The Brad® HarshIO IP67 I/O modules provide a reliable solution for connecting industrial controllers to I/O devices in harsh environments. Brad® HarshIO PROFIBUS modules provide a reliable solution for connecting industrial controllers to I/O devices in harsh duty environments. Contained in an IP67 rated housing, Brad® I/O modules can be machine mounted and are able to withstand areas where liquids, dust or vibration may be present. This makes them ideally suited for many applications including material handling equipment and automated assembly machinery.

Advanced module features such as short-circuit detection, and visible diagnostic LEDs offer easy-of-use and operation simple. Following traditional industrial fieldbus practices, standard M8 or M12 connectors from sensing devices or actuators plug directly into the I/O module. An environmentally sealed IP67 connection between the I/O module and the PROFIBUS network is created using the Brad® Ultra-Lock® M12 connection system which is built into the Brad® HarshIO module.

FEATURES AND BENEFITS

- **PNO certified**
  - Rated IP67 for harsh environments
  - Compact 30mm design allows space savings for direct machine mount applications
  - Tested to vibrations and shocks
  - Overmolded module electronics
  - Metallic connectors
  - 4 ports I/O version accepts standard M12 threaded or Brad Ultra-Lock connectors
  - Standard hole housing pattern allows for interchangeability with popular I/O modules
  - Supports PNP & NPN input devices
  - Choose from several I/O configuration module versions

- **Visible diagnostic LEDs provide maintenance personnel with the ability to easily determine I/O, module & network status**
- **Advanced diagnostics**
  - Short-circuit diagnostics per I/O channel
  - Complete module and channel diagnostics supported via PROFIBUS
  - Supports PROFIBUS DP-V0 Slave up to 12 Mbps
  - Module addressing: 1 – 99 by rotary switches or 1 – 125 by Set_Slave_Address command
  - Built-in 2-port PROFIBUS for bus wiring topology

LED INDICATORS

- **Module & Input Power (I):**
  - Green - power present
  - Off - power not connected
- **Output Power (O):**
  - Green - power present
  - Off - power not connected
- **Digital Input/Output (Ix/Ox):**
  - Green - input/output on
  - Red - input/output fault
  - Off - input/output off
- **PROFIBUS Network Status (NET):**
  - Green - running
  - Red - module not configured
- **I/O Module Diagnostics (MOD):**
  - Off - no fault
  - Red - fault

APPLICATIONS

- Machine tool industry
- Material handling systems
- Filling & packaging machines
- Steel industry
**SPECIFICATIONS**

**Included Hardware / Software**

- **I/O Configurations:**
  - 8 inputs
  - 8 outputs
  - 4 inputs / 4 outputs
  - 6 inputs / 2 outputs

- **I/O Connectors:**
  - Female, Ultra-Lock™ M12, A-Coded, 5-pole
  - Female, M8, 3-pole

- **Bus Connectors:**
  - Bus In: Male, M12, B-Coded, 5-pole
  - Bus Out: Female, M12, B-Coded, 5-pole

- **Power Connectors:**
  - Power In: Male, M12, A-Coded, 5-pole

- **Power Requirements:**
  - Module input power: 24V DC
  - Module output power: 24V DC (16 - 28V), 4.0A max per module

- **Communication Rate:**
  - Auto baud
  - All PROFIBUS baud rates up to 12 Mbaud

- **Address Settings:**
  - 1 – 99 by 2 rotary switches, or
  - 1 – 125 by Set_Slave_Address command

- **Fieldbus Specifications:**
  - PROFIBUS DP-V0 Slave according EN 50170

- **Input Type:**
  - Compatible with dry contact, PNP or NPN, 2/3-wire sensors
  - Electronic short circuit protection

- **Input Delay:**
  - 3ms default or configurable through PROFIBUS slave parameter

- **Input Device Supply:**
  - 140mA per port at 25°C

- **Output Load Current:**
  - Maximum 1.4A per channel, max 4.0A per module
  - Electronic short circuit protection

- **Maximum Switching Frequency:** 200Hz

- **Housing Dimensions:**
  - 30 x 175 x 20mm (1.18"x6.89"x0.78")

- **Mounting Dimensions:**
  - 23mm (0.91") horizontal on centers
  - 168mm (6.61") vertical on centers
  - Center hole

- **Operating Temperature:** -25 to +70°C

- **Storage Temperature:** -25 to +90°C

- **RH Operating:** 5 to 95% non-condensing

- **EMC:** IEC 61000-6-2

- **Protection:** IP67 according to IEC 60529

- **Vibration:** IEC 60068-2-6 conformance

- **Mechanical Shock:** 10G, 11ms, 3 axis

- **Approvals:** CE, UL, cUL, PNO Certification

---

**ORDERING INFORMATION**

<table>
<thead>
<tr>
<th>Order No.</th>
<th>Engineering No.</th>
<th>No. of Pins</th>
<th>No. of Ports</th>
<th>I/O Connectors</th>
<th>I/O Configurations</th>
<th>I/O Channels</th>
</tr>
</thead>
<tbody>
<tr>
<td>112038-0009</td>
<td>TBDPB-480N-B8U</td>
<td>5-pin-power</td>
<td>4</td>
<td>M12 Ultra-Lock</td>
<td>NPN</td>
<td></td>
</tr>
<tr>
<td>112038-0007</td>
<td>TBDPB-462N-B8U</td>
<td>5-pin-power</td>
<td>6</td>
<td>M12 Ultra-Lock</td>
<td>NPN</td>
<td></td>
</tr>
<tr>
<td>112038-0005</td>
<td>TBDPB-444N-B8U</td>
<td>5-pin-power</td>
<td>4</td>
<td>M12 Ultra-Lock</td>
<td>NPN</td>
<td></td>
</tr>
<tr>
<td>112038-0011</td>
<td>TBDPB-880N-B84</td>
<td>5-pin-power</td>
<td>8</td>
<td>M8</td>
<td>NPN</td>
<td></td>
</tr>
<tr>
<td>112038-0017</td>
<td>TBDPB-862N-B84</td>
<td>5-pin-power</td>
<td>6</td>
<td>M8</td>
<td>NPN</td>
<td></td>
</tr>
<tr>
<td>112038-0015</td>
<td>TBDPB-844N-B84</td>
<td>5-pin-power</td>
<td>4</td>
<td>M8</td>
<td>NPN</td>
<td></td>
</tr>
<tr>
<td>112038-0021</td>
<td>TBDPB-880P-B84</td>
<td>5-pin-power</td>
<td>8</td>
<td>M8</td>
<td>PNP</td>
<td></td>
</tr>
<tr>
<td>112038-0018</td>
<td>TBDPB-862P-B84</td>
<td>5-pin-power</td>
<td>6</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>112038-0016</td>
<td>TBDPB-844P-B84</td>
<td>5-pin-power</td>
<td>4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>112038-0014</td>
<td>TBDPB-808P-B84</td>
<td>5-pin-power</td>
<td>0</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

All other products and company names in this datasheet may be trademarks of their registered owners.