



Medical  
electric  
equipment



Power  
Factor  
Correction



World wide



Safety  
Approvals



EMI



Inrush  
current  
limiting



OCP



OVP



Remote  
ON/OFF



Parallel  
Operation

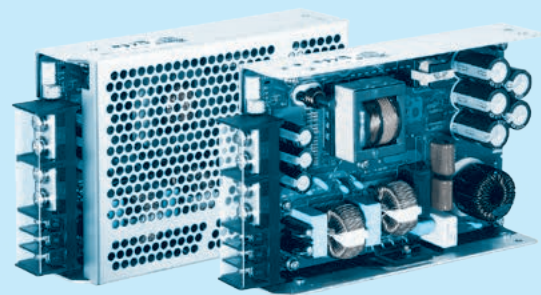
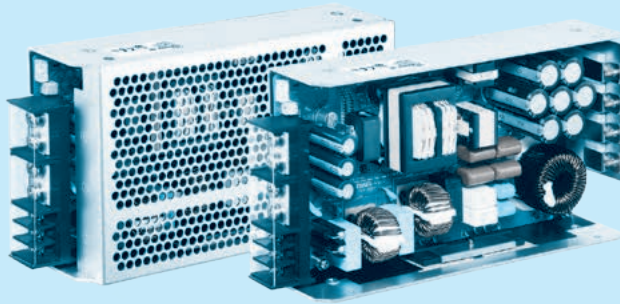


1U



Pulse Load

# AEA-series



## Feature

High power & peak power  
High efficiency  
Low profile (41mm, 1.61 inch = meet to 1U height)  
For medical electric equipment (ANSI/AAMI ES60601, EN60601-1 3rd, IEC60601-1-2 4th Ed.)  
Suitable for BF application (Output-FG : 1MOPP, Input-Output : 2MOPP)  
OVC III (according to EN62477-1)  
Complies with SEMI F47 (Refer to Instruction Manual)  
UL508 (Optional)

## Safety agency approval

UL62368-1, ANSI/AAMI ES60601-1  
C-UL (CAN/CSA62368-1, CAN/CSA60601-1)  
EN62368-1, EN60601-1 3rd  
Complies with IEC60601-1-2 4th Ed.  
EN62477-1 (OVC III)  
UL508 (Optional)

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

## CE marking

Low Voltage Directive  
RoHS Directive

## EMI

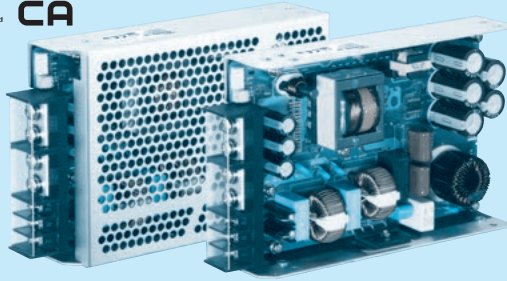
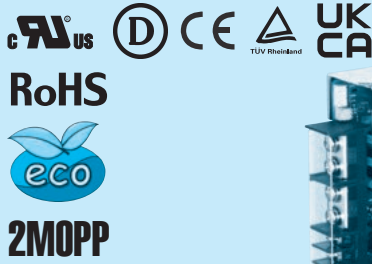
Complies with FCC-B, CISPR11-B, CISPR32-B, EN55011-B, EN55032-B, VCCI-B

## 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

# AEA600F

AE A 600 F -□□ -□  
① ② ③ ④ ⑤ ⑥



Example recommended EMI/EMC filter  
EAC-20-472



High voltage pulse noise type : EAP series  
Low leakage current type : EAM series  
\*Use of an EMI/EMC filter is recommended when a power supply is connected with several devices so that additional filtering is necessary.  
\*Make sure that your final application will meet the required EMC standard by measuring the EMI level of the power supply used together with an EMI/EMC filter.

- ① Series name
  - ② Single output
  - ③ Output wattage
  - ④ Universal input
  - ⑤ Output voltage
  - ⑥ Optional \*1
  - C : with Coating
  - N : with cover
  - T : Vertical terminal block
  - J : Connector type
  - R3 : with Subfeatures (5V1A AUX, 12V1A AUX Remote ON/OFF, Alarm)
  - T5 : UL508
  - P5 : shutdown type overcurrent protection
- For option details, refer to instruction manual 6.1.

Please refer to derating curve, because the rated load current depends on cooling method that is convection cooling or forced air.

\*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                  | AEA600F-24                                                           | AEA600F-36                                       | AEA600F-48                                       |
|------------------------|----------------------------------------------------------------------|--------------------------------------------------|--------------------------------------------------|
| MAX OUTPUT WATTAGE[W]  | 600                                                                  | 601.2                                            | 600                                              |
| DC OUTPUT (forced air) | ACIN 100V 24V 20.0 (Peak 42.0) A<br>ACIN 230V 24V 25.0 (Peak 52.5) A | 36V 13.4 (Peak 28.0) A<br>36V 16.7 (Peak 35.0) A | 48V 10.0 (Peak 21.0) A<br>48V 12.5 (Peak 26.3) A |

## SPECIFICATIONS

|                               | MODEL                                | AEA600F-24                                                                                                                                                                                              | AEA600F-36                  | AEA600F-48                  |
|-------------------------------|--------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------|-----------------------------|
| INPUT                         | VOLTAGE[V]                           | AC85 - 264 1 φ (Output derating is required at AC85V - 170V. See "Derating")                                                                                                                            |                             |                             |
|                               | CURRENT[A]                           | ACIN 100V 5.7typ (Io=20A)                                                                                                                                                                               | 5.7typ (Io=13.4A)           | 5.7typ (Io=10A)             |
|                               |                                      | ACIN 230V 2.9typ (Io=25A)                                                                                                                                                                               | 2.9typ (Io=16.7A)           | 2.9typ (Io=12.5A)           |
|                               | FREQUENCY[Hz]                        | 50/60 (45 - 66)                                                                                                                                                                                         |                             |                             |
|                               | EFFICIENCY[%]                        | ACIN 100V 92.0%typ (Io=20A)                                                                                                                                                                             | 92.0%typ (Io=13.4A)         | 92.0%typ (Io=10A)           |
|                               |                                      | ACIN 230V 94.5%typ (Io=25A)                                                                                                                                                                             | 95.0%typ (Io=16.7A)         | 95.0%typ (Io=12.5A)         |
|                               | POWER FACTOR                         | ACIN 100V 0.98typ (Io=20A)                                                                                                                                                                              | 0.98typ (Io=13.4A)          | 0.98typ (Io=10A)            |
|                               |                                      | ACIN 230V 0.95typ (Io=25A)                                                                                                                                                                              | 0.95typ (Io=16.7A)          | 0.95typ (Io=12.5A)          |
| OUTPUT                        | INRUSH CURRENT[A] *2                 | ACIN 100V 20/40typ (Io=20A)                                                                                                                                                                             | 20/40typ (Io=13.4A)         | 20/40typ (Io=10A)           |
|                               |                                      | ACIN 230V 40/40typ (Io=25A)                                                                                                                                                                             | 40/40typ (Io=16.7A)         | 40/40typ (Io=12.5A)         |
|                               | LEAKAGE CURRENT[ma]                  | 0.3max (ACIN 240V 60Hz, Io=100%, According to IEC60601-1)                                                                                                                                               |                             |                             |
|                               | VOLTAGE[V]                           | 24                                                                                                                                                                                                      | 36                          | 48                          |
|                               | CURRENT[A]                           | ACIN 100V 14.0 (Peak 42.0) convection                                                                                                                                                                   | 9.4 (Peak 28.0) convection  | 7.0 (Peak 21.0) convection  |
|                               |                                      | 20.0 (Peak 42.0) forced air                                                                                                                                                                             | 13.4 (Peak 28.0) forced air | 10.0 (Peak 21.0) forced air |
|                               |                                      | ACIN 230V 17.5 (Peak 52.5) convection                                                                                                                                                                   | 11.7 (Peak 35.0) convection | 8.8 (Peak 26.3) convection  |
|                               |                                      | 25.0 (Peak 52.5) forced air                                                                                                                                                                             | 16.7 (Peak 35.0) forced air | 12.5 (Peak 26.3) forced air |
|                               |                                      |                                                                                                                                                                                                         |                             |                             |
|                               | LINE REGULATION[mV]                  | 96max                                                                                                                                                                                                   | 144max                      | 192max                      |
|                               | LOAD REGULATION[mV]                  | 150max                                                                                                                                                                                                  | 240max                      | 300max                      |
| PROTECTION CIRCUIT AND OTHERS | RIPPLE[mVp-p] *3                     | 0 to +50°C 120max                                                                                                                                                                                       | 200max                      | 200max                      |
|                               |                                      | -20 to 0°C 200max                                                                                                                                                                                       | 300max                      | 350max                      |
|                               | RIPPLE NOISE[mVp-p] *3               | 0 to +50°C 150max                                                                                                                                                                                       | 230max                      | 250max                      |
|                               |                                      | -20 to 0°C 230max                                                                                                                                                                                       | 350max                      | 500max                      |
|                               | TEMPERATURE REGULATION[mV]           | 0 to +50°C 240max                                                                                                                                                                                       | 360max                      | 480max                      |
|                               | DRIFT[mV] *4                         | 96max                                                                                                                                                                                                   | 144max                      | 192max                      |
|                               | START-UP[ms]                         | 750typ                                                                                                                                                                                                  |                             |                             |
|                               | HOLD-UP[ms]                          | 20typ (ACIN 230V, Io=100%)                                                                                                                                                                              |                             |                             |
| ISOLATION                     | OUTPUT VOLTAGE ADJUSTMENT RANGE[V]   | 21.6 to 26.4                                                                                                                                                                                            | 32.4 to 39.6                | 43.2 to 52.8                |
|                               | OUTPUT VOLTAGE SETTING[V]            | 23.5 to 24.5                                                                                                                                                                                            | 35.0 to 37.0                | 47.0 to 49.0                |
|                               | OVERCURRENT PROTECTION               | Works over 101% of peak current and recovers automatically *5                                                                                                                                           |                             |                             |
|                               | OVERVOLTAGE PROTECTION[V]            | 30 to 33.6                                                                                                                                                                                              | 45 to 50.4                  | 60 to 69.6                  |
|                               | ALARM                                | Optional (Input voltage alarm : PR, Output voltage alarm : PG)                                                                                                                                          |                             |                             |
| ENVIRONMENT                   | REMOTE ON/OFF                        | Optional                                                                                                                                                                                                |                             |                             |
|                               | AUX1                                 | Optional (12V1A)                                                                                                                                                                                        |                             |                             |
|                               | AUX2                                 | Optional (5V1A)                                                                                                                                                                                         |                             |                             |
|                               | INPUT-OUTPUT · PR · PG · RC · AUX *6 | AC4,000V 1minute, Cutoff current = 10mA, DC500V 50MΩ min (At Room Temperature) 2MOPP                                                                                                                    |                             |                             |
| SAFETY AND NOISE REGULATIONS  | INPUT-FG                             | AC2,000V 1minute, Cutoff current = 10mA, DC500V 50MΩ min (At Room Temperature) 1MOPP                                                                                                                    |                             |                             |
|                               | OUTPUT · PR · PG · RC · AUX-FG *6    | AC1,500V 1minute, Cutoff current = 10mA, DC500V 50MΩ min (At Room Temperature) 1MOPP                                                                                                                    |                             |                             |
|                               | OUTPUT · AUX1-PR · PG · RC · AUX2 *6 | AC100V 1minute, Cutoff current = 25mA, DC100V 10MΩ min (At Room Temperature)                                                                                                                            |                             |                             |
| OTHERS                        | OPERATING TEMP., HUMID. AND ALTITUDE | -20 to +70°C, 20 - 90%RH (Non condensing), 5,000m (16,500feet) max                                                                                                                                      |                             |                             |
|                               | STORAGE TEMP., HUMID. AND ALTITUDE   | -20 to +75°C, 20 - 90%RH (Non condensing), 9,000m (30,000feet) max                                                                                                                                      |                             |                             |
|                               | 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                                                                                                                                                        |                             |                             |
|                               | AGENCY APPROVALS                     | UL62368-1, ANSI/AAMI ES 60601-1, C-UL (equivalent to CAN/CSA-C22.2 No.62368-1, CAN/CSA-C22.2 No.60601-1) EN62368-1, EN60601-1 3rd EN62477-1 (OVCI) UL508 (Optional), Complies with IEC60601-1-2 4th Ed. |                             |                             |
|                               | CONDUCTED NOISE                      | Complies with FCC Part15 classB, VCCI-B, CISPR32-B, EN55011-B, EN55032-B                                                                                                                                |                             |                             |
|                               | HARMONIC ATTENUATOR *7               | Complies with IEC61000-3-2 (Class A)                                                                                                                                                                    |                             |                             |
|                               | CASE SIZE/WEIGHT                     | 41x127x186mm [1.61x5x7.32 inches] (WxHxD) (without terminal block) / 1.0kg max                                                                                                                          |                             |                             |
|                               | COOLING METHOD                       | Convection/Forced air                                                                                                                                                                                   |                             |                             |

\*1 The listed options may affect the published standard specifications.

Please contact us for detailed product specification

\*2 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 KEISOKUGIKEN:RM104).  
Please refer to the instruction manual 1.8.

\*4 Drift is the change in DC output for an eight hours period after a half-hour warm-up at 25°C.

\*5 The output is shut down when the overcurrent protection continues.

\*6 Applicable when AUX and remote control (optional) is added.

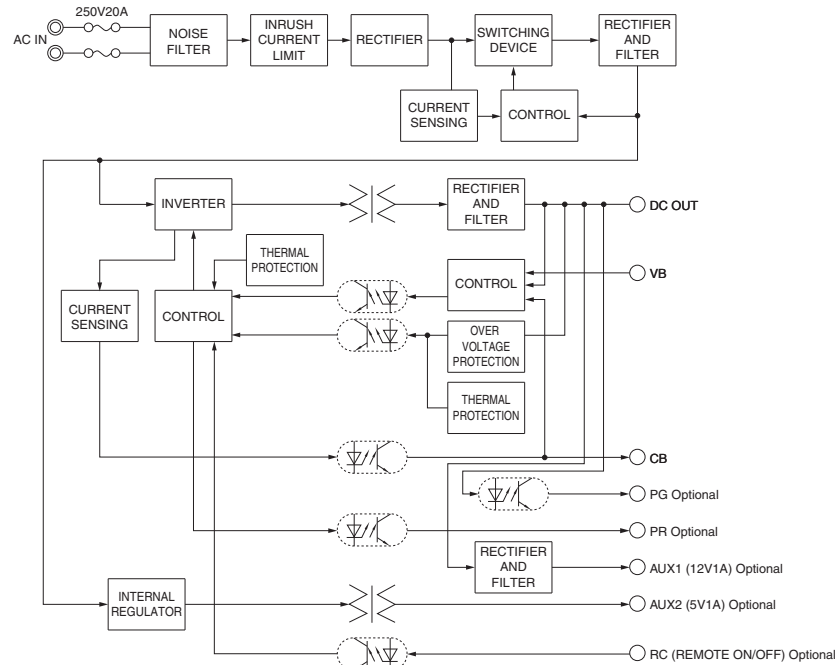
\*7 Please contact us about another class.

\*Sound noise may be generated by power supply in case of pulse load.

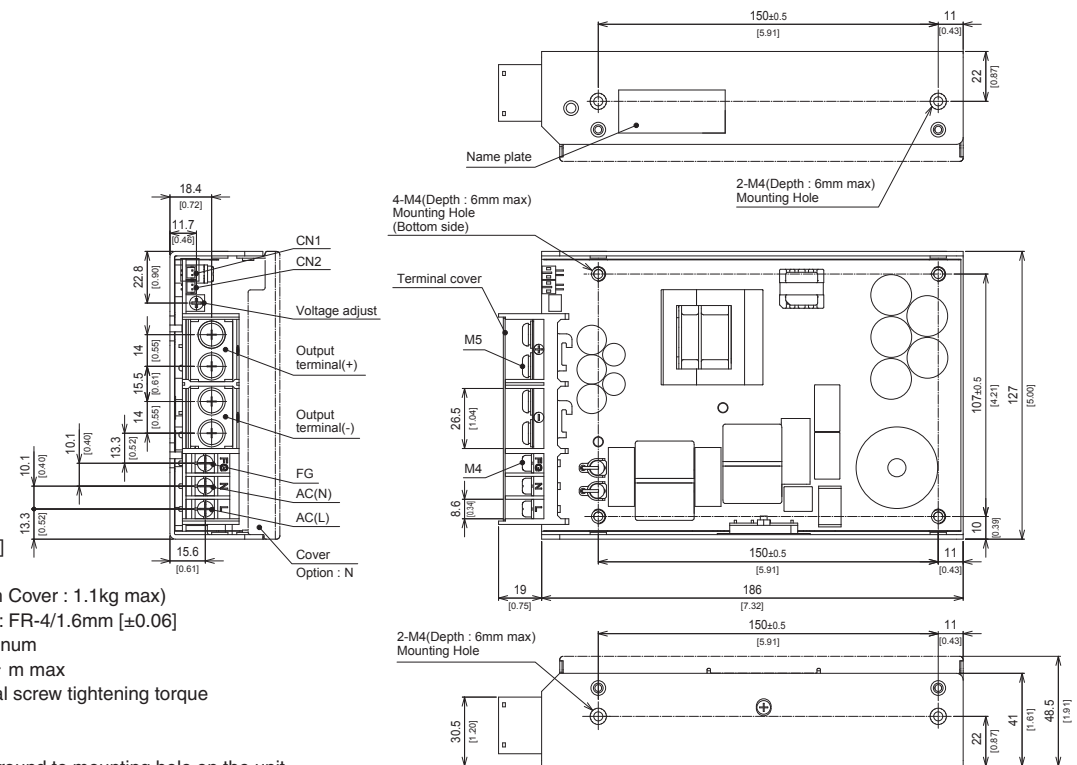
## Features

- High power & peak power
- High efficiency : 94% typ (Input Voltage 230V, Output Voltage 24V)
- Low profile (41mm, 1.61 inch = meet to 1U height)
- For medical electric equipment (ANSI/AAMI ES60601, EN60601-1 3rd, IEC60601-1-2 4th Ed.)
- Suitable for BF application (Output-FG : 1MOPP, Input-Output : 2MOPP)
- OVC III (according to EN62477-1)
- Complies with SEMI F47 (Refer to Instruction Manual)
- With AUX1 (12V 1A), AUX2 (5V 1A) (Optional)

## Block diagram



## External view



- \* Dimensions in mm [inch]
- \* Tolerance :  $\pm 1$  [ $\pm 0.04$ ]
- \* Weight : 1.0kg max (with Cover : 1.1kg max)
- \* PCB Material/thickness : FR-4/1.6mm [ $\pm 0.06$ ]
- \* Chassis Material : Aluminum
- \* Mounting torque : 1.2N · m max
- \* Input and output terminal screw tightening torque  
M4 1.6N · m max  
M5 2.5N · m max
- \* Please connect safety ground to mounting hole on the unit.

## AEA1000F

AE

A

1000

F

-□□

-□

①

②

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④

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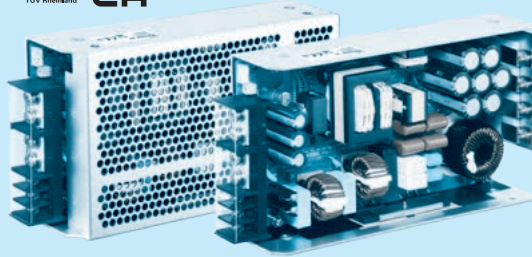
⑥



RoHS



2MOPP

Example recommended EMI/EMC filter  
NAC-30-472

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

\*Use of an EMI/EMC filter is recommended when a power supply is connected with several devices so that additional filtering is necessary.

\*Make sure that your final application will meet the required EMC standard by measuring the EMI level of the power supply used together with an EMI/EMC filter.

- ① Series name  
② Single output  
③ Output wattage  
④ Universal input  
⑤ Output voltage  
⑥ Optional \*1
- C : with Coating  
N : with cover  
T : Vertical terminal block  
J : Connector type  
R3 : with Subfeatures  
(5V1A AUX, 12V1A AUX Remote ON/OFF, Alarm)  
T5 : UL508  
P5 : shutdown type  
overcurrent protection
- For option details, refer to instruction manual 6.1.

Please refer to derating curve, because the rated load current depends on cooling method that is convection cooling or forced air.

\*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                  | AEA1000F-24                                                           | AEA1000F-36                                      | AEA1000F-48                                      |
|------------------------|-----------------------------------------------------------------------|--------------------------------------------------|--------------------------------------------------|
| MAX OUTPUT WATTAGE[W]  | 1,008                                                                 | 1,008                                            | 1,008                                            |
| DC OUTPUT (forced air) | ACIN 100V 24V 31.5 (Peak 75.0) A<br>ACIN 230V 24V 42.0 (Peak 100.0) A | 36V 21.0 (Peak 50.0) A<br>36V 28.0 (Peak 66.7) A | 48V 15.8 (Peak 37.5) A<br>48V 21.0 (Peak 50.0) A |

## SPECIFICATIONS

|                               | MODEL                                | AEA1000F-24                                                                                                                                                                                             | AEA1000F-36                                                | AEA1000F-48                                                |
|-------------------------------|--------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------|------------------------------------------------------------|
| INPUT                         | VOLTAGE[V]                           | AC85 - 264 1 φ (Output derating is required at AC85V - 170V. See "Derating")                                                                                                                            |                                                            |                                                            |
|                               | CURRENT[A]                           | ACIN 100V 8.4typ (Io=31.5A)                                                                                                                                                                             | 8.4typ (Io=21.0A)                                          | 8.4typ (Io=15.8A)                                          |
|                               |                                      | ACIN 230V 4.9typ (Io=42.0A)                                                                                                                                                                             | 4.9typ (Io=28.0A)                                          | 4.9typ (Io=21.0A)                                          |
|                               | FREQUENCY[Hz]                        | 50/60 (45 - 66)                                                                                                                                                                                         |                                                            |                                                            |
|                               | EFFICIENCY[%]                        | ACIN 100V 92.0typ (Io=31.5A)                                                                                                                                                                            | 92.0typ (Io=21.0A)                                         | 92.0typ (Io=15.8A)                                         |
|                               |                                      | ACIN 230V 95.0typ (Io=42.0A)                                                                                                                                                                            | 95.0typ (Io=28.0A)                                         | 95.0typ (Io=21.0A)                                         |
|                               | POWER FACTOR                         | ACIN 100V 0.98typ (Io=31.5A)                                                                                                                                                                            | 0.98typ (Io=21.0A)                                         | 0.98typ (Io=15.8A)                                         |
|                               |                                      | ACIN 230V 0.95typ (Io=42.0A)                                                                                                                                                                            | 0.95typ (Io=28.0A)                                         | 0.95typ (Io=21.0A)                                         |
| OUTPUT                        | INRUSH CURRENT[A] *2                 | ACIN 100V 20/40typ (Io=31.5A)                                                                                                                                                                           | 20/40typ (Io=21.0A)                                        | 20/40typ (Io=15.8A)                                        |
|                               |                                      | ACIN 230V 40/40typ (Io=42.0A)                                                                                                                                                                           | 40/40typ (Io=28.0A)                                        | 40/40typ (Io=21.0A)                                        |
|                               | LEAKAGE CURRENT[mA]                  | 0.3max (ACIN 240V 60Hz, Io=100%, According to IEC60601-1)                                                                                                                                               |                                                            |                                                            |
|                               | VOLTAGE[V]                           | 24                                                                                                                                                                                                      | 36                                                         | 48                                                         |
|                               | CURRENT[A]                           | ACIN 100V 22.5 (Peak 75.0) convection<br>31.5 (Peak 75.0) forced air                                                                                                                                    | 15.0 (Peak 50.0) convection<br>21.0 (Peak 50.0) forced air | 11.3 (Peak 37.5) convection<br>15.8 (Peak 37.5) forced air |
|                               |                                      | ACIN 230V 30.0 (Peak 100.0) convection<br>42.0 (Peak 100.0) forced air                                                                                                                                  | 20.0 (Peak 66.7) convection<br>28.0 (Peak 66.7) forced air | 15.0 (Peak 50.0) convection<br>21.0 (Peak 50.0) forced air |
|                               | LINE REGULATION[mV]                  | 96max                                                                                                                                                                                                   | 144max                                                     | 192max                                                     |
|                               | LOAD REGULATION[mV]                  | 150max                                                                                                                                                                                                  | 240max                                                     | 300max                                                     |
|                               | RIPPLE[mVp-p] *3                     | 0 to +50°C 150max                                                                                                                                                                                       | 230max                                                     | 300max                                                     |
|                               |                                      | -20 to 0°C 230max                                                                                                                                                                                       | 350max                                                     | 450max                                                     |
|                               |                                      | Io=0 to 30% 500max                                                                                                                                                                                      | 550max                                                     | 600max                                                     |
|                               | RIPPLE NOISE[mVp-p] *3               | 0 to +50°C 300max                                                                                                                                                                                       | 350max                                                     | 400max                                                     |
|                               |                                      | -20 to 0°C 450max                                                                                                                                                                                       | 530max                                                     | 600max                                                     |
|                               |                                      | Io=0 to 30% 700max                                                                                                                                                                                      | 750max                                                     | 800max                                                     |
|                               | TEMPERATURE REGULATION[mV]           | 0 to +50°C 240max                                                                                                                                                                                       | 360max                                                     | 480max                                                     |
|                               | DRIFT[mV]                            | *4 96max                                                                                                                                                                                                | 144max                                                     | 192max                                                     |
| PROTECTION CIRCUIT AND OTHERS | START-UP[ms]                         | 750typ                                                                                                                                                                                                  |                                                            |                                                            |
|                               | HOLD-UP[ms]                          | 20typ (ACIN 230V, Io=100%)                                                                                                                                                                              |                                                            |                                                            |
|                               | OUTPUT VOLTAGE ADJUSTMENT RANGE[V]   | 22.8 to 26.4                                                                                                                                                                                            | 34.2 to 39.6                                               | 45.6 to 52.8                                               |
|                               | OUTPUT VOLTAGE SETTING[V]            | 23.5 to 24.5                                                                                                                                                                                            | 35.0 to 37.0                                               | 47.0 to 49.0                                               |
|                               | OVERCURRENT PROTECTION               | Works over 101% of peak current and recovers automatically *5                                                                                                                                           |                                                            |                                                            |
|                               | OVERVOLTAGE PROTECTION[V]            | 30 to 33.6                                                                                                                                                                                              | 45 to 50.4                                                 | 60 to 69.6                                                 |
|                               | ALARM                                | Optional (Input voltage alarm : PR, Output voltage alarm : PG)                                                                                                                                          |                                                            |                                                            |
| ISOLATION                     | REMOTE ON/OFF                        | Optional                                                                                                                                                                                                |                                                            |                                                            |
|                               | AUX1                                 | Optional (12V1A)                                                                                                                                                                                        |                                                            |                                                            |
|                               | AUX2                                 | Optional (5V1A)                                                                                                                                                                                         |                                                            |                                                            |
|                               | INPUT-OUTPUT · PR · PG · RC · AUX *6 | AC4,000V 1minute, Cutoff current = 10mA, DC500V 50MΩ min (At Room Temperature) 2MOPP                                                                                                                    |                                                            |                                                            |
| ENVIRONMENT                   | INPUT-FG                             | AC2,000V 1minute, Cutoff current = 10mA, DC500V 50MΩ min (At Room Temperature) 1MOPP                                                                                                                    |                                                            |                                                            |
|                               | OUTPUT · PR · PG · RC · AUX-FG *6    | AC1,500V 1minute, Cutoff current = 10mA, DC500V 50MΩ min (At Room Temperature) 1MOPP                                                                                                                    |                                                            |                                                            |
|                               | OUTPUT · AUX1-PR · PG · RC · AUX2 *6 | AC100V 1minute, Cutoff current = 25mA, DC100V 10MΩ min (At Room Temperature)                                                                                                                            |                                                            |                                                            |
| SAFETY AND NOISE REGULATIONS  | OPERATING TEMP, HUMID. AND ALTITUDE  | -20 to +70°C, 20 - 90%RH (Non condensing), 5,000m (16,500feet) max                                                                                                                                      |                                                            |                                                            |
|                               | STORAGE TEMP, HUMID. AND ALTITUDE    | -20 to +75°C, 20 - 90%RH (Non condensing), 9,000m (30,000feet) max                                                                                                                                      |                                                            |                                                            |
|                               | VIBRATION                            | 10 - 55Hz, 19.6m/s <sup>2</sup> (2G), 3minutes period, 60minutes each along X, Y and Z axis                                                                                                             |                                                            |                                                            |
| OTHERS                        | IMPACT                               | 196.1m/s <sup>2</sup> (20G), 11ms, once each X, Y and Z axis                                                                                                                                            |                                                            |                                                            |
|                               | AGENCY APPROVALS                     | UL62368-1, ANSI/AAMI ES 60601-1, C-UL (equivalent to CAN/CSA-C22.2 No.62368-1, CAN/CSA-C22.2 No.60601-1) EN62368-1, EN60601-1 3rd EN62477-1 (OVCI) UL508 (Optional), Complies with IEC60601-1-2 4th Ed. |                                                            |                                                            |
|                               | CONDUCTED NOISE                      | Complies with FCC Part15 classB, VCCI-B, CISPR32-B, EN55011-B, EN55032-B                                                                                                                                |                                                            |                                                            |
| OTHERS                        | HARMONIC ATTENUATOR *7               | Complies with IEC61000-3-2 (Class A)                                                                                                                                                                    |                                                            |                                                            |
|                               | CASE SIZE/WEIGHT                     | 50x127x228.6mm [1.97x5x9 inches] (WxHxD) without terminal block /1.5kg max                                                                                                                              |                                                            |                                                            |
|                               | COOLING METHOD                       | Convection/Forced air                                                                                                                                                                                   |                                                            |                                                            |

\*1 The listed options may affect the published standard specifications.

Please contact us for detailed product specification

\*2 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 KEISO KUGIKEN:RM104). Please refer to the instruction manual 1.8.

Ripple and ripple noise spec is change at Io=0 to 30% by burst operation.

\*4 Drift is the change in DC output for an eight hours period after a half-hour warm-up at 25°C.

\*5 The output is shut down when the overcurrent protection continues.

\*6 Applicable when AUX and remote control (optional) is added.

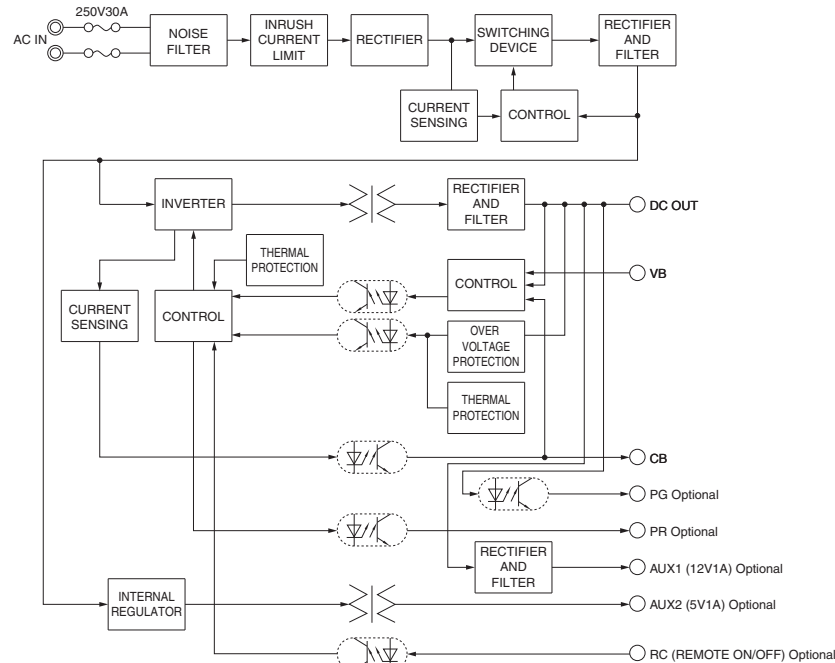
\*7 Please contact us about another class.

\*Sound noise may be generated by power supply in case of pulse load.

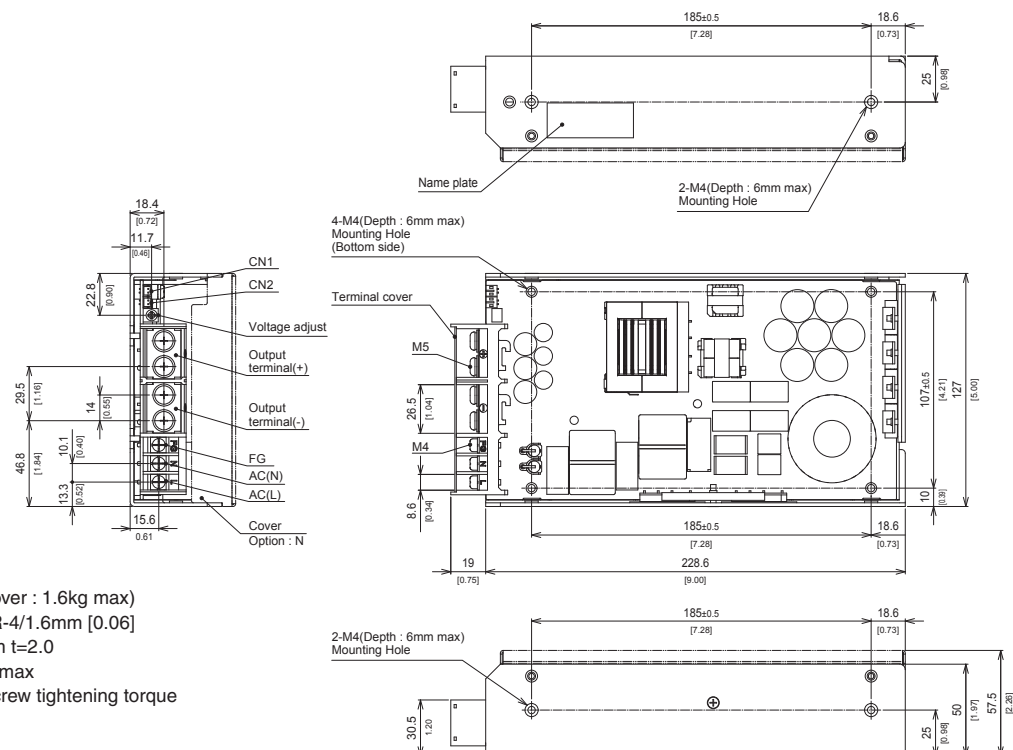
## Features

- High power & peak power
- High efficiency : 95% typ (Input Voltage 230V, Output Voltage 24V)
- Low profile (50mm, 1.97inch)
- For medical electric equipment (ANSI/AAMI ES60601, EN60601-1 3rd, IEC60601-1-2 4th Ed.)
- Suitable for BF application (Output-FG : 1MOPP, Input-Output : 2MOPP)
- OVC III (according to EN62477-1)
- Complies with SEMI F47 (Refer to Instruction Manual)
- With AUX1 (12V 1A), AUX2 (5V 1A) (Optional)

## Block diagram

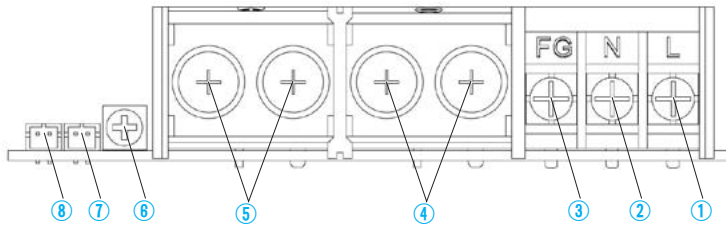


## External view

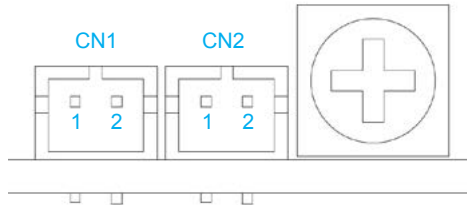


- \* Dimensions in mm [inch]
- \* Tolerance :  $\pm 1$  [ $\pm 0.04$ ]
- \* Weight : 1.5kg max (with Cover : 1.6kg max)
- \* PCB Material/thickness : FR-4/1.6mm [0.06]
- \* Chassis Material : Aluminum  $t=2.0$
- \* Mounting torque : 1.2N · m max
- \* Input and output terminal screw tightening torque  
M4 1.6N · m max  
M5 2.5N · m max
- \* Please connect safety ground to FG terminal on the unit.

## Terminal Blocks



- ① AC (L) (M4)
- ② AC (N) (M4)
- ③ Frame ground (M4)
- ④ - Output (M5)
- ⑤ + Output (M5)
- ⑥ Output voltage adjustable potentiometer
- ⑦ CN2 connector
- ⑧ CN1 connector



Pin Configuration and Functions of CN1, CN2

| Pin No. | Function           |
|---------|--------------------|
| 1       | VB Voltage Balance |
| 2       | CB Current Balance |

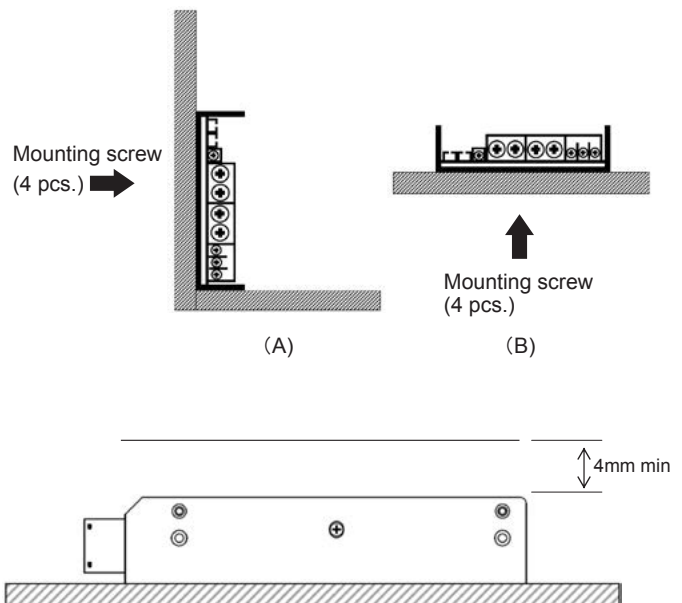
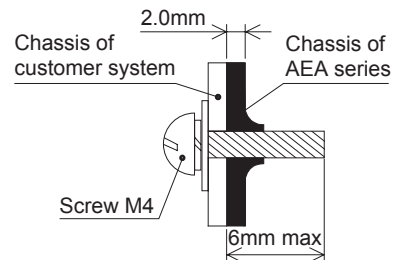
Matching connectors and terminals

| Connector | Housing    | Terminal | Mfr                                             |
|-----------|------------|----------|-------------------------------------------------|
| CN1       | S2B-PH-K-S | PHR-2    | Real : SPH-002T-P0.5S<br>Loose : BPH-002T-P0.5S |
| CN2       |            |          | J.S.T.                                          |

## Assembling and Installation Method

### Installation method

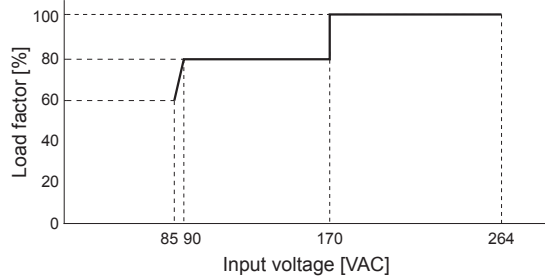
- The screw should be inserted up to 6mm max from outside of the power supply to keep a distance between inside parts and an isolation.
- When two or more power supplies are used side by side, position them with proper intervals to allow enough air ventilation. Ambient temperature around each power supply should not exceed the temperature range shown in "derating".
- Fix firmly, considering weight, though it can be used by the installation method shown in right figure.



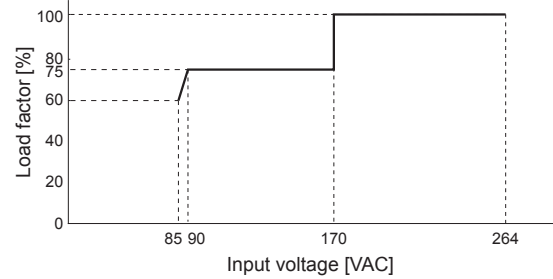
- If mounting on a metal chassis, keep at least 4 mm between the top of the power supply and the chassis for insulation between the components and the chassis. If the distance between the top of the power supply and the chassis is less than 4mm, insert an insulating sheet with reinforced insulation between the power supply unit and metal chassis. The following distance is not satisfactory for cooling condition. Please refer to "Derating" for cooling method.

## Derating

### ● AEA600F Derating curve depends on Input voltage



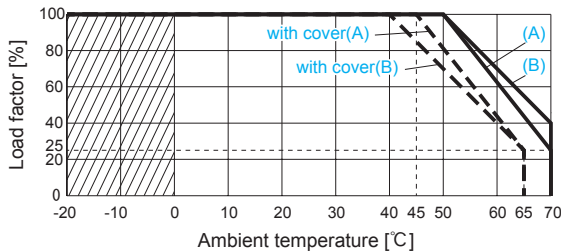
### ● AEA1000F Derating curve depends on Input voltage



### ● AEA600F Ambient temperature Derating Curve (convection cooling)

100% Load factor in each derating curve means the rated current (convection cooling) in Specifications.

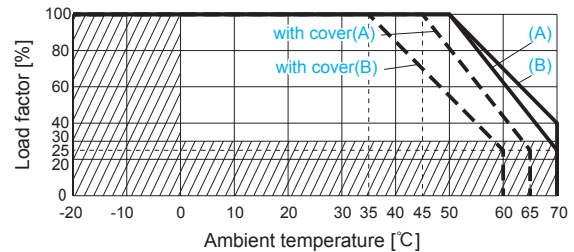
In the hatched area, the specification of Ripple and Ripple Noise are different from other area.



### ● AEA1000F Ambient temperature Derating Curve (convection cooling)

100% Load factor in each derating curve means the rated current (convection cooling) in Specifications.

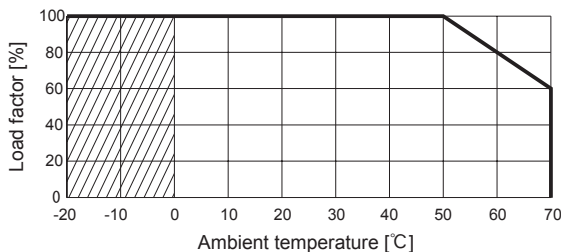
In the hatched area, the specification of Ripple and Ripple Noise are different from other area.



### ● AEA600F Ambient temperature Derating Curve (forced air cooling)

100% Load factor in each derating curve means the rated current (forced air cooling) in Specifications.

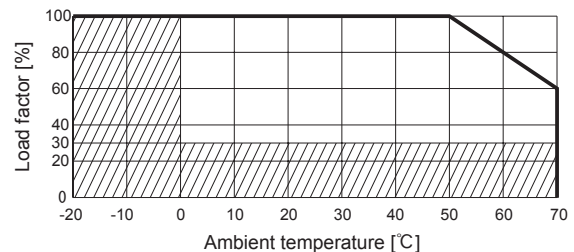
In the hatched area, the specification of Ripple and Ripple Noise are different from other area.



### ● AEA1000F Ambient temperature Derating Curve (forced air cooling)

100% Load factor in each derating curve means the rated current (forced air cooling) in Specifications.

In the hatched area, the specification of Ripple and Ripple Noise are different from other area.



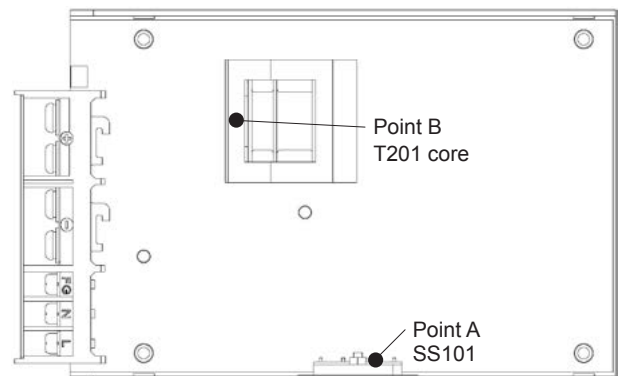
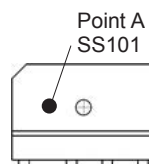
#### ■ Forced air cooling

##### · AEA600F

① Please satisfy the below temperature at Point A and Point B under the forced air cooling. The Point A/B position is shown in the next figure.

- Point A 90°C or less and Point B 80°C or less at Ta = 50°C
- Point A 110°C or less and Point B 100°C or less at Ta = 70°C

② The forced air should be given to whole of the product.



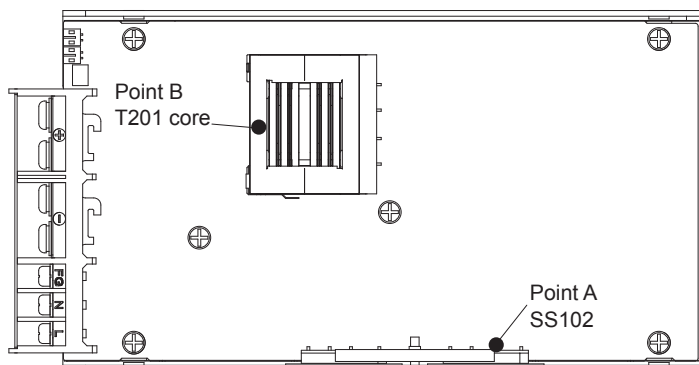
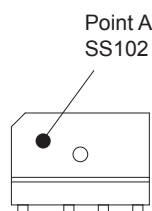
## Derating

- AEA1000F

① Please satisfy the below temperature at Point A and Point B under the forced air cooling. The Point A/B position is shown in the next figure.

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- Point A 110°C or less and Point B 100°C or less at Ta = 70°C

② The forced air should be given to whole of the product.



## Instruction Manual

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

Instruction Manual <https://www.cosel.co.jp/redirect/catalog/en/AEA/>  
 Before using our product <https://en.cosel.co.jp/technical/caution/index.html>

AEA



NOTICE



## Basic Characteristics Data

| Model    | Circuit method          | Switching frequency [kHz] | Input current [A] *1 | Inrush current protection | PCB/Pattern |              |              | Series/Parallel operation availability |                    |
|----------|-------------------------|---------------------------|----------------------|---------------------------|-------------|--------------|--------------|----------------------------------------|--------------------|
|          |                         |                           |                      |                           | Material    | Single sided | Double sided | Series operation                       | Parallel operation |
| AEA600F  | Active filter           | 65                        | 5.7 (Peak 11.1)      | Relay                     | FR-4        | -            | Yes          | Yes                                    | Yes                |
|          | LLC resonant converters | 70 - 200                  |                      |                           |             |              |              |                                        |                    |
| AEA1000F | Active filter           | 65                        | 8.4 (Peak 20.6)      | Relay                     | FR-4        | -            | Yes          | Yes                                    | Yes                |
|          | LLC resonant converters | 70 - 200                  |                      |                           |             |              |              |                                        |                    |

\*1 The value of input current is at ACIN 100V and rated load (peak).