

## ACE series

AC  -      -   -

① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩

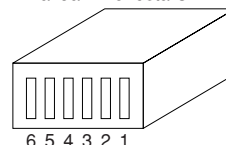


Recommended EMI/EMC Filter  
 ACE300F NAC-06-472  
 ACE450F NAC-10-472  
 ACE650F NAC-20-472  
 ACE900F NAC-20-472



High voltage pulse noise type : NAP series  
 Low leakage current type : NAM series  
 \*The EMI/EMC Filter is recommended to connect with several devices.

- ① Abbreviation type name of ACE series
- ② Abbreviation power of ACE series  
 3 : ACE300F  
 4 : ACE450F  
 6 : ACE650F  
 9 : ACE900F
- ③ Slot 6 Output module
- ④ Slot 5 Output module
- ⑤ Slot 4 Output module
- ⑥ Slot 3 Output module
- ⑦ Slot 2 Output module
- ⑧ Slot 1 Output module
- ⑨ Parallel code
- ⑩ Option (series code) \*8  
 Refer to instruction manual 5.1  
 Safety : UL60601-1, EN60601-1  
 Refer to instruction manual 7. for details.



Slot

\*The number of slot is different depending on the model.

\*Empty slot is code:0

## SPECIFICATIONS

|                             | MODEL                                   | ACE300F                                                                                                                                                              | ACE450F                                     | ACE650F                                        | ACE900F                                          |
|-----------------------------|-----------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------|------------------------------------------------|--------------------------------------------------|
| INPUT                       | VOLTAGE[V]                              | AC85 - 264 1 $\phi$ / DC120 - 350 (option=-U AC70 or DC100 - refer to instruction manual 5)                                                                          |                                             |                                                |                                                  |
|                             | FREQUENCY[Hz]                           | 47 - 63                                                                                                                                                              |                                             |                                                |                                                  |
|                             | CURRENT[A]                              | AC100V *1                                                                                                                                                            | 3.7typ                                      | 5.7typ                                         | 8.0typ                                           |
|                             |                                         | AC200V *1                                                                                                                                                            | 2.0typ                                      | 3.1typ                                         | 4.2typ                                           |
|                             | POWER FACTOR                            | AC100V *1                                                                                                                                                            | 0.99typ                                     |                                                |                                                  |
|                             |                                         | AC200V *1                                                                                                                                                            | 0.95typ                                     |                                                |                                                  |
|                             | INRUSH CURRENT [A]                      | AC100V *2                                                                                                                                                            | 15 / 30typ *7                               |                                                | 15 / 50typ *7                                    |
|                             |                                         | AC200V *2                                                                                                                                                            | 30 / 30typ *7                               |                                                | 30 / 50typ *7                                    |
|                             | EFFICIENCY[%]                           | AC100V *1                                                                                                                                                            | 74typ                                       | 75typ                                          | 77typ                                            |
|                             |                                         | AC200V *1                                                                                                                                                            | 78typ                                       | 78typ                                          | 80typ                                            |
| OUTPUT                      | LEAKAGE CURRENT[ma]                     | AC100V *3                                                                                                                                                            | 0.5max                                      |                                                |                                                  |
|                             |                                         | AC230V *3                                                                                                                                                            | 0.95max                                     |                                                |                                                  |
|                             | NUMBER OF SLOT                          | 4                                                                                                                                                                    | 5                                           | 5                                              | 6                                                |
|                             | TOTAL OUTPUT[W]                         | AC90 - 150V *4                                                                                                                                                       | 250                                         | 400                                            | 600                                              |
|                             |                                         | AC170 - 264V *4                                                                                                                                                      | 300                                         | 450                                            | 650                                              |
|                             | START-UP TIME[ms]                       | 500max (ACIN100V, Io=100%)                                                                                                                                           |                                             |                                                |                                                  |
|                             | HOLD-UP TIME[ms] *1                     | 20typ (ACIN100V, Io=100%)                                                                                                                                            |                                             |                                                |                                                  |
|                             | AUXILIARY POWER (AUX)                   | 12V 0.1A (Only for Remote ON/OFF) (option=-J 5V0.1A)                                                                                                                 |                                             |                                                |                                                  |
|                             | ALARM (PR)                              | FAN alarm, LINE alarm                                                                                                                                                |                                             |                                                |                                                  |
|                             | INPUT-OUTPUT, RC, AUX                   | AC3,000V 1minute, Cutoff current=10mA, DC500V 50M $\Omega$ min (At Room Temperature)                                                                                 |                                             |                                                |                                                  |
| ISOLATION                   | INPUT-FG                                | AC2,000V 1minute, Cutoff current=10mA, DC500V 50M $\Omega$ min (At Room Temperature)                                                                                 |                                             |                                                |                                                  |
|                             | OUTPUT, RC, AUX(PR)-FG *5               | AC500V 1minute, Cutoff current=100mA, DC500V 50M $\Omega$ min (At Room Temperature)                                                                                  |                                             |                                                |                                                  |
|                             | OPERATING TEMP., HUMID. AND ALTITUDE *4 | -20 to +70°C, 20 - 90%RH (Non condensing) 3,000m (10,000feet) max                                                                                                    |                                             |                                                |                                                  |
| ENVIRONMENT                 | STORAGE TEMP., HUMID. AND ALTITUDE      | -20 to +75°C, 20 - 90%RH (Non condensing) 9,000m (30,000feet) max                                                                                                    |                                             |                                                |                                                  |
|                             | VIBRATION                               | 19.6m/s <sup>2</sup> (2G), 10 - 55Hz, 3minutes period, 60minutes each along X, Y and Z axis                                                                          |                                             |                                                |                                                  |
|                             | IMPACT                                  | 196.1m/s <sup>2</sup> (20G), 11ms, once each X, Y and Z axis                                                                                                         |                                             |                                                |                                                  |
| SAFTY AND NOISE REGULATIONS | AGENCY APPROVALS                        | UL60950-1, C-UL (CSA60950-1), EN60950-1, EN50178, Complies with DEN-AN (At only AC input)<br>UL60601-1, EN60601-1 (At only AC input) (Refer to instruction manual 7) |                                             |                                                |                                                  |
|                             | CONDUCTED NOISE                         | Complies with FCC-B, VCCI-B, CISPR22-B and EN55022-B                                                                                                                 |                                             |                                                |                                                  |
|                             | HARMONIC ATTENUATOR                     | Complies with IEC61000-3-2 *9                                                                                                                                        |                                             |                                                |                                                  |
| OTHERS                      | CASE SIZE *6                            | 103×63.5×254mm (W×H×D)<br>[4.06×2.5×10 inches]                                                                                                                       | 127×63.5×254mm (W×H×D)<br>[5×2.5×10 inches] | 127×63.5×279mm (W×H×D)<br>[5×2.5×10.98 inches] | 177.5×63.5×254mm (W×H×D)<br>[6.99×2.5×10 inches] |
|                             | WEIGHT[kg]                              | 1.7max                                                                                                                                                               | 2.2max                                      | 2.4max                                         | 3.0max                                           |
|                             | COOLING METHOD                          | Forced cooling (built-in)                                                                                                                                            |                                             |                                                |                                                  |

\*1 In case of modular power supply, the value changes by composing and load factor of installed output modules. The values in specifications mean each the model are composed of voluntary modules that are 5V (code : C), 12V (code : E), 24V (code : H) and the output power is total

output wattage under the prescribed conditions.  
 \*2 More than 3sec. to restart. Io=100%  
 \*3 Complies with IEC60950 and DEN-AN 60Hz and 100% load.  
 \*4 Refer to instruction manual 4.2 Derating in detail.  
 \*5 Each output module, RC and AUX are isolated.

\*6 Case size contains neither the terminal blocks, screw nor.  
 \*7 Primary inrush current / Secondary inrush current.  
 \*8 Please contact us about safety approvals for the model with option.  
 \*9 Please contact us about class C.  
 \* A sound may occur from power supply at pulse loading.

## Output module specifications

|                                    |              | 150W suitable single output                                                         |           |                                      |           |           |           |           |           |           |           | 50W suitable single output |           |                                                |           |           | 75W dual output |           |           |           |            |           |
|------------------------------------|--------------|-------------------------------------------------------------------------------------|-----------|--------------------------------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|----------------------------|-----------|------------------------------------------------|-----------|-----------|-----------------|-----------|-----------|-----------|------------|-----------|
| ITEM                               | CODE         | A                                                                                   | B         | C                                    | D         | E         | F         | G         | H         | J         | K         | L                          | M         | N                                              | P         | R         | Y*7             | W*7       | Z*7       | 9*7       |            |           |
| Number of slots used               |              | 1                                                                                   | 1         | 1                                    | 1         | 1         | 1         | 1         | 1         | 1         | 1         | 1                          | 1         | 1                                              | 1         | 1         | 1               | 1         | 1         | 1         |            |           |
| VOLTAGE[V]                         |              | +2                                                                                  | +3.3      | +5                                   | +7.5      | +12       | +15       | +18       | +24       | +34       | +48       | +3.3                       | +5        | +12                                            | +15       | +24       | ±5              | ±12       | ±15       | ±24       |            |           |
| MINIMUM CURRENT[A]                 |              | 0                                                                                   | 0         | 0                                    | 0         | 0         | 0         | 0         | 0         | 0         | 0         | 0                          | 0         | 0                                              | 0         | 0         | 0               | 0         | 0         | 0         |            |           |
| CURRENT1[A]                        |              | 26                                                                                  | 26        | 26                                   | 18        | 13        | 10        | 8.5       | 6.5       | 4.5       | 3.2       | 10                         | 10        | 5                                              | 4         | 2.5       | 3               | 3.2       | 2.5       | 1.6       |            |           |
| CURRENT2[A]                        |              | —                                                                                   | —         | —                                    | —         | —         | —         | —         | —         | —         | —         | —                          | —         | —                                              | —         | —         | 7               | 4.2       | 3.5       | 2.5       |            |           |
| PEAK CURRENT[A]                    |              | *1                                                                                  | —         | —                                    | —         | 14        | 12        | 10        | 8         | 5.5       | 4         | —                          | —         | —                                              | —         | —         | —               | 5         | 4         | —         |            |           |
| LINE REGULATION[mV]max             |              | 20                                                                                  | 20        | 20                                   | 36        | 48        | 60        | 72        | 96        | 120       | 192       | 20                         | 20        | 48                                             | 60        | 96        | 20              | 48        | 60        | 60        |            |           |
| LOAD REGULATION1[mV]max*5          |              | 40                                                                                  | 40        | 40                                   | 100       | 100       | 120       | 120       | 150       | 180       | 300       | 40                         | 40        | 100                                            | 120       | 150       | 250             | 600       | 600       | 600       |            |           |
| LOAD REGULATION2[mV]max*6          |              | —                                                                                   | —         | —                                    | —         | —         | —         | —         | —         | —         | —         | —                          | —         | —                                              | —         | —         | 500             | 750       | 750       | 750       |            |           |
| RIPPLE<br>[mVp-p]max               | 0 to +50℃ *2 | 80                                                                                  | 80        | 80                                   | 120       | 120       | 120       | 120       | 120       | 120       | 150       | 80                         | 80        | 120                                            | 120       | 120       | 80              | 120       | 120       | 120       |            |           |
|                                    | -20 to 0℃ *2 | 140                                                                                 | 140       | 140                                  | 160       | 160       | 160       | 160       | 160       | 160       | 300       | 140                        | 140       | 160                                            | 160       | 160       | 140             | 160       | 160       | 160       |            |           |
| RIPPLE NOISE<br>[mVp-p]max         | 0 to +50℃ *2 | 120                                                                                 | 120       | 120                                  | 150       | 150       | 150       | 150       | 150       | 150       | 350       | 120                        | 120       | 150                                            | 150       | 150       | 120             | 150       | 150       | 150       |            |           |
|                                    | -20 to 0℃ *2 | 160                                                                                 | 160       | 160                                  | 180       | 180       | 180       | 180       | 180       | 180       | 400       | 160                        | 160       | 180                                            | 180       | 180       | 160             | 180       | 180       | 180       |            |           |
| TEMPERATURE<br>COEFFICIENT(mV)max  |              | 0 to +50℃                                                                           | 50        | 50                                   | 50        | 90        | 120       | 150       | 180       | 240       | 300       | 480                        | 50        | 50                                             | 120       | 150       | 240             | 50        | 120       | 150       | 150        |           |
| DRIFT[mV]max                       |              | *3                                                                                  | 20        | 20                                   | 20        | 36        | 48        | 60        | 72        | 96        | 120       | 192                        | 20        | 20                                             | 48        | 60        | 96              | 20        | 48        | 60        | 60         |           |
| OUTPUT VOLTAGE SETTING[V]          |              | 2.00-2.20                                                                           | 3.25-3.45 | 4.99-5.30                            | 7.20-7.80 | 11.5-12.5 | 14.4-15.6 | 17.3-18.7 | 23.0-25.0 | 33.0-35.0 | 46.0-50.0 | 3.25-3.45                  | 4.99-5.30 | 11.5-12.5                                      | 14.4-15.6 | 23.0-25.0 | 4.99-5.30       | 11.5-12.5 | 14.4-15.6 | 23.0-25.0 |            |           |
| OUTPUT VOLTAGE ADJUSTMENT RANGE[V] |              | *4                                                                                  | 1.60-2.60 | 2.60-3.60                            | 4.00-5.50 | 6.00-8.20 | 9.00-13.2 | 13.2-16.5 | 16.5-19.2 | 19.2-26.4 | 27.2-37.4 | 38.4-52.8                  | 2.60-3.60 | 4.00-5.50                                      | 9.00-13.2 | 13.2-16.5 | 19.2-26.4       | 4.99-6.00 | 9.60-13.2 | 13.2-16.5 | 19.2-26.4  |           |
| OVERCURRENT PROTECTION[A]          |              | Works over 105%min of rated current or 101%min of peak current. Automatic recovery. |           |                                      |           |           |           |           |           |           |           |                            |           |                                                |           |           |                 |           |           |           |            |           |
| OVERVOLTAGE PROTECTION[V]          |              | 3.00-4.80                                                                           | 4.00-5.25 | Works at 115 - 140% of rated voltage |           |           |           |           |           |           |           |                            |           | 4.00-5.25 Works at 115 - 140% of rated voltage |           |           |                 |           | 6.90-8.40 | 13.8-16.8 | 17.25-21.0 | 27.6-33.6 |
| FUNCTION                           |              | Remotesensing, remote ON/OFF, alarm (LV)                                            |           |                                      |           |           |           |           |           |           |           | Remote ON/OFF, alarm (LV)  |           |                                                |           |           |                 |           |           |           |            |           |

|                                    |              | 300W suitable single output                                                         |           |                                      |           |           |           |           |           |           |           | 100W insulation dual output |           |           |           |           |           | 150W dual output |           | ★                                                    |
|------------------------------------|--------------|-------------------------------------------------------------------------------------|-----------|--------------------------------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------------------------|-----------|-----------|-----------|-----------|-----------|------------------|-----------|------------------------------------------------------|
| ITEM                               | CODE         | 2A                                                                                  | 2B        | 2C                                   | 2D        | 2E        | 2F        | 2G        | 2H        | 2J        | 2K        | S*8                         |           | T*8       |           | U*8       |           | Q*7              | V*7       | I                                                    |
| Number of slots used               |              | 2                                                                                   | 2         | 2                                    | 2         | 2         | 2         | 2         | 2         | 2         | 2         | 1                           |           | 1         |           | 1         |           | 1                | 1         | 1                                                    |
| VOLTAGE[V]                         |              | +2                                                                                  | +3.3      | +5                                   | +7.5      | +12       | +15       | +18       | +24       | +34       | +48       | V1:+5                       | V2:+5     | V1:+5     | V2:+12    | V1:+5     | V2:+24    | ±12              | ±15       | Input module<br>Refer to instruction manual 6 Input. |
| MINIMUM CURRENT[A]                 |              | 0                                                                                   | 0         | 0                                    | 0         | 0         | 0         | 0         | 0         | 0         | 0         | 0                           | 0         | 0         | 0         | 0         | 0         | 0                | 0         |                                                      |
| CURRENT1[A]                        |              | 60                                                                                  | 60        | 60                                   | 40        | 25        | 20        | 17        | 14        | 10        | 7         | 10                          | 5         | 10        | 4.2       | 10        | 2.1       | 6.4              | 5.5       |                                                      |
| CURRENT2[A]                        |              | —                                                                                   | —         | —                                    | —         | —         | —         | —         | —         | —         | —         | —                           | —         | —         | —         | —         | —         | 8                | 7         |                                                      |
| PEAK CURRENT[A]                    |              | *1                                                                                  | —         | —                                    | —         | 34        | 27        | 23        | 20        | 14        | 10        | —                           | —         | —         | —         | —         | —         | 10               | 8         |                                                      |
| LINE REGULATION[mV]max             |              | 20                                                                                  | 20        | 20                                   | 36        | 48        | 60        | 72        | 96        | 120       | 192       | 20                          | 20        | 20        | 48        | 20        | 96        | 48               | 60        |                                                      |
| LOAD REGULATION1[mV]max*5          |              | 40                                                                                  | 40        | 40                                   | 100       | 100       | 120       | 120       | 150       | 180       | 300       | 40                          | 40        | 40        | 100       | 40        | 150       | 600              | 600       |                                                      |
| LOAD REGULATION2[mV]max*6          |              | —                                                                                   | —         | —                                    | —         | —         | —         | —         | —         | —         | —         | —                           | —         | —         | —         | —         | —         | 750              | 750       |                                                      |
| RIPPLE<br>[mVp-p]max               | 0 to +50℃ *2 | 80                                                                                  | 80        | 80                                   | 120       | 120       | 120       | 120       | 120       | 120       | 150       | 80                          | 80        | 80        | 120       | 80        | 120       | 140              | 140       |                                                      |
|                                    | -20 to 0℃ *2 | 140                                                                                 | 140       | 140                                  | 160       | 160       | 160       | 160       | 160       | 160       | 300       | 140                         | 140       | 140       | 160       | 140       | 160       | 200              | 200       |                                                      |
| RIPPLE NOISE<br>[mVp-p]max         | 0 to +50℃ *2 | 120                                                                                 | 120       | 120                                  | 150       | 150       | 150       | 150       | 150       | 150       | 350       | 120                         | 120       | 120       | 150       | 120       | 150       | 230              | 230       |                                                      |
|                                    | -20 to 0℃ *2 | 160                                                                                 | 160       | 160                                  | 180       | 180       | 180       | 180       | 180       | 180       | 400       | 160                         | 160       | 160       | 180       | 160       | 180       | 350              | 350       |                                                      |
| TEMPERATURE<br>COEFFICIENT[mV]max  |              | 0 to +50℃                                                                           | 50        | 50                                   | 50        | 90        | 120       | 150       | 180       | 240       | 300       | 480                         | 50        | 50        | 50        | 120       | 50        | 240              | 120       | 150                                                  |
| DRIFT[mV]max                       |              | *3                                                                                  | 20        | 20                                   | 20        | 36        | 48        | 60        | 72        | 96        | 120       | 192                         | 20        | 20        | 20        | 48        | 20        | 96               | 48        | 60                                                   |
| OUTPUT VOLTAGE SETTING[V]          |              | 2.00-2.20                                                                           | 3.25-3.45 | 4.99-5.30                            | 7.20-7.80 | 11.5-12.5 | 14.4-15.6 | 17.3-18.7 | 23.0-25.0 | 33.0-35.0 | 46.0-50.0 | 4.99-5.30                   | 4.99-5.30 | 4.99-5.30 | 11.5-12.5 | 4.99-5.30 | 23.0-25.0 | 11.5-12.5        | 14.4-15.6 |                                                      |
| OUTPUT VOLTAGE ADJUSTMENT RANGE[V] |              | 1.60-2.60                                                                           | 2.60-3.60 | 4.00-5.50                            | 6.00-8.20 | 9.00-13.2 | 13.2-16.5 | 16.5-19.2 | 19.2-26.4 | 27.2-37.4 | 38.4-52.8 | 4.99-5.50                   | 3.00-5.50 | 4.99-5.50 | 7.50-13.2 | 4.99-5.50 | 15.0-26.4 | 9.60-13.2        | 13.2-16.5 |                                                      |
| OVERCURRENT PROTECTION[A]          |              | Works over 105%min of rated current or 101%min of peak current. Automatic recovery. |           |                                      |           |           |           |           |           |           |           |                             |           |           |           |           |           |                  |           |                                                      |
| OVERVOLTAGE PROTECTION[V]          |              | 3.00-4.80                                                                           | 4.00-5.25 | Works at 115 - 140% of rated voltage |           |           |           |           |           |           |           |                             |           |           |           |           |           |                  |           |                                                      |
| FUNCTION                           |              | Remotesensing, remote ON/OFF, alarm (LV)                                            |           |                                      |           |           |           |           |           |           |           | Remote ON/OFF               |           |           |           |           |           | Same as W,Z      |           | —                                                    |

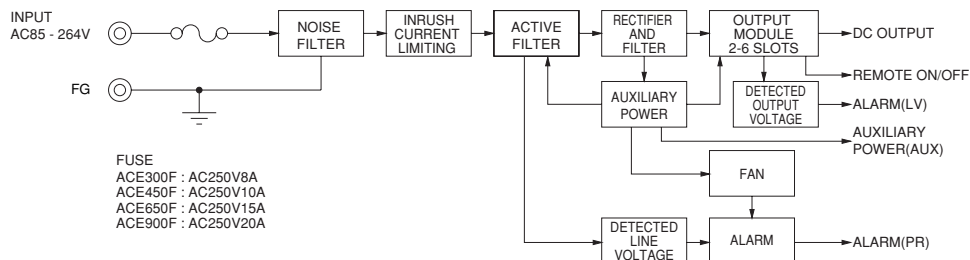
Input module  
Refer to instruction manual 6 Input.

ACE

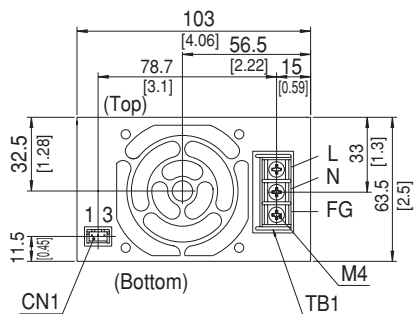
- \*1 Operating condition of peak current : Peak current is less than 10sec., duty is less than 35% and average current is less than rated current. (rated current2 at Module W, Z, 9, Q and V)
- \*2 Measured by 20MHz oscilloscope or Ripple-Noise meter (Equivalent to KEISOKU-GIKEN : RM101). Ripple and Ripple Noise is measured by using measuring board with capacitor of 22 μF within 150mm from output terminal.
- \*3 Drift is changed in DC output for an eight hour period after half-hour warm-up at 25°C, with the input voltage held constant at the rated input/output.
- \*4 When the output voltage of module A is used less than 2.0V, keep minimum output current 2.6A.
- \*5 It is a value from 0 to rated output current1. The current on non-measurement side is fixed.
- \*6 It is a value from 0 to rated output current2. The current on non-measurement side is fixed.
- \*7 The sum of +power and -power must be less than output power(Y:50W, W:76.8W, Z:75W, 9:76.8W, Q:153.6W, V:165W).

- \*8 Ratings of V2 can draw up to 50% of rated current at the time of 0A in load of V1. (Only module S,T,U. refer to instruction manual 4.2 for details.)
- \* Each output of module Y-Z, 9, Q and V is a ground common type (not isolated), each output of module S, T and U is isolated.
- \* For ACE300F, 450F and 650F, input and output terminals can be set at the same side if Input module (code:I) is installed instead of the most left module.
- \* Modules which can correspond to medical electrical equipment (UL2601-1, EN60601-1) are all modules except module S, T and U. Refer to instruction manual 7. for details.

## Block diagram



### ACE300F external view



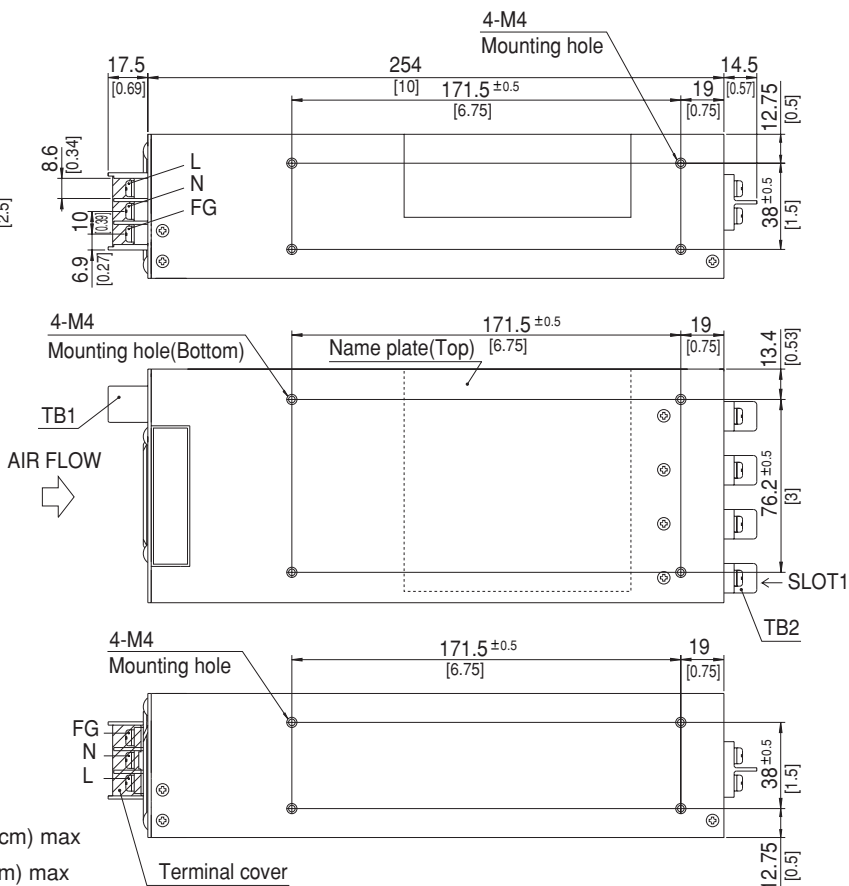
### Pin connection and function of CN1

| Pin No. | Function                                   |
|---------|--------------------------------------------|
| 1       | G : Auxiliary power ground                 |
| 2       | PR : PR alarm                              |
| 3       | AUX : Auxiliary power (only remote ON/OFF) |

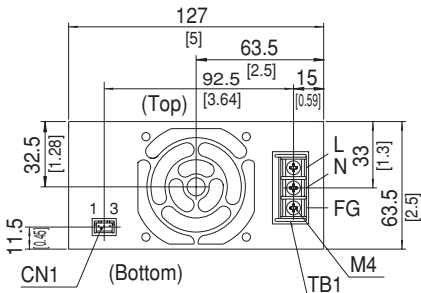
Mating connector and terminal of CN1

| Connector |          | Mating connector | Terminal             | Mfr.   |
|-----------|----------|------------------|----------------------|--------|
| CN1       | S3B-XH-A | XHP-3            | Reel : SXH-001T-P0.6 | J.S.T. |
|           |          |                  | Bulk : BXH-001T-P0.6 |        |

- ※ Tolerance :  $\pm 1$  [ $\pm 0.04$ ]
- ※ Weight : 1.7kg max
- ※ PCB Material/thickness : FR-4 / 1.6mm [0.06]
- ※ Chassis material : Aluminium
- ※ Dimensions in mm, [        ]=inches
- ※ Mounting torque : 1.2N · m (12.8kgf · cm) max
- ※ Screw tightening torque M4 : 1.6N · m (16.9kgf · cm) max  
M3 : 0.8N · m (8.5kgf · cm) max



### ACE450F external view



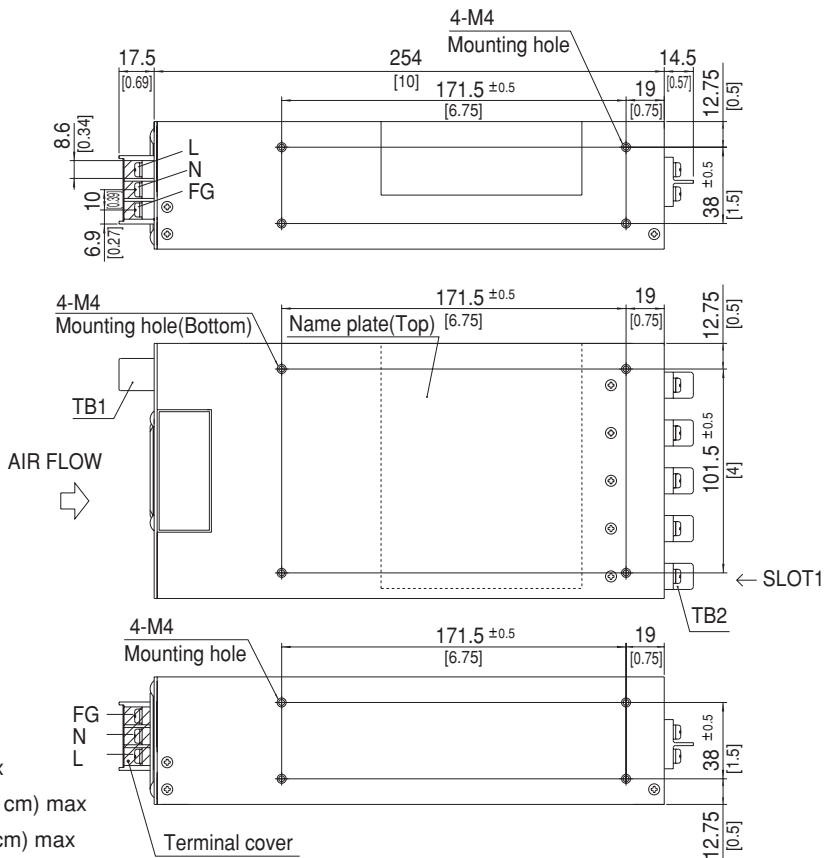
### Pin connection and function of CN1

| Pin No. | Function                                   |
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| 1       | G : Auxiliary power ground                 |
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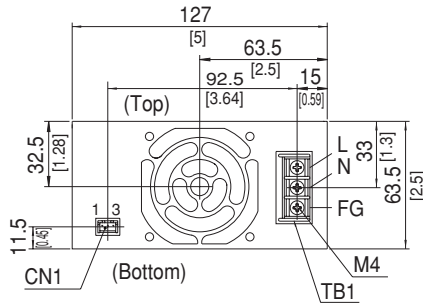
Mating connector and terminal of CN1

| Connector |          | Mating connector | Terminal             | Mfr.   |
|-----------|----------|------------------|----------------------|--------|
| CN1       | S3B-XH-A | XHP-3            | Reel : SXH-001T-P0.6 | J.S.T. |
|           |          |                  | Bulk : BXH-001T-P0.6 |        |

- ※ Tolerance :  $\pm 1$  [ $\pm 0.04$ ]
- ※ Weight : 2.2kg max
- ※ PCB Material/thickness : FR-4 / 1.6mm [0.06]
- ※ Chassis material : Aluminium
- ※ Dimensions in mm, [        ]=inches
- ※ Mounting torque : 1.2N · m (12.8kgf · cm) max
- ※ Screw tightening torque M4 : 1.6N · m (16.9kgf · cm) max  
M3 : 0.8N · m (8.5kgf · cm) max



### ACE650F external view



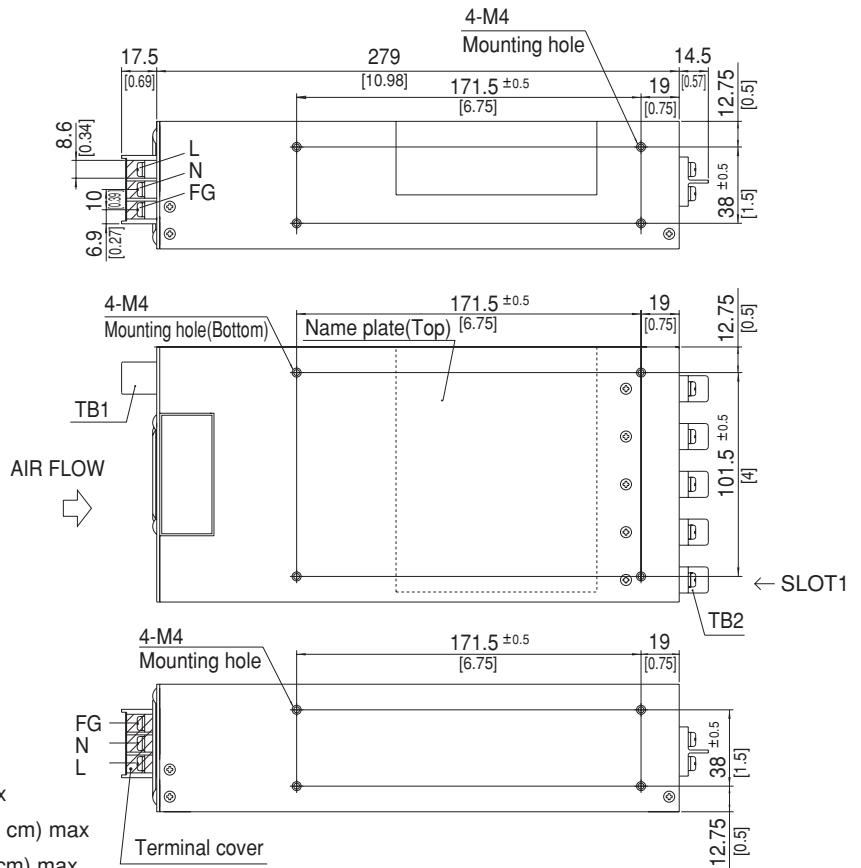
Pin connection and function of CN1

| Pin No. | Function                                   |
|---------|--------------------------------------------|
| 1       | G : Auxiliary power ground                 |
| 2       | PR : PR alarm                              |
| 3       | AUX : Auxiliary power (only remote ON/OFF) |

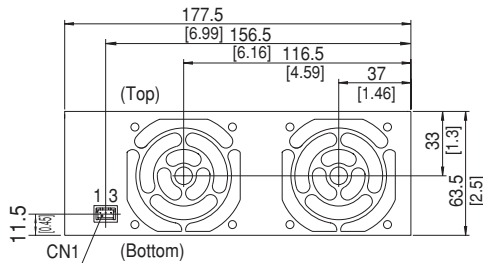
Mating connector and terminal of CN1

| Connector | Mating connector | Terminal | Mfr.                                                   |
|-----------|------------------|----------|--------------------------------------------------------|
| CN1       | S3B-XH-A         | XHP-3    | Reel : SXH-001T-P0.6<br>Bulk : BXH-001T-P0.6<br>J.S.T. |

- ※ Tolerance :  $\pm 1$  [ $\pm 0.04$ ]
- ※ Weight : 2.4kg max
- ※ PCB Material/thickness : FR-4 / 1.6mm [0.06]
- ※ Chassis material : Aluminium
- ※ Dimensions in mm, [ ]=inches
- ※ Mounting torque :  $1.2\text{N} \cdot \text{m}$  (12.8kgf · cm) max
- ※ Screw tightening torque M4 :  $1.6\text{N} \cdot \text{m}$  (16.9kgf · cm) max
- ※ M3 :  $0.8\text{N} \cdot \text{m}$  (8.5kgf · cm) max



### ACE900F external view



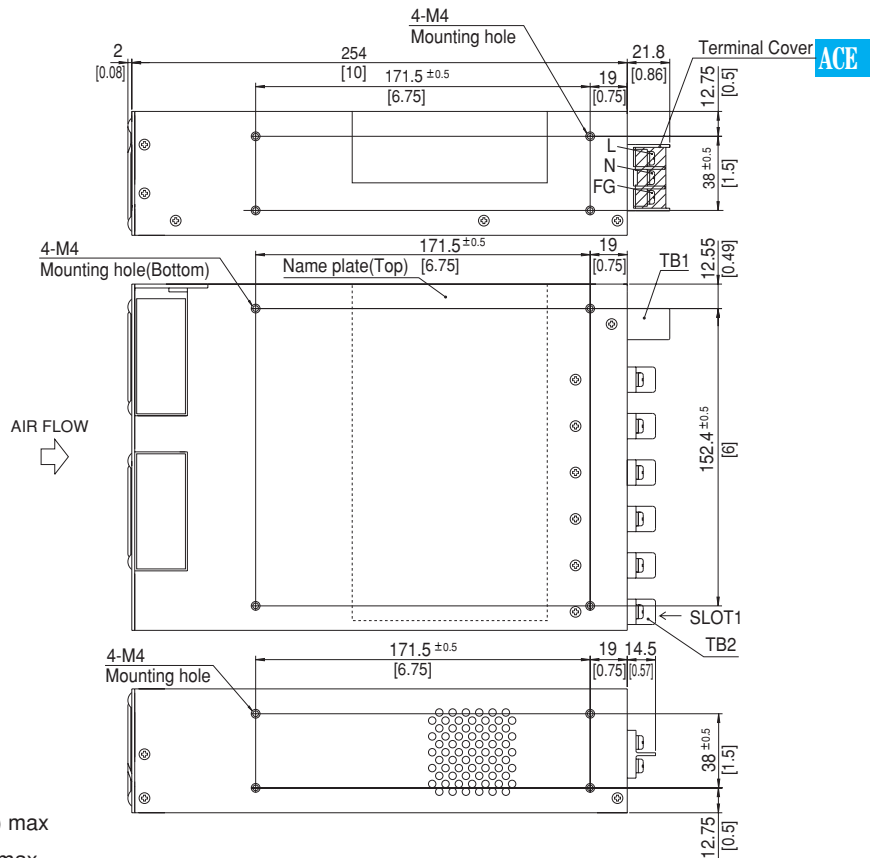
Pin connection and function of CN1

| Pin No. | Function                                   |
|---------|--------------------------------------------|
| 1       | G : Auxiliary power ground                 |
| 2       | PR : PR alarm                              |
| 3       | AUX : Auxiliary power (only remote ON/OFF) |

Mating connector and terminal of CN1

| Connector | Mating connector | Terminal | Mfr.                                                   |
|-----------|------------------|----------|--------------------------------------------------------|
| CN1       | S3B-XH-A         | XHP-3    | Reel : SXH-001T-P0.6<br>Bulk : BXH-001T-P0.6<br>J.S.T. |

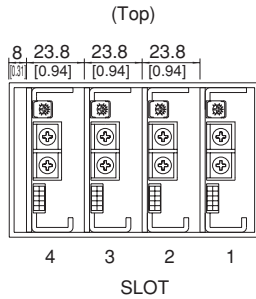
- ※ Tolerance :  $\pm 1$  [ $\pm 0.04$ ]
- ※ Weight : 3kg max
- ※ PCB Material/thickness : FR-4 / 1.6mm [0.06]
- ※ Chassis material : Aluminium
- ※ Dimensions in mm, [ ]=inches
- ※ Mounting torque :  $1.2\text{N} \cdot \text{m}$  (12.8kgf · cm) max
- ※ Screw tightening torque M4 :  $1.6\text{N} \cdot \text{m}$  (16.9kgf · cm) max
- ※ M3 :  $0.8\text{N} \cdot \text{m}$  (8.5kgf · cm) max



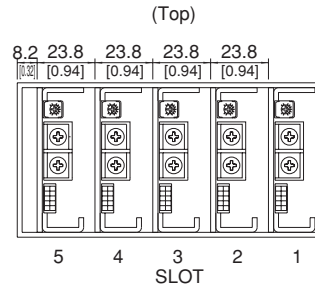
**Output module and connector pin assign**

**1. Output side view**

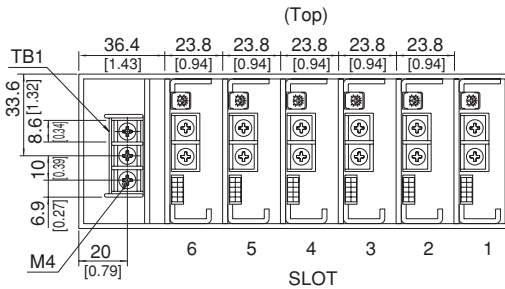
ACE300F Output side view



ACE450F/650F Output side view



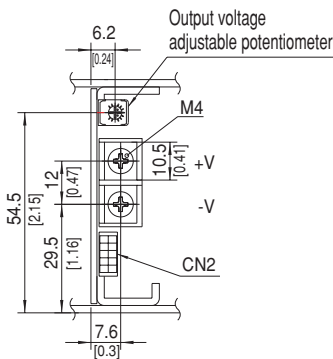
ACE900F Output side view



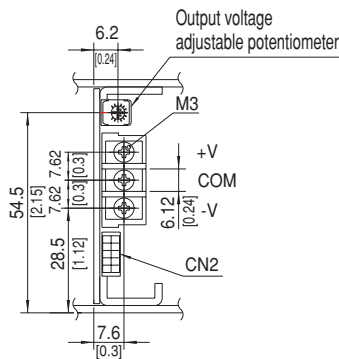
※Tolerance :  $\pm 1$  [ $\pm 0.04$ ]

※Dimensions in mm, [ ] = inches

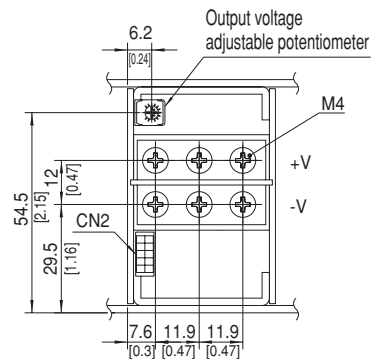
**2. Output module side view and connector pin assign**



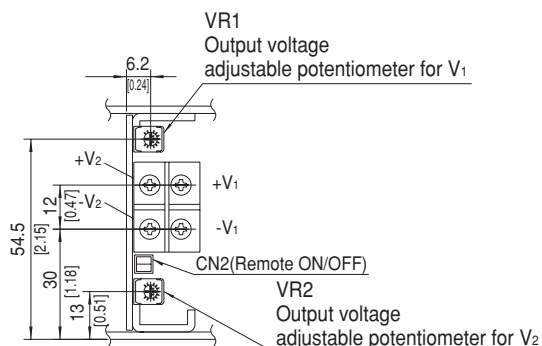
Module : A-K, L, M, N, P, R



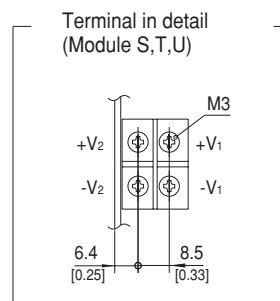
Module : Y, W, Z, 9, Q, V



Module : 2A-2K



Module : S, T, U



※Tolerance :  $\pm 1$  [ $\pm 0.04$ ]

※Dimensions in mm, [ ] = inches

## Output module and connector pin assign

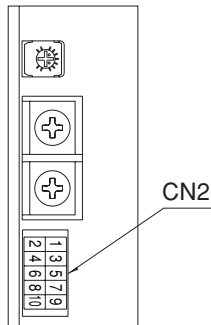
## ●CN2 connector pin assign except module S,T,U

Mating connector and terminal of CN2 in Output Module

| Connector | Mating connector | Terminal                                                              | Mfr.   |
|-----------|------------------|-----------------------------------------------------------------------|--------|
| CN2       | S10B-PHDSS       | PHDR-10VS                                                             | J.S.T. |
|           |                  | Chain : SPHD-002T-P0.5<br>Loose : BPHD-001T-P0.5<br>BPHD-002T-P0.5 *1 |        |

※ The housing for the remote sensing unused is mounted on CN2 of each output module (applying module : A - K, 2A - 2K).

\*1 Please consult J.S.T for a non-standard crimping tool.



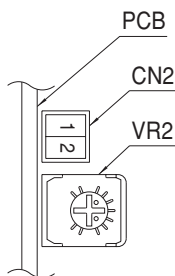
Pin connection and function of CN2 in Output Module

| Pin No. | Function                                                              |                                                   |
|---------|-----------------------------------------------------------------------|---------------------------------------------------|
|         | Applying module : A - K, 2A - 2K                                      | Applying module : L, M, N, P, R, Y, W, Z, 9, Q, V |
| 1       | RC+ : Remote ON/OFF +                                                 | RC+ : Remote ON/OFF +                             |
| 2       | RC- : Remote ON/OFF -                                                 | RC- : Remote ON/OFF -                             |
| 3       | N/C : N.C.                                                            | N/C : N.C.                                        |
| 4       | N/C : N.C.                                                            | N/C : N.C.                                        |
| 5       | LV+ : LV alarm                                                        | LV+ : LV alarm                                    |
| 6       | LV- : LV alarm ground                                                 | LV- : LV alarm ground                             |
| 7       | +M : Self sensing terminal.<br>(Do not wire for external connection.) | N/C : N.C.                                        |
| 8       | +S : + Remote sensing                                                 | N/C : N.C.                                        |
| 9       | -M : Self sensing terminal.<br>(Do not wire for external connection.) | N/C : N.C.                                        |
| 10      | -S : - Remote sensing                                                 | N/C : N.C.                                        |

## ●CN2 connector pin assign of module S,T,U

Mating connector and terminal of CN2 in Output Module

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



Pin connection and function of CN2 in Output Module

| Pin No. | Function        |
|---------|-----------------|
| 1       | Remote ON/OFF + |
| 2       | Remote ON/OFF - |

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