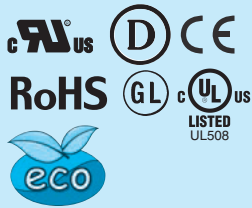


KHEA/KHNA480F

KH A 480 F - -

① ② ③ ④ ⑤ ⑥



Example recommended EMI/EMC filter
NAC-10-472-D



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
KHE : Euro style I/O terminals
KHN : Barrier blocks style I/O terminals
- ② Single output
- ③ Output wattage
- ④ Universal input
- ⑤ Output voltage
- ⑥ Option
C : with Coating
N2: Screw mounting

*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	KHEA / KHNA480F-24	KHEA / KHNA480F-48
MAX OUTPUT WATTAGE[W]	480	480
DC OUTPUT	24V 20A (Peak 30A)	48V 10A (Peak 15A)

SPECIFICATIONS

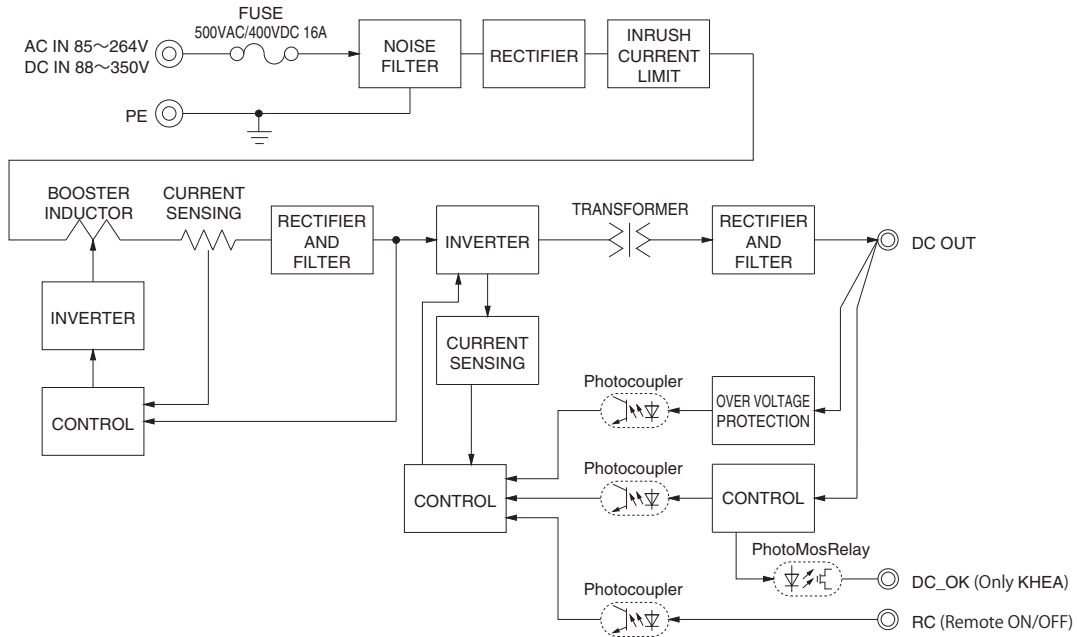
	MODEL	KHEA / KHNA480F-24	KHEA / KHNA480F-48	
INPUT	VOLTAGE[V]	AC85 - 264 1 φ (Output derating is required) or DC88 - 350 *10		
	CURRENT[A]	ACIN 115V	4.6typ	
		ACIN 230V	2.3typ	
	FREQUENCY[Hz]	50 / 60 (45 - 66) or DC		
	EFFICIENCY[%]	ACIN 115V	92typ	
		ACIN 230V	94typ	
	POWER FACTOR	ACIN 115V	0.98typ	
		ACIN 230V	0.93typ	
INRUSH CURRENT[A]	ACIN 115V	20typ (more than 3 sec. to re-start)		
	*1 ACIN 230V	40typ (more than 3 sec. to re-start)		
LEAKAGE CURRENT[ma]	0.75 / 1.5max (ACIN 100V / 240V 60Hz, Io=100%, According to IEC60950-1 and DEN-AN)			
OUTPUT	VOLTAGE[V]	24	48	
	CURRENT[A]	20	10	
	PEAK CURRENT[A]	*2 30	15	
	LINE REGULATION[mV]	*3 96max (Io=30-100%) *9	192max (Io=30-100%) *9	
	LOAD REGULATION[mV]	*3 150max (Io=30-100%) *9	300max (Io=30-100%) *9	
	RIPPLE[mVp-p]	0 to +70°C	120max	120max
		-25 - 0°C	240max	240max
		Io=0 - 30%	500max	750max
	RIPPLE NOISE[mVp-p]	0 to +70°C	150max	150max
		-25 - 0°C	300max	300max
		Io=0 - 30%	600max	750max
	TEMPERATURE REGULATION[mV]	0 to +70°C	240max	480max
		-25 to +70°C	360max	600max
	DRIIFT[mV]	*5 96max	192max	
START-UP TIME[ms]	750max (ACIN 115V, Io=100%)			
HOLD-UP TIME[ms]	20typ (ACIN 115V, Io=100%)			
OUTPUT VOLTAGE ADJUSTMENT RANGE[V]	22.5 to 26.4	45.0 to 55.2		
OUTPUT VOLTAGE SETTING[V]	24.0±1.0%	48.0±1.0%		
PROTECTION CIRCUIT AND OTHERS	OVERCURRENT PROTECTION	Works over 101% of peak current and recovers automatically		
	OVERVOLTAGE PROTECTION[V]	30.0 to 36.0	57.6 to 67.2	
	DC_OK LAMP	LED (Green)		
	ALARM LAMP	LED (Red)		
DC_OK CONTACT	Relay contact 30VDC 1A max, 30VAC 0.5A max (resistive load) (Only KHEA)			
ISOLATION	INPUT-OUTPUT	AC3,000V 1minute, Cutoff current = 10mA, DC500V 50MΩ min (At Room Temperature)		
	INPUT-PE	AC2,000V 1minute, Cutoff current = 10mA, DC500V 50MΩ min (At Room Temperature)		
	OUTPUT-PE	AC500V 1minute, Cutoff current = 100mA, DC500V 50MΩ min (At Room Temperature)		
	OUTPUT-RC, DC_OK	AC500V 1minute, Cutoff current = 100mA, DC500V 50MΩ min (At Room Temperature)		
ENVIRONMENT	OPERATING TEMP., HUMID. AND ALTITUDE	-25 to +70°C (Required to Derating), 20 - 90%RH (Non condensing)		
	STORAGE TEMP., HUMID. AND ALTITUDE	-40 to +85°C, 20 - 90%RH (Non condensing)		
	VIBRATION	*8 10 - 55Hz, 19.6m/s ² (2G), 3minutes period, 60 minutes along Z axis (Non operating, mounted on DIN Rail)		
	IMPACT	196.1m/s ² (20G), 11ms, once each X, Y and Z axis (Packing state)		
SAFETY AND NOISE REGULATIONS	AGENCY APPROVALS	AC input	UL60950-1, C-UL (CSA60950-1), EN60950-1, UL508, ANSI/ISA12.12.01, ATEX, GL (Only 24V) Complies with DEN-AN	
		DC input	UL60950-1, C-UL (CSA60950-1), EN60950-1	
	HARMONIC ATTENUATOR	Complies with FCC-B, VCCI-B, CISPR22-B, EN55011-B, EN55022-B Complies with IEC61000-3-2 (Class A) *6		
OTHERS	CASE SIZE	*7 70×124×117mm (W×H×D) [2.76×4.88×4.61 inches]		
	WEIGHT	1,200g max		
	COOLING METHOD	Convection		

- *1 The value is primary surge. The current of input surge to a built-in EMI/EMC Filter(0.2ms or less)is excluded.
- *2 Refer to 3, instruction manual.
- *3 Please contact us about dynamic load and input response.
- *4 This is the value that measured on measuring board with capacitor of 22 μ F and 0.1 μ F at 150mm from output terminal.
Measured by 20MHz oscilloscope or Ripple-Noise meter (Equivalent to KEISOKU-GIKEN: RM103).

- *5 Please refer to the instruction manual 2.7.
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 Please contact us about another class.
- *7 Case size contains neither the umbo.
- *8 Only as standard mounting orientation (A). Refer to the instruction manual 5.1.
If install other than standard mounting orientation (A), please fix the power

- supply for withstand the vibration and impact.
- *9 Burst operation at 30% load or less.
- *10 Under low DC input voltage below DC110V, the temperature derating -1C/V or the output power derating -1%/V are required.
- * To meet the specifications. Do not operate over-loaded condition.
- * A sound may occur from power supply at light or peak loading.

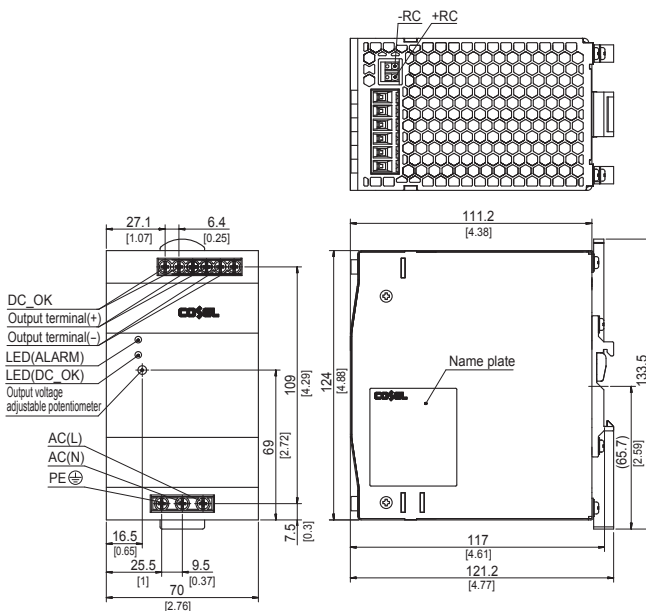
Block diagram



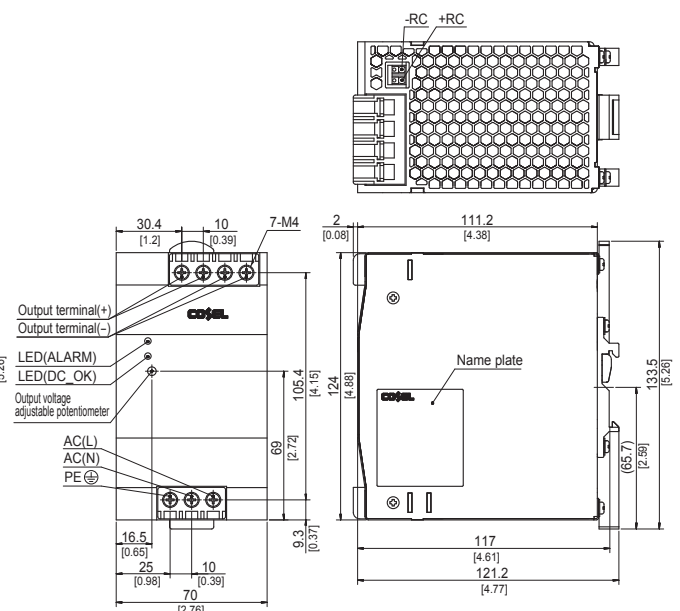
External view

<KHEA480F(Euro Style I/O Terminals)>

<KHNA480F(Barrier Blocks Style I/O Terminals)>



- ※ Tolerance : ± 1 [± 0.04]
- ※ Weight : 1,200g max
- ※ PCB Material/thickness : FR-4 / 1.6mm [0.06]
- ※ Chassis material : Aluminum
- ※ Case material : Stainless steel
- ※ DIN rail attachment material : Aluminum, Stainless steel, Nylon
- ※ Dimensions in mm, [] = inches
- ※ Screw tightening torque : 1N · m max



- ※ Tolerance : ± 1 [± 0.04]
- ※ Weight : 1,200g max
- ※ PCB Material/thickness : FR-4 / 1.6mm [0.06]
- ※ Chassis material : Aluminum
- ※ Case material : Stainless steel
- ※ DIN rail attachment material : Aluminum, Stainless steel, Nylon
- ※ Dimensions in mm, [] = inches
- ※ Screw tightening torque : 1.6N · m max