

◆ Features

- * Full AC input voltage range.
- * Withstand 300Vac surge voltage for 5 second.
- * Full Protections: Short-circuit/ Over-voltage / Over-current/ Over temperature.
- * LED indicator for normal output voltage operating
- * 30mm ultra low profile.
- * IEC/EN 62368-1 design compliance
- * High efficiency and high reliability
- * Compliance with harmonic current requirement



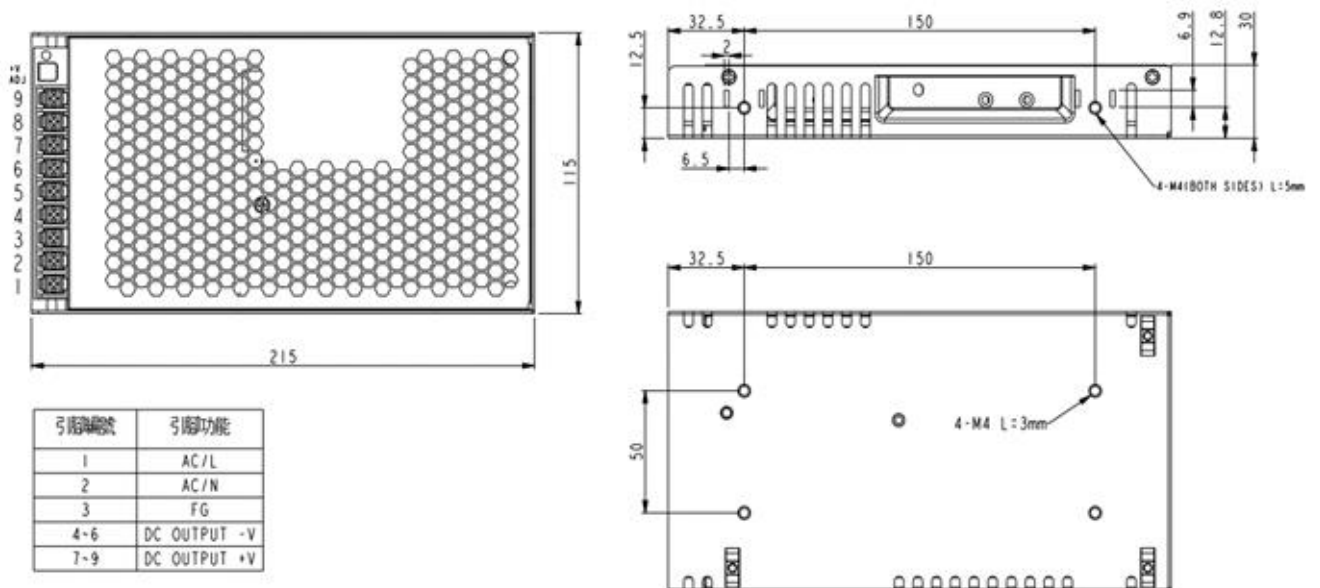
◆ Safety Certification



◆ Description

This is an AC to DC switching mode power supply which can provide 200 watts continuous power with convection cooling. It complies with world-wide Safety and EMC regulations (refer to details below). This is a high-performance PSU for various industrial applications.

◆ Mechanical Specification



| Model P/N | HA-1201-24LF | HA-1201-12LF |
|---------------------------------------|---|--------------|
| Output Specification | | |
| ● Rated power | ----- 100W ----- | |
| ● Rated voltage | 24V | 12V |
| ● Rated current | 8.4A | 16.7A |
| ● Ripple & Noise (max.) (note#2) | 150mV | 150mV |
| ● Load & AC line regulation | ----- ±1% ----- | |
| ● Hold-up time(typ.) | ----- 16ms ----- | |
| ● Timing: AC ON delay / rising (max.) | ----- 1.5 sec / 50ms ----- | |
| Input Specification | | |
| ● Rated voltage range | ----- 100V~240VAC ----- | |
| ● Operated voltage range (note#4) | ----- 90V~264VAC, 300Vac for 5 sec ----- | |
| ● Current range (max.) | ----- 2.5A ----- | |
| ● Inrush current (typ.) | ----- 40A (cold start) ----- | |
| ● Frequency range | ----- 50-60Hz ----- | |
| ● Leakage current (max.) | ----- 1mA ----- | |
| ● Efficiency (typ.) | 89.5% | 89.0% |
| Protection Function | | |
| ● Over voltage (max.) | --- 135% of rated voltage, latch off protection --- | |
| ● Over current (max.) | --- 135% of rated current, hiccup mode protection until fault is removed --- | |
| ● Short circuit at O/P | ----- No damage, hiccup mode protection until fault is removed ----- | |
| ● Over temperature | ----- No damage, O/P shut down until temperature is back to normal ----- | |
| Others | | |
| ● MTBF (min.) (note#3) | ----- 700K hours @ rated load ----- | |
| Environment | | |
| ● Temperature (note#4) | ----- (operating) -20~70°C /(storage) -40~85°C ----- | |
| ● Humidity | (operating) 10~90% RH non-condensing / (storage) 5~95% RH | |
| ● Altitude (max.) | ----- 5000 meters ----- | |
| Mechanical | | |
| ● Dimension | -----215*115*30mm ----- | |
| ● Vibration | ----- 10~500 Hz, 5G 20min./1cycle, 60min per axis in all axes (X, Y, Z) ----- | |
| ● Weight (typ.) | 490 g | |

| Safety | | | | | | | | | | | | | | | | | | | |
|---|--|----------|----|----|-----|-----|-----|-----|--|--------------------------|--------------------|-----|-----|----|-----|----|----|----|---|
| ● Standard | ----- IEC/EN 60950-1, K60950-1, IEC/EN 62368-1, CNS14336-1 ----- | | | | | | | | | | | | | | | | | | |
| ● Withstand voltage | ----- Input-Output: 4242VDC / Input-FG: 2150VDC / Output-FG: 700VDC ----- | | | | | | | | | | | | | | | | | | |
| ● Isolation resistance(min.) | ----- Input-Output: 100Mohm @ 500VDC, 25°C, 70%RH ----- | | | | | | | | | | | | | | | | | | |
| EMC | | | | | | | | | | | | | | | | | | | |
| ● EN55032 | ----- Conducted EMI: class B / Radiated EMI: class B ----- | | | | | | | | | | | | | | | | | | |
| ● FCC | ----- Conducted EMI: class B / Radiated EMI: class B ----- | | | | | | | | | | | | | | | | | | |
| ● EN61000-3-2 | ----- Harmonic distortion: Class D ----- | | | | | | | | | | | | | | | | | | |
| ● EN61000-4-2 | ----- ESD: ±4KV contact discharge / ±8KV contact discharge ----- | | | | | | | | | | | | | | | | | | |
| ● EN61000-4-3 | ----- Radiated RF immunity: 3V/m ----- | | | | | | | | | | | | | | | | | | |
| ● EN61000-4-4 | ----- EFT: ±1KV (AC port) ----- | | | | | | | | | | | | | | | | | | |
| ● EN61000-4-5 | ----- Surge: ±1KV DM / ±2KV CM ----- | | | | | | | | | | | | | | | | | | |
| ● EN61000-4-6 | ----- Conducted RF immunity: 3V/m ----- | | | | | | | | | | | | | | | | | | |
| ● EN61000-4-8 | ----- Magnetic field immunity: 1A/m ----- | | | | | | | | | | | | | | | | | | |
| ● EN61000-4-11 | ----- Voltage dip immunity ----- 30%, 0.5 periods 60%, 50 periods >95%, 250 periods | | | | | | | | | | | | | | | | | | |
| Note | | | | | | | | | | | | | | | | | | | |
| #1: All specification defined at 230Vac/50Hz, rated power and 25°C ambient temperature if no mentioned specially. | | | | | | | | | | | | | | | | | | | |
| #2: Ripple noise is measured by a 30cm length, twisted wires with 0.47uF MLCC+22uF low ESR capacitor. | | | | | | | | | | | | | | | | | | | |
| #3: Calculated by Telcordia SR332 at 25°C ambient temperature. | | | | | | | | | | | | | | | | | | | |
| #4: De-rating curve of AC input voltage and ambient temperature: | | | | | | | | | | | | | | | | | | | |
| <table border="1"> <caption>Load (%) vs Input Voltage (VAC) 60Hz</caption> <thead> <tr> <th>Input Voltage (VAC) 60Hz</th> <th>Load (%)</th> </tr> </thead> <tbody> <tr> <td>85</td> <td>80</td> </tr> <tr> <td>100</td> <td>100</td> </tr> <tr> <td>264</td> <td>100</td> </tr> </tbody> </table> | Input Voltage (VAC) 60Hz | Load (%) | 85 | 80 | 100 | 100 | 264 | 100 | <table border="1"> <caption>Output Loading (%) vs Ambient Temperature (°C)</caption> <thead> <tr> <th>Ambient Temperature (°C)</th> <th>Output Loading (%)</th> </tr> </thead> <tbody> <tr> <td>-20</td> <td>100</td> </tr> <tr> <td>50</td> <td>100</td> </tr> <tr> <td>70</td> <td>60</td> </tr> <tr> <td>70</td> <td>0</td> </tr> </tbody> </table> | Ambient Temperature (°C) | Output Loading (%) | -20 | 100 | 50 | 100 | 70 | 60 | 70 | 0 |
| Input Voltage (VAC) 60Hz | Load (%) | | | | | | | | | | | | | | | | | | |
| 85 | 80 | | | | | | | | | | | | | | | | | | |
| 100 | 100 | | | | | | | | | | | | | | | | | | |
| 264 | 100 | | | | | | | | | | | | | | | | | | |
| Ambient Temperature (°C) | Output Loading (%) | | | | | | | | | | | | | | | | | | |
| -20 | 100 | | | | | | | | | | | | | | | | | | |
| 50 | 100 | | | | | | | | | | | | | | | | | | |
| 70 | 60 | | | | | | | | | | | | | | | | | | |
| 70 | 0 | | | | | | | | | | | | | | | | | | |