**Wisman's new XRB Series of bipolar X-Ray generator modules are designed for OEM applications up to 140kV (± 70kV) at 280 watts. Its universal input, small package size and choice of three standard digital interfaces simplifies integrating the XRB into your X-Ray analysis system. DSP based emission control circuitry provides excellent regulation of emission current, along with outstanding stability performance.**

**TYPICAL APPLICATIONS**

**XRB SELECTION TABLE**

<table>
<thead>
<tr>
<th>KV</th>
<th>mA</th>
<th>P(W)</th>
<th>MODEL</th>
<th>KV</th>
<th>mA</th>
<th>P(W)</th>
<th>MODEL</th>
<th>KV</th>
<th>mA</th>
<th>P(W)</th>
<th>MODEL</th>
</tr>
</thead>
<tbody>
<tr>
<td>20</td>
<td>3.75</td>
<td>75</td>
<td>XRB 20PN75</td>
<td>60</td>
<td>1.25</td>
<td>75</td>
<td>XRB 60PN75</td>
<td>100</td>
<td>0.75</td>
<td>75</td>
<td>XRB 100PN75</td>
</tr>
<tr>
<td>4.5</td>
<td>90</td>
<td>XRB 20PN90</td>
<td>1.5</td>
<td>90</td>
<td>XRB 60PN90</td>
<td>0.9</td>
<td>90</td>
<td>XRB 100PN90</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>5</td>
<td>100</td>
<td>XRB 20PN100</td>
<td>1.67</td>
<td>100</td>
<td>XRB 60PN100</td>
<td>1</td>
<td>100</td>
<td>XRB 100PN100</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7.5</td>
<td>150</td>
<td>XRB 20PN150</td>
<td>2.5</td>
<td>150</td>
<td>XRB 60PN150</td>
<td>1.5</td>
<td>150</td>
<td>XRB 100PN150</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>200</td>
<td>XRB 20PN200</td>
<td>3.33</td>
<td>200</td>
<td>XRB 60PN200</td>
<td>2</td>
<td>200</td>
<td>XRB 100PN200</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>14</td>
<td>280</td>
<td>XRB 20PN280</td>
<td>4.67</td>
<td>280</td>
<td>XRB 60PN280</td>
<td>2.8</td>
<td>280</td>
<td>XRB 100PN280</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>40</td>
<td>1.88</td>
<td>75</td>
<td>XRB 40PN75</td>
<td>80</td>
<td>0.93</td>
<td>75</td>
<td>XRB 80PN75</td>
<td>120</td>
<td>0.63</td>
<td>75</td>
<td>XRB 120PN75</td>
</tr>
<tr>
<td>2.25</td>
<td>90</td>
<td>XRB 40PN90</td>
<td>1.12</td>
<td>90</td>
<td>XRB 80PN90</td>
<td>0.75</td>
<td>90</td>
<td>XRB 120PN90</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.5</td>
<td>100</td>
<td>XRB 40PN100</td>
<td>1.25</td>
<td>100</td>
<td>XRB 80PN100</td>
<td>0.83</td>
<td>100</td>
<td>XRB 120PN100</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.75</td>
<td>150</td>
<td>XRB 40PN150</td>
<td>1.88</td>
<td>150</td>
<td>XRB 80PN150</td>
<td>1.25</td>
<td>150</td>
<td>XRB 120PN150</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>200</td>
<td>XRB 40PN200</td>
<td>2.5</td>
<td>200</td>
<td>XRB 80PN200</td>
<td>1.67</td>
<td>200</td>
<td>XRB 120PN200</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>280</td>
<td>XRB 40PN280</td>
<td>3.5</td>
<td>280</td>
<td>XRB 80PN280</td>
<td>2.33</td>
<td>280</td>
<td>XRB 120PN280</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**XRB SELECTION EXAMPLE**

| X | R | B | 1 | 4 | 0 | P | 2 | 8 | 0 | - | 2 | V | P | M | 5 | U | S | B | A | T | X |
| Series Number | Maximum Output Voltage (KV) | Output Polarity | PN: bipolar output | Maximum Output Power (W) | Option | Maximum Output Current (mA) | Option | VP: Voltage Programming | VM: Voltage Monitor | Option | USB: USB Interface | Option | Option | Option |
| VP: Voltage Programming and Monitor | SV | USB: USB Interface | RS232: RS-232 Interface | Rs422: RS-422 Interface | X=1, 2, 3, 5, 8, N arc (N=ARC, does not shutdown) |
## XRB SPECIFICATIONS

<table>
<thead>
<tr>
<th>PARAMETER</th>
<th>DESCRIBE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Input</td>
<td>100KV: +24Vdc±10%, 12.5A maximum. 140KV: +48Vdc±10%, 6.0A maximum.</td>
</tr>
<tr>
<td>Output</td>
<td>20KV, 40KV, 60KV, 80KV, 100KV, 120KV, 140KV Maximum Output Voltage Option. 75W, 90W, 100W, 150W, 200W, 280W Output Power Option.</td>
</tr>
<tr>
<td>Stability</td>
<td>0.01% per hours, 0.02% per 8 hours after 1/2 hour warm-up.</td>
</tr>
<tr>
<td>Temperature Coefficient</td>
<td>≤25ppm/°C</td>
</tr>
<tr>
<td>Ripple</td>
<td>0.1% p-p of maximum rated output voltage.</td>
</tr>
<tr>
<td>Voltage/Current Monitor</td>
<td>0 to 10 volt corresponds to 0 to maximum output, Zout=11KΩ, accuracy: ±1%.</td>
</tr>
<tr>
<td>Voltage Local Programming</td>
<td>Internal potentiometer to set voltage from 0 to maximum output voltage.</td>
</tr>
<tr>
<td>Voltage Remote Programming</td>
<td>0 to +10Vdc proportional from 0 to maximum output voltage, Zin=10MΩ.</td>
</tr>
<tr>
<td>Emission Local Control</td>
<td>Internal potentiometer to set beam current between from 0 to full output voltage.</td>
</tr>
<tr>
<td>Emission Remote Control</td>
<td>0 to +10Vdc proportional from 0 to full. (OPTION)</td>
</tr>
<tr>
<td>Voltage Load Regulation</td>
<td>0.01% (no load to full load change).</td>
</tr>
<tr>
<td>Voltage Line Regulation</td>
<td>±0.01% (input voltage line change±10%).</td>
</tr>
<tr>
<td>Current Load Regulation</td>
<td>0.01% (no load to full load change).</td>
</tr>
<tr>
<td>Current Line Regulation</td>
<td>±0.01% (input voltage line change±10%).</td>
</tr>
<tr>
<td>AC Filament Supply</td>
<td>Current: 0-5A, adjustable Voltage: 0-10V</td>
</tr>
<tr>
<td>Operating Temperature</td>
<td>0°C to +40°C.</td>
</tr>
<tr>
<td>Storage Temperature</td>
<td>-40°C to +85°C.</td>
</tr>
<tr>
<td>Cooling</td>
<td>Free convection for P≤100W, Fan (30CFM) assisted for P≥100W.</td>
</tr>
<tr>
<td>Humidity</td>
<td>20% to 85% RH, non-condensing.</td>
</tr>
<tr>
<td>DIMENSIONS</td>
<td>100KV: 5.31 &quot; H x 7.47 &quot; W x 9.83 &quot; D (135mm x 190mm x 250mm). 140KV: 6.29 &quot; H x 8.25 &quot; W x 13.17 &quot; D (160mm x 210mm x 335mm).</td>
</tr>
<tr>
<td>Weight</td>
<td>8.05kg</td>
</tr>
<tr>
<td>Power Input Connector</td>
<td>100KV: +24Vdc±10%, 12.5A maximum. 140KV: +48Vdc±10%, 6.0A maximum.</td>
</tr>
<tr>
<td>Weight</td>
<td>14.2kg</td>
</tr>
</tbody>
</table>

### XRB POWER INPUT/CONNECTOR

<table>
<thead>
<tr>
<th>PIN</th>
<th>SIGNAL</th>
<th>PARAMETER</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>GND</td>
<td>Power Ground</td>
</tr>
<tr>
<td>2</td>
<td>POWER IN</td>
<td>+24V/+48 <a href="mailto:Volts@12.5A">Volts@12.5A</a>/6.0A max</td>
</tr>
<tr>
<td>3</td>
<td>GND</td>
<td>Power Ground</td>
</tr>
<tr>
<td>4</td>
<td>POWER IN</td>
<td>+24V/+48 <a href="mailto:Volts@12.5A">Volts@12.5A</a>/6.0A max</td>
</tr>
</tbody>
</table>

### USB DIGITAL INTERFACE

<table>
<thead>
<tr>
<th>J3</th>
<th>SIGNAL</th>
<th>PARAMETER</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>GND</td>
<td>GND</td>
</tr>
<tr>
<td>2</td>
<td>Voltage Monitor</td>
<td>0 to 10V=0 to full scale, Zout=11KΩ</td>
</tr>
<tr>
<td>3</td>
<td>Current Monitor</td>
<td>0 to 10V=0 to full scale, Zout=11KΩ</td>
</tr>
<tr>
<td>4</td>
<td>Interlock Output</td>
<td>Connect to pin 15 to HV enable supply</td>
</tr>
<tr>
<td>5</td>
<td>+10V Reference</td>
<td>+10 Volts at 1mA, maximum</td>
</tr>
<tr>
<td>6</td>
<td>Filament Monitor</td>
<td>1V=1A, Zout=11KΩ</td>
</tr>
<tr>
<td>7</td>
<td>Voltage Program In</td>
<td>0 to 10V=0 to full scale, Zin=10MΩ</td>
</tr>
<tr>
<td>8</td>
<td>Local Voltage Program</td>
<td>0-10 Volts, screwdriver adjust</td>
</tr>
<tr>
<td>9</td>
<td>Power Supply Fault</td>
<td>0=Fault</td>
</tr>
<tr>
<td>10</td>
<td>Reset</td>
<td>Reset=0</td>
</tr>
<tr>
<td>11</td>
<td>NC</td>
<td>Optional Interlock configuration</td>
</tr>
<tr>
<td>12</td>
<td>NC</td>
<td>Optional Interlock configuration</td>
</tr>
<tr>
<td>13</td>
<td>Local Current Program</td>
<td>10 turn pot, screwdriver adjust</td>
</tr>
<tr>
<td>14</td>
<td>Current Program In</td>
<td>0 to 10V=0 to full scale, Zin=10MΩ</td>
</tr>
<tr>
<td>15</td>
<td>Interlock Return</td>
<td>Ground</td>
</tr>
</tbody>
</table>

### RS-232/RS-422 DIGITAL INTERFACE

<table>
<thead>
<tr>
<th>PIN</th>
<th>SIGNAL</th>
<th>PIN</th>
<th>SIGNAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>N/C</td>
<td>6</td>
<td>RA+/RA+ Receive</td>
</tr>
<tr>
<td>2</td>
<td>TXD/Transmit Data</td>
<td>7</td>
<td>RB-/RB- Receive</td>
</tr>
<tr>
<td>3</td>
<td>RXD/Receive Data</td>
<td>8</td>
<td>TB-/TB- Transmit</td>
</tr>
<tr>
<td>4</td>
<td>N/C</td>
<td>9</td>
<td>TA+/TA+ Transmit</td>
</tr>
<tr>
<td>5</td>
<td>SGND</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### USB DIGITAL INTERFACE

<table>
<thead>
<tr>
<th>USB</th>
<th>SIGNAL</th>
<th>USB</th>
<th>SIGNAL</th>
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</thead>
<tbody>
<tr>
<td>1</td>
<td>VBUS</td>
<td>3</td>
<td>D+</td>
</tr>
<tr>
<td>2</td>
<td>D-</td>
<td>4</td>
<td>GND</td>
</tr>
</tbody>
</table>

### XRB HV CONNECTOR PINOUT

<table>
<thead>
<tr>
<th>PIN</th>
<th>OUTPUT CONNECTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>C (common)</td>
</tr>
<tr>
<td>2</td>
<td>S (small)</td>
</tr>
<tr>
<td>3</td>
<td>L (large)</td>
</tr>
<tr>
<td>4</td>
<td>G (grid)</td>
</tr>
</tbody>
</table>

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180514
XRB
20KV~160KV
75W~280W
X-ray Generator

DIMENSIONS

DIMENSIONS: in. [mm]

BOTTOM VIEW

SIDE VIEW

FRONT VIEW

SIDE VIEW

FRONT VIEW

150W

280W

Customer Mounting Holes
Max Depth

GROUND STUD
M5×15mm

GROUND STUD
M5×15mm

Customer Mounting Holes
M4×8 mm Max Depth

Customer Mounting Holes
M4×8 mm Max Depth

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