721V2 Access Controller Installation

Standalone Controller Specifications
Card Capacity: 16,000 cards
Computer Connection: Network or RS485

What is included in the box
- B-Id 721V2 controller board
- Network cable
- 4-conductor wire (22-gauge)
- 2-conductor wire (22-gauge)
- Crimp connectors
- Thermistor (relay protection)

Tools that you will need
- Wire cutters/strippers (for 22-gauge wire)
- Small flat-head screwdriver (2mm)
- Pliers (for crimping wire connections)
- Voltmeter (optional)
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## Components included with all 721V2 controllers

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<th>Controller Power Supply with female pigtail connector</th>
<th>Cat5 Network Cable Or USB/RS485 Converter</th>
</tr>
</thead>
<tbody>
<tr>
<td>Crimp Connectors</td>
<td>Thermistor</td>
</tr>
</tbody>
</table>
Additional components included with Proximity Reader

Proximity Reader
(Wiegand Interface)
Note: The Wiegand Barcode Reader requires 5VDC power, but the controller provides 12VDC. **DO NOT attach 12VDC power to the Wiegand Barcode Reader!** If you do attach 12V power to the reader then you will experience *smoke and flames* from the reader. This is a bad thing, so just don’t do it. It will also obviously void the reader warrantee. *Fried readers will not be replaced free of charge.*

Please see wiring diagram below for details.
Additional Components included with Serial (RS232) Barcode Reader
(when upgrading from Bio-Logic Controller 2)

Serial (RS232) Barcode Reader
With Cat5 Connectors
(Same as existing serial barcode reader)

Serial/Wiegand Adapter
(Converts Serial/RS232 connection to Wiegand connection)
BR-721V2 Access Controller
Wiring Schematic

Door Strike or MagLock

12VDC

RS485 Adapter
VCC
GND
TR
TR+

To GND on Controller

BR-721V2 Controller

CN1
CN2
CN3
CN4
CN5
CN6
CN7
CN8

Network

CN11

CN12
CN13
CN14
CN15

12VDC+
GND

COM Door0
COM Door1
COM Alarm
VOUT
GND
VIN
GND

Door Relay 1
Door Relay 2
Alarm Relay

Door Relay Jumper specifies relay function

Wiegand Prox Reader

12VDC+ Red
Ground Black
Data0 Green
Data1 White

Red to VOUT
Black to GND
Green to W00
White to W01

Wiegand Barcode Reader

12VDC+ Red
Ground Black
Data0 Purple
Data1 White

Red to VOUT
Black to GND
Green to W00
White to W01

Door Open Button (N/O) (optional)

To GND on CN7 or CN8
To ECR

V2 Access Controller Installation
**Installation Notes**

- Use crimp connectors when connecting wires together.
- When connecting wires to the controller board terminals, be sure to loosen the terminal screw (counter-clockwise) completely before inserting the wire. This lowers the metal piece that will clamp onto the wire. Then tighten the screw to raise up the metal clamp against the wire. Note that the wire will be inserted above the clamp, not below.

**Install Gym Assistant Version 2.6**

The standalone controller requires Gym Assistant v2.6 or newer. You can download v2.6 at:

[http://www.gymassistant.com/download/2.6.0](http://www.gymassistant.com/download/2.6.0)

Note that you must exit Gym Assistant and GateKeeper before installing the new version.

You should also install ProShop v2.6 if you have purchased a ProShop license.
Connect Power to the Controller

Connect 12VDC power to Power IN terminals labelled below.

If you received a female pigtail connector with your power supply, then connect the red wire to DC12V and the black wire to GND.

If you did not receive a female pigtail connector then cut the round male plug off the end of the power supply cable. Separate the two wires and strip about ½ inch off the end of each. Note that one of the wires has long white stripes along its length and the other wire has no stripes. The wire with the stripes should be connected to GND, and the wire with no stripes should be connected to DC12V. If you are not 100% positive of the polarity of the two wires (which wire is positive, and which is ground), then check the polarity with a voltmeter. Connecting the power wires with reverse polarity will result in smoke and flames. Your controller will not be replaced if this happens.

<table>
<thead>
<tr>
<th>Power</th>
<th>Controller Terminal (CN8)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ground (-)</td>
<td>GND</td>
</tr>
<tr>
<td>12VDC (+)</td>
<td>VIN</td>
</tr>
</tbody>
</table>

When you turn on power to the controller, the Power LED (shown above) should light up next to the blue DIP switches. After 5-10 seconds the controller will sing its startup song. (Enjoy the music!)

After a few more seconds the red LEDs near the network connector may also blink continuously. This is normal.
Connect the Controller to your Computer
You will connect the controller to your computer in one of two ways:

1) Network (Cat5) cable (recommended)
2) USB/RS485 adapter

Network Connection
Connect the controller to your wired network, then cycle the controller power by unplugging the power adapter.

The green and yellow LEDs on the network connector should blink on/off continuously, which indicates that the controller has established a connection with the network.

USB/RS485 Connection
You will need to run a short length of 4-wire cable from the RS485 adapter to the controller.
You will not be using the red wire, so cut the wire connector at both ends.
Connect the USB/RS485 Adapter to the Controller as follows:

<table>
<thead>
<tr>
<th>RS485 Adapter</th>
<th>Wire Color</th>
<th>Controller</th>
</tr>
</thead>
<tbody>
<tr>
<td>T/R+</td>
<td>White</td>
<td>Host B- (CN1)</td>
</tr>
<tr>
<td>T/R-</td>
<td>Green</td>
<td>Host A+ (CN1)</td>
</tr>
<tr>
<td>GND</td>
<td>Black</td>
<td>VOUT (CN8)</td>
</tr>
</tbody>
</table>

Now connect the USB/Serial adapter to the computer and wait for Windows to install the drivers automatically.

Cycle the Controller Power
Now disconnect and then reconnect the controller power to reboot the controller.
Test the Computer/Controller Connection

In GateKeeper select Access Points / Ports from the Settings menu.

In the Ports tab set the Entrance Type to Standalone Controller.

Check both the Reader Enabled and Door Controller Enabled boxes.

Set the Reader Type to your reader/card type:

- **Proximity – Wiegand** (for standard HID compatible prox cards or fobs)
- **Barcode**
- **RFID – EM4100** (for EM4100 cards or fobs)

Set the correct Door #:

- If door is connected to Port0/Door0 on the controller then select Door #1.
- If door is connected to Port1/Door1 on the controller then select Door #2.

Set the Controller Type to B-I d 721.

Confirm that Node is set to 1, and that on the controller only DIP switch 1 is set to ON. (If you change any of the DIP switches then you must reboot the controller.)

- Check the Network Connection checkbox if you are connecting to the controller with a Cat5 network cable.
- Leave the Network Connection checkbox unchecked if you are connecting to the controller with a USB/RS485 adapter.

Click the Find Controller button. The controller should be found within 3-5 seconds.
Click OK to close the **Access Point Settings** window.

In GateKeeper the door status should now show as “Locked and Active.”

![Image of GateKeeper interface showing a message to scan card to check-in and the door status as locked and active.]

Click the Open Gate button. You should hear the controller relay click, and green Relay LED should light up. After 5 seconds the relay should click again and the Relay LED should turn off.
Connect a Door Strike (Normally-Open Circuit)

Note that the controller does not supply power to the door lock. The controller provides a dry-contact relay that opens and closes a circuit. You should have a separate power supply for the lock and test the lock connected directly to the lock to ensure that the lock/power circuit is correct. The controller power supply is intended only to provide power for the controller electronics.

First test the wiring for the door lock

Confirm that the door strike is unlocked by trying to move the strike with your fingers. It should not move.

Connect the lock power supply direct to the door strike, and the door strike should unlock. Again, confirm by trying to move the strike with your fingers. The strike should open easily when power is supplied to the strike.

Now connect the door power supply to the lock and controller:

- Connect the lock power supply positive (red) to the controller OUT1 terminal.
- Connect one wire from the lock to the controller COM terminal.
- Connect one wire from the lock to the lock power supply negative (black).

Confirm that the Door Relay jumper is set to NO (Normally-Open) position.

Confirm that door is normally locked, and that it unlocks when you click the Open Gate button in GateKeeper.
**Connect MagLock (Normally-Closed Circuit)**

Before connecting the maglock to the controller confirm that the maglock and the maglock exit functions are working correctly. The maglock should allow exit completely independent of the Gym Assistant controller.

You should have two wires from the maglock circuit that will lock/unlock the door. When the two wires are touching the door is locked, and when the two wires are separated the door unlocks.

Now connect these two wires to the **OUT1** and **COM** terminals on the controller.

![Diagram of MagLock and Related Components]

Confirm that the Door Relay jumper is set to **NC** (Normally-Closed) position, with the **NO** jumper pin exposed as in the picture below.

![Image of Jumper Set to NC (Normally-Closed)]

Confirm that door is normally locked, and it unlocks when you click the **Open Gate** button.