LINQ™

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LINQ8PD Series
Network Power Distribution Modules

Models Include:

LINQ8PD
- Network Power Distribution Module
- Eight (8) Fused Outputs

LINQ8PDCB
- Network Power Distribution Module
- Eight (8) PTC Outputs

Installation and Programming Manual

Altronix®

More than just power.™

Installing Company: _____ Service Rep. Name: _____

Address: _____ Phone #: _____

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Overview:

Altronix LINQ8PD(CB) network power distribution module facilitates monitoring, reporting, and control of one (1) or two (2) low voltage AC or supervised DC power supply/chargers over the network. It reports diagnostics via Email and Windows Dashboard Alert notifications, greatly reducing system downtime and eliminating unnecessary service calls. LINQ8PD(CB) retrofits with most currently installed multi-output power supply/chargers.

Specifications:

Input Power:
- Input1/Input2: 12VAC-28VAC @ 12.5A each or 12VDC/28VDC @ 12.5A each.
  Note: Do not connect AC and DC simultaneously to INP1 and INP2.

Outputs:
- Eight (8) fused or PTC protected outputs:
  - LINQ8PD: Blade fuses are rated 3A.
  - LINQ8PDCB: PTCs are rated 2.5A.
- Power output(s) can be locally or remotely controlled.
- Surge suppression.

Status Monitoring:
- Power Supply(ies) output voltage and load.
- Voltage and load of each output.
- FACP trigger and reset status.
- Unit temperature (Celsius).
- Power Supply AC and Battery status.
- Battery health.

Network Security:
- Secure Socket Layer (SSL).

Reporting:
- Windows Dashboard Alert notifications.
- Email notifications.
- Event Log tracks history.

Fire Alarm Interface:
- Supervised FACP disconnect (Latching or Non-Latching).
- FACP reset (N.C. or N.O.).

Programming Features:
- Power Supply(ies) voltage and load limits (High/Low).
- FACP trigger type (wet or dry - N.O./N.C.).
- Input Function (FACP reset/tamper).
- Output Reset Trigger (N.O./N.C.).
- Battery Monitor Configuration:
  - Battery condition (Low/Normal/Missing)
  - Service Date
- Configurable Output Relay(s).
- Individual Output Configuration:
  - Device ID
  - Voltage and Current Limits (High/Low)
  - FACP Trigger Setting (latching/non-latching/inactive)
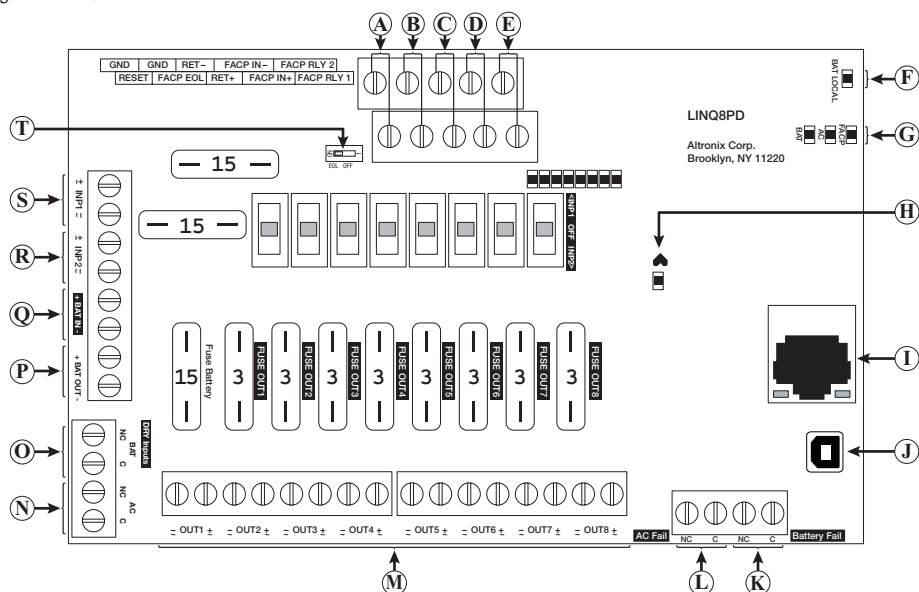 - Battery Backup.

Environmental:
- Operating temperature:
  − 20°C to 49°C (− 4°F to 120.2°F).
- Storage temperature:
  − 30ºC to 70ºC (− 22ºF to 158ºF).

Mechanical:
- Board Dimensions (L x W x H):
  5.5" x 3.625" x 0.96"
  (139.7mm x 92.1mm x 24.4mm)
- Product weight (approx.): 0.4 lb. (0.18kg).
- Shipping weight (approx.): 0.7 lb. (0.32kg).

Terminal/Connector Identification:

Fig. 1 - **LINQ8PD**

	Terminal/Legend	Description
Ⓐ	GND, RESET	FACP reset.
Ⓑ	GND, FACP EOL	Connects to EOL or next LINQ8PD(CB).
Ⓒ	+ RET −	FACP EOL or next LINQ8PD(CB).
Ⓓ	FACP − IN +	Wet input from FACP +.
Ⓔ	FACP RLY 1, 2	Relay1 Programmable for FACP reporting/dry FACP interconnect to next LINQ8PD(CB) or Tamper.
Ⓕ	BAT Local LED	Indicates battery(ies) thresholds.
Ⓖ	FACP/AC/BAT LEDs	Indicates status of FACP, AC and Battery.
Ⓗ	Heartbeat LED	Indicates the LINQ8PD(CB) is operational.
Ⓘ	RJ45	Ethernet: LAN or laptop connection enables LINQ8PD(CB) programming and status monitoring.
Ⓙ	USB	Laptop connection enables LINQ8PD(CB) for Network setup and factory restore via Altronix dashboard.
Ⓚ	Battery Fail NC, C	Relay3 - Programmable for Battery Fail reporting or Tamper. Contact rating 1A @ 30VDC.
Ⓛ	AC Fail NC, C	Relay3 - Programmable for AC Fail or AC Fail & Battery Fail reporting. Contact rating 1A @ 30VDC (power-limited).
Ⓜ	− OUT1 + to − OUT8 +	24VAC/28VAC or 12VDC/24VDC continuous output.
Ⓝ	AC / NC, C	Connection to [AC Fail] terminals on power supply.
Ⓞ	BAT / NC, C	Connection to [BAT Fail] terminals on power supply.
Ⓟ	+ BAT OUT −	Connection to stand-by batteries.
Ⓠ	+ BAT IN −	Connection to [+ BAT −] terminals on power supply.
Ⓡ	+ INP2 −	Second AC or DC power supply input. **Note:** Do not connect AC and DC simultaneously to INP1 and INP2.
Ⓢ	+ INP1 −	First AC or DC power supply input. **Note:** Do not connect AC and DC simultaneously to INP1 and INP2.
Ⓣ	EOL OFF	Internal FACP 2.2K ohm resistor ON/OFF switch.

LED Diagnostics:

LED	Flash Codes	Description
BAT LOCAL	ON	Charge/Discharge current working properly
	Blinking	Charge/Discharge current on the battery exceed limits
FACP	ON	Fire Alarm Condition.
	OFF	Normal.
AC	ON	AC trouble.
	OFF	Normal.
BAT	ON	Battery trouble.
	OFF	Normal.
OUT1-OUT8	ON	Output is ON.
	OFF	Output is OFF.
	Blinking	Output is ON and voltage and/or current exceeds limits.

Installation Instructions:

Wiring methods shall be in accordance with the National Electrical Code/NFPA 70/NFPA 72/ANSI, and with all local codes and authorities having jurisdiction.

Product is intended for indoor use only and should be installed by qualified personnel.

1. Disconnect the AC mains and batteries (if used) from the power supply(ies) before connecting the LINQ8PD(CB).

2. Mount LINQ8PD(CB) into position and secure with mounting screws. Use metal standoff for the lower right mounting hole (by the USB port). Plastic standoffs can be used for the rest of the mounting holes.

3. **Power Supply Input Connection:** The LINQ8PD(CB) can be connected to two independent AC or DC power supplies that can be routed through each of the individual outputs.
   Each output is equipped with an input selection switch that is used to route the desired input to the output. This switch also has a center OFF position that can be used to turn power off to an output.
   (a)Single Power Supply Input: Connect the output of the power supply to the terminals marked [+ INP1 –] and set the Input selection switch for each output to the [INP1] position.
   (b) **Dual Power Supply Inputs:** When the use of two independent power supplies is desired connect one power supply to the terminals marked [+ INP1 –] and the second power supply to the terminals marked [+ INP2 –]. Set the Input selection switch for each output to the appropriate position. Reconnect the AC mains of the connected power supply(ies) and verify the voltage of each of the eight outputs. This helps avoiding potential damage. Disconnect the AC mains of the connected power supply(ies).
   Note: Do not connect AC and DC simultaneously to INP1 and INP2.

4. **Output Connections:** Connect devices to be powered to the terminals marked [– OUT1 +] to [– OUT8 +] on LINQ8PD(CB) carefully observing polarity. When two power supplies are connected to the LINQ8PD(CB) verify that the output voltage matches the operating voltage of the connected devices.

5. **Battery Connections:**
   Skip this step when connecting AC power supplies or DC power supply(ies) without batteries.
   Connect the power supplies battery charging circuit to the terminals marked [+ BAT IN –], connect the battery leads to the terminals marked [+ BAT OUT –].
   Note: Do not connect battery(ies) until all connections have been made.
   For 24VDC operation connect two 12VDC batteries in series using the supplied yellow battery jumper. For Access Control applications batteries are optional. When batteries are not used, a loss of AC will result in the loss of output voltage. When the use of stand-by batteries is desired, they must be lead acid or gel type.

6. **Battery and AC Supervision Connections:**
   When connecting an AC power supply place a jumper across the AC and BAT input terminals.
   For proper operation, Dry AC and BAT Inputs (Fig. 1, pg. 4, P, Q) must be wired to Normally Closed (NC) monitoring contacts or shorted if not used.
   These connections are required to monitor AC and Battery Trouble conditions. These conditions cannot be monitored when connected to a non-supervised power supply. Connect the common [C] and normally closed [NC] contact of the power supplies AC and Battery supervision relay to the corresponding DRY Inputs of the LINQ8PD(CB). If required, connect supervisory trouble reporting devices to

outputs marked [AC Fail], [BATTERY Fail] and supervisory relay outputs marked [NC] and [C] to appropriate notification devices.
Use 22 AWG to 18 AWG for supervision reporting.

7. **Fire Alarm Interface options:** (not evaluated by UL).
The Fire Alarm Interface and Reset options are programmable via the web interface.
FAI input trigger options: supervised normally closed [NC], normally open [NO], polarity reversal input from signaling circuit or wet input will trigger selected outputs.

   (a) **Normally Open [NO] input:** Connect the supplied 2.2k resistor in parallel with the normally open trigger circuit to the terminals marked [GND], [FACP EOL].

   (b) **Normally Closed [NC] input:** Connect the supplied 2.2k resistor in series with the normally closed trigger circuit to the terminals marked [GND], [FACP EOL].

   (c) **Signaling Circuit/Wet input trigger:** Connect the positive (+) and negative (–) of the signaling circuit/ wet input trigger to the terminals marked [FACP IN +] and [FACP IN –].

   (d) **Fire Alarm Reset:** If a output is programmed to latch with manual reset, connect either a normally open (N.O.) or normally closed (N.C.) dry input to the terminals marked [RESET] and [GND].

   When daisy-chaining fire alarm signals, connect [FACR RLY1] and [FACP RLY2] on the first LINQ8PD to [GND] and [FACP EOL] of the next board and slide EOL switch to OFF. If dry contact is used, slide EOL switch to ON.

8. Reconnect AC power mains to the connected power supply(ies) and connect back-up batteries.

Network Setup:

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Altronix Dashboard USB Connection:

The USB connection on the LINQ8PD(CB) is used for Network. When connected to a PC via the USB cable the LINQ8PD(CB) will receive power from the USB port allowing programming of the LINQ8PD(CB) prior to being connected to the power supply.

1. Install the software supplied with the LINQ8PD(CB) on the PC being used for programming.
   This software should be installed on all computers that will have access to the LINQ8PD(CB).
2. Connect the supplied USB cable to the USB port on the LINQ8PD(CB) and the computer.
3. Double click on the **Dashboard icon** on the desktop of the computer and open the Dashboard.
4. Click on the button marked **USB Network Setup** in the upper hand side of the dashboard. This will open the USB Network Setup screen. In this screen the MAC Address of the LINQ8PD(CB) module will be found along with the Network Settings and Email Settings.

Network Settings:
In the IP Address Method field select the method by which the IP Address for the LINQ8PD(CB) will be obtained: **"STATIC"** or **"DHCP",** then follow the appropriate steps.

Static:
   a. **IP Address:** Enter the IP address assigned to the LINQ8PD(CB) by the network administrator.
   b. **Subnet Mask:** Enter the Subnet of the network.
   c. **Gateway:** Enter the TCP/IP gateway of the network access point (router) being used. **Note:** Gateway configuration is required to properly receive emails from the device.
   d. **Inbound Port (HTTP):** Enter the port number assigned to the LINQ8PD(CB) module by the network administrator to allow remote access and monitoring.
   e. Click the button labeled **Submit Network Settings**. A dialog box will display "New network settings will take effect after the server is rebooted". Click **OK**.

DHCP:
   A. After selecting DHCP in the IP Address Method field click the button labeled **Submit Network Settings**. A dialog box will display "New network settings will take effect after the server is rebooted". Click **OK**. Next, click on the button labeled **Reboot Server**. After rebooting the LINQ8PD(CB) will be set in the DHCP mode. The IP address will be assigned by the router when the LINQ8PD(CB) is connected to the network. It is recommended to have the assigned IP Address reserved to ensure continued access (see the network administrator).

B. Subnet Mask: When operating in DHCP, the router will assign the subnet mask values.
C. Gateway: Enter the TCP/IP gateway of the network access point (router) being used.
D. HTTP Port: Enter the HTTP port number assigned to the LINQ8PD(CB) module by the network administrator to allow remote access and monitoring. The default inbound port setting is 80. HTTP is not encrypted and unsecure. Even though HTTP can be used for remote access, it is recommended primarily for use with LAN connections.

Secure Network Setup (HTTPS):

In order to setup HTTPS for a Secure Network Connection, a Valid Certificate and Key must be used. Certificates and Key should be in a ".PEM" format. Self Certifications should only be used for testing
purposes as no actual authentication is being performed. In a Self-Certified mode, the connection will still state that it is unsecure. How to upload Certificate and Key to setup HTTPS:

1. Open Tab Labeled "Security"
2. Select Tab Labeled "Email/SSL"
3. Scroll to bottom under "SSL Settings"
4. Click "Select Certificate"
5. Browse and select valid Certificate to upload from server
6. Click "Select Key"
7. Browse and select valid Key to upload from server
8. Click "Submit Files"

Once the Certificate and Key is uploaded successfully you can proceed with setting up
HTTPS in Network Settings.

A. HTTPS Port: Enter the HTTPS port number assigned to the LINQ8PD(CB) module by the network administrator to allow remote access and monitoring. The default inbound port setting is 443. Being encrypted and more secure, HTTPS is highly recommended for remote access.
B. Click the button labeled **Submit Network Settings**.
A dialog box will display "New network settings will take effect after the server is rebooted". Click **OK**.

Browser Setup:

When not using the Altronix Dashboard USB connection for the initial Network setup the LINQ8PD(CB) needs to be connected to any DC power supply(ies) or eFlow power supply(ies) being monitored *(refer to Installing LINQ8PD(CB) Board on page 2 of these instructions)* prior to programing.

Factory Default settings
• IP Address: 192.168.168.168
• User Name: admin
• Password: admin

1. Set the static IP address for the laptop to be used for programming to the same network IP address as the LINQ8PD(CB), i.e. 192.168.168.200 (default address of the LINQ8PD(CB) is 192.168.168.168).
2. Connect one end of the network cable to the network jack on the LINQ8PD(CB) and the other to the network connection of the laptop.
3. Open a browser on the computer and enter "192.168.168.168" into the address bar.
A dialog box **Authentication Required** will appear requesting both user name and password.
Enter the default values here. Click on the button labeled **Log In**.
4. The status page of the LINQ8PD(CB) will appear. This page displays the real time status and health of each power supply connected to the LINQ8PD(CB).

Notes:

MEMBER