eFLOW™ PRO SERIES

eFlow15UB

Auto-Ranging Sub-Assembly Power Supply/Charger Board

Installation Guide

Altronix®

More than just power.™

Rev. 070125

Overview:

Altronix eFlow15UB Sub-Assembly power supply/charger converts a 100-265VAC, 50/60Hz input into a single 12 or 24VDC output. It also offers a suite of features that includes an independent charging circuit, fire alarm disconnect, overvoltage protection, and low power disconnect which prevents deep discharge of stand-by batteries. Network communication is provided via Altronix LINQ2 interface.

Specifications:

Agency Listings:

- UL 294, 8th Edition** - UL Listed Sub-Assembly for Access Control System Units.
  Access Control Performance Levels:
  Destructive Attack - I; Endurance - IV;
  Line Security - I; Stand-by Power: IV.
- CE European Conformity.

Input:

- Auto-ranging 100-265VAC, 50/60Hz, 2.5A.
- Removable AC input terminal block for maintenance and servicing
- Input fuse is rated 5A/250V

Output:

- Switch selectable:
  10A continuous max at 24VDC
  14A continuous max at 12VDC
- Overvoltage and short circuit protection.
- Regulated outputs.

Battery Backup:

- Independent 24VDC charging circuit which will backup both the 12VDC and 24VDC output
- Battery type:
  $LiFePO_4$ (Lithium Iron Phosphate), sealed lead acid or gel type batteries.
- 1A charging current.
- Instantaneous automatic switch over to stand-by battery when AC fails
- Battery fuse is rated 20A/32V.

Visual Indicators:

- See *LED Diagnostics Chart* for detailed description.

Fire Alarm Disconnect:

- Supervised Fire Alarm disconnect (latching or non-latching) 10K EOL resistor. Operates on a normally open (NO) or normally closed (NC) trigger.

Supervision:

- AC fail supervision (form "A" normally closed contacts).
- Battery fail and presence supervision (form "A" normally closed contacts).
- Low power shutdown. Shuts down DC output terminals if battery voltage drops below 70-75%. Prevents deep battery discharge
- Brownout detection
- Output short circuit protection with temporary shutdown
- Low charging voltage detection
- Weekly battery load test
- Critical component failure shutdown

Network Communication:

- LINQ2 Interface allows for remote supervision, control and monitoring over LAN/WAN.

Environmental:

- Temperature:
  Operating: 0ºC to 49ºC (32ºF to 120ºF)
  Storage: – 20ºC to 70ºC (– 4ºF to 158ºF)
- Relative Humidity: 85% +/– 5%

Board Dimensions (approximate L x W x H):

8.25" x 4.5" x 1.5" (209.5mm x 114.3mm x 38.1mm)

- eFlow15UB can be mounted in the following Altronix enclosures: BC300, BC400, BC800 (Maximal), Trove1, Trove2, Trove3, Trove1R, Trove2R.

Stand-by Specifications:

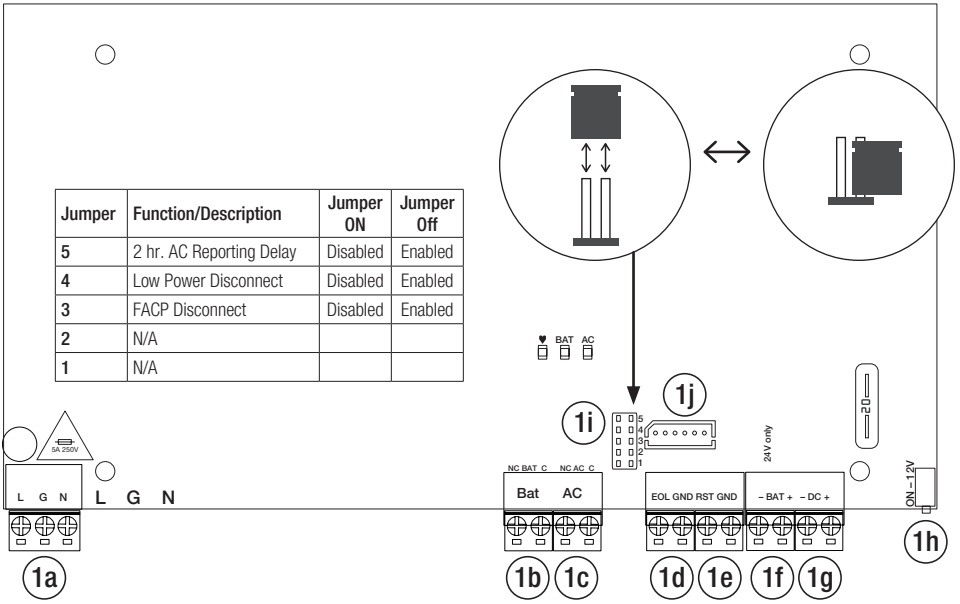
Battery/Stand-By Time	Specifications
24V/12AH (30 Minutes)	12V@14A, 24V@10A
24V/40AH (2 Hours)	12V@14A, 24V@10A
24V/65AH (4 Hours)	12V@14A, 24V@10A

Installation Instructions:

Wiring methods shall be in accordance with the National Electrical Code/NFPA 70/NFPA 72/ANSI, the Canadian Electrical Code and with all local codes and authorities having jurisdiction. Product is intended for indoor use only.

1. Refer to Sub-Assembly Installation Instructions for mounting Rev. MS020119.
2. Mount eFlow15UB board in the desired location/enclosure (mounting hardware included).
3. Set desired DC output voltage by setting SW1 to the appropriate position on the power supply board *(Fig. 1h, pg. 3)*.
4. Connect unswitched AC power (100-265VAC, 50/60Hz) to to the terminals marked [L, N], connect [G] terminal to earth ground *(Fig. 1a, pg. 3)*. Use 14 AWG or larger for all power connections.
   For output wiring, use suitable conduit to comply with electrical codes.
   Keep power-limited wiring separate from non power-limited wiring (100-265VAC, 50/60Hz Input, DC Output, Battery Wires). Minimum 0.25" spacing must be provided.
   CAUTION: Do not touch exposed metal parts.
   Shut branch circuit power before installing or servicing equipment.
   There are no user serviceable parts inside.
   Refer installation and servicing to qualified service personnel.

Fig. 1 - **eFlow15UB Configuration**



5. Measure output voltage before connecting devices. This helps avoiding potential damage.
6. Connect device(s) to be powered to terminals marked [– DC +] *(Fig. 1g, pg. 3)*.
7. When the use of stand-by batteries is desired, they must be $LiFePO_4$ or sealed lead acid or gel type.
   For both 12VDC and 24VDC outputs connect two (2) 12VDC batteries wired in series or one (1) 24V battery to terminals marked [– BAT +] *(Fig. 1f, pg. 3)*, carefully observing polarity (battery leads are included).
   When batteries are not used, a loss of AC will result in the loss of output voltage.
   Note: When using two 12V $LiFePO_4$ (lithium iron phosphate) batteries, check with manufacturer specifications that batteries can be connected in series. Batteries must be UL recognized.
   When using sealed lead acid or gel type, use the following: Casil CL1270 (12V/7AH), CL12120 (12V/12AH), CL12400 (12V/40AH), CL12650 (12V/65AH) batteries or UL recognized BAZR2 batteries of an appropriate rating. Separate enclosure must be used for housing 40AH or 65AH batteries.
8. Connect appropriate signaling notification devices to AC FAIL & BAT FAIL *(Fig. 1b, 1c, pg. 3)* supervisory relay outputs.

9. Remove shunt at position 3 on jumper switch to enable Fire Alarm Interface. Apply shunt to disable it.
   - If FACP is activated, 10 kOhm EOL resistor must terminate EOL GND loop *(Fig. 1d, pg. 3)*;
   - Place a jumper on RST GND terminals *(Fig. 1e, pg. 3)* for non-latching FACP.
   - A momentary short on these terminals resets FACP latching.
10. To enable Low Output Power Shutdown, remove shunt at position 4 on jumper switch *(Fig. 1i, pg. 3)*. Apply shunt to disable it.
11. To delay AC reporting for 2 hrs., remove shunt at position 5 on jumper switch *(Fig. 1i, pg. 3)*. Apply shunt to switch it back to instant reporting.

Connecting Optional LINQ2 Network Communications Module:

Connect interface cable supplied with LINQ2 to LINQ terminal on eFlow15UB *(Fig. 1j, pg. 3)*.
Refer to LINQ2 Installation and Programming Manual Rev. 060514.

Wiring:

Use 18 AWG or larger for all low voltage power connections.
Note: Take care to keep power-limited circuits separate from non power-limited wiring (100-264VAC Input, Battery).

Maintenance:

Unit should be tested at least once a year for the proper operation as follows:

Output Voltage Test: Under normal load conditions, the DC output voltage should be checked for proper voltage level.

Battery Test: Under normal load conditions check that the battery is fully charged, check specified voltage (28VDC approximately) both at the battery terminal and at the board terminals marked [– BAT +] to ensure that there is no break in the battery connection wires. To conduct battery load test disconnect the battery for 2 minutes. Reconnect the battery. During next 2 minutes the battery test will be conducted. If red LED keeps blinking once after 5 minutes, the battery is weak or undercharged.

Replacing Batteries: Disconnect existing batteries. Connect battery to the terminals marked [– BAT +]. Use two (2) 12VDC batteries connected in series or one (1) 24VDC battery.

LED Function Chart:

Function	Power Supply/LED Status		
	Hearbeat (Blue)	BAT (Red)	AC (Green)
Normal Operation	Blinking	Steady On	Steady On
No AC, Bat Normal	Blinking	Steady On	Blinking
AC, Bat Low	Blinking	Blinking	Steady On
No AC, Bat Low	Blinking	Blinking	Blinking
Low Power Disconnect	Blinking	5 Blinks, Pause	Blinking
1st Time On, No AC	Blinking	3 Blinks, Pause	3 Blinks, Pause
Improper Voltage at Startup	7 Blinks	7 Blinks	7 Blinks
Low Charging Voltage	6 Blinks	6 Blinks	6 Blinks
Critical Component Failure	1 Blink	1 Blink	1 Blink
Battery Load Test	Blinking	1 Blink	Steady On
Battery Critically Low or Missing	Blinking	4 Blinks	Steady On
Temporary Shutdown (output short circuit)	Blinking	2 Blinks	Steady On

Terminal Identification:

Terminal Legend	Function/Description
L, G, N *(Fig. 1a, pg. 3)*	Connect 100-265VAC, 50/60Hz, 2.5A to these terminals: L to hot, N to neutral, G to ground (non power-limited).
Bat Fail NC, C *(Fig. 1b, pg. 3)*	Indicates low battery condition, e.g. connect to alarm panel. Relay normally energized when DC power is present. Contact rating 1A @ 30VDC. A removed battery is reported within 5 minutes. Battery reconnection is reported within 1 minute (power-limited).
AC Fail NC C *(Fig. 1c, pg. 3)*	Indicates loss of AC power, e.g. connect to audible device or alarm panel. Relay normally energized when AC power is present. Contact rating 1A @ 30VDC (power-limited).
EOL GND *(Fig. 1d, pg. 3)*	Fire Alarm Interface trigger input from a short or FACP. Trigger inputs can be normally open, normally closed from an FACP output circuit (power-limited input).
RST GND *(Fig. 1e, pg. 3)*	FACP interface latching or non-latching (power-limited).
– BAT + *(Fig. 1f, pg. 3)*	Stand-by battery connections. 24VDC/1A charging current (non power-limited).
– DC + *(Fig. 1g, pg. 3)*	12 or 24VDC output to device(s). 10A continuous max at 24VDC, 14A continuous max at 12VDC.
LINQ Terminal *(Fig. 1j, pg. 3)*	Connect optional LINQ2 Network Communications Module (not included) to this terminal. Use interface cable supplied with LINQ2 (power-limited).

Notes:

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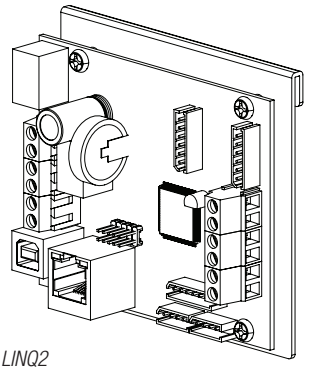
eFlow Power Supply/Chargers can be Controlled and Monitored while Reporting Power/Diagnostics from Anywhere over the Network...



LINQ2

LINQ™

LINQ2 - Network Communication Module

LINQ2 provides remote IP access to real-time data from eFlow power supply/chargers to help keep systems up and running at optimal levels. It facilitates fast and easy installation and set-up, minimizes system downtime, and eliminates unnecessary service calls, which helps reduce Total Cost of Ownership (TCO) - as well as creating a new source of Recurring Monthly Revenue (RMR).

Features:

- UL Listed in the U.S. and Canada.
- Local or remote control of up to (2) two Altronix eFlow power output(s) via LAN and/or WAN.
- Monitor real time diagnostics: DC output voltage, output current, AC & battery status/service, input trigger state change, output state change and unit temperature.
- Access control and user managment: Restrict read/write, Restrict users to specific resources
- Two (2) integral network controlled Form "C" Relays.
- Three (3) programmable input triggers: Control relays and power supplies via external hardware sources.
- Email and Windows Dashboard notifications
- Event log tracks history.
- Secure Socket Layer (SSL).
- Programmable via USB or web browser - includes operating software and 6 ft. USB cable.

LINQ2 Mounts Inside any eFlow Enclosure