**ELECTRICAL SPECIFICATIONS**

All specifications valid at normal input voltage, full load and +25°C after warm-up time unless otherwise stated.

<table>
<thead>
<tr>
<th>Model No.</th>
<th>AQF120E-5S</th>
<th>AQF120E-12S</th>
<th>AQF120E-15S</th>
<th>AQF120E-24S</th>
<th>AQF120E-48S</th>
</tr>
</thead>
<tbody>
<tr>
<td>Max Output Wattage (W)</td>
<td>150 W (30CFM FAN)</td>
<td>180 W (18CFM FAN)</td>
<td>120 W</td>
<td>180 W</td>
<td>180 W</td>
</tr>
</tbody>
</table>

### Input
- **Voltage**: 90-264 VAC or 120-370 VDC (80-274 VAC or 110-390 VDC with Derating)
- **Frequency (Hz)**: 47-63 Hz
- **Current (Full load)**: <2.0 A max. (115 VAC) / <1.0 A max. (230 VAC)
- **Inrush Current (<2ms)**: < 30 A max. (115 VAC) / < 60 A max. (230 VAC)
- **Leakage Current**: < 0.5 mA max.
- **Power Factor**: PF>0.99 (115 VAC) / PF>0.95 (230 VAC) at Full Load

### Output
- **Voltage (V.DC.)**: 5V 12V 15V 24V 48V
- **Voltage Accuracy**: ±2%
- **Voltage Adj. Range**: ±5% Output Voltage
- **Current (18/30 CFM FAN) (A) max**: 0~30 (30CFM FAN) 0~15 (18CFM FAN) 0~12 (18CFM FAN) 0~7.5 (18CFM FAN) 0~3.75 (18CFM FAN)
- **Current (Convection) (A) max**: 0~24 0~10 0~8 0~5 0~2.5
- **Line Regulation**: ±1%
- **Load Regulation**: ±1%
- **Minimum Load**: 5% 1%
- **Maximum Capacitive Load**: 100,000µF 40,000µF 35,000µF 20,000µF 1,200µF
- **Ripple & Noise (max.)**: 100mV 50mV 50mV 100mV 200mV
- **Efficiency (typ.)**: 87% 90% 90% 93% 93%
- **Hold-up Time**: 15 ms min.

### Protection
- **Over Power Protection**: Auto recovery
- **Over Voltage Protection**: Auto recovery (> 125% Vout) (except 5S)
- **Short Circuit Protection**: Auto recovery

### Isolation
- **Input-Output (V.AC)**: 4000VAC or 5656VDC
- **Input-FG (V.AC)**: 2000V
- **Output-FG (V.AC)**: 500V

### Environment
- **Operating Temperature**: -25°C...+70°C (with derating)
- **Storage Temperature**: -25°C...+85°C
- **Temperature Coefficient**: ±0.03%/°C (0~50°C)
- **Humidity**: 95% RH
- **MTBF**: >120,000 h @ 25°C (MIL-HDBK-217F, Notice 1)
- **Vibration**: 10~500Hz, 2G 10min./1cycle, 60min. each along X, Y, Z axes.

### Physical
- **Dimension (L x W x H)**: 5.0 x 3.24 x 1.5 Inches (127.0 x 82.2 x 38.1 mm) Tolerance ±0.5 mm
- **Weight**: 400 g
- **Cooling Method**: Free convection / 18 CFM FAN

### Safety
- **Agency Approvals**: CE, UL60950-1(except 5S / 15S), CB(except 5S / 15S)

### EMC
- **Conducted & Radiated Emission**: EN61000-6-3 · EN 55032 class B
- **Noise Immunity**: EN 55024
NOTE
1. Ripple & Noise are measured at 20MHz of bandwidth with 0.1uF & 47uF parallel capacitor.
2. Hold-up Time measured at 90% Vout.
3. Strongly recommend to conduct this test with DC Voltage. If customer wishes to test with AC Voltage, please disconnect all Y-Capacitors within Arch power supply.

DERATING

BLOCK DIAGRAM

Single Output
MECHANICAL DIMENSION (Top View)

**Standard (5S)**

### PIN# Single

<table>
<thead>
<tr>
<th>PIN#</th>
<th>Single</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>AC IN (L)</td>
</tr>
<tr>
<td>2</td>
<td>AC IN (N)</td>
</tr>
<tr>
<td>3</td>
<td>FG</td>
</tr>
<tr>
<td>4</td>
<td>+DC OUT</td>
</tr>
<tr>
<td>5</td>
<td>-DC OUT</td>
</tr>
</tbody>
</table>

**ASSEMBLY INSTRUCTIONS**

*U Case  T=2.0mm
Customer is advised to screw into the threads no more than 2.0mm
MECHANICAL DIMENSION

( Top View )

Standard (12S、15S、24S、48S)

PIN# | Single
---|---
1 | AC IN (L)
2 | AC IN (N)
3 | FG
4 | +DC OUT
5 | +DC OUT
6 | -DC OUT
7 | -DC OUT

A Type (except 5S)

PIN# | Single
---|---
1 | AC IN (L)
2 | AC IN (N)
3 | FG
4 | +DC OUT
5 | +DC OUT
6 | -DC OUT
7 | -DC OUT

B Type (except 5S)

ASSEMBLY INSTRUCTIONS

*U Case  T=2.0mm

Customer is advised to screw into the threads no more than 2.0mm
AQF120E SERIES

AC-DC Switching Power Supply

180 Watts

Din Rail Kit

AQF120E-180W-DRK

<table>
<thead>
<tr>
<th>PIN#</th>
<th>5S</th>
<th>12S, 15S, 24S, 48S</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>AC IN (L)</td>
<td>AC IN (L)</td>
</tr>
<tr>
<td>2</td>
<td>AC IN (N)</td>
<td>AC IN (N)</td>
</tr>
<tr>
<td>3</td>
<td>FG</td>
<td>FG</td>
</tr>
<tr>
<td>4</td>
<td>+DC OUT</td>
<td>+DC OUT</td>
</tr>
<tr>
<td>5</td>
<td>-DC OUT</td>
<td>+DC OUT</td>
</tr>
<tr>
<td>6</td>
<td>—</td>
<td>-DC OUT</td>
</tr>
<tr>
<td>7</td>
<td>—</td>
<td>-DC OUT</td>
</tr>
</tbody>
</table>

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-5-
### AC-DC Switching Power Supply

**AQF120E SERIES**

**180 Watts**

**EFFICIENCY VERSUS LOAD**

#### AQF120E-5S

<table>
<thead>
<tr>
<th>VIN</th>
<th>90</th>
<th>115</th>
<th>180</th>
<th>230</th>
<th>264</th>
</tr>
</thead>
<tbody>
<tr>
<td>Efficiency</td>
<td>85.37</td>
<td>86.17</td>
<td>87.46</td>
<td>87.76</td>
<td>88.14</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>LOAD (%)</th>
<th>10</th>
<th>20</th>
<th>30</th>
<th>40</th>
<th>50</th>
</tr>
</thead>
<tbody>
<tr>
<td>115V (%)</td>
<td>69.59</td>
<td>81.53</td>
<td>83.15</td>
<td>84.92</td>
<td>85.96</td>
</tr>
<tr>
<td>230V (%)</td>
<td>73.66</td>
<td>81.49</td>
<td>85.04</td>
<td>88.21</td>
<td>87.16</td>
</tr>
</tbody>
</table>

#### AQF120E-12S

<table>
<thead>
<tr>
<th>VIN</th>
<th>90</th>
<th>115</th>
<th>180</th>
<th>230</th>
<th>264</th>
</tr>
</thead>
<tbody>
<tr>
<td>Efficiency</td>
<td>86.45</td>
<td>89.96</td>
<td>92</td>
<td>92.77</td>
<td>92.3</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>LOAD (%)</th>
<th>10</th>
<th>20</th>
<th>30</th>
<th>40</th>
<th>50</th>
</tr>
</thead>
<tbody>
<tr>
<td>115V (%)</td>
<td>73.62</td>
<td>82.98</td>
<td>86.43</td>
<td>88.26</td>
<td>89.27</td>
</tr>
<tr>
<td>230V (%)</td>
<td>71.83</td>
<td>81.82</td>
<td>86.81</td>
<td>89.54</td>
<td>90.58</td>
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</tbody>
</table>

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## EFFICIENCY VERSUS LOAD

### AQF120E-15S

<table>
<thead>
<tr>
<th>VIN (V)</th>
<th>90</th>
<th>115</th>
<th>180</th>
<th>230</th>
<th>264</th>
</tr>
</thead>
<tbody>
<tr>
<td>Efficiency (%)</td>
<td>86.03</td>
<td>88.78</td>
<td>90.06</td>
<td>90.45</td>
<td>90.75</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>LOAD (%)</th>
<th>10</th>
<th>20</th>
<th>30</th>
<th>40</th>
<th>50</th>
</tr>
</thead>
<tbody>
<tr>
<td>115V (%)</td>
<td>67.05</td>
<td>78.17</td>
<td>82.74</td>
<td>85.07</td>
<td>85.52</td>
</tr>
<tr>
<td>230V (%)</td>
<td>67.05</td>
<td>77.17</td>
<td>82.17</td>
<td>84.61</td>
<td>86.14</td>
</tr>
</tbody>
</table>

### AQF120E-24S

<table>
<thead>
<tr>
<th>VIN (V)</th>
<th>90</th>
<th>115</th>
<th>180</th>
<th>230</th>
<th>264</th>
</tr>
</thead>
<tbody>
<tr>
<td>Efficiency (%)</td>
<td>88.78</td>
<td>91.27</td>
<td>93.11</td>
<td>93.52</td>
<td>93.81</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>LOAD (%)</th>
<th>10</th>
<th>20</th>
<th>30</th>
<th>40</th>
<th>50</th>
</tr>
</thead>
<tbody>
<tr>
<td>115V (%)</td>
<td>71.89</td>
<td>82.79</td>
<td>86.97</td>
<td>88.9</td>
<td>89.82</td>
</tr>
<tr>
<td>230V (%)</td>
<td>72.3</td>
<td>84.22</td>
<td>88.46</td>
<td>89.21</td>
<td>92.29</td>
</tr>
</tbody>
</table>

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VER : D_1    update : 2019.09.25
## EFFICIENCY VERSUS LOAD

### AQF120E-48S

<table>
<thead>
<tr>
<th>VIN (V)</th>
<th>90</th>
<th>115</th>
<th>180</th>
<th>230</th>
<th>264</th>
</tr>
</thead>
<tbody>
<tr>
<td>Efficiency (%)</td>
<td>88.56</td>
<td>91.86</td>
<td>93.20</td>
<td>93.76</td>
<td>93.61</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>LOAD (%), VIN (V)</th>
<th>10</th>
<th>20</th>
<th>30</th>
<th>40</th>
<th>50</th>
</tr>
</thead>
<tbody>
<tr>
<td>115V (%)</td>
<td>74.99</td>
<td>83.9</td>
<td>87.25</td>
<td>89.17</td>
<td>90.01</td>
</tr>
<tr>
<td>230V (%)</td>
<td>67.31</td>
<td>79.29</td>
<td>84.97</td>
<td>88.18</td>
<td>89.99</td>
</tr>
<tr>
<td>Load (%)</td>
<td>60</td>
<td>70</td>
<td>80</td>
<td>90</td>
<td>100</td>
</tr>
<tr>
<td>115V (%)</td>
<td>90.69</td>
<td>91.18</td>
<td>91.46</td>
<td>91.84</td>
<td>91.86</td>
</tr>
<tr>
<td>230V (%)</td>
<td>91.24</td>
<td>92.15</td>
<td>92.84</td>
<td>93.36</td>
<td>93.76</td>
</tr>
</tbody>
</table>

![Graph showing efficiency versus load for AQF120E-48S](image)