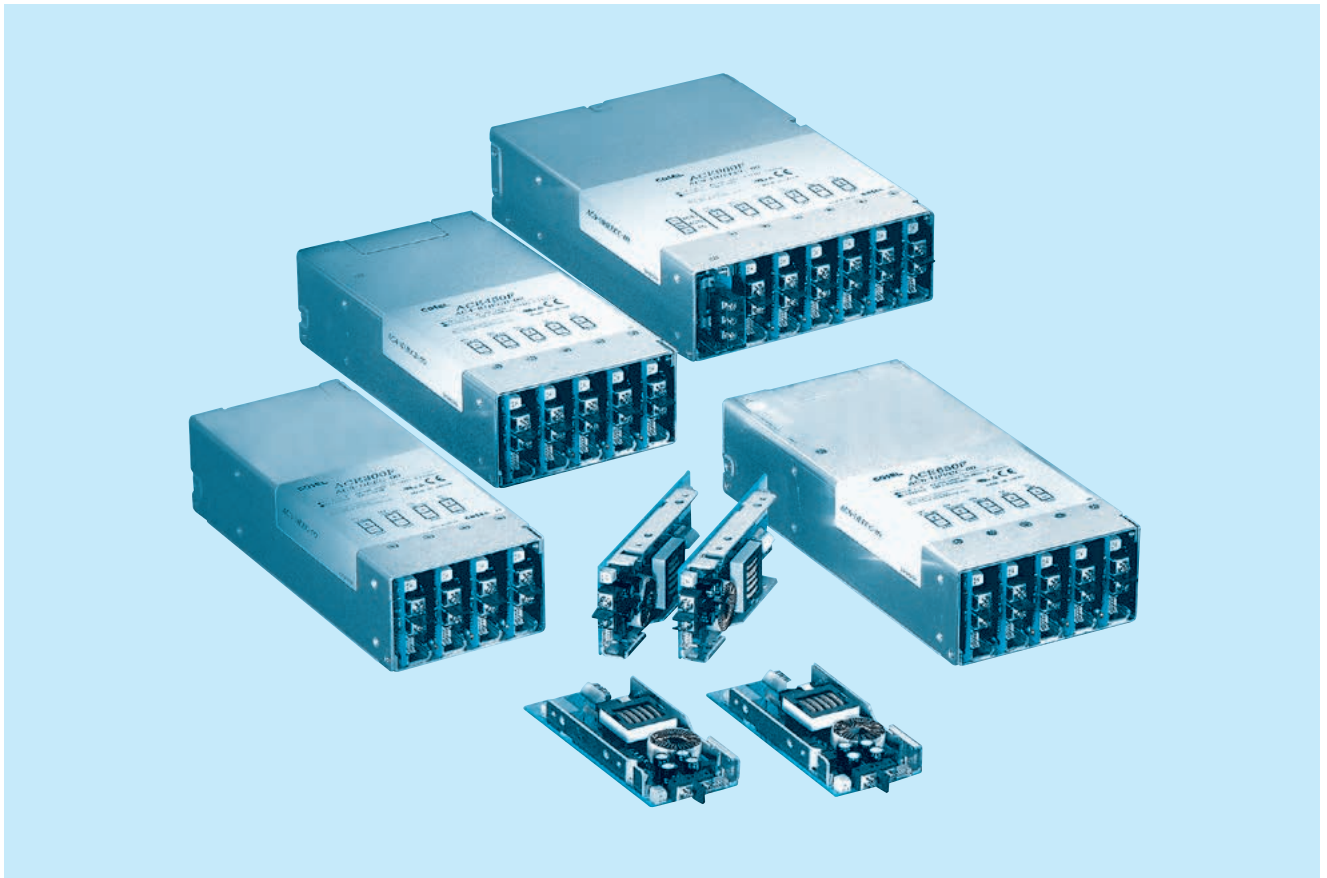


ACE-series



■ Feature

Flexible modular system architecture provides various output configuration
 Harmonic attenuator (Complies with IEC61000-3-2)
 Universal input (AC85 - 264V)
 Remote ON/OFF control, alarm

■ Safety agency approvals

UL60950-1, C-UL (CSA60950-1), EN62368-1
 Complies with DEN-AN
 UL60601-1, C-UL (CSA601.1), EN60601-1 approvals (optional)

■ EMI

Complies with FCC-B, CISPR22-B,
 EN55022-B, VCCI-B

■ 3-year warranty

■ CE marking

Low Voltage Directive
 RoHS Directive

■ UKCA marking

Electrical Equipment Safety Regulations
 RoHS Regulations

■ EMS Compliance : EN61204-3, EN61000-6-2

EN61000-4-2
 EN61000-4-3
 EN61000-4-4
 EN61000-4-5
 EN61000-4-6
 EN61000-4-8
 EN61000-4-11

IEC60601-1-2 (2014), EN60601-1-2 (2015) (optional)

ACE series

AC - - -

① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩

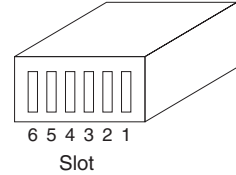


Example recommended EMI/EMC filter
 ACE300F NAC-06-472
 ACE450F NAC-10-472
 ACE650F NAC-20-472
 ACE900F NAC-20-472



High voltage pulse noise type : NAP series
 Low leakage current type : NAM series
 * A higher current rating EMI/EMC filter may be recommended in view of the other devices that could be connected in parallel with the power supply.

- 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 6.1
 Safety : UL60601-1, EN60601-1
 Refer to instruction manual 8. for details.



* 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.

* The number of slot is different depending on the model.
 * Empty slot is code:O

SPECIFICATIONS

| | MODEL | ACE300F | ACE450F | ACE650F | ACE900F | |
|------------------------------|---|---|---|--|--|---------------|
| INPUT | VOLTAGE[V] | AC85 - 264 1 φ / DC120 - 350 (option=-U AC70 or DC100 - refer to instruction manual 6) | | | | |
| | FREQUENCY[Hz] | 47 - 63 | | | | |
| | CURRENT[A] | AC100V *1 | 3.7typ | 5.7typ | 8.0typ | 11typ |
| | | AC200V *1 | 2.0typ | 3.1typ | 4.2typ | 5.7typ |
| | 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 | 77typ |
| | | AC200V *1 | 78typ | 78typ | 80typ | 80typ |
| LEAKAGE CURRENT[mA] | AC100V *3 | 0.5max | | | | |
| | AC230V *3 | 0.95max | | | | |
| OUTPUT | NUMBER OF SLOT | 4 | 5 | 5 | 6 | |
| | TOTAL OUTPUT[W] | AC90 - 150V *4 | 250 | 400 | 600 | 800 (Peak 1k) |
| | | AC170 - 264V *4 | 300 | 450 | 650 | 900 (Peak 1k) |
| | START-UP TIME[ms] | 500max (ACIN100V, Io=100%) | | | | |
| | HOLD-UP TIME[ms] *1 | 20typ (ACIN100V, Io=100%) | | | | |
| FUNCTION | AUXILIARY POWER (AUX) | 12V 0.1A (Only for Remote ON/OFF) (option=-J 5V0.1A) | | | | |
| | ALARM (PR) | FAN alarm, LINE alarm | | | | |
| ISOLATION | INPUT-OUTPUT, RC, AUX | AC3,000V 1minute, Cutoff current=10mA, DC500V 50MΩ min (At Room Temperature) | | | | |
| | INPUT-FG | AC2,000V 1minute, Cutoff current=10mA, DC500V 50MΩ min (At Room Temperature) | | | | |
| | OUTPUT, RC, AUX(PR)-FG *5 | AC500V 1minute, Cutoff current=100mA, DC500V 50MΩ min (At Room Temperature) | | | | |
| ENVIRONMENT | OPERATING TEMP., HUMID. AND ALTITUDE *4 | -20 to +70°C, 20 - 90%RH (Non condensing) 3,000m (10,000feet) max | | | | |
| | STORAGE TEMP., HUMID. AND ALTITUDE | -20 to +75°C, 20 - 90%RH (Non condensing) 9,000m (30,000feet) max | | | | |
| | VIBRATION | 19.6m/s ² (2G) , 10 - 55Hz, 3minutes period, 60minutes each along X, Y and Z axis | | | | |
| | IMPACT | 196.1m/s ² (20G) , 11ms, once each X, Y and Z axis | | | | |
| SAFETY AND NOISE REGULATIONS | AGENCY APPROVALS | UL60950-1, C-UL (CSA60950-1), EN62368-1, Complies with DEN-AN (At only AC input) UL60601-1, EN60601-1 (At only AC input), Complies with IEC60601-1-2 4th Ed. (Refer to instruction manual 8) | | | | |
| | 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 | 103X63.5X254mm (W X H X D) [4.06 X 2.5 X 10 inches] | 127X63.5X254mm (W X H X D) [5 X 2.5 X 10 inches] | 127X63.5X279mm (W X H X D) [5 X 2.5 X 10.98 inches] | 177.5X63.5X254mm (W X H X D) [6.99 X 2.5 X 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 IEC62368-1 and DEN-AN 60Hz and 100% load.
 *4 Refer to "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

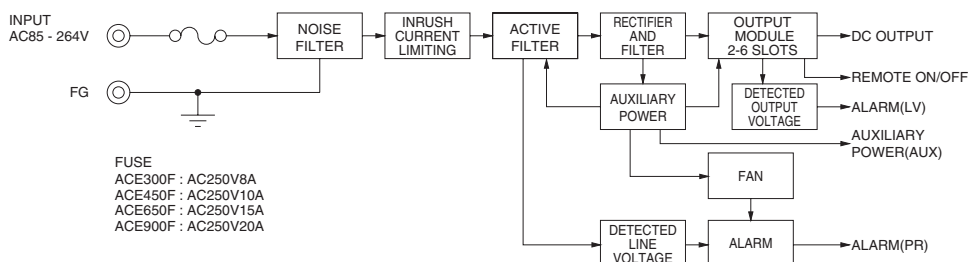
| ITEM | CODE | 150W suitable single output | | | | | | | | | | 50W suitable single output | | | | | 75W dual output | | | |
|------------------------------------|--------------------------------|---|------------|--------------------------------------|------------|------------|------------|------------|------------|------------|------------|----------------------------|--------------------------------------|------------|------------|------------|-----------------|------------|------------|------------|
| | | 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 [mVp-p]max | 0 to +50°C *2 -20 to 0°C *2 | 80 140 | 80 140 | 80 140 | 120 160 | 120 160 | 120 160 | 120 160 | 120 160 | 120 160 | 150 300 | 80 140 | 80 140 | 120 160 | 120 160 | 120 160 | 80 140 | 120 160 | 120 160 | 120 160 |
| RIPPLE NOISE [mVp-p]max | 0 to +50°C *2 -20 to 0°C *2 | 120 160 | 120 160 | 120 160 | 150 180 | 150 180 | 150 180 | 150 180 | 150 180 | 150 180 | 350 400 | 120 160 | 120 160 | 150 180 | 150 180 | 150 180 | 120 160 | 150 180 | 150 180 | 150 180 |
| TEMPERATURE COEFFICIENT[mV]max | 0 to +50°C | 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) | | | | | | | | |

| ITEM | CODE | 300W suitable single output | | | | | | | | | | 100W insulation dual output | | | | | | 150W dual output | | ★ |
|------------------------------------|--------------------------------|---|------------|--------------------------------------|------------|------------|------------|------------|------------|------------|------------|-----------------------------|------------|---------------|------------|------------|------------|------------------|-----------|--------------------------------------|
| | | 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 | 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 | Refer to instruction manual 7 Input. |
| MINIMUM CURRENT[A] | | 0 | 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 [mVp-p]max | 0 to +50°C *2 -20 to 0°C *2 | 80 140 | 80 140 | 80 140 | 120 160 | 120 160 | 120 160 | 120 160 | 120 160 | 120 160 | 150 300 | 80 140 | 80 140 | 80 140 | 120 160 | 80 140 | 120 160 | 200 | 200 | |
| RIPPLE NOISE [mVp-p]max | 0 to +50°C *2 -20 to 0°C *2 | 120 160 | 120 160 | 120 160 | 150 180 | 150 180 | 150 180 | 150 180 | 150 180 | 150 180 | 350 400 | 120 160 | 120 160 | 120 160 | 150 180 | 120 160 | 150 180 | 230 | 230 | |
| TEMPERATURE COEFFICIENT[mV]max | 0 to +50°C | 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 | 15.0-26.4 | 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 | | | | | | | | | | Remote ON/OFF | | | | Same as W,Z | | — |
| FUNCTION | | Remotesensing, remote ON/OFF, alarm (LV) | | | | | | | | | | Remote ON/OFF | | | | | | Same as W,Z | | — |

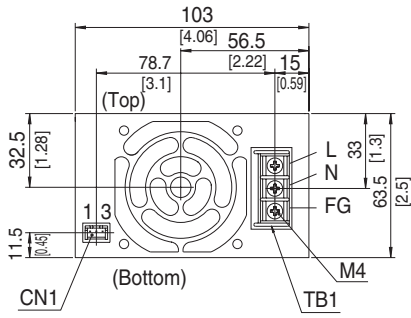
- *1 Operating condition of peak current : Peak current is less than 10sec., duty is less than 35% and average current is less than rated current. (rated current2 at Module W, Z, 9, Q and V)
- *2 Measured by 20MHz oscilloscope or Ripple-Noise meter (Equivalent to KEISOKU-GIKEN : RM101). Ripple and Ripple 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 5 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 8. for details.

Block diagram



ACE300F external view



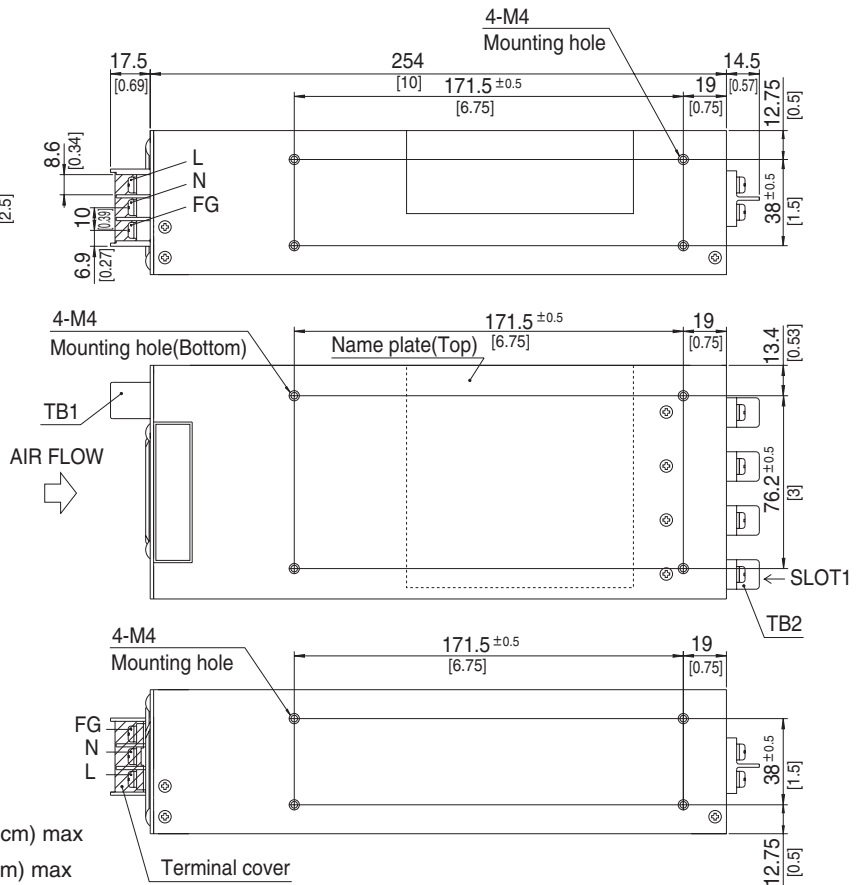
Pin connection and function of CN1

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

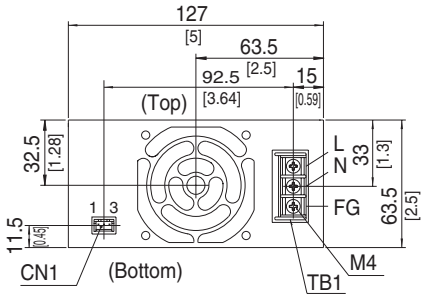
Mating connector and terminal of CN1

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

- ※ Tolerance : ± 1 [± 0.04]
- ※ Weight : 1.7kg max
- ※ PCB Material/thickness : FR-4 / 1.6mm [0.06]
- ※ Chassis material : Aluminium
- ※ Dimensions in mm, []=inches
- ※ Mounting torque : $1.2\text{N} \cdot \text{m}$ (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



ACE450F external view



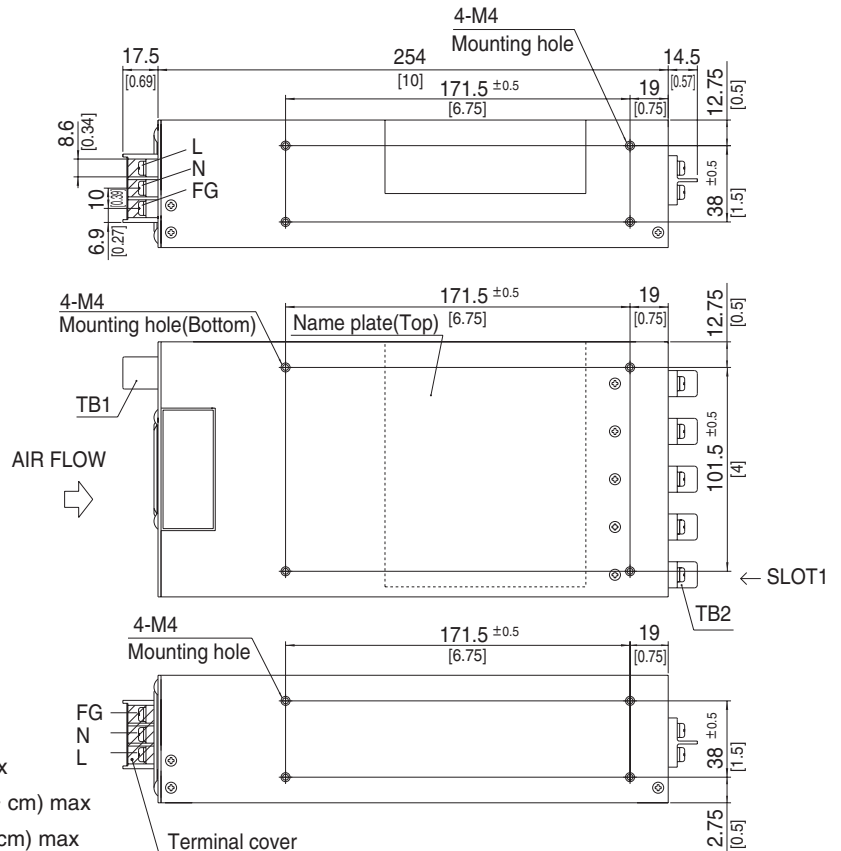
Pin connection and function of CN1

| 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 Bulk : BXH-001T-P0.6 | J.S.T. |

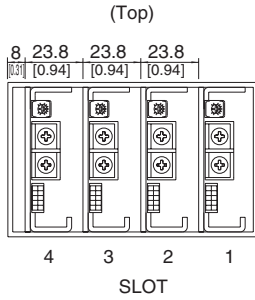
- ※ Tolerance : ± 1 [± 0.04]
- ※ Weight : 2.2kg max
- ※ PCB Material/thickness : FR-4 / 1.6mm [0.06]
- ※ Chassis material : Aluminium
- ※ Dimensions in mm, []=inches
- ※ Mounting torque : $1.2\text{N} \cdot \text{m}$ (12.8kgf · cm) max
- ※ Screw tightening torque M4 : $1.6\text{N} \cdot \text{m}$ (16.9kgf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



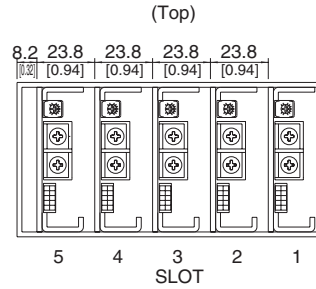
Output module and connector pin assign

1. Output side view

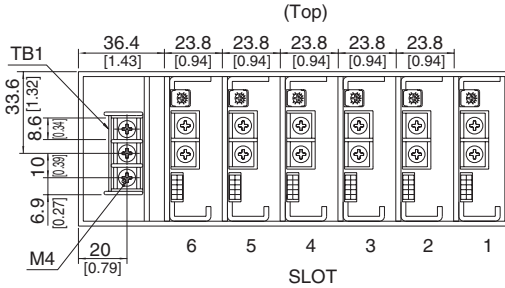
ACE300F Output side view



ACE450F/650F Output side view

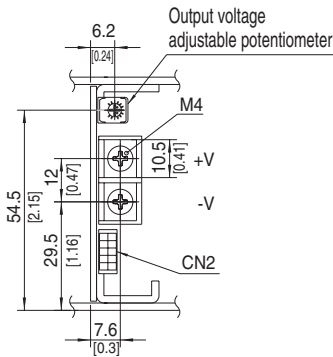


ACE900F Output side view

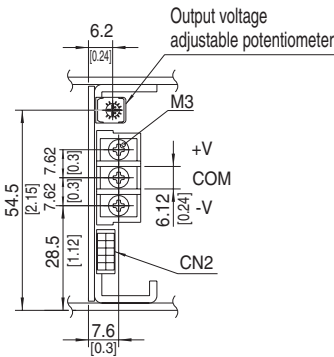


※Tolerance : ± 1 [± 0.04]
 ※Dimensions in mm, [] =inches

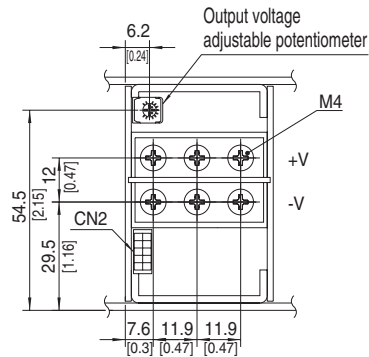
2. Output module side view and connector pin assign



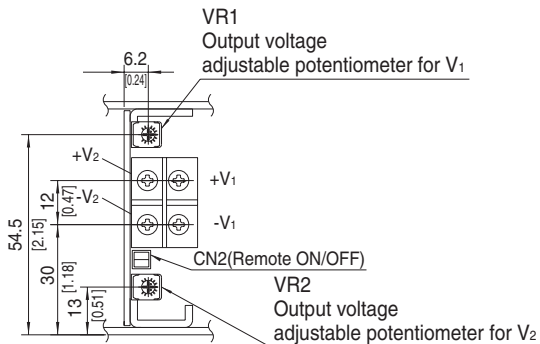
Module : A-K,L,M,N,P,R



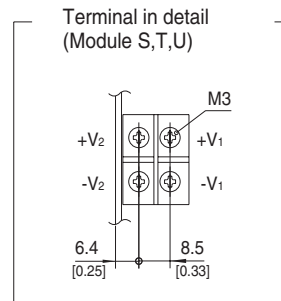
Module : Y,W,Z,Q,V



Module : 2A-2K



Module : S,T,U



※Tolerance : ± 1 [± 0.04]
 ※Dimensions in mm, [] =inches

Output module and connector pin assign

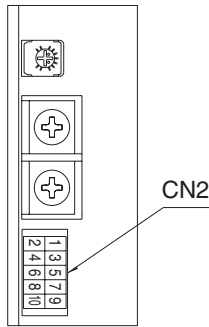
●CN2 connector pin assign except module S,T,U

Mating connector and terminal of CN2 in Output Module

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

※ 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.



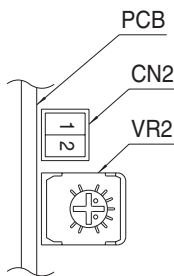
Pin connection and function of CN2 in Output Module

| 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. (Do not wire for external connection.) | N/C : N.C. |
| 8 | +S : + Remote sensing | N/C : N.C. |
| 9 | -M : Self sensing terminal. (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 | Chain:SPH-002T-P0.5S |
| | | | Loose:BPH-002T-P0.5S |
| | | | J.S.T. |



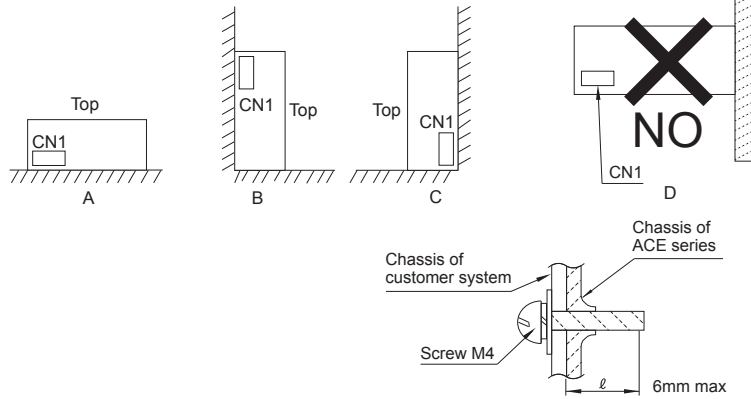
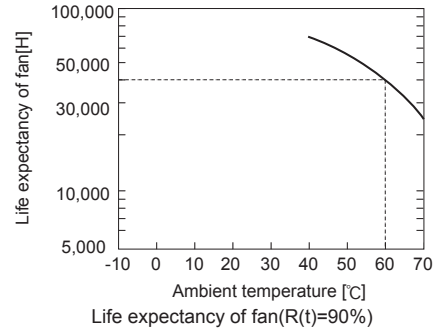
Pin connection and function of CN2 in Output Module

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

Assembling and Installation Method

Installation method

- Fans for forced air cooling are built in.
Ensure that the inlet (rear) and outlet (output terminal) vents are not blocked, to prevent disruption of the airflow.
*Option with reversed airflow (-F) is also available.
- If the unit is used in a dusty environment, an air filter should be used so the cooling efficiency of the fan is not reduced.
- If the fan stops, the thermal protection may be activated, shutting down the output. Life expectancy of the fan varies depending on usage conditions; therefore regular inspections of the fan are required for increased reliability. Should the fan become non-operational over the course of time, it can be replaced. Refer to the optional parts section of this catalog.
- When mounting the power supply with screws, it is recommended that this be done as shown in right figure. If other methods are used, be sure the weight of the power supply is taken into account.
- Avoid installation method 2 as shown in Fig. D, which can cause stress on the mounting holes.
- Maximum length of mounting screws is 6mm (Refer to right figure.).

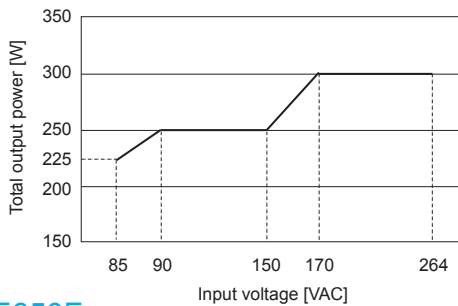


Derating

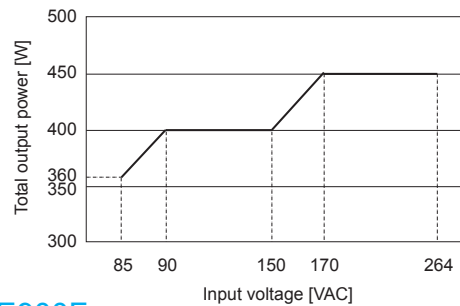
- The ACE series comprises power supplies consisting of a combination of output modules. Make sure each output module is used within specifications, and that the total output power of all modules is equal to, or less than the rated total output power.
Refer to instruction manual 5 for Definition of load factor.

Derating curve for input voltage

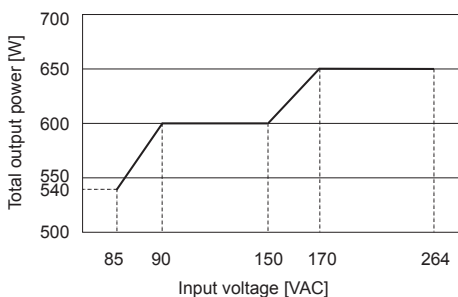
● ACE300F



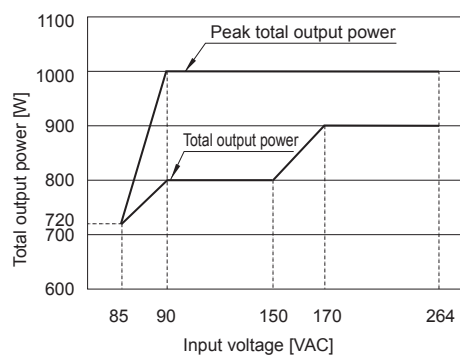
● ACE450F



● ACE650F



● ACE900F

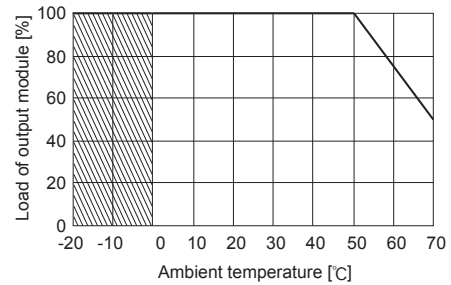


*Refer to instruction manual 4 for Peak total output power.

Derating

Ambient temperature derating

- The derating curve for the ambient temperature (inlet temperature for cooling) of output modules is shown in right figure.
- Operation within the hatched area will result in different ripple and ripple noise specifications.



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/ACE/>
 Before using our product <https://en.cosel.co.jp/technical/caution/index.html>

ACE



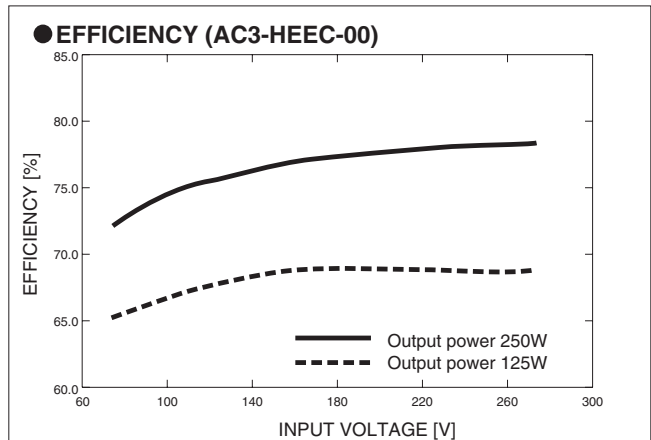
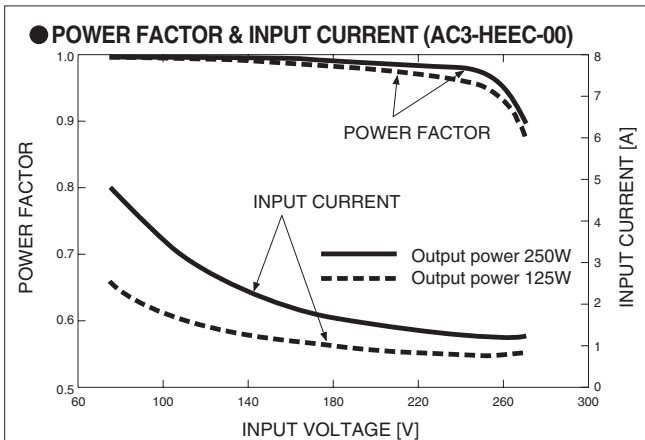
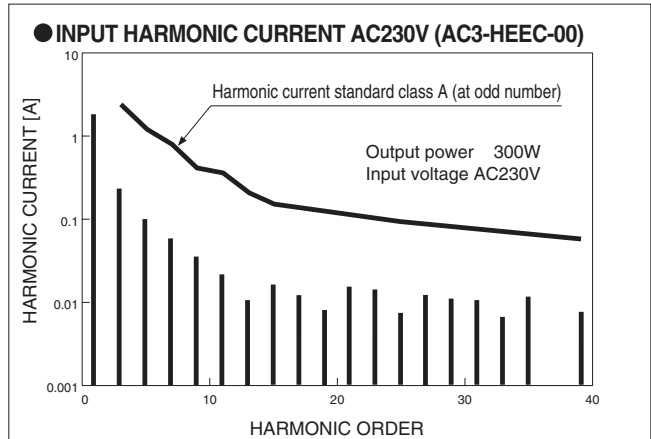
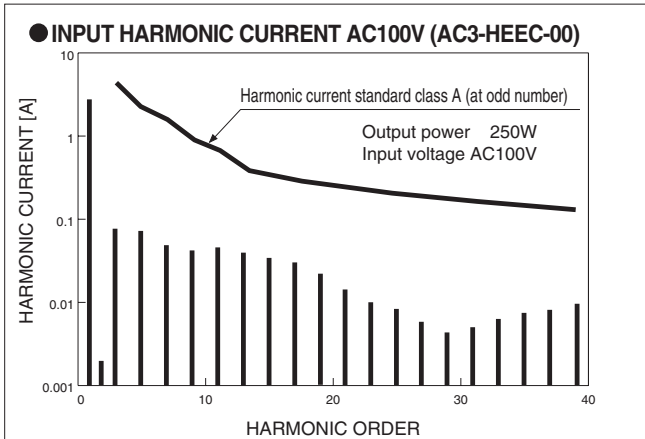
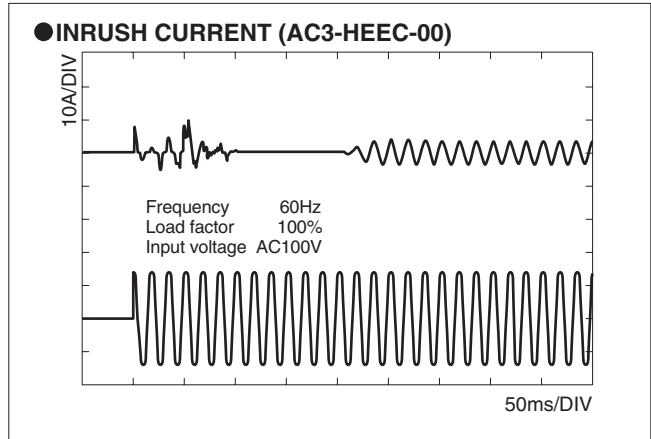
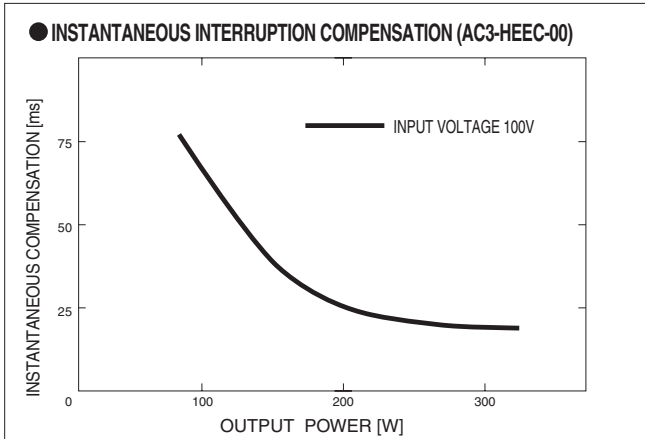
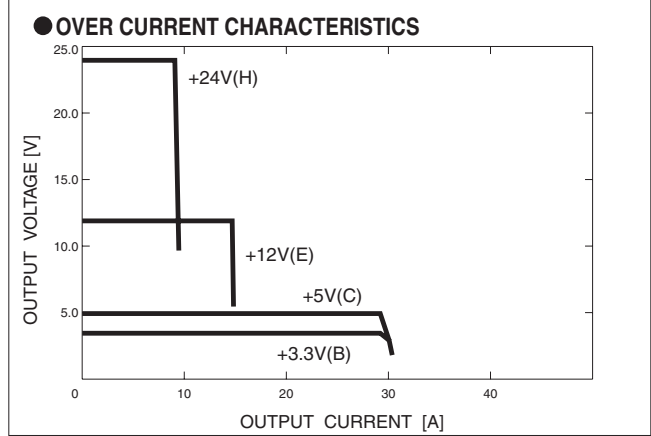
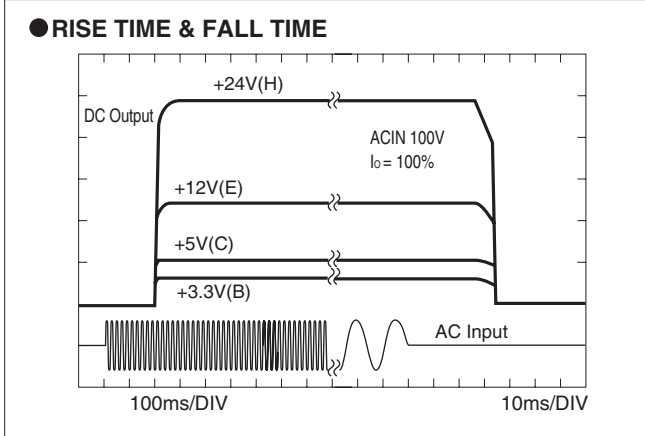
NOTICE



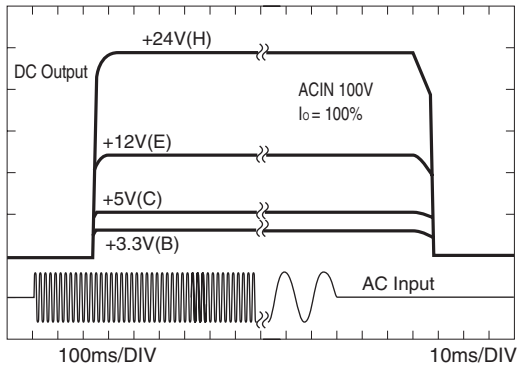
Basic Characteristics Data

| Model | Circuit method | Switching frequency [kHz] | Input current [A] | Rated input fuse | Inrush current protection | PCB/Pattern | | | Series/Parallel operation availability | |
|---------------------------|-------------------|---------------------------|-------------------|------------------|---------------------------|-------------|--------------|--------------|--|--------------------|
| | | | | | | Material | Single sided | Double sided | Series operation | Parallel operation |
| Input module of ACE300F | Active filter | 80 | 3.7*1 | 250V 8A | SCR | FR-4 | | Yes | No | No |
| Input module of ACE450F | Active filter | 80 | 5.7*2 | 250V 10A | SCR | FR-4 | | Yes | No | No |
| Input module of ACE650F | Active filter | 80 | 8.0*3 | 250V 15A | SCR | FR-4 | | Yes | No | No |
| Input module of ACE900F | Active filter | 80 | 11*4 | 250V 20A | SCR | FR-4 | | Yes | No | No |
| Output module A-K | Forward converter | 120 | - | - | - | FR-4 | | Yes | Yes*5 | Yes*7 |
| Output module 2A-2K | Forward converter | 120 | - | - | - | FR-4 | | Yes | Yes*5 | Yes*7 |
| Output module L,M,N,P,R | Forward converter | 120 | - | - | - | FR-4 | | Yes | Yes*5 | No |
| Output module Y,W,Z,9,Q,V | Forward converter | 120 | - | - | - | FR-4 | | Yes | Yes*6 | No |
| Output module S,T,U | Forward converter | 120 | - | - | - | FR-4 | | Yes | Yes*6 | No |

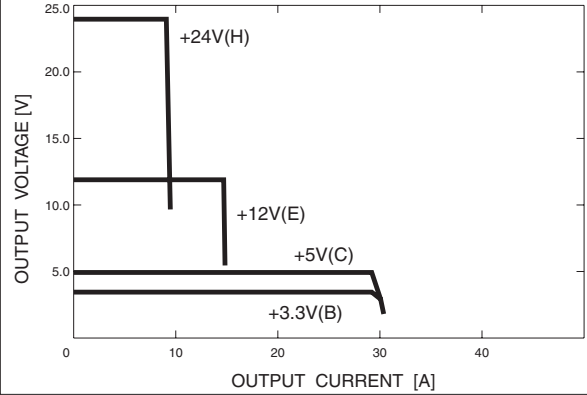
*1 Input current is based on Model AC3-HHECC-00 outputs 250W at AC100V.
 *2 Input current is based on Model AC4-HHECC-00 outputs 400W at AC100V.
 *3 Input current is based on Model AC6-HHECC-00 outputs 600W at AC100V.
 *4 Input current is based on Model AC9-HHECC-00 outputs 800W at AC100V.
 *5 Series operation is possible with the same output modules.
 *6 Series operation is possible, but series bar cannot be set by the series code.
 *7 Parallel operation is possible with the same output voltage module.



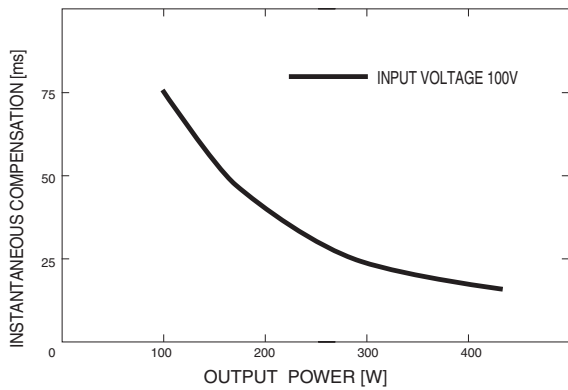
● RISE TIME & FALL TIME



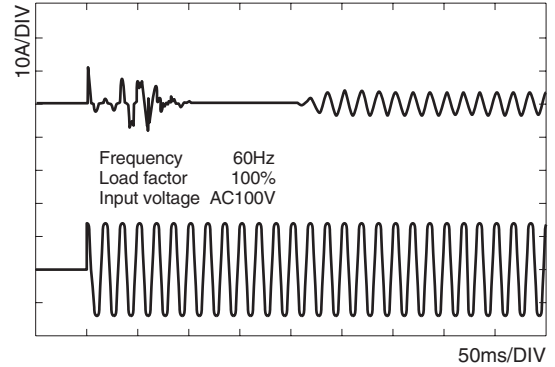
● OVER CURRENT CHARACTERISTICS



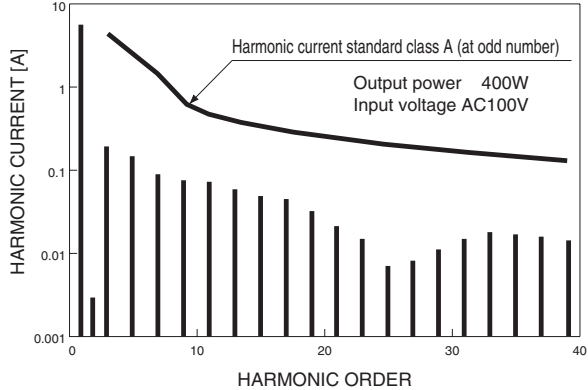
● INSTANTANEOUS INTERRUPTION COMPENSATION (AC4-HHECC-00)



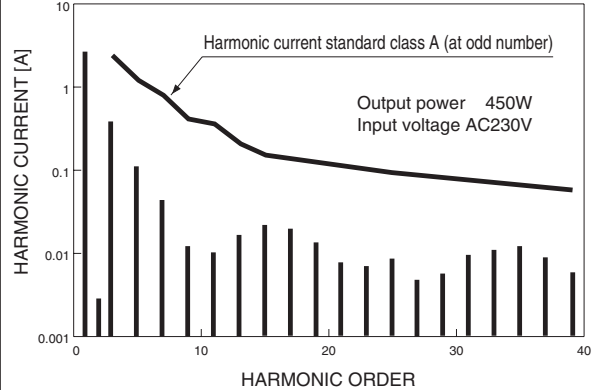
● INRUSH CURRENT (AC4-HHECC-00)



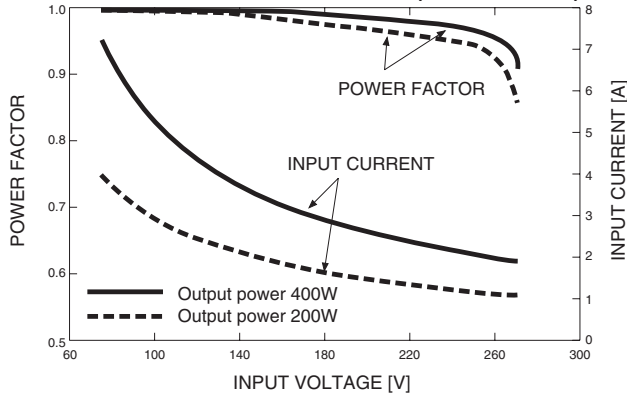
● INPUT HARMONIC CURRENT AC100V (AC4-HHECC-00)



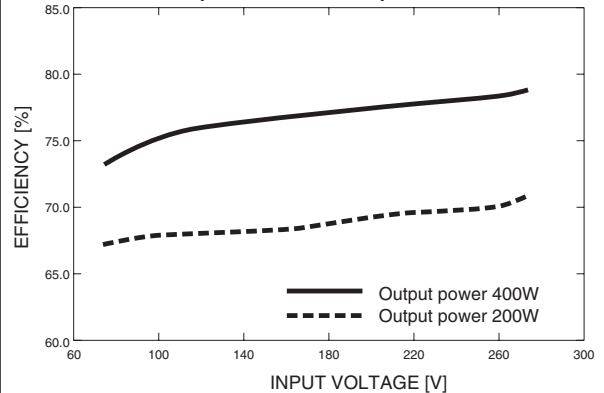
● INPUT HARMONIC CURRENT AC230V (AC4-HHECC-00)

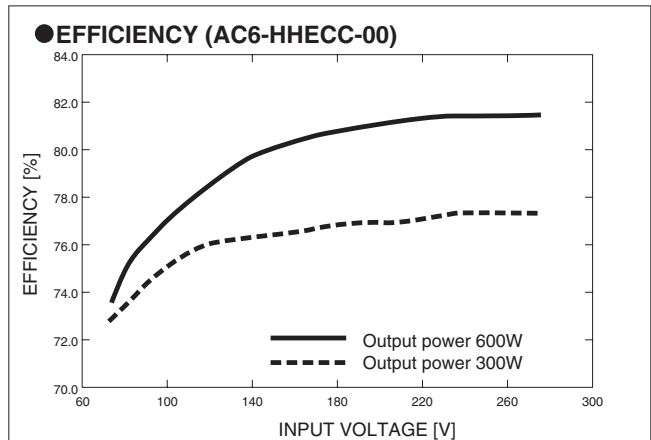
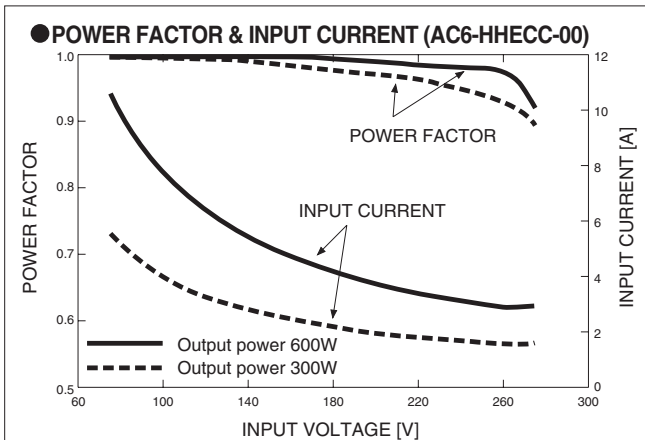
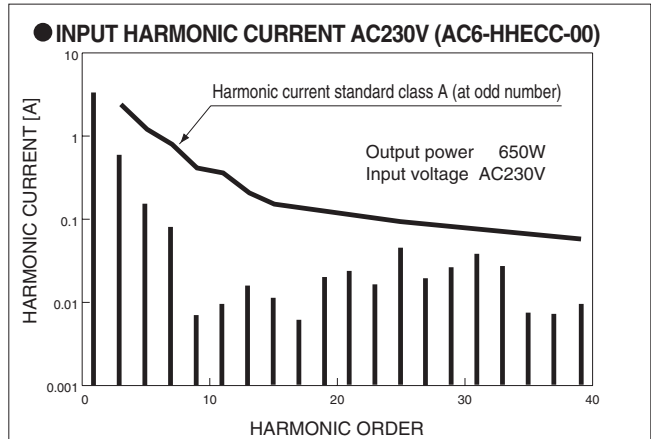
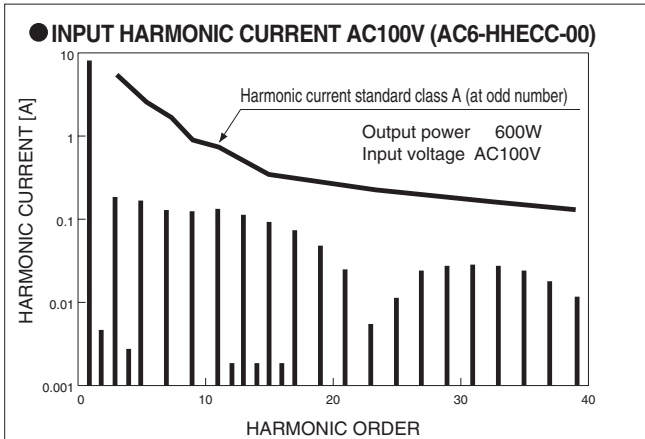
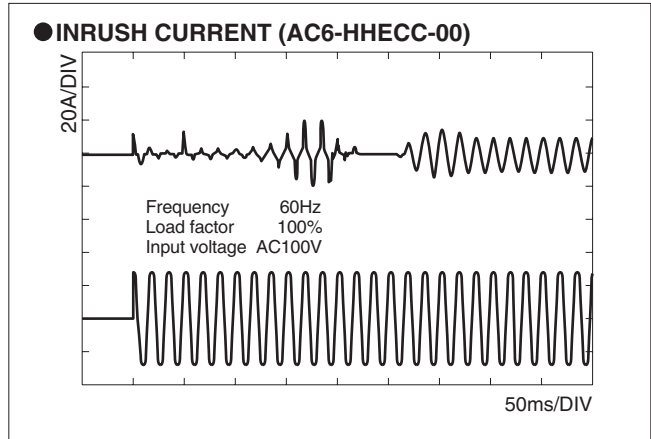
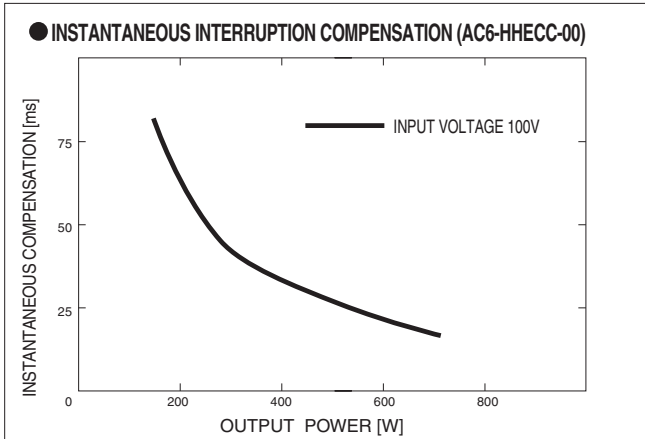
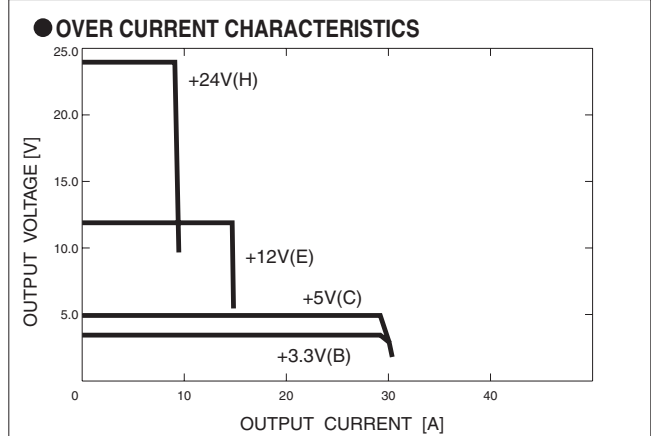
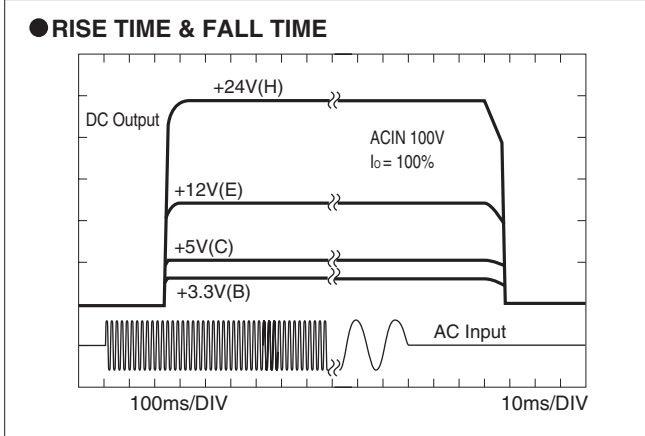


● POWER FACTOR & INPUT CURRENT (AC4-HHECC-00)

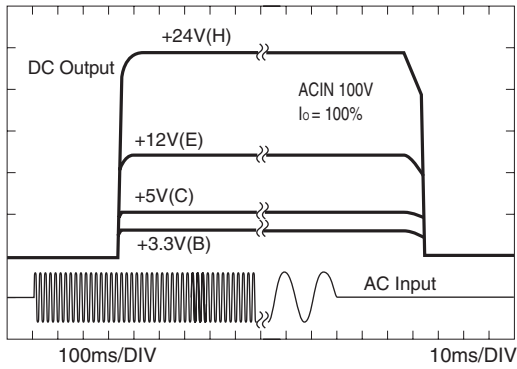


● EFFICIENCY (AC4-HHECC-00)

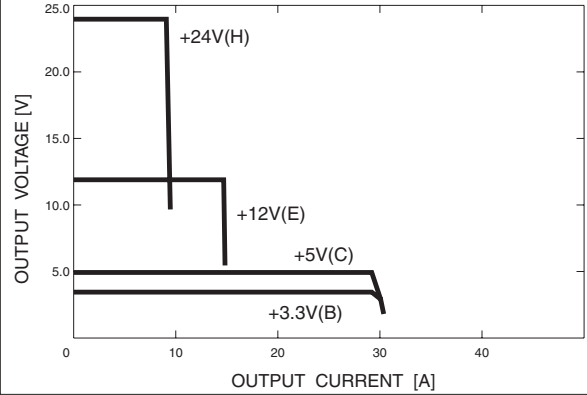




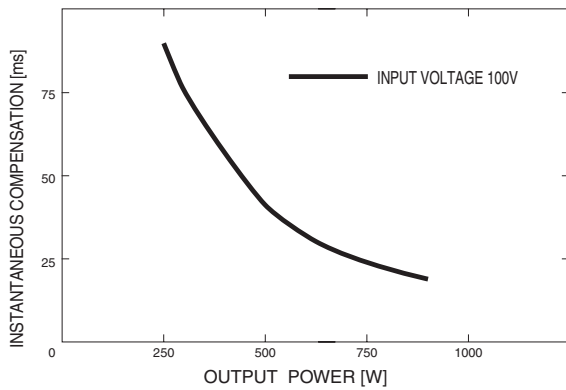
● RISE TIME & FALL TIME



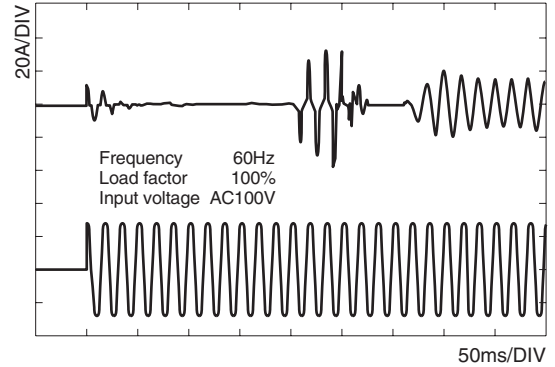
● OVER CURRENT CHARACTERISTICS



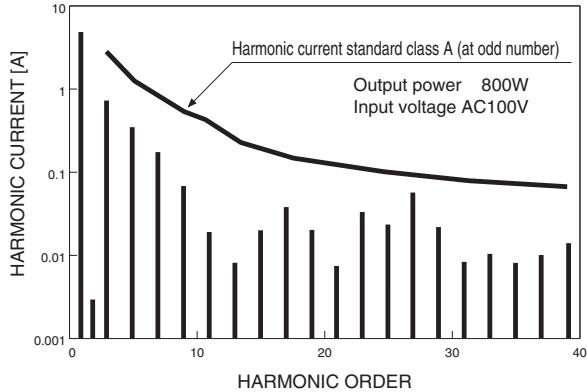
● INSTANTANEOUS INTERRUPTION COMPENSATION (AC9-HHEECC-00)



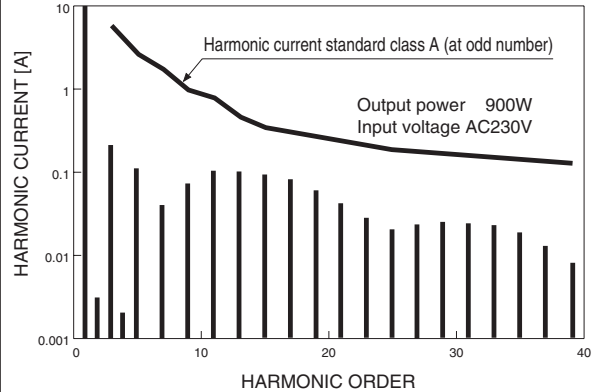
● INRUSH CURRENT (AC9-HHEECC-00)



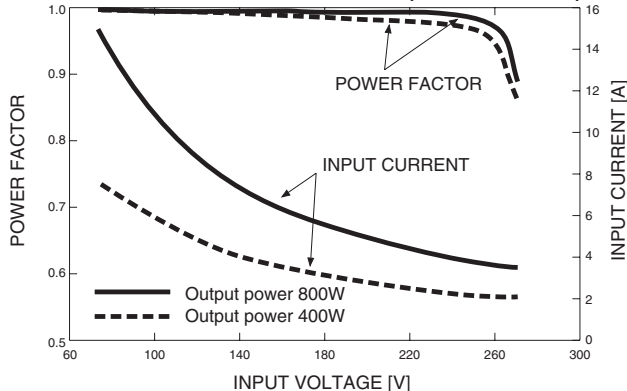
● INPUT HARMONIC CURRENT AC100V (AC9-HHEECC-00)



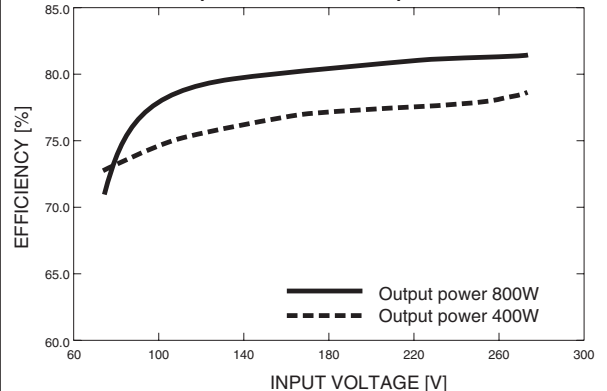
● INPUT HARMONIC CURRENT AC230V (AC9-HHEECC-00)



● POWER FACTOR & INPUT CURRENT (AC9-HHEECC-00)



● EFFICIENCY (AC9-HHEECC-00)



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[MVHF2F-00](#) [AC9-NN2H2H-00](#) [AC9-DDDDDD-00-1B](#) [AC9-E2HHKK-04](#) [AC9-EE2C2C-02-10](#) [AC9-HEEKKK-03-H](#)
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