

# LXC-1

IP to control port expander user guide



## SAFETY INSTRUCTIONS

Please review the following safety precautions. If this is the first time using this model, then read this manual before installing or using the product. If the product is not functioning properly, please contact your local dealer or Aurora for further instructions.



The lightning symbol in the triangle is used to alert you to the presence of dangerous voltage inside the product that may be sufficient to constitute a risk of electric shock to anyone opening the case. It is also used to indicate improper installation or handling of the product that could damage the electrical system in the product or in other equipment attached to the product.



The exclamation point in the triangle is used to alert you to important operating and maintenance instructions. Failure to follow these instructions could result in injury to you or damage to the product.



Be careful with electricity:

- **Power outlet:** To prevent electric shock, be sure the electrical plug used on the product power cord matches the electrical outlet used to supply power to the Aurora product. Use only the power adapter and power connection cables designed for this unit.
- **Power cord:** Be sure the power cord is routed so that it will not be stepped on or pinched by heavy items.
- **Lightning:** For protection from lightning or when the product is left unattended for a long period, disconnect it from the power source.



Also follow these precautions:

- **Ventilation:** Do not block the ventilation slots if applicable on the product or place any heavy object on top of it.  
Blocking the air flow could cause damage. Arrange components so that air can flow freely. Ensure that there is adequate ventilation if the product is placed in a stand or cabinet. Put the product in a properly ventilated area, away from direct sunlight or any source of heat.
- **Overheating:** Avoid stacking the Aurora product on top of a hot component such as a power amplifier.
- **Risk of Fire:** Do not place unit on top of any easily combustible material, such as carpet or fabric.
- **Proper Connections:** Be sure all cables and equipment are connected to the unit as described in this manual.
- **Object Entry:** To avoid electric shock, never stick anything in the slots on the case or remove the cover.
- **Water Exposure:** To reduce the risk of fire or electric shock, do not expose to rain or moisture.
- **Cleaning:** Do not use liquid or aerosol cleaners to clean this unit. Always unplug the power to the device before cleaning.
- **ESD:** Handle this unit with proper ESD care. Failure to do so can result in failure.

### FCC

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

- (1) This device may not cause harmful interference.
- (2) This device must accept any interferences received, including interference that may cause undesired operation.



### Trademarks

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## PACKAGE CONTENTS

Please make sure the following items are included within your package. Contact your dealer if any items are missing or damaged.

- LXC-1 x 1

### **Optional Accessories**

- 48v DC power supply for stand-alone operation (PS0094-2)
- 48v POE Injector supply (PS0081-1)

Note: Go to [www.aurorammm.com](http://www.aurorammm.com) for latest manual and firmware

# INTRODUCTION

## About

The LXC-1 is a low cost high performance IP to port expander. Designed for control port expansion, the LXC-1 has a variety of ports including 1-serial, 1 – IR, 2 – relays, and 2 – I/O ports. The internal Flash memory provides the ability for storing and serving up web-control pages for complete in room and remote control. All configuration of ports and can be done with the integrated setup web page. The LXC-1 works with all Aurora IP control products and 3rd party control too.

Power Supply **NOT** included, please order separately.

## Features

- **32 bit RISC Processor**
- **Telnet / TCP Controlled**
- **One Serial Port**
- **Two C-Type Relay Ports**
- **Two Digital I/O Ports**
- **One IR Port**
- **10/100 LAN Power Over Ethernet (PoE)**
- **Integrated Web Server**
- **Integrated Setup Web pages**
- **Power 3 Watts**
- **Small Size 4.65" x 2.86" x .98"**

## Front LXC-1

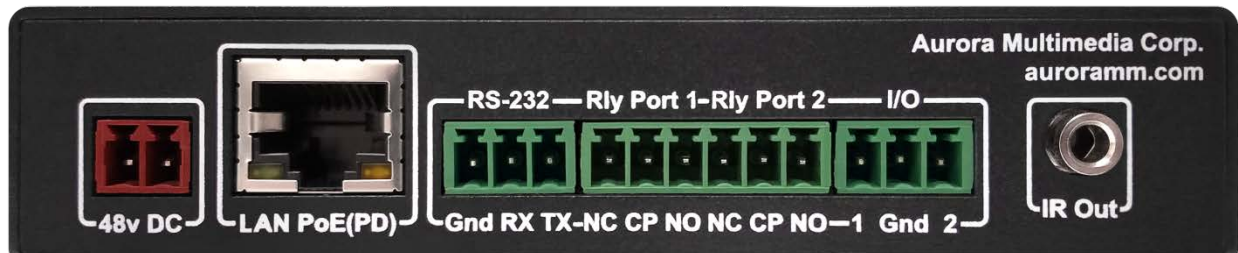
### Front

LED's for power Status, IR, RS232 (Tx/Rx), Relays (1 & 2) and Digital I/O ports reflect port states and activity. The SETUP button is available to factory reset.



### Rear

The rear provides connection points for Power, LAN, RS232, Relays, I/O's and IR.



## SETUP BUTTON FUNCTIONS

The SETUP button located on the front of the LXC-1 is available for two functions:

- Factory Reset: Press-and-holding for 5 seconds, then releasing will reset the unit to factory defaults: IP 192.168.1.100.
- Firmware Update Mode: Press-and-holding for 10 seconds will put the unit into firmware update mode (LED's TX1/2 and IO1/2 on solid). To cancel, cycle power.



## WEB SETUP PAGES

The LXC-1 Web setup pages are accessed via <IP Address of unit>/setup.

Example: 192.168.1.100/setup

Default User / Password is: admin / admin.

 A screenshot of the LXC-1 web setup interface. The page has a dark blue header with 'LXC-1' on the left and the 'Aurora' logo on the right. Below the header is a light blue bar with the title 'LXC-1 - General Settings'. Underneath, there are three tabs: 'General Settings' (selected), 'Network Settings', and 'Port Settings'. The main content area is a table with the following rows:
 

|                         |   |
|-------------------------|---|
| Status:                 | IP Address : 192.168.1.100<br>Hostname : LXC-1<br>MAC Address : 00:11:02:BC:30:3A<br>Serial Number : 16340001<br>Firmware Revision : 01.08    |
| Change Password:        | <input type="password"/> Enter new password<br><input type="password"/> Verify new password<br><input type="button" value="Change Password"/> |
| Reset Factory Defaults: | <input type="button" value="Restore Defaults"/>   |
| Firmware Update Mode:   | <input type="button" value="Start Update"/>   |
| Restart LXC-1:          | <input type="button" value="Reboot"/>   |

 At the bottom of the page, there is a dark blue footer with the text '© 2017 Aurora Multimedia Corp. All Rights Reserved.'

## General Settings Tab:

This page allows the user to change password, Factory Default, initiate firmware update mode and reboot the LXC-1.

The screenshot shows the 'LXC-1 - General Settings' page. At the top, there are three tabs: 'General Settings', 'Network Settings', and 'Port Settings'. The 'General Settings' tab is active. The page displays the following information and controls:

- Status:** IP Address : 192.168.1.100, Hostname : LXC-1, MAC Address : 00:11:02:BC:30:3A, Serial Number : 16340001, Firmware Revision : 01.08
- Change Password:** Two input fields for 'Enter new password' and 'Verify new password', with a 'Change Password' button.
- Reset Factory Defaults:** A 'Restore Defaults' button.
- Firmware Update Mode:** A 'Start Update' button.
- Restart LXC-1:** A 'Reboot' button.

At the bottom, there is a copyright notice: © 2017 Aurora Multimedia Corp. All Rights Reserved.

## Network Setting Tab:

The Network tab shows current IP settings, and allows the user to set the network parameters as needed, operating in DHCP or Static mode.

The screenshot shows the 'LXC-1 - Network Configuration' page. At the top, there are three tabs: 'General Settings', 'Network Settings', and 'Port Settings'. The 'Network Settings' tab is active. The page displays the following information and controls:

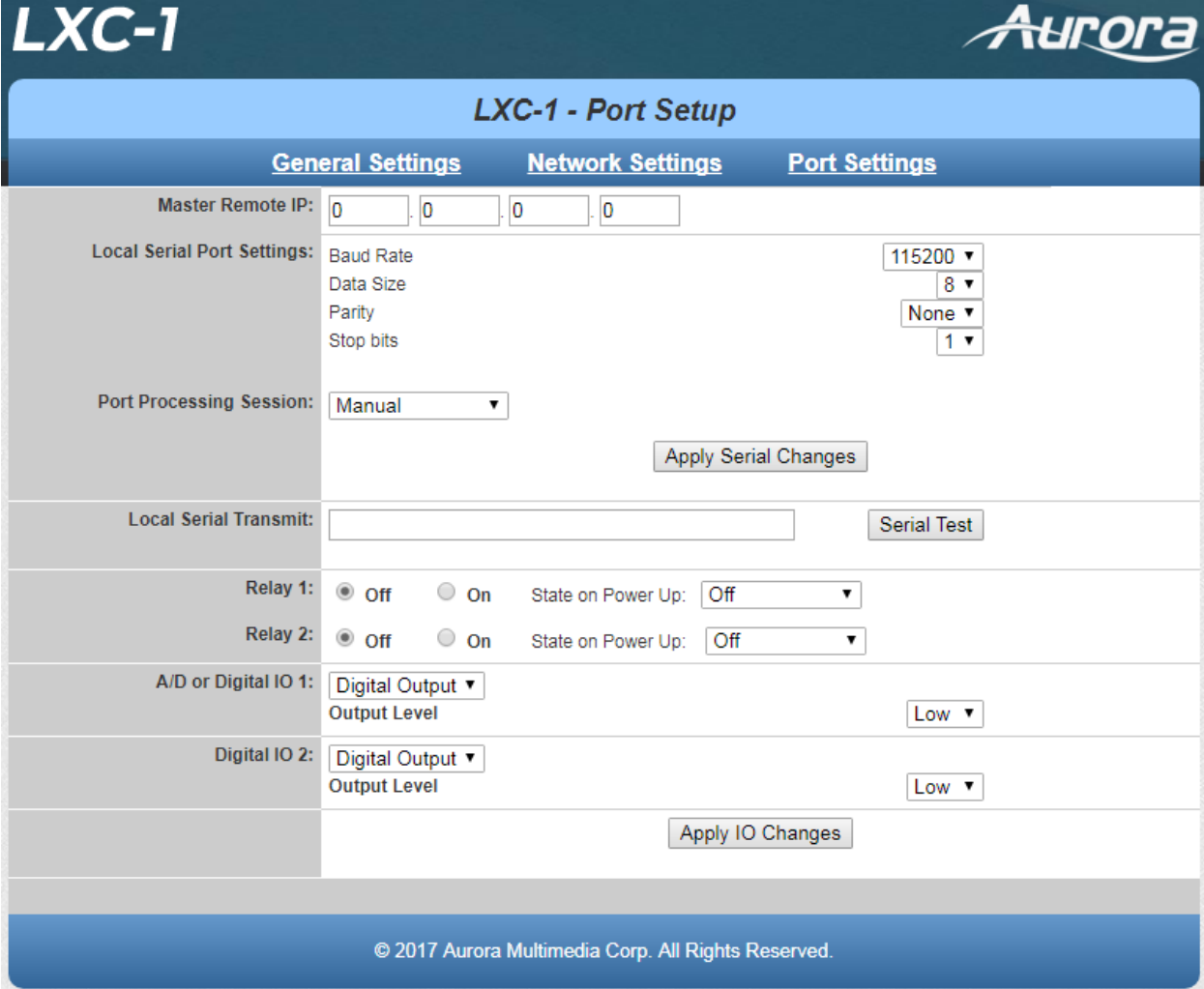
- Current Network Settings:** IP Address : 192.168.1.100, Subnet Mask : 255.255.0.0, Gateway : 192.168.1.1, Hostname : LXC-1, MAC Address : 00:11:02:BC:30:3A
- Network Configuration:**
  - DHCP:  ON  OFF
  - Static IP Address: 192 . 168 . 1 . 100
  - Subnet Mask: 255 . 255 . 0 . 0
  - Gateway: 192 . 168 . 1 . 1
  - Hostname: LXC-1
- Apply Changes:** A button to save the configuration.

At the bottom, there is a copyright notice: © 2017 Aurora Multimedia Corp. All Rights Reserved.



## Port Settings Tab:

The Port Settings tab allows user to change baud rate, relay and I/O states, as well as other communications options.



**LXC-1** Aurora

### LXC-1 - Port Setup

**General Settings**    **Network Settings**    **Port Settings**

**Master Remote IP:** 0 . 0 . 0 . 0

**Local Serial Port Settings:**

Baud Rate: 115200 ▼  
 Data Size: 8 ▼  
 Parity: None ▼  
 Stop bits: 1 ▼

**Port Processing Session:** Manual ▼

Apply Serial Changes

**Local Serial Transmit:** [Text Input]    Serial Test

**Relay 1:**  Off     On    State on Power Up: Off ▼

**Relay 2:**  Off     On    State on Power Up: Off ▼

**A/D or Digital IO 1:** Digital Output ▼  
 Output Level: Low ▼

**Digital IO 2:** Digital Output ▼  
 Output Level: Low ▼

Apply IO Changes

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**Master Remote IP:** This IP address is used to associate the LXC-1 with a target control server, such as a QXT-700 or other QX series controllers.

**Local Serial Port Settings:** Allows user to select baud rate and associated parameters for RS232.

## Port Processing Session:

**Manual:** Default, no action taken.

**Push to Variable:** This setting allows the user to target a variable on a remote control server (OX / QXT). When enabled, and incoming RS232 data will be 'pushed' to the remote variable as set by the 'Target RPC Variable Name'.

Port Processing Session:

Remote Session IP Address

Target RPC Variable Name

**Push to Port:** This setting direct incoming RS232 data to a remote serial port on another controller or port expander.

Port Processing Session:

Remote Session IP Address

Target RPC Serial Port Number

**Telnet Client / Server:** These setting allow RS232 data to be sent to a remote Telnet Server, or have incoming Telnet data pass to the local RS232 port.

Port Processing Session:

Remote Session IP Address

Telnet Remote Port Number

Telnet Timeout Seconds

Port Processing Session:

Telnet Local Port Number

**Local Serial Transmit:**

This is used for testing / diagnostics. String data entered here will be sent out of the RS232 port.

Example: Hello World%0d

Local Serial Transmit:

**Relay 1 & 2 Settings:**

You can set the active state of the relay(s) by clicking on OFF or ON. The power-up state of the relays can also be chosen as ON, OFF, or LAST.

Relay 1:  Off  On State on Power Up:

Relay 2:  Off  On State on Power Up:

*(Dropdown menu for Relay 2 State on Power Up is open, showing: Off, On, Last Set State)*

**A/D Digital IO 1 & Digital IO 2:**

The IO ports allow detect incoming signal levels, or output signal levels. Port 1 operates as Digital or Analog input/output. Port 2 operates as digital input/output only.

A/D or Digital IO 1:

Digital IO 2:

**Digital Output:** The settings available are LOW (Closed / Low Z) and HIGH (Open / High Z)

### A/D Digital IO 1 & Digital IO 2: (continued)

**Digital Input:** This mode is used to detect a dry contact closure to ground (Pull-Up mode), or detect a logic high (High Impedance mode). When a state change is detected, a corresponding remote IP/Variable can be set to 1 or 0, reflecting High/Low state.

**Digital Input** ▼  
 Input Mode  
 Remote Notify IP Address: 192 . 168 . 17 . 34  
 Notify Variable Name: myDigVar2

Pull Up ▼

Here's a schedule for the variable notification values:

|               |                |                  |           |                 |
|---------------|----------------|------------------|-----------|-----------------|
| Digital Input | Pull Up Mode   | Open             | LED = On  | Notify Data = 1 |
| Digital Input | Pull Up Mode   | Closed / Shorted | LED = Off | Notify Data = 0 |
| Digital Input | High Impedance | 0vdc In          | LED = Off | Notify Data = 0 |
| Digital Input | High Impedance | 5vdc In          | LED = On  | Notify Data = 1 |

**Analog Input:** This mode will read incoming voltage (0-5vdc) and associate a digital value representing the voltage level, 0000 – 5000 (Approximately). If you set a Range (Min / Max) and select Entry and Exit reports, the current value will be pushed to variable up detecting In/Out of range.

**A/D or Digital IO 1:** **Analog Input** ▼  
 Remote Notify IP Address: 192 . 168 . 15 . 110  
 Notify Variable Name: myAnalogVar  
 Notify Range Min 0-5volts: 3.0  
 Notify Range Max 0-5volts: 5.0  
 Notify on Range Entry    
 Notify on Range Exit

Here's a schedule for the variable notification values: (These are approximate, your values will differ)

|              |           |                   |                     |
|--------------|-----------|-------------------|---------------------|
| Analog Input | 0.0vdc In | LED = Off         | Notify Data = ~0000 |
| Analog Input | 2.5vdc In | LED = On (Med)    | Notify Data = ~2500 |
| Analog Input | 5.0vdc    | LED = On (Bright) | Notify Data = ~5000 |

## APPENDIX 1 Troubleshooting

| Problem                          | Solution  |
|----------------------------------|---|
| 1. LED is not lit on any buttons | <ul style="list-style-type: none"><li>a. Check 5v power supply is plugged in locally or if connected to DXW-2 make certain the DXW-2 has power.</li><li>b. Check to see if Wall supply is plugged into wall outlet.</li><li>c. Make certain wall outlet has power.</li><li>d. Make certain RS-232 command for LED state is not set to none for the buttons.</li></ul> |
| 2. RS-232 does not work          | <ul style="list-style-type: none"><li>a. Check connection on RS-232 port. Make certain TX goes to RX and RX goes to TX of the device to be connected. Don't forget about ground.</li><li>b. Check baud rate.</li><li>c. Verify commands being sent are correct protocol.</li><li>d. Each unit must have a unique address.</li></ul>                                   |
| 3. Some functions do not work    | <ul style="list-style-type: none"><li>a. Make certain unit has latest firmware.</li></ul>   |

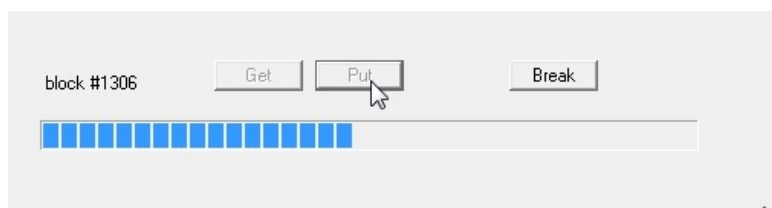
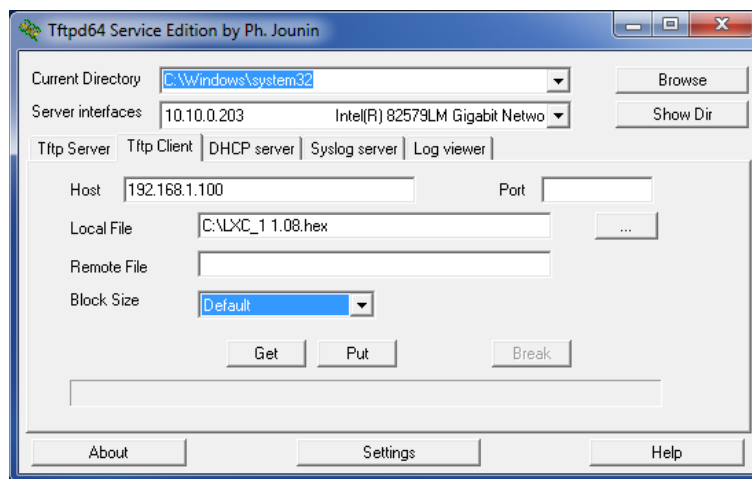
## APPENDIX 2 Firmware Update

To update firmware, web into the controller. Example: 192.168.1.100/setup.

Note: User & Password default is admin / admin.

If IP or password is unknown, factory reset unit by press-n-hold SETUP button >10 sec, which will revert unit back to default IP 192.168.1.100. On the General Settings tab, press the **START UPDATE** button to put LXC-1 into FW Update Mode.

Once in FW Update mode, use [TFTP program](#) as shown below, setting Host IP (LXC-1 IP) and selecting firmware file, then press **PUT** to load firmware. Unit will reboot and you're ready to go.



## APPENDIX 3 Technical Specifications

|                           |   |
|---------------------------|---|
| Model Name                | DXB-8   |
| Technical                 | DXB-8   |
| RS-232 Baud Rate          | Max 115kbps (Factory default is 9600)                       |
| Front Selections          | 8 Backlit Buttons (Red, Green, Blue)                        |
| RS-232 Connector Port     | 4 pin 3.81mm Euro   |
| IR Port                   | 2 pin 3.81mm Euro   |
| Mechanical                | DXB-8   |
| Housing                   | Plastic front with aluminum rear enclosure                  |
| Dimensions<br>[L x W x D] | 1.44"x4.331"x.76"<br>Note: Wall box portion depth .48"      |
| Weight                    | .38lbs  |
| Mounting                  | Wall-mounting Decora® 1 Gang                                |
| Power supply              | POE or 48vdc  |
| Power consumption         | 1 Watts [max]   |
| Operation temperature     | 0~40°C [32~104°F]   |
| Storage temperature       | -20~60°C [-4~140°F]   |
| Relative humidity         | 20~90% RH [no condensation]                                 |
| Package Contents          | 1x DXB-8<br>1x Paintable White Wall Plate<br>1x User Manual |
| Options                   | 48v DC power Supply for stand-alone operation (PS0081-1)    |

**Specifications subject to change without notice.**

## APPENDIX 4    Warranty

### Limited 3 Year Warranty

Aurora Multimedia Corp. ("Manufacturer") warrants that this product is free of defects in both materials and workmanship for a period of 3 years as defined herein for parts and labor from date of purchase. This Limited Warranty covers products purchased in the year of 2009 and after. Motorized mechanical parts (Hard Drives, DVD, etc), mechanical parts (buttons, doors, etc), remotes and cables are covered for a period of 1 year. Touch screen displays are covered for 1 year; touch screen overlay components are covered for 90 days. Supplied batteries are not covered by this warranty. During the warranty period, and upon proof of purchase, the product will be repaired or replaced (with same or similar model) at our option without charge for parts or labor for the specified product lifetime warranty period.

This warranty shall not apply if any of the following:

- A. The product has been damaged by negligence, accident, lightning, water, act-of-God or mishandling; or,
- B. The product has not been operated in accordance with procedures specified in operating instructions; or,
- C. The product has been repaired and or altered by other than manufacturer or authorized service center; or,
- D. The product's original serial number has been modified or removed; or,
- E. External equipment other than supplied by manufacturer, in determination of manufacturer, shall have affected the performance, safety or reliability of the product.
- F. Part(s) are no longer available for product.

In the event that the product needs repair or replacement during the specified warranty period, product should be shipped back to Manufacturer at Purchaser's expense. Repaired or replaced product shall be returned to Purchaser by standard shipping methods at Manufacturer's discretion. Express shipping will be at the expense of the Purchaser. If Purchaser resides outside the contiguous US, return shipping shall be at Purchaser's expense.

**No other warranty, express or implied other than Manufacturer's shall apply.**

Manufacturer does not assume any responsibility for consequential damages, expenses or loss of revenue or property, inconvenience or interruption in operation experienced by the customer due to a malfunction of the purchased equipment. No warranty service performed on any product shall extend the applicable warranty period. This warranty does not cover damage to the equipment during shipping and Manufacturer assumes no responsibility for such damage.



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