The PXD-M series of medical and industrial DC-DC converters feature a wide 4:1 input range in a compact 2 x 1” (50.8 x 25mm) industry standard package. With 5kV input to output isolation, 2.5uA touch current and a low off-load power draw, these encapsulated modules are ideal for fixed and portable applications.

**Features**
- Wide 4:1 Input Range
- Compact 2’ x 1” Industry Package
- Certified to IEC 60601-1 and IEC 62368-1
- 2 x MOPP Isolation
- Low No Load Power Consumption
- Supports Dual 12/24V or 24/48V System Voltages
- Less Board Area Needed
- Suitable For Medical and Industrial Applications
- High Input to Output Isolation
- Longer Battery Life

**Model Selector**

<table>
<thead>
<tr>
<th>Model</th>
<th>Input Voltage (V)</th>
<th>Output Voltage (V)</th>
<th>Maximum Current (A)</th>
<th>Maximum Power (W)</th>
<th>No Load Input Current (mA)</th>
<th>Efficiency (%)</th>
<th>Maximum Load Capacitance (µF)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Single Outputs</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PXD-M30-24WS05</td>
<td>9 - 36</td>
<td>5</td>
<td>6</td>
<td>30</td>
<td>9</td>
<td>88.5</td>
<td>7200</td>
</tr>
<tr>
<td>PXD-M30-24WS12</td>
<td>9 - 36</td>
<td>12</td>
<td>2.5</td>
<td>30</td>
<td>10</td>
<td>89</td>
<td>1200</td>
</tr>
<tr>
<td>PXD-M30-24WS15</td>
<td>9 - 36</td>
<td>15</td>
<td>2</td>
<td>30</td>
<td>10</td>
<td>90.5</td>
<td>1000</td>
</tr>
<tr>
<td>PXD-M30-24WS24</td>
<td>9 - 36</td>
<td>24</td>
<td>1.25</td>
<td>30</td>
<td>10</td>
<td>89.5</td>
<td>375</td>
</tr>
<tr>
<td>PXD-M30-48WS05</td>
<td>18 - 75</td>
<td>5</td>
<td>6</td>
<td>30</td>
<td>8</td>
<td>89</td>
<td>7200</td>
</tr>
<tr>
<td>PXD-M30-48WS12</td>
<td>18 - 75</td>
<td>12</td>
<td>2.5</td>
<td>30</td>
<td>9</td>
<td>89</td>
<td>1200</td>
</tr>
<tr>
<td>PXD-M30-48WS15</td>
<td>18 - 75</td>
<td>15</td>
<td>2</td>
<td>30</td>
<td>8</td>
<td>90</td>
<td>1000</td>
</tr>
<tr>
<td>PXD-M30-48WS24</td>
<td>18 - 75</td>
<td>24</td>
<td>1.25</td>
<td>30</td>
<td>9</td>
<td>89.5</td>
<td>375</td>
</tr>
<tr>
<td><strong>Dual Outputs</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PXD-M30-24WD05</td>
<td>9 - 36</td>
<td>±5</td>
<td>±3.0</td>
<td>30</td>
<td>10</td>
<td>86</td>
<td>±3600</td>
</tr>
<tr>
<td>PXD-M30-24WD12</td>
<td>9 - 36</td>
<td>±12</td>
<td>±1.25</td>
<td>30</td>
<td>10</td>
<td>89.5</td>
<td>±750</td>
</tr>
<tr>
<td>PXD-M30-24WD15</td>
<td>9 - 36</td>
<td>±15</td>
<td>±1.0</td>
<td>30</td>
<td>9</td>
<td>90</td>
<td>±500</td>
</tr>
<tr>
<td>PXD-M30-48WD05</td>
<td>18 - 75</td>
<td>±5</td>
<td>±3.0</td>
<td>30</td>
<td>9</td>
<td>86.5</td>
<td>±3600</td>
</tr>
<tr>
<td>PXD-M30-48WD12</td>
<td>18 - 75</td>
<td>±12</td>
<td>±1.25</td>
<td>30</td>
<td>9</td>
<td>90</td>
<td>±750</td>
</tr>
<tr>
<td>PXD-M30-48WD15</td>
<td>18 - 75</td>
<td>±15</td>
<td>±1.0</td>
<td>30</td>
<td>8</td>
<td>89.5</td>
<td>±500</td>
</tr>
</tbody>
</table>

**Preferred model**

- PXD-M-30-24W-05-N

**Descriptions**
- 30: 30W Output Power
- -24W: 9 - 36V input
- -48W: 18 - 75V input
- S: Single Output
- D: Dual Output
- 05: 5V Output Voltage
- 12: 12V Output Voltage
- 15: 15V Output Voltage
- 24: 24V Output Voltage
- Blank: No Remote On/Off
- .N: Negative Logic Remote On/Off
- .P: Positive Logic Remote On/Off
### Specifications

<table>
<thead>
<tr>
<th>Model</th>
<th>PXD-M30</th>
</tr>
</thead>
</table>

#### Input
- **Input Voltage Range**: $V_{dc}$
  - See model selector table
  - 24W models: 50W, -48W models: 100W (3s maximum)
- **Input Surge Voltage**: $V_{dc}$
  - -24W models: 7.8 - 8.6, -48W models: 15.8 - 17.4
- **Input Shutdown Voltage**: $V_{dc}$
  - -24W models: 7.8 - 8.6, -48W models: 15.8 - 17.4
- **Start-up Time**: ms
  - 60 max
- **Touch Current**: uA
  - 2.5 maximum
- **No Load Power Consumption**: W
  - See model selector table
- **Efficiency**: -
  - See model selector table
- **Conducted & Radiated EMI**: -
  - EN50011-A, EN50032-A without external components. Class B with external components
- **Immunity**: -
  - See immunity section
- **Safety Agency Certifications**: -
  - IEC/UL/CSA/EN62368-1, IEC/ANSI/AAMI ES/CSA/EN60601-1, CE Mark (LVD and RoHS)

### Immunity

<table>
<thead>
<tr>
<th>Test</th>
<th>Standard</th>
<th>Test Level</th>
<th>Criteria</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>ESD</td>
<td>EN61000-4-2</td>
<td>Air ± 15kV and Contact ± 8kV</td>
<td>A</td>
<td></td>
</tr>
<tr>
<td>Radiated Susceptibility</td>
<td>EN61000-4-3</td>
<td>10V/m</td>
<td>A</td>
<td></td>
</tr>
<tr>
<td>Electrical Fast Transient Burst</td>
<td>EN61000-4-4</td>
<td>± 2kV</td>
<td>A</td>
<td></td>
</tr>
<tr>
<td>Surge</td>
<td>EN61000-4-5</td>
<td>± 2kV</td>
<td>A</td>
<td>With an input filter of two 220μF capacitors and a TVS</td>
</tr>
<tr>
<td>Conducted Susceptibility</td>
<td>EN61000-4-6</td>
<td>10 Vrms</td>
<td>A</td>
<td>(SMDJ58A for PXG-M24W or SMDJ120A for PXG-M48W)</td>
</tr>
<tr>
<td>Magnetic Fields</td>
<td>EN61000-4-8</td>
<td>100A/m continuous; 1000A/m 1s</td>
<td>A</td>
<td></td>
</tr>
</tbody>
</table>

Notes:
- A
## Specifications

<table>
<thead>
<tr>
<th>Model</th>
<th>PXD-M30</th>
</tr>
</thead>
</table>

### Output

- **Output Voltage Tolerance**: % ±1
- **Output Voltage Adjustment**: %
  - Single output only: 5V: 4.5 - 5.5V, 12V: -10.8 - 13.2V, 15V: 13.5 - 18V, 24V: 21.6 - 28.8V
- **Switching Frequency**: kHz 225 - 285
- **Line Regulation**: %
  - Single output: ±0.2, Dual output: ±0.5
- **Load Regulation**: %
  - Single output: ±0.2, Dual output: ±1
- **Cross Regulation**: %
  - Dual output: ±0.5 (Asymmetrical 25% to 100% load change)
- **External Load Capacitance**: µF See model selector table
- **Ripple & Noise (1)**: mV
  - Single output: 5V outputs: 50, 12V outputs: 75, 15/24V outputs: 100
  - Dual output: ±5V outputs: 50, ±12/15V outputs: 75
- **Temperature Coefficient**: %/°C ±0.02
- **Minimum Load**: No minimum load required
- **Transient Loading**: 250us recovery time for a 25% load change
- **Overcurrent Protection**: Hiccup mode. 150 - 185%
- **Overvoltage Protection**: V Zener clamp method.
  - 5V: 6.2V, 12V: 15V, 15V: 20V, 24V: 30V (typical)
- **Overtemperature Protection**: Shutdown, typically 115°C
- **Remote Sense**: No remote sense
- **Remote On/Off**:
  - Positive Logic (-P): ON: Open or 3.5-12V, OFF Short or 0-1.2V
  - Negative Logic (-N): ON: Short or 0-1.2V, OFF: Open or 3.5-12V
- **Parallel Operation**: Not possible
- **Series Operation**: Possible

### Environmental

- **Operating Temperature (2)**: °C
  - Convection:-40 to +105, derate linearly to zero load from +40 to 105
  - Forced air (200LFM):-40 to +105, derate linearly to zero load from +73 to 105.
  - (Model dependent, confirm case temperatures in end system)
- **Maximum Case Temperature**: °C 105. Measured centrally on the upper case (module top view)
- **Thermal Impedance**: °C/W 12.85
- **Storage Temperature**: °C -55 to +125
- **Humidity (non condensing)**: %RH 5 - 95 (Operating & Storage)
- **Cooling**: Convection or forced air
- **Altitude**: m 5,000 (operating)
- **Withstand Voltage (For 1 minute)**: VAC Input to output 5,000 (2xMOPPs)
- **Isolation Capacitance**: pF 20
- **Vibration (Operating)**: MIL-STD-810F
- **Thermal Shock**: MIL-STD-810F

### Other

- **Weight (Typ)**: g 32
- **Size (LxWxH)**: mm 50.8 x 25.4 x 10.2
- **Size (LxWxH)**: Inches 2 x 1 x 0.4
- **Case Material**: Non-conductive black plastic. (Silicone (UL94 V-0) potting)
- **MTBF - MIL-HDBK-217F, Full Load**: Hours 1,137,000
- **Warranty**: yrs 5

**Notes**

See website for detailed specifications, test methods and installation manual

(1): Measured with a 20MHz bandwidth oscilloscope across a 10uF 25V X7R MLCC (4.7uF 50V for 24V models)

(2): The case temperature must be confirmed in end application. The product rating may be affected by airflow direction and physical obstructions near the module.
Outline Drawing

Recommended Hole Pattern

Pinout

<table>
<thead>
<tr>
<th>PIN</th>
<th>Function</th>
<th>Single</th>
<th>Dual</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>+Vin</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>-Vin</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Remote On/Off (Option)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>+Vout</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>-Vout</td>
<td></td>
<td>Com</td>
</tr>
<tr>
<td>6</td>
<td>Trim</td>
<td></td>
<td>-Vout</td>
</tr>
</tbody>
</table>

Hole diameter: 0.05" [1.30mm]
Top side pad diameter: 0.064" [1.63mm]
Bottom side pad diameter: 0.102" [2.60mm]