The Micro/Reader Junction Box is designed to facilitate the wiring interface between the Micro/PX-2000, Micro/PXN-2000, or Micro/5 micro boards and the door strikes, readers, and door/request-to-exit (REX) switches. The steel cabinet standardizes and protects wiring, bringing all connections to one point.

Note: The Micro/Reader Junction Box supports Model 94x/97x Proximity Perfect™ and Model 950/960 Proximity Perfect readers only.

Product Features

The Micro/Reader Junction Box provides the following features:
- Removable Phoenix-type connectors for ease of wiring.
- Built-in strike relay with surge-protecting diodes.
- Option of Supervised or Unsupervised door/REX device inputs (DIs).
- Four built-in LEDs to help with installation troubleshooting.

Micro/Reader Junction Box Connectors

Figure 1 and the tables that follow show position numbers and corresponding signals for connecting the Micro/Reader Junction Box to the readers, micro, DIs, strike supply, and strike relay output.

Table 1. J1 Connector: Reader Interface

<table>
<thead>
<tr>
<th>Terminal Pin Position</th>
<th>Signal</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>+12V: The +12V from J2-1 to power the reader.</td>
</tr>
<tr>
<td>2</td>
<td>GROUND: The ground signal from J2-2.</td>
</tr>
<tr>
<td>3</td>
<td>GREEN LED: The door control signal from J2-4.</td>
</tr>
<tr>
<td>Terminal Pin Position</td>
<td>Signal</td>
</tr>
<tr>
<td>-----------------------</td>
<td>--------</td>
</tr>
<tr>
<td>1</td>
<td>+12V: The +12V (or +5V) to power the reader. Connects to J1-1.</td>
</tr>
<tr>
<td>2</td>
<td>GROUND: The power return to the reader. Connects to J1-2.</td>
</tr>
<tr>
<td>3</td>
<td>READER DATA 1: The F/2F DATA 1 from the reader.</td>
</tr>
<tr>
<td>4</td>
<td>DOOR DO: Door Control Signal.</td>
</tr>
<tr>
<td>5</td>
<td>SHIELD: If shielded wire is used, tie shield to this pin. (Shield should be grounded to micro cabinet.)</td>
</tr>
<tr>
<td>6</td>
<td>SPARE: Can be used for a tamper switch connection point.</td>
</tr>
<tr>
<td>7</td>
<td>READER DATA 0</td>
</tr>
<tr>
<td>8</td>
<td>DOOR DI POINT: The door switch input to the reader from J3-1. This signal is also routed to J2-8 for connection to the micro if four-state supervision is desired, or if the reader to which the Junction Box is being interfaced does not include DI inputs.</td>
</tr>
<tr>
<td>9</td>
<td>DOOR DI RETURN: The REX return signal from J3-2. This signal is tied to ground by the JP1 jumper for use as Unsupervised DI input to the reader. This signal is also routed to J2-9 for connection to the micro if four-state supervision is desired, or if the reader does not have a DI input. In that case, the JP1 jumper should be lifted.</td>
</tr>
</tbody>
</table>

**Table 3. J3 Connector: DI Interface**

<table>
<thead>
<tr>
<th>Terminal Pin Position</th>
<th>Signal</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>DOOR DI: The door switch input to the reader from J3-1. This signal is also routed to J2-8 for connection to the micro if four-state supervision is desired, or if the reader to which the Junction Box is being interfaced does not include DI inputs.</td>
</tr>
<tr>
<td>2</td>
<td>DOOR DI RETURN: The door switch return signal from J3-2. This signal is tied to ground by the JP1 jumper for use as Unsupervised DI input to the reader. This signal is also routed to J2-9 for connection to the micro if four-state supervision is desired, or if the reader does not have a DI input. In that case, the JP1 jumper should be lifted.</td>
</tr>
<tr>
<td>3</td>
<td>EXIT DI: The door switch return signal from J3-2. This signal is tied to ground by the JP1 jumper for use as Unsupervised DI input to the reader. This signal is also routed to J2-9 for connection to the micro if four-state supervision is desired, or if the reader does not have a DI input. In that case, the JP1 jumper should be lifted.</td>
</tr>
<tr>
<td>4</td>
<td>EXIT DI RETURN: The REX return signal from J3-4. This signal is tied to ground by the JP2 jumper for use as Unsupervised DI input to the reader. This signal is also routed to J2-11 for connection to the micro if four-state supervision is desired, or if the reader does not have a DI input. In that case, the JP2 jumper should be lifted.</td>
</tr>
</tbody>
</table>

**Table 4. J4 Connector: Strike Supply Interface**

<table>
<thead>
<tr>
<th>Terminal Pin Position</th>
<th>Signal</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>STRIKE HI: Connected through 2A fuse to the strike relay wiper.</td>
</tr>
<tr>
<td>2</td>
<td>STRIKE RET: Connected to J5-1.</td>
</tr>
</tbody>
</table>

**Table 5. J5 Connector: Strike Output Interface**

<table>
<thead>
<tr>
<th>Terminal Pin Position</th>
<th>Signal</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>STRIKE RET: Connected to J4-2.</td>
</tr>
<tr>
<td></td>
<td>Description</td>
</tr>
<tr>
<td>---</td>
<td>-------------</td>
</tr>
<tr>
<td>2</td>
<td><strong>STRIKE NO:</strong> Normally open contacts of the door relay.</td>
</tr>
<tr>
<td>3</td>
<td><strong>STRIKE NC:</strong> Normally closed contacts of the door relay.</td>
</tr>
</tbody>
</table>
Wiring Diagrams

Figure 2: Relay Contact (Installer-Provided) Varistor/Diode Orientation

⚠️CONNECT PROTECTION DEVICE ACROSS DOOR STRIKE (SEE NOTES 2 AND 3).

⚠️USE AN MOV FOR AC DOOR STRIKES (MAXIMUM 24V).

⚠️USE A DIODE FOR DC DOOR STRIKES.

PROTECTION DIODE MAY BE IN4002, IN4003, OR IN4004 (INSTALLER-SUPPLIED) FOR THE DOOR STRIKE ASSEMBLY.

530207001A
Figure 3: Junction Box to Micro/PX-2000 or Micro/PXN-2000 Microcontroller

SHIELD GROUNDS MUST BE STRIPPED BACK AND GROUNDED TO THE INTERNAL GROUND STUDS PROVIDED.
Figure 4: Junction Box to Micro/PX-2000 or Micro/PXN-2000 Microcontroller - Relay Contact Only

- DO NOT REMOVE JUMPERS UNLESS INSTRUCTED
- SHIELD
- GREY = EXIT DI
- YELLOW = DOOR DI
- WHITE = DATA 1
- BROWN = GREEN LED
- BLACK = GROUND
- RED = +12V

⚠️ If using relay contacts, jumper J5-1 to J5-2 for NO door strike or J5-1 to J5-3 for NC door strike. (Connect only 1.)

⚠️ Shield grounds must be stripped back and grounded to the internal ground stud(s) provided.
Figure 5: Junction Box to Micro/5 8RP Microcontroller

- **DO NOT REMOVE JUMPERS UNLESS INSTRUCTED**
- **REX REQUEST TO EXIT**
- **DOOR CONTACT**
- **MICRO/READER JUNCTION BOX**
- **Digi-Reader**
  - **S/1 BOX**
  - **Rev.**
- **110/220 VAC INPUT**
- **STRIKE POWER SUPPLY**
- **FAIL-SECURE STRIKE**

- **Shield Gnd**
  - **Grey - Exit Di**
  - **Yellow - Door Di**
  - **White - Data 1**
  - **Brown - Green Led**
  - **Black - Ground**
  - **Red - +12V**

- **Warning:** Shield grounds must be stripped back and grounded to the internal ground studs provided.
Figure 6: Junction Box to Micro/5 8RP Microcontroller - Relay Contact Only

- Do not remove jumpers unless instructed.

- Micro/Reader Junction Box

- Request to exit

- External 24VDC Power

- If using relay contacts, jumper J5-1 to J5-2 for NO door strike or J5-1 to J5-3 for NC door strike. (Connect only 1.)

- Shield grounds must be stripped back and grounded to the internal ground studs provided.

- Shielding:
Figure 7: Micro/Reader Junction Box to Micro/5 2RP or 2SRP Microcontroller

- DO NOT REMOVE JUMPERS UNLESS INSTRUCTED.
- REX REQUEST TO EXIT.
- DOOR CONTACT.
- SHIELD:
  - GREY - EXIT DI
  - YELLOW - DOOR DI
  - WHITE - DATA 1
  - BROWN - GREEN LED
  - BLACK - GROUND
  - RED - +12V

⚠️ SHIELD GROUNDS MUST BE STRIPPED BACK AND GROUNDED TO THE INTERNAL GROUND STUDS PROVIDED.

⚠️ PULL-UP RESISTORS (470 OHMS, 1/2W) WILL BE REQUIRED BETWEEN READER DATA 1 AND +12VDC, REFER TO APPROPRIATE READER MANUAL.
Figure 8: Junction Box to Micro/5 2RP or 2SRP Microcontroller - Relay Contact Only

- **DO NOT REMOVE JUMPERS UNLESS INSTRUCTED.**

- **SHIELD**
  - GREY = EXIT DI
  - YELLOW = DOOR DI
  - WHITE = DATA 1
  - BROWN = GREEN LED
  - BLACK = GROUND
  - RED = +12V

- **N/R-J BOB**
  - CAR-REJO
  - COMPAND 1999
  - 110/41
  - REV

- **External VAC VDC Power**

- **Micro/Reader Jumper Box**

- **Micro/5 2RP Board**
  - J2 OR J4

- **If using relay contacts, jumper J5-1 to J5-2 for NO door strike OR J5-1 to J5-3 for NC door strike. (Connect only 1.)**

- **Shield grounds must be stripped back and grounded to the internal ground studs provided.**

- **Pull-up resistors (470 Ohms, 1/2W) will be required between reader Data 1 and +12V DC. Refer to appropriate reader manual.**
Figure 9: Proximity Interface Unit to Micro/Reader Junction Box
Troubleshooting

Four LEDs incorporated into the board indicate status.

**Table 6. J3 LED Status Indicators**

<table>
<thead>
<tr>
<th>Position</th>
<th>LED</th>
<th>Status</th>
</tr>
</thead>
</table>
| D1       | Door Contact | If the door switch is wired between Door DI and Door Return, this LED will be:  
- ON full brilliance when these pins are shorted.  
- ON dimly when open. |
| D2       | Data | If the reader interface is Supervised F/2F, this LED will flicker:  
- At one-second intervals.  
- When a badge is read.  
- When a status change occurs in the REX or door switches. |
| D3       | Door DO | Remains ON for as long as the micro is commanding the door to be open.  
Goes OFF and remains OFF when commanded by the micro. |
| D4       | Micro Power | Stays ON as long as the micro +12V and ground remain ON and connected to the J2 connector. |

Specifications

- **Dimensions**  
  8.25 × 10.25 × 2.88 in.  
  (23.7 × 26 × 7.4 cm)
- **Index of Protection**  
  20 IP
- **Reader Power Supply**  
  (J1-1) Nominal 12 VDC, 50 mA plus reader power
- **Strike Power**  
  Input on J4-1 has 2 A fuse in series with relay wiper
- **Strike Relay**  
  NO and NC contacts are overvoltage protected to a maximum of 48 V. Maximum contact rating 5 A; maximum contact voltage: 40 VAC or 48 VDC.
- **Operating environment**  
  Temperature: 32° to 151°F (0 to 49°C)  
  Relative humidity: 5 to 95% noncondensing

**WARNING:** This is a Class A product. In a domestic environment, this product may cause radio interference; in which case, the user may be required to take adequate measures.

Regulatory information

- **Manufacturer:** UTC Fire & Security  
  HQ and regulatory responsibility:  
  UTC Fire & Security, 9 Farm Springs Road,  
  Farmington, CT 06034-4065, USA  
  EU authorized manufacturing representative:  
  UTC Fire & Security B.V., Kelvinstraat 7,  
  6003 DH Weert, The Netherlands
- **Year of manufacture:** The first two digits of the product serial number (located on the product identification label) are the year of manufacture.
- **Certification:** UL 294
- **UL Compatibility:** To adhere to the requirements of UL 294, Paragraph 7.2.1, the +12 V power from the micro (J2 - Pin 1) needs to be routed through the tamper switch mounted on the enclosure. This disrupts power to the reader when the door is open, preventing the reader from sending data to the micro. This results in a communications failure registered on the host. The spare terminal (J2 - Pin 6) can be used as a connection point for one pole of the switch and the +12 V power from the micro.

**Figure 10: J2 Tamper Switch Connection**

**Note:** When the Host registers the communication failure message, investigate the Micro/Reader Junction Box connections, then proceed to the reader. Communication failure is recognized only if the reader is supervised.
Technical support

For assistance with this product, refer to this document and any other documentation provided. If you still have questions, you may contact technical support during normal business hours (Monday through Friday, excluding holidays, between 8 a.m. and 7 p.m. Eastern Time).

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  T 888-437-3287

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  T 65 639 19314
  F 65 639 19306

Australia
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  F 61 3 9239 1299

Canada
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  F 613 737 5517

EMEA
  T 48 58 326 22 40
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