## AC-DC Power Supplies DIN Rail type KLEA/KLNA120F

**Recommended EMI/EMC Filter**

NAC-04-472-D

High voltage ripple noise filter: NAP series low noise current type: NAV series

The EMI/EMC filter is recommended to connect with several devices.

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### Ordering Information

<p>| | | | |</p>
<table>
<thead>
<tr>
<th></th>
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</tr>
</thead>
<tbody>
<tr>
<td>Series name</td>
<td>KLE: Euro Style V0 Terminals</td>
<td>KL: Barrier Blocks V0 Terminals</td>
<td></td>
</tr>
<tr>
<td>Single output</td>
<td>Output wattage</td>
<td>Universal input</td>
<td>Output voltage</td>
</tr>
<tr>
<td>Option</td>
<td>C: with Coating</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Model Information

- **MODEL**: KLEA/KLNA120F-24
- **MAX OUTPUT WATTAGE**: 120 W
- **DC OUTPUT**: 24V 5A

### Specifications

#### Input

<table>
<thead>
<tr>
<th>Parameter</th>
<th>KLEA/KLNA120F-24</th>
<th>KLEA/KLNA120F-48</th>
</tr>
</thead>
<tbody>
<tr>
<td>Voltage [V]</td>
<td>AC 85 - 264 1+</td>
<td>AC 85 - 264 1+</td>
</tr>
<tr>
<td>Current [A]</td>
<td>AC 115V: 1.2typ</td>
<td>AC 115V: 0.64typ</td>
</tr>
<tr>
<td>Frequency [Hz]</td>
<td>50 / 60 (47 - 63)</td>
<td>50 / 60 (47 - 63)</td>
</tr>
<tr>
<td>Efficiency [%]</td>
<td>AC 115V: 85.5typ</td>
<td>AC 115V: 84.0typ</td>
</tr>
<tr>
<td>Power Factor</td>
<td>AC 115V: 0.98typ</td>
<td>AC 115V: 0.98typ</td>
</tr>
<tr>
<td>Inrush Current [A]</td>
<td>AC 115V: 200typ (In&lt;100%) at cold start Ta=25°C</td>
<td>AC 230V: 400typ (In&lt;100%) at cold start Ta=25°C</td>
</tr>
</tbody>
</table>

#### Leakage Current [mA]

- 0.45 / 0.75max (ACIN 100V / 240V 60Hz, In<100%, According to IEC60950-1 and DEN-AN)

#### Output

<table>
<thead>
<tr>
<th>Parameter</th>
<th>KLEA/KLNA120F-24</th>
<th>KLEA/KLNA120F-48</th>
</tr>
</thead>
<tbody>
<tr>
<td>Voltage [V]</td>
<td>DC 24V</td>
<td>DC 48V</td>
</tr>
<tr>
<td>Current [A]</td>
<td>5</td>
<td>2.5</td>
</tr>
<tr>
<td>Line Regulation [mV]</td>
<td>96max (In=30-100%)</td>
<td>192max (In=30-100%)</td>
</tr>
<tr>
<td>Load Regulation [mV]</td>
<td>150max (In=30-100%)</td>
<td>300max (In=30-100%)</td>
</tr>
<tr>
<td>Ripple [mV-p]</td>
<td>0 - 0°C: 150max</td>
<td>0 - 0°C: 150max</td>
</tr>
<tr>
<td>Ripple Noise [mV-p]</td>
<td>0 - 0°C: 150max</td>
<td>0 - 0°C: 150max</td>
</tr>
<tr>
<td>Temperature Regulation [mV]</td>
<td>0 - 0°C: 240max</td>
<td>0 - 0°C: 240max</td>
</tr>
<tr>
<td>Drift [mV]</td>
<td>96max</td>
<td>192max</td>
</tr>
<tr>
<td>Start-Up Time [ms]</td>
<td>500ms (ACIN 115V, In&lt;100%)</td>
<td>500ms (ACIN 115V, In&lt;100%)</td>
</tr>
<tr>
<td>Hold-Up Time [ms]</td>
<td>200typ (ACIN 115V, In&lt;100%)</td>
<td>200typ (ACIN 115V, In&lt;100%)</td>
</tr>
<tr>
<td>Output Voltage Setting [V]</td>
<td>24.00 to 24.96</td>
<td>24.00 to 24.96</td>
</tr>
</tbody>
</table>

#### Protection Circuit and Others

- Overcurrent Protection: Works over 105% of rating and recovers automatically
- Overvoltage Protection: 27.60 to 33.60
- DC OK Lamp: LED (Green)

#### Isolation

- Input-Output: AC3,000V 1 minute. Cutoff current : 10mA, DC500V 500μA min At Room Temperature
- Input-PE: AC2,000V 1 minute. Cutoff current : 10mA, DC500V 500μA min At Room Temperature
- Output-PE: AC5000V 1 minute. Cutoff current : 10mA, DC500V 500μA 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: 10 - 55Hz, 18.6ms/s2, 3 minutes period, 90 minutes along X axis (Non-operating, mounted on DIN Rail)
- Impact: 196,7ms2 (26G), 11ms, once each X, Y and Z axis (Packaging state)
- Safety and Noise Regulations: Agency Approvals; UL60950-1, C-UL (CSA60950-1), EN60950-1, US508, Complies with DEN-AN

#### Other

- Size: 124×117mm (WXHXD) [1.5, 4.6, 4.6 inches]
- Weight: 380g max
- Cooling Method: Convection / Forced air

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1. The value is primary range. The current of input surge is a built-in (EMC) filter (time or boards included).
2. Please contact us about dynamic load and input response.
3. This is the value that measured on measuring board with capacitor of 0.1μF and 0.1μF at 150ms under output unloaded.
4. Measured by Hioki 3150 or Tektronix TDS3054 scope (Upgraded to EED00, AM010, Hioki).
5. Please refer to the instruction manual and
6. Do not operate at 90% load or less.
7. Please contact us about 30% input voltage.
8. To meet the specifications, Do not operate in overloaded condition.
9. A sound may occur from power supply at light or peak loading.
External view

<KLEA120F(Euro Style I/O Terminals)>  <KLNA120F(Battery Blocks Style I/O Terminals)>

- **Block diagram**
  - AC IN 85~264V
  - Fuse 250V 4A
  - Noise filter
  - Rectifier
  - Inrush current limit
  - Booster inductor
  - Current sensing
  - Rectifier and filter
  - Transformer
  - Inverter
  - Photocoupler
  - Control
  - Over voltage protection

- **External view**
  - KLEA120F (Euro Style I/O Terminals)
  - KLNA120F (Battery Blocks Style I/O Terminals)

- **Specifications**
  - **Tolerance**: ±1 [%0.04]
  - **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
### AC-DC Power Supplies DIN Rail type

**KLEA/KLNA240F**

**Ordering Information**

<table>
<thead>
<tr>
<th>Model</th>
<th>KLEA/KLNA240F-24</th>
<th>KLEA/KLNA240F-48</th>
</tr>
</thead>
<tbody>
<tr>
<td>Max Output WATTAGE[W]</td>
<td>240</td>
<td>240</td>
</tr>
<tr>
<td>DC Output</td>
<td>24V 10A</td>
<td>48V 5A</td>
</tr>
</tbody>
</table>

### Specifications

#### Model

<table>
<thead>
<tr>
<th>Model</th>
<th>KLEA/KLNA240F-24</th>
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#### Input

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<tr>
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</thead>
<tbody>
<tr>
<td>AC115V</td>
<td>2.4A</td>
<td>50/60 (47-63)</td>
<td>84%</td>
<td>0.94</td>
<td>200 (le=100%) (at cold start Ta=25°C)</td>
<td>0.45 / 0.75max (ACIN 100V / 240V 60Hz, le=100%, According to IEC60950-1 and DEN-AN)</td>
</tr>
<tr>
<td>AC230V</td>
<td>1.3I</td>
<td></td>
<td></td>
<td>0.90</td>
<td>200 (le=100%) (at cold start Ta=25°C)</td>
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</table>

#### Output

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<tr>
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</tr>
</thead>
<tbody>
<tr>
<td>24V</td>
<td>10A</td>
<td>0.2%</td>
<td>0 to 70°C: 150max</td>
<td>0 to -25°C: 140max</td>
<td>240max</td>
<td>21.60 to 26.40</td>
<td>43.20 to 52.80</td>
<td>27.60 to 33.80</td>
<td>Works over 103% of rating and recovers automatically</td>
</tr>
<tr>
<td>48V</td>
<td>5A</td>
<td>0.2%</td>
<td></td>
<td></td>
<td>240max</td>
<td>24.00 to 24.96</td>
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</tr>
</tbody>
</table>

### Protection

**Circuit and Others**

- Overcurrent Protection: Works over 103% of rating and recovers automatically
- Overvoltage Protection: 27.60 to 33.80
- DC OK Lamp: LED (Green)
- Isolation: AC3.000V 1 minute. Cutoff current = 10mA, DC500V 50Moh min. At Room Temperature
- Input-Output: AC3.000V 1 minute. Cutoff current = 10mA, DC500V 50Moh min. At Room Temperature
- Output-PE: AC500V 1minute. Cutoff current = 100mA, DC500V 50Moh min. At Room Temperature
- Environment: Operating Temp.,Humidity and Altitude: -20 to +70°C (Required to Derating), 20 - 90%RH (Non-condensing)
- Storage Temp.,Humidity and Altitude: -30 to +85°C, 20 - 90%RH (Non-condensing)
- Vibration: 10 - 55Hz, 19.6ms/s² (2G), 3minutes period, 60 minutes along Z axis (Non operating, mounted on DIN Rail)
- Impact: 196,1ms² (2G), 11ms, once each X, Y and Z axis (Packaging state)
- Safety and Noise Regulations: 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
- Harmonic Attenuator: Complies with IEC61000-3-2 (Class A)
- Others: Case Size: 50×124×111mm (WXHXD) [1.97×4.88×4.41 inches]
- Weight: 750g max

### Cooling Method

- Convection / Forced air

### Notes

- The value is primary range.
- The current of input source to be built-in EMI/EMC filter is included.
- This is the value that measured on measuring with capacitor of 22µF and 0.1µF at 100Hz from output terminal.
- Measured by 20MHz network scope or HP-3566A meter (equipped to KEISCO-AG#1, 80015).
- Please refer to the installation manual.
- Drifts 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 voltage.
- Please refer to the specification.
- Do not operate under overload condition.
- Some models may enter sleep mode at light or peak loading.
- Please contact to 25% input voltage.
- To meet specifications. Do not operate under overload condition.
- A sound may enter from power supply at light or peak loading.
- Please contact us about other models.
- Please refer to the installation manual.
- Only in constant output voltage mode, refer to the instruction manual. If used in other than standard constant output mode, please refer to the power supply for additional vibration and impact.
**Block diagram**

**External view**

<KLEA240F(Euro Style I/O Terminals)>

<KLNA240F(Barrier Blocks Style I/O Terminals)>

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**Specifications**

- **Fuse:** 250V 8A
- **Noise Filter:**
- **Rectifier:**
- **Inrush Current Limit:**
- **Transformer:**
- **Inverter:**
- **Current Sensing:**
- **Photocoupler:**
- **Over Voltage Protection:**
- **Control:**

**Dimensions in mm:**

- **Block diagram**
- **External view**

**Materials:**

- **PCB Material/Thickness:** FR-4 / 1.6mm
- **Chassis Material:** Aluminum
- **Case Material:** Stainless Steel
- **Din Rail Attachment Material:** Aluminum, Nylon

**Load Dimensions:**

- **KLEA240F:** 111.2 x 104 x 46mm
- **KLNA240F:** 111.2 x 104 x 46mm

**Weights:**

- **KLEA240F:** 750g max
- **KLNA240F:** 750g max

**Screw Tightening Torque:**

- **KLEA240F:** 1N.m max
- **KLNA240F:** 1.6N.m max

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**Tolerances:**

- ±0.04