PRO-2200
Enclosure
Installation Manual

Part Number: PRO22ENC1
PRO22ENC2

Honeywell

Contents

Warnings and Cautions

WARNING

Before installation, **TURN OFF** the external circuit breaker which supplies power to the system.

Before connecting the device to the power supply, verify that the output voltage is within specifications of the power supply.

Do not apply power to the system until **after** the installation has been completed. Personal injury or death could occur, and the equipment could be damaged beyond repair if this precaution is not observed!

WARNING

Fire Safety and Liability Notice

Never connect card readers to any critical entry, exit door, barrier, elevator or gate without providing **an alternative exit** in accordance with all fire and life safety codes pertinent to the installation. These fire and safety codes vary from city to city and you must get approval from local fire officials whenever using an electronic product to control a door or other barrier. Use of egress buttons, for example, may be illegal in some cities. In most applications, single action exit without prior knowledge of what to do is a life safety requirement. Always make certain that any required approvals are obtained in writing. DO NOT ACCEPT VERBAL APPROVALS, THEY ARE NOT VALID.

Engineered Systems never recommends using the PRO-2200 or related products as a primary warning or monitoring system. Primary warning or monitoring systems should always meet local fire and safety code requirements. The installer must also test the system on a regular basis by instructing the end user in appropriate daily testing procedures. Failure to test a system regularly could make installer liable for damages to the end user if a problem occurs.

WARNING

EARTH ground all enclosures, for proper installation.
EARTH ground can be obtained through the power supply or by grounding the cabinet, **BUT NOT BOTH!**

WARNING

Use suppressors on all door strikes. Use S-4 suppressors for installation. Engineered Systems recommends only DC strikes.

The information in this document is subject to change without notice.

CAUTION

If any damage to the shipment is noticed, a claim must be filed with the responsible commercial carrier.

CAUTION

Electro-static discharge can damage CMOS integrated circuits and modules.

To prevent damage always follow these procedures:

Use static shield packaging and containers to transport all electronic components, including completed reader assemblies.

Handle all ESD sensitive components at an approved static controlled workstation. These workstations consist of a desk mat, floor mat and an ESD wrist strap. Workstations are available from various vendors.

NOTICE

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules when wired using metal conduit for the cabling external to the enclosure. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference that will require correction at the users expense.

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Unpacking Procedure

CAUTION

If any damage to the shipment is noticed before unpacking, a claim must be filed with the commercial carrier.

All containers should be opened and unpacked carefully in order to prevent damage to the contents.

The following steps are used to unpack equipment in preparation for installation:

1. Open the container and remove the unit(s) and all packing material. Retain the container and all packing materials. They may be used again for reshipment of the equipment, if needed.

2. Inspect the contents for shortage. If items are missing, contact the order entry department at 800-323-4576.

3. Visually check contents. If damage is discovered, perform the following:

   If shipping caused damage to the unit, a claim must be filed with the commercial carrier.

   If any other defect is apparent, call 800-323-4576 for a return authorization.

Shipping Instructions

To ship equipment back to Engineered Systems:

1. Contact the customer service department before returning equipment at 800-323-4576. Please have the following available when calling:

   • A description of the problem or reason for returning the equipment.

   • Original purchase order number, invoice number and if the unit is under warranty.

   • A new purchase order number if the unit is not under warranty

2. Obtain the Return Authorization Number (RMA) from the customer service department at 800-323-4576.

3. Show the RMA number on all packages shipped. Packages, which are not marked with an RMA number will be refused at the factory and returned **COD.**

4. Carefully pack the equipment for shipment. Use the original packing material whenever possible.

Limited Warranty

All Products sold or licensed by Engineered Systems include a warranty registration card which must be completed and returned to Engineered Systems by or on behalf of the end user in order for Engineered Systems to provide warranty service, repair, credit or exchange. All warranty work shall be handled through Customer which shall notify Engineered Systems and apply for a Return Merchandise Authorization (RMA) number prior to returning any Product for service, repair, credit or exchange. Engineered Systems warrants that its Products shall be free from defects in materials and workmanship for a period of two years from date of shipment of the Product to Customer. The warranty on Terminals, Printers, Communications Products and Upgrade kits is 90 days from date of shipment. Satisfaction of this warranty shall be limited to repair or replacement of Products which are defective or defective under normal use. Engineered Systems' warranty shall not extend to any Product which, upon examination, is determined to be defective as a result of misuse, improper storage, incorrect installation, operation or maintenance, alteration, modification, accident or unusual deterioration of the Product due to physical environments in excess of the limits set forth in Product manuals. THERE ARE NO WARRANTIES WHICH EXTEND BEYOND THIS PROVISION. THIS WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES WHETHER EXPRESS, IMPLIED OR STATUTORY, INCLUDING IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR ANY PARTICULAR PURPOSE. NO REPRESENTATION OR WARRANTY OF THE DISTRIBUTOR SHALL EXTEND THE LIABILITY OR RESPONSIBILITY OF THE MANUFACTURER BEYOND THE TERMS OF THIS PROVISION. IN NO EVENT SHALL ENGINEERED SYSTEMS BE LIABLE FOR ANY RE-PROCUREMENT COSTS, LOSS OF PROFITS, LOSS OF USE, INCIDENTAL, CONSEQUENTIAL OR SPECIAL DAMAGES TO ANY PERSON RESULTING FROM THE USE OF ENGINEERED SYSTEMS' PRODUCTS.

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PRO-2200 Enclosure
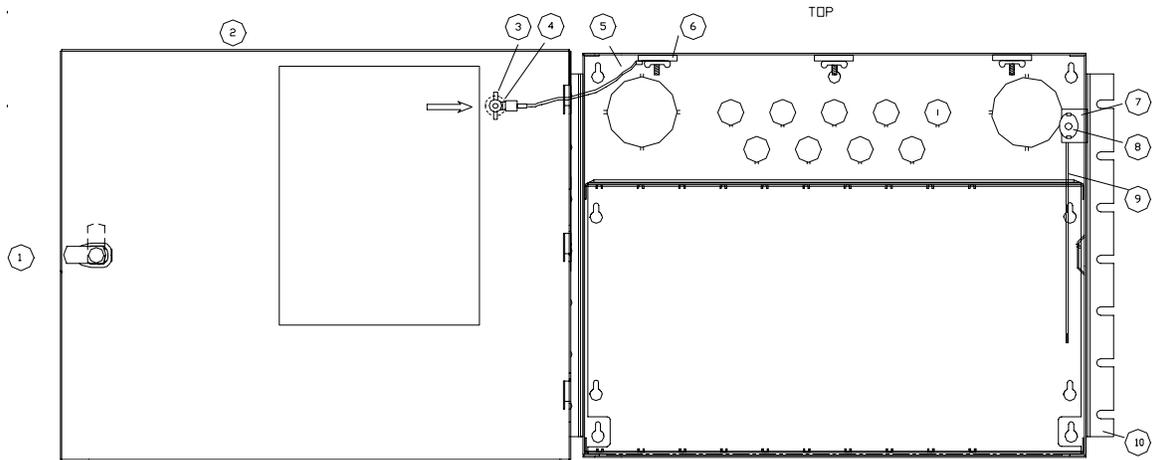
PRO22ENC1 / PRO22ENC2

NUMBER	PART NUMBER	EACH	DESCRIPTION
1	PRO22E1LK	1	LOCK WITH RETAINING TANG AND KEY
2	PRO22E1DR	1	REMOVABLE DOOR
3	PRO22E1WN	4	8-32 WINGNUT
4	PRO22E1QC	1	.25 MALE QUICK CONNECT
5	PRO22E1GW	1	DOOR GROUNDING CABLE
6	PRO22E1WR	3	7/8" WASHER
7	PRO22E1TH	1	TAMPER SWITCH HOLDER
8	PRO22E1SW	1	TAMPER SWITCH
9	PRO22E1TS	1	TAMPER SWITCH CABLE
10	PRO22E2FL	2	MOUNTING FLANGE FOR 19" RACK AVAILABLE ON PRO22ENC2 ONLY

Description

The PRO-2200 system is designed for maximum efficient use of wall space through the use of a secure metal cabinet (PRO22ENC1/PRO22ENC2) that can hold up to nine modules, a 4 amp power supply (PRO22E1PS) and a self-contained replaceable backup battery.

Typically, one of the nine modules can be an intelligent controller (PRO22IC). The remaining eight slots can be used and configured in a variety of combinations of readers, supervised inputs, relay outputs and other specialized modules to customize the system for the individual site.

The PRO22ENC1/PRO22ENC2 can be configured in any combination of the PRO22IC, PRO22IN, PRO22OUT, PRO22R2 and PRO22R1. An optional daisy chain cable (PRO22DCC) provides an RS-485 communication and power bus between the nine modules.

Dimensions

	ENC1	ENC2
Height:	13.9" [0.353 m]	13.9" [0.353 m]
Width:	17" [0.4318 m]	18.9" [0.48006 m]
Depth:	9" [0.2286 m]	9" [0.2286 m]

Metal thickness: .05" [1.27 mm]
Color: Autumn White

Installation holes: Four hangers in a rectangular pattern 12.1" [0.30734 m] H x 16" [0.40640 m] W

Conduit Knockouts

	½" [0.0127 m]	2" [0.05080 m]
Back:	9	2
Top:	9	2
Right Side:	2	1
Left Side:	2	1

Power Supply

Use PRO22E1PS or other approved power supply. (See Installation Manual for details).

Maintenance

Oil lock once per year. If battery backup is used, change battery every 2 to 2 1/2 years.

Installation Instructions

1. Measure and install four mounting screws with heads smaller than .4" [0.01016 m] using proper techniques for the material on which the PRO-2200 is being mounted. Use a rectangular screw pattern 12.1" [0.30734 m] H x 16" [0.40640 m] W. Leave the screws exposed approximately 1/2" [0.0127 m].

2. Open the door of the enclosure and place the hanging slots over the mounting screws. Push the enclosure over the mounting screws and allow the screws to slide into the slots. Finish tightening the mounting screws to securely hold the enclosure.

3. Run all appropriate wiring to the case. Mark each wire as to the panel, location and input type. All cable shields should tie to the copper grounding lug found on the bottom right of the enclosure.

4. Install the required panels into the metal runners. The PRO22E1PS should be placed in the right most location and installed according to its own instruction manual. The PRO22IC should be installed next to it as the right-most panel.

5. Wire the readers, input and output connections (see wiring guide at end of manual)

6. CHECK ALL CONNECTIONS PRIOR TO POWERING UP THE ENCLOSURE AND PANELS.

7. The remainder of the panels can be manually wired for power and RS-485 communications using 18 AWG wire. The wires will be daisy-chained from one panel to the next so the power and the communications are wired in parallel. PRO22DCC is available as an option to be purchased with the equipment. This will reduce wiring time in the field since the power and RS-485 communications between panels is factory-wired in a harness that plugs into the bottom two connectors on each panel. The only field wiring required is the two wiring connections of the red and black 12 VDC cables connecting the PRO22DCC and the PRO22E1PS power supply.

Installation Diagram

PRO22ENC1

PRO22ENC2
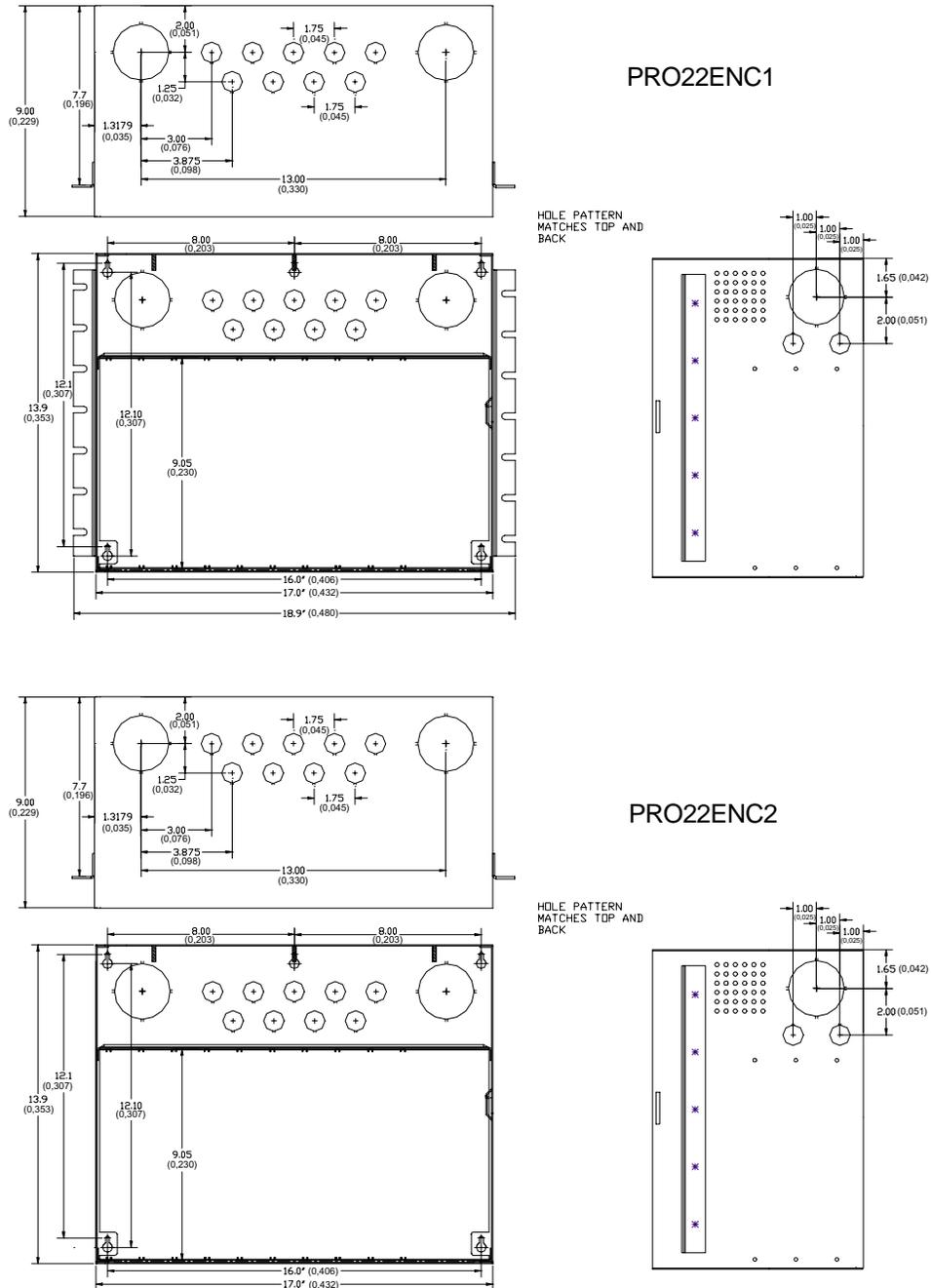
UL1076 Setup

PC Minimum Requirements

Two required:

• 500 Mhz	• 128Mb RAM
• 9.1Gb hard drive	• CD ROM
• 10/100 TX network card	• 17" SVGA Monitor

Peripheral Hardware Requirements

• UL approved network HUB with at least 4 ports.

• UL approved CAT 5 network cable and connectors.

• PRO22IC Controller and accompanying I/O boards.

• Cobox network card (PRO22IC mounted)

Operating System Requirements

• NT Server 4.0 or better.

• NT Service Pack #5 or higher.

Software Packages Required

• SQL Server 7.0

• SQL Server Service Pack #1 or higher.

• WIN-PAK PRO 3.0 with SQL database selection.

Receiving Unit minimum configuration

• PRO22ENC1 or PRO22ENC2 cabinet

• PRO22ULPS (ALTRONIX AL400 ULX) power supply with 40 AH battery back up

• PRO22IC controller panel

• PRO22IN input panel

• PRO22EN Cobox Ethernet card

• PRO22ENSP Tripp Lite DNET1 Ethernet surge protector

The following priority of incoming signals must be used for UL1076

1. Fire alarm (N/A) WIN PAK PRO is not certified for fire alarm supervision

2. Hold up / Panic alarm

3. Burglar alarm

4. Watchman tour

5. Fire alarm supervision (N/A) WIN PAK PRO is not certified for fire alarm supervision

6. Burglar alarm supervision

7. Industrial supervision

8. Other supervisory services

NOTE: 2 and 3 may have equal priority: 5 and 6 may have equal priority & 7 and 8 may have equal priority

Other UL1075 Notes

- All alarms and troubles must be acknowledged by attending guard.

- Reports of all alarms and troubles must be printed and stored at least once per week.

- When communications are disrupted from the protected area unit to the Central Supervisory station all panels must be buffered. They must transmit all stored alarms and troubles to the Central Supervisory Station when communications are restored.

- If Cameras are used they must be UL approved. Camera operation was not verified by UL.

- Guard Tour was not verified by UL to NFPA 72 standards

- Exit and Entry Delay can not exceed 60 seconds. Polling of a receiving unit may not exceed 200 seconds

Procedures

1. Configure the PC's by installing the NT Server 4.0.

    A. PC names should be unique and described with Alpha characters.

    B. IP addresses should be unique and have the same Subnet Mask.

    C. Each PC should be of the same workgroup name.

2. Install NT Service Pack #5 or higher.

3. Install SQL Server 7.0. Select either NT Authentication or Local System, but be consistent with both PC installations.

4. Install SQL Server 7.0 Service Pack #1.

5. Setup the Cobox PRO22EN per it's installation manual.

6. Install the WIN-PAK PRO Software on the **MAIN** PC.

    A. Select **Full Installation**.

    B. Select **SQL for Database**.

    C. Install the Desktop Icons.

    D. Upon reboot of the PC, stop all the WIN-PAK PRO Services.

7. Use the Query Analyzer to connect to the WIN-PAK PRO database using the provided script for attachment.

8. Open up the ODBC application in the Control Panel and create a link to the WIN-PAK PRO SQL database. The name used for a description should match the WIN-PAK PRO System Manger DSN Tab name. Default is **WIN-PAK Database**. See the WINPAK PRO installation manual for complete procedure.

9. The database server can now be started. Launch the User Interface and connect using **ADMIN** as the name without a password. 10. The database should now be programmed to accommodate the PRO22IC panel
and accompanying I/O boards. Refer to the WINPAK PRO Installation Manual for additional detail. The programming should continue until the system is fully functional and communications have been established. Below are the programming requirements for setting up the PRO22IC panel.

   A. **Direct to Port** selection required when adding a new PRO22IC.

   B. A unique TCP/IP address is required for assignment to the panel and should match the IP address you programmed through the Cobox software.

   C. Program all the ADV's for the hardware so that you will be able to monitor the points and system alarms.

   D. Once the program is configured, shut down the User Interface and restart all the services. Launch the User Interface and verify communications.

   E. Program the Communications Server with **Local Machine** for the **Node Name.**

   F. Program a Control Map and/or Floorplans with the hardware. Example: Panels, SIO boards, Inputs, Outputs, readers, Comm Server.

   G. All Servers added to the Device Map use **Local Machine** for the **Node Name.**

NOTE: Use the SQL Enterprise Manger to backup the programmed database. Refer to the SQL Server Manual for instructions.

CAUTION: If the instructions describing the Data Transformation Services are not followed *exactly* **your database could be overwriten**.

Second PC Installation

Follow Instructions 1 through 4 and 6 through 8 listed on pages 12 and 13.

Enterprise Manager Setup

1. Open up Enterprise Manager from the secondary PC, the PC you will use for Redundancy.

2. Right-click and expand the SQL Server Group.

3. Right-click and expand the Computer Name Group.

4. Right-click on the WIN-PAK PRO Database and select **All Tasks** then **Import Data**.

5. Click **Next**. Verify that the **Server** is selected as **MAIN**. The database should be WIN-PAK PRO. (The source database)

6. Click **Next**. Change the **Server** to match the name of the **LOCAL** PC. The database should be selected as WIN-PAK PRO from that Server. (The destination database).

7. Click **Next**. Select **Transfer objects and data between SQL Server 7.0 database**.

8. Click **Next**. Uncheck the **Create destination objects** box.

9. Click **Next**. Check the **Create DTS package for replication** box. Also **check** the **Save DTS Package** box. Leave the radial button set for SQL Server. This menu saves the replication using a DTS package which will be run when the user wants to keep the database current with the **MAIN** PC.

10. Click **Next**. Change the name or accept the default for the local package being created. Leave the Server name as LOCAL. Select either NT Authentication or SQL Server Authentication, whichever matches your requirements.

11. Click **Next**. Select finish and DO NOT ABORT THIS PROCESS. This DTS process will import all the data from the **MAIN** PC to the **Redundant** PC. When the transfer is successful, click OK.

12. If a Publication Wizard opens select **Cancel**. Use the SQL Server Manual to utilize this feature later, however it is not required for this setup. Click **Done** and minimize Enterprise Manager.

Pre-Redundancy Verification:

1. Stop all the services on the **MAIN** PC.

2. Start services on the **Redundant** PC and launch the User Interface. Log in as ADMIN.

3. Verify that the data is consistent with the **MAIN** PC.

4. Verify communication with the hardware by using the Alarm View, Control Map or Floorplans.

5. Next, close the user interface and stop the services on the **Redundant** PC.

DTS Package Verification

1. Maximize Enterprise Manager and locate the Data Transformation Services Folder. Expand the folder and the click on Local Packages.

2. Find the Local Package that was created earlier. Double-click on the package to open up the DTS menu. Select Package on the menu bar and then Execute.

3. The DTS package will run until it is done transferring the data from the **MAIN** PC to the **REDUNDANT** one.

4. Follow steps 1-5 in the Pre-Redundancy Section on page 14.

Interim Steps Before Full Redundancy Verification

1. Shut down the **Redundant** PC.

2. Restart all the service on the **MAIN** PC. Launch the User Interface and verify that communications have resumed.

Redundant Test Examples

NOTE: Stop watch needed for all three test examples.

Example #1

1. **Use the MAIN PC's OFF button to shut it down.** Turn on the **REDUNDANT** PC and start the stop watch.

2. Log into NT with Administrator rights.

3. Launch the User Interface and log in as ADMIN.

4. When the Alarm View pops up with Poll Response Normal, stop the stop watch. This time represents the amount of time that has passed since the **MAIN** PC went down.

Example #2

1. **Unplug the power to the MAIN PC**. Turn on the **REDUNDANT** PC and start the stop watch.

2. Log into NT with Administrator rights.

3. Launch the User Interface and log in as ADMIN.

4. When the Alarm View pops up with Poll Response Normal, stop the stop watch. This time represents the amount of time that has passed since the **MAIN** PC went down.

Example #3

1. **Unplug the network cable from the HUB for the MAIN PC.** Turn on the **REDUN-DANT** PC and start the stop watch.

2. Log into NT with Administrator rights.

3. Launch the User Interface and log in as ADMIN.

4. When the Alarm View pops up with Poll Response Normal, stop the stop watch. This time represents the amount of time that has passed since the **MAIN** PC went off line.

Power Supply Dimensions

Height: 15.5" (39.4cm)
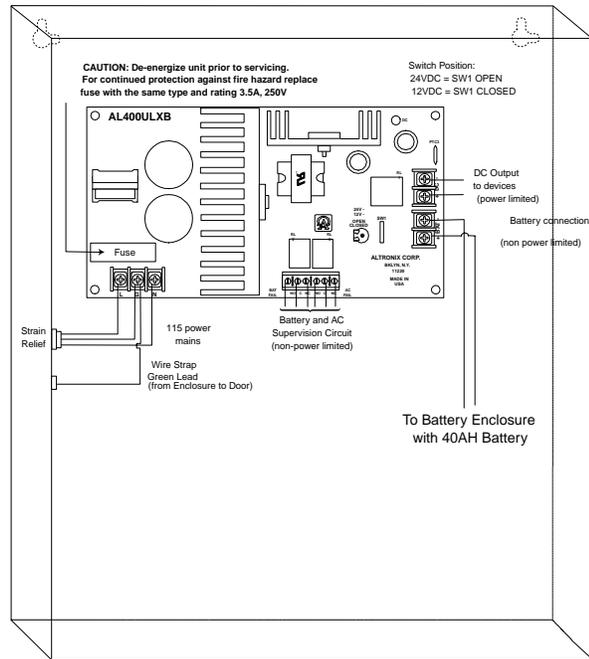
Width: 12" (30.5cm)

Depth: 4.5" (11.43cm)

Color: Grey

Installation holes: Four hangers in a rectangular pattern 13.5" H x 9.825" W (34.3cm H x 25cm W)

Conduit Knockouts

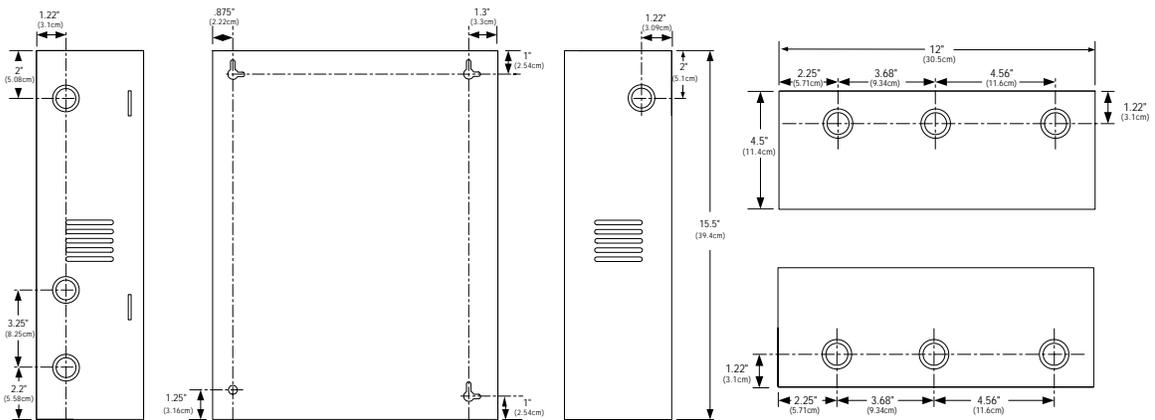|	3/4"
Top:	3
Bottom:	3
Right Side:	3
Left Side:	1

Power Supply Enclosure

AL400ULX Assembly diagram for use with the PRO22ENC1 and PRO22ENC2 for UL1076

Installation Diagram

Dimensions

ALTRONIX AL400 ULX (PRO22ULPS)

Installation

Installation Instructions

1. Install the PRO22ULPS (Altronix AL400ULX) power supply and battery enclosure per the supplied instructions.

2. Measure and install four mounting screws with heads smaller than .4" (1cm) using proper techniques for the material on which the PRO22ENC1 or PRO22ENC2 is being mounted. Use a rectangular screw pattern 12.1" H x 16" W (0.307m H x 0.4064m W). Leave the screws exposed approximately 1/2" (1.27cm).

3. Open the door of the enclosure and place the hanging slots over the mounting screws. Push the enclosure over the mounting screws and allow the screws to slide into the slots. Finish tightening the mounting screws to securely hold the enclosure.

4. Run all appropriate wiring to the case. All cable shields should tie to the grounding lug found on the top of the enclosure.

5. Install the required panels into the runners. The PRO22IC should be placed in the right-most position. The PRO22EN ethernet card should be mounted on the PRO22IC prior to mounting in the enclosure. See panel instructions.

6. Wire the readers, input and output connections.

7. CHECK ALL CONNECTIONS PRIOR TO POWERING UP THE ENCLOSURE AND PANELS.

8. Wire the 12VDC, AC Fail, Battery Fail and tamper switch from the AL400ULX to the enclosure. Make sure that the power supply is not powered up at the time.

9. Wire the 12VDC to the Panel on the far right first making sure that the polarity of the wires are correct.

10. Wire the tamper switch, AC Fail and Battery Fail to assigned inputs.

11. Wire the PRO22ENC1 or PRO22ENC2 tamper switch to the tamper input located on the first panel on the right.

12. The remainder of the panels can be manually wired for power and RS-485 communications using 18 AWG wire. The wires will be daisy-chained from one panel to the next so the power and the communications are wired in parallel.

    They may also be wired using the Auxiliary Rack Harness purchased with the equipment. This will reduce wiring time in the field since the power and RS-485 communications between panels is factory-wired in a harness that plugs into the bottom two connectors on each panel. The only field wiring required is the two wiring connections of the red and black 12VDC cables connecting the Auxiliary Rack Harness and the Rack Power Supply Harness.

13. CHECK ALL CONNECTIONS PRIOR TO POWERING UP THE ENCLOSURE AND PANELS.

14. Wire the TCP/IP connection to the network HUB.

Cable Specifications

Application	ESG Part No.	AWG	Description	Max. Dist.	Imp.	Cap.
N-485 connections*	NC2442-TN	N/A N/A	Belden 9842 or equivalent	4000' (1200 m)	120Ω	12.8pf/ft
CR-1, TR-1, CI-1, KR-1 Wiegand card readers	NC1861-BL	18	6 conductor shielded	500' (152 m)		
NR-1 magstripe reader	NC1861-BL	18	6 conductor shielded	500' (152 m)		
PR-1-280 Cotag reader: 280 read head to SZC SZC to N-1000-II	NC1861-BL NC1861-BL	18 18	6 conductor shielded 6 conductor shielded	300' (91 m) 500' (152 m)		
PR-2 Hughes reader: scanner to reader reader to N-1000-II	NC1861-BL NC1861-BL	18 18	6 conductor shielded 6 conductor shielded	30' (9 m) 500' (152 m)		
PR-3, PR-5 Indala readers: A-3/A-5 read head to RE-2 RE-2 to N-1000-II	NC18121-YL NC1861-BL	18 18	12 conductor shielded 6 conductor shielded	75' (23 m) 500' (152 m)		
PR-20 , PR-22 Indala readers: A-20/A-22 read head to RE-2 RE-2 to N-1000-II	NC18121-YL NC1861-BL	18 18	12 conductor shielded 6 conductor shielded	75' (23 m) 500' (152 m)		
PR-10, PR-12 Indala readers:	NC1861-BL	18	6 conductor shielded	500' (152 m)		
HG-3 hand geometry reader:	NC1861-BL	18	6 conductor shielded	500' (152 m)		
5 conductor keypad	NC1861-BL	18	6 conductor shielded	500' (152 m)		
Alarm input points	NC 2221-BR	22	2000' (610 m)			
Relay outputs	NC 1821-OR	18	twisted pair, shielded	2000' (610 m)		

NOTE: For Plenum rated cable just add a "P" to Engineered Systems part number prefix; for example NC1861-BL becomes PNC1861-BL

ESG Cable Part Numbers

Part Number	Description	Application	Length
NC1841-GY	18 AWG/4 conductor	reader cable	1,000' [305 m]
NC1861-BL-500	18 AWG/6 conductor	reader cable	500' [152 m]
NC1861-BL	18 AWG/6 conductor	reader cable	1,000' [305 m]
NC18121-YL-500	18 AWG/12 conductor	keypad cable	500' [152 m]
NC18121-YL	18 AWG/12 conductor	keypad cable	1,000' [305 m]
NCNET-1	50 ohm	network cable	1,000' [305 m]
NC2221-BR	22 AWG/2 conductor	alarm cable	1,000' [305 m]
NC1821-OR	18 AWG/2 conductor	power/door cable	1,000' [305 m]
NCC59206-BK	RG-59	video cable	1,000' [305 m]
NCP1841-GY	18 AWG/4 conductor Plenum	reader cable	1,000' [305 m]
NCP1861-BL-500	18 AWG/6 conductor Plenum	reader cable	500' [152 m]
NCP1861-BL	18AWG/6 conductor Plenum	reader cable	1,000' [305 m]
NCP18121-YL	18 AWG/12 conductor Plenum	keypad cable	1,000' [305 m]
NCP18121-YL-500	18 AWG/12 conductor Plenum	keypad cable	500' [152 m]
NCPNET-1	50 ohm Plenum	network cable	1,000' [305 m]
NCP2221-BR	22 AWG/2 conductor Plenum	alarm point cable	1,000' [305 m]
NCP1821-OR	8 AWG/2 conductor Plenum	power/door cable	1,000' [305 m]
NC2442-TN	24 AWG/120Ω12.8pf RS485 wire	communication cable	1,000' [305 m]
NCP2442-TN	24 AWG/120Ω12.8pf RS485 wire	communication cable	1,000' [305 m]

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