COSEL AC-DC Power Supplies DIN Rail Type

KHEA/KHNA60F

Ordering information

KH□ A 60 F -□□ -□

① ② ③ ④ ⑤ ⑥

Example recommended EMI/EMC filter
NAC-04-472-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.

①Series name
KHE : Euro style I/O terminals
KHN : Barrier blocks style I/O terminals
②Single output
③Output wattage
④Universal input
⑤Output voltage
⑥Option
C : with Coating

＊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.

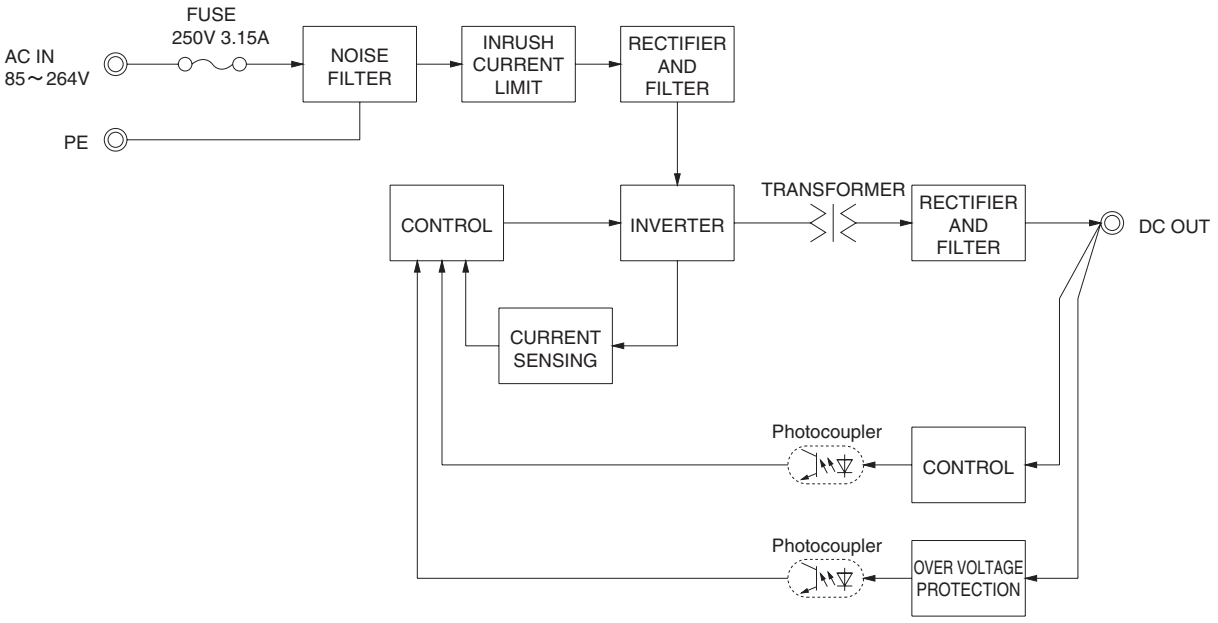
MODEL	KHEA/KHNA60F-12	KHEA/KHNA60F-24
MAX OUTPUT WATTAGE[W]	54	60
DC OUTPUT	12V 4.5A	24V 2.5A

SPECIFICATIONS

	MODEL		KHEA/KHNA60F-12	KHEA/KHNA60F-24
INPUT	VOLTAGE[V]		AC85 - 264 1φ (Output derating is required) or DC120 - 370	
	CURRENT[A]	ACIN 115V	1.00typ	1.10typ
		ACIN 230V	0.60typ	0.70typ
	FREQUENCY[Hz]		50 / 60 (45 - 440) or DC	
	EFFICIENCY[%]	ACIN 115V	87.0typ	89.0typ
		ACIN 230V	88.0typ	91.0typ
	INRUSH CURRENT[A] ＊1	ACIN 115V	18typ (Io=100%) (at cold start Ta=25℃)	
		ACIN 230V	35typ (Io=100%) (at cold start Ta=25℃)	
	LEAKAGE CURRENT[mA]		0.45 / 0.75max (ACIN 100V / 240V 60Hz, Io=100%, According to IEC60950-1 and DEN-AN)	
OUTPUT	VOLTAGE[V]		12	24
	CURRENT[A]		4.5	2.5
	PEAK CURRENT[A]		-	-
	LINE REGULATION[mV] ＊2		48max	96max
	LOAD REGULATION[mV] ＊2		100max	150max
	RIPPLE[mVp-p] ＊3	0 to +70℃	200max	200max
		-20 - 0℃	300max	300max
		Io=0 - 30%	300max ＊4	300max ＊4
	RIPPLE NOISE[mVp-p] ＊3	0 to +70℃	260max	260max
		-20 - 0℃	360max	360max
		Io=0 - 30%	360max ＊4	360max ＊4
	TEMPERATURE REGULATION[mV]	0 to +70℃	120max	240max
		-20 to +70℃	150max	290max
	DRIFT[mV] ＊5		48max	96max
	START-UP TIME[ms]		200typ (ACIN 115V, Io=100%)	
	HOLD-UP TIME[ms]		20typ (ACIN 115V, Io=100%)	
	OUTPUT VOLTAGE ADJUSTMENT RANGE[V]		10.80 to 13.20	22.50 to 28.50
	OUTPUT VOLTAGE SETTING[V]		12.00 to 12.48	24.00 to 24.96
PROTECTION CIRCUIT AND OTHERS	OVERCURRENT PROTECTION		Works over 105% of rating and recovers automatically ＊10	
	OVERVOLTAGE PROTECTION[V]		13.80 to 16.80	30.00 to 36.00
	DC_OK LAMP		LED (Green)	
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)	
ENVIRONMENT	OPERATING TEMP.,HUMID.AND ALTITUDE		-20 to +70℃ (Required to Derating), 20 - 90%RH (Non condensing)	
	STORAGE TEMP.,HUMID.AND ALTITUDE		-30 to +85℃, 20 - 90%RH (Non condensing)	
	VIBRATION ＊8		10 - 55Hz, 19.6m/s² (2G), 3minutes period, 60 minutes along Z axis (Non operating, mounted on DIN Rail)	
	IMPACT		196.1m/s² (20G), 11ms, once each X, Y and Z axis (Packing state)	
SAFETY AND NOISE REGULATIONS	AGENCY APPROVALS (At only AC input)		UL60950-1, C-UL(CSA60950-1), UL508 (NEC Class2 per UL1310), ANSI/ISA12.12.01, EN60950-1, Complies with DEN-AN	
	CONDUCTED NOISE		Complies with FCC-B, VCCI-B, CISPR22-B, EN55011-B, EN55022-B	
	HARMONIC ATTENUATOR		Complies with IEC61000-3-2 (Class A) ＊6 (Not built-in to active filter) ＊9	
OTHERS	CASE SIZE ＊7		32×90×90mm (W×H×D) [1.26×3.54×3.54 inches]	
	WEIGHT		270g max	
	COOLING METHOD		Convection	

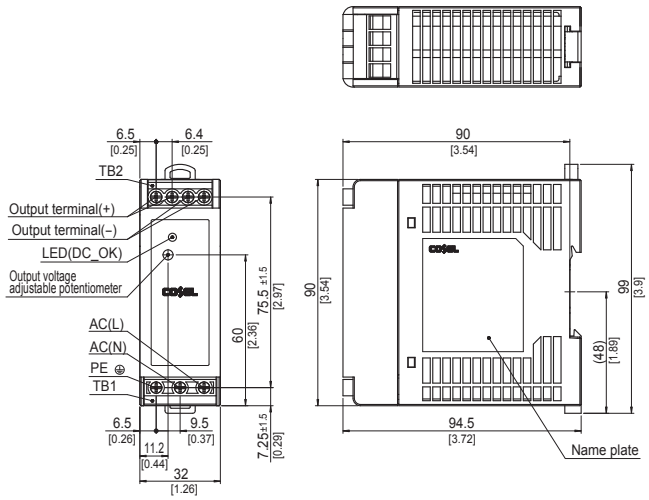
＊1 The value is primary surge. The current of input surge to a built-in EMI/EMC Filter(0.2ms or less)is excluded.
＊2 Please contact us about dynamic load and input response.
＊3 This is the value that measured on measuring board with capacitor of 22μF and 0.1μF at 150mm from output terminal.
Measured by 20MHz oscilloscope or Ripple-Noise meter (Equivalent to KEISOKU-GIKEN: RM103).
Please refer to the instruction manual 2.7.
Ripple and ripple noise spec is change at Io=0 to 30% by burst operation.
＊4 In case of operating under 0℃ ambient temperature, the value is two times of specification at 0 to 30% load factor.
＊5 Drift is the change in DC output for an eight hour period after a half-hour warm-up at 25℃, 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 When two or more units are operating it may not comply with the IEC61000-3-2.
＊10 If the overcurrent protection circuit operates continuously, the output voltage shut down. Refer to the instruction manual 2.3.
＊ To meet the specifications. Do not operate over-loaded condition.
＊ A sound may occur from power supply at light or peak loading.

Block diagram



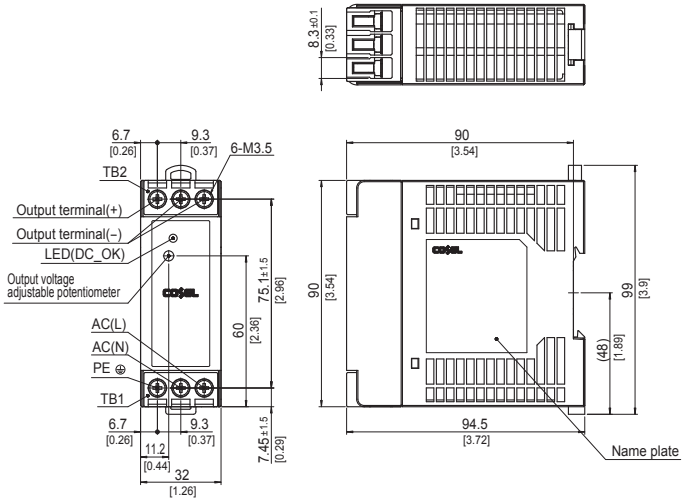
External view

<KHEA60F(Euro Style I/O Terminals)>



※ Tolerance : ±1 [±0.04]
※ Weight : 270g max
※ PCB Material/thickness : FR-4 / 1.6mm [0.06]
※ Chassis・Case material : PBT
※ Din rail attachment material : PC/ABS
※ Dimensions in mm, [ ] = inches
※ Screw tightening torque : 1N・m max

<KHNA60F(Barrier Blocks Style I/O Terminals)>



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