eFlowNB Series

UL Listed Sub-Assembly
Power Supply/Charger Boards

Models Include:

eFlow4NB
- 12 or 24VDC @ 4A

eFlow6NB
- 12 or 24VDC @ 6A

eFlow102NB
- 12VDC @ 10A

eFlow104NB
- 24VDC @ 10A

Installation Guide

Altronix®

Rev. EFNB-021319

More than just power.™

Overview:

Altronix eFlow power supply/chargers convert a 120VAC, 60Hz input to a 12VDC or 24VDC output.

Specifications:

Altronix Model Number	Input Rating 120VAC 60Hz	Output Voltage (Current)		Power-Limited Output	Aux. Power-Limited Output (unswitched)	Maximum Charge Current
		12VDC	24VDC			
eFlow4NB	3.5A	4A	4A	✓	1A	1.54A
eFlow6NB	3.5A	6A	6A	– *	1A	1.54A
eFlow102NB	3.5A	10A	–	– *	1A	1.54A
eFlow104NB	4.5A	–	10A	– *	1A	1.54A

All of the above UL Listed Sub-Assembly Power Supply/Chargers can be installed in Trove1 and Trove2 Access and Power Integration Systems and Maximal Series.

*For UL603 applications, or if a power-limited output is required in the end-product application, the DC output from the power supply must be connected to a separately Listed control unit or accessory board that provides power-limited outputs. The product(s) providing the power-limited output(s) must be listed as appropriate for the particular end-product application (fire alarm, burglar alarm, access control) and wired in accordance with the products installation instructions. Class 1 wiring methods, separation of circuits, and proper fire-rated enclosures all must be considered when connecting the DC output of the power supply to the end-product devices.
The auxiliary outputs of these units are power-limited.

Agency Listings:

UL Listed Sub-Assembly for US Installations:
UL 294, 7th Edition** - UL Listed for Access Control System Units.
UL 603 - UL Listed for Power Supplies for Use with Burglar-Alarms Systems.
UL 1481 - UL Listed for Power Supplies for Fire Protective Signaling Systems.

UL Listed Sub-Assembly for Canadian Installations:
ULC-S318-96 - Power Supplies for Burglar Alarm Systems. Also suitable for Access Control.
ULC-S319-05 - Electronic Access Control Systems. Class I Equipment.
CSA C22.2 No.205 - Signal Equipment.

**UL294 7th Edition Access Control Performance Levels:

Altronix Model Number	Performance Level			
	Destructive Attack	Endurance	Line Security	Stand-by Power
eFlow4NB	N/A	I	I	7AH - I, 12AH - II, 40AH - IV, 65AH - IV
eFlow6NB	N/A	I	I	7AH - I, 12AH - I, 40AH - IV, 65AH - IV
eFlow102NB	N/A	I	I	7AH - I, 12AH - I, 40AH - III, 65AH - IV
eFlow104NB	N/A	I	I	7AH - I, 12AH - I, 40AH - III, 65AH - IV

Specifications:

Output:
- Main and Aux Output of the eFlow4NB are Class 2 Rated power-limited output.
- Overvoltage protection.
- Filtered and electronically regulated outputs.

Battery Backup:
- Built-in charger for sealed lead acid or gel type batteries.
- Automatic switch over to stand-by battery when AC fails.
- Transfer to stand-by battery power is instantaneous with no interruption.

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 "C" contacts).
- Battery fail and presence supervision (form "C" contacts).
- Low power shutdown. Shuts down DC output terminals if battery voltage drops below 80% of nominal. Prevents deep battery discharge.

Visual Indicators:
- Green AC Power LED indicates 120VAC present.
- AC input and DC output LED indicators.

Additional Features:
- Short circuit and overload protection.

Board Dimensions (approximate L x W x H)**:**

eFlow4NB, eFlow6NB, eFlow102NB:
7.5" x 4.6" x 1.75" (190.5mm x 116.8mm x 44.5mm)

eFlow104NB:
8.25" x 4.56" x 1.5" (209.5mm x 115.8mm x 38.1mm)

Stand-by Specifications:

eFlow4NB:

Battery	Burg. Applications 4 hr. Stand-by/15 min. Alarm	Fire Applications 24 hr. Stand-by/5 min. Alarm	Access Control Applications Stand-by
7AH	0.4A/4A	–	15 Mins./4A
12AH	1A/4A	0.3A/4A	35 Mins./4A
40AH	4A/4A	1.2A/4A	Over 4 Hours/4A
65AH	4A/4A	1.5A/4A	Over 4 Hours/4A

eFlow6NB:

Battery	Burg. Applications 4 hr. Stand-by/15 min. Alarm	Fire Applications 24 hr. Stand-by/5 min. Alarm	Access Control Applications Stand-by
7AH	0.4A/6A	–	10 Mins./6A
12AH	1A/6A	0.3A/6A	35 Mins./6A
40AH	6A/6A	1.2A/6A	Over 4 Hours/6A
65AH	6A/6A	1.5A/6A	Over 4 Hours/6A

eFlow102NB:

Battery	Burg. Applications 4 hr. Stand-by/15 min. Alarm	Fire Applications 24 hr. Stand-by/5 min. Alarm	Access Control Applications Stand-by
7AH	0.4A/10A	N/A	5 Mins./10A
12AH	1A/10A	0.3A/10A	15 Mins./10A
40AH	6A/10A	1.2A/10A	Over 2 Hours/10A
65AH	6A/10A	1.5A/10A	Over 4 Hours/10A

eFlow104NB:

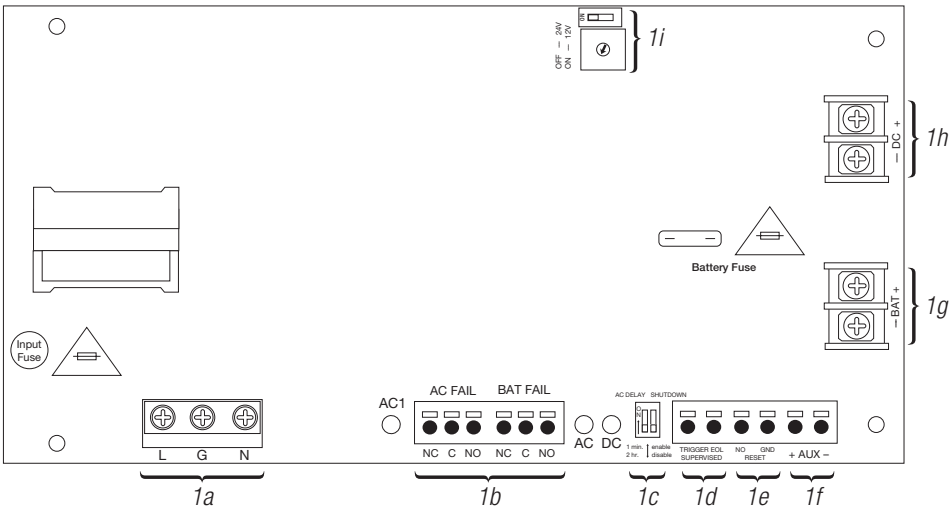
Battery	Burg. Applications 4 hr. Stand-by/15 min. Alarm	Fire Applications 24 hr. Stand-by/5 min. Alarm	Access Control Applications Stand-by
7AH	0.4A/10A	N/A	5 Mins./10A
12AH	1A/10A	0.3A/10A	15 Mins./10A
40AH	6A/10A	1.2A/10A	Over 2 Hours/10A
65AH	6A/10A	1.5A/10A	Over 4 Hours/10A

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 eFlow 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. 1i, pg. 4)*.
4. Connect unswitched AC power (120VAC 60Hz) to terminals marked [L, G, N] *(Fig. 1a, pg. 4)*.
   Use 14 AWG or larger for all power connections. Secure green wire lead to earth ground.
   Keep power-limited wiring separate from non power-limited wiring (120VAC 60Hz Input, DC Output (refer to Specifications chart pg. 2), 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.
5. Measure output voltage before connecting devices. This helps avoiding potential damage.
6. Connect devices to be powered to terminals marked [– DC +] *(Fig. 1h, pg. 4)*.
   For auxiliary device connection this output will not be affected by Low Power Disconnect or Fire Alarm Interface. Connect device to terminals marked [+ AUX –] *(Fig. 1f, pg. 4)*.
7. 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. Connect battery to terminals marked [– BAT +] *(Fig. 1g, pg. 4)*. Use two (2) 12VDC batteries connected in series for 24VDC operation (battery leads included). Use batteries - Casil CL1270 (12V/7AH), CL12120 (12V/12AH), CL12400 (12V/40AH), CL12650 (12V/65AH) batteries or UL recognized BAZR2 batteries of an appropriate rating.
   Note: Separate enclosure must be used for housing 40AH or 65AH batteries.
8. Connect appropriate signaling notification devices to AC FAIL & BAT FAIL *(Fig. 1b, pg. 4)* supervisory relay outputs.
9. To delay AC reporting for 2 hrs., set SW2 to appropriate DIP switch position [AC Delay] *(Fig. 1c, pg. 4)*.
10. To enable or disable Low Output Power Shutdown set SW2 to appropriate DIP switch position [Shutdown] *(Fig. 1c, pg. 4)*.
11. A short or NO or NC input triggers FACP [Trigger EOL Shutdown] *(Fig. 1d, pg. 4)*.
12. Place a jumper for non-latching FACP. A momentary short on these terminals resets FACP latching [Trigger EOL Shutdown] *(Fig. 1e, pg. 4)*.

Fig. 1 - **eFlowNB Configuration**



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 (120VAC, 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 (12VDC @ 13.2 or 24VDC @ 26.4) both at the battery terminal and at the board terminals marked [– BAT +] to ensure that there is no break in the battery connection wires.

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

LED Diagnostics:

Red (DC)	Clear (AC1) / Green (AC)	Power Supply Status
ON	ON	Normal operating condition.
ON	OFF	Loss of AC. Stand-by battery is supplying power.
OFF	ON	No DC output.
OFF	OFF	Loss of AC. Discharged or no stand-by battery. No DC output.

Terminal Identification:

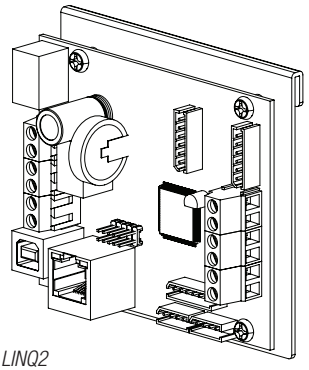
Terminal Legend	Function/Description
L, G, N	Connect 120VAC 60Hz to these terminals: L to hot, N to neutral, G to ground (non power-limited) *(Fig. 1a, pg. 4)*.
– DC + *(Fig. 1h, pg. 4)*	**eFlow4NB:** 12VDC or 24VDC @ 4A continuous output (Power-Limited output). **eFlow6NB:** 12VDC or 24VDC @ 6A continuous output (Non Power-Limited output). **eFlow102NB:** 12VDC @ 10A continuous output (Non Power-Limited output). **eFlow104NB:** 24VDC @ 10A continuous output (Non Power-Limited output).
Trigger EOL Supervised	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) *(Fig. 1d, pg. 4)*.
NO, GND RESET	FACP interface latching or non-latching (Power-Limited) *(Fig. 1c, pg. 4)*.
+ AUX –	Auxiliary Power-Limited output rated @ 1A (unswitched) (Power-Limited output) *(Fig. 1f, pg. 4)*.
AC Fail NC, C, NO	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) *(Fig. 1b, pg. 4)*.
Bat Fail NC, C, NO	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) *(Fig. 1b, pg. 4)*.
– BAT +	Stand-by battery connections. Maximum charge current 1.54A (non power-limited) *(Fig. 1g, pg. 4)*.

UL Model Reference Chart:

UL Listed Sub-Assembly Board	Power Supply Series		Enclosures
eFlow4NB	eFlow4N	Maximal11F	BC300, BC400, BC800 (Maximal), Trove1 and Trove2
eFlow6NB	eFlow6N	Maximal33F	BC300, BC400, BC800 (Maximal), Trove1 and Trove2
eFlow102NB	eFlow102N	Maximal55F	BC300, BC400, BC800 (Maximal), Trove1 and Trove2
eFlow104NB	eFlow104N	Maximal77F	BC300, BC400, BC800 (Maximal), Trove1 and Trove2

Notes:

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