Standalone Controller Specifications
Card Capacity: 3000 cards
Computer Connection: RS485

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What is included in the box

- B-Id 721EX controller board
- RS485/Serial converter
- USB/Serial adapter
- 4-conductor wire
- 2-conductor wire
- Crimp connectors
- Wiring terminal block
- Thermistor (relay protection)

Tools that you will need

- Wire cutters/strippers (for 24-gauge wire)
- Small flat-head screwdriver (2mm)
- Pliers (for crimping wire connections)
- Voltmeter (optional)
### Components included with all 721EX controllers

<table>
<thead>
<tr>
<th><img src="image1" alt="Controller Power Supply with female pigtail connector" /></th>
<th><img src="image2" alt="USB/Serial Adapter" /></th>
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<td><strong>Controller Power Supply</strong> with female pigtail connector</td>
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<tr>
<th><img src="image3" alt="Crimp Connectors" /></th>
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</table>
Additional components included with Proximity Reader

Proximity Reader
(Wiegand Interface)
Additional Components included with Wiegand Barcode Reader

**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-721EX Access Controller
Wiring Schematic
(Proximity Reader)

12VDC

RS485 Adapter
VCC Unused
GND
T/R Green
TR+ White

Wiegand Proximity Reader (not barcode)
12VDC+ Red
Ground Black
Data0 Green
Data1 White

Door Open Button (N/O) (optional)
To GND

Door Strike or MagLock

12VDC+ to COM

BR-721EX Controller
DC12V
GND
LB-
LA+

WG PORT1
12V
GND
WD0
WD1
SEN
TAM
LR
PB
LG
BZ

OUT1
GND

DI1
DI2
GND

Door Relay Jumpers specify OUT1 function:
ON for N/O, OFF for N/C

Wiring for WG Port 2 is same

Note: Barcode reader requires 5VDC power.
See special instructions for barcode reader.
BR-721EX Access Controller
Wiring Schematic
(Wiegand Barcode Reader)

12VDC

RS485 Adapter
VCC Unused
GND
T/R Green
TR+ White

Wiegand Barcode Reader
12VDC+ Red
Ground Black
Data0 Purple
Data1 White

Door Strike or MagLock

Door Open Button (N/O) (optional)

12VDC+ Red

SVDC Voltage Regulator

DC12V
GND
LA+
LB-

Wiegand Reader
WG PORT1

BR-721EX Controller

DC12V
GND
LA+
LB-

WD0 Green
WD1 White
SEN
TAM
LR
PB
LG
BZ

OUT1
COM
DI1
DI2
GND

Door Relay1
Door Relay2
Alarm Relay1
Alarm Relay2

Door Relay Jumpers specify OUT1 function:
ON for N/O, OFF for N/C

Wiring for WG Port 2 is same
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

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 DC12V and GND terminals on the controller.

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.

<table>
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<tr>
<th>Power</th>
<th>ControllerTerminal</th>
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<tr>
<td>Ground (-)</td>
<td>GND</td>
</tr>
<tr>
<td>12VDC (+)</td>
<td>DC12V</td>
</tr>
</tbody>
</table>

When you turn on power to the controller, a single green LED (labeled “Power”) should light upon the controller.
Connect the Controller to your Computer

USB/RS485 Connection
You will need to run a short length of 4-wire cable from the RS485 adapter to the controller. Connect the other end of the cable to the Controller as shown below:

Now connect the other end of the cable to the controller as shown below:

Notes:
1) The black GND wire will be joined together with the black wire from the power supply, as shown above.
2) The Red wire from the RS485 adapter will not be used, so it is best to cut that red wire very short just past the cable sleeve.

Connect USB to computer
Connect the USB/Serial adapter to the computer and wait for Windows to install the drivers automatically.
Test the Computer/Controller Connection

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

Check both the **Reader Enabled** and **Door Controller Enabled** boxes.

In the Ports tab set the **Reader Type** to **B-Id 721**.

If **B-Id 721** does not appear in Reader Type list, then you must install Gym Assistant v2.6. See “Install Gym Assistant 2.6” above.

Click the **Find Reader** button.

If the controller is connected, then the controller serial port will show “Waiting for scan”. If no ports show “Waiting for scan”, then there is an issue with the wiring.

Note which COM port shows “Waiting for scan”, then click Cancel.

Set the **Reader Serial Port** to the COM port on which the controller was found.

Note that the **Controller Serial Port** will automatically mirror the reader port setting.

Click **OK** to close the **Access Point Settings** window.
The red and green Communications LEDs on the controller should now be blinking rapidly.

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

Click the Open Gate button. You should hear the controller relay click, and green Relay LED should light up. After 5-10 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.

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.

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

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