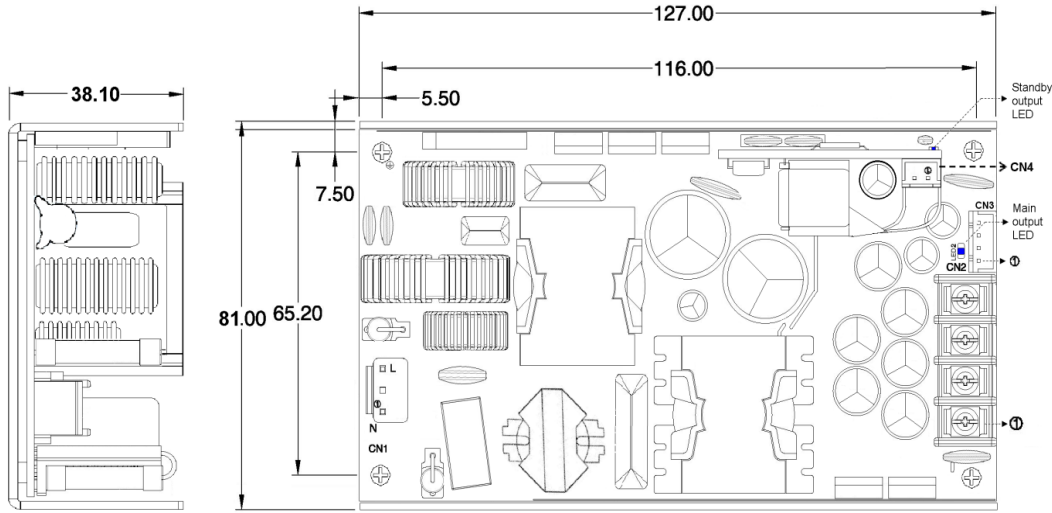


Convection cooling total output 250W
Derate linearly 1% per Vac from 100 to 90Vac
U type 、 **E type** and **T type** for 400W Curve.
U type 、 **E type** for 250W Curve.



MECHANICAL SPECIFICATION

U-Type (U Channel)



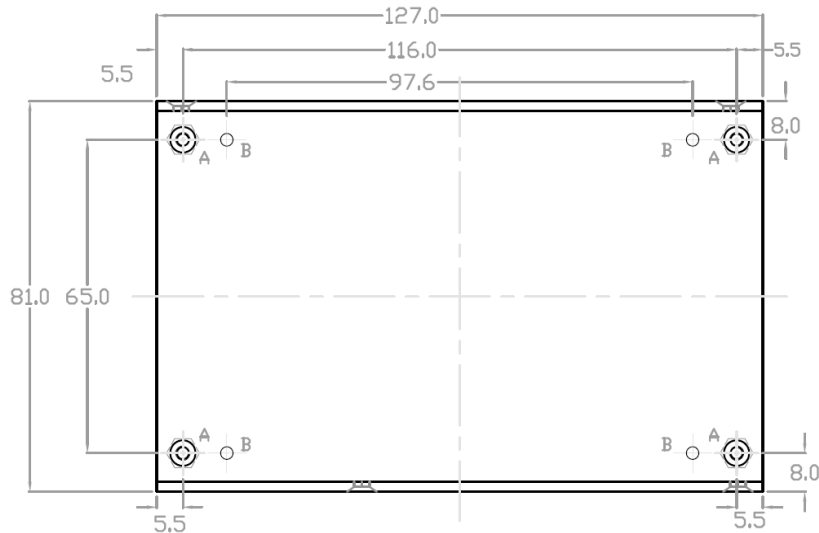
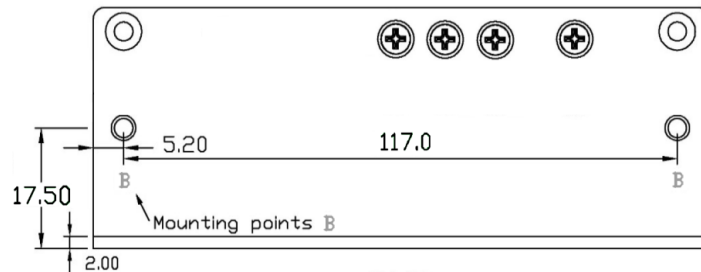
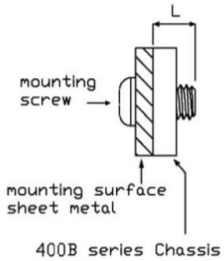
Dimension : L127xW81xH38.1mm

Tolerance : L: +/-1.5mm

W&H: +/-0.5mm

Mounting notes

L : max penetration depth



Note:

U Chassis connected to earth ground, for optimum SAFETY and EMI performance.

Mounting points A, M3x0.5 thread, max penetration depth 3.0mm.

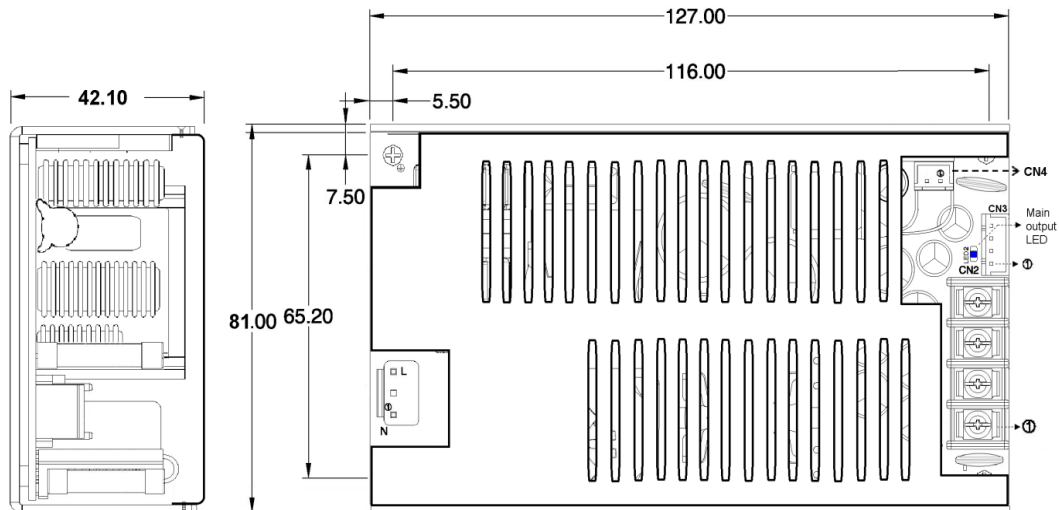
Mounting points B, M3x0.5 thread, max penetration depth 3.0mm.

Mounting points A/B Recommended torque for mounting screw :1-2 Kgf-cm.



MECHANICAL SPECIFICATION

E-Type (U Channel with cover)



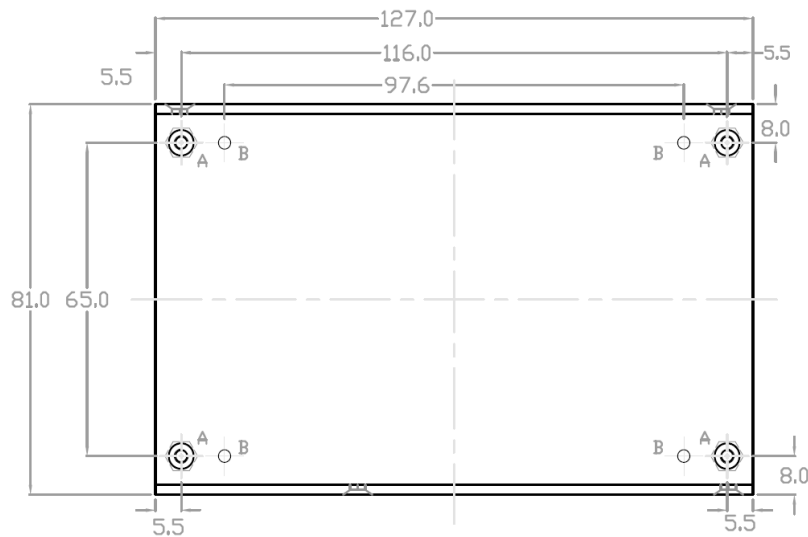
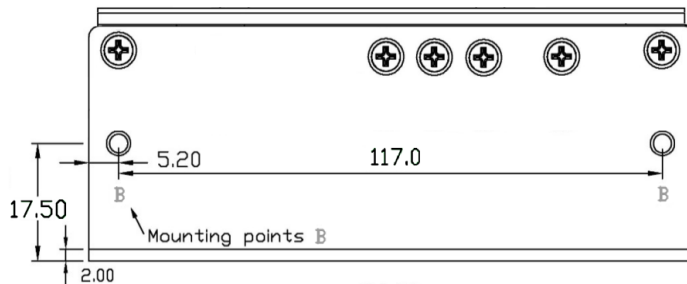
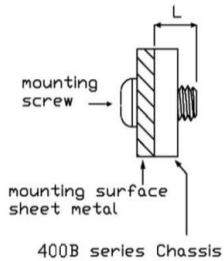
Dimension : L127xW81xH42.1mm

Tolerance : L: +/-1.5mm

W&H: +/-0.5mm

Mounting notes

L : max penetration depth



Note:

U Chassis connected to earth ground, for optimum SAFETY and EMI performance.

Mounting points A, M3x0.5 thread, max penetration depth 3.0mm.

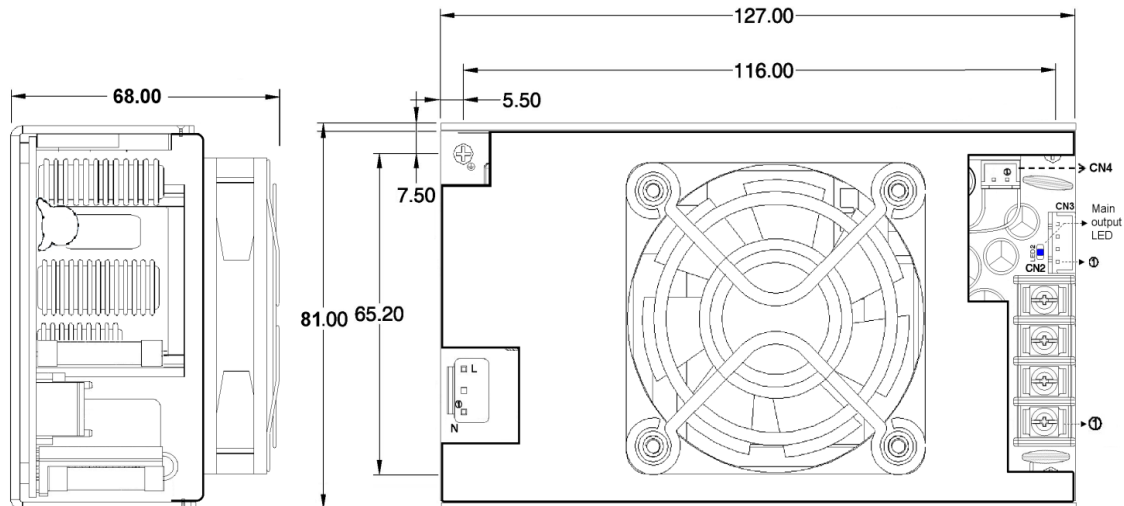
Mounting points B, M3x0.5 thread, max penetration depth 3.0mm.

Mounting points A/B Recommended torque for mounting screw :1-2 Kgf-cm.



MECHANICAL SPECIFICATION

T-Type (U Channel with top mounted fan)



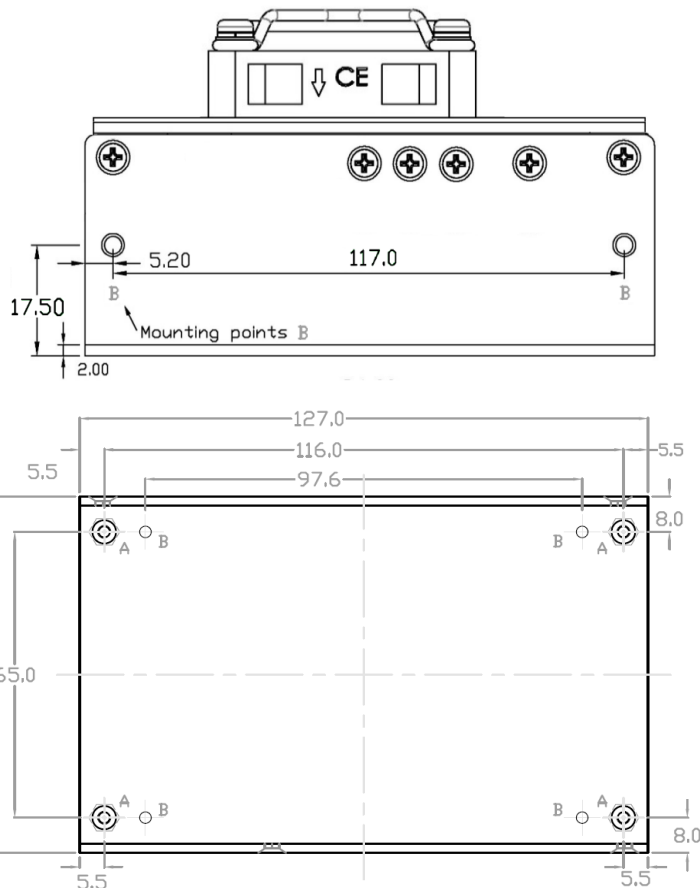
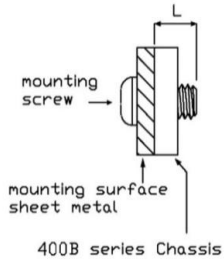
Dimension : L127xW81xH68mm

Tolerance : L:±1.5mm

W&H:±0.5mm

Mounting notes

L : max penetration depth



Note:

U Chassis connected to earth ground, for optimum SAFETY and EMI performance.

Mounting points A, M3x0.5 thread, max penetration depth 3.0mm.

Mounting points B, M3x0.5 thread, max penetration depth 3.0mm.

Mounting points A/B Recommended torque for mounting screw :1-2 Kgf-cm.



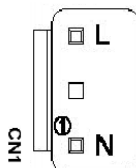
MECHANICAL SPECIFICATION

Pin assignment

CN1: Input Connector

JST B2P3-VH pitch: 3.96mm or equivalent,
mates with JST VAR-2 or equivalent

Pin #	Signal
1	AC Neutral
2	AC Line

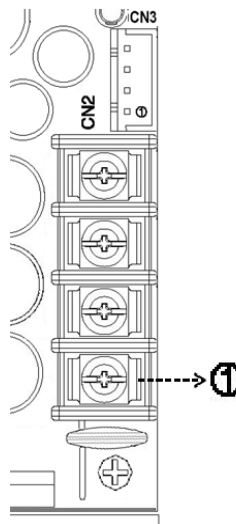


CN2: Main Output Connector

Terminal Block Type

4-Pole Terminal block pitch: 8.25mm ,
rate 20A/300V or equivalent

Pin #	Signal
1	GND
2	GND
3	+Vout
4	+Vout



CN3: Remote control & Standby supply

JST B4B-XH-A pitch: 2.5mm or equivalent,
mates with JST XHP-4 or equivalent

Pin #	Signal
1	GND
2	+5VSB
3	INHIBIT (Remote control)
4	GND



INHIBIT → Logic level HIGH (5V) or Floating : Enable, Logic level LOW : Disable

CN4: FAN Output Connector

JST B2B-XH-A pitch: 2.5mm or equivalent,
mates with JST XHP-2 or equivalent

Pin #	Signal
1	+12V FAN+
2	GND FAN-

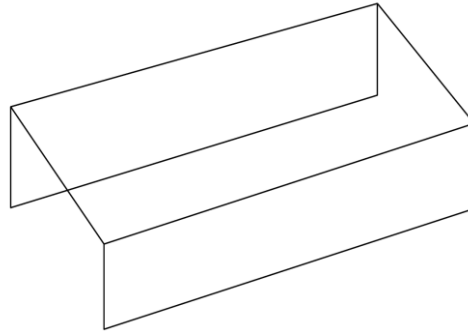


MECHANICAL SPECIFICATION

DC FAN Recommended Direction

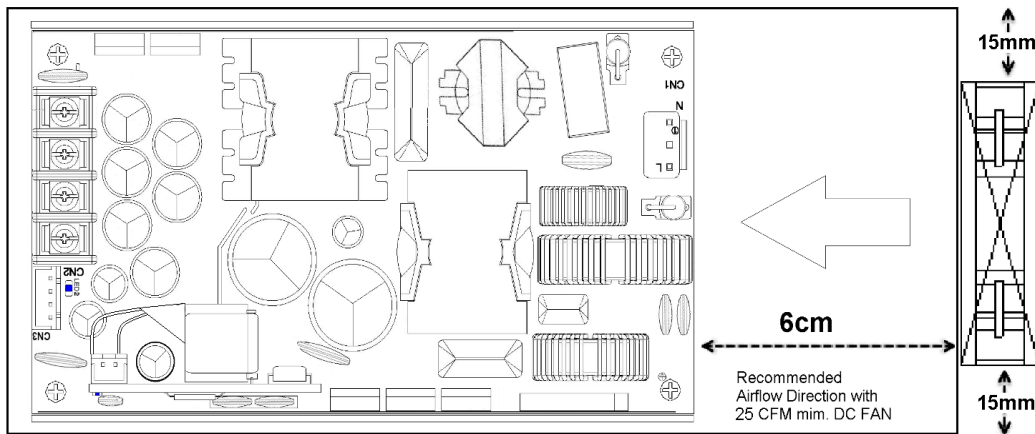
Safety required measurement method:

1. Use a clear plastic cover to help improve air flow as below **(A)**.
2. Use the 25CFM DC fan for cooling when performing temperature rise test for all model except PW-400B-1YXXXT, see below for the location and direction details.
3. The distance between fan and power supply shall be 6cm as below photo.



(A) LxWxH 210mm x 92mm x 46mm Tolerance : +/-1mm

U-type series



E-type series

