Emergency Communication System

Series 4800 Installation Manual

Cornell Communications, Inc.

Milwaukee, WI 53223 USA

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Cautions and Warnings

The following Manual is to be used as a guide to install the 4800 Emergency Communication System. Consult your local "Authority Having Jurisdiction" for required code compliance and installation standards. The **Caution** and **Warning** symbols are placed throughout this manual to identify critical requirements for a safe and proper installation.

1. Caution - The 4800 Digital Emergency Communication System requires installation by factory trained authorized dealers/distributors, in accordance with ANSI/NFPA 70 National Electrical Code.

2. Caution - Properly trained personnel, familiar with Telecommunications Industry Associations 568 TIA/EIA standard, are required for proper installation. Failure to terminate the wiring correctly will cause damage to the system and void the warranty.

3. Caution - The 4800 Digital Emergency Communication System shall be installed in a controlled, indoor dry environment, with temperatures maintained between 55°F and 95°F.

4. Caution - The 4800 Digital Emergency Communication System requires an **Analog "POTS"** dedicated telephone line for "Offsite" modem communication.

1. Warning – Cornell Communications manufactures proprietary Control Panels and Switches that have 8 available RJ45 ports to connect to additional Remote Control Panels, Switches and Call Stations. These devices connect using the straight-thru, TIA/EIA 568A or TIA/EIA 568B, wiring standard. Any attempt to connect an "Off the Shelf" Ethernet switch will damage the system and void all warranty!

2. Warning – The 4800 Digital Emergency Communication System requires installation by factory trained authorized dealers/distributors, in accordance with NFPA 70 National Electrical Code, by qualified electricians. The 4800 System meets FCC 15, Subpart A, Section A (Commercial Use) emissions and is ICES-003 (Canada) compliant, when installed according to the installation instructions and the state/local electrical codes. Component or device substitutions such as Power Supplies, Switches or required cabling types are not permissible.

3. Warning - Failure to comply with the installation instructions, the NEC, NFPA and local building code will void all agency listings and warranty coverage.

4. Warning - Control Panels, Expansion Switches, Call Stations and Power Supplies require EMI suppression filters, to be added to the field wire connections during installation, for FCC compliance. Refer to page 17 of the 4800 Installation Manual.

5. Warning - To ensure proper operation, the 4800 system should be tested on a regular basis by qualified personnel.

System Overview

The 4800 Digital Emergency Communication System is designed to provide fully supervised, two-way voice communication, between each call station and (1) or more Control Panels. An internal modem, connected to an Analog "POTS" dedicated telephone line, provides an automated-timed dial-out capability to a monitoring location.

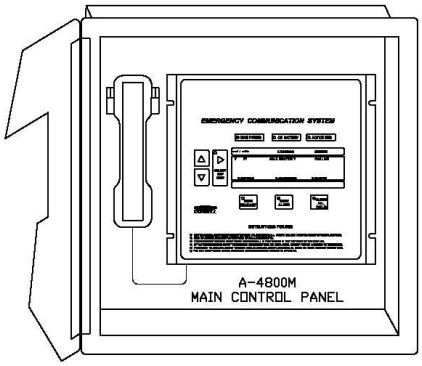
The 4800 Digital Emergency Communication System shall be installed in a controlled, indoor dry environment, with temperatures maintained between 55°F and 95°F.

Features can include up to (4) Remote Control Panels, and connecting a total of (255) Call Stations. The 4800 Digital Emergency Communication System shall poll (supervise) all the Call Stations, Control Panels and Expansion Switches on a continuous basis to identify line faults and defective equipment. Faults will be alerted and displayed at the control panel(s).

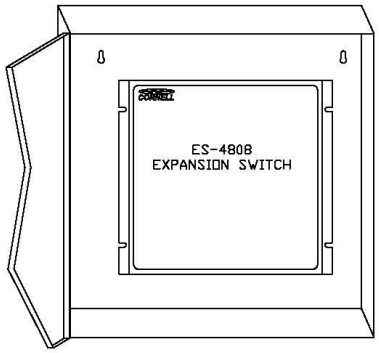
The 4800 Digital Emergency Communication System includes components outlined below:

Description	Model #'s
1. Control Panel (Main)	A-4800M
2. Control Panel (Remote)	A-4800R
3. Expansion Switch	ES-4808
4. Call Station	4800V
5. Power Supply(s)	B-5243B or B-5248A

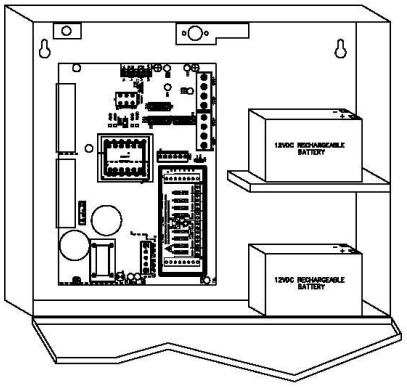
4800 System Components



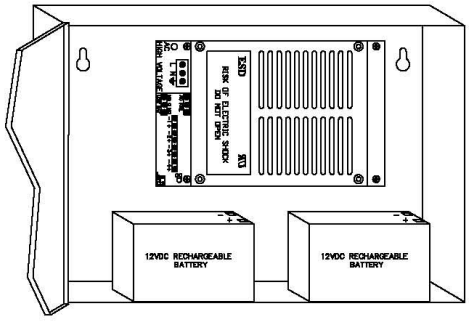
THE A-4800M (MAIN CONTROL PANEL) AND A-4800R (REMOTE CONTROL PANEL) ARE MOUNTED IN AN 18"W X 18"H X 3.25"D FLUSH MOUNT, LOCKING ENCLOSURE. THE 4800 SYSTEM REQUIRES AT LEAST (1) A-4800M MAIN PANEL AND CAN SUPPORT UP TO (4) ADDITIONAL A-4800R REMOTE CONTROL PANELS (ASSEMBLED WEIGHT: 27 LBS)



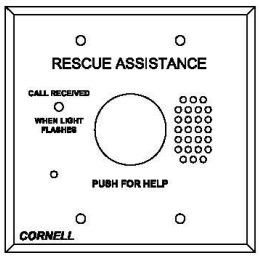
THE ES-4808 EXPANSION SWITCH IS MOUNTED IN A 15"W X 18"H X 4"D SURFACE MOUNT ENCLOSURE. THIS DEVICE CAN MOUNT IN A MAINTENANCE ROOM/CLOSET AREA AND CAN SUPPORT UP TO 8 4800V CALL STATIONS OR A COMBINATION OF CALL STATIONS AND SWITCHES. (ASSEMBLED WEIGHT: 19 LBS)



THE B-5248A 24VDC, 8AMP POWER SUPPLY IS MOUNTED IN A 15.75"W X 11.25"H X 4.50"D SURFACE MOUNT, LOCKING ENCLOSURE. THIS DEVICE CAN MOUNT IN A MAINTENANCE ROOM/CLOSET AREA AND CAN SUPPORT A COMBINATION OF 7 CONTROL PANELS OR SWITCHES. (ASSEMBLED WEIGHT: 21 LBS)



THE B-5243B 24VDC, 3.3AMP POWER SUPPLY IS MOUNTED IN A 14.25"W X 9.50"H X 3.75"D SURFACE MOUNT, LOCKING ENCLOSURE. THIS DEVICE CAN MOUNT IN A MAINTENANCE ROOM/CLOSET AREA AND CAN SUPPORT A COMBINATION OF 3 CONTROL PANELS OR SWITCHES. (ASSEMBLED WEIGHT: 17 LBS)



THE 4800V CALL STATION DEVICE MEASURES 4.57"W X 4.50"H X 2.25"D AND MOUNTS IN A STANDARD 4" SQUARE ELECTRICAL OR MASONRY BOX. (ASSEMBLED WEIGHT: 1.0 LB)

USE A 4" SQUARE RACO #232 BOX AND #769 5/8" RAISED PLASTER RING WITH BOX MOUNTING HOLES OR A WIREMOLD V5744-2 2.75"D SURFACE MOUNT BOX.

General Operating Instructions

Operation

The Cornell 4800 Rescue Assistance System provides both audible and visual indications of Emergency calls. Normal system function indicators include a steady red "Main Power" Led and a (10) second supervisory LED pulse at all of the call stations.

General

Momentarily depressing the push button on a 4800V Call Station causes a short acknowledge tone and steady call LED illumination at the 4800V Call Station. The 4800V Call Station LED begins flashing when the pre-recorded "Pending" message is announced. At the Control Panel(s), the location of the 4800V Call Station(s) is displayed in order of activation. Whenever there is one or more calls placed that have not been answered, a slow repeating audible alarm is sounded at the Control Panel(s), and the "Action Required" LED will be flashing.

Selecting an "Active" 4800V Call Station will connect 2-way voice communication between the Control Panel(s) handset and the 4800V Call Station. The Control Panel(s) operator will immediately be connected to listen/talk to the person at the 4800V Call Station. Momentarily depressing the "Select Top Row" button again will disconnect voice communication to the 4800V Call Station and complete the call.

Any Control Panel may respond to an incoming call. However, once a call has been "Connected" via the modem, the remaining Control Panel(s) will indicate that the call has been "Answered", and will not be able to connect to that location.

Voice communication can be re-connected to any active 4800V Call Station shown on the display list, by pressing the Up/Down arrow keys, to scroll the location to the top line of the display and pressing the "Select Top Row" button. To cancel communication, press the "Select Top Row" button again. To clear all previous calls, press the "Clear All Calls" button twice, at the Main Control Panel. The "Clear All Calls" function only functions from the Control Panel designated as the "Main Control Panel" in the system.

General Operating Instructions Cont.

Modem Operation

The 4800 Digital Emergency Communication System incorporates a programmable automatic dial feature to connect to an **Analog "POTS"** dedicated telephone line. In the event that an incoming call is not answered, at any of the Control Panels in a preset amount of time, the 4800 system will dial a pre-programmed phone number to directly connect the 4800V Call Station to a monitoring location.

Optionally, a pre-recorded voice message can be played, when the Modem is connected to a monitoring location. The message should identify the specific building location. Additionally the specific call station location can be provided.

The "Monitoring" connection can be terminated by scrolling the "Connected" call to the top row of the display and pressing the "Select Top Row" button or by pressing the "Mute Alarm" button. Either action will immediately terminate the phone conversation and connect a voice path from the Control Panel(s) to the 4800V Call Station.

System Faults

The modem/phone line circuit integrity is checked every 24 hours. In the event of a failure, a "Fault" notification will appear on the Control Panel(s) display. System faults produce an audible signal at the Control Panel(s), a flashing "Action Required" LED and are indicated on the display(s).

Optionally, in the event that a fault is not corrected, in a preset amount of time, the 4800 system will dial a pre-programmed phone number to report the fault to a monitoring location. This will be in the form of a pre-recorded voice message providing specific building location and a brief fault description.
PLEASE NOTE: The pre-recorded system fault message will play automatically. Consult your local "Authority Having Jurisdiction" and the monitoring location to see if this is acceptable.

General Installation

⚠WARNING

The 4800 Digital Emergency Communication System requires installation by factory trained authorized dealers/distributors, in accordance with NFPA 70 National Electrical Code, by qualified electricians.

The 4800 System meets FCC 15, subpart A, Section A (Commercial Use) emissions and is ICES-003 (Canada) compliant, when installed according to the installation instructions and the state/local electrical codes. The 4800 Digital Emergency Communication System shall be installed in a controlled, indoor dry environment, with temperatures maintained between 55°F and 95°F.

System Layout Options

The 4800 System is designed to be configured from a single Call Station system with (1) Main Control Panel, to as large as 255 Call Station system, with (1) Main Control Panel and 4 Remote Control Panels. However, there are several system wiring guidelines and limitations that must be adhered to.

- A maximum of (6) "Hops" or connections from any of the J2/WAN ports, of the Main Control Panel, to subsequent Switches and Call Stations.

- Cat5e connections are limited to 328' between the Control Panel/Switches and Call Stations.

Hardware Installation

Power Supply(s)

The Cornell listed power supply(s) can be located in a controlled maintenance room or closet, up to 478' away from the Control Panel(s) or Expansion Switch(s). The enclosures have keyhole slots for surface mounting. Power supplies require 120VAC/60Hz, 2.5 A Max, hardwired connections.

Control Panel(s)

Control Panels can be located in a controlled environment which provides direct access to monitoring personnel. The Control Panel(s) are provided with an 18.1/4"W X 18.1/4"H X 3.25"D flush mount, hinged, locking enclosure. The enclosure includes (3) knockouts that are located at the top of the enclosure. (See page 9 for mounting information).

Expansion Switch

Expansion Switches can be located in a controlled maintenance room or closet. The 15"W X 18"H X 4"D enclosure includes (3) knockouts that are located at the top of the enclosure, and keyhole slots for surface mounting.

Call Station

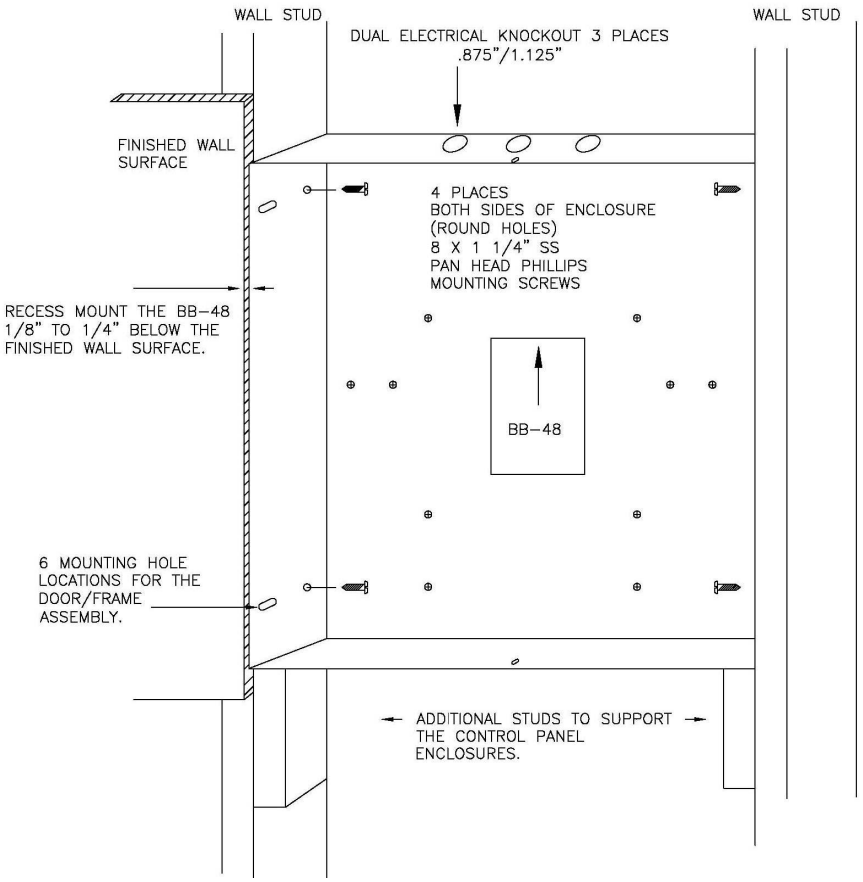
Call Stations should be located in a controlled environment. Electrical 4" square, UL listed back boxes are required.

***EMI filters are required to be installed to meet FCC requirements. See page 17 for detailed installation instructions. Proper EMI filters are provided with each device.**

Hardware Installation

BB-48 Control Panel Enclosure Installation
Back Box

The Control Panel(s) enclosure is only offered in a flush mount configuration, made of 16 gauge cold rolled steel that is primed and painted. The enclosure assembly consists of a separate back box and a locking hinged Frame/Door assembly. The Back Box chassis should be mounted with the "Top of Box Arrow" pointing up, and approximately 1/8" to 1/4" below the finished wall surface with the provided hardware.



Installation

1. Cut an 18 ¾" square rough opening in the approved location.

2. Use the hardware supplied and the (4) round holes to mount the back box 1/8" to 1/4" below the finished surface as shown. Note the "Top of Box" arrow for proper orientation.

*Additional hardware (Not Included) may be necessary depending on installation type).

3. Support the bottom of the back box as required.

4. Ensure proper spacing for the field wiring to be brought into the top of the box thru the supplied knockouts. Additional knockouts can be added as needed.

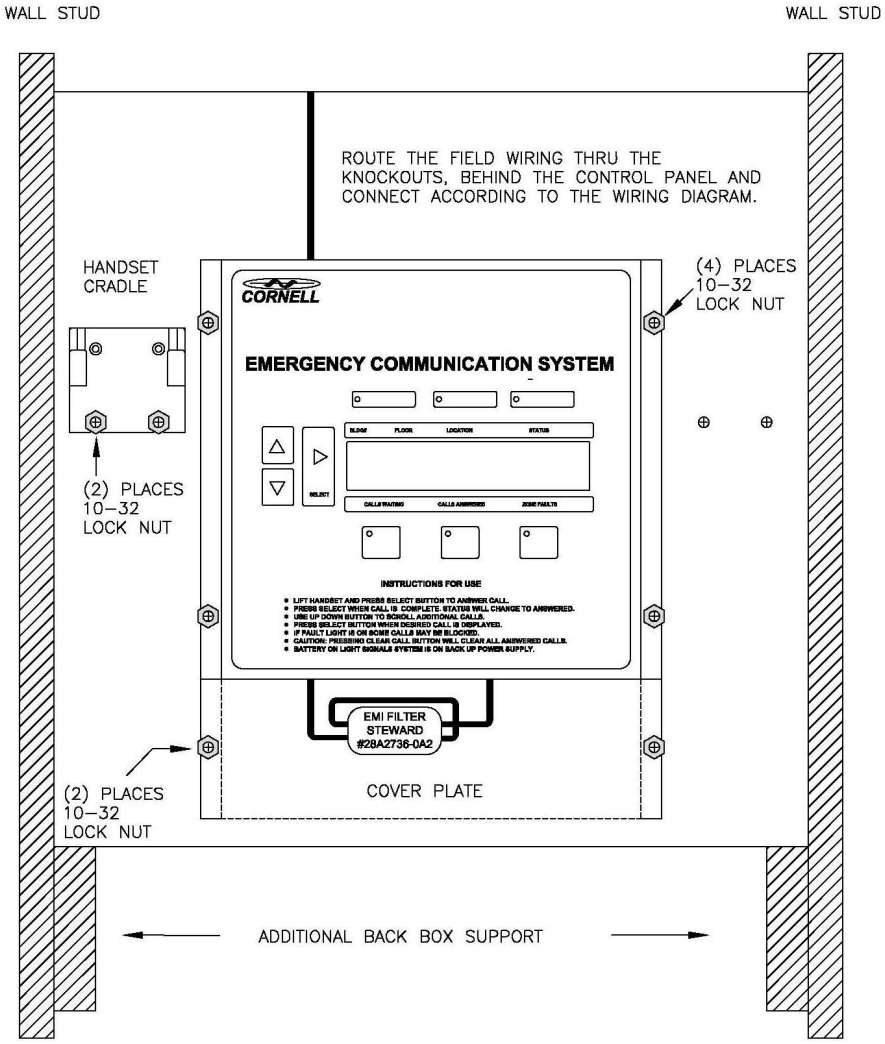
5. System wiring should be routed behind the Control Panel as shown on the next page.

Control Panel Enclosure	**DEPTH**	**WIDTH**	**HEIGHT**	**WEIGHT**
	(INCHES)	(INCHES)	(INCHES)	(LBS)
#7330-122 Enclosure Chassis:	3.25	18.25	18.25	
Rough Opening Dimension:	3.50	18.75	18.75	
#7330-123 Enclosure Frame/Door:	1.50	20.00	20.00	
Assembled Enclosure:				22

Hardware Installation

BB-48 Control Panel Enclosure
Control Panel/Handset Cradle

The Control Panel(s) enclosure is designed to have the hinged Frame/Door assembly mount on either the left or right side of the Back Box. The Back Box chassis provides mounting studs, on both sides of the Control Panel(s), to allow the Handset Cradle to be mounted accordingly.



Installation Cont.

1. Mount the Control Panel(s) using (4) of the 10-32 Lock-Nut hardware that is provided. Ensure the field wiring moves freely and is not pinched behind the Control Panel(s), prior to tightening.

2. Mount the Handset Cradle on the desired side using (2) of the 10-32 Lock-Nut hardware that is provided.

3. Connect the field wiring according to the wiring instructions starting on page 13.

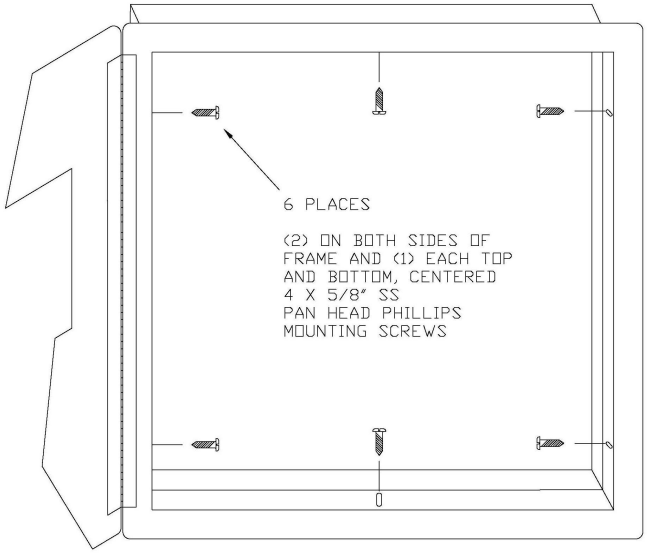
4. Ensure the EMI Filters are installed on the 4800V Call Station connections. See page 17 for details.

5. Attached the wiring Cover Plate Using (2) 10-32 Lock-Nut hardware provided, once the system operation testing is complete.

Hardware Installation

BB-48 Control Panel Enclosure Frame/Door Assembly

The Control Panel(s) hinged Frame/Door assembly is reversible, and can be mounted on either the left or right side of the Back Box. The reversible Frame/Door assembly can be adjusted up to approximately 1" away from the face of the chassis surface.



Installation Cont.

1. Position the Door/Frame assembly into the back box accordingly.

2. Insert (2) of the 4 X 5/8" SS screws into the hinge side of the Door/Frame assembly. Do not over-tighten.

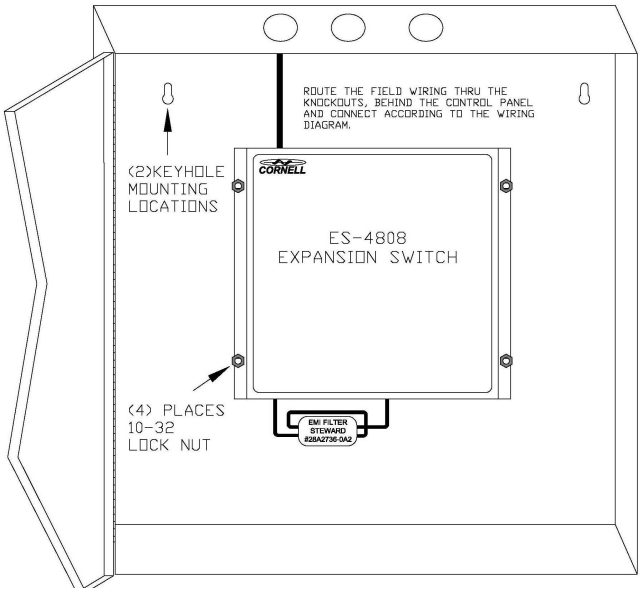
3. Insert the remaining (4) screws and adjust the frame to align with the door, when the door is closed.

Caution

Over-tightening the screws will warp or bend the Door/Frame assembly and may cause the hinge to operate improperly.

BB-49 Expansion Switch Enclosure Installation

The Expansion Switch enclosure is a surface mount, 16 gauge, primed and painted steel box, with an attached hinged door assembly.



Installation Cont.

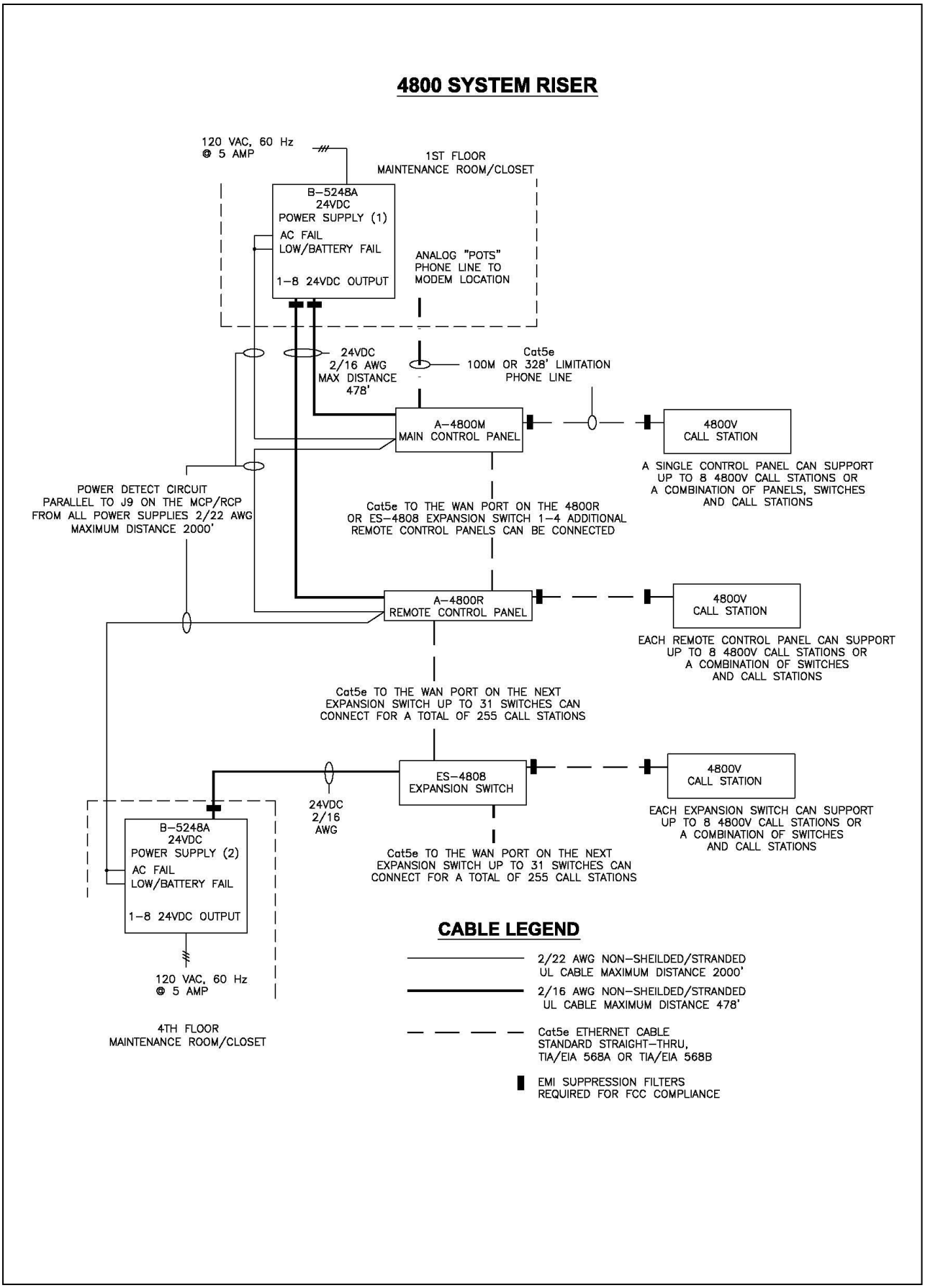
1. Surface mount the BB-49 using the keyhole slots provided.

2. Mount the Expansion Switch using (4) of the 10-32 Lock-Nut hardware that is provided. Ensure the field wiring moves freely and is not pinched behind the Expansion Switch, prior to tightening.

3. Connect the field wiring according to the wiring diagram on starting on page 12.

4. Ensure the EMI Filters are installed on the 4800V Call Station connections. See page 17 for details.

	DEPTH	WIDTH	HEIGHT	WEIGHT
#7330-121 Enclosure Chassis:	4.0"	15.00"	18.00"	15Lbs

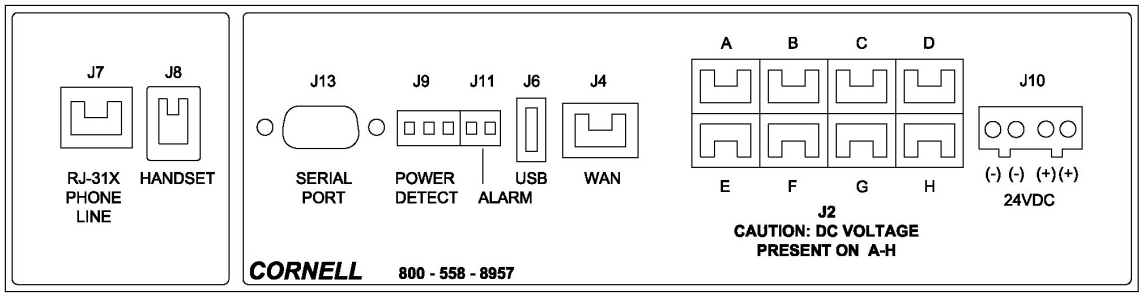

4800 SYSTEM RISER
120 VAC, 60 Hz
@ 5 AMP
1ST FLOOR
MAINTENANCE ROOM/CLOSET
B-5248A
24VDC
POWER SUPPLY (1)
AC FAIL
LOW/BATTERY FAIL
1-8 24VDC OUTPUT
ANALOG "POTS"
PHONE LINE TO
MODEM LOCATION
24VDC
2/16 AWG
MAX DISTANCE
478'
Cat5e
100M OR 328' LIMITATION
PHONE LINE
A-4800M
MAIN CONTROL PANEL
4800V
CALL STATION
A SINGLE CONTROL PANEL CAN SUPPORT
UP TO 8 4800V CALL STATIONS OR
A COMBINATION OF PANELS, SWITCHES
AND CALL STATIONS
POWER DETECT CIRCUIT
PARALLEL TO J9 ON THE MCP/RCP
FROM ALL POWER SUPPLIES 2/22 AWG
MAXIMUM DISTANCE 2000'
Cat5e TO THE WAN PORT ON THE 4800R
OR ES-4808 EXPANSION SWITCH 1-4 ADDITIONAL
REMOTE CONTROL PANELS CAN BE CONNECTED
A-4800R
REMOTE CONTROL PANEL
4800V
CALL STATION
EACH REMOTE CONTROL PANEL CAN SUPPORT
UP TO 8 4800V CALL STATIONS OR
A COMBINATION OF SWITCHES
AND CALL STATIONS
Cat5e TO THE WAN PORT ON THE NEXT
EXPANSION SWITCH UP TO 31 SWITCHES CAN
CONNECT FOR A TOTAL OF 255 CALL STATIONS
ES-4808
EXPANSION SWITCH
4800V
CALL STATION
EACH EXPANSION SWITCH CAN SUPPORT
UP TO 8 4800V CALL STATIONS OR
A COMBINATION OF SWITCHES
AND CALL STATIONS
24VDC
2/16
AWG
B-5248A
24VDC
POWER SUPPLY (2)
AC FAIL
LOW/BATTERY FAIL
1-8 24VDC OUTPUT
Cat5e TO THE WAN PORT ON THE NEXT
EXPANSION SWITCH UP TO 31 SWITCHES CAN
CONNECT FOR A TOTAL OF 255 CALL STATIONS
120 VAC, 60 Hz
@ 5 AMP
4TH FLOOR
MAINTENANCE ROOM/CLOSET
CABLE LEGEND
2/22 AWG NON-SHEILDED/STRANDED
UL CABLE MAXIMUM DISTANCE 2000'
2/16 AWG NON-SHEILDED/STRANDED
UL CABLE MAXIMUM DISTANCE 478'
Cat5e ETHERNET CABLE
STANDARD STRAIGHT-THRU,
TIA/EIA 568A OR TIA/EIA 568B
EMI SUPPRESSION FILTERS
REQUIRED FOR FCC COMPLIANCE

System Wiring Terminations

The 4800 Digital Emergency Communication System utilizes (3) types of connection cables as shown in the system riser.

- Pair #16 AWG, stranded, non-shielded cable, from the PS to the Control Panels/Switches.
- Pair #22 AWG, stranded, non-shielded cable, circulating from the PS to all of the Power Detect (J9) connections on the Control Panels. (Two outer terminals)
- Cat5e cable, Standard straight-thru, TIA/EIA 568A or TIA/EIA 568B, from the Control Panels/Switches, to the Call Station(s) and to the maintenance room for the phone line, as shown in the riser on the previous page.

The label below is provided on the Control Panel(s). The Expansion Switch uses a modified circuit board and label that does not have the J7 or J8 ports.



Connection Port	Description
J2	8 available RJ45 ports to connect to Remote Control Panels/Remote/Switches or Call Stations. (Standard straight-thru, TIA/EIA 568A or TIA/EIA 568B. See page 18) **Caution: Do not connect a PC to these ports. The ports have DC voltage to power the Call Stations. Connecting to any of these ports will damage the PC!!**
J4	WAN port used to connect additional Remote Control Panels and Expansion Switches. (Standard straight-thru, TIA/EIA 568A or TIA/EIA 568B)
J6	USB programming port. A pre-programmed USB drive must remain installed for the Call Station message and/or Fault message options to work.
J7	Analog "POTS" dedicated telephone line or RJ-31X Jack connection, for "POTS" line sharing. (Standard straight- thru, TIA/EIA 568A Telecom Cat5e)
J8	Handset connection. (Available on the Main or Remote Control Panel)
J9	Power Detect/AC failure. A pair of wires connects to the power supplies AC/Battery fail circuits. The (2) outside terminals on the J9 connector are used. (Control Panel(s) only)
J10	24VDC power supply connections.
J11	Normally Open (N.O.) contact provided for remote alarm connection. The J11 port is not active on the ES's. Example: Cornell part # D-113P, D-113CH
J13	RS232 serial programming port.

System Wiring Terminations Cont.

The 4800 System is shipped from the factory fully programmed, with the local site information that was provided by a Cornell Communications dealer. Identify each of the system components and install them in their required locations. Use the System Wiring Terminations page to assist with the following connections.

- Connect the Call Station(s) RJ45 port to the Control Panel(s) and Expansion Switch(s), (A-H) J2 port, using Cat5e cable and EMI filter. **(EMI filter detail on page 17).**
  (Standard straight- thru, T1A/E1A 568A or T1A/E1A 568B, See page 19)

- Connect a 22 AWG pair of wire, from the Power Supply(s) AC/BAT Fail terminal blocks, to the (2) outer terminals, on the J9 connector at the Control Panel(s). This connection can be paralleled to all Control Panels. **(See page 18).**

- If the system uses multiple Control Panels and Expansion Switches, connect a Cat5e cable from any (4800M) Main Control Panel (A-H) J2 port, to the (4800R) Remote Control Panel, WAN (J4) port. Additional Control Panel(s) can be connected to expand the system by following the same procedure.

    - Connect a Cat5e cable from the (A-H) J2 port of the existing Control Panel(s), to the WAN (J4) port of the Add-On Control Panel or Expansion Switch. This will provide an additional (8) Call Station connections. (Subtract (1) J2 port if expanding further).

        - Note: Additional Control Panel(s) and Expansion Switches can be added on to any available (A-H) J2 port, on any of the Control Panel or Expansion Switch in the system. **(WAN ports do not require EMI filters)**

- With the AC power disconnected to the Power Supply(s), connect a 16 gauge power pair, from the Power Supplies DC (+) (-) terminals, to the J10 plug of all the Control Panel(s) and Expansion Switch(s). (See Page 17 for connection details).

    - The B-5248A has (7) set's of PTC protected DC outputs that can provide power for up to a combination of (7) Control Panel(s) and Expansion Switches. Install EMI filters as required. (See page 17)
    - Larger systems will require multiple power supplies. Refer to the system riser for details.

Contact Cornell Communications Technical Support Staff with any questions or concerns prior to applying power to the system!!!

1-800-558-8957

Technical Specifications/Electrical Ratings

Electrical Ratings by Model

MODEL	VOLTAGE	STAND BY/ACTIVE CURRENT	
4800M/R (No Stations)	27VDC	290mA	
4800M/R (8 Stations)	27VDC	720mA	1.00A
ES4808 (No Stations)	27 VDC	140mA	
ES4808 (8 Stations)	27 VDC	620mA	870mA
4800V	27VDC	60mA	90mA
B-5243B	120 VAC, 60 Hz	11W	Up to 1.2A AC Max
B-5248A	120 VAC, 60 Hz	11W	Up to 2.1A AC Max

Enclosure Dimensions

General Description

The Control Panel enclosures are only offered in a flush mount configuration and are made of 16 gauge cold rolled steel that is primed and painted. The enclosure assembly consists of a separate back box and a locking hinged Frame/Door assembly. The Back Box chassis should be mounted with the "Top of Box Arrow" pointing up, and approximately 1/4" below the finished wall surface. The reversible Frame/Door assembly can be adjusted up to approximately 1" away from the face of the chassis surface.

Control Panel Enclosure	DEPTH (INCHES)	WIDTH (INCHES)	HEIGHT (INCHES)
#7330-122 Enclosure Chassis	3 1/4	18.00	18.00
#7330-123 Enclosure Frame/Door	1 1/2	20.00	20.00
Rough Opening Dimension:	3 1/2	18 3/4	18 3/4

General Description

The Expansion Switch enclosure is a surface mount, 16 gauge primed and painted steel box, with an attached hinged door assembly.

Expansion Switch Enclosure	DEPTH (INCHES)	WIDTH (INCHES)	HEIGHT (INCHES)
#7330-121Complete Enclosure	4.0	15.00	18.00

Call Station Back Boxes

It is recommended that each Call Station should be mounted to one of the below UL listed electrical boxes.

Flush Mount

Box Type	Raco	Raco Mudring
4" Square Box & Ring 2 1/8"D	#232	#769 4" Square/Raised 5/8"
4" Square Masonry Box 3 1/2"D	#696	

Surface Mount

Box Type	Wire Mold
Two Gang 2 3/4"D	V5744-2

Power Supply Specifications

Model B-5243B Battery Back-UP Power Supply

The Cornell **B-5243B** is UL 1481 listed.

Input Specifications:

- Input Voltage: 120AC
- Input Current: 1.2 A Max

Output Specifications:

- Output Voltage: 24VDC
- Output Current: 3.3 A w/4 PTC Class 2 Outputs

Circuit Protection: Short circuit and thermal overload protection.

AC/Bat Fail Circuits

LED Indicator Diagnostics:

Termination: Screw terminals.

Exterior: White, baked enamel finish.

Dimensions: 9.50"H x 14.25"W x 4.50" D

Weight w/Bat: 17 Lbs

Mounting: Slotted keyholes make it suitable for vertical wall mounting.

Unit comes complete with power supply, enclosure, cam locks, battery leads, (2) 12V 7ah batteries and installation instructions.

Model B-5248A Battery Back-UP Power Supply

The Cornell **B-5248A** is UL 1481 listed.

Input Specifications:

- Input Voltage: 120AC
- Input Current: 2.1 A Max

Output Specifications:

- Output Voltage: 24VDC
- Output Current: 8 A w/8 PTC Class 2 Outputs

Circuit Protection: Short circuit and thermal overload protection.

AC/Bat Fail Circuits

LED Indicator Diagnostics:

Termination: Screw terminals.

Exterior: Tan, baked enamel finish.

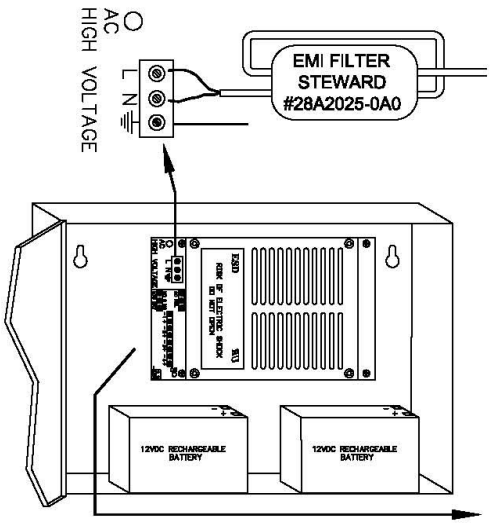
Dimensions: 11.25"H x 15.75"W x 4.50" D

Weight w/Bat: 21 Lbs

Mounting: Slotted keyholes make it suitable for vertical wall mounting.

Unit comes complete with power supply, enclosure, cam locks, battery leads, (2) 12V 7ah batteries and installation instructions.

4800 SYSTEM
FCC REQUIRED EMI FILTER INSTALLATION AND DC POWER CONNECTIONS

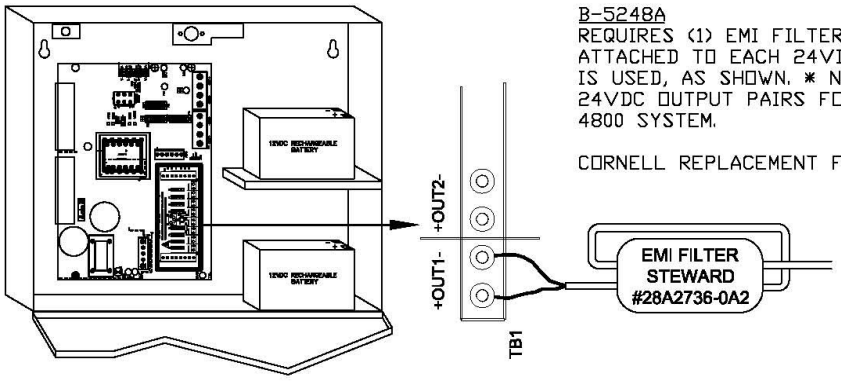


EMI SUPPRESSION FILTERS ARE REQUIRED TO BE INSTALLED IN ORDER TO COMPLY WITH FCC REGULATIONS. CORNELL INCLUDES THE EMI FILTERS WITH THE FOLLOWING DEVICES.

B-5243B
REQUIRES (1) EMI FILTER, WITH A SINGLE LOOP, ATTACHED TO THE INCOMING AC LINE AS SHOWN.

CORNELL RELACEMENT FILTER: #9010-029

THE B-5243B 24VDC POWER PAIR CONNECTIONS ARE SHOWN TO THE LEFT. USE THE CLASS 2, PROTECTED DC OUTPUT PAIRS 2-4, FOR INSTALLATION WITH THE 4800 SYSTEM.

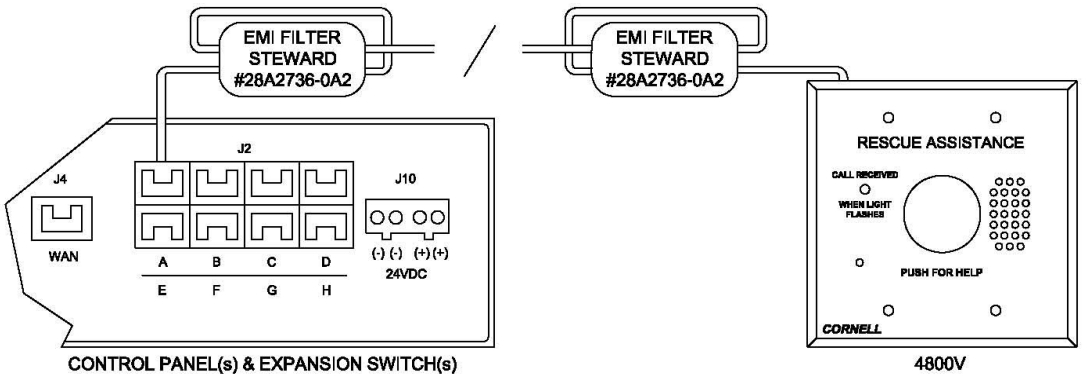


B-5248A
REQUIRES (1) EMI FILTER, WITH A SINGLE LOOP, ATTACHED TO EACH 24VDC OUTPUT POWER PAIR THAT IS USED, AS SHOWN. * NOTE: ONLY USE 7 OF THE 24VDC OUTPUT PAIRS FOR INSTALLATION WITH THE 4800 SYSTEM.

CORNELL REPLACEMENT FILTER: #9010-028

EACH 4800V CALL STATION CONNECTION, REQUIRES (2) EMI FILTERS, SINGLE LOOP, AS SHOWN BELOW.
(1) INSTALLED AT EACH OF THE J2 PORTS, OF THE CONTROL PANEL(S) AND EXPANSION SWITCH(S) (1-8)
(1) INSTALLED AT EACH OF THE 4800V CALL STATIONS (1-255)

CORNELL REPLACEMENT FILTER: #9010-028



4800 SYSTEM
POWER SUPPLY AC BATTERY FAULT WIRING

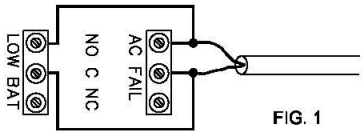
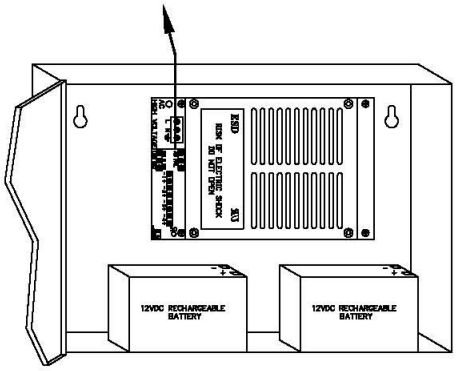
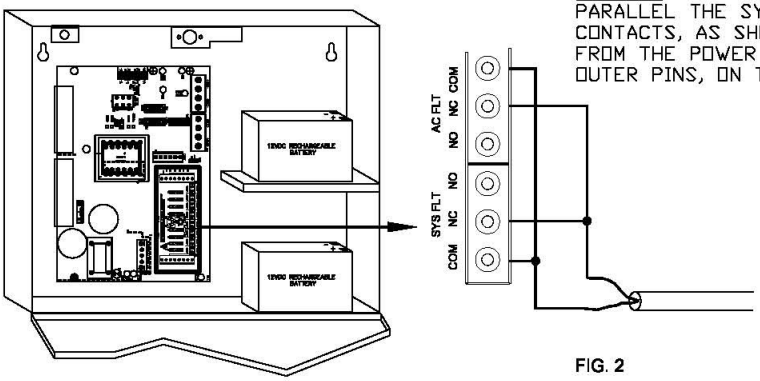


FIG. 1

THE 4800 SYSTEM PROVIDES LOSS OF AC/LOW BATTERY FAULT INFORMATION AT THE CONTROL PANELS, IN THE FORM OF AN ON BATTERY LED, ACTION REQUIRED LED WITH TONE AND A TEXT DESCRIPTION ON THE DISPLAY.



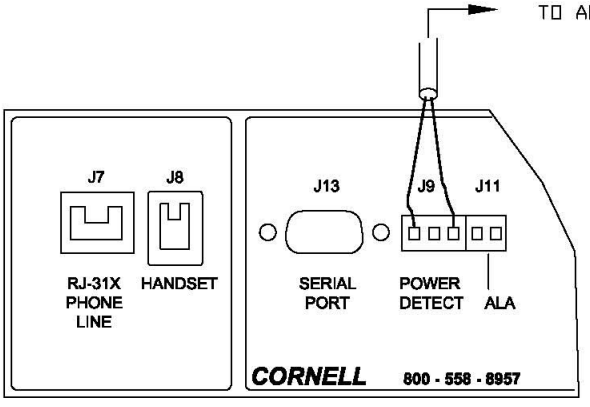
B-5243B
PARALLEL THE LOW/BAT AND AC FAIL (NO & C) CONTACTS, AS SHOWN IN FIG 1, WITH THE 22GA WIRE, FROM THE POWER SUPPLY TO THE J9 TERMINAL, (2) OUTER PINS, ON THE CONTROL PANELS.



B-5248A
PARALLEL THE SYS FLT AND AC FLT (NO & C) CONTACTS, AS SHOWN IN FIG 2, WITH THE 22GA WIRE, FROM THE POWER SUPPLY TO THE J9 TERMINAL, (2) OUTER PINS, ON THE CONTROL PANELS. (SEE BELOW)

FIG. 2

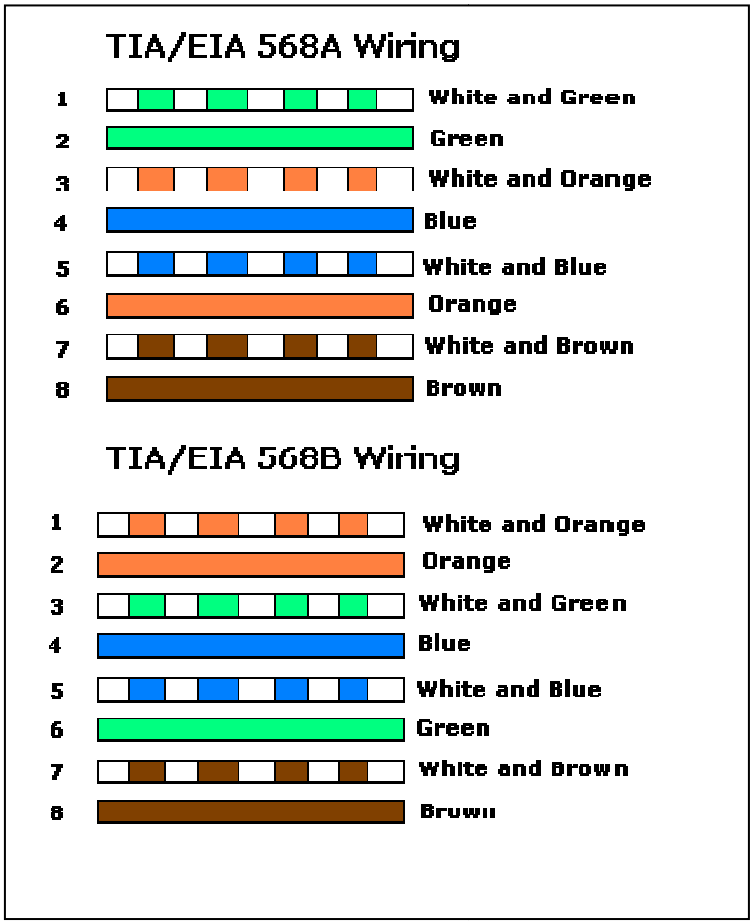
TO ALL SYSTEM POWER SUPPLIES.

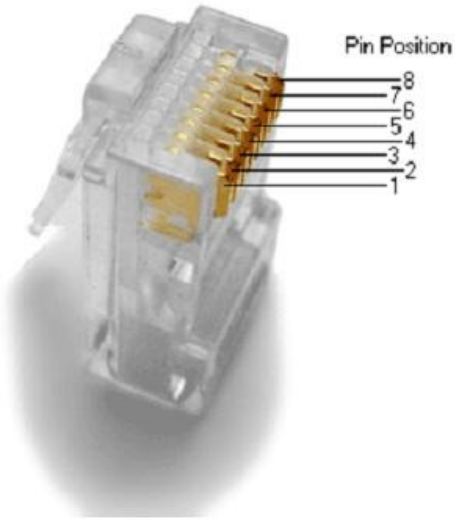


CONTROL PANEL(s)

TIA/EIA 568-A and 568-B Pin-Out

The TIA/EIA 568-A standard which was ratified in 1995, was replaced by the TIA/EIA 568-B standard in 2002. Both standards define the T-568A and T-568B pin-outs for using Unshielded Twisted Pair cable and RJ-45 connectors for Ethernet connectivity.

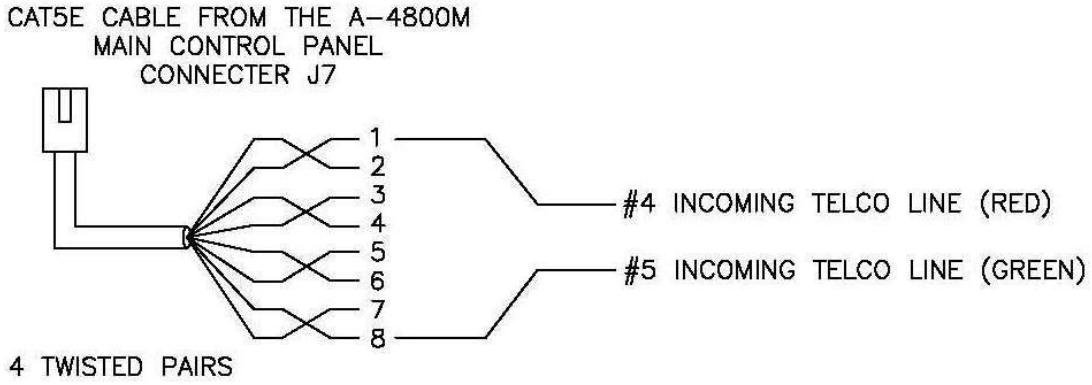




Caution - Properly trained personnel, familiar with Telecommunications Industry Associations 568 TIA/EIA standard, are required for proper installation. Failure to terminate the wiring correctly will cause damage to the system and void the warranty.

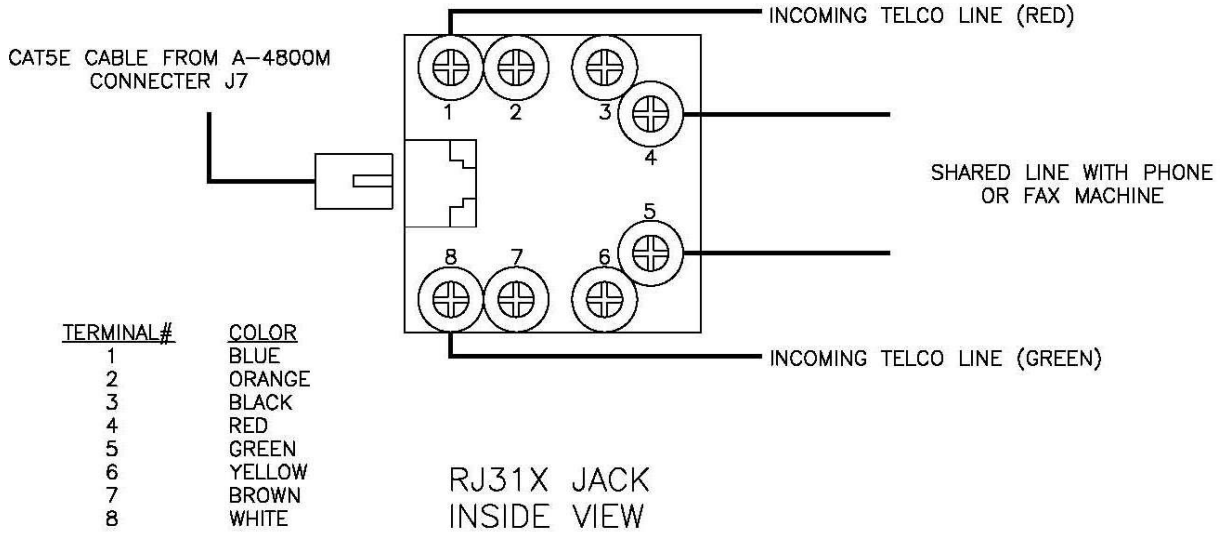
Dedicated Phone Line Connection

The 4800 Digital Emergency Communication System has an internal modem that can be connected to an Analog "POTS" dedicated telephone line, as shown in the diagram below.



Shared Phone Line Connection

The 4800 Digital Emergency Communication System also incorporates a telephone line "Seizure" capability. If the 4800 system is required to share a phone line with another device, an RJ31X jack must be installed as illustrated below. Proper installation of the RJ31X jack will allow the 4800 system to "Seize" the shared analog "POTS" line and place an emergency call to the assigned monitoring location.



TERMINAL#	COLOR
1	BLUE
2	ORANGE
3	BLACK
4	RED
5	GREEN
6	YELLOW
7	BROWN
8	WHITE

1. Connect a standard straight-thru Cat5e cable from the RJ31X jack to the J7 port on the Control Panel. (See pages 11 & 12)
2. Connect the incoming phone line to terminal #1 and #8 as shown.
3. Connect the sharing phone or fax machine lines to terminal #4 and #5 as shown.

POTS Phone Line Options

In the event that an analog "POTS" line is not available, the following options have been evaluated and provided satisfactory operation.

VoIP Service

A **Cisco SPA 112** analog adapter has been tested and found to be a viable alternative to the "POTS" line connection. The Cisco adapter emulates the "POTS" line by providing DTMF tones and line voltage.

Requirements:

- Active Internet & Voice over IP accounts
    - VoIP adapter model confirmation is required for each individual VoIP service. **(Cornell completed the operational testing using VoIP service provided by Nextiva)**

Disclaimers:

The 4800 offsite notification process requires a standard "POTS" line for proper operation. As with any method of offsite voice connection, if the phone service, internal/external network or power system fails, the 4800 system will not be able to connect to the offsite monitoring location.

The example VoIP service disclaimers below are generally included with service contracts.

- You may experience interruption of Service (or of certain features of the Service) or degraded service quality at any time and without notice. You will likely experience Service outages in the event of electric power outages affecting your business.
- Voice over IP requires that the infrastructure, on which the telephony system is built, is capable of handling voice services. This includes the proper hardware infrastructure (gateways, switches, routers, data/voice lines) and configuration of Quality of Service (QOS) and VLANS on these devices.

Several manufacturers offer analog voice phone adapters. Please confirm with the current/prospect VoIP service for the correct certified hardware device.

POTS Phone Line Options. Cont

Cellular Service

A **Shield Tech Security STS-GSMC-4G** GSM Dialer has been tested and found to be a viable alternative to the "POTS" line connection. The Shield Tech Dialer emulates the "POTS" line by providing DTMF tones and line voltage.

Requirements:

- Active AT&T cellular SIM card/monthly fee

Disclaimers:

The 4800 offsite notification process requires a standard "POTS" line for proper operation. As with any method of offsite voice connection, if the phone service, internal/external network or power system fails, the 4800 system will not be able to connect to the offsite monitoring location.

The example Cellular service disclaimers below are generally included with service contracts.

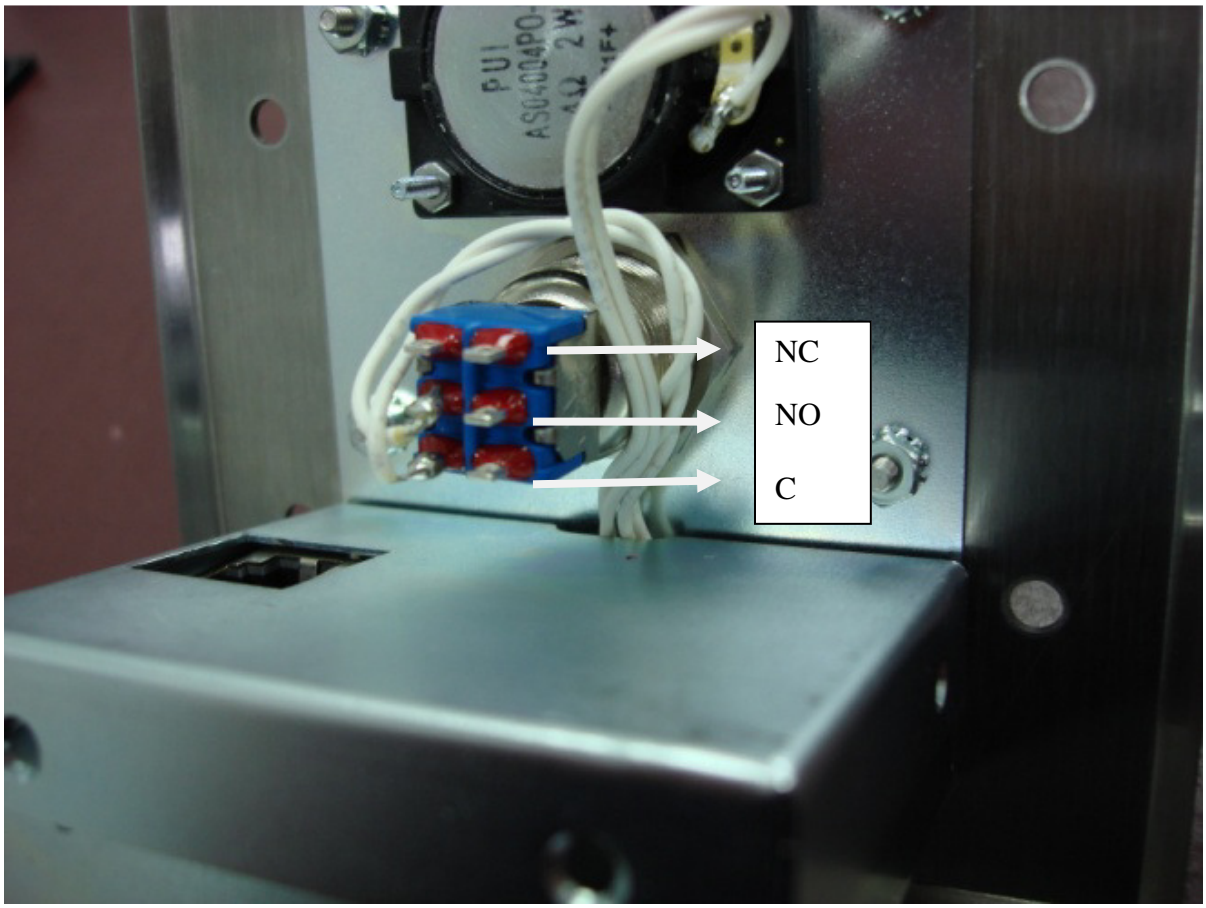
- You may experience interruption of Service (or of certain features of the Service) or degraded service quality at any time and without notice. You will likely experience Service outages in the event of electric power outages affecting your business.
- Just as VoIP phone line service can fail, cellular service can also fail, preventing an alarm condition from being reported to a monitoring location.

The 4800 system phone line circuit is checked every 24 hours for proper operation. A notification of a fault will be shown on the Control Panel(s) display, in the event of a failure.

4800V Call Station Auxiliary Contact Connection

The 4800V call station provides an auxiliary set of momentary form “C” contacts that can be used to activate external devices, such as a camera, strobe or tone device. Please refer to the picture, of the rear view of the call station, below. The contacts are labeled on the side of the switch as follows.

- NC
- NO
- C



4800 System Troubleshooting

The 4800 System is shipped from the factory fully programmed and tested with the local site information that was provided by a Cornell Communications dealer. If you have any difficulties with the installation, consult the troubleshooting chart below.

Control Panel Symptoms	Resolutions
• Power LED off	Confirm 24VDC system power at J10 terminal.
• Control Panel "Fault" is displayed	Confirm phone line is connected.
• Display is "Dim"	The display reduces brightness automatically.
• No "Dial Out" of phone message	No phone line or connection. System must be programmed to call "Off Site"

Call Stations	Resolutions
• No 10 second LED flash	Confirm station wiring. Stations do not operate below 18VDC
• Station activation shows 00:21:c3:00:00:XX	Station is not programmed into system.

The 4800 system device connections are fully supervised. Any Control Panel, Expansion Switch, or Call Station that is programmed into the system, will display a "Fault", at the Control Panel(s), if they lose power, are damaged, or disconnected from the circuit.

*All "Fault" indications must be manually cleared from the system, upon repair of the defective device. To clear all faults, press the "Clear All Calls" button twice, at the Main Control Panel. The "Clear All Calls" function only functions from the Control Panel designated as the "Main Control Panel" in the system.

Power Supplies

The B-5248A and B-5243B have the same safety features as outlined below. Confirm proper 24VDC is available to the 4800 system. Both supplies provide an average of 26 to 27VDC, in order to charge the battery circuit, and are normal operating voltages. Each supply includes (2) 12V 7ah batteries.

- PTC Class 2 protected outputs.
- Short circuit/Overload protection.
- AC/DC power LED indicators.
- AC/DC fail relays.

Refer to the individual manuals included with the power supplies.

Maintenance

Periodic Maintenance

In general, the 4800 system will provide system fault information at the Control Panel(s) display. The "ACTION REQUIRED" LED represents an active call or a fault in the system that needs to be corrected.

The phone line circuit is checked every 24 hours for proper operation. A notification of a fault will be shown on the Control Panel(s) display, in the event of a failure.

The power supply is monitored at the Control Panel(s) for AC Fail, and Low Battery/Fail. The "ON BATTERY" LED will illuminate if the AC power has failed and the system is powered by batteries.

Warning – To ensure proper operation, the 4800 system should be tested on a regular basis by qualified personnel.

Power Supply Maintenance

Each 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. (24VDC)
- 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 insure there is no break in the battery connection wires.

Note: Expected battery life is 5 years. However, it is recommended changing batteries in 4 years or less if needed. (See install documentation provided with each Power Supply)

Service

It is recommended that all defective units be returned to the manufacturer for repair. The 4800 system does not have any field serviceable parts or components.

Warranty/Returns

Warranty:

CORNELL warrants its products to be free from defects in materials and workmanship for thirty-six (36) months from the date of manufacture, under normal use and service.* Obligation of CORNELL is limited to repairing or replacing at its option, any part, which, in its opinion, shall be proved defective in materials or workmanship, under normal use and service. This warranty is void if the product is altered, damaged by lightning or repaired by anyone other than CORNELL personnel. No other warranty, expressed or implied, will be allowed unless agreed to in writing by the factory.

***36 month Warranty does not apply to 3rd Party OEM products which carry the original manufacturer's warranty. Please verify OEM warranty with your Cornell Regional Account Manager if you have any questions.**

Returns:

Warranty returns will be accepted with RMA# for no cost. Defective materials will be repaired for a minimum of $100 and cost of the repair will be for time and materials not to exceed the cost of a new unit. Returns of unused, unmarked boxed equipment are subject to a MANDATORY 25% restocking charge when returned within 90 days of purchase. ABSOLUTELY NO RETURNS WILL BE ACCEPTED AFTER 90 DAYS. Returns of used equipment or custom equipment will not be accepted. All returns/repairs must be adequately packaged for shipment.

For an RMA #, (Return Materials Authorization) please call Cornell at 1-800-558-8957.

Agency Approvals:

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, and (2) This device must accept any interference received, including interference that may cause undesired operation.