HOCHIKI
america corporation

FN-1042-ULADA
NAC Power Extender

Installation Guide

(See Application Guide for additional information)

UL MEA Approved FM APPROVED

Rev. 101413

FN-1042-ULADA - NAC Power Extender

Overview:

The Hochiki FN-1042-ULADA is an extremely cost effective 10 amp remote power supply/battery charger. It may be connected to any 12 or 24 volt Fire Alarm Control Panel (FACP). Primary applications include Notification Appliance Circuit (NAC such as strobes and horns) expansion support to meet ADA requirements. It also provides auxiliary power to support system accessories. The unit delivers electronically regulated and filtered 24 volt power to Class B, Style W, Y or Class A, Style Z NAC loop circuits. Additionally, a separate 1 amp auxiliary output for 4-wire smoke detectors is available. The 10 amp max. alarm current can be divided between the four (4) outputs for powering NAC devices. Each output is rated at 2.5 amp max. and can be independently programmed for Steady, Temporal Code 3 or Strobe Synchronization. All outputs may be programmed for Input to Output Follower Mode (output will follow input. i.e. March Time Input, March Time Output). In non-alarm condition independent loop supervision for Class A, Style Z and/or Class B, Style W, Y FACP NAC circuits is provided. In the event of a loop trouble, the FACP will be notified via the steered input (input 1 or input 2). In addition, there are common trouble output terminals [NC, C, NO] which are used to indicate general loop/system trouble. A common trouble input is provided for optional [NC] (normally closed) devices to report trouble to the FACP. Two (2) FACP signaling outputs can be employed and directed to control supervision and power delivery to any combination of the four (4) outputs.

Specifications:

Agency Listings:

- UL Listed for Control Units for Fire Protective Signaling Systems (UL 864).
- MEA - NYC Department of Buildings Approved.
- CSFM - California State Fire Marshal Approved.
- FM - Factory Mutual Approved.
- NFPA 72 Compliant.

Input:

- Power input 120VAC / 60 Hz, 5 amp.
- Two (2) Class A, Style Z or two (2) Class B, Style W, Y FACP inputs.
- Two (2) NC dry contact trigger inputs.

Output:

- Class 2 Rated power limited outputs.
- 24VDC voltage regulated power limited outputs.
- 10 amp max total alarm current.
- 2.5A max current per output.
- Two auxiliary outputs rated at 1 amp each (1 amp continuous, 1 amp AC disconnect).
- Programmable supervised indicating circuit outputs: Four (4) Class B, Style W, Y or Four (4) Class A, Style Z or Two (2) Class A, Style Z and Two (2) Class B, Style W, Y *(see Application Guide)*.
- Thermal and short circuit protection with auto reset.

Battery Backup:

- Built-in charger for sealed lead acid or gel type batteries.
- Automatic switchover to stand-by battery when AC fails.
- Zero voltage drop when switching over to battery backup.

Supervision:

- AC fail supervision (form “C” contact, 1 amp / 28VDC). Factory set for 1.5 hours with optional 30 seconds delay setting (field selectable).
- Instant local AC trouble reporting relay (form “C” contact, 1 amp / 28VDC).

Supervision *(cont’d)*:

- Battery presence and low battery supervision (form “C” contact, 1 amp / 28VDC).

Visual Indicators:

- Input and output status LED indicators.

Special Features:

- 2-wire horn/strobe Sync mode allows audible notification appliances (horns) to be silenced while visual notification appliances (strobes) continue to operate.
- Sync protocols include Potter/Amseco, Faraday, Gentex®, System Sensor®, and CooperWheelock®.
- Temporal Code 3, Steady Mode, Input to Output Follower Mode (maintains synchronization of notification appliances circuit).
- Compatible with 12VDC or 24VDC fire panels.
- Output loop supervision directed to input 1 or input 2.
- Signal Circuit Trouble Memory - facilitates quick identification of an intermittent/fault (short circuit, open or ground) which has previously occurred on one or more signaling circuit outputs. LEDs indicate/identify which output the fault has occurred.
- Common trouble input and output.
- Ground fault detection.
- Unit includes power supply, logic board enclosure, cam lock, and battery leads.

Enclosure Dimensions *(approx. H x W x D)*:

18” x 14.5” x 4.5” (457.2mm x 368.3mm x 114.3mm).

FN-1042-ULADA-G (Grey Enclosure)
FN-1042-ULADA-R (Red Enclosure)
FN-1042-ULADA-C (Charcoal Grey Enclosure)
FN-1042-ULADA-B (Black Enclosure)

Power Supply Specifications:

AC Input:	120VAC 60Hz, 5 amp, supplied by a maximum 15 amp dedicated branch circuit.
Output:	Four (4) regulated supervised NAC output circuits, 24VDC, 2.5 amp maximum current. One (1) aux. special application 24VDC power output circuit 1 amp, non-supervised total output current must not exceed current 10 amp in Alarm Condition.
Battery:	Use two (2) 12VDC / 12AH or two (2) 12VDC / 7AH batteries connected in series.
Stand-by/Alarm Current Consumption:	130mA/300mA
EOL Resistor (end of line):	2.2K (2200 ohm).
Ground fault maximum test impedance:	1000 ohm.

Stand-by Specifications:

Stand-by Batteries	Stand-by Time Total Amp/Minutes	Alarm Output Current	Aux. Output
24VDC/7AH	24 Hours	10 amp/5 minutes	–
24VDC/12AH (use two (2) 12VDC batteries in series)	24 Hours	10 amp/5 minutes	50mA
24VDC/36AH	24 Hours	10 amp/5 minutes	1 amp

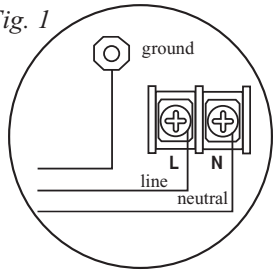
Note: Unit is equipped with two (2) 1 amp max. auxiliary outputs: "AUX1" will automatically disconnect when AC is lost. "AUX2" will remain battery backed up during power outage. For loads connected to "AUX2", please refer to battery "Stand-by Specifications" above for ratings. When loads are connected to the "AUX1" and or "AUX2" outputs during alarm condition, the remaining outputs may, not exceed 10 amp total alarm current. (example: AUX1 = 1 amp, AUX2 = 1 amp, outputs up to 8 amp).

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.

Carefully review:

Fig. 1



1. Mount unit in the desired location. Mark and predrill holes in the wall to line up with the top two keyholes in the enclosure. Install two upper fasteners and screws in the wall with the screw heads protruding. Place the enclosure's upper keyholes over the two upper screws, level and secure. Mark the position of the lower two holes. Remove the enclosure. Drill the lower holes and install the two fasteners. Place the enclosure's upper keyholes over the two upper screws. Install the two lower screws and make sure to tighten all screws *(Enclosure Dimensions, pg. 12)*.
2. Connect green lead to earth ground *(Fig 1)*. Connect the line (L) and neutral (N) terminals to a separate unswitched AC circuit (120VAC, 60Hz) dedicated to the Fire Alarm System.
3. Measure output voltage before connecting devices. This helps avoiding potential damage.
4. Connect battery to the terminals marked [+ BAT –] on the Power Supply Board (battery leads included).
   Note: If batteries being used in your installation do not fit into the FN-1042-ULADA unit, it is required to install a separate enclosure, UL Listed for appropriate application. Separate battery enclosure is required to have 50 cubic inches of additional open space. All 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. Battery circuits are not power-limited; provide 0.25" spacing from power-limited circuits and use separate knockout. If additional battery enclosure is required, it must be UL Listed for the application and mounted within 5' of the FN-1042-ULADA enclosure in the same room; minimum 12 AWG wire in appropriate conduit is required for connection. When using conduit, make sure it is installed in a matter where it can not turn.
5. Set output selection switches marked [OUT1 through OUT4] to follow corresponding input [IN1 & IN2] and desired output signal type *(Output Programming Selection Table, pg. 4)*.

6. Connect FACP output to the desired AL842LGK logic board inputs, and notification appliances to the desired AL842LGK logic board outputs *(see Application Guide)*.
   Note: The 2-wire horn/strobe sync mode will only synchronize horns, horn/strobes, strobes with synchronization capability.
7. For connection of smoke detectors, digital dialer see *Optional Hookup Diagram, pg. 8.*

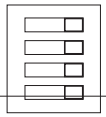
Output Programming Selection Table:

Outputs must be programmed independently (OUT1 - OUT4)

Function	Switch Positions		Descriptions
	ON	OFF	
Input to Output Follower Mode	1	2, 3	Output follows signal it receives from the corresponding input (i.e. FACP Sync module - maintains synchronization of notification appliance circuit).
Temporal Code 3 Mode	3	1, 2	Enables Temporal Code 3 signal generation output. This mode will accept a steady or a pulsing input.
Steady Mode		1, 2, 3	A steady output signal will be generated. This mode will accept steady or pulsing input.

For the above modes Dip Switch 4 determines which Input controls the corresponding output:
Switch 4 in the ON position causes output(s) to be controlled by input 1.
Switch 4 in the OFF position causes output(s) to be controlled by input 2.

AL842LGK Board
(Output Dip Switches)



Sync Mode Selection Table:

Function	Switch Positions		Descriptions
	ON	OFF	
Potter/Amseco Sync Mode*	1, 3, 4	2	This mode is designed to work with the Amseco series of horns, strobes, and horn/strobes to provide a means of synchronizing the Temporal-coded horns, synchronizing the flash timing of the strobe, and silencing the horns of the horn/strobe combination over a two-wire circuit while leaving strobes active.
Faraday Sync Mode*	2, 4	1, 3	This mode is designed to work with the Faraday series of horns, strobes, and horn/strobes to provide a means of synchronizing the Temporal-coded horns, synchronizing the flash timing of the strobe, and silencing the horns of the horn/strobe combination over a two-wire circuit while leaving strobes active.
Gentex® Sync Mode Gentex is a registered trademark of Gentex Corporation.	1, 2, 3, 4		This mode is designed to work with the Gentex® series of horns, strobes, and horn/strobes to provide a means of synchronizing the Temporal-coded horns, synchronizing the flash timing of the strobe, and silencing the horns of the horn/strobe combination over a two-wire circuit while leaving strobes active.
System Sensor® Sync Mode* System Sensor is a registered trademark of Honeywell.	1, 2, 4	3	This mode is designed to work with the System Sensor® series of horns, strobes, and horn/strobes to provide a means of synchronizing the Temporal-coded horns, synchronizing the one-second flash timing of the strobe, and silencing the horns of the horn/strobe combination over a two-wire circuit while leaving strobes active.
CooperWheelock® Sync Mode* CooperWheelock is a registered trademark of Cooper Wheelock.	2, 3, 4	1	This mode is designed to work with the CooperWheelock series of horns, strobes, and horn/strobes to provide a means of synchronizing the Temporal-coded horns, synchronizing the one-second flash timing of the strobe, and silencing the horns of the horn/strobe combination over a two-wire circuit while leaving strobes active.

Note: The FN-1042-ULADA will only synchronize horns, horn/strobes and strobes that contain synchronization capability. Contact signal manufacturer for more detailed info. The same synchronization mode must be selected for all outputs.

Note: It is required to control visual notification appliances (strobes) via input 1 [IN1] and audible notification appliances (horns) via input 2 [IN2]. This allows audible notification appliances (horns) to be silenced while visual notification appliances (strobes) continue to operate.

Amount of Notification Appliances per NAC:

Potter/Amseco	27 per NAC*
Faraday	39 per NAC*
Gentex®	32 per NAC*

System Sensor®	32 per NAC*
CooperWheelock®	32 per NAC*

**Not to exceed a maximum of 2.5 amp per NAC.*

Terminal Identification Table:

AL842LGK - Logic Board

Terminal Legend	Function/Description
IN1+, IN1- IN2+, IN2- (Supervised)	These terminals connect to the 12VDC or 24VDC FACP notification appliance circuit outputs. (Class A, Style Z or Class B, Style W, Y) Input trigger voltage is 8-33VDC @ 5mA min. Terminal polarity is shown in alarm condition. During an alarm condition these inputs will cause the selected outputs chosen to drive notification appliances. The designated outputs are set by output switches [OUT1 through OUT4] *(Output Programming Selection Table, pg. 4)*. A trouble condition on an output loop will cause the corresponding input to trip the FACP by opening the FACP loop. An alarm condition will always override trouble to drive notification appliances.
RET1+, RET1- RET2+, RET2- (Supervised)	For Class A, Style Z hookups these terminal pairs return to FACP NAC1 and/or NAC2. For Class B, Style W, Y hookups the FACP EOL resistor from the NAC1 and/or NAC2 outputs are terminated at these terminals. Optionally, other notification appliances or additional signaling circuit power supplies may be connected to these terminals. If this option is chosen the EOL resistor must be terminated at the last device.
C "DRY1" NC C "DRY2" NC (Dry input trigger)	An open across these inputs, will cause the selected outputs chosen to drive notification appliances. The designated outputs are set by output switches [OUT1 through OUT4] *(Output Programming Selection Table, pg. 4).* Note these inputs are unidirectional and will not report a trouble condition to the FACP.
+ OUT1 – + OUT2 – + OUT3 – + OUT4 – (Supervised)	Notification appliances are connected to these regulated outputs *(see Application Guide, pgs. 2-4)*. Each power-limited output will supply 2.5 amp. Total supply current is 10 amp *(see note below).* Outputs are controlled by designated input 1 [IN1] or input 2 [IN2] *(Output Programming Selection Table, pg. 4).* Maximum line loss or voltage drop (tested with 2.5V).
+ Loop 1 – + Loop 2 – + Loop 3 – + Loop 4 –	Used for Class A, Style Z hook-ups to terminate loops originating on [OUT1], [OUT2], [OUT3], and [OUT4] respectively.
C "FAULT" NC (Common trouble input)	An open circuit across this pair of terminals will cause [INP1 and INP2] LEDs to simultaneously signal a trouble condition back to the FACP (Typically used to report AC or BAT Fail). *(Fig. 3a, pg. 8)*.
NC, C, NO (Common trouble input)	These are dry contact trouble outputs that report any general loop/system trouble conditions. (Typically used to trigger a digital communicator or other reporting devices). (form "C" contact 1 amp / 28VDC 0.35 Power Factor) *(Fig. 3, pg. 8)*.
- AUX+	This separate 1 amp max. auxiliary special application power output circuit is typically used to power electromagnetic door holders that keep fire and smoke doors open under normal conditions. *See Appendix A, pgs. 10-11.*
– AUX2 +	This separate auxiliary regulated power output circuit supplies up to 1 amp during stand-by and alarm condition. Since this output is not disconnected from its load during AC power failure use the *(Battery Calculation Worksheet, pg. 9)* to determine battery size and/or allowable stand-by and alarm current.
+ DC –	24VDC from power supply.

Note: Unit is equipped with two (2) 1 amp max. auxiliary outputs: "AUX1" will automatically disconnect when AC is lost. "AUX2" will remain battery backed up during power outage. For loads connected to "AUX2" please, refer to battery "Stand-by Specifications" above for ratings. When loads are connected to the "AUX1" and or "AUX2" outputs during alarm condition, the remaining outputs may, not exceed 10 amp total alarm current. (example: AUX1 = 1 amp, AUX2 = 1 amp, outputs up to 8 amp).

Terminal Identification Table:

Power Supply Board

Terminal Legend	Function/Description
L, N	Connect 120VAC to these terminals: L to Hot, N to Neutral.
- DC +	24VDC @ 10 amp continuous, 10 amp in alarm non power-limited output.
AC FAIL NO, C, NC	Form "C" dry contacts indicate the loss of AC, with AC present terminals marked [NO and C] are open, [NC and C] are closed. When loss of AC occurs terminals marked [NO and C] are closed, [NC and C] are open.
AC LOCAL NC, NO, C	Form "C" dry contacts used to instantaneously signal the loss AC to local annunciation devices, with AC present terminals marked [NO and C] are open, [NC and C] are closed. When loss of AC occurs terminals marked [NO and C] are closed, [NC and C] are open.
BAT FAIL NO, C, NC	Form "C" dry contacts indicate low battery voltage or loss of battery voltage. Under normal conditions terminals marked [N.O. and C] are open, [NC and C] are closed. During a trouble condition terminals marked [N.O. and C] are closed, and [N.C. and C] are open *(Fig. 3, pg. 8)*.
+ BAT -	Stand-by battery input (leads provided) *(Fig. 3, pg. 8)*.

*Power Board Parameter Specifications:

- AC Fail condition will report approximately 1.5 hours after loss of AC. To set AC Delay to 30 seconds, power the unit down (AC supply and Battery) prior to changing switch position. Open or close "AC Delay" switch, respectively.
- Low battery condition will report at approximately 20VDC.
- Battery presence detection will report within 180 seconds after battery remains undetected (missing or removed). A restored battery will report within 30 seconds.

LED Diagnostics:

Power Supply Board

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

AL842LGK - Logic Board

LED	OFF	ON	BLINK (LONG)*	BLINK (SHORT)**
ON	Normal	Alarm Condition	Trouble Condition	Trouble Condition Memory
ON	Normal	Alarm Condition	Trouble Condition	Trouble Condition Memory
OFF	Normal	Alarm Condition	Trouble Condition	Trouble Condition Memory
OFF	Normal	Alarm Condition	Trouble Condition	Trouble Condition Memory
Input 1	Normal	Alarm Condition	Trouble Condition	–
Input 2	Normal	Alarm Condition	Trouble Condition	–
Fault	Normal	Alarm Condition	–	–

* Indicates existing trouble condition. When a trouble condition (open, short or ground) occurs on a specific output, the corresponding red output LED, [OUT1-OUT4] will blink. The corresponding green input LED will blink as well.

** Indicates trouble condition memory. When a trouble condition restores, the units red output LEDs, [OUT1-OUT4] will blink with a shorter and distinctly different duration. The green input LEDs will be off (normal condition). To reset the memory depress the reset button located on the AL842LGK logic board *(Fig. 2c, pg. 8)*. The LED(s) will extinguish.

Note: When indicating circuits have restored, trouble memory reset is not required for normal operation.

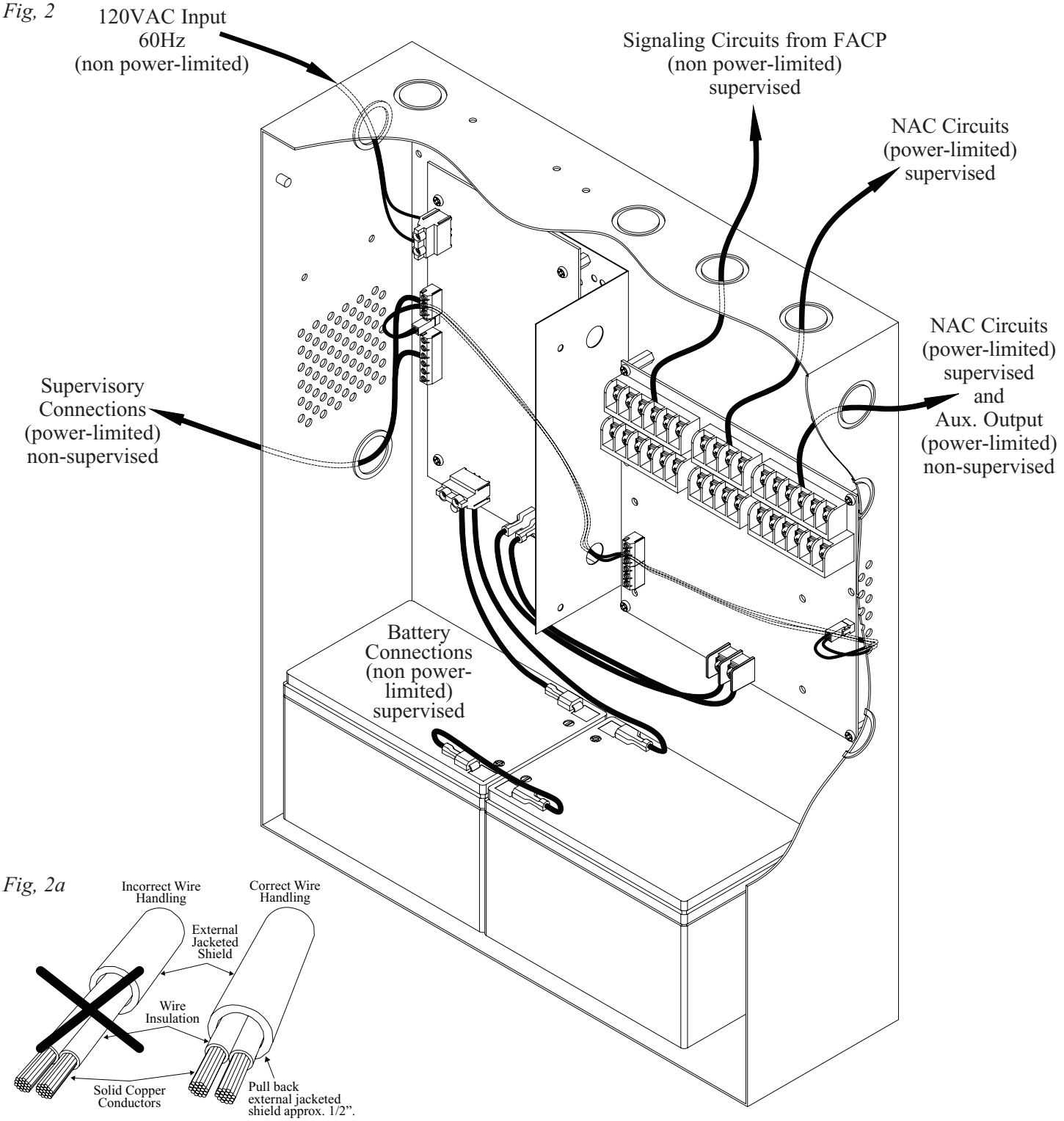
NEC Power-Limited Wiring Requirements for FN-1042-ULADA Models:

Power-limited and non power-limited circuit wiring must remain separated in the cabinet. All power-limited circuit wiring must remain at least 0.25" away from any non power-limited circuit wiring. Furthermore, all power-limited circuit wiring and non power-limited circuit wiring must enter and exit the cabinet through different conduits. One such example of this is shown below. Your specific application may require different conduit knockouts to be used. Any conduit knockouts may be used. For power-limited applications, use of conduit is optional. All field wiring connections must be made employing suitable gauge CM or FPL jacketed wire (or equivalent substitute).

Optional battery enclosure must be mounted adjacent to the power supply via Class 1 wiring methods.

Note: Refer to wire handling drawing below for the proper way to install the CM or FPL jacketed wire, *(Fig, 2a).*

Fig, 2



Fig, 2a

Optional hookups:

1- Battery and AC monitoring: AC or Battery Fail condition will cause the common trouble input [C "FAULT" NC] to report back to the FACP via input 1 and input 2. The common trouble input may also be used for other optional supervisory monitoring.
To report AC and Battery Trouble connect the battery and AC Fail relay output shown in *Fig. 3a, pg. 8* to the common trouble input.

2- Dry contact input (C "DRY1" NC) (C "DRY2" NC) can be used to alarm output from an addressable module (these inputs are unidirection and cannot report back to trigger module).
Connection to triggering devices must be made within 20ft. of distance and using conduit for wiring.

3- Auxiliary output (-AUX+) 24VDC at 1 amp max.

4- AC Local [NC, NO, C] should connect to the host control panel for local annunciation of the trouble condition.

Note: If common trouble input, terminals marked [C "FAULT" NC] are not used, these terminals must be shorted (connect jumper) to remain inactive. For optional hookups see *Fig. 3b, pg. 8*.

Optional Hookup Diagram:

Fig. 3

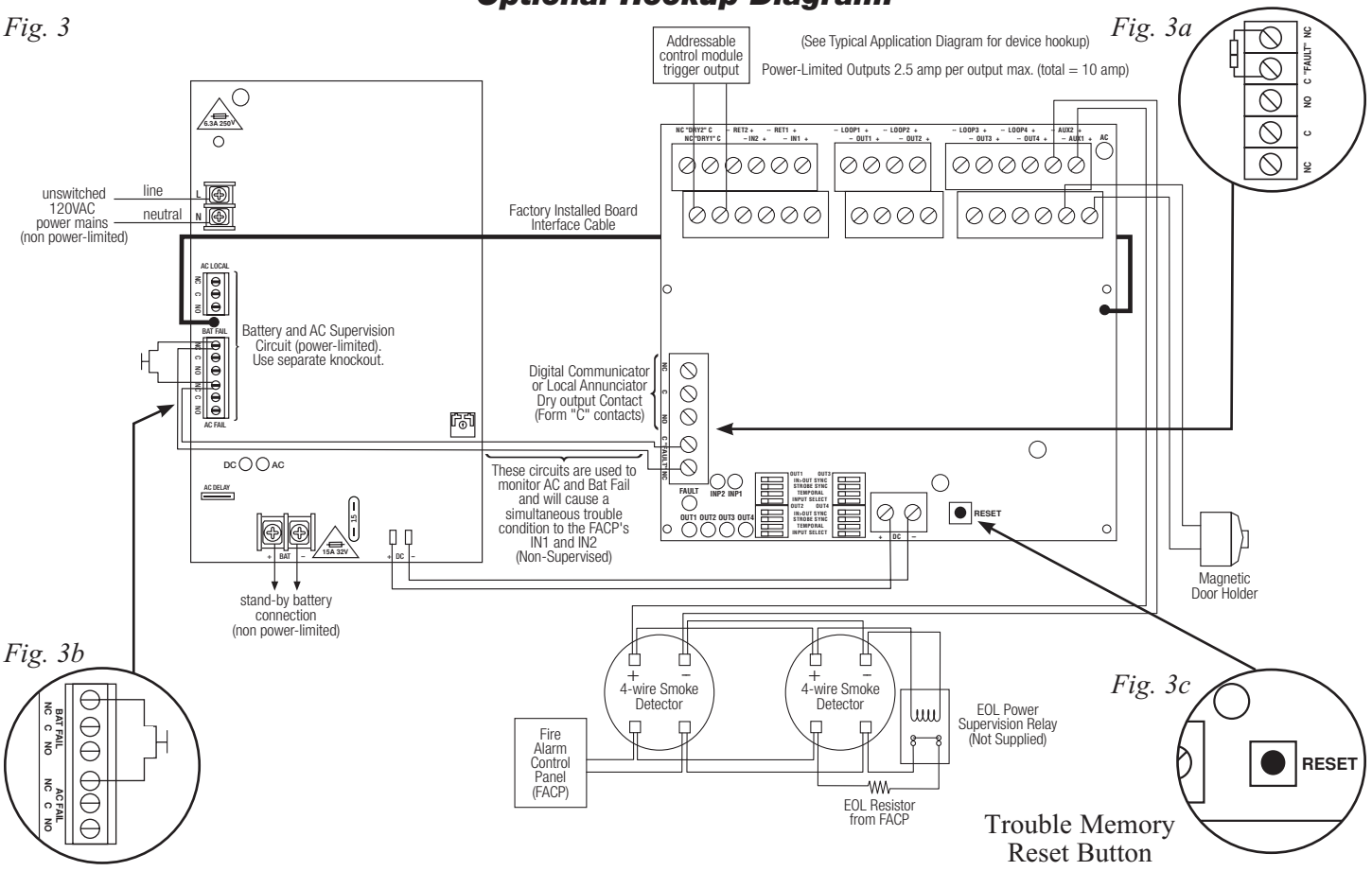


Fig. 3a

Fig. 3b

Fig. 3c

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 *(26.2-26.4VDC recommended range).*
Battery Test: Under normal load conditions check that the battery is fully charged. Check specified voltage both at battery terminal and at the board terminals marked [+ BAT –] to ensure that there is no break in the battery connection wires.
Fuses: Check input and output fuses on the power supply board, replace if necessary.
Input fuse rating is 6.3 amp @ 250V, Output fuse rating is 15 amp @ 32V.
Note: Maximum charging current is 1.5 amp.
Note: Expected battery life is 5 years; however, it is recommended changing batteries in 4 years or less if needed.

Battery Calculation Worksheet

	Device	Number of Devices	Current per Device		Stand-by Current	Alarm Current
For each device use this formula:		This column x	This column =	Equals	Current per number of devices.	
	FN-1042-ULADA (Current draw from battery)	1	Stand-by:	130mA	130mA	
			Alarm:	300mA		300mA
A	**FN-1042 Current**				130mA	300mA
	Auxiliary Devices		Refer to device manual for current ratings.			
			Alarm/Stand-by	mA	mA	mA
			Alarm/Stand-by	mA	mA	mA
			Alarm/Stand-by	mA	mA	mA
B	**Auxiliary Devices Current (must not exceed 1 amp)**					
			Refer to device manual for current ratings.			
			Alarm:	mA	0mA	mA
			Alarm:	mA	0mA	mA
			Alarm:	mA	0mA	mA
			Alarm:	mA	0mA	mA
C	Notification Appliances Current must not exceed 10 amp (10,000mA)			0mA		mA
D	Total alarm current				mA	mA
E	Total current ratings converted to amperes (line D x 0.001)				A	A
F	Number of stand-by hours (24 for NFPA 72, Chapter 1, 1-5.2.5).				H	
G	Multiply lines E and F.		Total stand-by AH		AH	
H	Alarm sounding period in hours. (For example, 5 minutes = .0833 hours.)					H
I	Multiply lines E and H.		Total alarm AH			AH
J	Add lines G and I.		Total stand-by and alarm AH		AH	
K	Multiply line J by 1.30. (30% extra insurance to meet desired performance) Total ampere - hours required				AH	

Units are capable of recharging 36AH battery max. If total ampere - hour required exceeds 36AH, decrease AUX current to provide enough stand-by time for the application.

Appendix A - UL/cUL Listed Compatible Devices for Synchronization

A-1 Strobes, Horns and Horn/Strobes

Table A-1 below lists Strobes, Horns and Horn/Strobes compatible with ***FN-1042-ULADA*** NAC outputs.

Gentex:

GCS24CR - UL	GCCB24PCR / W - UL	GEC24-15/75WR - UL
GCS24CW - UL	GCCG24PCR / W - UL	GEC24-15/75WW - UL
GCS24PCR - UL	GCCR24PCR / W - UL	SSPK24CLPR - UL
GCS24PCW - UL	WGESA24-75PWR / W - UL	SSPK24CLPW - UL
GCC24CR - UL	WGESB24-75PWR / W - UL	SSPK24WLPR - UL
GCC24PCR - UL	WGESG24-75PWR / W - UL	SSPK24WLPW - UL
GCC24CW - UL	WGESR24-75PWR / G - UL	SSPK24AWR - UL
GCC24PCW - UL	WGECA24-75PWR / W - UL	SSPK24AWW - UL
GES3-24WR - UL	WGECB24-75PWR / W - UL	SSPK24-15/75WLPR - UL
GEC3-24WR - UL	WGECG24-75PWR / W - UL	SSPK24-15/75WLPW - UL
GEH24-R - UL	WGECR24-75PWR / G - UL	SSPK24-15/75AWR - UL
GEH24-W - UL	WGESA24-75PWLPR / W - UL	SSPK24-15/75AWW - UL
WGES24-75WR / WW - UL	WGESB24-75PWLPR / W - UL	SSPKA24-15/75PWR - UL
WGES24-75PWR / PWW - UL	WGESG24-75PWLPR / W - UL	SSPKA24-15/75PWW - UL
WGES24-75WRLP / WWLP - UL	WGESR24-75PWLPR / W - UL	SSPKA24-15/75AWR - UL
WGEC24-75WR / WW - UL	WGECA24-75PWLPR / W - UL	SSPKA24-15/75AWW - UL
WGEC24-75PWR / PWW - UL	WGECB24-75PWLPR / W - UL	SSPKB24-15/75PWR - UL
WGEC24-75WRLP / WWLP - UL	WGECG24-75PWLPR / W - UL	SSPKB24-15/75PWW - UL
WGEC24-75PWRLP / WWLP - UL	WGECR24-75PWLPR / W - UL	SSPKG24-15/75PWR - UL
GESA24PWR / W - UL	GX91-R / W - UL/cUL	SSPKG24-15/75PWW - UL
GESB24PWR / W - UL	GX91-PR / W - UL/cUL	SSPKR24-15/75PWR - UL
GESG24PWR / W - UL	GX93-R / W - UL/cUL	SSPKR24-15/75PWW - UL
GESR24PWR / W - UL	GX93-PR / W - UL/cUL	WSSPKA24-15/75AWR - UL
GECA24PWR / W - UL	WSSPK24-15/75WR / WW - UL	WSSPKA24-15/75AWW - UL
GECB24PWR / W - UL	WSSPK24-15/75PWR / PWW - UL	WSSPKA24-15/75PWR - UL
GECG24PWR / W - UL	WSSPK24-15/75AWR / AWW - UL	WSSPKA24-15/75PWW - UL
GECR24PWR / W - UL	GES24-177WR - UL	WSSPKB24-15/75PWR - UL
GCSA24PCR / W - UL	GES24-177WW - UL	WSSPKB24-15/75PWW - UL
GCSB24PCR / W - UL	GES24-15/75WR - UL	WSSPKG24-15/75PWR - UL
GCSG24PCR / W - UL	GES24-15/75WW - UL	WSSPKG24-15/75PWW - UL
GCSR24PCR / W - UL	GEC24-177WR - UL	WSSPKR24-15/75PWR - UL
GCCA24PCR / W - UL	GEC24-177WW - UL	WSSPKR24-15/75PWW - UL

System Sensor:

CHSR - UL	P4R-SP - UL	PC4RH-P - UL	SPSCW - UL	SPSWK-CLR-ALERT - UL
CHSW - UL	P4RH - UL	PC4RH-SP - UL	SPSCW-CLR-ALERT - UL	SPSWK-P - UL
HR/HRK/HW - UL	P4RH-P - UL	PC4W - UL	SPSCW-P - UL	SPSWK-R - UL
MHR - UL	P4RH-SP - UL	PC4W-P - UL	SPSCWH - UL	SPSWV - UL
MHW - UL	P4RK - UL	PC4W-SP - UL	SPSCWH-P - UL	SPSWV-P - UL
P1224MC - UL	P4RK-R - UL	PC4WH - UL	SPSCWHK - UL	SR - UL
P2R - UL	P4W - UL	PC4WH-P - UL	SPSCWHK-P - UL	SR-P - UL
P2R-P - UL	P4W-P - UL	PC4WH-SP - UL	SPSCWK - UL	SR-SP - UL
P2R-SP - UL	P4W-SP - UL	PC4WHK - UL	SPSCWK-CLR-ALERT - UL	SRH - UL
P2RH - UL	P4WH - UL	PC4WK - UL	SPSCWK-R - UL	SRH-P - UL
P2RH-LF - UL	P4WH-P - UL	SCR - UL	SPSCWV - UL	SRH-SP - UL
P2RH-P - UL	P4WH-SP - UL	SCR-P - UL	SPSCWV-P - UL	SRHK - UL
P2RH-SP - UL	P4WK - UL	SCR-SP - UL	SPSCWVH - UL	SRHK-P - UL
P2RHK - UL	PC2R - UL	SCRH - UL	SPSCWVH-P - UL	SRHK-R - UL
P2RHK-P - UL	PC2R-P - UL	SCRH-P - UL	SPSR - UL	SRK - UL
P2RHK-R - UL	PC2RH - UL	SCRH-SP - UL	SPSR-P - UL	SRK-P - UL
P2RK - UL	PC2RH-P - UL	SCRHK - UL	SPSRH - UL	SRK-R - UL
P2RK-P - UL	PC2RH-SP - UL	SCRK - UL	SPSRH-P - UL	SW - UL
P2RK-R - UL	PC2RHK - UL	SCW - UL	SPSRHK - UL	SW-ALERT - UL
P2W - UL	PC2RK - UL	SCW-CLR-ALERT - UL	SPSRK - UL	SW-CLR-ALERT - UL
P2W-P - UL	PC2W - UL	SCW-P - UL	SPSRK-P - UL	SW-P - UL
P2W-SP - UL	PC2W-P - UL	SCW-SP - UL	SPSRK-R - UL	SW-SP - UL
P2WH - UL	PC2W-SP - UL	SCWH - UL	SPSRV - UL	SWH - UL
P2WH-LF - UL	PC2WH - UL	SCWH-P - UL	SPSRV-P - UL	SWH-ALERT - UL
P2WH-P - UL	PC2WH-P - UL	SCWH-SP - UL	SPSW - UL	SWH-P - UL
P2WH-SP - UL	PC2WH-SP - UL	SCWHK - UL	SPSW-ALERT - UL	SWH-SP - UL
P2WHK - UL	PC2WHK - UL	SCWK - UL	SPSW-CLR-ALERT - UL	SWHK - UL
P2WHK-P - UL	PC2WK - UL	SPSCR - UL	SPSW-P - UL	SWHK-P - UL
P2WK - UL	PC4R - UL	SPSCRH - UL	SPSWH - UL	SWK - UL
P2WK-P - UL	PC4R-P - UL	SPSCRV - UL	SPSWH-P - UL	SWK-P - UL
P4R - UL	PC4R-SP - UL	SPSCRVH - UL	SPSWK - UL	
P4R-P - UL	PC4RH - UL			

A-1 Strobes, Horns and Horn/Strobes

Table A-1 below lists Strobes, Horns and Horn/Strobes compatible with ***FN-1042-ULADA*** NAC outputs.

Potter/Amseco:

CM24CR - UL	CSL-1224W-BW - UL/cUL	MH-12/24W - UL/cUL	SSC8-177R - UL
CM24CW - UL	CSL-1224W-GR - UL/cUL	SCM24C-177R - UL	SSC8-177W - UL
CSH-1224W-AR - UL/cUL	CSL-1224W-GW - UL/cUL	SCM24C-177W - UL	SSC8-3075110R - UL
CSH-1224W-AW - UL/cUL	CSL-1224W-RR - UL/cUL	SCM24C-3075110R - UL	SSC8-3075110W - UL
CSH-1224W-BR - UL/cUL	CSL-1224W-RW - UL/cUL	SCM24C-3075110W - UL	SSR2-177R - UL
CSH-1224W-BW - UL/cUL	CSL24CAW - UL/cUL	SH-1224R - UL/cUL	SSR2-177W - UL
CSH-1224W-GR - UL/cUL	CSL24C-BW - UL/cUL	SH-1224W - UL/cUL	SSR2-3075110R - UL
CSH-1224W-GW - UL/cUL	CSL24C-GW - UL/cUL	SH-1224WP-R - UL/cUL	SSR2-3075110W - UL
CSH-1224W-RR - UL/cUL	CSL24C-RW - UL/cUL	SH-1224WP-W - UL/cUL	SSR8-177R - UL
CSH-1224W-RW - UL/cUL	CSL24C-AR - UL/cUL	SH24C-177R - UL/cUL	SSR8-177W - UL
CSH24C-AW - UL/cUL	CSL24C-BR - UL/cUL	SH24C-177W - UL/cUL	SSR8-3075110R - UL
CSH24C-BW - UL/cUL	CSL24C-GR - UL/cUL	SL-1224R - UL/cUL	SSR8-3075110W - UL
CSH24C-GW - UL/cUL	CSL24C-RR - UL/cUL	SL-1224W - UL/cUL	SSS2-1530R - UL
CSH24C-RW - UL/cUL	H-1224R - UL/cUL	SL-1224WP-R - UL/cUL	SSS2-1530W - UL
CSH24C-AR - UL/cUL	H-1224W - UL/cUL	SL-1224WP-W - UL/cUL	SSS2-75110R - UL
CSH24C-BR - UL/cUL	HP-25TR - UL/cUL	SL-24W - UL/cUL	SSS2-75110W - UL
CSH24C-GR - UL/cUL	HP-25TW - UL/cUL	SSC2-177R - UL	SSS8-1530R - UL
CSH24C-RR - UL/cUL	MH-12/24R - UL/cUL	SSC2-177W - UL	SSS8-1530W - UL
CSL-1224W-AR - UL/cUL	MH-12/24TR - UL/cUL	SSC2-3075110R - UL	SSS8-75110R - UL
CSL-1224W-AW - UL/cUL	MH-12/24TW - UL/cUL	SSC2-3075110W - UL	SSS8-75110W - UL
CSL-1224W-BR - UL/cUL			

Cooper/Wheelock:

50-241575W-FR - UL/cUL	E70-24MCW-FN - UL/cUL	ET90-24MCCH-FN - UL/cUL	LSTW-A* - UL/cUL
AH-24WP-R - UL	E70-24MCW-FR - UL/cUL	ET90-24MCCH-FW - UL/cUL	LSTW-ALA* - UL/cUL
AMT-12/24-R - UL/cUL	E70-24MCW-FW - UL/cUL	HNR - UL/cUL	LSTW-NA* - UL/cUL
AMT-12/24-W - UL/cUL	E70-24MCWH-FN - UL/cUL	HNRC - UL/cUL	LSTW-NA* - UL/cUL
AMT-241575W-FR - UL/cUL	E70-24MCWH-FR - UL/cUL	HNW - UL/cUL	MIZ-24S-R - UL/cUL
AMT-241575W-FR-NYC - UL	E70-24MCWH-FR - UL/cUL	HNWC - UL/cUL	MIZ-24S-W - UL/cUL
AMT-241575W-FW - UL/cUL	E70-24MCWH-FW - UL/cUL	HS-24-R - UL/cUL	MT-12/24-R - UL
AMT-24MCW-FR - UL/cUL	E70H-241575W-FR - UL/cUL	HS-24-W - UL/cUL	MT-241575W-FR - UL/cUL
AMT-24MCW-FW - UL/cUL	E70H-241575W-FW - UL/cUL	HS4-241575W-FR - UL/cUL	MT-241575W-FW - UL/cUL
AS-12100C - UL/cUL	E70H-24MCW-FR - UL/cUL	HS4-24MCC-FR - UL	MT-24MCW-FR - UL/cUL
AS-24100C - UL/cUL	E70H-24MCW-FW - UL/cUL	HS4-24MCC-FW - UL/cUL	MT-24MCW-FW - UL/cUL
ASWP-2475C-FR - UL	E70H-24MCWH-FN - UL/cUL	HS4-24MCW-FR - UL/cUL	MTWP-2475C-FR - UL
ASWP-2475C-FW - UL	E70H-24MCWH-FW - UL/cUL	HS4-24MCW-FW - UL/cUL	MTWP-2475C-FW - UL
ASWP-2475W-FR - UL	E90-24MCC-FN - UL/cUL	HSR - UL/cUL	MTWP-2475W-FR - UL
ASWP-2475W-FW - UL	ET90-24MCC-FW - UL/cUL	HSRC - UL/cUL	MTWP-2475W-FW - UL
ASWP-24MCCH-FR - UL	ET90-24MCC-FN - UL/cUL	HSW - UL/cUL	MTWP-24MCCH-FR - UL
ASWP-24MCCH-FW - UL	E90-24MCC-FR - UL/cUL	HSWC - UL/cUL	MTWP-24MCCH-FW - UL
ASWP-24MCWH-FR - UL	E90-24MCC-FW - UL/cUL	LHNR* - UL/cUL	MTWP-24MCWH-FR - UL
ASWP-24MCWH-FW - UL	E90-24MCCH-FN - UL/cUL	LHNW* - UL/cUL	MTWP-24MCWH-FW - UL
CH70-24MCW-FR - UL/cUL	E90-24MCCH-FR - UL/cUL	LHSR* - UL/cUL	RSS-241575W-FR - UL/cUL
CH70-24MCW-FW - UL/cUL	E90-24MCCH-FW - UL/cUL	LHSR-A* - UL/cUL	RSS-241575W-FW - UL/cUL
CH70-24MCWH-FR - UL/cUL	E90H-24MCC-FR - UL/cUL	LHSR-AL* - UL/cUL	RSS-24MCW-FR - UL/cUL
CH70-24MCWH-FW - UL/cUL	E90H-24MCC-FW - UL/cUL	LHSR-N* - UL/cUL	RSS-24MCW-FW - UL/cUL
CH90-24MCC-FR - UL/cUL	E90H-24MCCH-FR - UL/cUL	LHSW* - UL/cUL	RSS-24MCWH-FR - UL/cUL
CH90-24MCC-FW - UL/cUL	E90H-24MCCH-FW - UL/cUL	LHSW-A* - UL/cUL	RSS-24MCWH-FW - UL/cUL
CH90-24MCCH-FR - UL/cUL	EET90-24MCCH-FR - UL/cUL	LHSW-AL* - UL/cUL	RSSA-24MCC-NW - UL
CH90-24MCCH-FW - UL/cUL	ET-1010-R - UL	LHSW-N* - UL/cUL	RSSA-24MCCH-NW - UL
E50-241575W-FW - UL/cUL	ET-1010-W - UL	LSPSTR* - UL/cUL	RSSB-24MCC-NW - UL
E50-24MCWH-FR - UL/cUL	ET70-241575W-FR - UL/cUL	LSPSTR-AL* - UL/cUL	RSSB-24MCCH-NW - UL
E50-24MCWH-FW - UL/cUL	ET70-241575W-FW - UL/cUL	LSPSTR-ALA* - UL/cUL	RSSG-24MCC-NW - UL
E50H-241575W-FR - UL/cUL	ET70-24MCW-FN - UL/cUL	LSPSTR-N* - UL/cUL	RSSG-24MCCH-NW - UL
E50H-241575W-FW - UL/cUL	ET70-24MCW-FR - UL/cUL	LSPSTR-NA* - UL/cUL	RSSR-24MCC-NW - UL
E50H-24MCW-FR - UL/cUL	ET70-24MCW-FW - UL/cUL	LSPSTW* - UL/cUL	RSSR-24MCCH-NW - UL
E50H-24MCW-FW - UL/cUL	ET70-24MCWH-FN - UL/cUL	LSPSTW-AL* - UL/cUL	RSSWP-2475C-FR - UL
E50H-24MCWH-FR - UL/cUL	ET70-24MCWH-FR - UL/cUL	LSPSTW-ALA* - UL/cUL	RSSWP-2475C-FW - UL
E50H-24MCWH-FW - UL/cUL	ET70-24MCWH-FW - UL/cUL	LSPSTW-N* - UL/cUL	RSSWP-2475W-AR - UL
E60-24MCC-FR - UL/cUL	ET70WP-24185W-FR - UL	LSPSTW-NA* - UL/cUL	RSSWP-2475W-FR - UL
E60-24MCC-FW - UL/cUL	ET70WP-24185W-FW - UL	LSTR* - UL/cUL	RSSWP-2475W-FW - UL
E60-24MCCH-FR - UL/cUL	ET70WP-2475C-FR - UL	LSTR-A* - UL/cUL	RSSWP-2475W-NW - UL
E60-24MCCH-FW - UL/cUL	ET70WP-2475C-FW - UL	LSTR-AL* - UL/cUL	RSSWP-24MCCH-FR - UL
E60H-24MCC-FR - UL/cUL	ET80-24MCW-FR - UL/cUL	LSTR-ALA* - UL/cUL	RSSWP-24MCCH-FW - UL
E60H-24MCC-FW - UL/cUL	ET80-24MCW-FW - UL/cUL	LSTR-NA* - UL/cUL	RSSWP-24MCWH-FR - UL
E60H-24MCCH-FR - UL/cUL	ET80-24MCWH-FR - UL/cUL	LSTRW-ALA* - UL/cUL	RSSWP-24MCWH-FW - UL
E60H-24MCCH-FW - UL/cUL	ET80-24MCWH-FW - UL/cUL	LSTW* - UL/cUL	S8-24MCC-FW - UL/cUL

*When using these model strobes the maximum current per NAC is limited to 2 amp.

Appendix A - UL/cUL Listed Compatible Devices for Synchronization *(cont'd)*

A-1 Strobes, Horns and Horn/Strobes

Table A-1 below lists Strobes, Horns and Horn/Strobes compatible with ***FN-1042-ULADA*** NAC outputs.

Cooper/Wheelock:

S8-24MCCH-FW - UL/cUL	STH-3R24MCCH-NR - UL	STR-ALB - UL	STW-ALB - UL
SA-S70-24MCW-FR - UL	STH-4M30WC - UL	STR-NA - UL	STW-NA - UL
SA-S70-24MCW-FW - UL	STH-4MS-R - UL	STR-NB - UL	STW-NB - UL
SA-S90-24MCC-FR - UL	STH-4R - UL	STR-NG - UL	STW-NG - UL
SA-S90-24MCC-FW - UL	STH-4R24MCCH-NW - UL	STR-NR - UL	STW-NR - UL
STH-2G - UL	STH-4R24MCCH110B-NR - UL	STRC-NA - UL	STWC-AB - UL
STH-2MS-R - UL	STH-4R24MCCH110R-NA - UL	STRC-NB - UL	STWC-ALA - UL
STH-2R - UL	STH-4R24MCCH110R-NR - UL	STRC-NG - UL	STWC-ALB - UL
STH-2R24MCCH-NR - UL	STH-90-4R24MCCH-NW - UL	STRC-NR - UL	STWC-NA - UL
STH-3MS-R - UL	STR-AB - UL	STW-AB - UL	STWC-NB - UL
STH-3R - UL	STR-ALA - UL	STW-ALA - UL	STWC-NG - UL
			STWC-NR - UL

Appendix B - UL Listed Compatible Devices

B.1 Four (4) Wire Smoke Detectors

Table B-1 below lists four (4) wire smoke detectors compatible with ***FN-1042-ULADA*** AUX output.

Smoke Detector/Base	Detector Type	Max Stand-by Current (mA)	Alarm Current (mA)
FenWal CPD-7021 (w/70-201000-005 Base)	Ionization	0.10	*
FenWal PSD-7125	Photoelectric	0.10	*
FenWal PSD-7125 (w/70-201000-005 Base)	Photoelectric	0.10	*
Fire-Lite BLP-12-4W	Base	*	*
Gentex 824	Photoelectric	0.50	*
Gentex 824T	Photoelectric	0.50	*
Gentex 824CP	Photoelectric	0.50	*
Gentex 824CPT	Photoelectric	0.50	*
Hochiki HSC-4R	Base	*	*
Hochiki SPB-24	Projected Beam	0.25	*
System Sensor B112LP	Base	0.12	36
System Sensor B114LP	Base	*	*
System Sensor B404B	Base	*	*
System Sensor DH100ACDC	Photoelectric	0.15	0.70
System Sensor DH100ACDCLP	Photoelectric	0.15	0.70
System Sensor DH100ACDCLPW	Photoelectric	0.15	0.70
System Sensor DH400ACDCI	Ionization Duct	25	95
System Sensor DH400ACDCP	Photoelectric Duct	25	95
System Sensor 1112/24/D	Ionization	0.05	50
System Sensor 1424	Ionization	0.10	41
System Sensor 1451 (w/B402B Base)	Ionization	0.10	39
System Sensor 2112/24ATR	Photoelectric	0.50	60/70
System Sensor 2112/24AITR	Photoelectric	0.50	60/70
System Sensor 2112/24/D	Photoelectric	0.05	50
System Sensor 2112/24R	Photoelectric	0.50	60/70
System Sensor 2112/24TR	Photoelectric	0.50	60/70
System Sensor 2112/24T/D	Photoelectric w/135° Thermal	0.05	50
System Sensor 2112/24TSRB	Photoelectric w/135° Thermal Supervisory Relay	15	45
System Sensor 2312/24TB	Photoelectric	0.12	50
System Sensor 2412 (12 volt)	Photoelectric	0.12	77
System Sensor 2412AT (12 volt)	Photoelectric	0.12	58
System Sensor 2412TH (12 volt)	Photoelectric	0.12	77
System Sensor 2424	Photoelectric	0.10	41
System Sensor 2424TH	Photoelectric	0.10	41
System Sensor 2451	Photoelectric	0.10	39
System Sensor 2451TH (w/B402B Base)	Photoelectric	0.10	39

Appendix B - UL Listed Compatible Devices

B.1 Four (4) Wire Smoke Detectors

Table B-1 below lists four (4) wire smoke detectors compatible with ***FN-1042-ULADA*** AUX output.

Smoke Detector/Base	Detector Type	Max Stand-by Current (mA)	Alarm Current (mA)
System Sensor 2W-MOD	Loop Test/Maintenance Mod.	30	50
System Sensor 4W-B (12/24 volt)	Photoelectric I^3	0.05	23
System Sensor 4WT-B (12/24 volt)	Photoelectric I^3 w/Therm	0.05	23
System Sensor 4WTA-B (12/24 volt)	I^3 Photo w/Therm/Sounder	0.05	35
System Sensor 4WTR-B (12/24 volt)	I^3 Photo w/Therm/Relay	0.05	35
System Sensor 4WTR-B (12/24 volt)	I^3 Photo w/Therm/Sounder/Relay	0.05	50
System Sensor 4WITAR-B (12/24 volt)	I^3 Photo w/Isolated Therm/Sounder/Relay	0.05	50
System Sensor 2W-MOD2	I^3 Loop Test/Maintenance Mod.	0.05	*
System Sensor RRS-MOD	I^3 Reversing Relay/Sync Module	0.05	*
System Sensor 6424	Projected Beam	10	28.4
System Sensor Beam 1224(S)	Projected Beam	17	38.5
* Contact manufacturer for current draws			

B.2 Door Holders

Table B-2 below lists door holders compatible with ***FN-1042-ULADA*** AUX output.

Manufacturer	Model	Type	Current (mA)
Edwards	DH150A	Floor Mount	96
Edwards	DH154A	Floor Mount	96
Edwards	DH158A	Surface Mount	96
Rixon Firemark	FM-980	Floor Mount, single	68
Rixon Firemark	FM-996	Surface Wiring	68
Rixon Firemark	FM-998	Concealed Wiring	68

B.3 Relays

Table B-3 below lists relays compatible with ***FN-1042-ULADA*** AUX output.

Manufacturer	Model	Current (mA)
Air Products & Controls, LTD	MR-101/C	15
	MR-201/C	35
	PAM-1	15
	PAM-2	15
	PAM-SD	15
	A77-716B	20

Manufacturer	Model	Current (mA)
System Sensor	PR-1	15
	PR-2	30
	PR-3	30
	EOLR-1	30
	R-10T	23
	R-14T	23

Manufacturer	Model	Current (mA)
System Sensor	R-20T	40
	R-24T	40
	R-10E	23
	R-14E	23
	R-20E	40
	R-24E	40

Notes:

Notes:

Enclosure Dimensions *(H x W x D approximate)*:

18” x 14.5” x 4.5” (457.2mm x 368.3mm x 114.3mm)