The FH-series cover all international and market demands. This type of power supply has all in one. Active power factor, universal input, EMI complies to VDE 0871/B and VDE, UL and CSA approvals.

**Features**
- Wide input voltage range (85-264Vac)
- PFC 0.99@115Vac; 0.96@230Vac
- High efficiency & reliability
- Output voltage +/-10%
- Warranty: 2 years

**Mechanical features**
- Dimensions (WxLxH): 120x170x93mm
- Weight: 1900g
- Connector: Screw terminal
- Closed type

**Possible applications**
- Process control
- Office equipment
- Computer peripherals
- Telecommunications
- Industrial electronics & machines

**Control features**
- Over voltage protection: Output shutdown
- Over current protection: Automatic reset
- Remote sense (S)
- Remote control (RC)
- Power fail (PF)
- Power share (P)

**Standards**
- Harmonics: IEC 61000-3-2
- EMI: FCC Part 15-B ClassB; VCCI ClassB;
- Safety: UL: UL1950; C-UL: CSA C22.2 No.950;
  VDE: EN60950; IEC950; VDE0805
## Specifications<AC/DC>

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<tbody>
<tr>
<td><strong>Input Voltage</strong></td>
<td>AC115-230V</td>
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<td><strong>Input Current</strong></td>
<td>4.9-2.4A</td>
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<tr>
<td><strong>Input Range</strong></td>
<td>AC85-264V</td>
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<td><strong>Input Frequency</strong></td>
<td>50/60Hz</td>
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<tr>
<td><strong>Input Frequency Range</strong></td>
<td>47-63Hz</td>
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<tr>
<td><strong>Phase</strong></td>
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<td><strong>Inrush Current*1</strong></td>
<td>12A(maximum)</td>
<td>AC115V</td>
<td>24A(maximum)</td>
<td>AC230V</td>
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<tr>
<td>*<em>Efficiency <a href="typical">%</a><em>2</em></em></td>
<td>67/69</td>
<td>72/76</td>
<td>73/76</td>
<td>75/79</td>
<td>76/80</td>
<td>78/82</td>
<td>78/82</td>
<td>80/84</td>
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<td><strong>Power Factor</strong></td>
<td>0.95(typical)</td>
<td>AC115V</td>
<td>0.96(typical)</td>
<td>AC230V</td>
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<tr>
<td><strong>Voltage Adjust Range</strong></td>
<td>+/- 10% of Rated Output Voltage(at no load within the input range)</td>
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<td>*<em>Ripple and Noise <a href="maximum">mVp-p</a><em>3</em></em></td>
<td>133</td>
<td>150</td>
<td>160</td>
<td>220</td>
<td>250</td>
<td>340</td>
<td>400</td>
<td>460</td>
<td>580</td>
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<tr>
<td><strong>Regulation a. Statistic Line Regulation <a href="maximum">mV</a></strong></td>
<td>16.5</td>
<td>25</td>
<td>30</td>
<td>60</td>
<td>75</td>
<td>120</td>
<td>150</td>
<td>180</td>
<td>240</td>
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<tr>
<td><strong>b. Statistic Load Regulation <a href="maximum">mV</a></strong></td>
<td>33</td>
<td>50</td>
<td>60</td>
<td>120</td>
<td>150</td>
<td>240</td>
<td>300</td>
<td>360</td>
<td>480</td>
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<td>*<em>c. Temperature Coefficient <em>4</em></em></td>
<td>0.03%/°C</td>
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<td>*<em>d. Dynamic Load Regulation <a href="typical">mV</a><em>6</em></em></td>
<td>99</td>
<td>150</td>
<td>180</td>
<td>360</td>
<td>450</td>
<td>720</td>
<td>900</td>
<td>1080</td>
<td>1440</td>
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<td>*<em>e. Recovery Time <em>6</em></em></td>
<td>5ms(typical)</td>
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<tr>
<td><strong>Over current Protection</strong></td>
<td>110% of Rated Output Current[A]</td>
<td>66.0</td>
<td>66.0</td>
<td>55.0</td>
<td>29.7</td>
<td>24.2</td>
<td>15.4</td>
<td>9.9</td>
<td>7.7</td>
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<td><strong>Over voltage Protection</strong></td>
<td>Current Limiting with automatic recovery</td>
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<td><strong>Output Shutdown</strong></td>
<td>Output shutdown(to reset, leave 1minute after shut-off)</td>
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<td><strong>Remote Sense</strong></td>
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<tr>
<td><strong>Remote On/Off</strong></td>
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<td><strong>Power Fail Detection</strong></td>
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<td><strong>Parallel/series Operation</strong></td>
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### Input Characteristics

- **Input Voltage**: AC115-230V
- **Input Current**: 4.9-2.4A
- **Input Range**: AC85-264V
- **Input Frequency**: 50/60Hz
- **Input Frequency Range**: 47-63Hz
- **Phase**: Single

### Output Characteristics

- **Output Voltage [V]**: 3.3, 5, 6, 12, 15, 24, 30, 36, 48
- **Output Current [A]**: 60.0, 60.0, 50.0, 27.0, 22.0, 14.0, 11.0, 9.0, 7.0

### Environmental

- **Operating Temperature**: -10 to +50°C (-30 to +70°C)
- **Operating Humidity**: 30 to 85%RH(non-condensing)
- **Storage Temperature**: -20 to +65°C
- **Storage Humidity**: 10 to 85%RH(non-condensing)
- **Withstanding Voltage**: Primary-Secondary AC3,000V for 1minute
  - Primary-Frame Ground AC2,500V for 1minute
  - Secondary-Frame Ground AC500V for 1minute
- **Insulation Resistance Primary-Secondary-Frame Ground**: 50MΩ(minimum) by DC500V insulation tester
- **Vibration**: 5-10Hz;10mm double amplitude,10-55Hz;19.6m/s²,20minutes, period for 60minutes each along X,Y,Z axes(non-operating)
- **Shock**: 294m/s²

### Line Conducted Noise

- **FCC Part15-B Class B**: VCCI Class B
- **VDE0871 Class B**: IEC61000-3-2
- **UL: UL1950**: C-UL: CSA C22.2 No.950
- **VDE:EN60950,IEC950,VDE0805**

### Weight (typical)

- **1900g**

### MTBF [h]

- **130,000**

### Switching Frequency[kHz](typical)

- **130**

### Conditions:

*1 at cold start
*2 at AC115/230V input, rated output and 25°C
*3 measured by a bayonet probe at the output connector at a 0 to 100MHz bandwidth
*4 at -5 to +50°C
*5 for 7hour period after 1hour warm-up at 25°C and rated input/output
*6 when output current is changed from 25% to 75% of rated output current rapidly at rated input
*7 safety approved at 25°C (contact technical sales)
**Derating**

--- out of Safety approvals
--- Under Safety approvals
(* keep clearance of 20mm each side except mounted side)

**Efficiency**

FHF-05SX-U
Input Voltage AC230V
Output Voltage DC5V
Ambient Temp 25°C
OCP

**Block Diagram**

- **AC IN (L)**
- **AC IN (N)**
- **Noise Filter**
- **Rectifier/Smoothing**
- **Soft Start**
- **Power Factor Correction**
- **Switching**
- **Rectifier/Smoothing**
- **PWM control**
- **OCP**
- **P.F. Signal**
- **Sensing**
- **OVP sensing**
- **Sensing**
- **RC**
- **DC out**
- **P.F.**

**FHF-05SX-U**
- **Input Voltage**: AC115V/230V
- **Output Voltage**: DC5V
- **Ambient Temp**: 25°C

**Output Voltage**
- 5 [V]
- 2.5 [V]
- 0

**Output Current [A]**
- 70
- 60
- 30
Dimensions