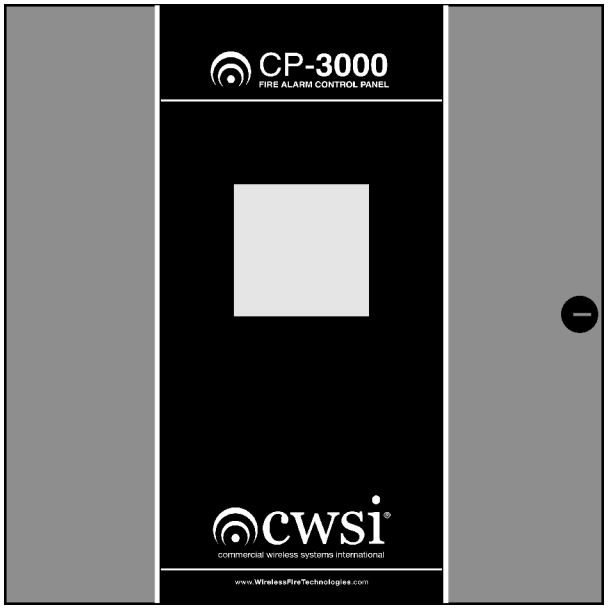
commercial wireless systems international

CP-3000 WIRELESS FIRE ALARM CONTROL PANEL



OPERATING and INSTALLATION
INSTRUCTION MANUAL

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Introduction

This manual is intended for persons involved with the installation, maintenance and operation of the CP-3000 RF control panel. It is a comprehensive guide that provides details on product operation and should be kept for future reference. This manual consists of separate sections. Each section contains information in a manner as to be clear as possible. It is designed to provide all the information necessary to install, program and operate the equipment. Read and understand this manual prior to installing or operating the equipment. It is imperative that the installer understand the requirements of the Authority Having Jurisdiction (AHJ) and be familiar with the standards set forth by Underwriters Laboratories, NFPA 72 National Fire Alarm Code, and NFPA 70 National Electrical Code.

The model CP-3000 is the first in a series of wireless fire annunciation and control panels manufactured by CWSI. This system was designed and tested to comply with **NFPA 72 National Fire Alarm Code and UL 864 standard. The CP-3000 is approved for Local, Proprietary, Remote Station, Central Station and Auxiliary service when installed in accordance with this manual.**

FCC Warning

Important: Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

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.

FCC Warning - **RF Exposure**

Important: When using this device, a certain separation distance between antenna and nearby persons has to be kept to ensure RF exposure compliance. In order to comply with the RF exposure limits established in the ANSI C95.1 standards, the distance between the antennas and the user should not be less than [20cm].

Section 1 - Description and Features

1.1 Product Description and Wireless System Overview

The CWSI CP-3000 is an intelligent addressable wireless fire alarm control panel. The CP-3000 system provides for annunciation of up to 1024 individual addressable initiating devices including and not limited to, smoke detectors, heat detectors, pull stations, water flow and sprinkler supervisory transmitters. It has two on board transceivers that allows all communications with devices to be done via radio frequency (RF). Since the communications are bi-directional the control panel can send out control commands to perform functions including turning on or off repeater NAC circuits and tandem smoke detector sounder activation. The advanced RF protocol and speed of the CP-3000 allows a failure of any one of up to 1024 initiating devices to be reported within 200 seconds. It is field programmable making the addition of devices both easy and cost effective. Ethernet connection is provided for local area network connection (LAN) as well as an optional modem that will allow system information and status to be retrieved at a remote location. An internal piezo sounder provides distinct tones for alarm, supervisory and trouble signals. The system contains a clock and non-volatile memory that will record and store events by time and date of occurrence. This memory is maintained even when all power is removed from the system. The CP-3000 is capable of storing 3000 events as outlined in the memory recall section of this manual. The events can later be viewed in order or downloaded to a computer via the built in RS-232 port located in the lower right side of the main circuit board. The on board RS-232 port can also be used for site specific programming as well as down loading system information.

The unit is also compatible with UL Listed Communicators making the CWSI CP-3000 a complete installation solution. The system is designed with monitoring and emergency personnel in mind. The LCD display provides easily identifiable pinpoint information displaying the specific initiating device(s) in alarm, trouble or supervisory condition. A 21 button membrane switch panel is used for system control and programming. The CP-3000 notification appliance circuits are field selectable both for 12 or 24 volt DC and Class A or B operation.

The CWSI initiating devices contain microprocessor based transceivers and are battery powered. Bi-directional repeaters are used to create a cellular network type signaling path to and from the CP-3000 control panel. Initiating devices transmit both status and alarm information. Repeaters process the data and retransmit the data through the repeater network to and from devices and the CP-3000 control panel. All transmitted signals are verified for data integrity, signal quality and reception conformation. The CP-3000 is responsible for reading all incoming transmission data and deciding what action if any is to be taken such as displaying information, sending commands back to repeaters to activate Notification appliance circuits, HVAC shutdown, Elevator Recall, Tandem smoke detectors and many other control functions.

The CP-3000 control panel has many new and enhanced features unavailable in previous wireless systems due to recent technological advances. These features and industry advancements are what make CWSI the unsurpassed leader in the wireless fire alarm industry.

1.2 Features

- 1024 device capability
- 4 alarm types
- Bi-Directional RF communication
- 900 Mhz Frequency Hopping Spread Spectrum format
- CRC data validation
- Dual transceiver design
- Tandem smoke detector control
- 60 hour battery standby time
- Field selectable NAC circuits Voltage and Class
  - ✓ 1 Class A 12 or 24 Volt DC @ 2 Amps
  - ✓ 2 Class B 12 Volt DC @ 2 Amp each or 24 Volt DC @ 1 Amp each
- 4 N.O. programmable dry contact outputs
- 2 form C programmable dry contact alarm outputs
- 2 form C programmable/fixed trouble outputs
- Auxiliary municipal city box output
- 320 x 240 backlit LCD display
- RS-232 data port
- Ethernet port
- Optional Modem for site data
- Real time clock with daylight savings adjustment
- Device enrollment feature
- Password and key lock protected non-volatile memory
- User changeable password
- Programmable from membrane pad or computer
- Pinpoint signal identification
- History of events for
  - ✓ 1000 alarm signals
  - ✓ 1000 supervisory/trouble signals
  - ✓ 1000 annual test log signals
  - ✓ 150 membrane switch presses
- Silent or audible walk test
- Printable history and maintenance log
- 4 site specific programmable function buttons

Section 2 – Specifications and Compatibility

2.1 Specifications

Power Source: 120 VAC 60Hz 4 Amp dedicated circuit.

Batteries: Two 12Vdc 7Ah sealed lead acid batteries connected in series for up to 60 hours standby operation.

Operating Temperature: 32 to 120 degrees F.

Operating Humidity: 85% non-condensing

Special Application NAC Circuits: Programmable Power Limited. 1 Class “A” (Style Z) or 2 Class “B” (Style Y) Field selectable.

Class A ratings: 12 or 24 Volts DC @ 2 Amps each
Class B ratings: 12 Volts DC @ 2 Amps each or 24 Volts DC @ 1 Amp each

Dry Contact Alarm Relays:

4 N.O. non-programmable power limited rated 28 Vdc @ 1 Amp. resistive.
2 Form “C” programmable power limited rated 28 Vdc @ 1 Amp. resistive.

Dry Contact Trouble Relays:

2 N.O. non-programmable power limited rated 28 Vdc @ 1 Amp. resistive.
2 N.C. non-programmable power limited rated 28 Vdc @ 1 Amp. resistive.

Auxiliary output: Current 300 ma. Max coil resistance 14.6 ohms.

Data Port: RS-232 – 9 Pin Computer connector.

Ethernet port connector: RJ-45

Telco input: RJ-11

Transceiver Operating Frequency: 900 MHz band.

Antenna Types: Yagi and Folded Dipole Omni. Max Coax length 20 ft.

Transmission Format: Frequency Hopping – Spread Spectrum.

Dimensions: 17” high, 17” wide, 3 ¼” deep

Enclosure: Powder coated 16 gauge steel

Weight: 29 Lbs.

2.2 Compatibility

The following UL Listed RF devices are compatible with the CP-3000Control Panel:
Commercial Wireless Systems International, LLC
A/C Repeater Model AR-3 – A/C powered repeater
Battery Repeater Model BR-3 – Battery powered Repeater
Smoke Detector Model 300 – Photo Electric Smoke Detector with Integral Sounder
Manual Pull Station Model 310 – Non Coded Fire Alarm Box
Heat Detectors models 320/321 – Automatic Fixed and Rate of Rise Heat Detector
Fire Transmitter Model 330 – N.O. EOL Supervised Transmitter

The following antennas are for use with the CP-3000:
Commercial Wireless Systems International, LLC
Models:
OM-1 Omni, OM-2 Omni, YA-1 Yagi, YA-2 Yagi

The following UL Listed Digital communicators are compatible with the CP-3000 Control Panel:
Communicators are to be determined. They will be activated via dry contact relay outputs

Section 3 - Installation

3.1 Proper Installation Order

The following steps when performed in the listed order will result in a trouble free installation:

1. Site Signal Survey
2. Control Panel Installation and Basic Programming
3. Device and Repeater Enrollment
4. Control Panel Site Specific Programming
5. Repeater and Device installation and testing

3.2 Preparing the Installation Site

Prior to the installation of a CP-3000 system a signal survey must be been performed by a factory trained technician or authorized dealer. The signal survey determines the location of the CP-3000, repeaters, and initiating device transmitters. Refer to the CWSI Signal Survey manual and individual CWSI device manuals for the proper method to conduct a signal survey. The completed survey becomes the blueprint layout for the actual installation.

During the survey try to locate A/C repeaters and CP-3000 control panel close to available 120 Vac uninterruptible power. All CP-3000 connections must be installed in conduit. When connecting primary A/C power always follow:

1- National Fire and Electrical Codes (NFPA 72 and NFPA 70)
2- Local Electrical and Fire Code requirements
3- Local AHJ (Authority Having Jurisdiction) requirements

WARNING: Make sure A/C supply is turned OFF prior to connecting the CP-3000 panel.

3.3 Receiving and Unpacking the Equipment

Upon receiving the equipment, the carton should be inspected for damage, which may have occurred during shipment. Each package should be checked against the packing slip for completeness. Differences should be reported to CWSI immediately. If any product is suspected of damage it should be checked for proper operation or returned to CWSI.

3.4 Installing the CP-3000

WARNING: This equipment must be professionally installed by factory trained personnel. Use of an antenna other than listed in the compatibility section of this manual may be harmful to persons, void FCC or damage the equipment.

After conducting a signal survey the CP-3000 can be mounted in it's intended location. The following should be considered and or adhered to when mounting the unit.

1 – ALL WIRING SHOULD COMPLY WITH NATIONAL AND/OR LOCAL ELECTRICAL CODES. UNLESS OTHERWISE SPECIFIED, WIRE SHOULD BE18 GAUGE 7 STRAND COPPER WITH 600 VOLT INSULATION. SHIELDED WIRE IS PREFERRED.

2 – This unit is intended to be mounted in indoor dry areas. Avoid dusty, wet and corrosive locations.

3 – Provide adequate space surrounding the unit to allow for;

a - The hinged cover to be completely opened for easy access to internal components and wiring.

b - The connection of conduit to the desired cabinet locations.

c – The use of the required antenna type for the installation.

4 – Avoid electrically noisy locations such as main electrical and transformer rooms, computer rooms, telephone switching rooms, etc.

Unlock the CP-3000 cover and open the unit. Carefully verify that the unit is not damaged and the printed circuit boards are properly secured and connected. Remove the door by lifting it off of the hinge pins. This will allow for easier installation. Hold the CP-3000 in its intended position, verify leveling and mark the location of the upper corner mounting keyholes *(Figure 3)*. Using the mounting screws and anchors provided secure the screws to the wall and hang the CP-3000 control panel. If the anchors are not the proper type for the wall, replace the anchors and screws with suitable ones. The screws should be a #12 size minimum. Install screws in the two lower mounting holes. The conduit can now be installed into the provided knockout locations required. **Power limited and non-power limited wiring must be in separate conduit and kept a minimum of .25" apart in the enclosure.** Refer to *figure 4* for suggested wire routing. **WARNING: Make sure A/C supply is turned OFF prior to proceeding with A/C connection.** Connect the incoming A/C supply to the black transformer flying leads and earth ground to the gray flying lead using wire nuts provided. Required input is 120 VAC 50-60Hz 4 Amps. Use minimum 18 AWG 600 Volt 7 strand copper wire for A/C connections. Follow all applicable electrical codes. Attach the specified antennas to the SMA connectors at the top of the cabinet and mount the antenna if required. It is recommended to not connect any other equipment such as horns or dialers to the CP-3000 until the unit is programmed. Do not connect the batteries yet. Now apply A/C power and verify the initial power up screen as shown in figure 2 appears. If it does not, verify the following:

1) Proper input voltage is present at transformer input.
2) Transformer secondary connector is correctly plugged into receiver card connector labeled J1.
3) Ribbon cable is present and plugged in between receiver board location J3 and main CP-3000 motherboard location J7.

If all the above is correct and power up screen is still not present, call for service.

3.4.1 The Backup Batteries

The cabinet houses two 12 Volt 7Amp hour batteries wired in series. These batteries will supply 60 hours of backup power followed by 5 minutes of alarm time at maximum alarm load allowed in this manual. Once power up screen is present, install two 12 Volt 7 Amp Hour batteries and wire as shown in figure 4 using the supplied battery harness. Do not connect battery harness to the receiver board battery connector until A/C power has been applied to the control panel. Plug the battery harness connector into J2 on receiver card and initial programming of the system can begin as detailed in the programming section of this manual. The initial programming has to be completed prior to device enrollment.

3.4.2 Cover Panel

There is an optional cover panel available that attaches to the inside of the cabinet with 6 screws. It protects the user from coming in contact with the electronics but still allows full access to all control panel switches. Figure 5 illustrates panel location and attachment.

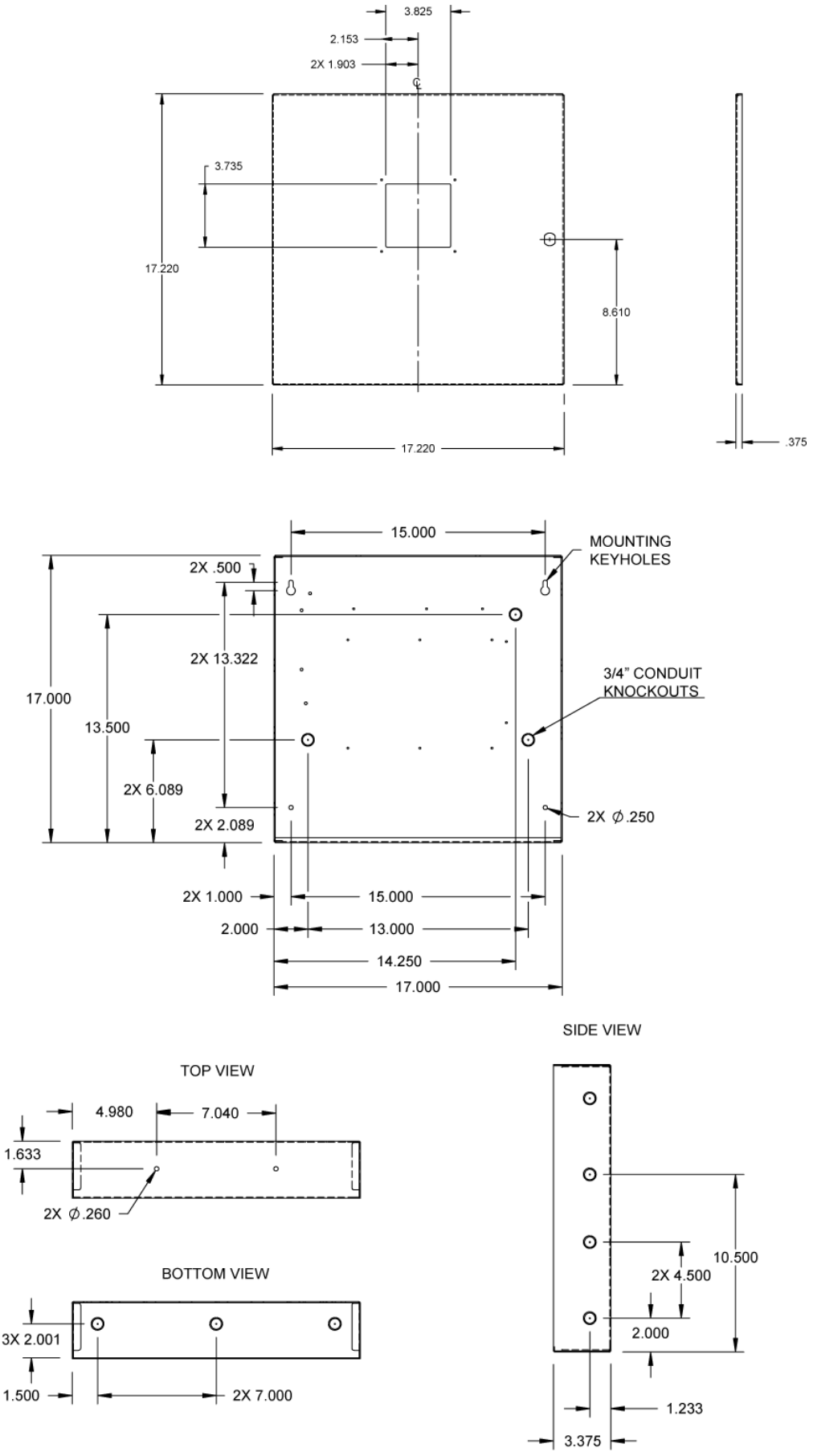
3.825
2.153
2X 1.903
3.735
17.220
8.610
17.220
.375
15.000
MOUNTING
KEYHOLES
2X .500
2X 13.322
3/4" CONDUIT
KNOCKOUTS
17.000
13.500
2X 6.089
2X 2.089
2X ∅.250
2X 1.000
15.000
2.000
13.000
14.250
17.000
SIDE VIEW
TOP VIEW
4.980
7.040
1.633
2X ∅.260
BOTTOM VIEW
3X 2.001
1.500
2X 7.000
10.500
2X 4.500
2.000
1.233
3.375

figure 3

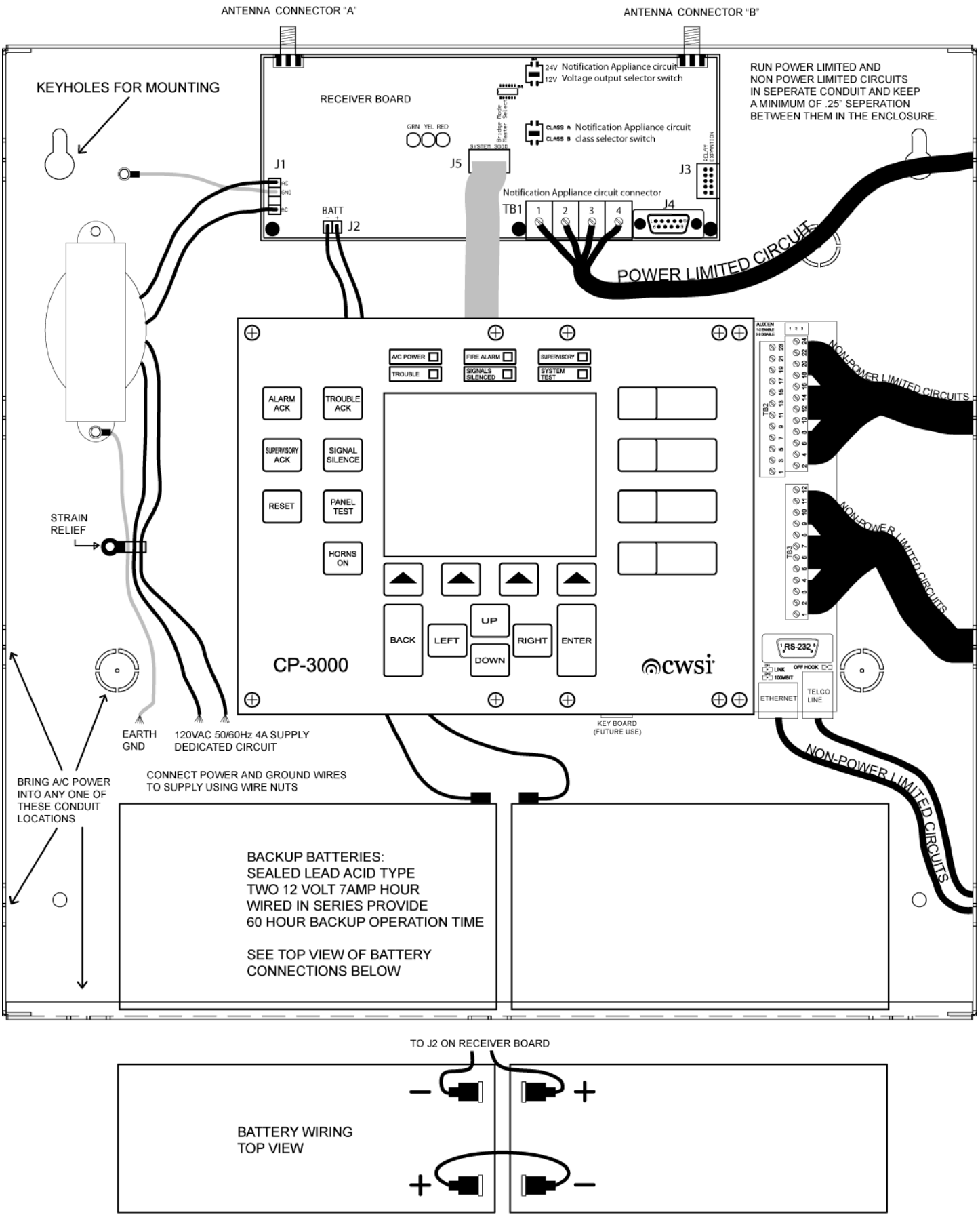
ANTENNA CONNECTOR "A"
ANTENNA CONNECTOR "B"
KEYHOLES FOR MOUNTING
RECEIVER BOARD
24V Notification Appliance circuit
12V Voltage output selector switch
CLASS A Notification Appliance circuit
CLASS B class selector switch
Notification Appliance circuit connector
J1
J2
J3
J4
J5
TB1
BATT
RUN POWER LIMITED AND
NON POWER LIMITED CIRCUITS
IN SEPERATE CONDUIT AND KEEP
A MINIMUM OF .25" SEPERATION
BETWEEN THEM IN THE ENCLOSURE.
POWER LIMITED CIRCUITS
NON-POWER LIMITED CIRCUITS
NON-POWER LIMITED CIRCUITS
NON-POWER LIMITED CIRCUITS
A/C POWER
TROUBLE
FIRE ALARM
SIGNALS SILENCED
SUPERVISORY
SYSTEM TEST
ALARM ACK
TROUBLE ACK
SUPERVISORY ACK
SIGNAL SILENCE
RESET
PANEL TEST
HORNS ON
BACK
LEFT
UP
DOWN
RIGHT
ENTER
CP-3000
cwsi
RS-232
ETHERNET
TELCO LINE
KEY BOARD
(FUTURE USE)
STRAIN RELIEF
EARTH GND
120VAC 50/60Hz 4A SUPPLY
DEDICATED CIRCUIT
CONNECT POWER AND GROUND WIRES
TO SUPPLY USING WIRE NUTS
BRING A/C POWER
INTO ANY ONE OF
THESE CONDUIT
LOCATIONS
BACKUP BATTERIES:
SEALED LEAD ACID TYPE
TWO 12 VOLT 7AMP HOUR
WIRED IN SERIES PROVIDE
60 HOUR BACKUP OPERATION TIME
SEE TOP VIEW OF BATTERY
CONNECTIONS BELOW
TO J2 ON RECEIVER BOARD
BATTERY WIRING
TOP VIEW

figure 4

3.4.3 Enrolling Devices Into the CP-3000

Enrolling a device will both assign alarm priority and allow specific location nomenclature entry in order to pinpoint the physical location of a device in the event an alarm or trouble occurs. This procedure can be performed only after completing the initial programming of the CP-3000 as described in the programming section of the manual. It is recommended to use a computer connected to the RS-232 port on the CP-3000 motherboard to perform enrollment, data entry and site specific programming. The computer will allow for easier data entry especially where location designators are being entered. Refer to the section on computer interfacing for connection instructions. Prepare a list of device location designators prior to beginning enrollment. This will allow complete device and site specific programming to be completed. To enter the enrollment mode open the cabinet to gain access to the switch panel. Press and hold the enter button for 5 seconds. Enter your pass code then scroll up and down to highlight the device enrollment selection and press enter. The control panel is now in enrollment mode and ready to accept new devices into the system. The CP-3000 has 4 alarm levels referred to in this manual as alarms A, B, C and D. These alarm levels are prioritized with A being the highest and D the lowest priority alarm. Each initiating device must be assigned to one of these alarm levels. The alarm level assignment will give the device its priority in the installation. Repeaters are enrolled after installing them at their mounting location and do not get assigned an alarm priority. Install a battery into the device to be enrolled. Do not install batteries into more than one device at a time. When the battery is installed the control panel LCD screen will display a number corresponding to the device serial number. This number is also printed on a label located on the device. Use the up down buttons to highlight the desired alarm priority for the device. Press the enter button when the desired selection is highlighted. Alarm priority designations may now show on the LCD as nomenclature chosen for alarms A-D during the initial programming. They will be in order of priority from top to bottom. Upon entering the selection the device sounder will beep twice indicating successful enrollment. You will now be prompted to enter the location designator for the device. Enter the information desired for the device. There is a maximum of XX characters. When finished press enter and the system will prompt you to end the enrollment process or go to the next device. There is a space provided on each device label in which to write the location designation. Also a computer print out can be generated to show the device serial number and corresponding location designator. This will aid in correctly installing devices in the proper locations. Proceed to enroll all devices into the control panel as described above. **Note: All devices must be enrolled in to the system. Failure to enroll a device may result in an alarm signal not being transmitted, received and processed.**

3.4.4 Installing the Repeaters and Initiating Devices

After enrolling the devices the next step is to mount the repeaters at their locations as determined by the initial signal survey. Start at the first repeater location closest to the CP-3000 panel. Install the repeater in accordance with its instruction manual again performing a signal survey prior to permanently mounting the repeater. Upon applying power to the repeater perform the enrollment procedure as described in the section above. Since there is no alarm priority for a repeater, the only enrollment choice to make is the location designation data entry. Continue out from the panel installing and enrolling the balance of the repeaters. It is recommended that notification appliances and repeaters be installed at the same time. Refer to the repeater manual for a list of notification appliances and other equipment approved for connection to a repeater. Any equipment to be connected to the CP-3000 such as dialers, notification appliances etc. should also be installed and connected prior to installing initiating devices. Refer to other sections of this manual for approved equipment. This will allow full system testing during initiating device installation as to prevent having to visit a device location more than once during the installation process. After installing the repeaters then proceed with programming the CP-3000 for the desired functions as needed for the installation. Refer to the programming section of this manual for instructions and site specific programming

features and options. Prior to the installation and testing of the initiating devices, the control panel can be left in normal mode for real time operation testing of the system or placed in one of the available test modes. Refer to system testing for these options then begin installing the initiating devices starting with the ones located closest to the control panel. Hold the first device at its desired position and generate a signal survey transmission from it (refer to the individual device manual for signal survey transmission). If the signal is acceptable the device may be installed at that location. Slight transmitter location adjustments may or may not have to be made in order to obtain acceptable signal strength results. Do not mount any device unless acceptable signal strength indicating tone is heard (two beeps). Once the device is mounted confirm acceptable signal strength once more to insure proper operation. After the device has been installed and signal verified, activate the device for an alarm signal transmission and verify proper alarm reception and proper site specific programming function operations. See the individual manuals for alarm activation methods of each device. Continue installing the balance of the equipment following this method and the installation will be a successful one with few if any problems. After all of the equipment has been installed and powered up be sure to place the panel in normal monitoring mode. Installation trouble with any devices will be reported with in 200 seconds. Refer to the operation section of this manual for further information.

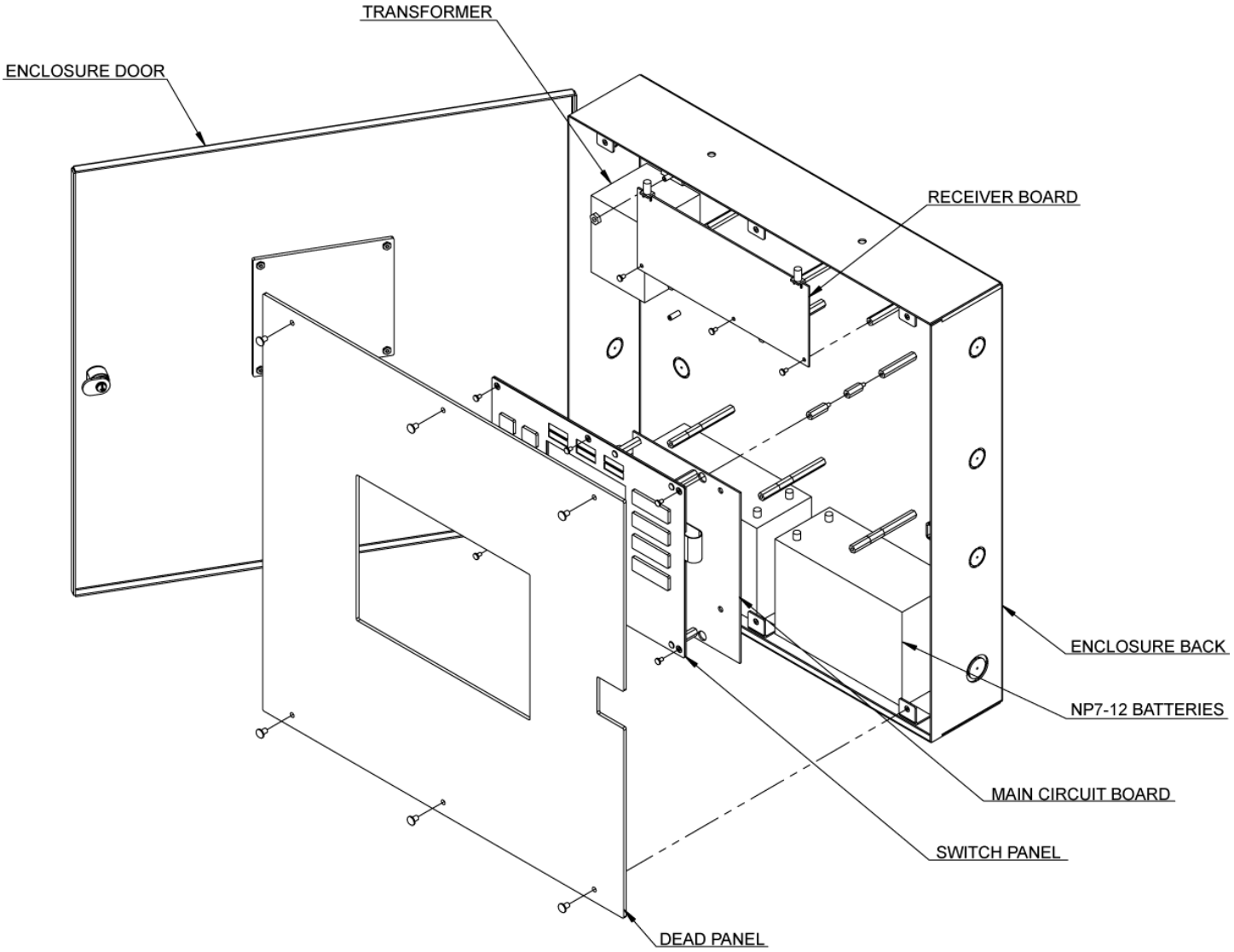

figure 5

3.5 System Inputs and Outputs

The CP-3000 has 10 dry contact, 1 auxiliary and 1 class A or 2 class B NAC output circuits available. Some are programmable and some are non programmable. Each output and function is explained below. Refer to figures 6 and 7 for wiring diagrams of these outputs. All diagrams are shown with system power connected and control panel in normal mode.

3.5.1 Alarm A, B, C, D Contacts (TB2 Terminals 9-24)

These 4 normally open outputs will operate when any alarm signal of the corresponding A, B, C or D type is being processed. For example if alarm A has been designated for smoke detectors and a smoke detector alarm is received the alarm A relay will activate. When alarm C is configured for supervisory then the alarm C relay will serve as a supervisory output. These outputs can be power limited or non-power limited depending on the equipment they are connected to. Power limited and non-power limited circuits must be separated by at least .25” within the enclosure and run in different conduit. These outputs are also used when connecting the control panel to a communicator. They have double terminals so that an end of line resistor can be connected in different terminals than those used for wiring connections allowing connected equipment to properly monitor any wiring fault. Refer to the communicator section of this manual for connection of a communicator. The contacts are rated at 28Volts D.C. 2 Amps resistive. Acceptable wire size for connection is 16-22awg.

3.5.2 Trouble Contacts (TB2 Terminals 1-8 N.O. and TB3 Terminals 3-6 N.C.)

There are 2 normally open and 2 normally closed trouble dry contact outputs available on the CP-3000. They will operate during processing of any of the trouble conditions listed in the system operation section of this manual. These also serve as the fail safe relays that monitor for system processor failure and total power down of the control panel. The outputs can be power limited or non-power limited depending on the equipment they are connected to. Power limited and non-power limited circuits must be separated by at least .25” within the enclosure and run in different conduit. The normally open outputs have double terminals so that an end of line resistor can be connected in different terminals than those used for wiring connections allowing connected equipment to properly monitor any wiring fault. The terminal output designations shown in figure 6 are with system power applied in normal standby mode. One of the normally open trouble outputs is used when connecting the control panel to a communicator. Refer to the communicator section of this manual for connection of a communicator. When a power loss trouble occurs at the system or a repeater, activation of the trouble relays will be delayed by 60 minutes. This time is programmable and options are explained in the programming section of the manual. The contacts are rated at 28Volts D.C. 2 Amps resistive. Acceptable wire size for connection is 16-22awg.

3.5.3 Alarm Contacts (TB3 Terminals 7-12)

These are 2 form C outputs that can be separately programmed to activate when any or all of the 4 alarm types A, B, C or D are in process. These outputs can be power limited or non-power limited depending on the equipment they are connected to. Power limited and non-power limited circuits must be separated by at least .25” within the enclosure and run in different conduit. The contacts are rated at 28Volts D.C. 2 Amps resistive. Acceptable wire size for connection is 16-26awg. Note: Alarm C can be designated for sprinkler supervisory. When this programming choice is made make sure to program these relays so that one of them will activate on alarms A, B and D only and the other relay will activate on supervisory alarm C only.

3.5.4 Auxiliary Output Local Energy Municipal Box Service (TB3 Terminals 1+2)

This is a programmable output for connection to a city municipal box using series connection only. Shunt connection is not supported. This output is supervised and can be programmed to activate when any one of the 4 alarm types A, B, C or D are in process. A jumper labeled JP1 located on the CP-3000 motherboard can be used to temporarily disable the auxiliary output. This is useful when tripping of the municipal box is not desired while performing system testing in normal mode. Placing the jumper on pins 2+3 will disable the output. This will cause a system trouble to be displayed. Removing the jumper completely or placing it on pins 1+2 will enable the output. Note: The auxiliary output must first be programmed to activate before the auxiliary output and jumper JP1 will function. There are also reset options available when this feature is used. Refer to the programming section for further instructions. Alarm C must not be programmed to activate the auxiliary output when it is designated as sprinkler supervisory. No termination resistor is needed when this output is not programmed to activate.

Output Ratings:

Alarm current 250ma.
Alarm voltage 3.625 Volts D.C.
Coil resistance 14.5 ohms
Max. coil resistance 14.6 ohms
Max. wire resistance 3 ohms

ALL RELAY CONTACTS SHOWN WITH SYSTEM POWER APPLIED AND IN NORMAL STANDBY MODE

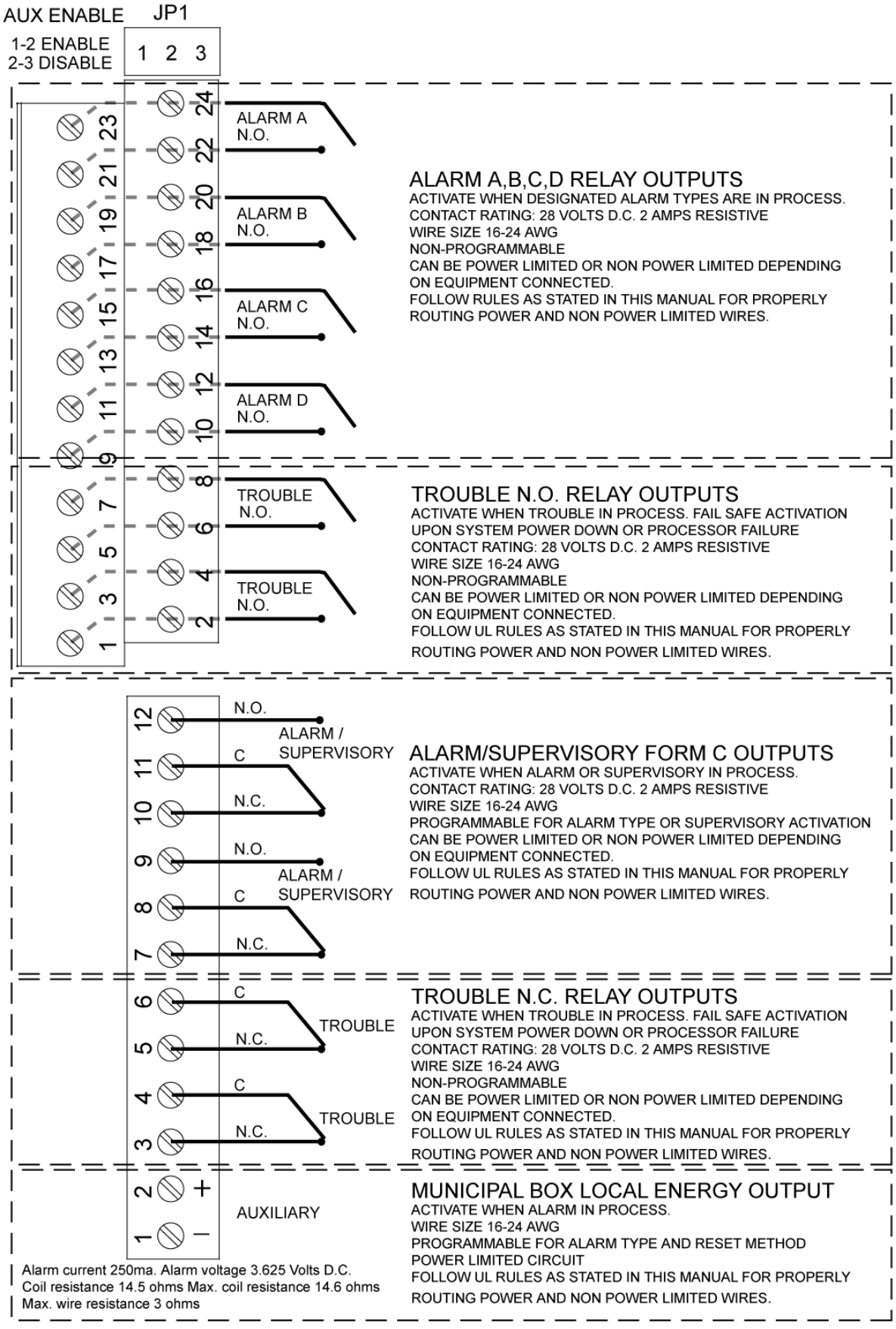

figure 6

3.5.5 Notification Appliance Circuits (TB1 Terminals 1-4 on receiver card)

The CP-3000 control panel provides a special application notification appliance circuit which is field selectable for either 1 Class A Style Z or 2 Class B Style Y supervised power limited outputs. Output voltage is also field selectable between 12 and 24 Volts D.C. The Class and voltage are determined by the settings of SW3 and SW4 on the receiver card. The NAC circuit connector is labeled TB1 and located on the lower right edge of the receiver card. The CP-3000 will maintain the NAC circuit output voltage at either 12 or 24 volts even if the battery voltage drops below 12 or 24 volts. The NAC circuits are also software site specific programmable for activation and deactivation. Refer to the programming section for complete activation and deactivation programming options. The circuits utilize current sensing technology and if the rated current draw is exceeded, the NAC circuit will deactivate. It will attempt to reactivate only if another device sends an alarm or the NAC circuit is reset by the control panel and then reactivated by another alarm. In class B operation, an end of line resistor P/N TR-3 must be placed at the last appliance connected to the circuit or a trouble will be transmitted to the control panel. A trouble will also be sent if a ground fault exists on a NAC circuit. Figure 7 shows proper wiring of NAC circuit. Table 1 shows compatible notification appliances. Synchronization is achieved by using one of the compatible synchronization modules.

Output ratings:

Class B – 2 output circuits

12 Volts D.C. @ 2 Amps or 24 Volts D.C. @ 1 Amp each

Class A – 1 output circuit

12 Volts D.C. @ 2 Amps or 24 Volts D.C. @ 2 Amps

3.5.6 Notification Appliance Compatibility

The following UL Listed notification appliances are compatible with the CP-3000 Control Panel

MANUFACTURER	MODEL NUMBER	TYPE	SW4 SETTING
WHEELOCK	AS-121575W	HORN/STROBE	12 Volts
WHEELOCK	HS4-121575W-FR	HORN/STROBE	12 Volts
WHEELOCK	MT-12/24-R OR –W	HORN	12 or 24 Volts
WHEELOCK	MT-121575W-FR OR –NW	HORN/STROBE	12 Volts
WHEELOCK	MT4-12/24-R OR –W	HORN	12 or 24 Volts
WHEELOCK	AMT-12/24-R OR –W	HORN	12 or 24 Volts
WHEELOCK	RSS-121575W-FR OR –FW	STROBE	12 Volts
WHEELOCK	RSSP-121575W-FR	STROBE	12 Volts
WHEELOCK	SM-12/24-R	SYNC MODULE	12 or 24 Volts
WHEELOCK	DSM-12/24-R	SYNC MODULE	12 or 24 Volts
GENTEX	GEH12-R OR –W	HORN	12 Volts
GENTEX	GES3-12 SERIES	STROBE	12 Volts
GENTEX	GEC3-12 SERIES	HORN/STROBE	12 Volts
GENTEX	AVSM-R OR –W	SYNC MODULE	12 Volts
SYSTEM SENSOR	H12/24 SERIES	HORN	12 or 24 Volts
SYSTEM SENSOR	PA400 SERIES	HORN	12 Volts
SYSTEM SENSOR	S1224MC SERIES	HORN	12 or 24 Volts
SYSTEM SENSOR	P1224MC SERIES	HORN/STROBE	12 or 24 Volts
SYSTEM SENSOR	MDL	SYNC MODULE	12 or 24 Volts

CONTACT MANUFACTURER FOR COMPLETE PART NUMBERS AND OPTIONS.
REFER TO MANUFACTURER DOCUMENTATION FOR PROPER WIRING OF SYNC MODULES

Table 1

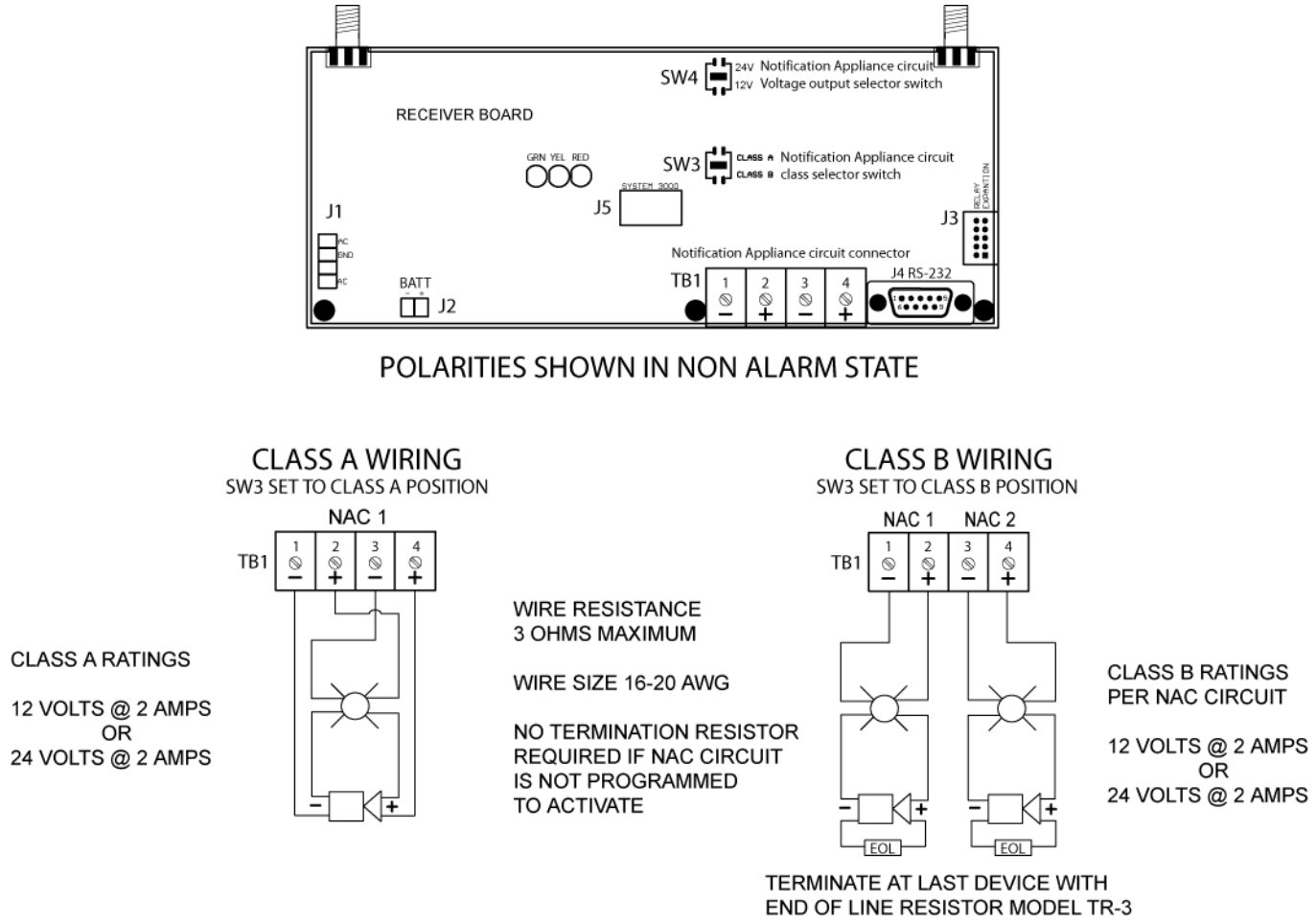

figure 7

3.5.7 Ethernet Connection

This connector can be hooked to the local area network. Exact functions to be determined. Refer to figure 4 for location.

3.5.8 Telephone Line Jack

This connector can be used when the optional factory installed modem is present. It will allow for system status information at a remote site. Uploading of site programming information is not allowed through this connection. Any access through this connection will require password entry. Refer to figure 4 for location.

3.5.9 RS-232 DB9 Connector

This connector is for uploading or downloading of information such as site programming or alarm memory. Refer to figure 4 for location.

Section 4 - System Operation

4.1 User Interface

The membrane switch panel allows for means to display, control and program all aspects of the CP-3000. Refer to figure 1.

4.1.1 LCD

The 5” diagonal 340 x 240 LCD backlit display allows for pinpoint status display of any abnormal conditions occurring as well as programming information and other useful necessary information as mentioned throughout this manual.

4.1.2 LEDS

There are 6 led lights for visual indication of:

A/C power (green)
This LED is on when proper A/C is applied and off during brown out or total loss of A/C power.

Fire Alarm (red)
This LED flashes when at least one Alarm condition is in process. It will turn steady when the Alarm Ack or Signal Silence button is pressed. Resetting the system to normal will turn this LED off.

Supervisory (yellow)
This LED flashes when at least one Supervisory condition is in process. It will turn steady when the Supervisory Ack or Signal Silence button is pressed. Resetting the system to normal will turn this LED off.

Trouble (yellow)
This LED flashes when at least one Trouble condition is in process. It will turn steady when the Trouble Ack or Signal Silence button is pressed. Resetting the system to normal will turn this LED off.

Signals Silenced (yellow)
This LED turns on when the Signal Silence button is pressed during an Alarm condition. If NAC circuits are reactivated this led will go out.

System Test (green)
This LED turns on when the system is placed in test mode. Resetting the system to normal will turn this LED off.

4.1.3 Buttons

There is a total of 21 membrane buttons, which are accessible only when the door is opened. They provide means for total system control and programming. All button presses will be stored in non volatile memory.

Buttons and functions are:

Alarm Ack
Pressing this button during an alarm will silence the internal piezo sounder and change the Fire LED from flashing to steady. The piezo will beep once every 30 seconds until the system is reset to normal. If a different device goes into alarm, the piezo will resound an alarm. More than 5 simultaneous alarms will cause the screen to scroll through the displayed alarms at 5 second intervals. Pressing the Alarm Ack button a second time will cease this rotation. The alarm display can then be rotated using the soft key arrow buttons Previous or Next.

Supervisory Ack
Pressing this button during a supervisory will silence the internal piezo sounder and change the Supervisory LED from flashing to steady. The piezo will beep once a minute until the system is reset to normal. If a different device transmits a supervisory condition, the piezo will resound the supervisory tone. More than 5 simultaneous supervisory conditions will cause the screen to scroll through them at 5 second intervals. Pressing the Supervisory Ack button a second time will cease this rotation. The display can then be rotated using the soft key arrow buttons Previous or Next.

Trouble Ack
Pressing this button during a trouble will silence the internal piezo sounder and change the Trouble LED from flashing to steady. The piezo will beep once every 2 minutes until the system is reset to normal. If the panel is not reset to normal within 4 hours or a different device transmits a trouble condition, the piezo will resound the trouble tone. More than 5 simultaneous trouble conditions will cause the screen to scroll through them at 5 second intervals. Pressing the Trouble Ack button a second time will cease this rotation. The display can then be rotated using the soft key arrow buttons Previous or Next.

Signal Silence
This button performs the same functions as the Alarm Ack button except it will also reset any active NAC circuits, Alarm dry contact relays and Auxiliary output. The Signals Silenced LED will also turn on if NAC circuits are silenced. Resetting the system to normal will turn off the Signals Silenced LED.

Reset
Pressing this button will reset the system to normal. All active LED’s, NAC circuits, Dry contact relays, Auxiliary output, LCD display and piezo will be restored to normal standby condition. If the system was in test mode, it will be returned to normal standby. If any Alarm, Supervisory or Trouble that exists after reset will cause the system to once again annunciate that condition.

Panel Test
Pressing this button will activate the Test LED and display a test menu on the LCD allowing the user to choose the particular test desired. Refer to system testing for additional information. Pressing reset will return the system to normal standby.

Horns On
This button will activate any programmed NAC circuits. It may also activate other relays if programmed to do so. Refer to programming section for options. The piezo will also sound for an alarm if the button is pushed when no alarm is present on the system.

Enter
Used for system programming. Refer to programming section.

Back
Used for system programming. Refer to programming section.

Up, Down, Left, Right (cursor movement)
Used for system programming. Refer to programming section.
4 Soft arrow keys use display for various functions
Perform functions shown on the LCD above the buttons TBD.

4 programmable site specific buttons
These buttons can be programmed to perform various functions such as tandem smoke reset, elevator reset, HVAC reset etc. Custom labels can be provided. Refer to the programming section or consult the factory for information.

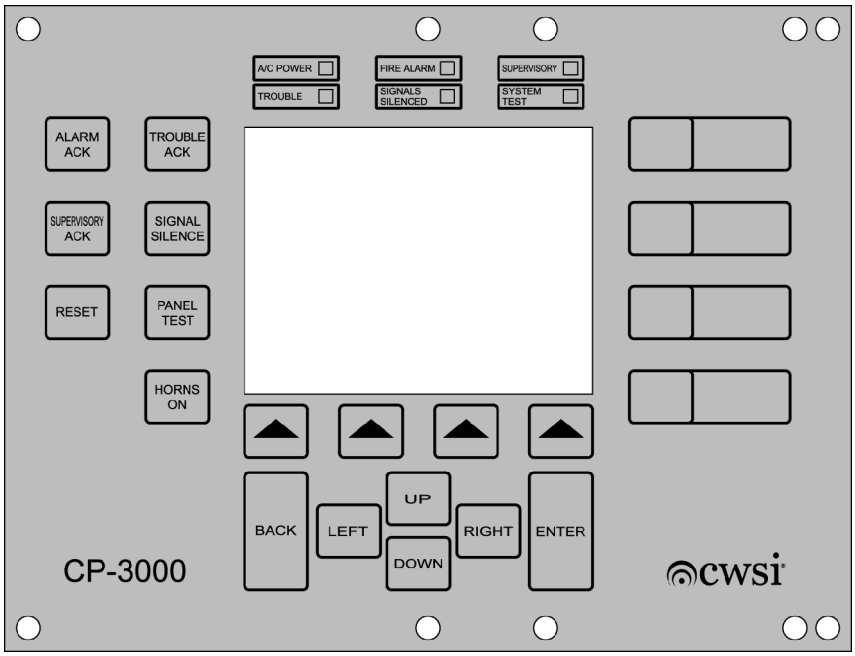

figure 1

4.2 Modes of Operation

4.2.1 Normal

Normal mode exists when no off normal conditions are occurring in the installation. The LCD screen shown in figure 8 will be present during normal mode. When in normal mode the CP-3000 is monitoring system voltages, keypad inputs, etc. as well as monitoring for any off normal alarms, supervisory or trouble signals. Transmitter polling signals are also logged during normal operation.

4.2.2 Alarm

Alarms can be generated by any of the compatible initiating devices listed in this manual. Upon reception of an alarm signal from an initiating device the following will occur:

1. Any lower priority conditions currently displayed on the LCD will be replaced by the higher level alarm. The lower priority condition will be redisplayed when the higher one is reset.
2. The sounder will emit a steady tone.
3. The Fire Alarm LED will flash once a second.
4. The corresponding alarm relay (1,2,3 or 4) will activate.

5. The form C relays will activate if programmed to do so.
6. The CP-3000 NAC circuit outputs will activate if programmed to do so.
7. Any repeater NAC circuits programmed to turn on will activate.
8. The Auxiliary output will activate if programmed to do so.
9. The event is stored in the non volatile memory.

The membrane buttons will function as described in section 4.1.3. If lower priority signals are present, they will be displayed as each higher priority signal is reset. The LCD display shown in figure 9 will be present when the system is in alarm.

4.2.3 Sprinkler Supervisory

Alarm C can be programmed for sprinkler supervisory operation during initial programming of the system. Upon reception of a supervisory signal the following will occur.

1. Any lower priority conditions currently displayed on the LCD will be replaced by the sprinkler supervisory display.
2. The sounder will pulse once a second.
3. The sprinkler Supervisory LED will flash once a second.
4. Relay 3 will activate.
5. The event is stored in non volatile memory.

The membrane buttons will function as described in section 4.1.3. If lower priority signals are present, they will be displayed as each higher priority signal is reset. The LCD display shown in figure 10 will be present when the system is processing a supervisory signal.

Alarm, NAC circuits or Auxiliary output must not be programmed to activate upon receipt of a sprinkler supervisory signal.

4.2.4 Trouble Signals

A trouble signal indicates a problem with a device(s) or the control panel. Trouble signals do not activate any NAC relays or alarm circuits. Upon reception of a trouble signal the following will occur:

1. Multiple trouble signal of different types will be displayed in the order of priority.
2. The sounder will pulse once every 10 seconds.
3. The trouble LED will flash once a second.
4. The form C trouble contacts will activate.
5. The event is stored in non volatile memory.

The membrane buttons will function as described in section 4.1.3. The LCD display shown in figure 11 will be present when the system is processing a trouble signal. The list below shows possible trouble signals in order of priority.

1. **Processor Failure** – Can occur in CP-3000 panel. Caused by CP-3000 processor failing to execute the main system program. Sounder will come on steady and trouble relay will trip.
2. **Memory error** – Can occur in CP-3000 control panel. Caused by CP-3000 memory data check error.
3. **Tamper** – Cased by removal of device or exposing device battery.
4. **Interference** – Can occur in AR-3, BR-3 repeaters or CP-3000 control panel. Caused by unrecognized signal which may interfere with transmitter reception.
5. **Test Problem** – Caused by the CP-3000 not receiving a device polling transmission within 200 seconds.
6. **NAC Circuit Fault** – Can occur in AR-3 repeater or CP-3000 panel. Caused by an open circuit, short circuit or ground fault in NAC circuit wiring.
7. **Charger Failure** – Can occur in AR-3 repeater or CP-3000 panel. Caused by problem in battery charging circuit.
8. **Low Battery** – Can occur in any CWSI battery operated or A/C powered device, repeater or CP-3000 panel. Caused by battery voltage being too low.

9. **Power Loss** – Can occur in AR-3 repeater or CP-3000 control panel. Caused by low or no voltage present at A/C input to product. Trouble relay activation will be delayed by 90 minutes.
10. **Maintenance Required** – Can occur in model 300 smoke detector. Caused by sensitivity level error or hardware failure in the smoke detector head.

4.2.5 System Test

A full system test of all initiating devices can be performed as required by NFPA or local authorities. During testing the programmed NAC circuits can be silent or activate for 5 seconds when an alarm is sent from a device. Transmitter signals received while in test mode are stored in a special test log allowing for an annual testing printout to be generated by downloading the information via the RS-232 port connected to a computer. Test log memory has a capacity of 1000 signals. The trouble relay will activate while the CP-3000 is in test mode. Test mode is entered by pressing the system test button and then entering the 4 digit pass code.

4.2.6 Memory Recall

The CP-3000 has the capability of storing 1000 alarms, 1000 supervisory/trouble 1000 test and 150 keypad button presses. This information can be downloaded and printed separately or in various groupings. These memory lists can also be individually cleared which requires a password.

Section 5 - Digital Alarm Communicators

All communicators will be connected via on board normally open dry contact outputs. If off premises communications are required, the following DACT'S may be used for connection to the CP-3000 control panel. Wiring diagrams are also included to show proper connections.

This section to be completed before product is submitted. At least 2 dialers will be used.

Section 6 - System Programming

This section details system programming options not previously explained. This includes repeater relay activation and deactivation (NAC circuits), delays, etc. This section will be completed prior to submitting product. Some options will include total EVAC, EVAC by zone, relay repeater activation, etc.

APPENDIX A

APPROVED ANTENNAS

1) Manufacturer - M2 Antenna Systems
   Model - 914A-ISP
   Isotropic gain - 14.25 dBi

2) Manufacturer - Antenna World
   Model - COM-8804Y
   Isotropic gain - 8.5 dBi

3) Manufacturer - Comtelco
   Model - P915-SMA-2
   Isotropic gain - 1 dBi

4) Manufacturer - Nearson
   Model - S161AM-915
   Isotropic gain - 2.5 dBi