ABL Series

Relay Terminal Block (Screwless Type)

Features

- **Input (NPN, PNP common) and Output (Independent, Common) Selection with Jumper Bars**
  Allows switching between NPN common and PNP common inputs by changing jumper bar location. Also allows common output by using a jumper bar. Provides flexibility for usage in various applications.

- **Operation Status Indicator**
  Blue LED indicators are available for each relay, offering convenient status check.

- **One-Touch Screwless Type for Easy Wiring and Stable Connection**
  The one-touch screwless type terminal blocks are designed as a spring clamp structure. It is highly resistant to vibration and will not loosen or disconnect from extended use. It can also save installation work with simple one-touch snap wiring.

- **Simple and Convenient Relay Replacement**
  The relay release levers make it easy to remove and replace relays.
Relay Terminal Block

- **Relay Protection Cover**
  The covers provide protection for the relays and a clean, tidy appearance.

- **2 Types of Mounting Methods**
  Supports DIN rail mount and screw mount methods for flexible application.

### Applications
Application in Machining Centers to Provide Convenient Wiring and Maintenance for Users

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![Machining Center](machining-center.png)
ABL Series

Relay Terminal Block (Screwless Type)

Features
- Switch between NPN and PNP common input using jumper bars. Load common mode also available.
- Convenient one-touch screwless type connection: Spring structure design for high durability and vibration resistance. Also, maintains constant connection strength regardless of wiring experience.
- Easy replacement using the relay removal lever
- 2 mounting methods (DIN rail, screw mount)

Model

<table>
<thead>
<tr>
<th>Model</th>
<th>Terminal type</th>
<th>Connector type</th>
<th>No. of relay points</th>
<th>Relay type</th>
<th>Input logic</th>
<th>Varistor installation</th>
</tr>
</thead>
<tbody>
<tr>
<td>ABL-L04PQ-UN</td>
<td>Screwless</td>
<td>Screwless</td>
<td>4 EA</td>
<td>MATSUSHITA (Panasonic) PQ</td>
<td>COM (universal)</td>
<td>Not installed</td>
</tr>
<tr>
<td>ABL-L04PQ-UY</td>
<td>Installed</td>
<td></td>
<td></td>
<td>OMRON G6B</td>
<td></td>
<td>Installed</td>
</tr>
<tr>
<td>ABL-L04R6-UN</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Not installed</td>
</tr>
<tr>
<td>ABL-L04R6-UY</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Installed</td>
</tr>
</tbody>
</table>

※1: The color of the jumper bar insertion holes indicate the relay types of the model. (green: MATSUSHITA (Panasonic) PQ, navy blue: OMRON G6B)

Terminal Specifications

![Terminal Specifications Diagram]

Applicable wire
- End Sleeve (Ferrule Terminal) crimp terminal: AWG22-16 (0.3 to 1.25mm²)
- Stripped wire length: 8 to 10mm
- Insulation resistance: Min. 1,000Ω (at 500VDC megger)
- Dielectric strength: 2,000VAC 50/60Hz for 1 min. (between coil-contact)※3, 1,000VAC 50/60Hz for 1 min. (between open contacts)※4

Specifications

<table>
<thead>
<tr>
<th>Model</th>
<th>ABL-L04PQ-UN</th>
<th>ABL-L04PQ-UY※1</th>
<th>ABL-L04R6-UN</th>
<th>ABL-L04R6-UY※1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Power supply</td>
<td>24VDC±10%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rated load voltage &amp; current</td>
<td>250VAC 5A, 30VDC 5A※2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Current consumption</td>
<td>Max. 20mA※3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Output type</td>
<td>1a contact relay output</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Applicable relay Model</td>
<td>PQ1a-24V [MATSUSHITA (Panasonic)]</td>
<td>G6B-1174P-FD-US [OMRON]</td>
<td></td>
<td></td>
</tr>
<tr>
<td>No. of relay points</td>
<td>4-point</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Terminal type</td>
<td>Screwless</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Terminal pitch</td>
<td>10.2mm</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Applicable wire</td>
<td>Solid wire Ø0.6 to Ø1.25mm</td>
<td>Stranded wire AWG22-16 (0.3 to 1.25mm²)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Stripped wire length</td>
<td>8 to 10mm</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Protection structure</td>
<td>IP20</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Weight※7</td>
<td>Approx. 148g (approx. 92g)</td>
<td>Approx. 150g (approx. 94g)</td>
<td>Approx. 143g (approx. 87g)</td>
<td>Approx. 144g (approx. 88g)</td>
</tr>
</tbody>
</table>

※1: This is for contact protection and it is recommended to use at the inductive load.
※2: Relay contact capacity for resistive load.
※3: The current consumption including LED current by one relay.
※4: When using stranded wire, use end Sleeve (ferrule terminal) crimp terminals.
※5: OMRON relay is 3,000VAC.
※6: In case of ABL-L04-UY (varistor installed type), this is 300VAC.
※7: The weight includes packaging. The weight in parentheses is for unit only.
※Environment resistance is rated at no freezing or condensation.
## Dimensions

- Jumper bar (model: JB-10.2-04)
  - For NPN or PNP common, the additional jumper bar is sold separately

## Connections

- NPN, PNP, LOAD common are operated by the inserting position of the Jumper bar.
  - Please refer to the ‘Using jumper bars’ of ‘Using Jumper Bar And Replacing Relay’.

<table>
<thead>
<tr>
<th>INPUT</th>
<th>NPN common by jumper bar</th>
<th>LOAD common by jumper bar</th>
<th>OUTPUT</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>+24VDC</td>
<td></td>
<td>9</td>
</tr>
<tr>
<td>1</td>
<td>GND</td>
<td></td>
<td>13</td>
</tr>
<tr>
<td>6</td>
<td>+24VDC</td>
<td></td>
<td>10</td>
</tr>
<tr>
<td>2</td>
<td>GND</td>
<td></td>
<td>14</td>
</tr>
<tr>
<td>7</td>
<td>+24VDC</td>
<td></td>
<td>11</td>
</tr>
<tr>
<td>3</td>
<td>GND</td>
<td></td>
<td>15</td>
</tr>
<tr>
<td>8</td>
<td>+24VDC</td>
<td></td>
<td>12</td>
</tr>
<tr>
<td>4</td>
<td>GND</td>
<td></td>
<td>16</td>
</tr>
</tbody>
</table>

※ Parts are only for ABL-L04-UY (varistor installed type).
**Connecting Crimp Terminals**

1. Connecting and Removing end sleeve (ferrule terminal) crimp terminal at screwless type terminal block

- **Connecting**
  1) Push the end sleeve (ferrule) crimp terminal towards direction ① to complete the connection.

- **Removing**
  1) Press and hold the catch above the terminal in direction ② with a flat-head screwdriver.
  2) Pull and remove the end sleeve (ferrule) crimp terminal towards direction ③.

**Using Jumper Bar And Replacing Relay**

- **Removing the protection cover**
  1) Pull the protection cover towards direction ① to insert jumper bars or replace relays.

- **Using jumper bars**
  1) Remove the protection cover and use the jumper bars accordingly.

<table>
<thead>
<tr>
<th>NPN COMMON</th>
<th>PNP COMMON</th>
<th>LOAD COMMON</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image1" alt="NPN COMMON" /></td>
<td><img src="image2" alt="PNP COMMON" /></td>
<td><img src="image3" alt="LOAD COMMON" /></td>
</tr>
</tbody>
</table>

1. Insert the jumper bar to the far left towards terminals 4 and 8.
2. Insert the jumper bar to the far right towards terminals 1 and 5.
3. Insert the jumper bar above terminals 12, 11, 10, 9.

- **Replacing relays**
  1) Remove the protection cover.
  2) Push the operation indicator guide in direction ① to remove the relay.
  3) Insert a new relay to the case.

※: The color of the jumper bar insertion holes indicate the relay types of the model. (green: MATSUSHITA (Panasonic) PQ, navy blue: OMRON G6B)

※: Only insert designated relays for each model.
※: Execute above directions only for replacing relays.
If not, it may cause relay damage.
Relay Terminal Block

Installation

1. Mounting and Removal at DIN rail
   ● Mounting
   1) Pull the rail lock towards direction ①.
   2) Attach the DIN rail connection hook onto the DIN rail.
   3) Push the unit towards direction ②, then push the rail lock in to lock into position.

   • Removing
   1) Insert a screwdriver into the rail lock hole and pull it towards direction ①.
   2) Remove the unit by pulling the unit towards direction ②.

Caution During Use

1. Do not use the product outside of rated temperature and humidity.
2. Make sure that voltage fluctuation in the power supply is within the rated range.
3. When connecting PLC or other controllers, check the polarity of power and COMMON before wiring.
4. Use AWG 22-16 (0.3 to 1.25mm² wire for power and use appropriate crimp connectors for the terminals.
5. Turn OFF the power supply before wiring.
6. Turn OFF the power supply before replacing relays.
7. Do not use the unit in the following environments.
   ① Environments with high vibration or shock.
   ② Environments where strong alkalis or acids are used.
   ③ Environments with exposure to direct sunlight.
   ④ Near machinery which produces strong magnetic force or electric noise.
8. This unit may be used in the following environments.
   ① It shall be used indoor.
   ② Altitude up to 2,000m
   ③ Pollution degree 2
   ④ Installation category II