



1U

Power
Factor
CorrectionSafety
Approvals

EMI

Inrush
current
limiting

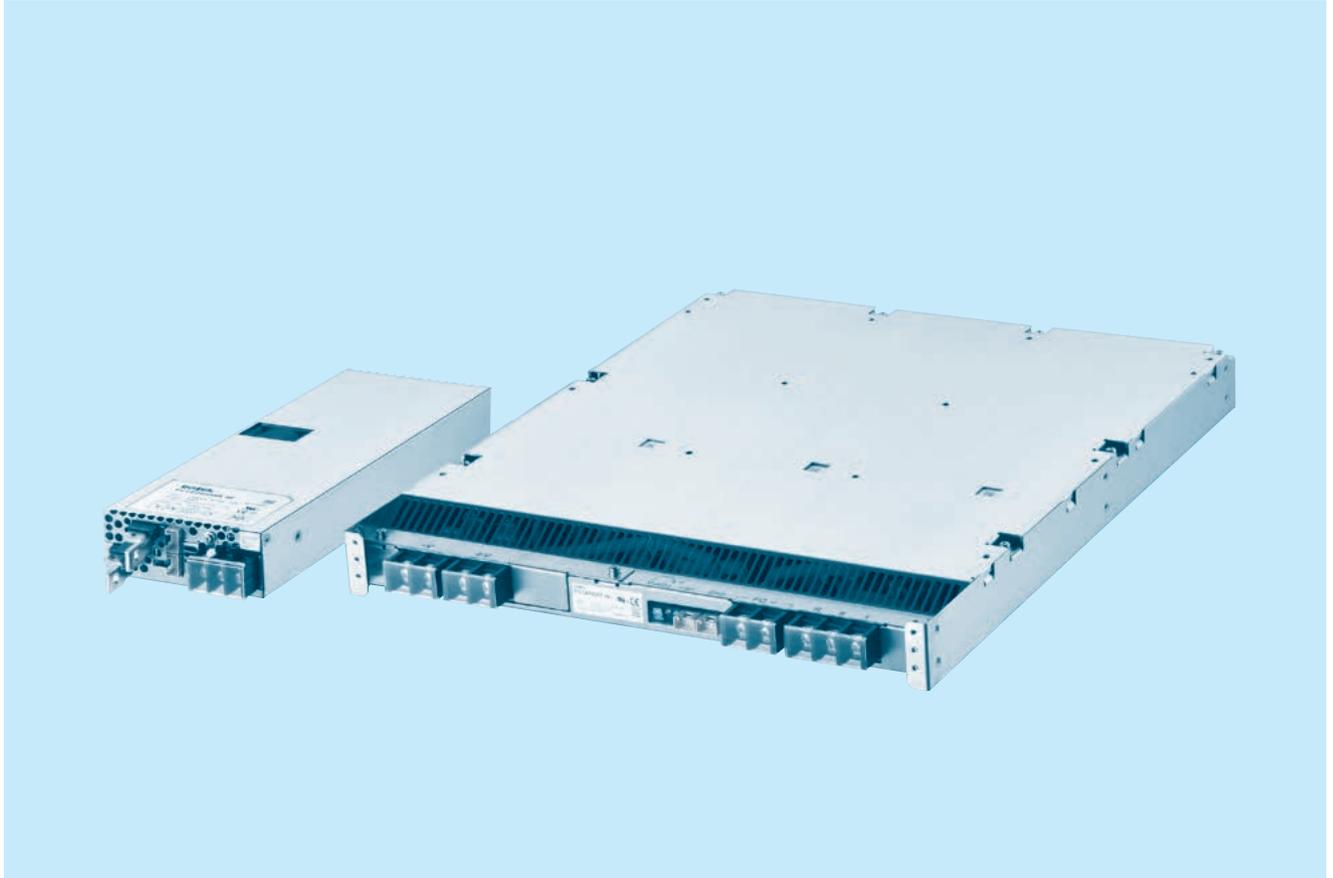
OCP



OVP

Remote
ON/OFFParallel
OperationHigh output
voltage

FETA-series



■ Feature

High power density
 Low profile (Meets 1U height.)
 High output voltage
 (FETA3000BC-250, FETA7000T-144, FETA7000ST-144)
 High efficiency
 High-speed response (FETA3000BC)
 Harmonic attenuator
 (FETA2500BA, 3000BA, 3000BC, 7000ST : Complies with
 IEC61000-3-2 Class A
 FETA7000T : Complies with IEC61000-3-12)
 Complies with SEMI F47
 Parallel Operation / Parallel Redundancy Operation
 Alarm signals, Remote ON / OFF and other functions

■ Safety agency approvals

UL62368-1, C-UL(CSA62368-1), EN62368-1

■ EMI

Complies with FCC Part 15-A, CISPR32-A, EN55032-A,
 VCCI-A
 (FETA7000ST : Complies with FCC Part 15-A, CISPR32-A,
 EN55032-A, VCCI-A by connecting an external EMI/EMC filter)

■ 3-year warranty (Refer to Instruction Manual)

■ 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

FETA2500BA

FET A 2500 B A -□□ -□

① ② ③ ④ ⑤ ⑥ ⑦



Example recommended EMI/EMC filter
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 Series name
- ② Single output
- ③ Output wattage
- ④ 200/230V input
- ⑤ Version
- ⑥ Output voltage
- ⑦ Optional
- F2: Reverse air exhaust
- R: with Remote ON/OFF
- Positive logic control

*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.

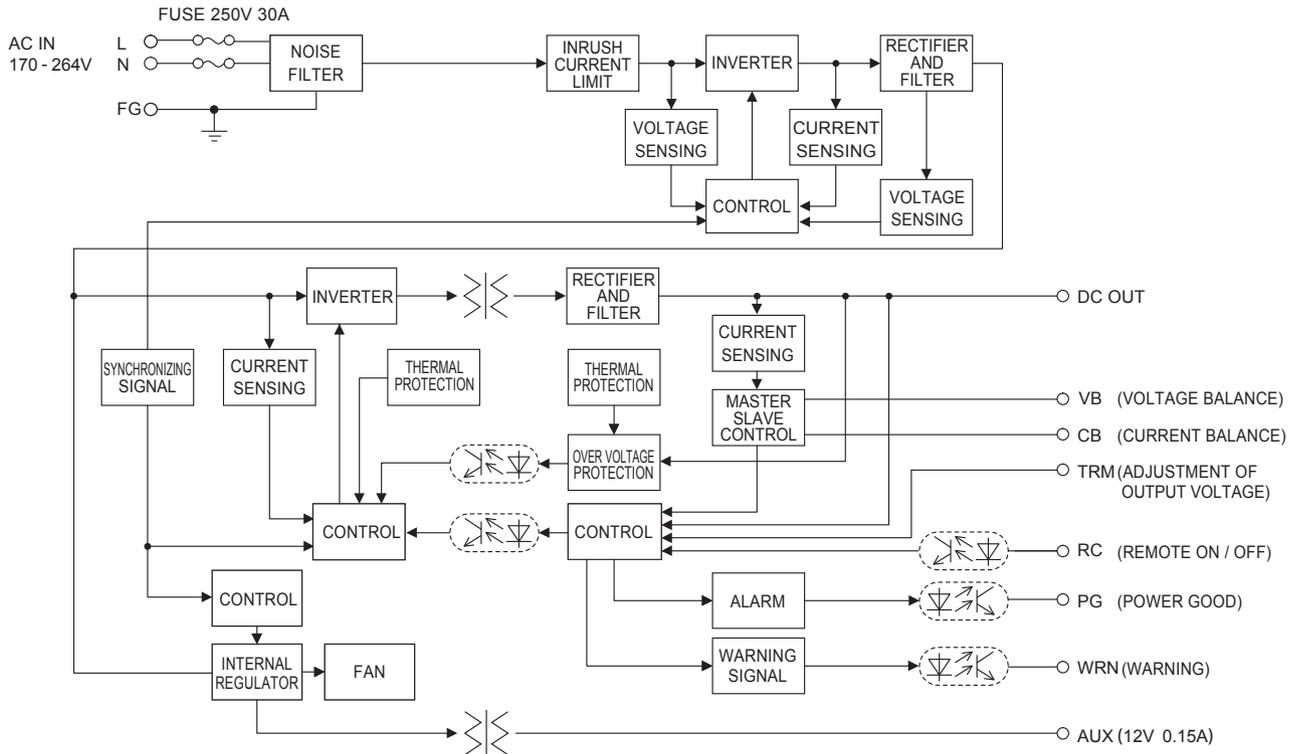
| | | |
|-----------------------|---------------|---------------|
| MODEL | FETA2500BA-36 | FETA2500BA-48 |
| MAX OUTPUT WATTAGE[W] | 1980 | 2496 |
| DC OUTPUT | 36V 55A | 48V 52A |

SPECIFICATIONS

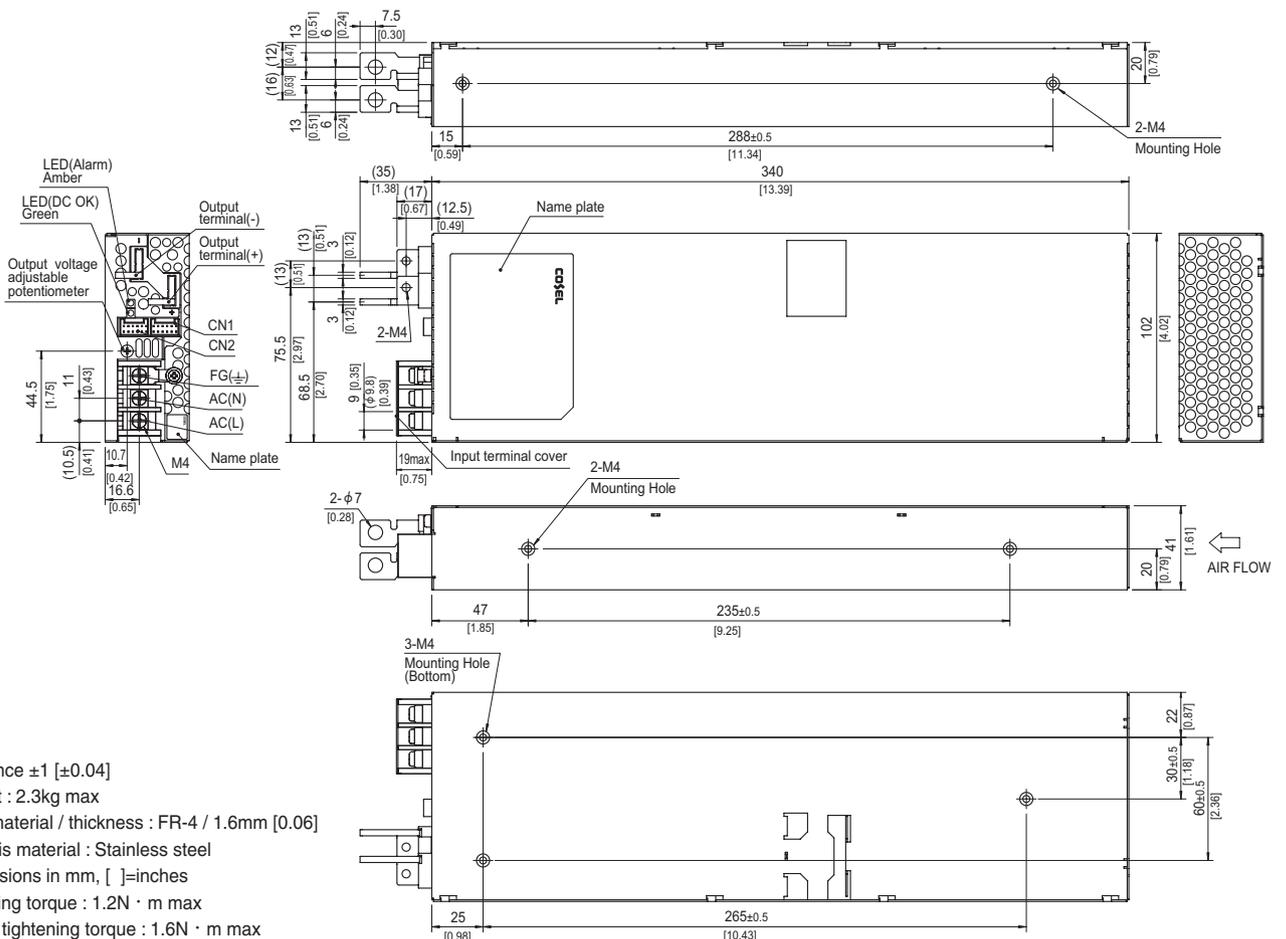
| | MODEL | FETA2500BA-36 | FETA2500BA-48 | |
|------------------------------------|------------------------------------|--|--|-------------------|
| INPUT | VOLTAGE[V] | AC170 - 264 1 φ (Output derating is required at AC170V - 180V. Refer to "Derating") | | |
| | CURRENT[A] | ACIN 200V | 11.3typ | |
| | FREQUENCY[Hz] | | 50 / 60 (47 - 63) | |
| | EFFICIENCY[%] | ACIN 230V | 80typ (Io=10%) | 83typ (Io=10%) |
| | | | 87typ (Io=20%) | 89typ (Io=20%) |
| | | | 91typ (Io=50%) | 92.5typ (Io=50%) |
| | | | 90typ (Io=100%) | 91.5typ (Io=100%) |
| POWER FACTOR | ACIN 230V | 0.98typ (Io=100%) | | |
| INRUSH CURRENT[A] | ACIN 200V | 20max / 60max (Primary inrush current /Secondary inrush current) (More than 10 sec. to re-start) | | |
| LEAKAGE CURRENT[mA] | | 0.85max (ACIN 240V 60Hz, Io=100%, According to IEC62368-1) | | |
| OUTPUT | VOLTAGE[V] | 36 | 48 | |
| | CURRENT[A] | ACIN 170V-180V | Output derating is required at ACIN 180V or less (refer to "Derating") | |
| | | ACIN 180V-264V | 55 | 52 |
| | LINE REGULATION[mV] | | 144max | |
| | LOAD REGULATION[mV] | | 360max | |
| | RIPPLE[mVp-p] | 0 to +50°C | 300max | 360max |
| | | -10 to 0°C | 360max | 480max |
| | RIPPLE NOISE[mVp-p] | 0 to +50°C | 360max | 480max |
| | | -10 to 0°C | 480max | 600max |
| | TEMPERATURE REGULATION[mV] | 0 to +50°C | 360max | 480max |
| | | -10 to +50°C | 440max | 600max |
| | DRIFT[mV] | | 144max | |
| | START-UP TIME[s] | | 1.7max (ACIN 200V, Io=100%) | |
| | HOLD-UP TIME[ms] | ACIN 200V | 10typ (Io=100%) | |
| 20typ (Io=50%) | | | | |
| OUTPUT VOLTAGE ADJUSTMENT RANGE[V] | | 28.80 - 39.60 | 38.40 - 52.80 | |
| OUTPUT VOLTAGE SETTING[V] | | 36.00 - 37.44 | 48.00 - 49.92 | |
| PROTECTION CIRCUIT AND OTHERS | OVERCURRENT PROTECTION | Activate over 105% - 120% of rated current and recovers automatically. (Output voltage shuts down when the output voltage continuously drops due to overcurrent protection.) | | |
| | OVERVOLTAGE PROTECTION[V] | 42.00 - 45.00 | 56.00 - 60.00 | |
| | DC_OK LAMP | LED (Green) | | |
| | ALARM LAMP | LED (Amber) | | |
| | REMOTE ON/OFF | Provided | | |
| ISOLATION | INPUT-OUTPUT·AUX·RC·WRN·PG | AC3,000V 1minute, Cutoff current = 25mA, DC500V 50MΩ min (At room temperature) | | |
| | INPUT-FG | AC2,000V 1minute, Cutoff current = 25mA, DC500V 50MΩ min (At room temperature) | | |
| | OUTPUT·AUX·RC·WRN·PG-FG | AC500V 1minute, Cutoff current = 100mA, DC500V 50MΩ min (At room temperature) | | |
| | OUTPUT-AUX·RC·WRN·PG | AC100V 1minute, Cutoff current = 100mA, DC100V 50MΩ min (At room temperature) | | |
| ENVIRONMENT | OPERATING TEMP.,HUMID.AND ALTITUDE | -10 to +70°C (Refer to "Derating"), 20 - 90%RH (Non condensing), 3,000m (10,000 feet) max | | |
| | STORAGE TEMP.,HUMID.AND ALTITUDE | -20 to +85°C, 20 - 90%RH (Non condensing), 9,000m (30,000 feet) max | | |
| | VIBRATION | 10 - 55Hz, 19.6m/s ² (2G), 3minutes period, 60minutes each along X, Y and Z axis | | |
| | IMPACT | 196.1m/s ² (20G), 11ms, once each along X, Y and Z axis | | |
| SAFETY AND NOISE REGULATIONS | AGENCY APPROVALS | UL62368-1, C-UL (CSA62368-1), EN62368-1 | | |
| | CONDUCTED NOISE | Complies with FCC Part 15-A, CISPR32-A, EN55032-A, VCCI-A | | |
| | HARMONIC ATTENUATOR | Complies with IEC61000-3-2 Class A | | |
| OTHERS | CASE SIZE/WEIGHT | 102 X 41 X 340mm [4.02 X 1.61 X 13.39 inches] (W X H X D) / 2.3kg max | | |
| | COOLING METHOD | Forced cooling (internal fan) | | |

*1 AUX output power is not included.
 *2 The current of input surge to a built-in noise filter (0.2ms or less) is excluded.
 *3 Measured by 500MHz oscilloscope.
 Ripple and ripple noise is measured on measuring board with capacitor of 22μF within 150mm from the output terminal.
 *4 Drift is the change in DC output for an eight hour period after a half-hour warm-up at 25°C, with the input voltage held constant at the rated input/output.
 *5 Can't be used above the rated output current and the rated output power.
 *6 When the output voltage is adjusted to higher than 49.92V and the load factor is over 70% of the rated current, if the load current changes quickly (< 200msec), the output voltage drops approximately 5V below the setting voltage.
 *7 Output voltage recovers from protection by shutting down the input voltage and waiting more than 10 seconds then turning on AC input again, or turning off the output voltage by remote control.
 *8 Please contact us about another class.
 *9 Case size contains neither the terminal blocks, connector and screw.
 * To meet the specifications, do not operate over-loaded condition.
 * A sound may occur from power supply at peak loading.

Block diagram



External view



- * Tolerance ± 1 [± 0.04]
- * Weight : 2.3kg max
- * PCB material / thickness : FR-4 / 1.6mm [0.06]
- * Chassis material : Stainless steel
- * Dimensions in mm, []=inches
- * Mounting torque : 1.2N · m max
- * Screw tightening torque : 1.6N · m max
- * Please connect safety ground to FG terminal on the unit.

FETA3000BA

FET A 3000 B A -□□ -□

① ② ③ ④ ⑤ ⑥ ⑦



Example recommended EMI/EMC filter
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 Series name
 - ② Single output
 - ③ Output wattage
 - ④ 200/230V input
 - ⑤ Version
 - ⑥ Output voltage
 - ⑦ Optional
- R: with Remote ON/OFF
Positive logic control

*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.

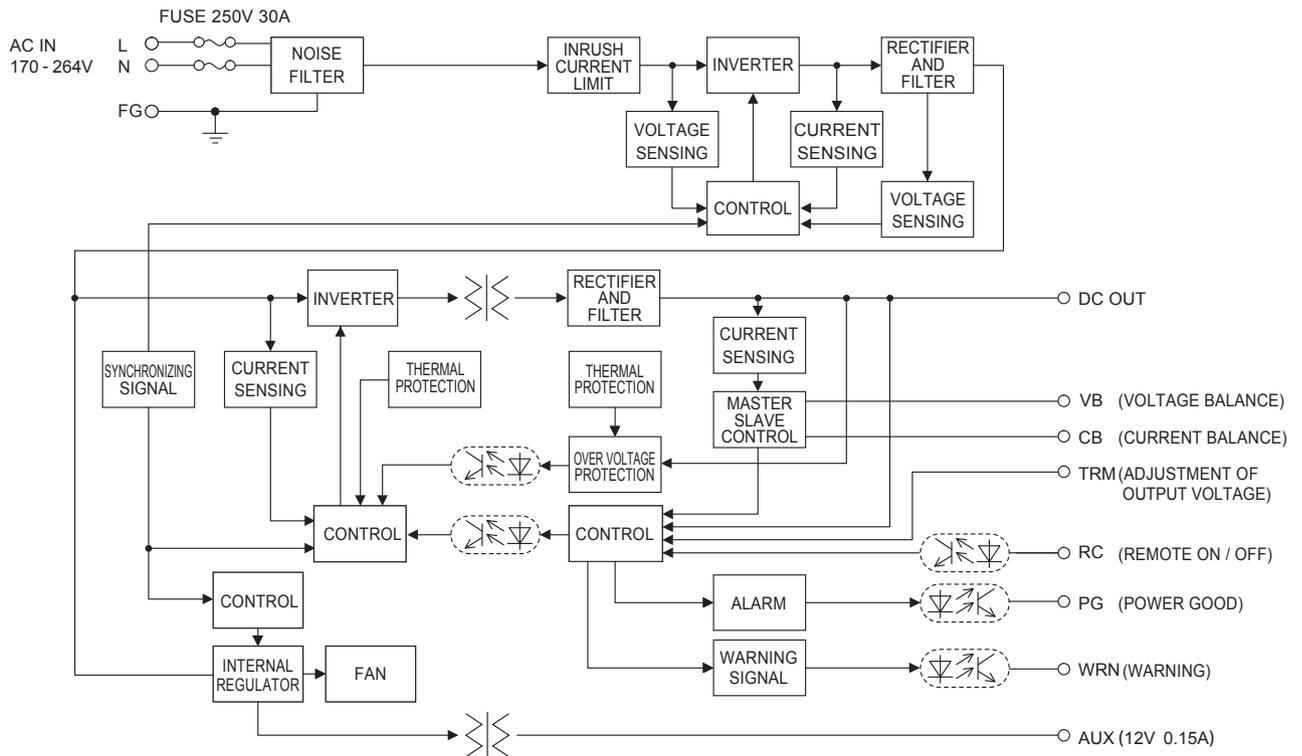
| | |
|-----------------------|---------------|
| MODEL | FETA3000BA-48 |
| MAX OUTPUT WATTAGE[W] | *1 2976 |
| DC OUTPUT | 48V 62A |

SPECIFICATIONS

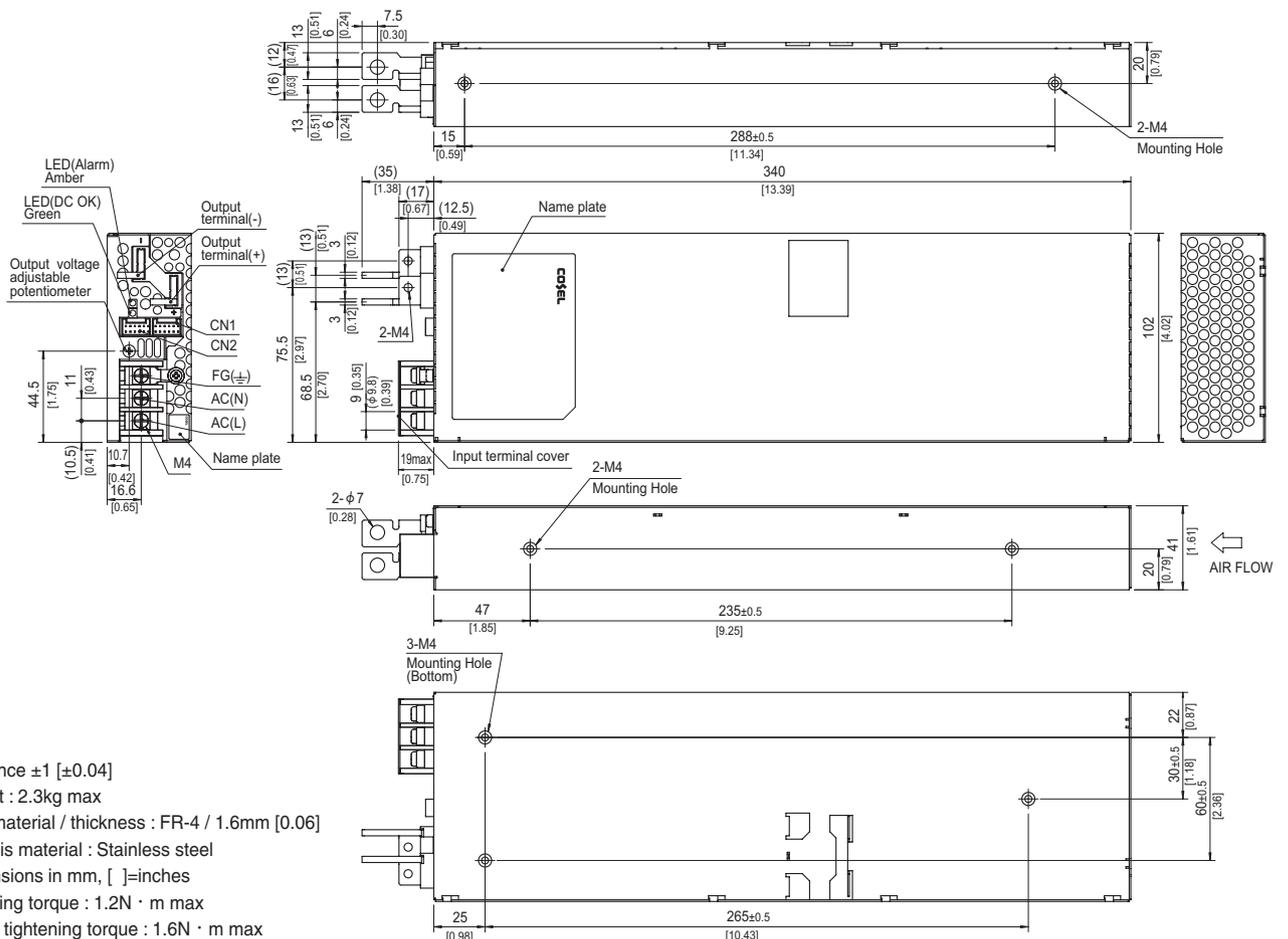
| | | | |
|------------------------------------|---|---|--|
| | MODEL | FETA3000BA-48 | |
| INPUT | VOLTAGE[V] | AC170 - 264 1 φ (Output derating is required at AC170V - 180V. Refer to "Derating") | |
| | CURRENT[A] | ACIN 200V 16.6typ | |
| | FREQUENCY[Hz] | 50 / 60 (47 - 63) | |
| | EFFICIENCY[%] | ACIN 230V | 82typ (Io=10%) |
| | | | 90typ (Io=20%) |
| | | | 93typ (Io=50%) |
| | POWER FACTOR | ACIN 230V 0.98typ (Io=100%) | |
| INRUSH CURRENT[A] | ACIN 200V *2 20max / 80max (Primary inrush current /Secondary inrush current) (More than 10 sec. to re-start) | | |
| LEAKAGE CURRENT[mA] | 0.85max (ACIN 240V 60Hz, Io=100%, According to IEC62368-1) | | |
| OUTPUT | VOLTAGE[V] | 48 | |
| | CURRENT[A] | ACIN 170V-180V | Output derating is required at ACIN 180V or less (refer to "Derating") |
| | | ACIN 180V-264V | 62 |
| | LINE REGULATION[mV] | 192max | |
| | LOAD REGULATION[mV] | 480max | |
| | RIPPLE[mVp-p] | 0 to +50°C *3 | 360max (Vo=15 - 52.8[V]) *4 |
| | | -10 to 0°C *3 | 480max (Vo=15 - 52.8[V]) *4 |
| | RIPPLE NOISE[mVp-p] | 0 to +50°C *3 | 600max (Vo=15 - 52.8[V]) *4 |
| | | -10 to 0°C *3 | 720max (Vo=15 - 52.8[V]) *4 |
| | TEMPERATURE REGULATION[mV] | 0 to +50°C | 480max |
| | | -10 to +50°C | 600max |
| | DRIFT[mV] | *4 | 192max |
| | START-UP TIME[s] | *5 | 1.7max (ACIN 200V, Io=100%) |
| | HOLD-UP TIME[ms] | ACIN 200V | 10typ (Io=100%) |
| 20typ (Io=50%) | | | |
| OUTPUT VOLTAGE ADJUSTMENT RANGE[V] | *6 | 38.40 - 52.80 | |
| OUTPUT VOLTAGE SETTING[V] | | 48.00 - 49.00 | |
| PROTECTION CIRCUIT AND OTHERS | OVERCURRENT PROTECTION | Activate over 105% - 120% of rated current and recovers automatically. (Output voltage shuts down when the output voltage continuously drops due to overcurrent protection.) *7 | |
| | OVERVOLTAGE PROTECTION[V] | *7 56.00 - 60.00 | |
| | DC_OK LAMP | LED (Green) | |
| | ALARM LAMP | LED (Amber) | |
| | REMOTE ON/OFF | Provided | |
| ISOLATION | INPUT-OUTPUT·AUX·RC·WRN·PG | AC3,000V 1minute, Cutoff current = 25mA, DC500V 50MΩ min (At room temperature) | |
| | INPUT-FG | AC2,000V 1minute, Cutoff current = 25mA, DC500V 50MΩ min (At room temperature) | |
| | OUTPUT·AUX·RC·WRN·PG-FG | AC500V 1minute, Cutoff current = 100mA, DC500V 50MΩ min (At room temperature) | |
| | OUTPUT-AUX·RC·WRN·PG | AC100V 1minute, Cutoff current = 100mA, DC100V 50MΩ min (At room temperature) | |
| ENVIRONMENT | OPERATING TEMP.,HUMID.AND ALTITUDE | -10 to +70°C (Refer to "Derating"), 20 - 90%RH (Non condensing), 3,000m (10,000 feet) max | |
| | STORAGE TEMP.,HUMID.AND ALTITUDE | -20 to +85°C, 20 - 90%RH (Non condensing), 9,000m (30,000 feet) max | |
| | VIBRATION | 10 - 55Hz, 19.6m/s ² (2G), 3minutes period, 60minutes each along X, Y and Z axis | |
| | IMPACT | 196.1m/s ² (20G), 11ms, once each along X, Y and Z axis | |
| SAFETY AND NOISE REGULATIONS | AGENCY APPROVALS | UL62368-1, C-UL (CSA62368-1), EN62368-1 | |
| | CONDUCTED NOISE | Complies with FCC Part 15-A, CISPR32-A, EN55032-A, VCCI-A | |
| | HARMONIC ATTENUATOR | Complies with IEC61000-3-2 Class A *8 | |
| OTHERS | CASE SIZE/WEIGHT | *9 102 X 41 X 340mm [4.02 X 1.61 X 13.39 inches] (W X H X D) / 2.3kg max | |
| | COOLING METHOD | Forced cooling (internal fan) | |

*1 AUX output power is not included.
 *2 The current of input surge to a built-in noise filter (0.2ms or less) is excluded.
 *3 Measured by 500MHz oscilloscope.
 *4 The output voltage should not be adjusted to 15V or less because the ripple and ripple noise would be out of specs and the unit would make the audible noise.
 *5 Drift is the change in DC output for an eight hour period after a half-hour warm-up at 25°C, with the input voltage held constant at the rated input/output.
 *6 Can't be used above the rated output current and the rated output power.
 *7 Output voltage recovers from protection by shutting down the input voltage and waiting more than 10 seconds then turning on AC input again, or turning off the output voltage by remote control.
 *8 Please contact us about another class.
 *9 Case size contains neither the terminal blocks, connector and screw.
 * To meet the specifications, do not operate over-loaded condition.
 * A sound may occur from power supply at peak loading.

Block diagram



External view



- * Tolerance ± 1 [± 0.04]
- * Weight : 2.3kg max
- * PCB material / thickness : FR-4 / 1.6mm [0.06]
- * Chassis material : Stainless steel
- * Dimensions in mm, []=inches
- * Mounting torque : 1.2N · m max
- * Screw tightening torque : 1.6N · m max
- * Please connect safety ground to FG terminal on the unit.

FETA3000BC

FET A 3000 B C -□□ -□

① ② ③ ④ ⑤ ⑥ ⑦



Example recommended EMI/EMC filter
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 Series name
 - ② Single output
 - ③ Output wattage
 - ④ 200/230V input
 - ⑤ Version
 - ⑥ Output voltage
 - ⑦ Optional
- R: with Remote ON/OFF Positive logic control

*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 | FETA3000BC-250 |
| MAX OUTPUT WATTAGE[W] | 3000 |
| DC OUTPUT | 250V 12A |

SPECIFICATIONS

| MODEL | | FETA3000BC-250 |
|-------------------------------|------------------------------------|--|
| INPUT | VOLTAGE[V] | AC170 - 264 1 φ (Output derating is required at AC170V - 180V. Refer to "Derating") |
| | CURRENT[A] | ACIN 200V 16.8typ |
| | FREQUENCY[Hz] | 50 / 60 (47 - 63) |
| | EFFICIENCY[%] | ACIN 230V 93typ (Io=50%) 91.5typ (Io=100%) |
| | POWER FACTOR | ACIN 230V 0.98typ (Io=100%) |
| | INRUSH CURRENT[A] | ACIN 200V *1 20max / 80max (Primary inrush current /Secondary inrush current) (More than 10 sec. to re-start) |
| | LEAKAGE CURRENT[mA] | 0.85max (ACIN 240V 60Hz, Io=100%, According to IEC62368-1) |
| OUTPUT | VOLTAGE[V] | 250 |
| | CURRENT[A] | ACIN 170V-180V Output derating is required at ACIN 180V or less (refer to "Derating") ACIN 180V-264V 12 |
| | LINE REGULATION[V] | 1.0max |
| | LOAD REGULATION[V] | 2.5max |
| | RIPPLE[Vp-p] | 0 to +40°C *2 12max -10 to 0°C *2 13.2max |
| | RIPPLE NOISE[Vp-p] | 0 to +40°C *2 12max -10 to 0°C *2 13.2max |
| | TEMPERATURE REGULATION[V] | 0 to +40°C 2.5max -10 to 40°C 3.2max |
| | DRIFT[V] | *3 1.0max |
| | START-UP TIME[s] | 1.0max (ACIN 200V, Io=100%) |
| | HOLD-UP TIME[ms] | ACIN 200V 10typ (Io=100%) 20typ (Io=50%) |
| | OUTPUT VOLTAGE ADJUSTMENT RANGE[V] | *4 180 - 350 |
| OUTPUT VOLTAGE SETTING[V] | 250 - 253 | |
| PROTECTION CIRCUIT AND OTHERS | OVERCURRENT PROTECTION | Activate over 105% - 120% of rated current and recovers automatically. (Output voltage shuts down when the output voltage continuously drops due to overcurrent protection.) *5 |
| | OVERVOLTAGE PROTECTION[V] | *5 400 - 450 (Active over 160%-180% of rated voltage.) *6 |
| | DC_OK LAMP | LED (Green) |
| | ALARM LAMP | LED (Amber) |
| REMOTE ON/OFF | Provided | |
| ISOLATION | INPUT-OUTPUT · RC · WRN · PG | AC3,000V 1minute, Cutoff current = 25mA, DC500V 50MΩ min (At room temperature) |
| | INPUT-FG | AC2,000V 1minute, Cutoff current = 25mA, DC500V 50MΩ min (At room temperature) |
| | OUTPUT-FG | AC2,000V 1minute, Cutoff current = 25mA, DC500V 50MΩ min (At room temperature) |
| | RC · WRN · PG-FG | AC500V 1minute, Cutoff current = 100mA, DC500V 50MΩ min (At room temperature) |
| | OUTPUT-RC · WRN · PG | AC3,000V 1minute, Cutoff current = 25mA, DC500V 50MΩ min (At room temperature) |
| ENVIRONMENT | OPERATING TEMP.,HUMID.AND ALTITUDE | -10 to +70°C (Refer to "Derating"), 20 - 90%RH (Non condensing), 3,000m (10,000 feet) max |
| | STORAGE TEMP.,HUMID.AND ALTITUDE | -20 to +85°C, 20 - 90%RH (Non condensing), 9,000m (30,000 feet) max |
| | VIBRATION | 10 - 55Hz, 19.6m/s ² (2G), 3minutes period, 60minutes each along X, Y and Z axis |
| | IMPACT | 196.1m/s ² (20G), 11ms, once each along X, Y and Z axis |
| SAFETY AND NOISE REGULATIONS | AGENCY APPROVALS | UL62368-1, C-UL (CSA62368-1), EN62368-1 |
| | CONDUCTED NOISE | Complies with FCC Part 15-A, CISPR32-A, EN55032-A, VCCI-A |
| | HARMONIC ATTENUATOR | Complies with IEC61000-3-2 Class A *7 |
| OTHERS | CASE SIZE/WEIGHT | *8 102 X 41 X 340mm [4.02 X 1.61 X 13.39 inches] (W X H X D) / 2.3kg max |
| | COOLING METHOD | Forced cooling (internal fan) |

*1 The current of input surge to a built-in noise filter (0.2ms or less) is excluded.

*2 Measured by 500MHz oscilloscope.
Ripple and ripple noise is measured on measuring board with capacitor of 2.2μF within 150mm from the output terminal.

*3 Drift is the change in DC output for an eight hour period after a half-hour warm-up at 25°C, with the input voltage held constant at the rated input/output.

*4 Can't be used above the rated output current and the rated output power.

*5 Output voltage recovers from protection by shutting down the input voltage and waiting more than 10 seconds then turning on AC input again, or turning off the output voltage by remote control.

*6 Since the voltage adjustment range is wide, the operating voltage of the overvoltage protection is set high.

*7 Please contact us about another class.

*8 Case size contains neither the terminal blocks, connector and screw.

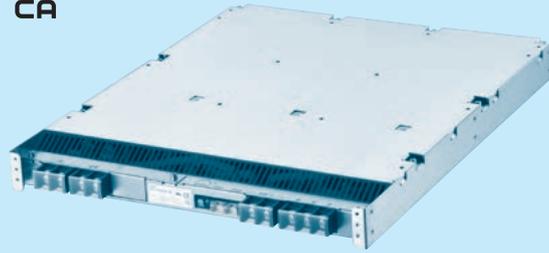
* To meet the specifications, do not operate over-loaded condition.

* A sound may occur from power supply at peak loading.

FETA7000T

FET A 7000 T -□□

① ② ③ ④ ⑤



Example recommended EMI/EMC filter
TAC-30-683



*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 Series name
- ② Single output
- ③ Output wattage
- ④ Triple input phase
- ⑤ Output voltage

*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 | FETA7000T-48 | FETA7000T-144 |
| MAX OUTPUT WATTAGE[W] | *1 7113 | 7488 |
| DC OUTPUT | 48V 148.2A | 144V 52A |

SPECIFICATIONS

| | MODEL | FETA7000T-48 | FETA7000T-144 | |
|---------------------------------------|--------------------------------------|---|---|---------|
| INPUT | VOLTAGE[V] | AC170 - 264 3 φ (Output derating is required at AC170V - 180V. Refer to "Derating") | | |
| | CURRENT[A] | ACIN 200V | 22.7typ | |
| | FREQUENCY[Hz] | 50 / 60 (47 - 63) | | |
| | EFFICIENCY[%] | ACIN 230V | 90.5% (Io=100%) | |
| | POWER FACTOR | ACIN 230V | 0.98typ (Io=100%) | |
| | INRUSH CURRENT[A] | ACIN 200V *2 | 30max / 60max (Primary inrush current / Secondary inrush current) (More than 10 sec. to re-start) | |
| | LEAKAGE CURRENT[mA] | 3.0max (ACIN 240V 60Hz, Io=100%, According to IEC62368-1) | | |
| OUTPUT | VOLTAGE[V] | 48 | 144 | |
| | CURRENT[A] | ACIN 170V-180V | Output derating is required at ACIN 180V or less (refer to "Derating") | |
| | | ACIN 180V-264V | 148.2 | 52 |
| | LINE REGULATION[mV] | 192max | | |
| | LOAD REGULATION[mV] | 960max | | |
| | RIPPLE[mVp-p] | 0 to +40°C *3 | 360max | 720max |
| | | -10 to 0°C *3 | 480max | 960max |
| | RIPPLE NOISE[mVp-p] | 0 to +40°C *3 | 480max | 960max |
| | | -10 to 0°C *3 | 600max | 1200max |
| | TEMPERATURE REGULATION[mV] | 0 to +40°C | 480max | 2200max |
| | | -10 to +40°C | 600max | 2800max |
| | DRIFT[mV] | *4 | 192max | 384max |
| | START-UP TIME[s] | 1.7max (ACIN 200V, Io=100%) | | |
| | HOLD-UP TIME[ms] | ACIN 200V | 10typ (Io=100%) | |
| 20typ (Io=50%) | | | | |
| OUTPUT VOLTAGE ADJUSTMENT RANGE[V] *5 | 28.8 - 52.8 *6 | | 86.4 - 158.4 *7 | |
| OUTPUT VOLTAGE SETTING[V] | 47 - 49 | | 141 - 147 | |
| PROTECTION CIRCUIT AND OTHERS | OVERCURRENT PROTECTION | Works over 105% of rating (Recovers automatically, Hiccup overcurrent) (Output voltage shuts down when the output voltage continuously drops due to overcurrent protection.) *8 | | |
| | OVERVOLTAGE PROTECTION[V] *8 | 56 - 60 | 168 - 180 | |
| | DC_OK LAMP | LED (Green) | | |
| | ALARM LAMP | LED (Amber) | | |
| REMOTE ON/OFF | Provided | | | |
| ISOLATION | INPUT-OUTPUT-AUX-RC-WRN-PG | AC3,000V 1minute, Cutoff current = 100mA, DC500V 50MΩ min (At room temperature) | | |
| | INPUT-FG | AC2,000V 1minute, Cutoff current = 100mA, DC500V 50MΩ min (At room temperature) | | |
| | OUTPUT-AUX-RC-WRN-PG-FG | AC500V 1minute, Cutoff current = 100mA, DC500V 50MΩ min (At room temperature) | | |
| | OUTPUT-AUX-RC-WRN-PG | AC100V 1minute, Cutoff current = 100mA, DC100V 50MΩ min (At room temperature) | | |
| ENVIRONMENT | OPERATING TEMP., HUMID. AND ALTITUDE | -10 to +60°C (Refer to "Derating"), 20 - 90%RH (Non condensing), 3,000m (10,000 feet) max | | |
| | STORAGE TEMP., HUMID. AND ALTITUDE | -20 to +75°C, 20 - 90%RH (Non condensing), 9,000m (30,000 feet) max | | |
| | VIBRATION | 10 - 55Hz, 19.6m/s ² (2G), 3minutes period, 60minutes each along X, Y and Z axis | | |
| | IMPACT | 196.1m/s ² (20G), 11ms, once each along X, Y and Z axis | | |
| SAFETY AND NOISE REGULATIONS | AGENCY APPROVALS | UL62368-1, C-UL (CSA62368-1), EN62368-1 | | |
| | CONDUCTED NOISE | Complies with FCC Part15-A, CISPR32-A, EN55032-A, VCCI-A | | |
| | HARMONIC ATTENUATOR | Complies with IEC61000-3-12 | | |
| OTHERS | CASE SIZE/WEIGHT *9 | 388 X 43 X 475mm [15.28 X 1.69 X 18.70 inches] (W X H X D) / 11kg max | | |
| | COOLING METHOD | Forced cooling (internal fan) | | |

*1 AUX output power is not included.

*2 The current of input surge to a built-in noise filter (0.2ms or less) is excluded.

*3 Measured by 500MHz oscilloscope.

Ripple and ripple noise is measured on measuring board with capacitor of 22μF within 150mm from the output terminal.

*4 Drift is the change in DC output for an eight hour period after a half-hour warm-up at 25°C, with the input voltage held constant at the rated input/output.

*5 Can't be used above the rated output current and the rated output power.

*6 When the output voltage is adjusted to higher than 49.92V and the load factor is over 70% of the rated current, if the load current changes quickly (< 200msec), the output voltage drops approximately 5V below the setting voltage.

*7 When the output voltage is adjusted to higher than 149.82V and the load factor is over 70% of the rated current, if the load current changes quickly (<200msec), the output voltage drops approximately 15V below the setting voltage.

*8 Output voltage recovers from protection by shutting down the input voltage and waiting more than 10 seconds then turning on AC input again, or turning off the output voltage by remote control.

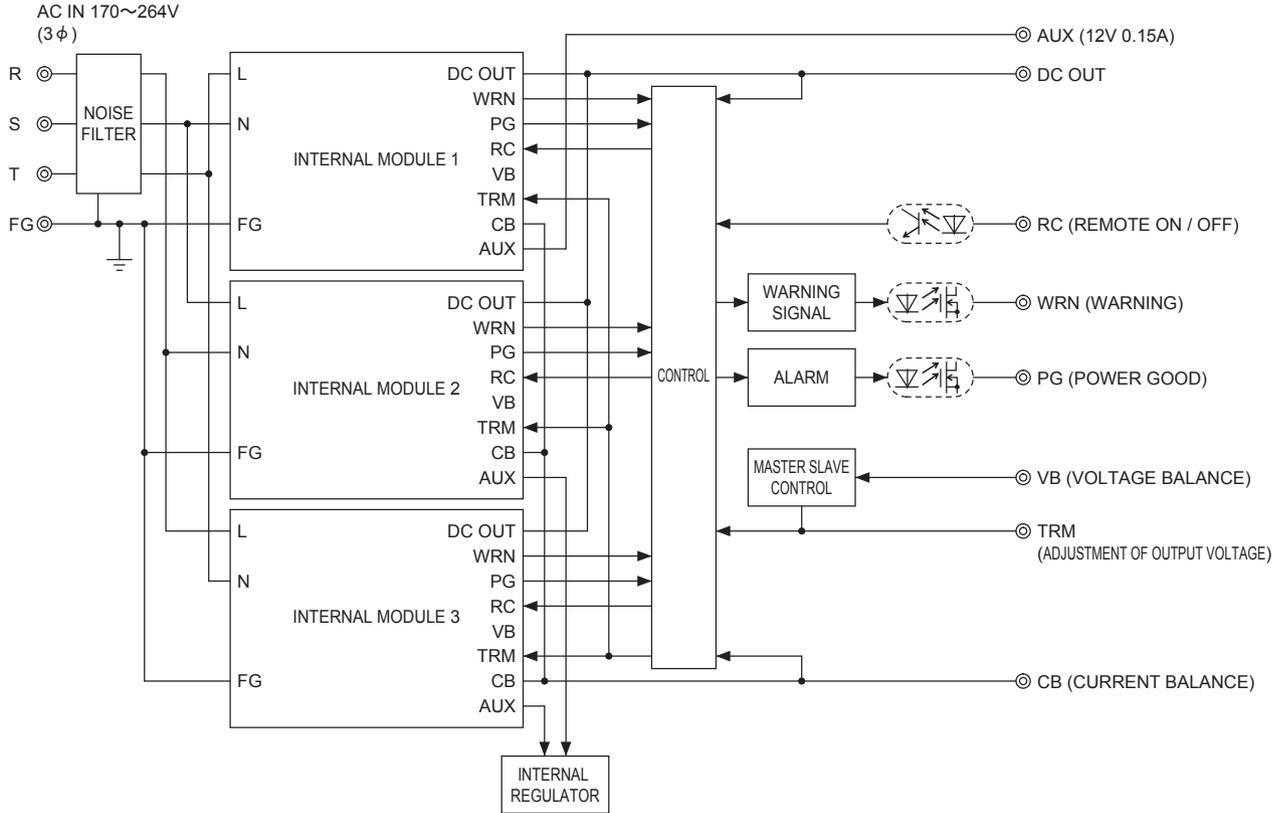
*9 Case size contains neither the terminal blocks, connector and screw.

To meet the specifications, do not operate over-loaded condition.

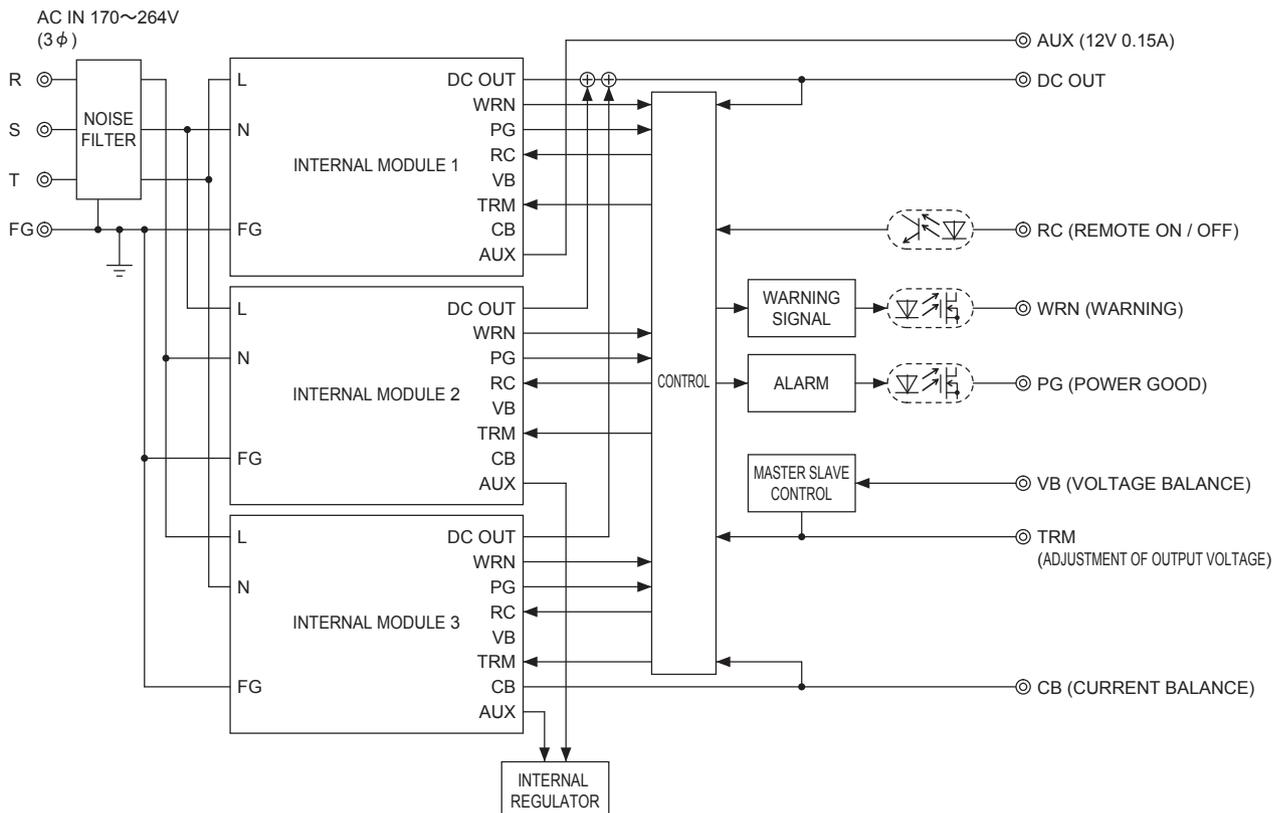
A sound may occur from power supply at peak loading.

Block diagram

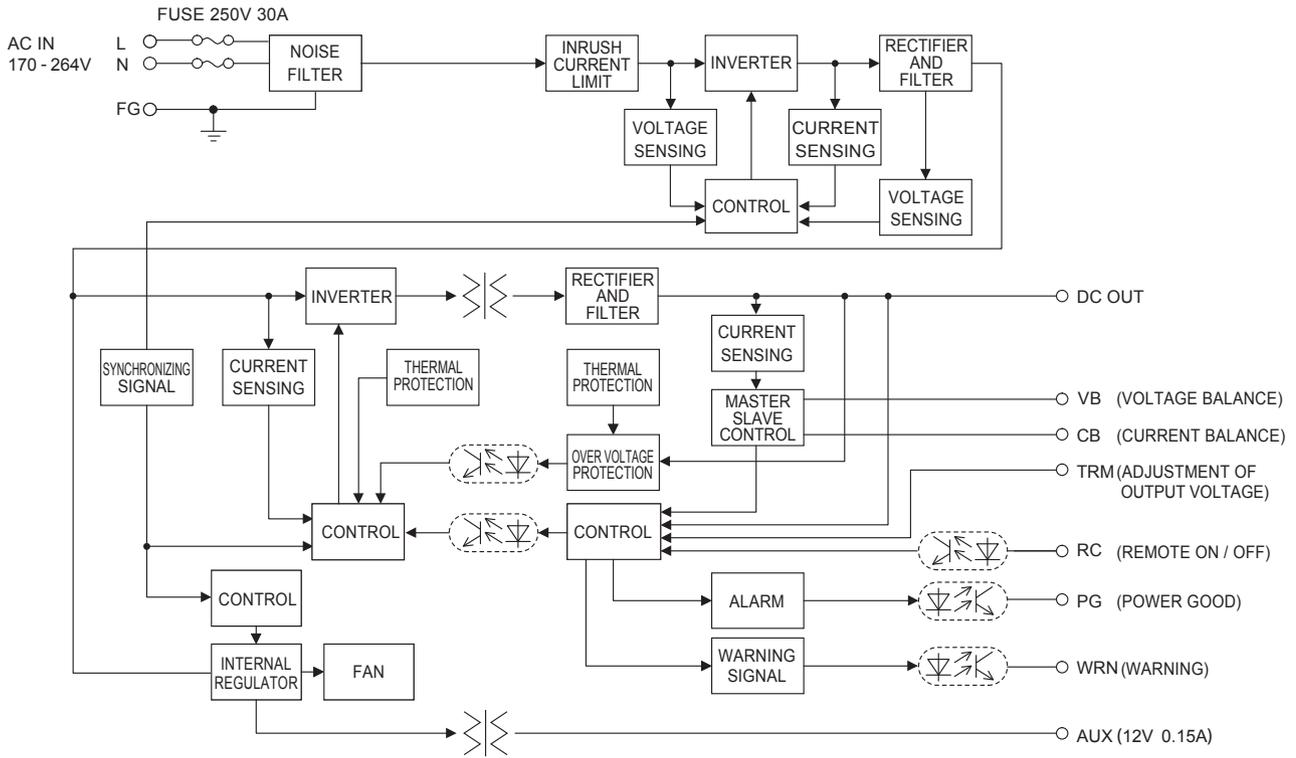
●FETA7000T-48



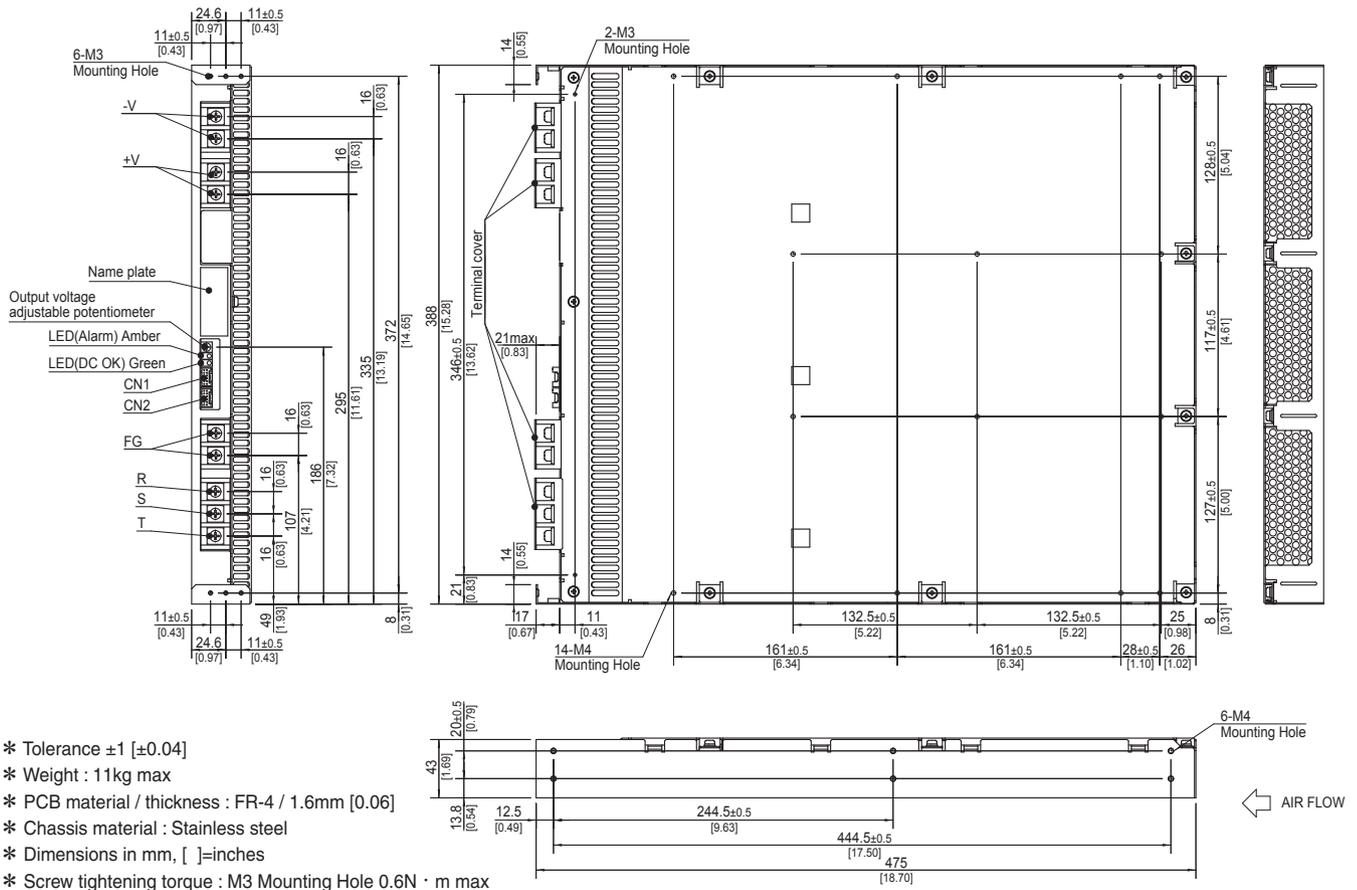
●FETA7000T-144



Block diagram of internal module



External view

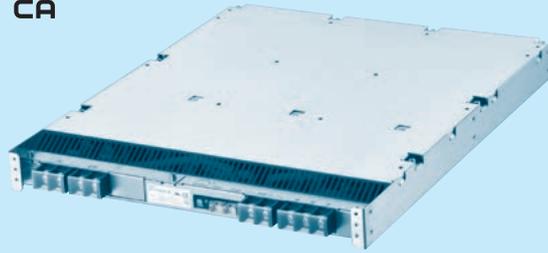


- * Tolerance ± 1 [± 0.04]
- * Weight : 11kg max
- * PCB material / thickness : FR-4 / 1.6mm [0.06]
- * Chassis material : Stainless steel
- * Dimensions in mm, []=inches
- * Screw tightening torque : M3 Mounting Hole 0.6N · m max
M4 Mounting Hole 1.2N · m max
M5 Input terminal 3.0N · m max
- * Please connect safety ground to FG terminal on the unit.

FETA7000ST

FET A 7000 ST -□□

① ② ③ ④ ⑤



Example recommended EMI/EMC filter
YAC-25-685



*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 Series name
- ② Single output
- ③ Output wattage
- ④ 3 φ 4-Wire
- ⑤ Output voltage

*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 | FETA7000ST-48 | FETA7000ST-144 |
|-----------------------|---------------|----------------|
| MAX OUTPUT WATTAGE[W] | *1 7113 | 7488 |
| DC OUTPUT | 48V 148.2A | 144V 52A |

SPECIFICATIONS

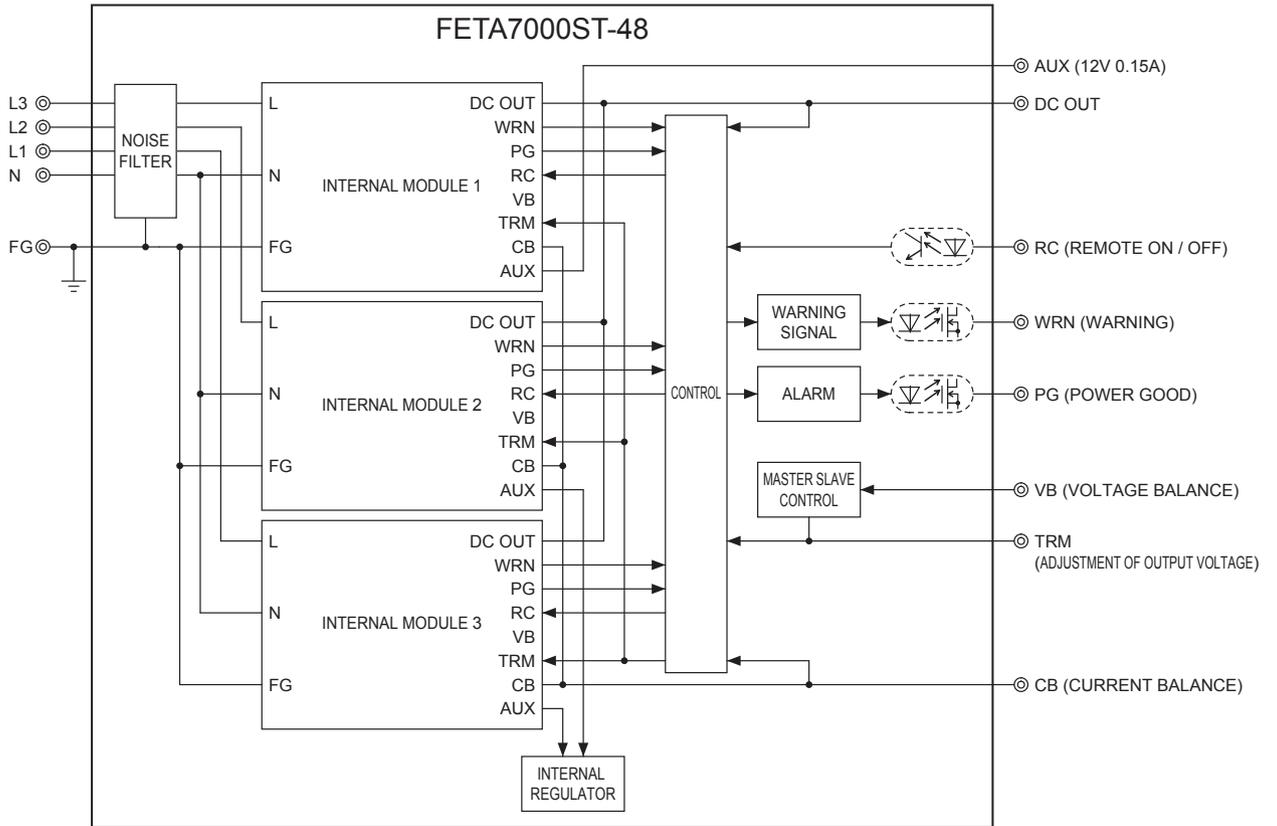
| | MODEL | FETA7000ST-48 | FETA7000ST-144 | |
|------------------------------|--------------------------------------|---|---|--------------------|
| INPUT | VOLTAGE[V] | AC300 - 480 3 φ 4-Wire (Output derating is required at AC300V - 320V. Refer to "Derating") | | |
| | CURRENT[A] | ACIN 400V *2 | 11.4typ | |
| | FREQUENCY[Hz] | 50 / 60 (47 - 63) | | |
| | EFFICIENCY[%] | ACIN 400V | 90.5% (Io=100%) | |
| | POWER FACTOR | ACIN 400V | 0.98typ (Io=100%) | |
| | INRUSH CURRENT[A] | ACIN 400V *3 | 40max / 80max (Primary inrush current /Secondary inrush current) (More than 10 sec. to re-start) | |
| OUTPUT | LEAKAGE CURRENT[mA] | 5.0max (ACIN 480V 60Hz, Io=100%, According to IEC62368-1) | | |
| | VOLTAGE[V] | 48 | 144 | |
| | CURRENT[A] | ACIN 300V-320V ACIN 320V-480V | Output derating is required at ACIN 320V or less (refer to "Derating") | |
| | LINE REGULATION[mV] | 192max | 360max | |
| | LOAD REGULATION[mV] | 960max | 1800max | |
| | RIPPLE[mVp-p] | 0 to +40°C *4 -10 to 0°C *4 | 360max 480max | 720max 960max |
| | RIPPLE NOISE[mVp-p] | 0 to +40°C *4 -10 to 0°C *4 | 480max 600max | 960max 1200max |
| | TEMPERATURE REGULATION[mV] | 0 to +40°C -10 to +40°C | 480max 600max | 2200max 2800max |
| | DRIFT[mV] | *5 | 192max | 384max |
| | START-UP TIME[s] | 1.7max (ACIN 400V, Io=100%) | | |
| | HOLD-UP TIME[ms] | ACIN 400V | 10typ (Io=100%) 20typ (Io=50%) | |
| | OUTPUT VOLTAGE ADJUSTMENT RANGE[V] | *6 | 28.8 - 52.8 *7 | 86.4 - 158.4 *8 |
| | OUTPUT VOLTAGE SETTING[V] | | 47 - 49 | 141 - 147 |
| | PROTECTION CIRCUIT AND OTHERS | OVERCURRENT PROTECTION | Works over 105% of rating (Recovers automatically, Hiccup overcurrent) (Output voltage shuts down when the output voltage continuously drops due to overcurrent protection.) *9 | |
| OVERVOLTAGE PROTECTION[V] | | *9 | 56 - 60 | |
| DC_OK LAMP | | LED (Green) | | |
| ALARM LAMP | | LED (Amber) | | |
| ISOLATION | REMOTE ON/OFF | Provided | | |
| | INPUT-OUTPUT-AUX-RC-WRN-PG | AC3,000V 1minute, Cutoff current = 100mA, DC500V 50MΩ min (At room temperature) | | |
| | INPUT-FG | AC2,000V 1minute, Cutoff current = 100mA, DC500V 50MΩ min (At room temperature) | | |
| | OUTPUT-AUX-RC-WRN-PG-FG | AC500V 1minute, Cutoff current = 100mA, DC500V 50MΩ min (At room temperature) | | |
| | OUTPUT-AUX-RC-WRN-PG | AC100V 1minute, Cutoff current = 100mA, DC100V 50MΩ min (At room temperature) | | |
| ENVIRONMENT | OPERATING TEMP., HUMID. AND ALTITUDE | -10 to +60°C (Refer to "Derating"), 20 - 90%RH (Non condensing), 3,000m (10,000 feet) max | | |
| | STORAGE TEMP., HUMID. AND ALTITUDE | -20 to +75°C, 20 - 90%RH (Non condensing), 9,000m (30,000 feet) max | | |
| | VIBRATION | 10 - 55Hz, 19.6m/s ² (2G), 3minutes period, 60minutes each along X, Y and Z axis | | |
| SAFETY AND NOISE REGULATIONS | IMPACT | 196.1m/s ² (20G), 11ms, once each along X, Y and Z axis | | |
| | AGENCY APPROVALS | UL62368-1, C-UL (CSA62368-1), EN62368-1 | | |
| | CONDUCTED NOISE | Complies with FCC Part15-A, CISPR32-A, EN55032-A, VCCI-A with an external EMI/EMC filter. (refer to Instruction manual) | | |
| OTHERS | HARMONIC ATTENUATOR | Complies with IEC61000-3-2 Class A *10 | | |
| | CASE SIZE/WEIGHT | *11 | 388 X 43 X 475mm [15.28 X 1.69 X 18.70 inches] (W X H X D) / 11kg max | |
| | COOLING METHOD | Forced cooling (internal fan) | | |

*1 AUX output power is not included.
 *2 The current flowing through the neutral line increases when AC input voltage is over AC456V 3 φ 4-Wire. The flowing current will vary according to the input voltage and the load current. The maximum flowing current will be 18A.
 *3 The current of input surge to a built-in noise filter (0.2ms or less) is excluded.
 *4 Measured by 500MHz oscilloscope. Ripple and ripple noise is measured on measuring board with capacitor of 22μF within 150mm from the output terminal.
 *5 Drift is the change in DC output for an eight hour period after a half-hour warm-up at 25°C, with the input voltage held constant at the rated input/output.
 *6 Can't be used above the rated output current and the rated output power.
 *7 When the output voltage is adjusted to higher than 49.92V and the load factor is over 70% of the rated current, if the load current changes quickly (< 200msec), the output voltage drops approximately 5V below the setting voltage.
 *8 When the output voltage is adjusted to higher than 149.82V and the load factor is over 70% of the rated current, if the load current changes quickly (< 200msec), the output voltage drops approximately 15V below the setting voltage.
 *9 Output voltage recovers from protection by shutting down the input voltage and waiting more than 10 seconds then turning on AC input again, or turning off the output voltage by remote control.
 *10 Please contact us about another class.
 *11 Case size contains neither the terminal blocks, connector and screw. To meet the specifications, do not operate over-loaded condition. A sound may occur from power supply at peak loading.

Block diagram

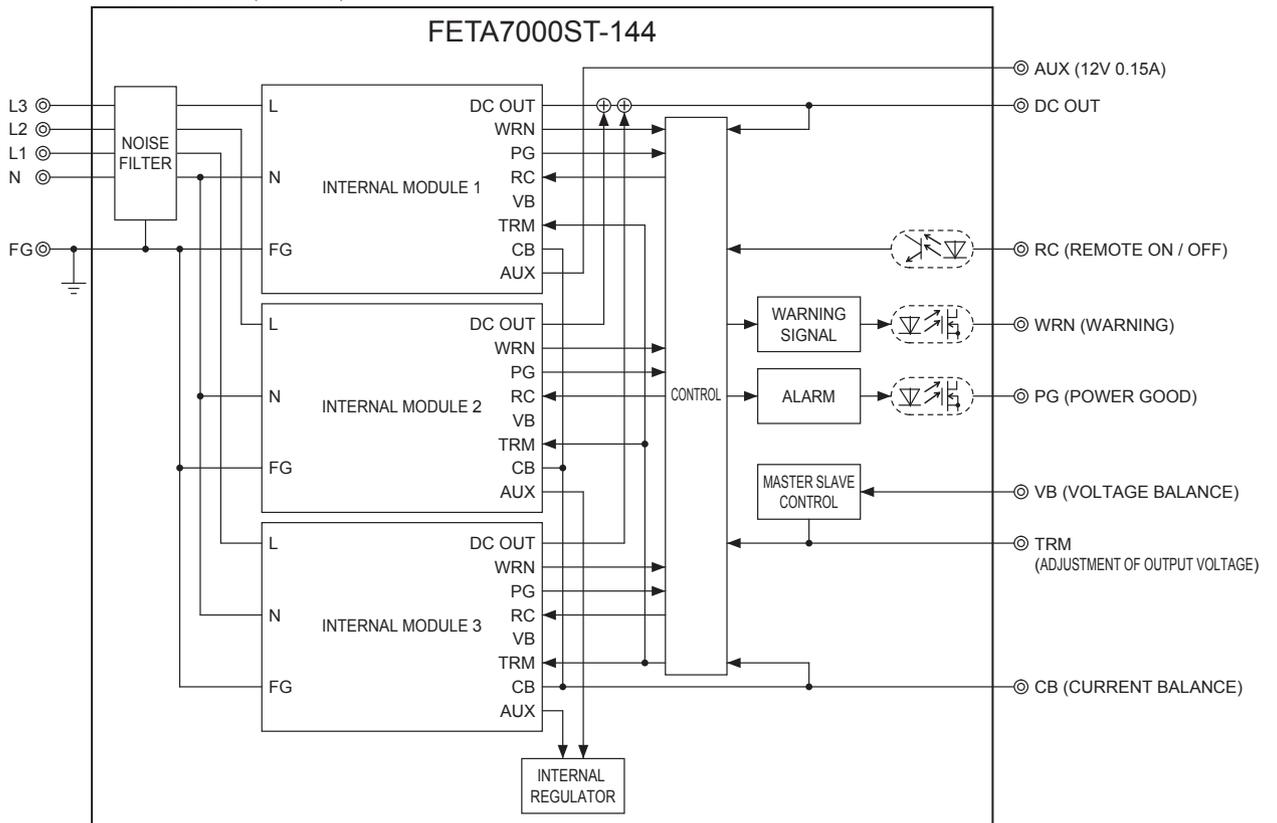
●FETA7000ST-48

AC IN 300~480V (3 φ 4-Wire)

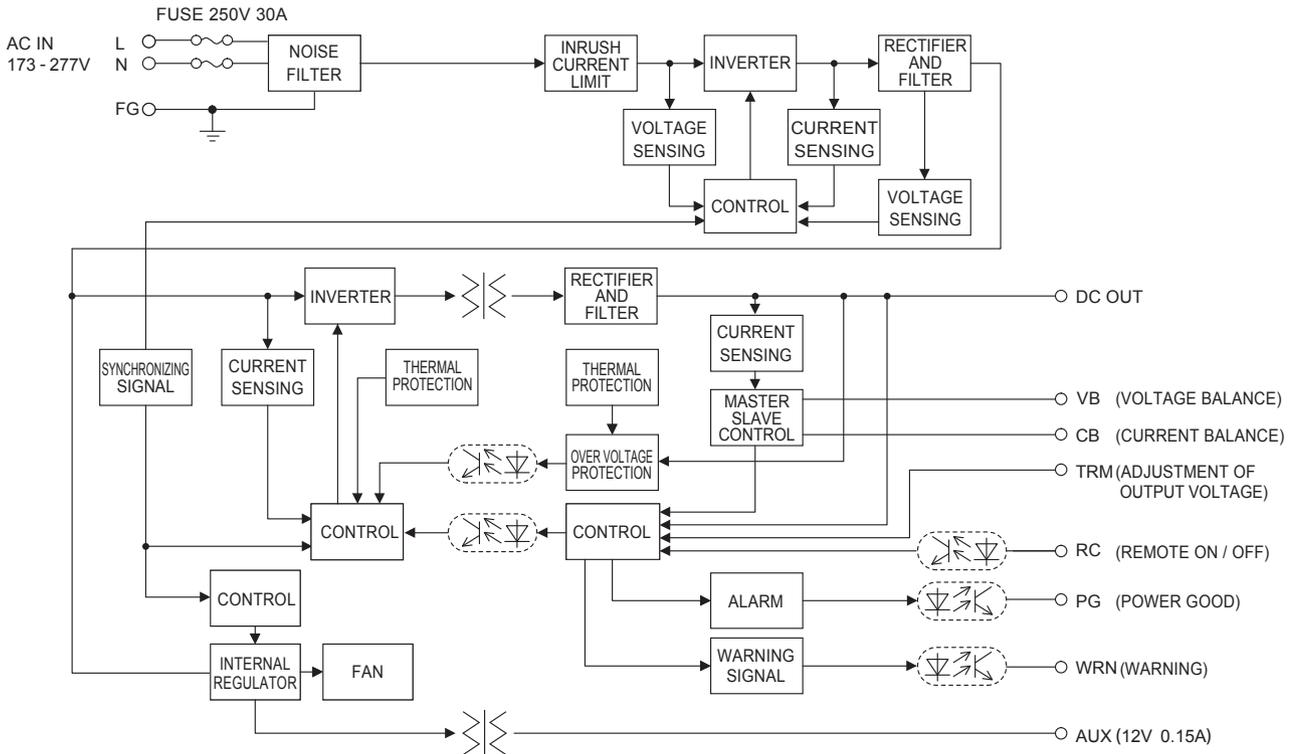


●FETA7000ST-144

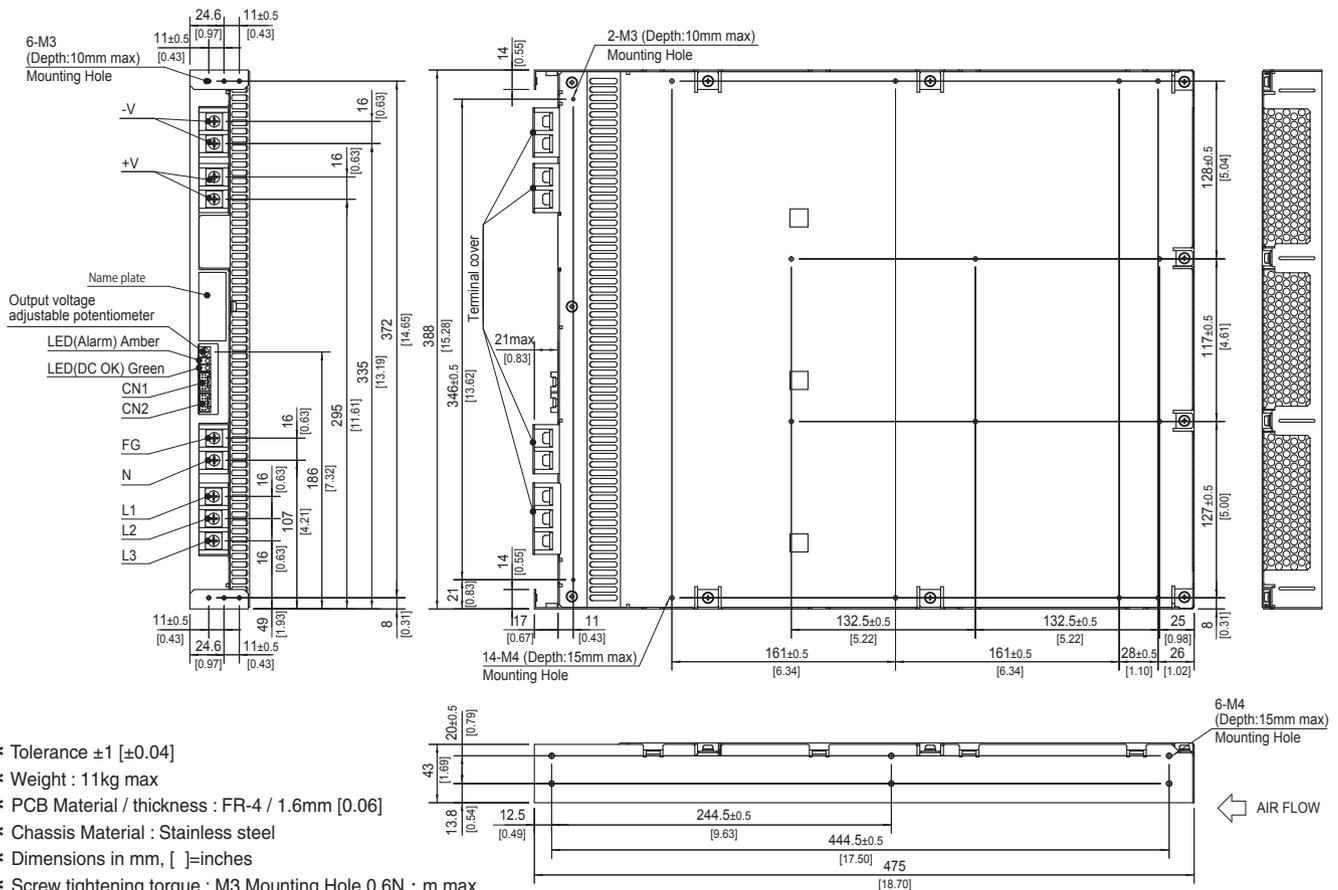
AC IN 300~480V (3 φ 4-Wire)



Block diagram of internal module



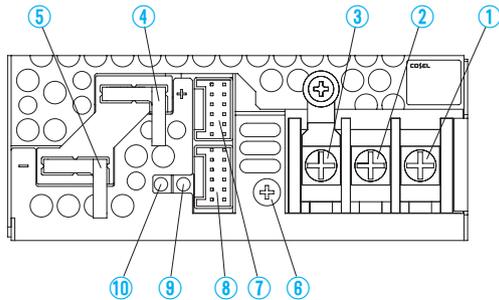
External view



- * Tolerance ± 1 [± 0.04]
- * Weight : 11kg max
- * PCB Material / thickness : FR-4 / 1.6mm [0.06]
- * Chassis Material : Stainless steel
- * Dimensions in mm, []=inches
- * Screw tightening torque : M3 Mounting Hole 0.6N · m max
M4 Mounting Hole 1.2N · m max
M5 Terminal block 3.0N · m max
- * Please connect safety ground to FG terminal on the unit.

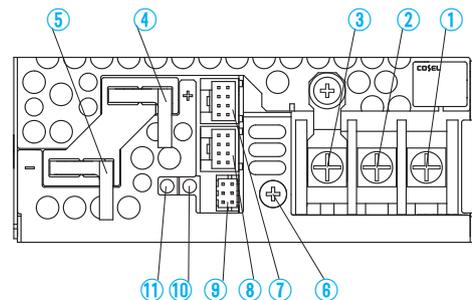
Terminal Blocks

FETA2500BA, 3000BA



- ①AC (L) } Input Terminals AC170 - 264V 1 φ 47 - 63Hz
- ②AC (N) } (M4)
- ③Frame ground (M4 \perp)
- ④+Output
- ⑤-Output
- ⑥Output voltage adjustable potentiometer
- ⑦CN1 } Connectors
- ⑧CN2 }
- ⑨LED for output voltage confirmation (DC_OK)
- ⑩LED for fault condition detection (ALARM)

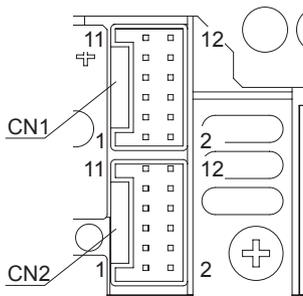
FETA3000BC



- ①AC (L) } Input Terminals AC170 - 264V 1 φ 47 - 63Hz
- ②AC (N) } (M4)
- ③Frame ground (M4 \perp)
- ④+Output
- ⑤-Output
- ⑥Output voltage adjustable potentiometer
- ⑦CN1 } Connectors
- ⑧CN2 }
- ⑨CN3 }
- ⑩LED for output voltage confirmation (DC_OK)
- ⑪LED for fault condition detection (ALARM)

FETA2500BA, 3000BA

Pin Configuration and Functions of CN1, CN2



Pin Configuration and Function of CN1, CN2

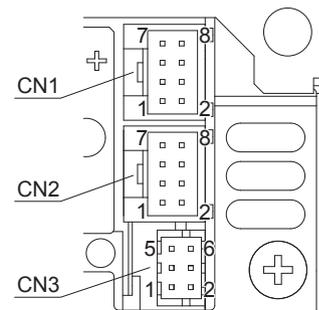
| Pin No. | Pin Name | Function |
|---------|----------|------------------------------|
| 1 | AUXG | Auxiliary power output (GND) |
| 2 | AUX | Auxiliary power output |
| 3 | WRNG | Warning signal (GND) |
| 4 | WRN | Warning signal |
| 5 | PGG | Alarm signal (GND) |
| 6 | PG | Alarm signal |
| 7 | RCG | Remote ON/OFF (GND) |
| 8 | RC | Remote ON/OFF |
| 9 | COM | Signal ground |
| 10 | TRM | Adjustment of output voltage |
| 11 | VB | Voltage Balance |
| 12 | CB | Current Balance |

Mating connector and terminal

| Connector | Housing | Terminal | Mfr. |
|------------|----------------------------|--|-------|
| CN1 CN2 | S12B-PUDSS-1 PUDP-12V-S | Reel : SPUD-001T-P0.5 or SPUD-002T-P0.5 | J.S.T |

FETA3000BC

Pin Configuration and Function of CN1, CN2, CN3



Pin Configuration and Functions of CN1, CN2

| Pin No. | Pin Name | Function |
|---------|----------|------------------------------|
| 1 | N.C. | - |
| 2 | N.C. | - |
| 3 | N.C. | - |
| 4 | N.C. | - |
| 5 | COM | Signal ground |
| 6 | TRM | Adjustment of output voltage |
| 7 | VB | Voltage Balance |
| 8 | CB | Current Balance |

Pin Configuration and Functions of CN3

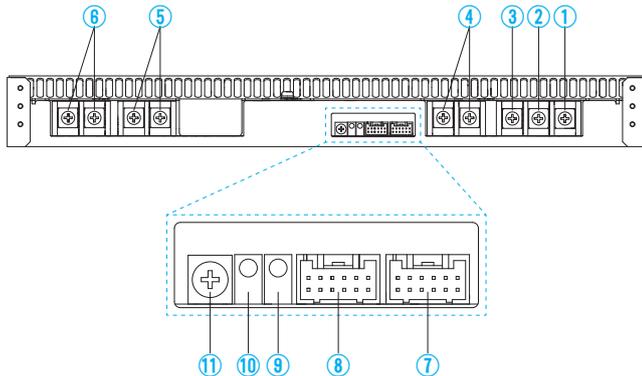
| Pin No. | Pin Name | Function |
|---------|----------|----------------------|
| 1 | WRNG | Warning signal (GND) |
| 2 | WRN | Warning signal |
| 3 | PGG | Alarm signal (GND) |
| 4 | PG | Alarm signal |
| 5 | RCG | Remote ON/OFF (GND) |
| 6 | RC | Remote ON/OFF |

Mating connector and terminal

| Connector | Housing | Terminal | Mfr. |
|------------|-----------------------------|--|--------|
| CN1 CN2 | S8B-PUDSS-1 PUDP-8V-S | Reel : SPUD-001T-P0.5 or SPUD-002T-P0.5 | J.S.T |
| CN3 | DF11-6DP-2DS DF11-6DS-2C | DF11-22SCF or DF11-2428SCF | Hirose |

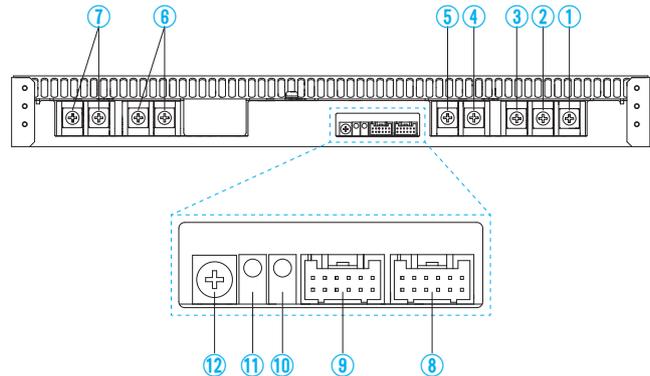
Terminal Blocks

FETA7000T



- ①AC (T) } Input Terminals AC170 - 264V 3 φ 47 - 63Hz
- ②AC (S) } (M5)
- ③AC (R) } (M5)
- ④Frame ground (M5 ≍)
- ⑤+Output
- ⑥-Output
- ⑦CN2 } Connectors
- ⑧CN1 }
- ⑨LED for output voltage confirmation (DC_OK)
- ⑩LED for fault condition detection (ALARM)
- ⑪Output voltage adjustable potentiometer

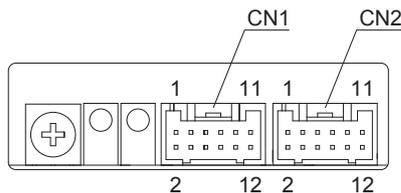
FETA7000ST



- ①AC (L3) } Input Terminals AC170 - 264V 3 φ - 4 wire 47 - 63Hz
- ②AC (L2) } (M5)
- ③AC (L1) } (M5)
- ④AC (N) }
- ⑤Frame ground (M5 ≍)
- ⑥+Output
- ⑦-Output
- ⑧CN2 } Connectors
- ⑨CN1 }
- ⑩LED for output voltage confirmation (DC_OK)
- ⑪LED for fault condition detection (ALARM)
- ⑫Output voltage adjustable potentiometer

FETA7000T

Pin Configuration and Functions of CN1, CN2



Pin Configuration and Function of CN1, CN2

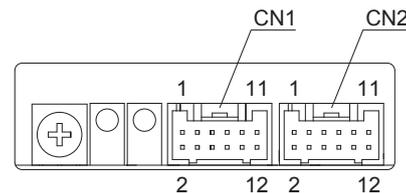
| Pin No. | Pin Name | Function |
|---------|----------|------------------------------|
| 1 | AUXG | Auxiliary power output (GND) |
| 2 | AUX | Auxiliary power output |
| 3 | WRNG | Warning signal (GND) |
| 4 | WRN | Warning signal |
| 5 | PGG | Alarm signal (GND) |
| 6 | PG | Alarm signal |
| 7 | RCG | Remote ON/OFF (GND) |
| 8 | RC | Remote ON/OFF |
| 9 | COM | Signal ground |
| 10 | TRM | Adjustment of output voltage |
| 11 | VB | Voltage Balance |
| 12 | CB | Current Balance |

Mating connector and terminal

| Connector | Housing | Terminal | Mfr. |
|------------|----------------------------|--|-------|
| CN1 CN2 | S12B-PUDSS-1 PUDP-12V-S | Reel : SPUD-001T-P0.5 or SPUD-002T-P0.5 | J.S.T |

FETA7000ST

Pin Configuration and Functions of CN1, CN2



Pin Configuration and Function of CN1, CN2

| Pin No. | Pin Name | Function |
|---------|----------|------------------------------|
| 1 | AUXG | Auxiliary power output (GND) |
| 2 | AUX | Auxiliary power output |
| 3 | WRNG | Warning signal (GND) |
| 4 | WRN | Warning signal |
| 5 | PGG | Alarm signal (GND) |
| 6 | PG | Alarm signal |
| 7 | RCG | Remote ON/OFF (GND) |
| 8 | RC | Remote ON/OFF |
| 9 | COM | Signal ground |
| 10 | TRM | Adjustment of output voltage |
| 11 | VB | Voltage Balance |
| 12 | CB | Current Balance |

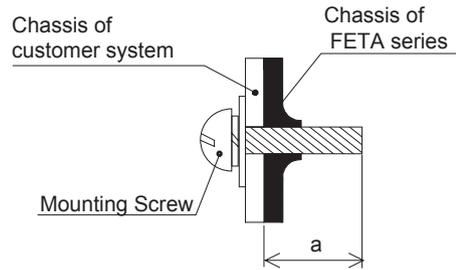
Mating connector and terminal

| Connector | Housing | Terminal | Mfr. |
|------------|----------------------------|--|-------|
| CN1 CN2 | S12B-PUDSS-1 PUDP-12V-S | Reel : SPUD-001T-P0.5 or SPUD-002T-P0.5 | J.S.T |

Assembling and Installation Method

Installation Method

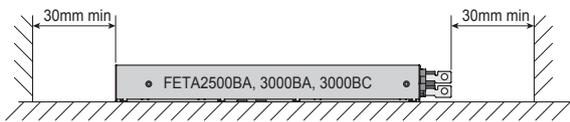
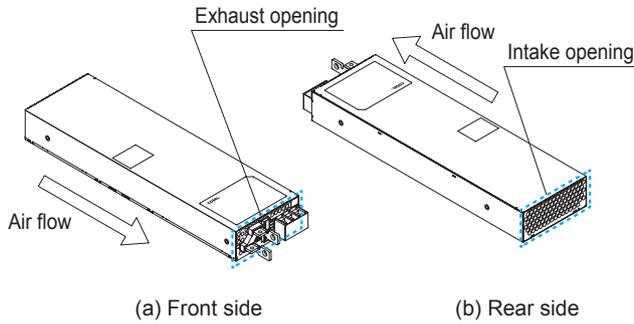
- Screw mounting requires considering the product weight for safety fixtures.
- To keep enough insulation distance between screws and internal components, length of the mounting screw should not exceed recommendation as shown in right figure.



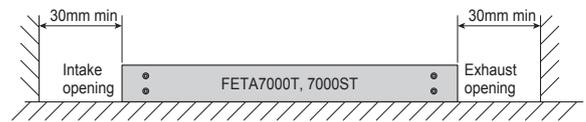
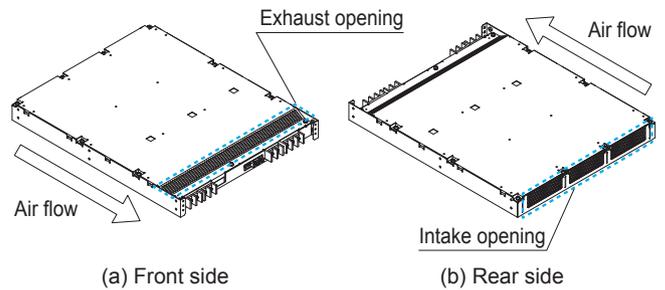
| Model | Mounting hole | a (Max penetration length) |
|----------------------------|---------------|----------------------------|
| FETA2500BA, 3000BA, 3000BC | Bottom | 6mm max |
| | Side | 4.5mm max |
| FETA7000T, 7000ST | Side | 15mm max |

- The power supplies have a built-in forced cooling fan. Do not block ventilation at the suction side and its opposite side.
- * Reverse airflow option (-F2) is available for FETA2500BA. Refer to Instruction manual.
- If you use a power supply in a dusty environment, it can cause a failure. Please consider taking such countermeasures as installing an air filter near the suction area of the system to prevent a failure.

FETA2500BA, 3000BA, 3000BC

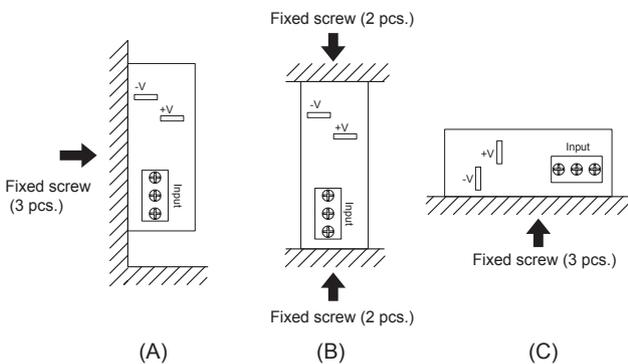


FETA7000T, 7000ST

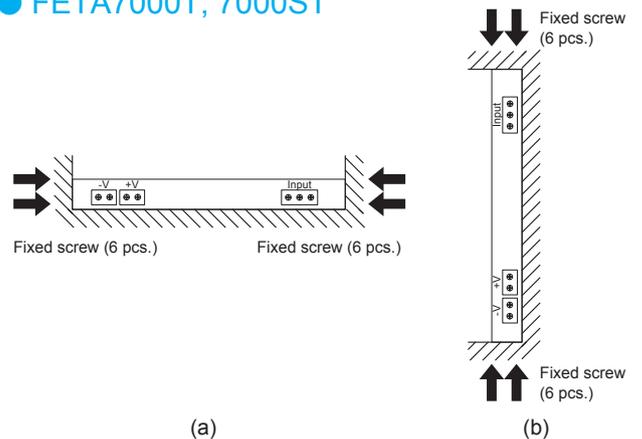


- When mounting the power supply with screws, it is recommended that this be done as shown below. If other methods are used, be sure the weight of the power supply is taken into account.

FETA2500BA, 3000BA, 3000BC



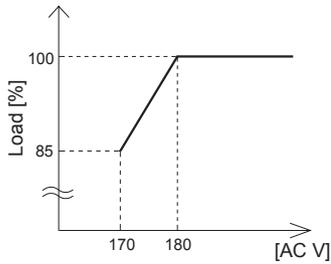
FETA7000T, 7000ST



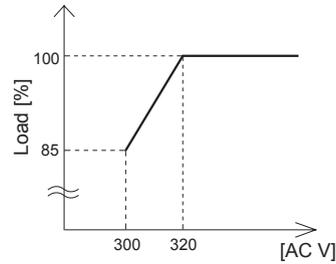
Derating

● Input Voltage Derating Curve

FETA2500BA, 3000BA, 3000BC, 7000T

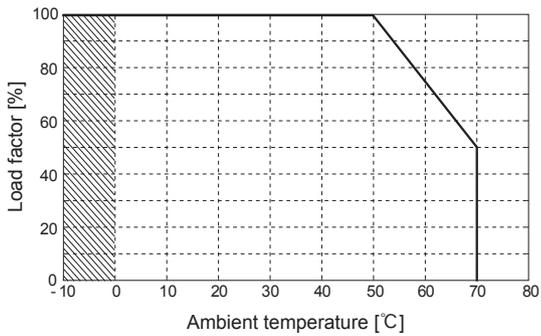


FETA7000ST

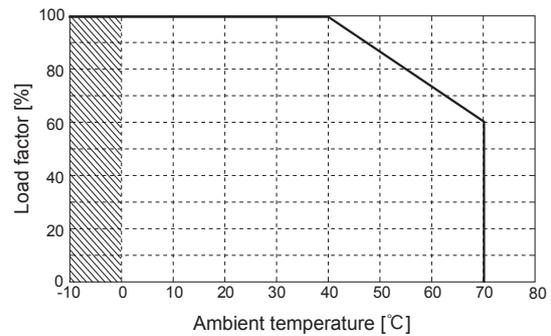


● Ambient Temperature Derating Curve

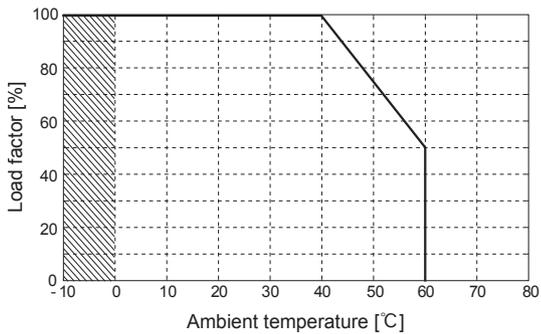
FETA2500BA, FETA3000BA



FETA3000BC



FETA7000T, FETA7000ST



■ Specifications for ripple and ripple noise changes in the shaded area.

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



Basic Characteristics Data

| Model | Circuit method | Switching frequency [kHz] | Input current [A] | Rated input fuse | Inrush current protection circuit | PCB/Pattern | | | Series/Parallel operation availability | |
|------------|-----------------------------------|---------------------------|-------------------|------------------|-----------------------------------|-------------|--------------|--------------|--|--------------------|
| | | | | | | Material | Single sided | Double sided | Series operation | Parallel operation |
| FETA2500BA | Active filter | 47 | 13.8 | 250V 30A | Relay | FR-4 | | Yes | Yes | Yes |
| | Phase-shift Full-bridge converter | 94 | | | | | | | | |
| FETA3000BA | Active filter | 47 | 16.6 | 250V 30A | Relay | FR-4 | | Yes | Yes | Yes |
| | Phase-shift Full-bridge converter | 94 | | | | | | | | |
| FETA3000BC | Active filter | 47 | 16.8 | 250V 30A | Relay | FR-4 | | Yes | | Yes |
| | Phase-shift Full-bridge converter | 94 | | | | | | | | |
| FETA7000T | Active filter | 47 | 23.9 | 250V 30A | Relay | FR-4 | | Yes | Yes | Yes |
| | Phase-shift Full-bridge converter | 94 | | | | | | | | |

* The value of input current is at ACIN 200V and rated load.

| Model | Circuit method | Switching frequency [kHz] | Input current [A] | Rated input fuse | Inrush current protection circuit | PCB/Pattern | | | Series/Parallel operation availability | |
|------------|-----------------------------------|---------------------------|-------------------|------------------|-----------------------------------|-------------|--------------|--------------|--|--------------------|
| | | | | | | Material | Single sided | Double sided | Series operation | Parallel operation |
| FETA7000ST | Active filter | 47 | 12.0 | 250V 30A | Relay | FR-4 | | Yes | Yes | Yes |
| | Phase-shift Full-bridge converter | 94 | | | | | | | | |

* The value of input current is at ACIN 400V and rated load.

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