Recommended Noise Filter  
NAC-20-472

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

\*The Noise Filter is recommended to connect with several devices.

- ① Series name  
② Output wattage  
③ Universal input  
④ Output voltage  
⑤ Optional  
G : Low leakage current  
E : Low leakage current and EMI class A  
F : with Fan unit (only -24)  
T : Vertical terminal block  
J : Connector type  
C : with Coating  
R : Remote ON/OFF  
N1 : DIN rail  
W : Alarms and Redundant operation  
Specification is changed at option, refer to Instruction Manual.

RoHS : Please consult us for details

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

## SPECIFICATIONS

|                               | MODEL                              | ADA1000F-24   | ADA1000F-30               | ADA1000F-36               | ADA1000F-48                 |
|-------------------------------|------------------------------------|---|---------------------------|---------------------------|-----------------------------|
| INPUT                         | VOLTAGE[V]                         | AC85 - 264 1 φ or DC 120 - 350 (AC64 or DC90 optionally available *6)   |                           |                           |                             |
|                               | FREQUENCY[Hz]                      | 50/60 (47 - 63) or DC   |                           |                           |                             |
|                               | EFFICIENCY[%]                      | ACIN 100V 86typ (Io=100%)   | 86typ (Io=100%)           | 87typ (Io=100%)           | 87typ (Io=100%)             |
|                               |                                    | ACIN 200V 88typ (Io=100%)   | 88typ (Io=100%)           | 89typ (Io=100%)           | 89typ (Io=100%)             |
|                               | POWER FACTOR                       | ACIN 100V 0.99typ (Io=100%)   |                           |                           |                             |
|                               |                                    | ACIN 200V 0.98typ (Io=100%)   |                           |                           |                             |
|                               | INRUSH CURRENT[A]                  | ACIN 100V *1 20typ (Io=100%) (More than 3sec.to re-start)   |                           |                           |                             |
|                               |                                    | ACIN 200V *1 40typ (Io=100%) (More than 3sec.to re-start)   |                           |                           |                             |
|                               | LEAKAGE CURRENT[ma]                | 0.75max (60Hz, According to IEC60950 and DEN-AN) (Io=100%)  |                           |                           |                             |
| OUTPUT                        | VOLTAGE[V]                         | 24  | 30                        | 36                        | 48                          |
|                               | CURRENT[A]                         | ACIN 100V *2 21 (Peak 63) convection  | 16.5 (Peak 50) convection | 14 (Peak 42) convection   | 10.5 (Peak 31.5) convection |
|                               |                                    | ACIN 100V *2 33 (Peak 63) forced air  | 26 (Peak 50) forced air   | 22 (Peak 42) forced air   | 16.5 (Peak 31.5) forced air |
|                               |                                    | ACIN 200V *2 25 (Peak 83) convection  | 20 (Peak 66) convection   | 16.5 (Peak 55) convection | 11.5 (Peak 41.5) convection |
|                               |                                    | ACIN 200V *2 42 (Peak 83) forced air  | 33.5 (Peak 66) forced air | 28 (Peak 55) forced air   | 21 (Peak 41.5) forced air   |
|                               | LINE REGULATION[mV]                | 96max   | 120max                    | 144max                    | 192max                      |
|                               | LOAD REGULATION[mV]                | 150max  | 180max                    | 240max                    | 300max                      |
|                               | RIPPLE[mVp-p]                      | 0 to +50°C *3 120max  | 160max                    | 200max                    | 200max                      |
|                               |                                    | -10 - 0°C *3 160max   | 230max                    | 260max                    | 300max                      |
|                               | RIPPLE NOISE[mVp-p]                | 0 to +50°C *3 150max  | 190max                    | 230max                    | 250max                      |
|                               |                                    | -10 - 0°C *3 180max   | 250max                    | 280max                    | 400max                      |
|                               | TEMPERATURE REGULATION[mV]         | 0 to +50°C 240max   | 300max                    | 360max                    | 480max                      |
|                               | DRIFT[mV]                          | *4 96max  | 120max                    | 144max                    | 192max                      |
| PROTECTION CIRCUIT AND OTHERS | START-UP TIME[ms]                  | 500max (ACIN 100V, Io=100%)   |                           |                           |                             |
|                               | HOLD-UP TIME[ms]                   | 20typ (ACIN 100V, Io=100%)  |                           |                           |                             |
|                               | OUTPUT VOLTAGE ADJUSTMENT RANGE[V] | 21.6 - 27.0   | 27.0 - 33.0               | 33.0 - 41.0               | 41.0 - 52.8                 |
|                               | OUTPUT VOLTAGE SETTING[V]          | 23.5 - 24.5   | 29.0 - 31.0               | 35.0 - 37.0               | 47 - 49                     |
|                               | OVERCURRENT PROTECTION             | Works over 101% of peak current and recovers automatically  |                           |                           |                             |
|                               | OVERVOLTAGE PROTECTION[V]          | 31 - 34.5   | 40 - 48                   | 51 - 60                   | 64 - 76                     |
|                               | OPERATING INDICATION               | LED (Green)   |                           |                           |                             |
| ISOLATION                     | ALARM OUTPUT                       | Detecting low input voltage(PF), detecting low output voltage(LV). (Optional : -W, refer to Instruction Manual 5) |                           |                           |                             |
|                               | REMOTE ON/OFF(RC)                  | Requirement for external source (Option : -R, refer to Instruction Manual 5)                                      |                           |                           |                             |
|                               | INPUT-OUTPUT · RC                  | *5 AC3,000V 1minute, Cutoff current = 10mA, DC500V 50MΩ min (At Room Temperature)                                 |                           |                           |                             |
| ENVIRONMENT                   | INPUT-FG                           | AC2,000V 1minute, Cutoff current = 10mA, DC500V 50MΩ min (At Room Temperature)                                    |                           |                           |                             |
|                               | OUTPUT · RC-FG                     | *5 AC500V 1minute, Cutoff current = 100mA, DC500V 50MΩ min (At Room Temperature)                                  |                           |                           |                             |
|                               | OPERATING TEMP.HUMID.AND ALTITUDE  | -10 to +71°C, 20 - 90%RH (Non condensing) (Refer to DERATING CURVE), 3,000m (10,000feet) max                      |                           |                           |                             |
|                               | STORAGE TEMP.HUMID.AND ALTITUDE    | -20 to +75°C, 20 - 90%RH (Non condensing), 9,000m (30,000feet) max  |                           |                           |                             |
| SAFETY AND NOISE REGULATIONS  | VIBRATION                          | 10 - 55Hz, 19.6m/s <sup>2</sup> (2G), 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  |                           |                           |                             |
|                               | AGENCY APPROVALS                   | UL60950-1, C-UL(CSA60950-1), EN60950-1, EN50178 Complies with DEN-AN and IEC60950-1 (At only AC input)            |                           |                           |                             |
|                               | CONDUCTED NOISE                    | Complies with FCC-B, CISPR22-B, EN55022-B, VCCI-B   |                           |                           |                             |
| OTHERS                        | CE MARKING                         | Low Voltage Directive, EMC Directive  |                           |                           |                             |
|                               | HARMONIC ATTENUATOR                | Complies with IEC61000-3-2  |                           |                           |                             |
|                               | CASE SIZE/WEIGHT                   | 75 × 127 × 280mm (W × H × D) (without terminal block) /2.5kg max  |                           |                           |                             |
|                               | COOLING METHOD                     | Convection/Forced air   |                           |                           |                             |

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

\*2 Peak loading for 10sec. And Duty 35% max. Refer to Instruction Manual 4. Forced air is shown in Instruction Manual 2.3.

\*3 This is the value that measured on measuring board with capacitor of 22 μF within 150mm from output terminal. Measured by 20MHz oscilloscope or Ripple-Noise meter (Equivalent to

KEISOKU-GIKEN: RM101).

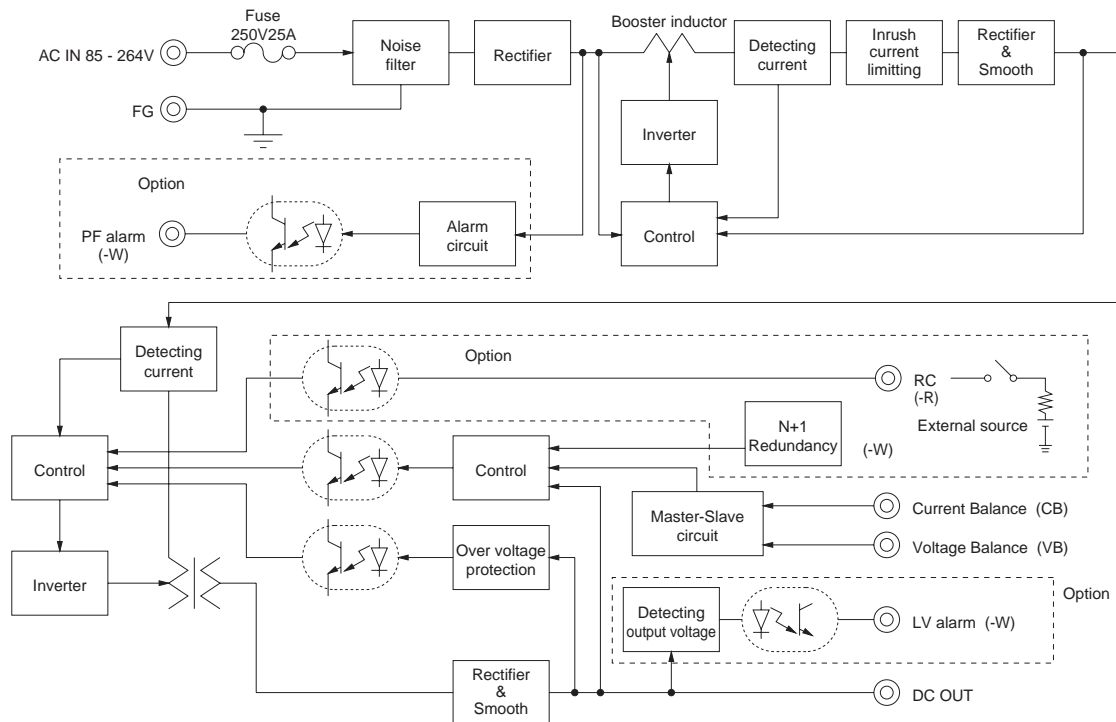
\*4 Drift is the change in DC output for an eight hour period after a half-hour warm-up at 25°C, with the input voltage held constant at the rated input/output.

\*5 Applicable when remote control (optional) is added.

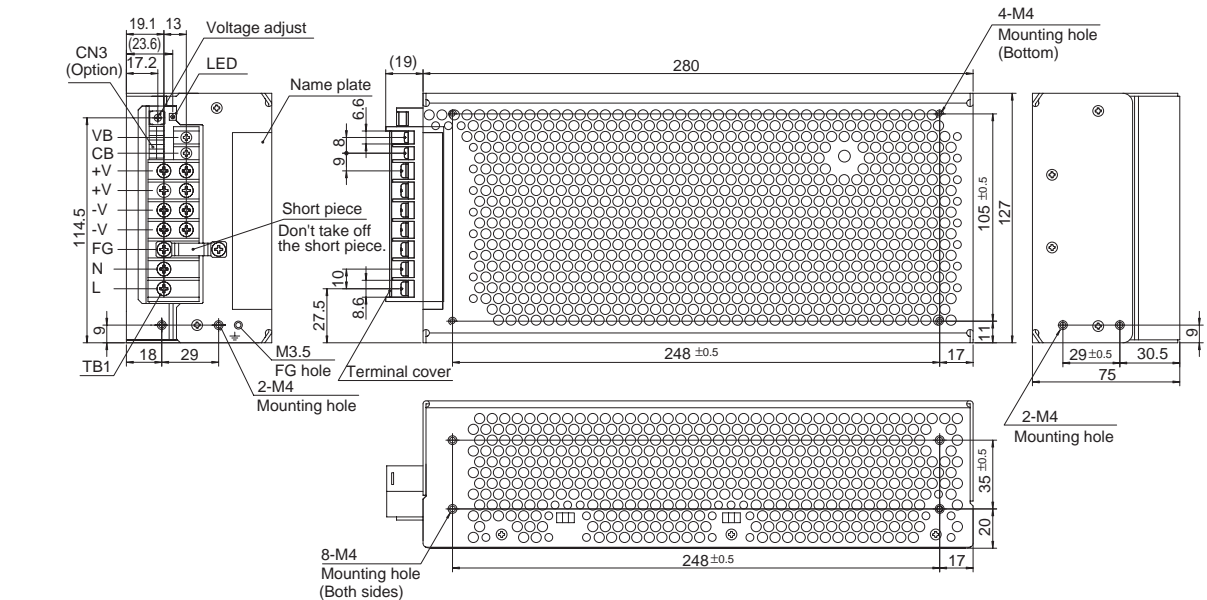
\*6 Derating is required. Consult us for details.

\* A sound may occur from power supply at pulse loading.

## Block diagram



## External view



### ※ Pin assign

| Symbol | Function           | Screw type |
|--------|--------------------|------------|
| VB     | Voltage balance    | M3         |
| CB     | Current balance    |            |
| +V     | Output terminal(+) | M4         |
| -V     | Output terminal(-) |            |
| FG     | Frame ground       |            |
| N      | AC(N)              |            |
| L      | AC(L)              |            |

Average 21A max per pin for TB1

- ※ Tolerance :  $\pm 1$
- ※ Weight : 2.5kg max
- ※ PCB material / thickness : FR-4 / 1.6mm
- ※ Chassis and cover material : aluminium
- ※ Dimensions in mm
- ※ Mounting torque :  $1.2N \cdot m (12.8kgf \cdot cm)$  max
- ※ Screw tightening torque
- ※ M4 :  $1.6N \cdot m (16.9kgf \cdot cm)$  max, M3 :  $0.8N \cdot m (8.5kgf \cdot cm)$  max
- ※ I/O terminal for option-J and -T is shown in Instruction Manual 5.

### CN3(Optional)

| Pin No. | Function                  |
|---------|---------------------------|
| 1       | RC+ : Remote ON/OFF+(-R)  |
| 2       | RC- : Remote ON/OFF-(-R)  |
| 3-8     | NC : N.C.                 |
| 9       | LV+ : LV Alarm(-W)        |
| 10      | LV- : LV Alarm ground(-W) |
| 11-12   | NC : N.C.                 |
| 13      | PF+ : PF Alarm(-W)        |
| 14      | PF- : PF Alarm ground(-W) |

| Connector | Mating connector | Terminal  | Mfr.  |
|-----------|------------------|-----------|---|
| CN3       | S14B-PHDSS       | PHDR-14VS | Chain:SPHD-002T-P0.5<br>Loose:BPHD-001T-P0.5<br>BPHD-002T-P0.5* |

\* 1 Ratchet Hand is nothing