

# GETTING STARTED

When designing a security system with the PC4000 that will be larger than 16 zones or have two or more Partitions it is best to first lay out the system on paper. This will help determine the total number of zones, additional expansion and power supply modules and other system elements that may be needed.

When the location of all points of protection is known the location of the zone expanders can be made. You will find that working from a plan, a layout will reveal the most economical use of system modules; two eight zone expansion modules instead of one sixteen zone, for example, can save long wire runs because of the location of zones.

There is room in the Main Control Cabinet (PC4001C) for any two of the following modules: PC4108, PC4116, PC4216 or PC4400. Modules that require a transformer and battery (PC4204) must be housed in a large Expander Cabinet (PC4002C). This enclosure will accommodate any three of the modules or any two modules if one is to be a PC4204. A small Expander Cabinet (PC4003C) can be used to house any single module other than the PC4204.

The plan will also enable you to make the most efficient layout for the communications bus (COMBUS). This is the four conductor cable which can be standard station wire (four 22 AWG wires color coded red, black, yellow and green) to which all system modules are connected in parallel. It is not necessary to run the COMBUS in shield unless it is being run through an area of high electrical noise.

The COMBUS may be up to 1,000 feet from the main board to the farthest module, with any number of modules in between. More than one COMBUS of 1,000 feet can be run from the PC4000.

When zone expanders are enrolled to the PC4000 the zones will be added to the system in sequence. For example, if an eight zone expander (PC4108) is added the additional zones would be assigned the next eight zones available on the system. As the first sixteen zones are on the main panel the additional zones, 17 through 24 would be assigned to the eight zone expander. If a sixteen zone expander (PC4116) were to follow the eight zone expander it would receive zones numbered from 25 to 40.

On your layout, determine the order in which the zone expanders will be enrolled to the system. This will allow you to correctly assign zone numbers.

Next determine the number of keypads required for each Partition and their location on the system. The maximum number of keypads allowed is 16.

When the number of zones, keypads and their locations, expansion modules and separately controlled systems (Partitions) have been decided upon you can now determine what other modules in the PC4000 system you require to complete the installation.

The PC4400 provides serial output to an on-site printer that will record the identity of the system, description of the occurrence (alarm, trouble etc.) arm/disarm by user, date and time.

The PC4216 module provides up to 16 programmable outputs each of which may be programmed to trigger on up to 21 different options. It is also used to display zones on a graphic annunciator. When used in this manner all 16 outputs must be used to display alarm inputs. A total of eight PC4216 modules would be needed to display all 128 zones of the PC4000.

## COMBUS Power and Operation

The PC4000 main board can provide up to 500 mA to power modules, keypads and devices. A PC4204 power module is required when additional current is needed either for powering detection devices or operating bells and sirens. The PC4204 requires its own transformer and battery and can provide up to 1.5A at 12 VDC. Four relays on the module provide form C switched outputs with contact ratings of 3 amps @ 12 VDC for a variety of programmable options. When used to repower the COMBUS the PC4204 must be wired in accordance with the instructions supplied with the unit. Use of a power source other than the PC4204 power supply module to supply additional power to the PC4000 system is not recommended for the following reasons:

If the main panel loses communications with a module, within a maximum of 90 seconds the panel will perform a system reset in which power to the COMBUS is removed. Five seconds later power is reapplied and the panel will attempt to communicate with the module. If the panel is unsuccessful communicating with the module it will display and report a COMBUS communications fault.

When the main panel performs a reset, relay 1 when programmed for "COMBUS POWER" will open. This will disconnect the power supplied to the modules, resetting them so that communications to the main panel are reinitialized.

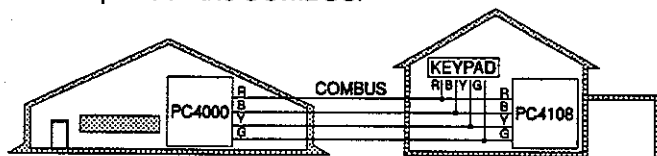
For example, if the microprocessor on the module has been scrambled due to a transient, the PC4000 will power down the COMBUS, the PC4204 will mimic the PC4000 and cut off its power supply to the module. The module will be powered down. When the PC4000 returns power to the COMBUS, the PC4204 will reconnect its power supply, and the power to the module will return. Because the module was powered down and powered up, the module is now reset, and can communicate with the PC4000.

If a power supply other than a PC4204 was used, the module would never power down, never reset, and the module will stay off line requiring the attention of service personnel.

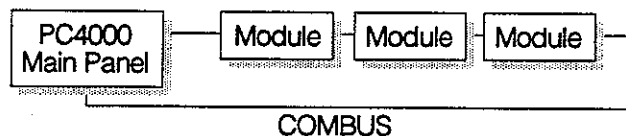
**CAUTION:**

**When used to power a module, the "RLY 1 COM" terminal of the PC4204 must be connected to the "RED COMBUS" terminal of the module only. The positive (RED) conductor of the COMBUS must be left unconnected to the module that is powered by the PC4204. The "BLK COMBUS" of the module should be run common to the negative ("BLK") of the COMBUS. Use of a power source other than the PC4204 power supply module to supply additional power to the PC4000 system is not recommended.**

The COMBUS is a four conductor cable to which all modules and keypads are connected in parallel. Connections to the COMBUS do not have to be home-run. For example if a storage building had an 8 zone expander (PC4108) and a keypad (PC4500) located in it, the zone expander and keypad could be spliced together and run back on a single 4 wire cable to the nearest point on the COMBUS.



However, we suggest that when connecting the COMBUS in series - that is, from the main board to a module, and then from the module to the next module, and so on - it is suggested that the COMBUS runs from the last module back to the main board. This will prevent the modules from losing connection to the main panel if the COMBUS wiring sustains a single cut or break.



Once the wiring is completed power the system up by first connecting the battery followed by the AC transformer. All PC4500 keypads should display the message 'PC4000 DSC Ltd.'. Press a key on any keypad that is to be assigned to Partition 1. The keypad will beep and display the message '4500 Mod. #1' and the keypad is automatically assigned to Partition 1.

Enroll every module to the system. Make sure you put down the number of each module enrolled. Refer to the Programming Manual for the required procedure.

When enrolling any PC4108 or PC4116 zone expander module make sure to note the zones which you assigned to the module.

This information is very important if it becomes necessary to Add or Delete zones to or from a Partition. Zones 1 through 16 are assigned to Partition 1 by default. This can be changed later in Installer Programming.

In Book 2 (Programming Work Sheets) you will find a four page System Overview section. Fill in the information as each module is enrolled. These sheets are designed to be left in the panel so if future service is required, the location and assigned number of each module will be readily available.

Once all modules are enrolled perform a diagnostics check on the panel to determine if any problems are present (See - DIAGNOSTICS).

### Programming the System

The PC4000 has the capability to operate as 8 separate alarm systems called Partitions. Dividing the panel into Partitions will allow you to control access to specific areas.

When the PC4000 is first powered up all zones on the main board and User Codes are assigned to Partition 1. If no other Partitions are required the entire system will be considered Partition 1. This is important to keep in mind as often in programming the panel will require you to enter the Partition to program.

For example, when programming entry and exit times, you must select the menu option 'ADD/EDIT PAR'. The keypad will then prompt you for the Partition to add or edit. You must select Partition 1 for a system that has no additional Partitions.

The factory default setting for all options is provided in the Programming Work Sheets as well as page reference numbers, chart reference numbers and the programming 'HOTKEYS' for the option to allow quick programming.

Complete the Programming Work Sheets located in Book 2. Having this information prepared before programming the panel will speed up the process considerably.

All information for the 16 zones on the main panel may be entered in the Programming Work Sheets. Any zone expanders on the system will include a similar sheet and the information should be completed for these as well.

There is no set order in which the panel must be programmed, however, if you use the following guideline it may simplify the programming of the panel for the first time.

### Step 1 - Define all Partitions

When the panel is first powered up the 16 zones on the main panel are assigned to Partition 1. Any additional zones enrolled to the system are NOT assigned to any Partition.

Any zones from 1 through 16 that are required on a different Partition must be DELETED from Partition 1 before they are ADDED to another Partition. Any zones above Zone 16 must be ADDED to the proper Partition. See "Zone Assignment" in the Programming Manual for the procedure to add and delete zones.

When you ADD each zone to the proper Partition it will save time if you also program the Zone Label, Zone Type, Zone Options and Reporting codes for the zone. All of this information may be entered in the Programming Work Sheets located in Book 2 and in the program sheets included with each Zone Expansion module.

### Step 2 - Assign User Codes

From default the panel comes with one User Code assigned as a Grand Master, code '1234'. The other 127 User Codes are assigned as Partition 1 codes.

If more than one Partition is being utilized it will be necessary to assign User Codes to the additional Partition(s). Since there are no available User Codes (they are all assigned to Partition 1) it will be necessary to first delete User Codes from Partition 1. Once codes are deleted from Partition 1 they will be available to be assigned to another Partition or as System Masters.

See "Code Assignment" in the Programming Manual.

### Step 3 - Program the System

Now that the Partitions have been defined, zones programmed and access codes assigned you are ready to program the rest of the system. It is best to follow the Programming Work Sheets starting at the beginning and carefully programming each section. Having the required information entered ahead of time will speed up this process considerably.

Once the Installer Programming is complete you can program access codes ([\*][5][Master Code]). Next, features on each partition can be enabled. Go to a keypad assigned to the desired partition and enable the features through [\*][6][Master Code] commands.

### Step 4 - Testing the System

See "Bell/Comm Test" under [\*][6] User Functions or do the following. Contact the monitoring station to request a transmission test. Plug the telephone cord into the RJ31-X jack. If a DTS-1 is being used to monitor communicator transmissions, connect it to the telephone line and place the DTS-1 in the line mode by pressing the red "LINE/LOCAL" button. Arm the panel, wait for the exit delay to expire and trip a detector on an instant circuit. Wait for the communication to complete. Disarm the panel and check with the monitoring station to confirm acceptance of the transmission. Perform additional transmissions required by the monitoring station.

Check the "TROUBLE" light on the keypad. If it is on, press [\*] then [2] to determine the trouble. The "Trouble Display" section in "Keypad Functions" gives a description of the different trouble conditions.

### Step 5 - Instructing the End User

Describe system operation to authorized users.

Provide user with the instruction manual and instruct them to read it to become familiar with the system operation.

Instruct the user to test the system on a regular basis as described in the Instruction Manual. The Master Code should be changed from the default setting and recorded.

There is a wide range of possible uses for the [\*][4] and [\*][7] commands which are not described in the instruction manual. Explain the functions of the [\*][4] Sensor Reset and the [\*][7] Utility Output to the user if they are incorporated into the system.



# INTRODUCTION

---

The PC4000 is a highly flexible and versatile control which will enable the installer to meet the most demanding security requirements. The heart of the system is the main control panel, designated the PC4000, which is connected to other system elements using common 4 conductor unshielded station wire. The main panel processes signal information and communicating with the monitoring station. The main panel is capable of supervising 16 zones, any of which may be defined for fire or burglary applications and also manages up to eight separate and fully independent partitions, assigning zones and their controlling keypads in accordance with installer programming.

The basic 16 zone capability of the PC4000 can be expanded using either PC4108 or PC4116 modules which provide 8 or 16 zones of additional inputs respectively up to a system maximum of 128 zones. The PC4108 and PC4116 are designed for use within any of the system enclosures and are shipped without cabinets.

Programming and system operation are carried out using the LCD4500 liquid crystal display keypad. The LCD4500 connects at any point in the system to the four wire communication bus or "COMBUS", its specific identification being determined automatically in the process of installing it. A maximum of 16 LCD4500 keypads may be used on any one system regardless of size.

The PC4204 relay output module is available for installations requiring additional power beyond the 400 mA supplied by the PC4000 main panel. This module comprises a 12 volt DC power supply of 1.5 Amp capacity and four 12 volt relays with form C contacts which will provide switched outputs under any of the 21 options available in the list of programmable outputs. The PC4204 connects to the COMBUS via four wires as with other system elements. It requires a 16-18 volt, 40 VA transformer and a 12 volt battery. Up to 16 PC4204 modules may be installed on any one system. The PC4204 may be housed in any of several cabinet options and is shipped as a PC board only.

***The use of any power source other than a PC4204 to repower the COMBUS will result in a system malfunction.***

The PC4216 low current module provides 16 separate outputs. Each output may be programmed to operate under the control of 1 of 21 options as listed in the programmable options section of the installation manual. Up to 8 other PC4216's may be used to provide outputs for graphic annunciator or similar devices for the maximum of 128 zones. The PC4216 connects to the COMBUS with four wires. A maximum of 9 PC4216's may be connected to a system. The PC4216 may be installed in the main cabinet or in other cabinet options and is shipped as a board only.

The PC4000 includes the capability of driving a serial printer using a PC4400 RS232 output module. The PC4400 connects to the COMBUS with four wires. The printer may be located up to 200 feet (60 meters) away from the module. The PC4400 is shipped as a board only.

## Mounting the Panel

Select a dry location close to an unswitched AC source, a ground connection and a telephone connection for mounting the Main Control Cabinet.

Remove the PC4000 printed circuit board, mounting hardware, and keypad from the cardboard retainer inside the large cabinet. Before attaching the cabinet to the wall, press the five white nylon printed circuit board mounting studs into the cabinet from the back.

Pull all cables into the cabinet and prepare them for connection before mounting the circuit board to the back of the cabinet. Press the circuit board down onto the mounting studs.

There is room in the Main Control Cabinet (PC4001C) for any two modules (PC4108, PC4116, PC4216 or PC4400). Modules requiring power (AC and battery PC4204) must be installed in the large Expander Cabinet (PC4002C). This enclosure will accommodate one module (PC4108, PC4116, PC4216 or PC4400) and a powered output (PC4204) or any three modules. A small Expander Cabinet (PC4003C) is available for a single module that does not require external power.

## Hook Up Procedure

### Main Panel and First Keypad

Do NOT connect transformer or battery until all other wiring has been connected.

*NOTE: In a high electrical noise environment, connect a ground cable from the cabinet ground connection by the shortest and most direct route to a ground rod. Only the PC4000 and PC4204 can be grounded.*

Connect zone cables to zone loop inputs and put end of line resistors on any unused zones. For detectors requiring power, connect wires from the auxiliary supply to the detectors.

Place the keypads close to Entry/Exit doors and connect the wires to the COMBUS.

Connect an RJ31-X cord to the telephone terminals. Do not insert plug into RJ31-X jack until after power up.

Connect Bell or Siren to "BELL +" and "BELL -" terminals. Observe correct polarity for sirens and polarized bells. Connect a 2200 ohm 1/2 watt resistor across the terminals to eliminate trouble condition if the bell circuit is not being used.

## Testing the System

See Bell/Comm Test, "User Functions" or do the following. Contact the monitoring station to request a transmission test. Plug the telephone cord into the RJ31-X jack. If a DTS-1 is being used to monitor communicator transmissions, connect it to the telephone line and place the DTS-1 in the line mode by pressing the red "LINE/LOCAL" button. Arm the panel, wait for the exit delay to expire and trip a detector on an instant circuit. Wait for the communication to complete. Disarm the panel and check with the monitoring station to confirm acceptance of the transmission. Perform additional transmissions required by the monitoring station.

Check the "TROUBLE" light on the keypad. If it is on, press [\*] then [2] to determine the trouble. The "Trouble Display" section in "Keypad Functions" gives a description of the different trouble conditions.

## Instructing End-user

Describe system operation to authorized users.

Provide user with the instruction manual and instruct them to read it to become familiar with the system operation.

Instruct the user to test the system on a regular basis as described in the Instruction Manual. The Master Code should be changed from the default setting and recorded.

## Hardware Reset of Memory to Factory Defaults

If the installer's code is lost through inadvertent programming, the only means of reprogramming the system is by a hardware reset. If the installer's lockout is enabled, there is no way to reprogram the system without entering the correct installer's code.

The PC4000 can also be reset through software in the installer's programming. See "Factory Default" in the Programming Guide.

*NOTE: Panels returned to DSC with the Installer's Lockout feature enabled and no other apparent problems will be subject to an additional service charge.*

To reset the panel to factory default conditions:

1. Power the system down by removing both AC and battery power to the main panel.
2. Short the zone 1 terminal and the pgm terminal on the main panel.
3. Restore power to the main panel.
4. Wait for 20 seconds then remove the short between the pgm and zone 1.
5. The system will have reloaded the memory with factory defaults. All modules will have to be enrolled again. The event buffer is the only part of memory that is retained during a factory default.

# PRINTER SETUP

The PC4400 module is used for sending serial communications through an RS232 port to a local printer for on site monitoring of the PC4000.

All programming of the PC4400 is done through the PC4000.  
The printer can be located up to 200 ft (61 m) away from the PC4400.  
An 80 character printer is strongly recommended.

## Configuring the Printer

1. Serial interface
2. Baud rate = 300, 600, 1200 or 2400 (PC4000 default setting = 1200 baud)
3. Parity = None
4. Character length = 8 bits
5. Auto line feed = Off
6. American/Canadian character set
7. DTR Protocol or XON/XOFF (by default the PC4000 sends DTR protocol)

The PC4400 comes complete with a DB-25 (male) modular jack adapter, and a 6 ft (2 m) six wire extension cord. A longer extension cord can be used if required, up to 200 ft (61 m) maximum.

Power down the PC4000, PC4400 and the printer.

Connect one end of the extension cord into the PC4400, and the other end into the DB-25 modular jack adapter.

Connect the DB-25 modular jack into the RS232 serial port of the printer.  
See the PC4400 wiring diagram.

Power up the printer, then the PC4000 and PC4400. If the PC4400 is already enrolled and the printer is on line, the PC4400 will begin transmitting to the printer.

The following is a sample of a printout from the serial printer:

Partition Label	Date	Time	Event
System Area	05/26/94	11:01	HARDWARE DEFAULT
System Area	05/27/94	13:25	RS232 PRINTER ON LINE
Partition...2	05/27/94	15:00	ALARM ZONE 008
System Area	06/01/94	08:10	4204 #005 BATTERY TBL ALARM
System Area	06/02/94	08:13	Tamper LCD #001

Most actions on the PC4000 that require an access code are logged to the event buffer, and are sent to the printer. For example:

Partition...1	05/27/94	13:40	CLOSING ACCESS CODE 001
Partition...5	05/27/94	13:51	INSTALLER LEAD IN
Partition...4	05/29/94	15:30	UTIL OUTPUT CODE ACCESS CODE 054
Partition...1	06/01/94	08:05	SW AUX CODE ACCESS CODE 008
Partition...8	06/01/94	08:01	SYS MASTER MENU ACCESS CODE 002
Partition...1	06/02/94	23:59	BYPASS WITH CODE ACCESS CODE 004

The partition labels, access code names and zone labels can be changed in the PC4000. See "PAR NAME LABEL" in the Programming Manual for programming partition labels. See "EDIT CODE NAME" in the System Manual under [\*][5] commands to program the access code names. See "ZONE LABEL" in the Programming Manual for programming zone labels. The printout will then be as follows:

West Plaza	06/04/94	02:05	CLOSING	Head Custodian
Assembly Plant	06/04/94	02:09	ALARM	Front Office

The PC4400 sends events to the printer as they occur.

If the printer is off line or disconnected, the PC4000 keeps new events in memory until they are ready to be printed.

When the printer is brought back on line, the PC4400 will send the new events to the printer. If 384 new events occur before the printer is brought back on line (384 events = 75% of the buffer), the PC4000 will send the "Buf Near Full" reporting code to the monitoring station. (See 'Maint Rep Codes' in the Programming Flow Charts for programming the "Buf Near Full" reporting code). If over 512 events occur before the printer is brought back on line, the oldest events will be overwritten.

The PC4000 contains an event buffer which stores the last 512 events.

To print out the entire event buffer, enter the "Prn Entire Buff" section in installers programming [\*][8][Installer's Code][3][0].

The printout will begin with the oldest event in memory and end at the most recent one.



# DOWNLOADING

Downloading is the use of an IBM compatible computer to program the PC4000 system. The computer can be located either on site, or communicate over the phone.

The DSC downloading package version 5.0 or later supports downloading to the PC4000.

See the downloading manual for details on specific capabilities and the "DLS" section in the PC4000 Programming Guide for programming DLS options.

## Downloading over phone lines

Make sure the "TIP" and "RNG" terminals are connected to the phone line. Program the access code and the panel I.D. code in the PC4000.

The PC4000 panel can call the computer, or vice versa. "Ring Detect" or "User enabs DLS" must be enabled for the PC4000 to detect when the phone line is ringing, the time the computer is calling the panel.

The number of times the panel allows the phone line to ring before answering is programmable, and the default setting is 8 rings.

If the panel calls the computer, enable "User call up" and program the phone number of the computer. Initiate the call by entering [\*][6][Master Code][7].

## Downloading with an On-site Computer

Phone lines are not necessary to download to the panel if the computer is at the same location as the PC4000.

The tip and ring lines of the modem can be directly connected to the tip and ring terminals on the panel.

A DTS-1 must be connected to the lines and in the local mode.

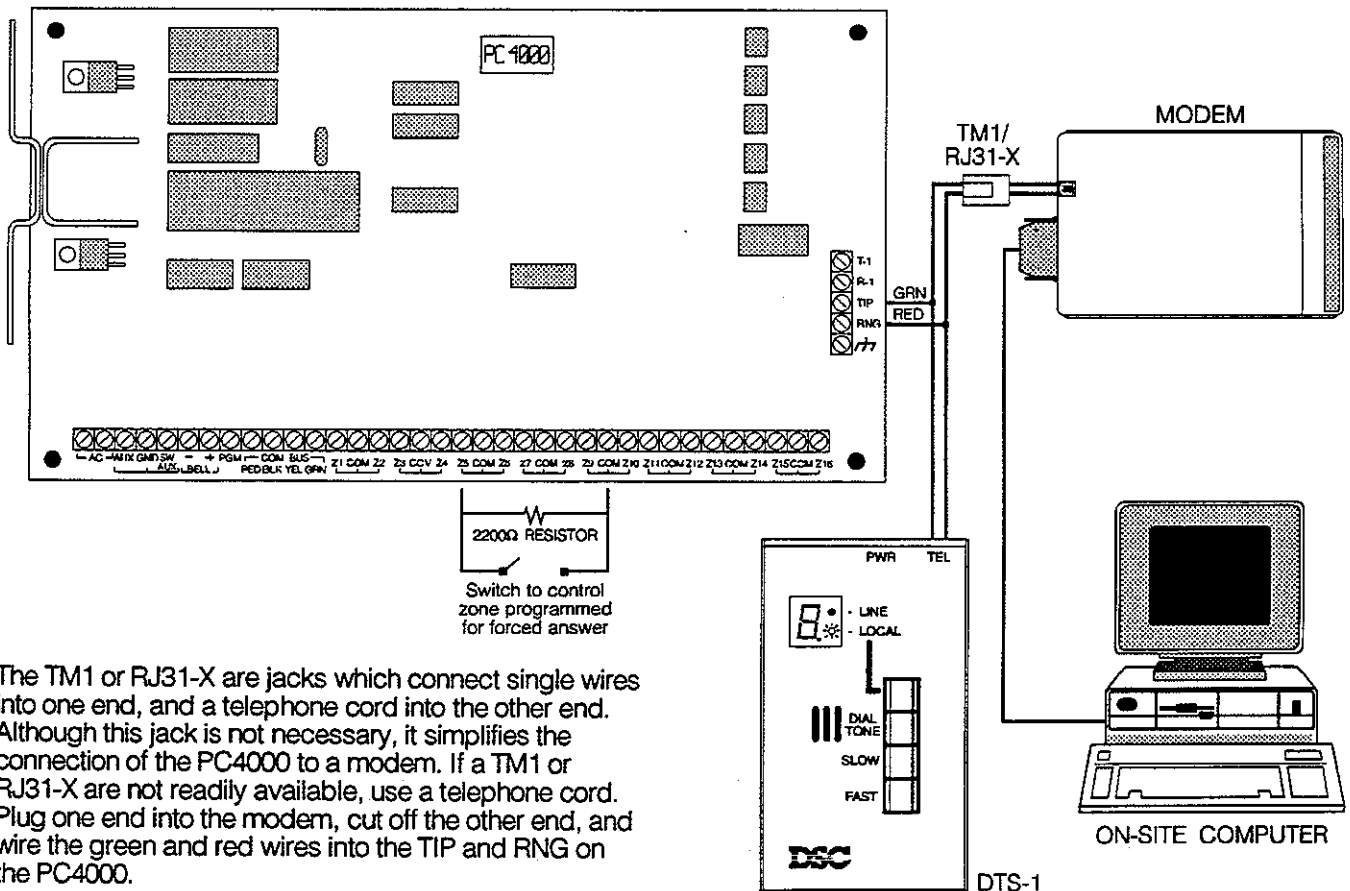
Program the downloading access code and panel I.D. code.

Program a zone for "Forced Answer". See "Zone Type" in the Programming Guide. This zone is only meant to be temporary, to initiate downloading. It can later be changed back to the required zone type.

Make sure the access code and panel I.D. code are the same in the panel and computer. A telephone number must be programmed into the computer to initiate communications, and any number entries are accepted.

Activate the computer to call the panel. When the computer indicates "Dialing...No dial tone", press the dial tone button on the DTS-1 until the modem dialing the phone number is heard. Trip the zone programmed for "Forced Answer". The panel will seize the phone line and initiate communications with the computer. The computer will then display the message "Connected to panel..." and continue with communications.

The DTS-1 must remain connected to the phone line in local mode during the downloading.



The TM1 or RJ31-X are jacks which connect single wires into one end, and a telephone cord into the other end. Although this jack is not necessary, it simplifies the connection of the PC4000 to a modem. If a TM1 or RJ31-X are not readily available, use a telephone cord. Plug one end into the modem, cut off the other end, and wire the green and red wires into the TIP and RNG on the PC4000.



# SYSTEM OVERVIEW

## Maximum System Capabilities

- Control Units - 1 PC4000 Main Board
- 128 Zones
  - PC4000 Main Board: 16 zones
  - PC4108 Expansion Module: 8 zones
  - PC4116 Expansion Module: 16 zones
- 64 High Current Outputs - Up to 16 PC4204 Modules
- 144 Low Current Outputs
  - 9 PC4216 16 Output Modules
- 1 RS-232 Interface - PC4400
- 16 Remote LCD Keypads - LCD-4500
- 1 Main Board Fully Programmable Output
- 1 12 VDC Switched Fully Programmable Auxiliary Power Supply (Main Board)
- 1 Supervised Fully Programmable Bell/Siren Output (Main Board)
- 1 Telephone Interface (Main Board)

## 128 Programmable Zones

- 16 zones on main board expandable by using 8 and 16 zone modules
- Several zone types including: instant, 2 types of interior,
  - 3 delay, 3 fire, 4-24 hour, forced answer, momentary, and maintained arming
- Zone expansion is done by enrolling an expansion module
- Zones can be assigned independently to any partition(s)

## LCD Keypads (LCD-4500)

- Total of 16 on the system
- Can be assigned to any partition

## 209 Outputs

- 1 main board transistor switch to ground with 3A capabilities (programmable for 1 of 21 options)
- 64 relay outputs programmable for 1 of 21 options each (16-4204 modules with 4 outputs each)
- 16 switched transistor outputs programmable for 1 of 21 options each (1-4216 module with 16 outputs)
- 128 alarm status indicators (8-4216 modules with 16 outputs each)

## Switched Auxiliary Output

- Programmable for 1 of 21 options

## Supervised Alarm Output

- Bell Output, 700 mA fused at 5 Amps, 12 VDC unregulated<sup>1</sup>
- Steady or Pulsed Output
- Programmable for 1 of 21 options

## Event Buffer

- 512 events
- Date and time stamp

## 8 True Partitions

- Separate or shared zones from other partitions
- Individual keypads per partition (minimum 1 keypad)
- Individual access codes for each partition
- Individual keypad zones (Fire, Emergency, Panic)
- Individual outputs programmable per partition

## RS-232 Interface Module (PC4400)

- Used to output data to a local printer

## Internal Memory

- Retains programmed data even when both AC and Battery have been removed.
- The clock will have to be reset after a power down condition which will be indicated by an audible trouble.

## Keypad User Options

They are all menu driven, including:

- Programming of up to 11 types of security codes, 128 in total
- Bypassing from the keypad by authorized personnel
- Utility functions such as remote control of lights, door strikes, etc.

<sup>1</sup> Values shown are in conformance with UL specifications which do not take into account current that may be available from a stand-by battery.

## **Communicator**

- Communicates in all 10 and 20 BPS single line and extended formats
- Radionics Rounds and Radionics Parity
- Sescoa Superfast format
- Ademco Contact ID format
- SIA 1986 format
- 3/1 and 4/2 formats
- Hexadecimal numbers
- DTMF and Pulse dialing
- DPDT line seizure
- True dial tone detect
- Anti-jam feature
- Three telephone numbers and nine account codes
- Split reporting

## **Expansion Process**

When modules are connected to the system, they have to be enrolled for the system to recognize them.

To enroll modules after they have been connected, open the tamper contact from ground on each one. Follow instructions in the Programming Manual, Module Hardware section of the Installer's Programming Mode.

# PC4000 MAIN BOARD SPECIFICATIONS

## Control Panel

### 16 zones

- 16 fully programmable supervised zones (EOL resistor)

### Audible alarm output

- Bell output  
700 mA, fused at 5 Amps, 12 VDC unregulated<sup>①</sup>
- Steady or pulsed output

### Non-volatile RAM (Internal Memory)

- Does not lose codes or system status on complete AC and battery failure

### Programmable output

- Transistor switch sinks 3A to ground
- Operation controllable through program options

### Powerful 1.5 amp regulated power supply

- 400 mA auxiliary supply, 12 VDC unregulated<sup>①</sup>
- Separately fused for battery, auxiliary supply and bell output
- Electronic shut down protection of the COMBUS
- Supervision for loss of AC power, low battery, electronic shut down of modules
- Internal clock locked to AC power frequency

### Switched Auxiliary Supply Output

- Programmable for several options

### Battery

- 12 volt 4 Ah minimum rechargeable gel-cell or sealed lead-acid battery

### Transformer

- 16.5 VAC, 40VA

## Output Voltage

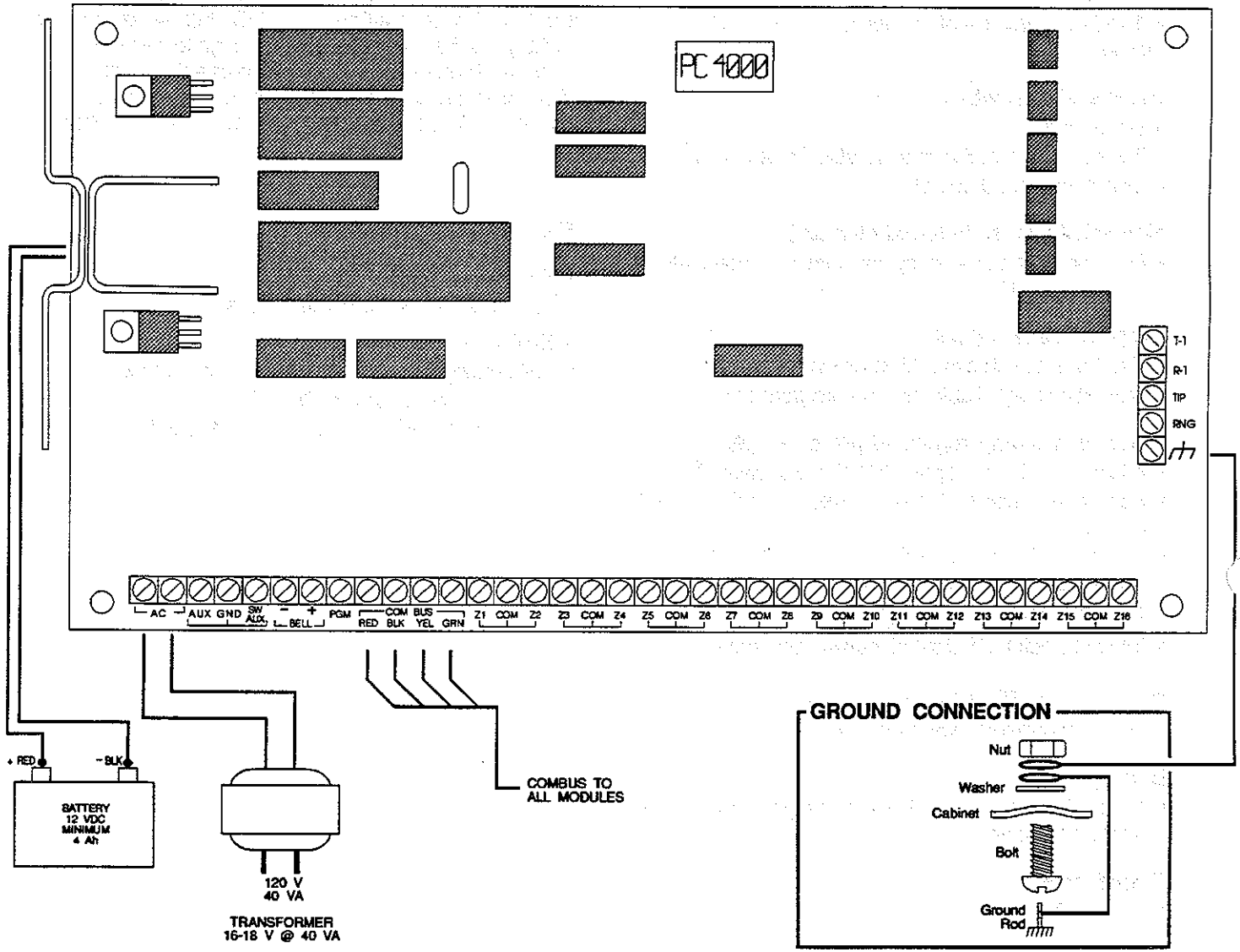
Typically, with normal AC on and a fully charged battery, the output voltage will be 13.8 VDC. With AC off and the battery discharging, the voltage will go to below 10 volts and then battery cutoff will occur preventing further discharge. Devices that require power from the control panel should be capable of operation over the voltage range of 10 to 14 VDC.

## Remote Keypad

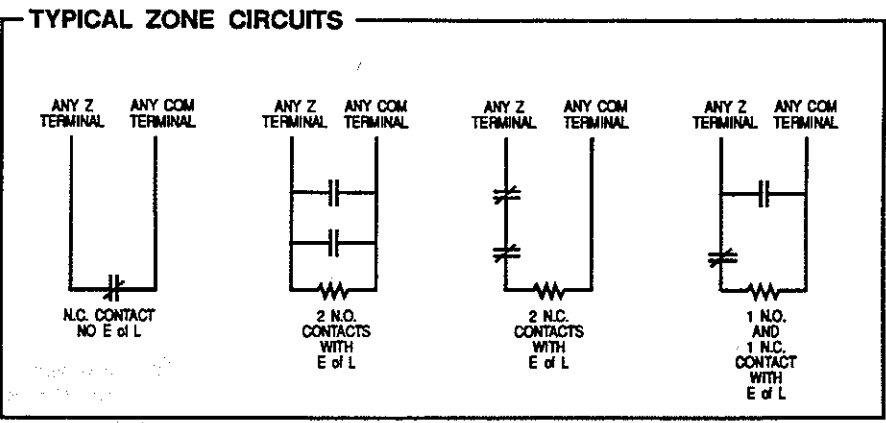
- Four wire (QUAD) hook-up
- Alphanumeric liquid crystal display
- Built-in piezoelectric buzzer
- Full annunciation of zones and system status
- Nominal current draw of 25 mA
- Dimensions 5.5" x 4.5" x 1" deep (150 x 114 x 25 mm)

<sup>①</sup> Values shown are in conformance with UL specifications which do not take into account current that may be available from a stand-by battery.

**WIRING DIAGRAM PC 4000 MAIN CONTROL BOARD**



DO NOT  
CONNECT TO  
RECEPTACLE  
CONTROLLED BY  
A SWITCH



# MODULE SPECIFICATIONS

## **PC4108 Expansion Module**

- Up to 128 zones total on system
- 8 zone expansion module
- Four wire (QUAD) hook-up to COMBUS
- Nominal current draw of 25 mA
- Provides Tamper and Trouble Reporting Codes
- Low COMBUS supervision to PC4000 Main Board

## **PC4116 Expansion Module**

- Up to 128 zones in total on system
- 16 zone expansion module
- Four wire (QUAD) hook-up to COMBUS
- Nominal current draw of 30 mA
- Provides Tamper and Trouble Reporting Codes
- Low COMBUS supervision to PC4000 Main Board

## **PC4204 High Current Output Module**

- 4 output high current module
- Up to 16 modules on system
- Minimum 40 VA 16-18 volt transformer required
- Minimum 4 Amp-Hour, 12 volt battery required
- Each output programmable for 1 of 21 options
- Four wire (QUAD) hook-up to COMBUS
- Nominal current draw of 25 mA
- Provides Tamper and Trouble Reporting Codes
- Low COMBUS supervision to PC4000 Main Board
- 1.5 Amp output

## **PC4216 Low Current Output Module**

- 16 output low current module
- Up to 9 modules on system
- 1 module programmable for all 16 outputs, 1 of 21 options for each
- 8 modules programmable as alarm annunciators
- Four wire (QUAD) hook-up to COMBUS
- Nominal current draw of 35 mA
- Provides Tamper and Trouble Reporting Codes
- Low COMBUS supervision to PC4000 Main Board

## **PC4400 RS-232 Interface Adapter Module**

- True RS-232 technology
- Handshake software switches
- Protocol XON/XOFF or DTR
- 4 possible baud rates 300, 600, 1200 and 2400
- Four wire (QUAD) hook-up to COMBUS
- Nominal current draw of 35 mA
- Provides Tamper and Trouble Reporting Codes
- Low COMBUS supervision to PC4000 Main Board

## **LCD-4500 Remote Keypad**

- Up to 16 modules on system
- Alphanumeric liquid crystal display
- Built-in piezoelectric buzzer
- Full annunciation of zones and system status
- Four wire (QUAD) hook-up to COMBUS
- Nominal current draw of 25 mA
- Provides Tamper and Trouble Reporting Codes
- Low COMBUS supervision to PC4000 Main Board
- Dimensions 5.75" x 4.5" x 1" deep (144 x 114 x 25mm)





# TERMINAL CONNECTIONS

This "Terminal Connections" section only refers to the main board of the PC4000 system. Other connections are shown in the module wiring diagrams.

## "AC" Power Terminals

Use a 16.5 VAC transformer with a minimum 40 VA rating to supply AC power to the PC4000. The transformer should not be connected to an outlet that is controlled by a switch. If AC failure occurs, it will be displayed as a trouble on the keypad (see "Keypad Commands, [\*][2] Trouble Conditions"). It can also be transmitted to the monitoring station as a trouble condition (see "Programming Manual").

## Auxiliary Power Terminals "AUX" and "GND"

The auxiliary power supply can be used to power motion detectors and other 12 VDC devices. The "AUX" (positive) and "GND" (negative) terminals provide 400mA 12 VDC<sup>①</sup> when the PC4000 is used with one keypad. For each additional keypad the auxiliary supply rating must be reduced by 25mA. The auxiliary supply is fused at 1 amp and a Main Aux Trouble Reporting Code can be transmitted if the fuse fails. (See "Programming Manual".)

## Switched Auxiliary Power Terminals "SW AUX" and "GND"

The "SW AUX" terminal is positive while the "GND" terminal is negative. The 400 mA auxiliary supply rating must be reduced by any current taken from the switched auxiliary supply which shares the same fuse as the auxiliary supply. This output is fully programmable, but is most commonly used with the "Sensor Reset" option, allowing the user to control the switch from the keypad. (See "Keypad Commands".)

## Bell/Siren Terminals "BELL +" and "BELL -"

These terminals are for powering bells or other devices requiring a steady output voltage on alarm. The bell output is fused for 5 amps. When connecting sirens (speakers with siren driver already built-in), be sure to observe the correct polarity. Connect the positive lead to the "BELL +" terminal and the negative lead to the "BELL -" terminal.

If no siren or bell is used, connect a 2200 ohm resistor between "BELL +" and "BELL -".

## Programmable Output Terminal "PGM"

The operation of the Programmable Output depends upon which option is selected in the programming table. See the Programming Manual for a list of options for the "PGM" output. The "PGM" is a 3A (maximum) switch to ground. A small relay, a buzzer or other DC operated device may be connected between the 12 VDC "AUX" (positive) terminal and the "PGM" (switched negative) terminal to interface with controlled devices.

## COMBUS Terminals

### "RED", "BLK", "YEL" and "GRN"

Connect the red wire of the COMBUS to the "RED" terminal, the black wire to the "BLK" terminal, the yellow wire to the "YEL" terminal and the green wire to the "GRN" terminal. The COMBUS is wired in the same manner on all modules. The COMBUS is used by the main panel to communicate with and supply power to the modules.

The COMBUS power supply terminals are fused electronically.

**When connecting modules to the COMBUS the system must not be powered.**

## Zone Input Terminals "Z1" to "Z16"

Zone inputs "Z1" to "Z16" can be supervised end of line (E.O.L.) resistor circuits or normally closed loops. If E.O.L. are used, each input must be terminated with a 2200 ohm E.O.L. resistor. An alarm condition will be created if a normally open contact is used to short across the E.O.L. resistor. A trouble is created if normally closed contacts, wired in series with the E.O.L. resistor, are opened. See "Zones E.O.L." in the Programming Manual. See the wiring diagram for normally open and normally closed contact connections. The type of circuit or zone definition (delay, instant, 24 hour, silent, audible, etc.) is programmed from the keypad using the installers programming commands.

## Telephone Terminals

### "TIP", "RNG", "T-1" and "R-1"

The wires from the RJ31-X telephone jack are connected to these terminals in the following way.

TIP	Green wire	▶	Incoming line from telephone company
RNG	Red wire		
T-1	Brown wire	▶	Outgoing line to house telephone(s)
R-1	Grey wire		

**NOTE:** For proper operation, there must be no other telephone equipment connected between the control panel and the telephone company's facilities.

## Battery Connections

Do not connect the battery or the transformer until the wiring is complete. Connect the red battery lead to the positive battery terminal and the black lead to the negative battery terminal. If the connection is reversed the battery fuse will blow.

<sup>①</sup> Values shown are in conformance with UL specifications which do not take into account current that may be available from a stand-by battery.

1944

Dear Mr. [Name],  
I have received your letter of the 15th and am glad to hear from you.  
The information you have provided is being reviewed and we will contact you again as soon as a decision has been reached.  
Thank you for your patience.

I am sorry that we cannot provide you with a more definitive answer at this time.  
The process is still ongoing and we are doing everything possible to expedite it.  
We will be sure to keep you informed of any developments.

Your cooperation and understanding in this matter is appreciated.  
If you have any further questions, please do not hesitate to contact our office.  
Sincerely,  
[Name]

Very truly yours,  
[Name]

Enclosed for you are the documents mentioned in your letter.  
Please review them carefully and let us know if you need any clarification.

I am sure that you will find the enclosed information helpful.  
We are committed to providing you with the best possible service and will continue to work on your behalf.

Thank you for your continued interest in this matter.  
We will be in touch again soon.

Yours faithfully,  
[Name]

I hope this finds you well.  
Please let us know if there is anything else we can do for you.

Best regards,  
[Name]

With kind regards,  
[Name]

# SYSTEM KEYPAD FUNCTIONS

Many of the functions in the PC4000 have limited access so that only certain users may control several options. The installer can program the 2nd Master Code to enable it and have access to the entire panel's operations the same as the Grand Master.

- System Master Code users can access all end-user options.
- Partition Master Code users can access options related to their partition.
- All other types of users have options available to them for their partitions.

All of the above mentioned keypad functions are listed in the following pages.

## Introduction

The LCD-4500 remote keypad provides complete information and control of the PC4000 control panel.

- The panel can be fully programmed from any keypad.
- The LCD display provides alarm and status indication for the alarm circuits as well as guiding the user in operating the system.
- The built-in buzzer lets the user hear correct key entries and other alert signals.
- The 12 digit keypad is used for code entry and other programming functions. All keypad entries are made by pressing one key at a time.

The keypad is normally in the arm-disarm mode. In this condition, the LCD message indicates the status of the system. The "Enter Code to Arm System" message comes on when all zones are closed. The system can be directed to perform other functions such as zone bypassing, displaying trouble conditions, displaying alarm memory and programming by entering one of the various [\*] commands described below. Pressing the [#] key or not making any key entry for 2 minutes always returns the keypad to the arm-disarm mode.

## Partitions

The PC4000 can have up to 128 zones. These zones can be divided by the installer into 8 separate partitions, that can be armed and disarmed separately. Zones can be assigned to more than one partition. Keypads are assigned to a specific partition, and there can be more than one keypad per partition. User access codes are only assigned to one partition, and can only be entered on keypads of the same partition, except for System Master codes which can arm and disarm any partition from any keypad. The default setting has only partition 1 enabled. To enable more partitions, enter the Partition Area menu of the Installer's Programming section, and select to add/edit the partition to be enabled.

## System Master Codes

System Master Codes are used for arming and disarming the control panel, for viewing the armed/disarmed status of the partitions, for programming additional security codes and for entering 'user functions'. They are the only codes that can arm and disarm all partitions. In the disarmed state, entering a Master Code will cause a nine selection menu to be displayed as follows:

- |                      |                       |
|----------------------|-----------------------|
| [0] Arm Partition    | [1] Arm Diff Part.    |
| [2] Disarm Diff Part | [3] View Partitions   |
| [4] Set System Time  | [5] Set System Date   |
| [6] System Reset     | [7] Enable DLS Window |
| [8] # to Exit        |                       |

[0] Arm Partition will arm the partition the keypad is on.

The keypad will display the message 'Exit delay in progress' and the armed light will come on.

[1] Arm Diff Part. will show a menu of the other partitions and their armed/disarmed status. R means it is ready to be armed, N means it is not ready to be armed, and A means the partition is armed. If the partition status is R, then this partition can be selected to be armed. If a partition is not enabled, it will not be displayed.

[2] Disarm Diff Part will also show a menu of the other partitions and their armed/disarmed status. Any partition that shows the A for armed status can be selected to be disarmed.

[3] View Partitions shows the status of the partitions. A means armed, R means ready to be armed, and N means not ready to be armed. If a partition is not enabled, it will not be displayed.

[4] Set System Time programs the system's 24 hour clock. Enter 4 digits in 24 hour time to set the clock, the first 2 digits are the hour, the last 2 digits are the minutes. For example, to program 2:35 pm, type in 1435.

[5] Set System Date programs the system's calendar. Enter 6 digits, the first two digits are the month, the middle 2 digits are the day, and the last two digits are the year. For example, to program Feb. 14, 1992 type 021492.

[6] System Reset. A System Reset turns off the power to the COMBUS for 5 seconds and resets the main panel. No programming will be lost and the time will not have to be reprogrammed. A system reset should be done if there is a COMBUS Communications fault or an Internal fault.

[7] Enable DLS Window. The end user can enable ring detect for 60 minutes to allow a computer to call the panel. The installer can disable this function in the DLS section of the installer's programming.

[8] # to exit. If the user decides to do nothing, either select this option, or press the [#] key to return to the arm/disarm state.

The first System Master code has a default code of 1234. This code is called the System Grand Master Code, and is the only code that can be used to program other System Master codes.

## Installer's Programming Code

A default installer's programming code "4000" is programmed into the PC4000. This code is used with the [\*][8] command by the installer to gain access to the system in order to enter panel or communicator program information. The installer's program code may be changed by the installer.

## Arming

Close all protected doors and windows and stop movement in areas covered by motion detectors.

The "Enter Code to Arm System" message should be on the LCD display. Check to see if [<][>] are displayed on the LCD and press the [<][>] keys to view the extra information if they are. The system cannot be armed unless the "Enter Code to Arm System" message is displayed.

Enter a [4 Digit Security Code]. As each digit is entered the keypad will beep.

- If the security code was entered incorrectly, the keypad will beep steadily for 2 seconds.
- If the code was entered correctly but the message "Secure System Before Arming" is on the display, the keypad will beep quickly followed by a steady tone.
- When the correct code is entered, the "Exit delay in Progress" message will come on and the keypad will beep quickly.

If enabled, a timer will appear in the right side of the display indicating the remaining time in the exit delay. Exit the premises through the designated exit-entry door. At the end of the allowed exit time the message on the keypad will change to "Enter Code to Disarm System". See the "Installer's Programming [\*][8] Command" section on how to change the exit time. Also see "Quick-arm" and "At-home Arm".

## Disarming

Enter the premises through the designated exit-entry door. The keypad buzzer will be on. Go to the keypad and enter the [4 digit security code]. If an error is made in entering the code, press the [#] key and enter the code again. The "Armed" light will go out and the keypad buzzer will stop. The correct security code must be entered before the allowed entry time expires. To change the entry time see "Installers Programming Command", [\*][8]. If an alarm occurred while the panel was armed, the "View Memory" message will be on the display with the zone name for the zone that caused the alarm. The display will keep those messages on for two minutes or until the [#] key is pressed to return the panel to the normal arm-disarm mode.

## Auto-bypass/Home-away Arming

If a correct security code is entered and you do not exit the premises, the system will, at the end of the Exit delay time, arm with interior zones automatically bypassed if those interior zones have been programmed as "Home-away" zones. These zones will remain bypassed until a delay zone is tripped or [\*][1] is entered to reactivate bypassed home-away zones.

This is a convenience feature for the user who wishes to remain on the premises with the system armed. The user does not have to manually bypass the home-away zones.

To reactivate the Home-away zones that have been automatically bypassed, press [\*][1]. This command is a quick method of fully arming the system in residential applications before going to bed.

## Zone Bypassing

### [\*][1]

A bypassed zone will not cause an alarm. If a zone is bypassed the panel may be armed even if the zone is open. Use zone bypassing when access is needed to part of the protected area. Also, damaged wiring or contacts on a zone may be temporarily bypassed until repairs can be made so that the panel can be armed.

To bypass zones, enter [\*][1]. An access code may be required if the installer has enabled that option. A menu will appear.

[0] Bypass Zones - This selection takes you immediately to bypassing zones. Use the [<][>] to select the zones to be bypassed and press the [\*] key to select the zone. A "\*" will appear beside the zone label to indicate the zone will be bypassed when the partition is armed.

A zone search routine allows the user to find the desired zone to bypass by entering in the first letter of the zone to search for, and pressing one of the [<][>] keys. The [<] key will search for the first zone on the partition that begins with the letter selected. The [>] key will search for the last zone on the partition that begins with the letter selected.

The letters of the alphabet have been divided up among the 1-9 number keys on the keypad.

① ABC	② DEF	③ GHI
④ JKL	⑤ MNO	⑥ PQR
⑦ STU	⑧ VWX	⑨ YZ

For example, to search for the first zone that begins with the letter "R", press the [6] key three times until the letter "R" is displayed on the keypad between the [<][>]. Press the [>] key, the first zone that begins with the letter "R" will then be displayed.

[1] Clear Bypasses - Removes all bypasses from all the zones in your partition and then takes you to bypassing zones. None of the zones will have a "\*" beside them.

[2] Recall Bypasses - Selecting this will bypass all the same zones that were selected the last time zones were bypassed. This is for users that are always bypassing the same zones.

[3] Previous Menu - takes you back to the "Enter Code to Arm System".

When the PC4000 is programmed, the ability to bypass certain zones may be eliminated. In this case, the "\*" message for those zones will not come on in response to the bypass command. Zone bypasses are automatically cancelled when the panel is disarmed.

The installer can choose by partition if a code must be entered with [\*]+[1] to bypass zones. Only the zones assigned to the same partition of the system as the keypad can be bypassed. Only certain types of access codes can be used to bypass (See [\*][5]).

*NOTE: At no time can any armed zone be bypassed.*

## Trouble Display

### [\*]+[2]

The PC4000 continuously monitors a number of possible trouble conditions. If one of these conditions occurs, the keypad "TROUBLE" indicator will light and the audible indication will sound (two short beeps every 10 seconds). When the [#] key is pressed the audible indication will stop, but the trouble indicator light will remain ON until the trouble is cleared. Trouble conditions can also be transmitted to the monitoring station. Press the [\*] then [2] keys to display the types of trouble conditions.

- Battery Trouble
- AC Trouble
- Aux Supply Troub
- TLM Trouble
- FTC Trouble
- Bell Cct Trouble
- Fire Trouble
- Loss of Time
- Module Com Fault
- COMBUS Low Pwr
- Internal Fault

Press [#] to return to "READY".

**Battery Trouble...**A battery trouble will be displayed and can be reported if the battery is 11.3 volts or less, disconnected or the battery fuse fails. Battery voltage is checked once every 4 minutes, so the battery trouble may not restore instantly when the battery is restored. Initiating a bell/comm test will check the battery voltage.

**AC Trouble...**There is no audible annunciation on AC

power failure. The system "Trouble" light will come ON but the audible indication will not sound until there is a low battery condition. Transmission delay can be programmed for 000 to 255 minutes.

**Aux Supply Troub...**A trouble is generated if the auxiliary supply fails.

**TLM Trouble...**A telephone line trouble is generated when the line voltage drops below 3 volts for more than 30 seconds. A keypad trouble is generated when the system is disarmed and if selected, a local alarm sounds when the panel is armed.

**FTC Trouble...**If the digital communicator is unsuccessful in communicating with the monitoring station after 10 attempts, a Fail to Communicate trouble is generated. If a later attempt to communicate is successful the trouble is cleared.

**Bell Cct Trouble...**If the bell fuse opens or the bell circuit is open, a keypad trouble and a Bell Circuit trouble transmission are generated.

**Fire Trouble...**If a FIRE loop is open circuit, a keypad trouble and a Fire Loop trouble transmission are generated. A trouble on the FIRE loop will unconditionally initiate an audible and visual (trouble light) indication on the keypad. This means that even if any other previous trouble has been silenced, a FIRE loop trouble will restart the keypad buzzer.

**Loss of Time...**When the PC4000 is powered up, the internal time of day clock needs to be set to the correct time. This trouble is cleared when an attempt is made to reset the internal time of day clock. See "System Master Codes" for resetting the time of day clock.

**Module Com Fault...**The panel has lost communications with a module and cannot recover it. Check to see if the module is connected properly, then do a system reset. See "Diagnostics" in the Programming Manual to determine which module is not communicating.

**COMBUS Low Pwr...**Modules are not getting enough voltage from the COMBUS. Check for proper connection of COMBUS, or the COMBUS needs to be repowered. See 4204 modules and the 4204 PGM COMBUS power option for supplying voltage to the COMBUS. See "Diagnostics" in the Programming Manual to determine which module has low voltage.

**Internal Fault...**a problem has occurred with the COMBUS microprocessors. If this trouble occurs, check connections to the COMBUS and do a system reset.

## Alarm Memory Display

### [\*]+[3]

Press [\*] then [3] to enter the alarm memory mode. Any alarm caused during the last armed period will be displayed. The "View Memory" message will only be displayed when an alarm occurred during the last armed period.

Press [#] to return to "READY".

## Sensor Reset

[\*]+[4]

The Main Bell, Switched Auxiliary Supply and pgm outputs can be programmed by the installer to be a 'Sensor Reset'. (See 'Sensor Reset' in the programming guide). This option allows the user to activate these outputs from the keypad by pressing [\*][4]. The keypad will display 'Sensor Reset in Progress..' and a countdown timer will show how long the sensor reset will be active. The Sensor Reset can be from 0 to 255 seconds, which is programmed by the installer. (See PGM Pulse Times, Utility/Sensor section in the Programming Guide).

## User Programming Commands

[\*]+[5]+[Master Code]

The [\*][5] Access Codes programming command is used to program additional access codes of any type.

The PC4000 has 128 access codes. In the Installer's Programming Section, these codes are divided up and assigned to partitions, or are turned into System Master Codes, which have control over all partitions. This must be done before the user can program the access code and the code type.

The first code is the System Grand Master Code. Only the Installer can change this code, unless the Installer has enabled the Installer's Programming Commands to make the System Master Code 001 changeable.

There are 10 types of codes:

**System Grand Master Code** has no limitations to its use. It can create or delete other System Master Codes or perform any other user feature the PC4000 user is capable of doing.

**System Master Codes** can do anything on the system. They can be used to bypass, view memory and view trouble, etc. They may be used to create or delete any type of code except for System Master Codes.

**Partition Master Codes** has unlimited access to their own partition. These types of codes can create, delete or alter any code type in their partition other than Partition Masters or System Masters. They can only assign users to their own partition.

**Arm/Disarm/Bypass Access Code** may arm, disarm or bypass on the partition to which it has been assigned.

**Arm/Disarm Access Code** can only be used to arm or disarm the partition to which it has been assigned.

**Arm Only Access Code** can only arm the partition to which it has been assigned.

**Door Strike Code** can only activate [\*][7] utility output on the partition it belongs to if the partition is disarmed.

**Log Only Code** will only put a record on to the event buffer.

**Arm/Disarm/OTU Code** may arm and disarm the partition to which it has been assigned. The code is erased when used to arm.

**Arm Only OTU Code** may only arm a partition. The code is erased when used to arm.

**Door Strike OTU Code** is erased after used.

NOTE: OTU stands for One Time Use.

## Programming Additional Access Codes Using a System or Partition Master Code

1 Press the [\*], then [5] key to enter the User Programming Commands. The keypad will display 'Enter Master Access Code'. Either a System Master or Partition Master Access Code may be entered.

- If a System Grand Master Code is entered, the user will have the option of programming System Master Codes or Access codes in any partition.
- If any other System Master Code is entered, the user will have the option of programming Access Codes in any partition.
- If a Partition Master Code is entered, only the Access Codes in the same partition can be programmed.

2 Upon entering the partition of codes to program, the display will show for 3 seconds the number of free codes and the total number of codes for that partition. For example, if 10 codes have been assigned to a partition by the installer, and the user has 4 access codes already programmed, the display will say '6 codes free, 10 codes total'.

3 Next, 'Sel Code (1) <>' will be shown on the top line of the LCD display. The number in brackets represents which of the codes in that partition is being programmed. For example, if 10 access codes were assigned to the partition, the number in the brackets would range from 1 to 10 as you toggle through the codes using the [<][>] keys.

'Access Code' along with a number showing which of the 128 access codes is being programmed will be shown at the bottom line of the LCD display. For example, if you have 5 codes assigned to be System Master codes, and 10 codes assigned to partition 1, when programming the System Master Codes the display will show 'Access Code 1' to 'Access Code 5'. When programming codes in partition 1, the display will show 'Access Code 6' to 'Access Code 15'.

The Installer must be careful whenever he reassigns additional codes to a partition or assigns System Master codes after the Access codes have been programmed. For example, if the system originally had 5 System Master Codes and 10 codes in Partition 1, with the access codes programmed and he then assigns 10 codes to be System Masters, 5 of the codes in Partition 1 will now be assigned to System Masters, and 5 codes from Partition 2 will now be Partition 1 Codes, and so on.

NOTE: If the installer changes the number of codes assigned to a partition, he must also reprogram all the access codes.

4 Use the [**<**][**>**] keys to toggle to the code to be programmed, and press the [**\***] key to select. A menu for editing access codes will be displayed. The menu selections are:

[0] **Program Code** - When selected, the keypad will display 'Enter Digits' and what is currently programmed for that access code. Enter in the 4 digit code. Do not press [**\***] or [**#**] while entering the access code. If you do not wish to change the code, use the [**<**][**>**] keys to exit. When you have finished entering the code, if you are programming System Master codes, the keypad will return to selecting which System Master code to program. If you were programming Access Codes for a partition, the keypad will ask you to select the class of the code being programmed. See 'Edit Code Class'.

[1] **Erase Code** - If a code is no longer needed, this selection will erase the code. It does not erase the code name.

[2] **Edit Code Class** - This selection will not appear when programming System Master Codes, only when programming partition access codes. Your selections of code class types are Partition Master codes, Arm/Disarm/Bypass, Arm/Disarm, Arm Only, Door Strike, Log Only, Arm/Disarm/OTU, Arm Only OTU and Door Strike OTU.

[3] **Edit Code Name** - This section is for editing the access code name. If a PC4400 RS-232 module is enrolled on the system, the access code name is printed out when the code is used to arm and disarm. Also, the access code name helps keep track of which access code belongs to who when programming codes. See 'Custom Zone ID' in the programming manual for letter entry and options menu.

[4] (**#**) **To Exit** - select this option to exit this menu, or press the **#** key to exit this menu.

5 To exit the code programming mode press [**#**].

## User Functions Command

[\*]+[6]+[Access Code]

Enter [\*][6][Access Code] and then use the [**<**][**>**] keys to display the items of the function menu. Press [**\***] to select an item.

- [0] Quick Arm
- [1] Quick Exit
- [2] Auto Arm Control
- [3] Keypad Setup
- [4] Bell/Comm Test
- [5] Door Chime
- [6] Spec. Messages
- [7] User Call Up
- [8] View Partitions

Item [0], [1], [5] and [6] turn on and off various functions. To enable or disable these functions, press the [**\***] key to toggle "Y" or "N" on the keypad.

Y - The function is enabled

N - The function is disabled

## Quick Arm

[\*]+[6]+[Access Code]+[0]

The "Quick Arm" feature is enabled by toggling to "Y" on the keypad. When enabled the panel can be armed by entering [\*][0]. Users with a One Time Use access code should not use this feature because the OTU code is only erased when used to arm.

## Quick Exit

[\*]+[6]+[Access Code]+[1]

The "Quick Exit" function is enabled by toggling to "Y" on the keypad. When enabled the user can exit through any delay zone without altering the status of the system, by entering [\*][0] on the keypad while the system is armed.

## Auto Arm Control

[\*]+[6]+[Access Code]+[2]

The Auto Arm Control options can only be accessed if Auto Arm is enabled for the partition. The PC4000 can be programmed to arm a partition at the same time each day, by enabling the Auto Arm function and programming the Auto Arm time.

At the selected Auto Arm time, the system will give a pre-alert. The keypad buzzer begins to sound and the Bell/Siren will pulse once every 10 seconds to alert anyone on the premises that the system is about to arm. The Bell/Siren pulse can be programmed to be silent.

The keypad buzzer will sound for one minute before Auto Arming unless the Auto Arm is aborted. To abort the Auto Arm and silence the keypad press any key during the pre-alert. The Auto Arm will be attempted at the same time the following day. The PC4000 can be programmed to require a code to be entered for a user to abort the Auto Arm.

Upon selecting the Auto Arm Control function, the Auto Arm Control menu will appear on the LCD keypad.

[0] Auto Arm    [1] Auto Arm Time

Auto Arm toggles "Y" or "N" to enable or disable the Auto Arm function.

Auto Arm time is the time the partition will automatically arm itself every day.

*NOTE: The Auto Arm time is a 24 hour clock and times must be entered as two digit numbers.*

E.g. HH - 01, 02,..... 10, 11,..... 23, 24

MM - 00, 01,..... 35, 36,..... 58, 59

Enter 4 digits representing the time in hours and minutes (HH:MM) based on 24 hour or military time. Always enter a leading zero where only one digit is required, 8:05 am would be entered as 0805, 1:30 pm would be entered as 1330.

## Keypad Setup

**[\*]+[6]+[Access Code]+[3]**

This function allows the user to adjust the backlighting and contrast of the LCD-4500 keypad. When this function is selected, the Keypad Setup menu will appear on the keypad.

- **Bright Control** adjusts the level of backlighting on the LCD display and the backlighting on the keys.
- **Contrast Control** adjusts the contrast of the lettering on the LCD display.

Use the [**<**][**>**] keys to toggle through the eight different settings, and press [**\***] to select the level of preference.

## Bell/Comm Test

**[\*]+[6]+[Access Code]+[4]**

This option allows the end user to test the system. This option activates all outputs programmed for 'Fire and Burg', 'Inv Fire/Burg', 'Burg Only' and 'Inv Burg Only' for two seconds, sounds the keypad's for 2 seconds, tests the main board battery voltage and sends a test code transmission to the monitoring station.

## Door Chime

**[\*]+[6]+[Access Code]+[5]**

The Door Chime feature is enabled or disabled on a partition by pressing the [**\***] key to toggle from "N" to "Y" or "Y" to "N". When the door chime feature is enabled, any zone that has been selected as chimeable will cause the keypad to beep 5 times each time the zone opens or restores while the partition is disarmed (Note that Fire zones and 24 hour zones are never disarmed, therefore they can never chime). See "Chime Function" in the Programming Manual to enable a zone to use the chime function. While disarmed zone bypass may be used to eliminate the beeping.

## Spec. Messages

**[\*]+[6]+[Access Code]+[6]**

This function enables two special event messages to be displayed when one of the special events occurs.

The first message is "Fail to Arm". It will be displayed if the user is unable to arm the partition after entering a valid code (E.g. Because of activity on the zones.).

The second message is "Alarm When Armed". It will be displayed if an alarm occurred during the previous armed period.

See "Event Messages" in the Programming Guide.

## User Call up

**[\*]+[6]+[Access Code]+[7]**

This function must be enabled by the installer. When selected, the panel will call the downloading computer. The downloading computer must be waiting for the panel to call before downloading can be performed.

## View Partitions

**[\*]+[6]+[Access Code]+[8]**

This function will allow the user to view the status of other partitions. It must be enabled by the installer in the Installer's Programming section. "A" means Armed, "R" means Ready to be armed, and "N" means Not ready to be armed. If a partition is not enabled, that partition will not be displayed.

## Utility Output

**[\*]+[7]** or **[\*]+[7]+[Access Code]**

The Bell output terminals, switched auxiliary terminals or any pgm terminals can be programmed for Utility Output (see Utility Output in the installer's programming guide). Any output that is programmed for utility output will be activated when the user enters [**\***][7]. See 'Pgm pulse times' for programming how long the outputs are activated and see 'Util Req Code' for programming whether a utility output requires an access code to be activated.

## Installers' Programming Commands

**[\*]+[8]+[Installer's Code]**

The PC4000 is completely programmed from the keypad by using commands in the [**\***][8] section. The commands are described in detail in the Programming Manual.

## "At-home" Arming

**[\*]+[9]+[Access Code]**

Entering [**\***], [9] before the arming code, arms the panel without any entry delay on the delay zones and bypasses zones that are defined as "Home-away". This command is used for arming the system while at home. Once the panel is Armed in this mode, using [**\***], [1] will remove the bypass from those zones defined as "Home-away" if they have NOT been manually bypassed. The [**\***][1] command, as used here, only removes the bypass from zones that were automatically bypassed with the [**\***][9] command.



---

## **Quick Arm**

### **[\*]+[0]**

Entering [\*][0] is accepted as a valid arming code when the "Quick Arm" feature is activated. This command is often used when individuals are required to arm the system but not disarm it. This could be used with home visitors in the case of a residential alarm or junior employees and maintenance staff in the case of a commercial alarm. See instructions in the "[\*][6] User Functions Command" section for activating the "Quick Arm" feature.

## **Quick Exit**

### **[\*]+[0] When Armed**

Entering [\*], [0] when the system is fully armed will allow the user 2 minutes to exit the premises through any delay zone without altering the status of the system if the "Quick Exit" feature is enabled. After [\*], [0] is entered into an armed system, one and only one delay loop may be tripped. Any additional activity on any other active loop will cause that loop to begin its alarm sequence. Quick exit activation will be logged onto the event buffer.

## **Keypad Zones**

There are three zones which can be activated from the keypad. The alarm and restoral codes for keypad zones are programmed using the [\*][8] command.

Pressing the [F] key for 2 seconds activates a fire alarm. The fire alarm sounds the siren/bell in a pulsed fashion.

Pressing the [E] key for 2 seconds activates a silent emergency keypad zone.

Pressing the [P] key for 2 seconds activates a silent panic keypad zone.

***NOTE:** See 'KEYPAD TOG OPT' in the Programming Guide for changing keypad zones options.*

## LIMITED WARRANTY

---

Digital Security Controls Ltd. warrants that for a period of twelve months from the date of purchase, the product shall be free of defects in materials and workmanship under normal use and that in fulfillment of any breach of such warranty, Digital Security Controls Ltd. shall, at its option, repair or replace the defective equipment upon return of the equipment to its factory. This warranty applies only to defects in parts and workmanship and not to damage incurred in shipping or handling, or damage due to causes beyond the control of Digital Security Controls Ltd. such as lightning, excessive voltage, mechanical shock, water damage, or damage arising out of abuse, alteration or improper application of the equipment.

The foregoing warranty shall apply only to the original buyer, and is and shall be in lieu of any and all other warranties, whether expressed or implied and of all other obligations or liabilities on the part of Digital Security Controls Ltd. This warranty contains the entire warranty. Digital Security Controls Ltd. neither assumes, nor authorizes any other person purporting to act on its behalf to modify or to change this warranty, nor to assume for it any other warranty or liability concerning this product.

In no event shall Digital Security Controls Ltd. be liable for any direct or indirect or consequential damages, loss of anticipated profits, loss of time or any other losses incurred by the buyer in connection with the purchase, installation or operation or failure of this product.

### Warning

Digital Security Controls Ltd. recommends that the entire system be completely tested on a regular basis. However, despite frequent testing, and due to, but not limited to, criminal tampering or electrical disruption, it is possible for this product to fail to perform as expected.