LEVITON®

Power Hub

Cat. No. 83A00-1

Installation Manual

WEB VERSION

WARNINGS AND CAUTIONS

- Read and understand all instructions. Follow all warnings and instructions marked on the product.
- Do not use this product near water - e.g., near a tub, wash basin, kitchen sink or laundry tub, in a wet basement, or near a swimming pool.
- Never push objects of any kind into this product through openings, as they may touch dangerous voltages.
- Never install communications wiring or components during a lightning storm.
- Never install communications components in wet locations unless the components are designed specifically for use in wet locations.
- Never touch uninsulated wires or terminals unless the wiring has been disconnected at the network interface.
- Use caution when installing or modifying communications wiring or components.
- SAVE THESE INSTRUCTIONS.

INTRODUCTION

The LEVITON Model 83A00 Power Hub is a general purpose 12VDC power supply. It is designed to provide power to several LEVITON products, including the LEVITON Access Control Card Readers with electric or magnetic locks, Omni Consoles, OmniTouch 5.7 Touchscreens, and many other devices.

The LEVITON Power Hub provides battery backed power for connected devices. It has convenient connections and power terminals for a neat installation. It is designed to eliminate unsightly transformers, power strips, external power supplies, battery backup units, and complex wiring normally associated with access control installations.

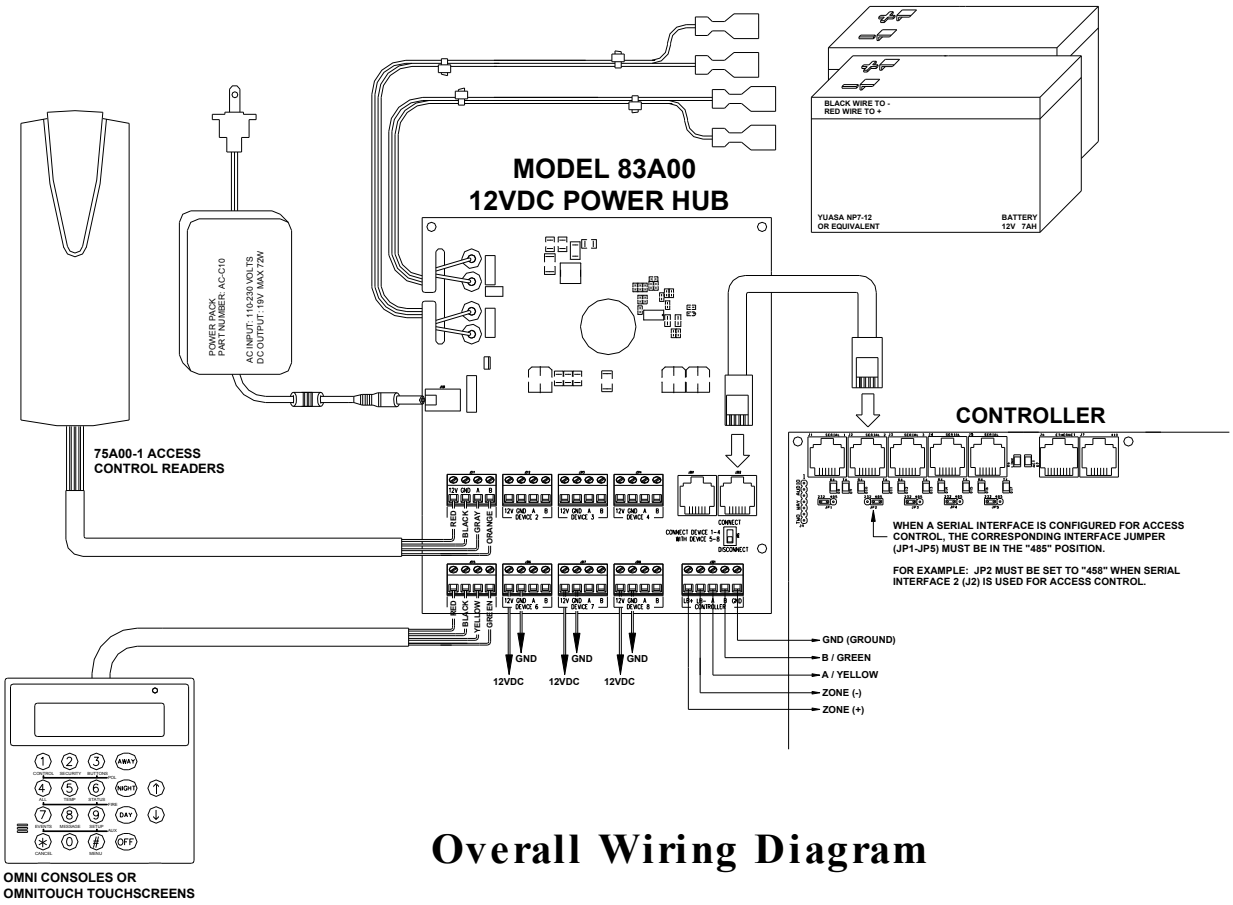
GENERAL

The LEVITON Power Hub is available in an LEVITON OmniLT Series Enclosure (83A00-1) or on the Universal Mounting Plate for installation in Structured Wiring enclosures (83A00-2). It is supplied with a sealed Power Pack, which provides power to the LEVITON Power Hub.

Features:

1. Connections for any 12VDC devices, up to 5 Amps total
2. Connections for the following LEVITON equipment:
   a. 8 Model 75A00-1 Access Control Card Readers (with electric and magnetic locks), OR
   b. 8 Omni Consoles and/or OmniTouch 5.7 Touchscreens, OR
   c. 4 Model 75A00-1 Access Control Card Readers (with electric and magnetic locks), AND
      4 Omni Consoles and/or OmniTouch 5.7 Touchscreens
3. Power supply with battery back up for Access Control Card Readers (with electric and magnetic locks), Omni Consoles, and OmniTouch 5.7 Touchscreens
4. Connections for all Omni and Lumina controllers
5. Supervisory output can be connected to zone on LEVITON controller to indicate low battery
6. Connectors for two sealed batteries, 12 V at 4 to 8 amp-hours each (not supplied)
7. Supplied with Universal Switching Power Pack

INSTALLATION



Overall Wiring Diagram

1. GROUNDING

Each Power Hub MUST be grounded to the controller. The LEVITON controller and LEVITON Power Hub(s) must be grounded together to prevent any current from flowing through the RS-485 data bus (connections A and B). If not grounded properly, damage could occur to the LEVITON controller, LEVITON Power Hub, Access Control Card Readers, Omni Consoles, and/or OmniTouch Touchscreens.

Connect the "GND" terminal on the LEVITON Power Hub under the section marked "CONTROLLER", to one of the "GND" (ground) terminals on the LEVITON controller (See – Figure 1).

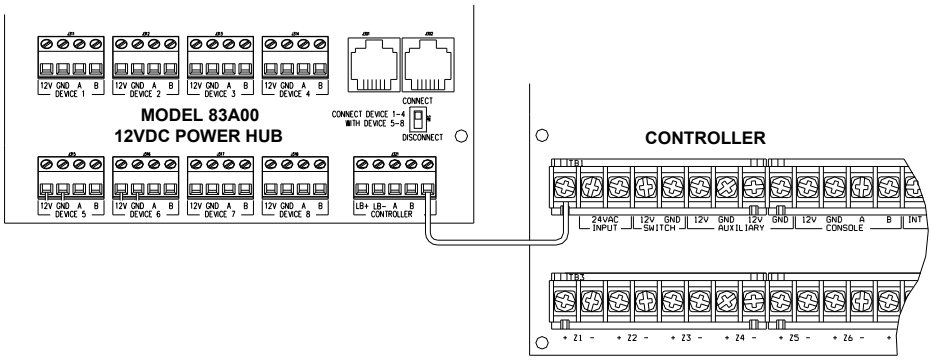


Figure 1

2. CONNECTING 12VDC DEVICES TO THE POWER HUB

Any 12VDC devices (up to 5 Amps total) can be connected to any of the "12V" and "GND" terminals under "DEVICE 1 – DEVICE 8" (See – Figure 2).

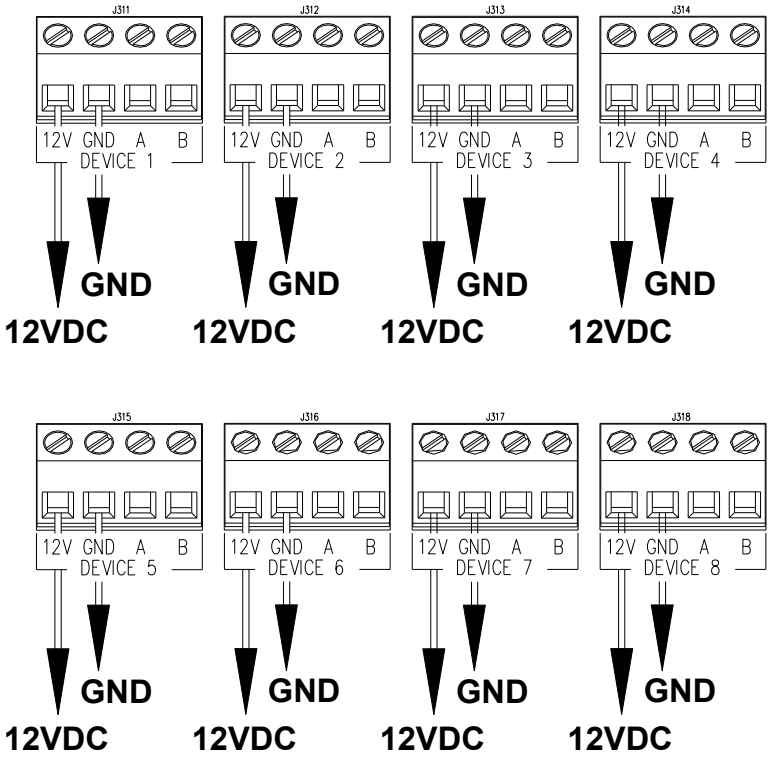


Figure 2

3. CONNECTING DEVICES THAT COMMUNICATE WITH THE A LEVITON CONTROLLER

When devices that communicate with the LEVITON controller (i.e. 75A00-1 Access Control Readers, Consoles, or OmniTouch Touchscreens) are connected to the Power Hub, the communications path for the first row of the devices (DEVICE 1 – DEVICE 4) can be separated from the communications path for the second row of devices (DEVICE 5 – DEVICE 8). This is necessary if you are connecting devices that communicate on a different communications bus.

Connecting Devices of the Same Communications Type

For example, if all connected devices that communicate with the LEVITON controller consist of 75A00-1 Access Control Readers (which communicate on a serial port), then the communications path for the first row (DEVICE 1 – DEVICE 4) does not need to be separated from the second row (DEVICE 5 – DEVICE 8). In this case, switch "SW1" must be in the "CONNECT" position (See – Figure 3).

Likewise, if all connected devices that communicate with the LEVITON controller consist of Consoles and/or OmniTouch Touchscreens (which communicate on the console bus), the communications path for the first row (DEVICE 1 – DEVICE 4) does not need to be separated from the second row (DEVICE 5 – DEVICE 8). In this case, switch "SW1" must be in the "CONNECT" position.

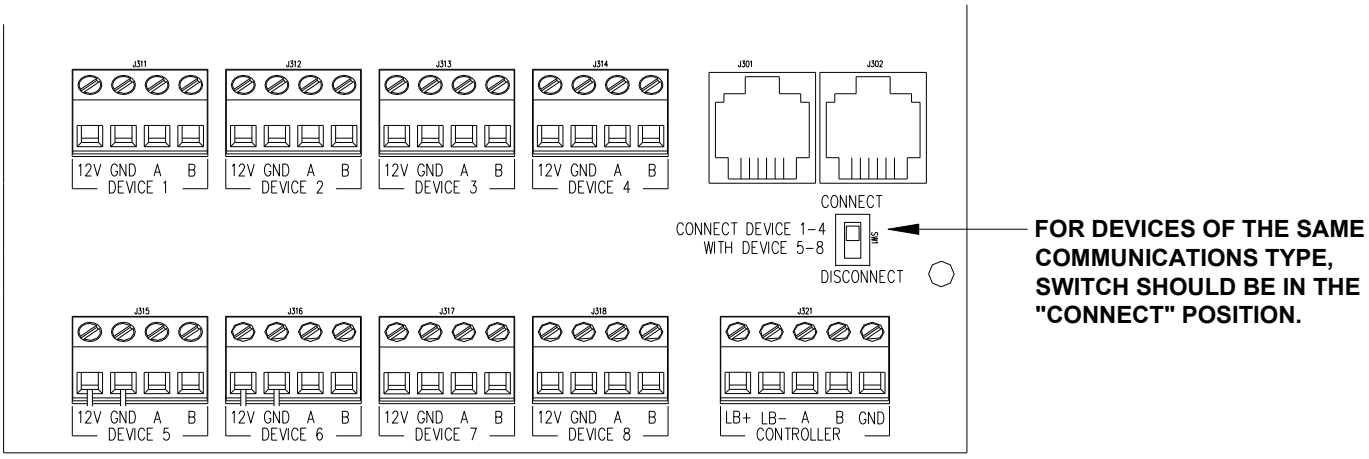


Figure 3

Connecting Devices of Different Communications Types

If a combination of 75A00-1 Access Control Readers and Consoles and/or Touchscreens are connected, then the communications path for the first row must be separated from the second row. Switch "SW1" must be in the "DISCONNECT" position (See – Figure 4).

DEVICE 1 – DEVICE 4:

- 75A00-1 Access Control Readers must be connected on the first row (DEVICE 1 – DEVICE 4)

DEVICE 5 – DEVICE 8:

- Consoles and/or OmniTouch Touchscreens must be connected on the second row (DEVICE 5 – DEVICE 8)

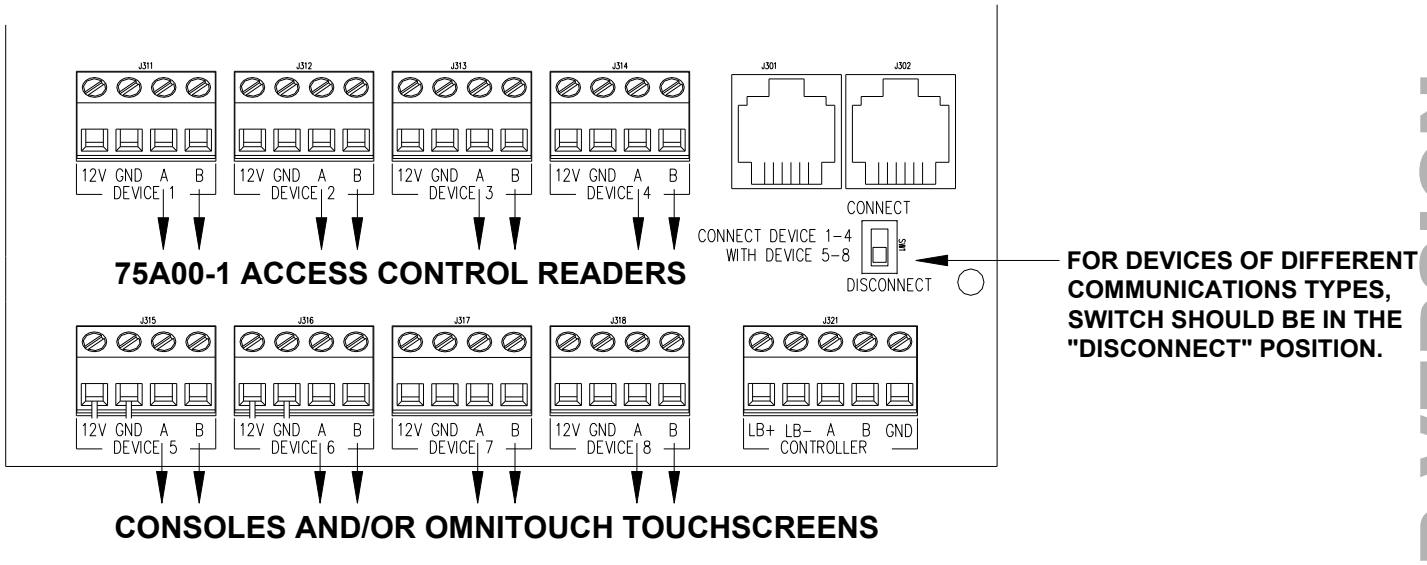


Figure 4

4. CONNECTING MODEL 75A00-1 ACCESS CONTROL CARD READERS

The 75A00-1 requires 4 wires for operation (2 for power and 2 for communications). The maximum distance between the 75A00-1 and the LEVITON 83A00 Power Hub is based on two factors: 1) the current draw of the connected door lock device, and 2) the wire gauge/type used. To maintain proper operation of the 75A00-1 and the connected door lock device, do not exceed the "Maximum Cable Length" based on the Total Current Draw and the Wire Gauge/Type per the table below (Table 1).

75A00-1 Only (no Door Lock connected): 150mA maximum				
Wire Gauge	Wire Type	Number of positive conductors	Number of ground conductors	Maximum Cable Length (feet)
24	solid	1	1	233
24	solid	2	2	466
24	solid	3	3	699
22	solid	1	1	413
22	solid	2	2	826
22	stranded	1	1	381
18	solid	1	1	1000
18	stranded	1	1	963
16	solid	1	1	1000
16	stranded	1	1	1000

75A00-1 and 79A00-1 Electric Door Strike (450mA): 600mA maximum				
Wire Gauge	Wire Type	Number of positive conductors	Number of ground conductors	Maximum Cable Length (feet)
24	solid	1	1	58
24	solid	2	2	117
24	solid	3	3	175
22	solid	1	1	103
22	solid	2	2	207
22	stranded	1	1	95
18	solid	1	1	261
18	stranded	1	1	241
16	solid	1	1	415
16	stranded	1	1	383

75A00-1 and Door Lock (800mA): 950mA maximum				
Wire Gauge	Wire Type	Number of positive conductors	Number of ground conductors	Maximum Cable Length (feet)
24	solid	1	1	37
24	solid	2	2	74
24	solid	3	3	110
22	solid	1	1	65
22	solid	2	2	130
22	stranded	1	1	60
18	solid	1	1	165
18	stranded	1	1	152
16	solid	1	1	262
16	stranded	1	1	242

75A00-1 and Door Lock (1A): 1.15A maximum				
Wire Gauge	Wire Type	Number of positive conductors	Number of ground conductors	Maximum Cable Length (feet)
24	solid	1	1	30
24	solid	2	2	61
24	solid	3	3	91
22	solid	1	1	54
22	solid	2	2	108
22	stranded	1	1	50
18	solid	1	1	136
18	stranded	1	1	126
16	solid	1	1	217
16	stranded	1	1	200

Table 1

Note: If cable with multiple conductors is used (such as Cat-5 cable), it is possible to connect multiple conductors together for power (i.e. the wires between Red and Black of the Access Control Reader and 12V and GND of the Power Hub) to achieve greater distance.

Connections

Connect the Red, Black, Gray, and Orange wires from the 75A00-1 Access Control Reader to the 12V, GND, A, and B terminals of the LEVITON Model 83A00-1 Power Hub, respectively (See – Figure 5).

When connecting Access Control Readers, only use terminals labeled DEVICE 1 – DEVICE 4, unless Switch "SW1" is in the "CONNECT" position. If "SW1" is in the "CONNECT" position, then DEVICE 5 – DEVICE 8 may also be used for Access Control Readers.

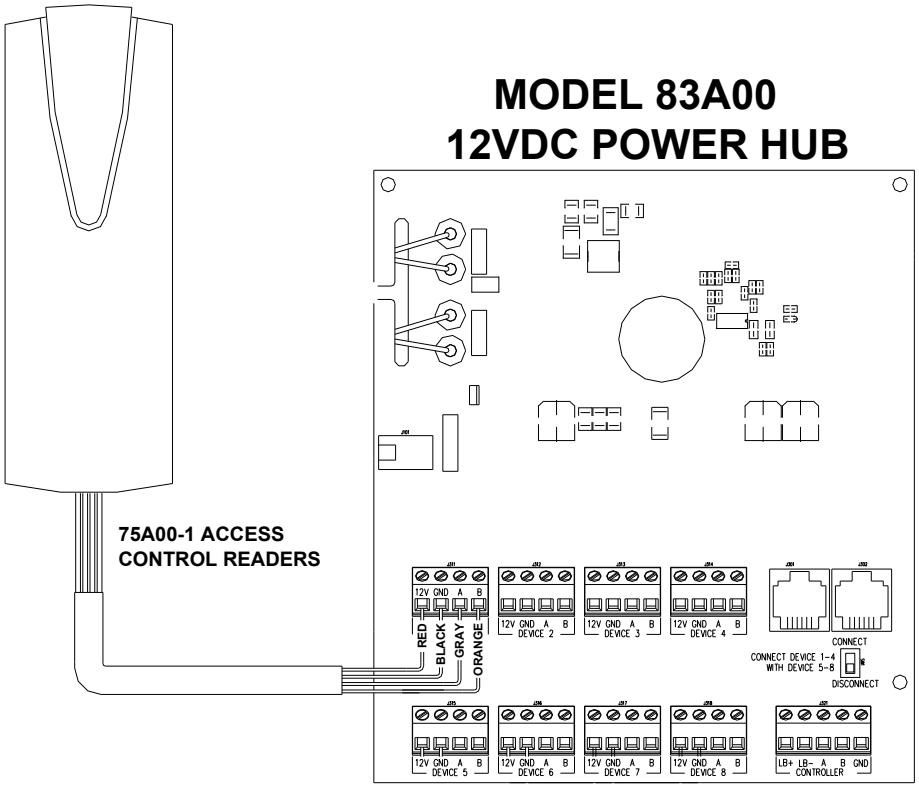


Figure 5

Connect the supplied 4-conductor reversed modular cable (gray cable) between one of the modular connectors (J301 or J302) on the Power Hub and a serial port (J2 – J5) on the LEVITON controller (See – Figure 6).

The serial port that is used for LEVITON Access Control must be configured for RS-485 communications. The corresponding interface jumper (JP2-JP5) must be in the "485" position. For example: JP2 must be set to "485" when serial port 2 (J2) is used for LEVITON Access Control.

WARNING:

Do not connect either modular connector "J301" or "J302" to a serial port (J1 – J5) on the LEVITON controller if:

a) "SW1" is in the "CONNECT" position, AND

b) Terminals “A” and “B” under the section marked “CONTROLLER” on the Power Hub is connected to the “A” and “B” terminals under the section marked “CONSOLE” on the LEVITON controller.

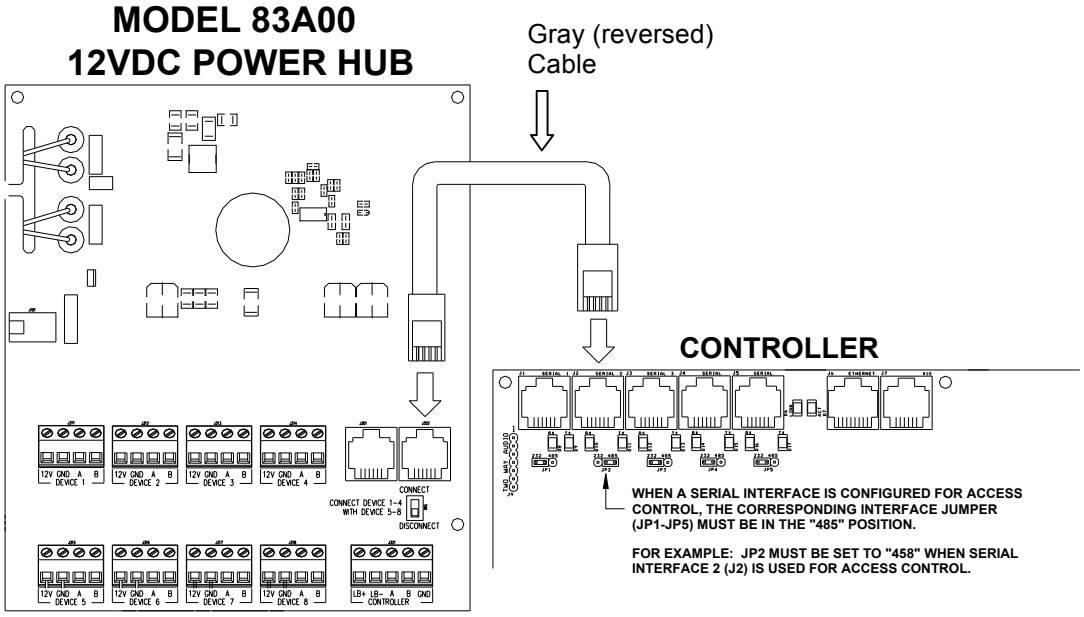


Figure 6

Connecting Additional LEVITON Power Hubs

When connecting more than 8 Model 75A00-1 Access Control Card Readers to an LEVITON OmniPro II or LEVITON Lumina Pro controller, if additional power is needed to control the required Access Control Readers and connected locks, or if there are long distances between Access Control Readers and the LEVITON controller, multiple LEVITON Power Hubs may be used.

To connect multiple Power Hubs together, connect the supplied 4-conductor straight-through modular cable (black cable) between the modular connector labeled “J302” on the first Power Hub to modular connector “J301” on the second Power Hub. If additional Power Hubs are required, connect “J302” from the second to “J301” of the third, and so on. Connect “J302” from the last Power Hub to a serial port (J2 – J5) on the LEVITON controller (See – Figure 7).

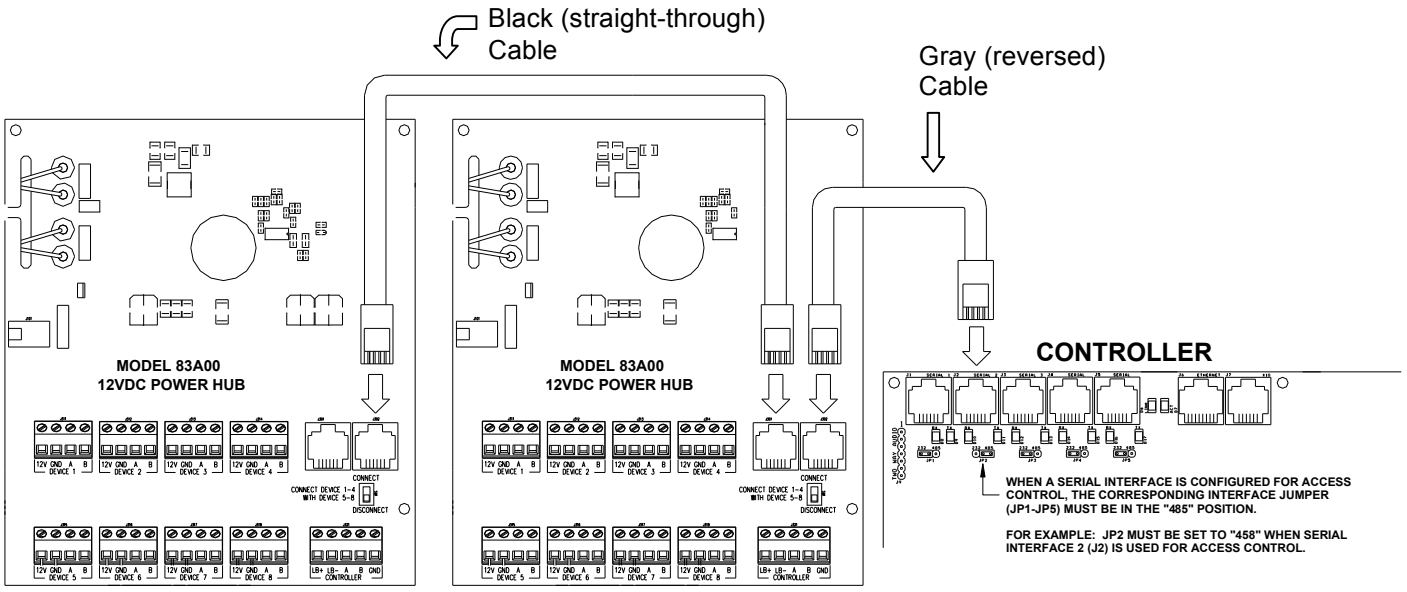


Figure 7

5. CONNECTING CONSOLES AND OMNITOUCH TOUCHSCREENS

Omni Consoles and OmniTouch Touchscreens require a minimum of 4 wires for operation (2 for power and 2 for communications).

The required distance between the Power Hub and OmniTouch Touchscreen will determine the wire gauge/type you should use. To prevent the OmniTouch Touchscreen from drawing more than the specified maximum current from the Power Hub, do not exceed the "Maximum Cable Length" based on the wire gauge/type according to the “Table 2”.

TABLE 2
MAXIMUM CABLE LENGTH BASED ON WIRE GAUGE / TYPE

Wire Gauge	Solid/ Stranded	Number of positive conductors	Number of ground conductors	Maximum Cable Length (feet)
24	solid	1	1	113
24	solid	2	2	227
24	solid	3	3	340
22	solid	1	1	180
22	solid	2	2	360
22	stranded	1	1	166
20	solid	1	1	287
20	stranded	1	1	267
18	solid	1	1	456
18	stranded	1	1	420
16	solid	1	1	724
16	stranded	1	1	669

Notes:

1. If cable with multiple conductors is used (such as Cat-5 cable), it is possible to connect multiple conductors together to achieve greater distance. For example, using only one of the 24 gauge conductor in the Cat-5 cable for power (1 for positive and 1 for ground), the maximum distance between the controller and the touchscreen is 113 feet.
2. The distance between the Power Hub and LEVITON controller combined with the distance between the Power Hub and a touchscreen, must never exceed a maximum distance of 1000 feet. When calculating the distance between the Power Hub and a touchscreen, you must subtract the distance between the Power Hub and the LEVITON controller from the “Maximum Cable Length” as listed in “Table 2”.

Connections

Connect the "Red", "Black", "Yellow", and "Green" wires from the touchscreen to the “12V”, “GND”, "A" and "B" terminals on the Power Hub, respectively (See – Figure 8).

If Omni Consoles or OmniTouch Touchscreens are being connected to the Power Hub, connect the terminals labeled “A” and “B” on the LEVITON Power Hub under the section marked “CONTROLLER”, to the “A” and “B” terminals on the LEVITON controller.

Note: When connecting to an OmniLT, the terminal labeled “A” on the Power Hub connects to the “YEL” terminal and the terminal labeled “B” on the Power Hub connects to the ”GRN” terminal under the section marked “CONSOLE” on the OmniLT controller.

When connecting Omni Consoles and/or OmniTouch Touchscreens, only use terminals labeled DEVICE 5 – DEVICE 8, unless Switch "SW1" is in the "CONNECT" position. If "SW1" is in the "CONNECT" position, then DEVICE 1 – DEVICE 4 may also be used Omni Consoles and/or OmniTouch Touchscreens.

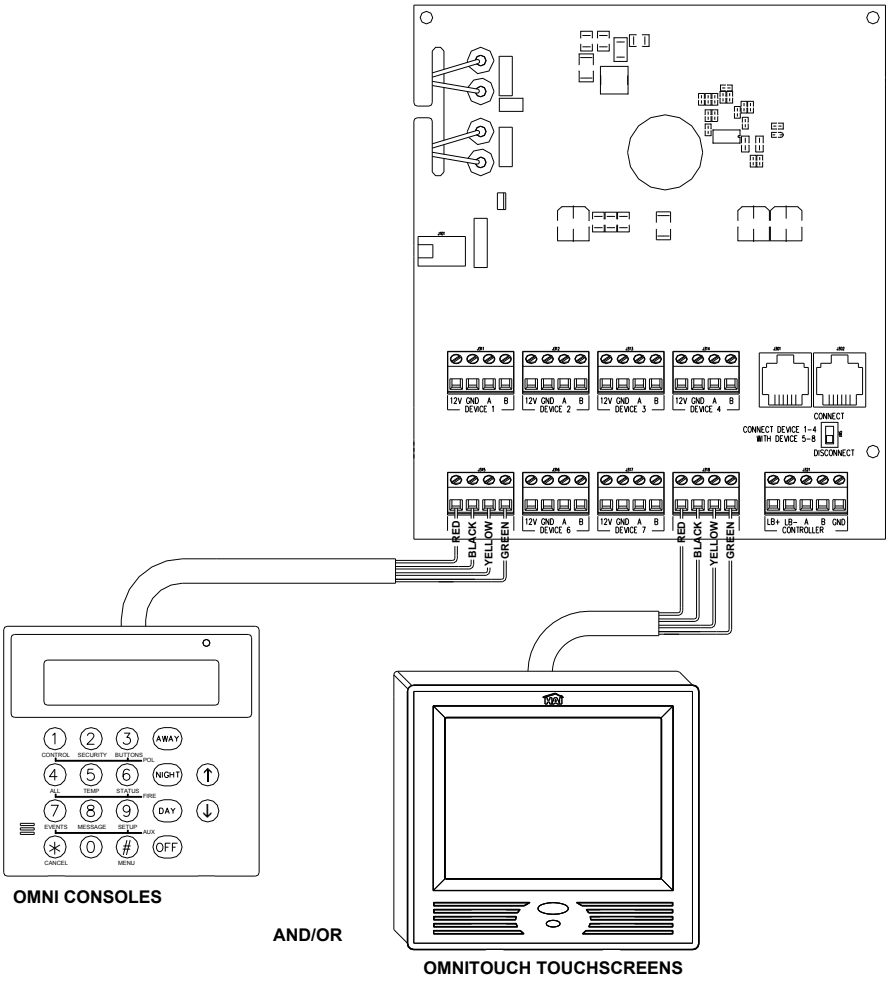


Figure 8

Connect the terminals labeled "A" and "B" under the section marked "CONTROLLER" on the Power Hub to the terminals labeled "A" and "B" under the section marked "CONSOLE" on the LEVITON controller, respectively.

WARNING:

Do not connect terminals "A" or "B" under the section marked "CONTROLLER" on the Power Hub to the terminals labeled "A" and "B" under the section marked "CONSOLE" on the LEVITON controller if

a) "SW1" is in the "CONNECT" position, AND

b) Either modular connector "J301" or "J302" is connected to a serial port (J1 – J5) on the LEVITON controller.

6. LOW BATTERY INDICATOR (Optional Connection)

When the backup batteries connected to the Power Hub become depleted, there are terminals on the Power Hub that are used to send a signal to the LEVITON controller to alert you of the low battery condition. To take advantage of this feature, you must have an extra pair of wire between the Power Hub and the LEVITON controller, and an available zone on the LEVITON controller.

Connect the terminals labeled "LB+" and "LB-" under the section marked "CONTROLLER" on the Power Hub to the "+" and "-" zone terminals of an available zone on the LEVITON controller. Do not use an end-of-line resistor on the zone. The touchscreen has a built-in 1K ohm resistor for this output. Configure the zone as a "Trouble" zone.

When the batteries on the Power Hub fall below a certain voltage threshold, the terminals "LB+" and "LB-" will open causing the zone on the LEVITON controller to trip, indicating a low battery condition on the Power Hub.

7. POWER CONNECTIONS

The supplied Power Pack is used to power the LEVITON Power Hub. An AC power outlet should be located within 5 feet. One or two sealed, rechargeable batteries (not included) can be used to backup connected devices. The two battery cables are in parallel, so by adding a second battery you will increase the battery backup time.

1. Connect one or two 12VDC batteries using the supplied battery terminals. Connect the BLACK battery wire to the minus (-) terminal on the battery and connect the RED battery wire to the plus (+) terminal on the battery. DO NOT reverse the connections; the battery fuse will blow. Note that the unit will NOT START on the battery alone.

2. Plug the connector for the Power Pack into the mating connector of the LEVITON Power Hub marked "J101".

3. Plug the power cord from the Power Pack into an electrical outlet. The "POWER ON" LED should illuminate.

4. Unplug the Power Pack. The Power Hub should continue to run off of the battery backup. The "POWER ON" LED should turn off.

5. Plug in the Power Pack. The system should start. The "POWER ON" LED should illuminate.

SPECIFICATIONS

Operating Ranges:	32 - 120 degrees F (0 - 49 degrees C) 10 - 85 % relative humidity, non-condensing
Power Pack:	Output 19VDC, 4.74 Amps, Max 90W Input 100-240VAC, 1.5A Amps, 50/60Hz
Output Power:	Nominal Voltage 12VDC Maximum Current 5A
Batteries:	Sealed, Rechargeable, 12 Volts, 4 - 8 Amp-Hours, each
Low Voltage Cut Out:	9.5VDC
Main Fuse:	4A Polyfuse
Battery Fuses:	6A Polyfuse
	Polyfuses are permanent fuses that do not need replacement.

FCC Compliance

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

FCC COMPLIANCE

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FOR CANADA ONLY

For warranty information and/or product returns, residents of Canada should contact Leviton in writing at **Leviton Manufacturing of Canada Ltd to the attention of the Quality Assurance Department, 165 Hymus Blvd, Pointe-Claire (Quebec), Canada H9R 1E9** or by telephone at **1 800 405-5320.**

LEVITON LIMITED WARRANTY

Leviton warrants to the original consumer purchaser and not for the benefit of anyone else that products manufactured by Leviton under the Leviton brand name ("Product") will be free from defects in material and workmanship for the time periods indicated below, whichever is shorter: **• OmniPro II and Lumina Pro:** three (3) years from installation or 42 months from manufacture date. **• OmniLT, Omni IIe, and Lumina:** two (2) years from installation or 30 months from manufacture date. **• Thermostats, Accessories:** two (2) years from installation or 30 months from manufacture date. **• Batteries:** Rechargeable batteries in products are warranted for ninety (90) days from date of purchase. **Note:** Primary (non-rechargeable) batteries shipped in products are not warranted. **Products with Windows® Operating Systems:** During the warranty period, Leviton will restore corrupted operating systems to factory default at no charge, provided that the product has been used as originally intended. Installation of non-Leviton software or modification of the operating system voids this warranty. Leviton's obligation under this Limited Warranty is limited to the repair or replacement, at Leviton's option, of Product that fails due to defect in material or workmanship. Leviton reserves the right to replace product under this Limited Warranty with new or remanufactured product. **Leviton will not be responsible for labor costs of removal or reinstallation of Product**. The repaired or replaced product is then warranted under the terms of this Limited Warranty for the remainder of the Limited Warranty time period or ninety (90) days, whichever is longer. This Limited Warranty does not cover PC-based software products. **Leviton is not responsible for conditions or applications beyond Leviton's control**. **Leviton is not responsible for issues related to improper installation, including failure to follow written Installation and operation instructions, normal wear and tear, catastrophe, fault or negligence of the user or other problems external to the Product**. To view complete warranty and instructions for returning product, please visit us at **www.leviton.com**.

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WEB VERSION