

KLEA/KLNA120F

KL ☐ A 120 F - ☐ - ☐

① ② ③ ④ ⑤ ⑥



Recommended EMI/EMC Filter
NAC-04-472-D



High voltage pulse noise type : NAP series
Low leakage current type : NAM series
*The EMI/EMC Filter is recommended
to connect with several devices.

- ① Series name
KLE : Euro Style I/O Terminals
KLN : 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

MODEL	KLEA/KLNA120F-24	KLEA/KLNA120F-48
MAX OUTPUT WATTAGE[W]	120	120
DC OUTPUT	24V 5A	48V 2.5A

SPECIFICATIONS

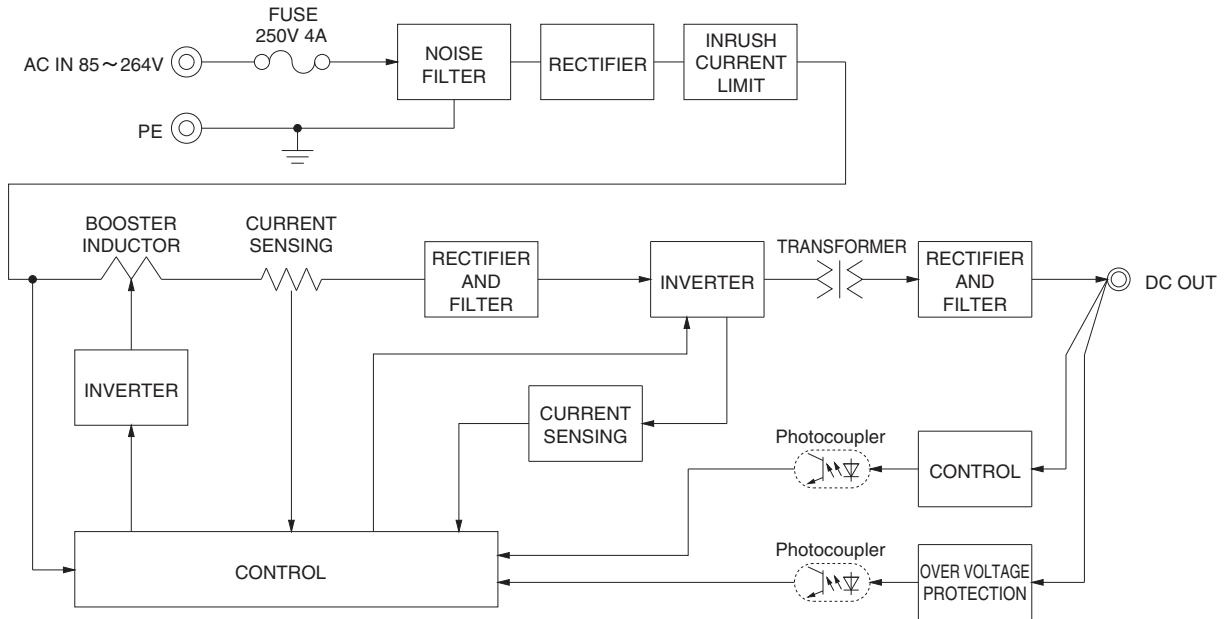
	MODEL	KLEA/KLNA120F-24	KLEA/KLNA120F-48
INPUT	VOLTAGE[V]	AC85 - 264 1 φ (Output derating is required) *9	
	CURRENT[A]	ACIN 115V 1.2typ ACIN 230V 0.6typ	
	FREQUENCY[Hz]	50 / 60 (47 - 63)	
	EFFICIENCY[%]	ACIN 115V 86.5typ ACIN 230V 88.0typ	
	POWER FACTOR	ACIN 115V 0.98typ ACIN 230V 0.90typ	
	INRUSH CURRENT[A]	ACIN 115V 20typ (Io=100%)(at cold start Ta=25°C) *1 ACIN 230V 40typ (Io=100%)(at cold start Ta=25°C)	
	LEAKAGE CURRENT[ma]	0.45 / 0.75max (ACIN 100V / 240V 60Hz, Io=100%, According to IEC60950-1 and DEN-AN)	
OUTPUT	VOLTAGE[V]	24	48
	CURRENT[A]	5	2.5
	LINE REGULATION[mV] *2	96max (Io=30-100%) *8	192max (Io=30-100%) *8
	LOAD REGULATION[mV] *2	150max (Io=30-100%) *8	300max (Io=30-100%) *8
	RIPPLE[mVp-p] *3	0 to +70°C 150max	150max
		-20 - 0°C 240max	240max
		Io=0 - 30% 500max	650max
	RIPPLE NOISE[mVp-p] *3	0 to +70°C 180max	180max
		-20 - 0°C 300max	300max
		Io=0 - 30% 500max	650max
	TEMPERATURE REGULATION[mV]	0 to +70°C 240max	480max
		-20 to +70°C 290max	600max
PROTECTION CIRCUIT AND OTHERS	DRIFT[mV] *4	96max	192max
	START-UP TIME[ms]	500max (ACIN 115V, Io=100%)	
	HOLD-UP TIME[ms]	20typ (ACIN 115V, Io=100%)	
	OUTPUT VOLTAGE ADJUSTMENT RANGE[V]	21.60 to 26.40	43.20 to 52.80
	OUTPUT VOLTAGE SETTING[V]	24.00 to 24.96	48.00 to 49.92
	OVERCURRENT PROTECTION	Works over 105% of rating and recovers automatically	
	OVERVOLTAGE PROTECTION[V]	27.60 to 33.60	54.00 to 67.20
ISOLATION	DC_OK LAMP	LED (Green)	
	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)	
ENVIRONMENT	OUTPUT-PE	AC500V 1minute, Cutoff current = 100mA, DC500V 50MΩ min (At Room Temperature)	
	OPERATING TEMP., HUMID. AND ALTITUDE	-20 to +70°C (Required to Derating), 20 - 90%RH (Non condensing)	
	STORAGE TEMP., HUMID. AND ALTITUDE	-30 to +85°C, 20 - 90%RH (Non condensing)	
	VIBRATION *7	10 - 55Hz, 19.6m/s ² (2G), 3minutes period, 60 minutes along Z axis (Non operating, mounted on DIN Rail)	
SAFETY AND NOISE REGULATIONS	IMPACT	196.1m/s ² (20G), 11ms, once each X, Y and Z axis (Packing state)	
	AGENCY APPROVALS	UL60950-1, C-UL (CSA60950-1), EN60950-1, UL508, Complies with DEN-AN	
	CONDUCTED NOISE	Complies with FCC-B, VCCI-B, CISPR22-B, EN55011-B, EN55022-B	
OTHERS	HARMONIC ATTENUATOR	Complies with IEC61000-3-2 (Class A) *5	
	CASE SIZE *6	38×124×117mm (W×H×D) [1.5×4.88×4.61 inches]	
	WEIGHT	580g max	
	COOLING METHOD	Convection / Forced air	

*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 22 μF and 0.1 μF at 150mm from output terminal.
Measured by 20MHz oscilloscope or Ripple-Noise meter (Equivalent to KEISOKU-GIKEN: RM103).
Please refer to the instruction manual 2.5.

*4 Drift is the change in DC output for a eight hour period after a half-hour warm-up at 25°C, with the input voltage held constant at the rated input/output.
*5 Please contact us about another class.
*6 Case size contains neither the umbo.
*7 Only as standard mounting orientation (A). Refer to the instruction manual 4.1. If install other than standard mounting orientation (A), please fix the power supply for withstand the vibration and impact.

*8 Burst operation at 30% load or less.
*9 Please contact us about DC input voltage.
* To meet the specifications. Do not operate over-loaded condition.
* A sound may occur from power supply at light or peak loading.

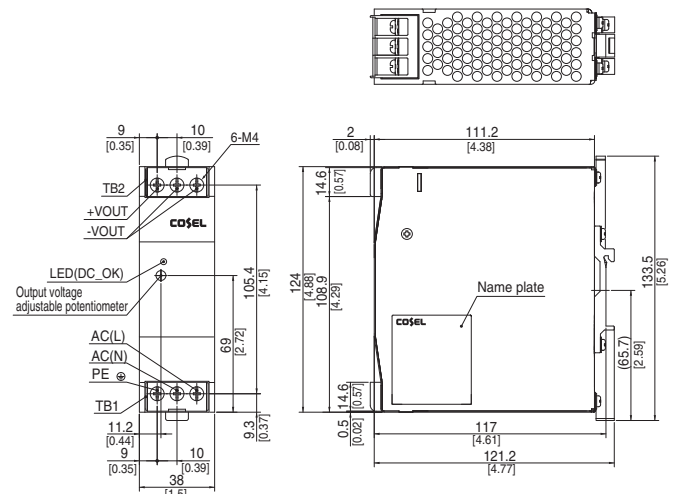
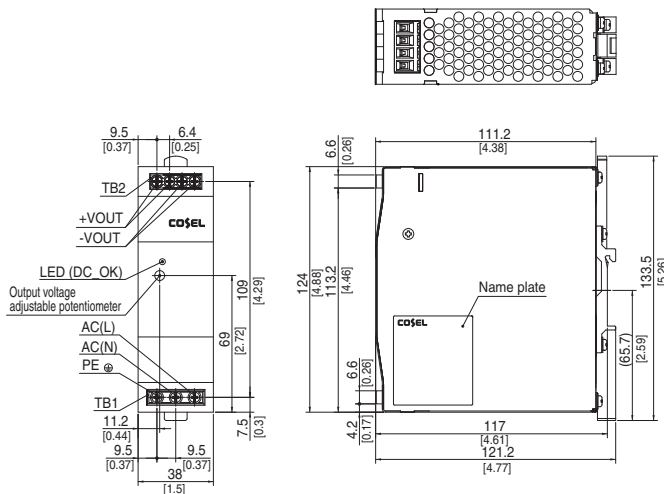
Block diagram



External view

<KLEA120F(Euro Style I/O Terminals)>

<KLNA120F(Barrier Blocks Style I/O Terminals)>



- ※ Tolerance : ± 1.5 [± 0.06]
- ※ Weight : 580g max
- ※ PCB Material/thickness : FR-4 / 1.6mm [0.06]
- ※ Chassis material : Aluminum
- ※ Case material : Stainless steel
- ※ Din rail attachment material : Aluminum, Nylon
- ※ Dimensions in mm, [] = inches
- ※ Screw tightening torque : 1N · m max

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KLEA/KLNA240F

KL ☐ A 240 F - ☐ - ☐

① ② ③ ④ ⑤ ⑥



Recommended EMI/EMC Filter
NAC-06-472-D



High voltage pulse noise type : NAP series
Low leakage current type : NAM series
*The EMI/EMC Filter is recommended to connect with several devices.

- ① Series name
KLE : Euro Style I/O Terminals
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② Single output
③ Output wattage
④ Universal input
⑤ Output voltage
⑥ Option
C : with Coating
N2: Screw mounting

MODEL	KLEA/KLNA240F-24	KLEA/KLNA240F-48
MAX OUTPUT WATTAGE[W]	240	240
DC OUTPUT	24V 10A	48V 5A

SPECIFICATIONS

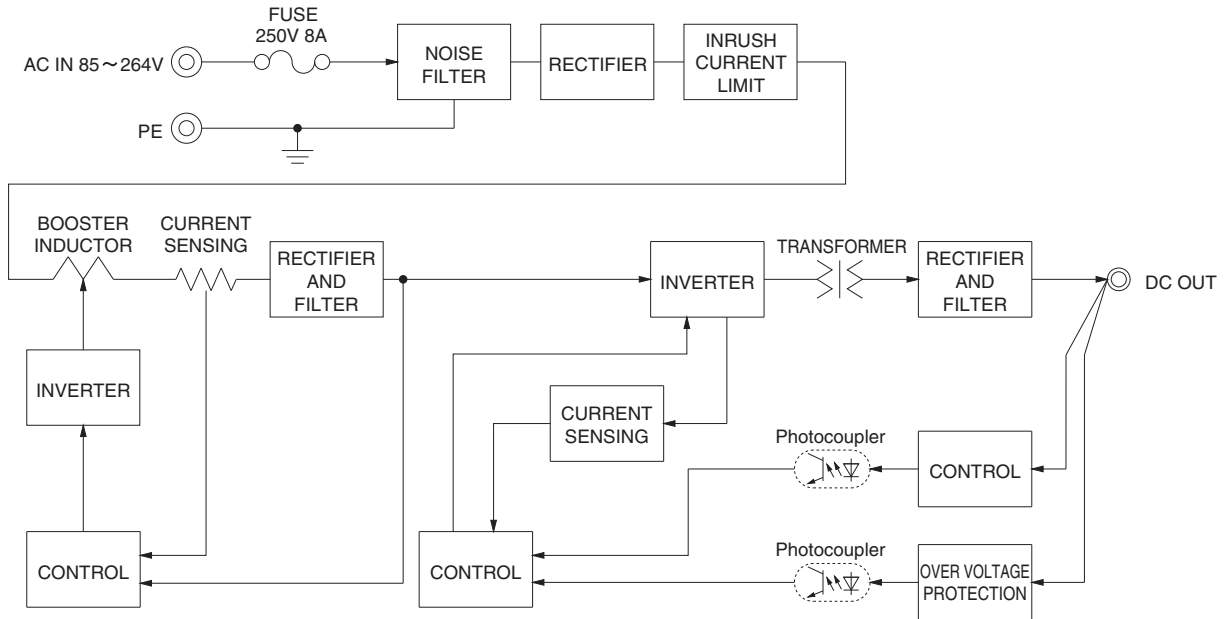
	MODEL		KLEA/KLNA240F-24	KLEA/KLNA240F-48
INPUT	VOLTAGE[V]		AC85 - 264 1 φ (Output derating is required) *8	
	CURRENT[A]	ACIN 115V	2.4typ	
		ACIN 230V	1.3typ	
	FREQUENCY[Hz]		50 / 60 (47 - 63)	
	EFFICIENCY[%]	ACIN 115V	88typ	
		ACIN 230V	90typ	
	POWER FACTOR	ACIN 115V	0.98typ	
		ACIN 230V	0.90typ	
	INRUSH CURRENT[A]	ACIN 115V	20typ (Io=100%)(at cold start Ta=25℃)	
	*1 ACIN 230V	40typ (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]		24	48
	CURRENT[A]		10	5
	LINE REGULATION[mV] *2		96max	192max
	LOAD REGULATION[mV] *2		150max	300max
	RIPPLE[mVp-p] *3	0 to +70℃	150max	150max
		-20 - 0℃	240max	240max
	RIPPLE NOISE[mVp-p] *3	0 to +70℃	180max	180max
		-20 - 0℃	300max	300max
	TEMPERATURE REGULATION[mV]	0 to +70℃	240max	480max
		-20 to +70℃	290max	600max
	DRIFT[mV] *4		96max	192max
	START-UP TIME[ms]		500max (ACIN 115V, Io=100%)	
	HOLD-UP TIME[ms]		20typ (ACIN 115V, Io=100%)	
OUTPUT VOLTAGE ADJUSTMENT RANGE[V]		21.60 to 26.40	43.20 to 52.80	
OUTPUT VOLTAGE SETTING[V]		24.00 to 24.96	48.00 to 49.92	
PROTECTION CIRCUIT AND OTHERS	OVERCURRENT PROTECTION		Works over 105% of rating and recovers automatically	
	OVERVOLTAGE PROTECTION[V]		27.60 to 33.60	54.00 to 67.20
	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 *7		10 - 55Hz, 19.6m/s² (2G), 3minutes period, 60 minutes along Z axis (Non operating, mounted on DIN Rail)	
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	CONDUCTED NOISE		Complies with FCC-B, VCCI-B, CISPR22-B, EN55011-B, EN55022-B	
	HARMONIC ATTENUATOR		Complies with IEC61000-3-2 (Class A) *5	
OTHERS	CASE SIZE *6	50×124×117mm (W×H×D) [1.97×4.88×4.61 inches]		
	WEIGHT		750g max	
	COOLING METHOD		Convection / Forced air	

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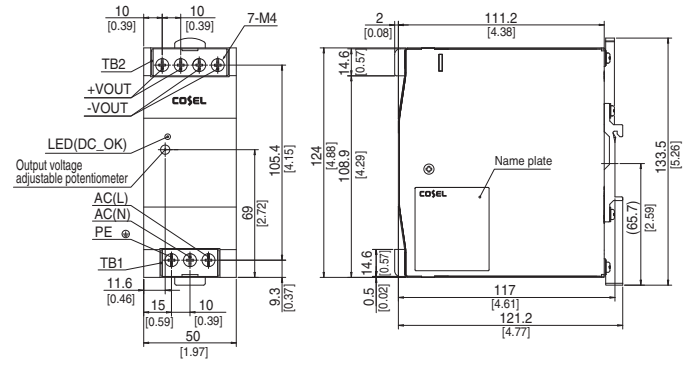
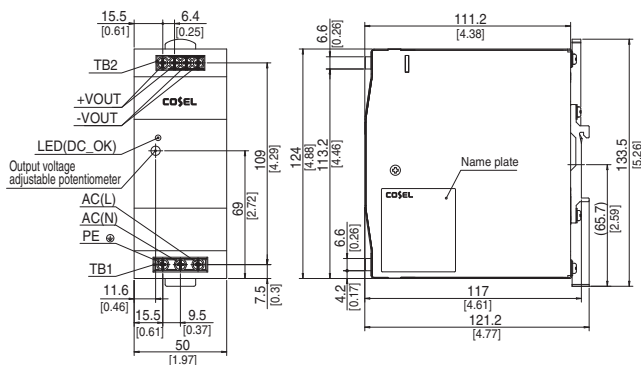
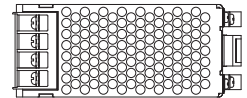
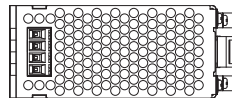
Block diagram



External view

<KLEA240F(Euro Style I/O Terminals)>

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- ※ Weight : 750g max
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- ※ Chassis material : Aluminum
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Basic Characteristics Data

Model	Circuit method	Switching frequency [KLz]	Input current [A] *1	Rated input fuse	Inrush current protection circuit	PCB/Pattern			Series/Parallel operation availability	
						Material	Single sided	Double sided	Series operation	Parallel operation
KLEA120F	Active filter	40 - 160	1.2	250V 4A	Thermistor	FR-4		Yes	Yes	No
KLNA120F	Flyback converter	20 - 150*2								
KLEA240F	Active filter	50 - 70	2.4	250V 8A	Thermistor	FR-4		Yes	Yes	No
KLNA240F	Forward converter	130								

*1 The value of input current is at ACIN 115V and 100%.

*2 Burst operation at light loading, frequency is change by use condition.
Please contact us about detail.