

Upgrade to 721EX Controller for Barcode Access

February 2020



Existing Serial Barcode Reader



Existing Barcode Controller



New Standalone Controller

This document will help you to upgrade an existing barcode access controller to our new standalone controller.

Upgrade for existing Barcode Access System

The new controller will directly replace your existing barcode controller.

Your existing slot barcode reader connects to a serial port on the computer (usually through a USB/Serial adapter). The reader will now connect directly to the new controller.

The door lock will connect to the new controller basically in the same way that it is currently connected to the existing controller.

For the new controller you are required to upgrade your Gym Assistant software to **Version 2.6**. Please contact Gym Assistant Support for help in performing the software upgrade.

721EX Controller Specifications

Card Capacity: 3000 cards
Computer Connection: RS485

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What is included in the box

- B-Id 721EX controller board
- Power Supply with pigtail connector
- USB/RS485 converter (connects controller to the computer)
- 4-conductor wire (to connect controller to the computer)
- Crimp connectors
- Thermistor (protects the relay, should be already installed in the controller)
- Serial RS232/Wiegand Converter
- Short length of 4-conductor wire
- Screwdriver

Tools that you will need

- Wire cutters/strippers (for 24-gauge wire)
- Pliers (for crimping wire connections)
- Voltmeter (optional)



Controller Power Supply
with female pigtail connector



USB/Serial Adapter



Serial/Wiegand Adapter
(Converts Serial/RS232 connection to Wiegand
connection)

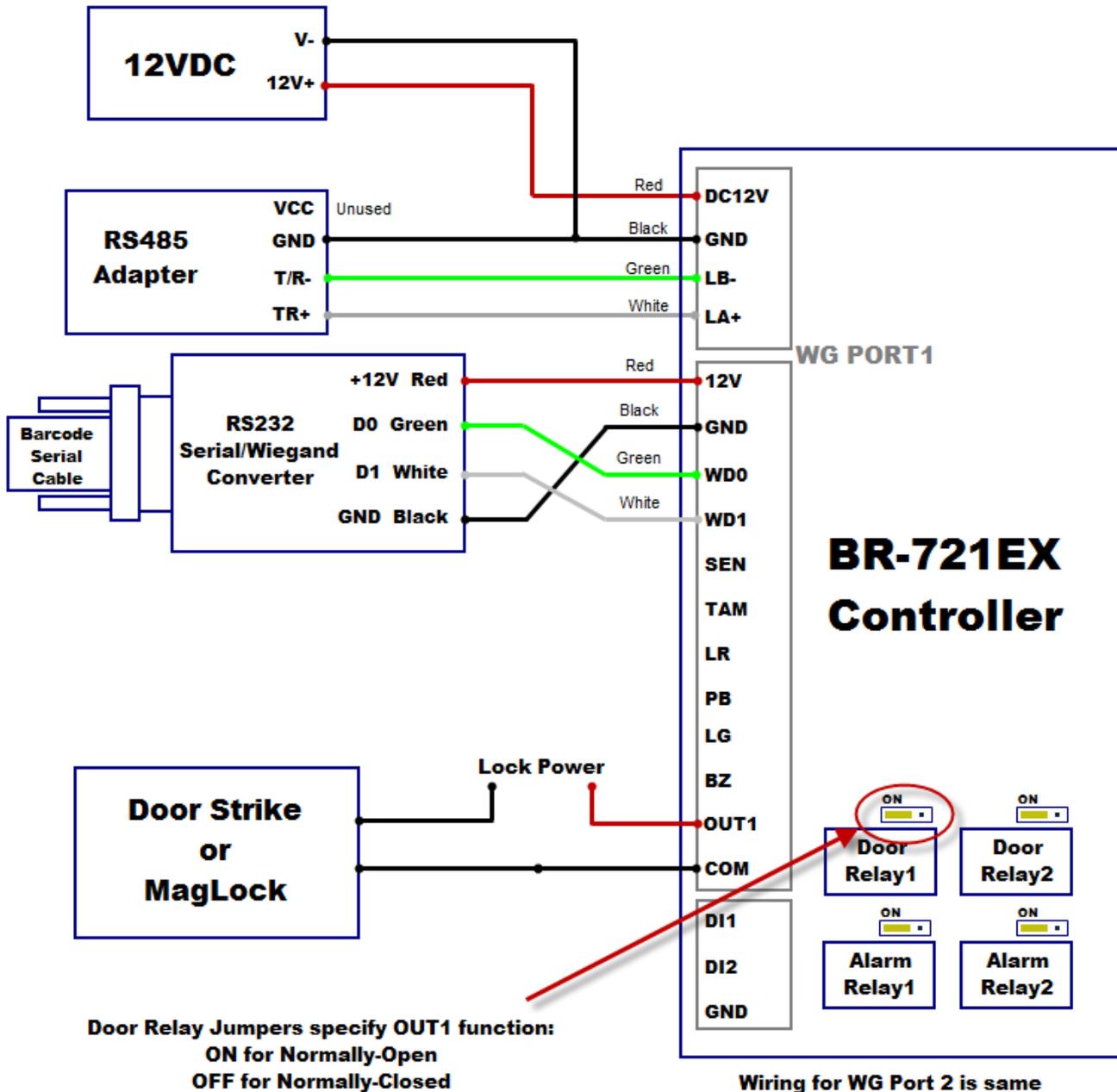


Crimp Connectors



Thermistor

721EX Access Controller Wiring Schematic (with Serial Barcode Reader)



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 the red wire to DC12V and the black wire to GND.

When you turn on power to the controller, a single green LED (labeled "Power") should light up on the controller.

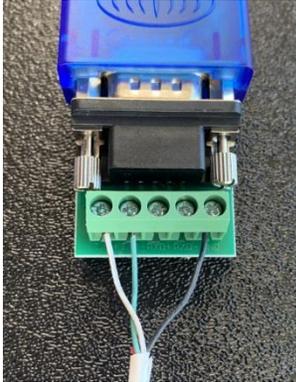
Connect the Controller to your Computer with USB/RS485 Adapter

You will need to cut the short length of 4-conductor wire that you received into two pieces:

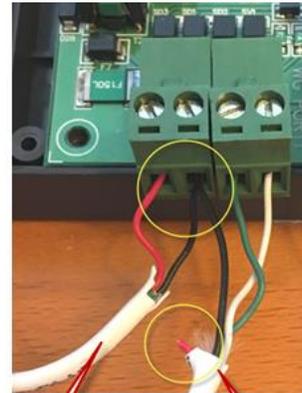
- One piece to connect the USB/RS485 adapter to the controller
- One piece to connect the reader serial port to the controller

We recommend that you simply cut the wire you received into equal length pieces.

Connect the USB/RS485 Adapter to the Controller as shown below.



USB/RS485 Adapter Connections



Controller Power
RS485 (cut red wire)

Controller Connections



RS485 / Controller Wiring

Notes:

- The black GND wire will be joined together with the black wire from the power supply, as shown above.
- 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.

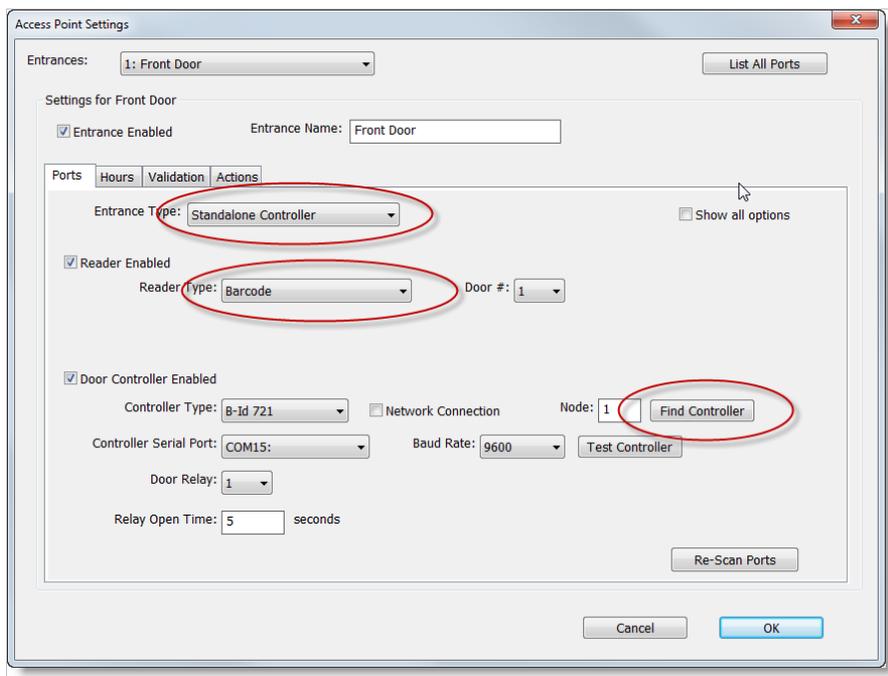
Connect USB to computer

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.

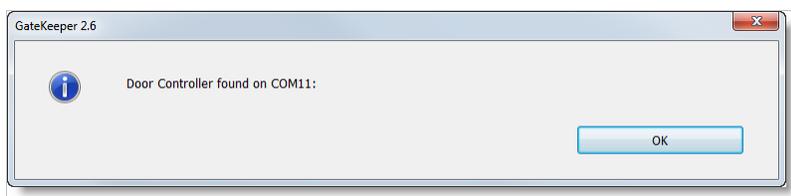
- Check both the **Reader Enabled** and **Door Controller Enabled** boxes.
- Set the **Entrance Type** to **Standalone Controller**.
- Set the **Reader Type** to **Barcode**.
- Set the **Controller Type** to **B-Id 721**.
- Set the desired **Relay Open Time**. (5 seconds recommended)



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

Click the **Find Controller** button.

After a few seconds GateKeeper should report that it found the controller.



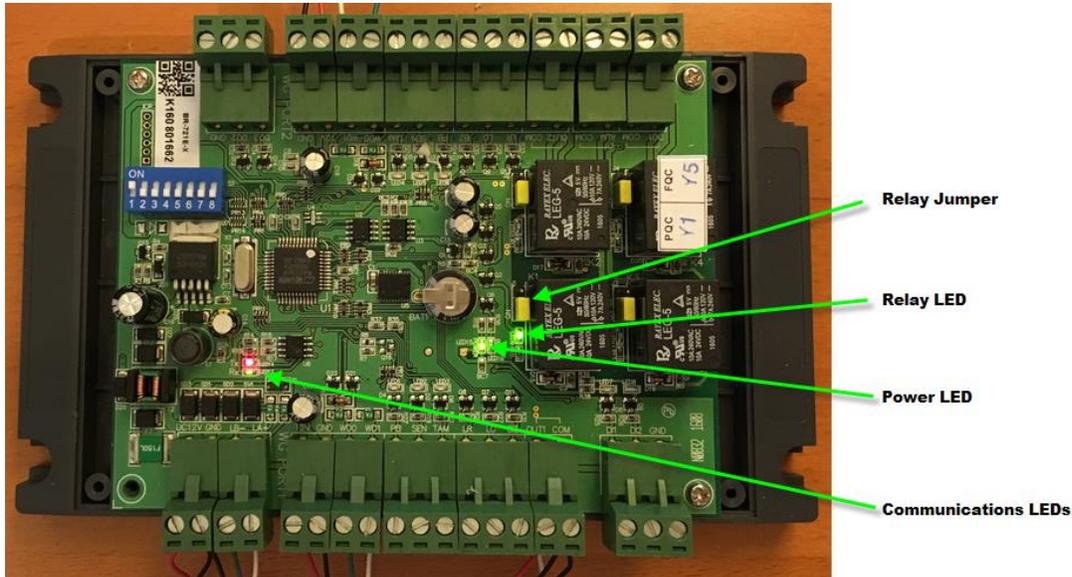
If the controller is not found, then:

- Confirm that the controller Power LED is lit.

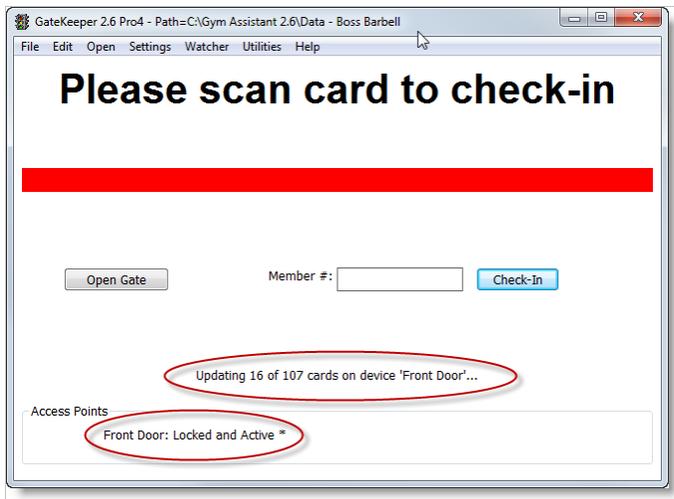
- Confirm that the USB/RS485 adapter is connected to the computer.
- Confirm your wiring connections both on the USB/RS485 adapter and on the controller.

Click **OK** to close the **Access Point Settings** window.

The red and green Communications LEDs on the controller should now be blinking rapidly to indicate that GateKeeper is communicating with the controller.



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

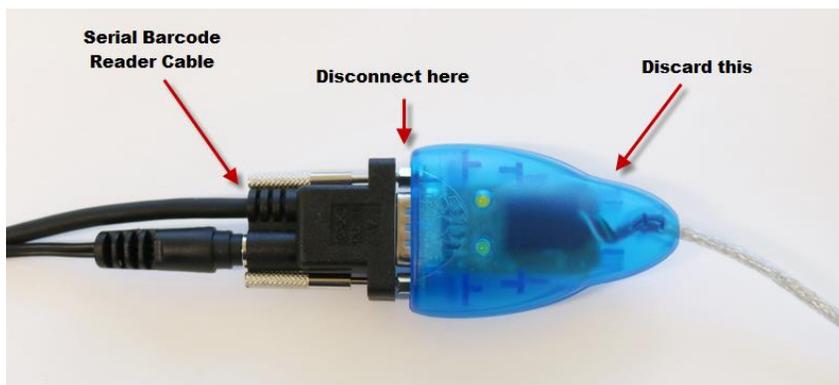


GateKeeper will also indicate that it is uploading cards to the device. This is the software uploading into the controller all of the card numbers that should be allowed access.

Click the **Open Gate** button. You should hear the controller relay click, and green Relay LED should light up. After the specified delay the relay should click again and the Relay LED should turn off.

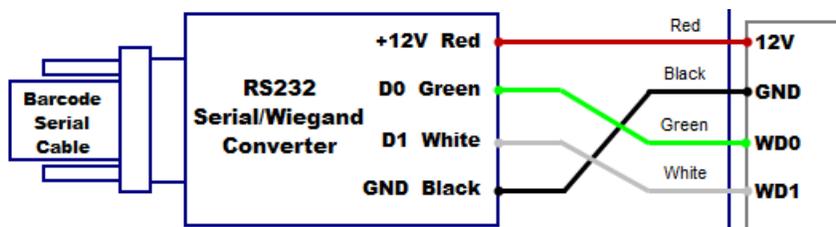
Connect Your Serial Barcode Reader to the Controller

Disconnect your serial barcode reader from the old USB/Serial adapter. You can also disconnect the USB/Serial from the computer and set it aside. You will no longer need it.



Disconnect serial barcode reader cable from old USB/Serial adapter

Take the remaining length of 4-conductor wire and connect the Serial RS232/Wiegand Converter to the controller as shown below and in the wiring schematic above. Be sure to connect to the WGPORT1 side, unless you intend to use Door2.



Now connect the Serial Barcode Reader cable to the Serial RS232/Wiegand Converter as shown below.



Test the Barcode Reader

Now swipe any barcode through the door reader. GateKeeper should report something, either displaying “Unknown Scan” or bringing up a valid member record.

If the correct member appears in GateKeeper and member is allowed entry, the relay should trigger

Troubleshooting the Barcode Reader

If nothing comes up in GateKeeper:

- Check that the barcode reader has power. The LED on the outside of the reader should be on.
- Check that the reader beeps when you scan a card. The reader beeps to indicate that it successfully scanned a barcode.
- Confirm that the barcode reader cable is firmly attached to the Serial RS232/Wiegand adapter.
- Confirm that all four wires on the Serial RS232/Wiegand adapter are firmly connected (give a tug on each), and that the colors are correct.
- Confirm that all four wires on the Controller are firmly (with a firm tug), and that the colors are correct.

If the number displayed in GateKeeper is different than the number displayed on the barcode:

- Confirm that the wire colors and connections are in the correct order. If D0/D1 or WD0/WD1 wires are reversed then the number will be scrambled.
- Go into Settings / Access Points, and confirm that the Reader Type is set to Barcode.

If GateKeeper reports **Controller says 'Card Not Found'**, then you have connected the reader to the wrong door terminals on the controller. Either move the reader wires to the correct side of the controller (WGPORT1) or change the Door# selection in GateKeeper Settings / Access Points.

Connect to the Door Lock

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.

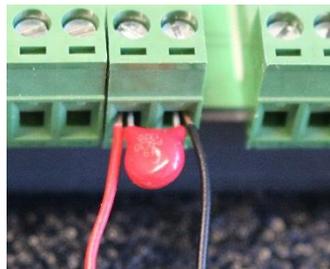
First, disconnect the door lock from the old controller terminals labelled NO/COM or COM/NC. Note whether you disconnected from NO (Normally-open, for a door strike) or NC (Normally-closed, for a maglock).

Test the two wires by touching the two wires together. If you are using an electric strike then the door should unlock when you touch the wires. If you are using a maglock then the door should lock when you touch the wires.

Connect the two lock wires to the OUT1 and COM terminals on the same side of the controller where you connected the reader wires.

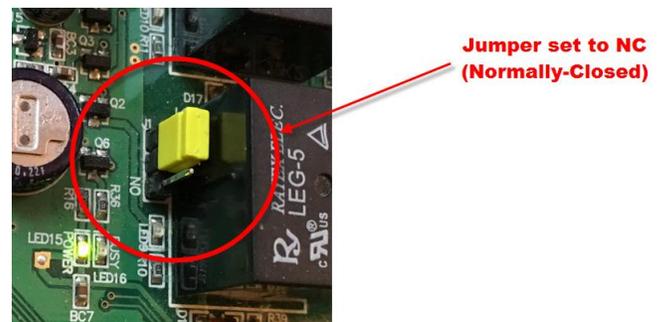
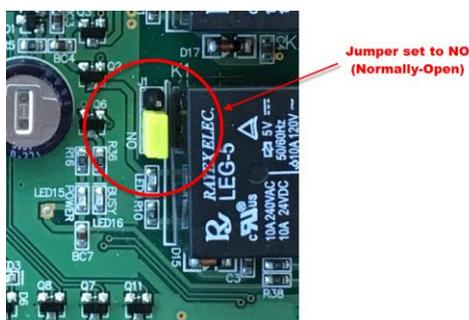
Connect the two lock wires to the OUT1 and COM terminals on the same side of the controller where you connected the reader wires.

Make sure that you leave the red varistor also attached to those same terminals (as shown below), as the varistor will suppress voltage spikes that will shorten the life of the relay. The best way to attach the lock wires is to loosen one terminal screw, insert the door wire, and re-tighten the screw. Then repeat for the other wire/terminal. If you loosen both terminal screws at the same time then the varistor will fall out, and it can be difficult to get both the varistor and wire inserted at the same time.



Attach door wires with the varistor

If you are using a Maglock, then you must move a jumper to tell the controller that the relay should operate as a normally-closed relay. 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 locked.

Scan a valid card or click the Open Gate button, then confirm that the door unlocks and then re-locks after the specified delay time.

Troubleshooting the Door Lock

If a door strike does not unlock, or if a maglock does not lock:

- Confirm that the lock power supply is functioning. Disconnect the relay wires and touch them together. If the door does not lock/unlock by touching/untouching the wires together then check the lock power supply and wiring.
- Confirm that the lock wires are connected to the correct side of the controller (PORT1 or PORT2).

If the door is not locked but locks when the relay is triggered:

- move the jumper to the opposite position.