**150 Watt QBR Series**

**10:1 Encased DC/DC Converter**

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**FEATURES**
- Efficiency up to 91% @ 72Vin, 12Vout.
- Ultra-wide input range: 16V-160V
- Output voltage: 12V, 24V, 48V
- Vout trim
- Output power 150W
- Package Dimension (inches): 2.41 x 1.56 x 0.53, standard quarter-brick
- OVP, OCP, OTP.
- Positive or Negative Remote ON/OFF.
- Operating Baseplate Temperature range -40°C to +100°C.
- 4242VDC input to output isolation, reinforced.
- Hold Up Time (10-30mS, with external C)
- UVLO Set up (resistor programmable)
- Meets requirements for EN50155

**PRODUCT OVERVIEW**
The QBR series of isolated, regulated converter modules deliver an impressive 150W output power from an ultra-wide 10:1 input voltage range, complying with the 24V to 110V input battery voltages including transients as per EN50155 (2017) standard. The converter comes in a fully encased industry standard quarter brick package offering astonishing efficiencies. The fully isolated (3000 Vrms) QBR series features a 16 to 160 Volt DC input voltage range. Typical applications include industrial, railway and transportation. The QBR’s diode rectifier topology and fixed frequency operations means excellent efficiencies of up to 91%. A wealth of electronic protection features include input under voltage lockout, output over voltage lockout protection, output current limit, current sharing, short circuit hiccup, Vout overshoot, and over temperature shutdown.

The QBR series is designed to meet all UL and IEC emissions, safety, and flammability certifications.

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**Output Voltage (V)**  **Output Current (A)**  **Input Voltage (V)**

<table>
<thead>
<tr>
<th>12</th>
<th>12.5</th>
<th>16-160</th>
</tr>
</thead>
<tbody>
<tr>
<td>24</td>
<td>6.25</td>
<td>16-160</td>
</tr>
<tr>
<td>48</td>
<td>3.13</td>
<td>16-160</td>
</tr>
</tbody>
</table>

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**W/O FLANGE BASEPLATE**

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**FLANGED BASEPLATE**

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Web: [www.calex.com](http://www.calex.com) Email: [sales@calex.com](mailto:sales@calex.com)
## PERFORMANCE SPECIFICATIONS SUMMARY AND ORDERING GUIDE [1] [2]

<table>
<thead>
<tr>
<th>Root Model [1]</th>
<th>Output</th>
<th>Input</th>
<th>Efficiency</th>
<th>Package (w/o flange)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>V&lt;sub&gt;out&lt;/sub&gt; (V)</td>
<td>I&lt;sub&gt;out&lt;/sub&gt; (A, max.)</td>
<td>Power (W)</td>
<td>Ripple &amp; Noise (mV pk-pk)</td>
</tr>
<tr>
<td>72WS21.15QBR</td>
<td>12</td>
<td>12.5</td>
<td>150</td>
<td>100</td>
</tr>
<tr>
<td>In Development</td>
<td>24</td>
<td>6.25</td>
<td>150</td>
<td>200</td>
</tr>
<tr>
<td>In Development</td>
<td>48</td>
<td>3.13</td>
<td>150</td>
<td>300</td>
</tr>
</tbody>
</table>

### Notes:

[1] Please refer to the Part Number Structure when ordering.
[2] All specifications are at nominal line voltage and full load, +25°C unless otherwise noted. See detailed specifications. Output capacitors are 1µF ceramic multilayer in parallel with 10µF C0 caps are necessary for our test equipment and may not be needed for your application.
[3] Regulation specifications describe output voltage deviations from a nominal/midpoint value to either extreme (50% load step).

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### PART NUMBER STRUCTURE

```
72 = Nominal Input Voltage (Vdc)
W = 10:1 Input Voltage Range (16-160Vdc)
S = Single Output Voltage
12 = Nominal Output Voltage (Vdc)
150 = Nominal Output Power (W)
QBR = Quarter Brick Module
-N = Options:
N = Negative Logic
Blank = Positive Logic
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150 Watt QBR Series
10:1 Encased DC/DC Converter

MECHANICAL SPECIFICATIONS (BASEPLATE WITHOUT FLANGES)

Dimensions are in inches (mm) shown for ref. only.

Third Angle Projection

Tolerances (unless otherwise specified):
XX ± 0.02 (0.5)
XXX ± 0.010 (0.25)
Angles ± 1°

Components are shown for reference only and may vary between units.

<table>
<thead>
<tr>
<th>Pin</th>
<th>Function</th>
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<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Vin(+)</td>
<td>6</td>
<td>Vout(-)</td>
</tr>
<tr>
<td>2</td>
<td>UVLO</td>
<td>7</td>
<td>Vsense(+)</td>
</tr>
<tr>
<td>3</td>
<td>RC</td>
<td>8</td>
<td>Trim</td>
</tr>
<tr>
<td>4</td>
<td>Bus(+)</td>
<td>9</td>
<td>Vsense(+)</td>
</tr>
<tr>
<td>5</td>
<td>Vin(-)</td>
<td>10</td>
<td>Vout(+)</td>
</tr>
</tbody>
</table>

Pin Material
Pin No. 1-5: 7-8 Dia 0.04”, Copper Alloy
Pin No. 6, 10: Dia 0.06”, Copper Alloy
Finish: (All Pins)
Gold (5u”Min) Over Nickel (100u’’Min)
MECHANICAL SPECIFICATIONS (FLANGED BASEPLATE)

Dimensions are in inches (mm) shown for ref. only.

Tolerances (unless otherwise specified):
- \( XX \pm 0.02 \) (0.5)
- \( XXX \pm 0.010 \) (0.25)
- Angles \( \pm 1^\circ \)

Components are shown for reference only and may vary between units.

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### RECOMMENDED FOOTPRINT SPECIFICATIONS

![Diagram of footprint specifications]

#### FOOTPRINT RECOMMENDATION

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</thead>
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<td>V_out (+)</td>
</tr>
<tr>
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<td>7</td>
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<td>V_out (+)</td>
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Tolerances (unless otherwise specified):
- X ± 0.02 (0.5)
- XX ± 0.01 (0.25)
- Angles ± 1°

Components are shown for reference only and may vary between units.