DOC NOTICE

NOTICE: The Canadian Department of Communications label identifies certified equipment. This certification means that the equipment meets certain telecommunications network protective, operational and safety requirements. The Department does not guarantee the equipment will operate to the user's satisfaction.

Before installing this equipment, users should ensure that it is permissible to be connected to the facilities of the local telecommunications company. The equipment must also be installed using an acceptable method of connection. In some cases, the company's inside wiring associated with a single line individual service may be extended by means of certified connector assembly (telephone extension cord). The customer should be aware that compliance with the above conditions may not prevent degradation of service in some situations.

Repairs to certified equipment should be made by an authorized Canadian maintenance facility designated by the supplier. Any repairs or alterations made by the user to this equipment, or equipment malfunctions, may give the telecommunications company cause to request the user to disconnect the equipment.

User should ensure for their own protection that the electrical ground connections of the power utility, telephone lines and internal metallic water pipe system, if present, are connected together. This precaution may be particularly important in rural areas.

Caution: Users should not attempt to make such connections themselves, but should contact the appropriate electric inspection authority, or electrician, as appropriate.

The *Load Number* (LN) assigned to each terminal device denotes the percentage of the total load to be connected to a telephone loop which is used by the device, to prevent overloading. The termination on a loop may consist of any combination of devices subject only to the requirement that the total of the Load Numbers of all the devices does not exceed 100.
The Load Number of this device is 10.

AVIS: L'étiquette du ministère des Communications du Canada identifie le matériel homologué. Cette étiquette certifie que le matériel est conforme à certaines normes de protection, d'exploitation et de sécurité des réseaux de télécommunications. Le Ministère n'assure toutefois pas que le matétiel fonctionnera à la satisfaction de l'utilisateur.

Avant d'installer ce matériel, l'utilisateur doit s'assurer qu'il est permis de le raccorder aux installations de l'entreprise locale de télécommunication. Le matériel doit également être installé en suivant une méthod acceptée de raccordement. Dans certains cas, les fils intérieurs de l'entreprise utilisés pour un service individuel a ligne unique peuvent être prolongés au moyen d'un dispositif homologué de rassordement (cordon prolongateur tèlèphonique interne). L'abonné ne doit pas oublier qu'il est possible que la conformité aux conditions énoncées ci-dessus n'empechent pas la dégradation du service dans certaines situations. Actuellement, les entreprises de télécommunication ne permettent pas que l'on raccorde leur matériel a des jacks d'abonné, sauf dans les cas précis prévus par les tarrifs particuliers de ces entreprises.

Les réparations de matériel homologué doivent etre effectuées par un centre d'entretien canadien autorisé désigné par le fournisseur. La compagnie de télécommunications peut demander à l'utilisateur de débrancher un appareil à la suite de réparations ou de modifications effectuées par l'utilisateur ou à cause de mauvais fonctionnement.

Pour sa propre protection, l'utilisateur doit s'assurer que tous les fils de mise à la terre de la source d'énergie électrique, des lignes téléphoniques et des canalisations d'eau métalliques, s'il y en a, sont raccordés ensemble. Cette précaution est particulièrement importante dans les régions rurales.

AVERTISSEMENT: L'utilisateur ne doit pas tenter de faire ces raccordements lui-meme; il doit avoir recours a un service d'inspection des installations électriques, ou a electricien, selon le cas.

L'indice de charge (IC) assigné a chaque dispositif terminal indique, pour éviter toute surcharge, le pourcentage de la charge totale qui peut etre raccordée a un circuit téléphonique bouclé utilisé par ce dispositif. La terminaison du circuit bouclé peut etre constituée de n'import quelle combinaison de dispositifs, pourvu que la somme des indices de charge de l'ensemble des dispositifs ne dépasse pas 100.
L'indice de charge de cet dispositif est 10.

FCC COMPLIANCE STATEMENT

This equipment generates and uses radio frequency energy and if not installed and used properly, in strict accordance with the manufacturer's instructions, may cause interference to radio and television reception. It has been type tested and found to comply with the limits for Class B device in accordance with the specifications in Subpart "B" of Part 15 of FCC Rules, which are designed to provide reasonable protection against such interference in any residential installation. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause interference to television or radio reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Re-orient the receiving antenna
- Relocate the alarm control with respect to the receiver
- Move the alarm control away from the receiver
- Connect the alarm control into a different outlet so that alarm control and receiver are on different circuits.

If necessary, the user should consult the dealer or an experienced radio/television technician for additional suggestions. The user may find the following booklet prepared by the FCC helpful: "How to Identify and Resolve Radio/ Television Interference Problems." This booklet is available from the U.S. Government Printing Office, Washington, D.C. 20402, Stock # 004-000-00345-4.

IMPORTANT INFORMATION

Notification to Telephone Company
Upon request, the customer shall notify the telephone company of the particular line which the connection will be made, and provide FCC registration number and the ringer equivalence of the protective circuit.
FCC Registration Number: F53CAN-73256-AL-E
Ringer Equivalence Number: 0.1B

Malfunction of the Equipment
In the event that this equipment should fail to operate properly, the customer shall disconnect the equipment from the telephone line to determine if it is the customer's equipment which is not working properly, or if the problem is with the telephone company network. If the problem is with this equipment, the customer shall discontinue use until it is repaired.

Telephone Connection Requirements
Except for the telephone company provided ringers, all connections to the telephone network shall be made through standard plugs and telephone company provided jacks, or equivalent, in such a manner as to allow for easy, immediate disconnection of the terminal equipment. Standard jacks shall be so arranged that, if the plug connected there is withdrawn, no interference to the operation of the equipment at the customer's premises which remains connected to the telephone network shall occur by reason of such withdrawal.

Incidence of Harm
Should terminal equipment or protective circuitry cause harm to the telephone network, the telephone company shall, where practicable, notify the customer that temporary disconnection of service may be required; however, where prior notice is not practicable, the telephone company may temporary discontinue service if such action is deemed reasonable in the circumstances. In the case of such temporary discontinuance, the telephone company shall promptly notify the customer and will be given the opportunity to correct the situation. The customer also has the right to bring a complaint to the FCC if he feels the disconnection is not warranted.

Change in Telephone Company Equipment or Facilities
The Telephone Company may make changes in its communications facilities, equipment, operations or procedures, where such actions is reasonably required and proper in its business. Should any such changes render the customer's terminal equipment incompatible with the telephone company facilities the customer shall be given adequate notice to the effect of the modifications to maintain uninterrupted service.

General
This equipment should not be used on coin telephone lines. Connection to party line service is subject to state tariffs.

Ringer Equivalence Number (REN)
The REN is useful to determine the quantity of devices that you may connect to your telephone line and still have all of those devices ring when your telephone number is called. In most, but not all areas, the sum of the REN's of all devices connected to one line should not exceed five (5). To be certain of the number of devices that you may connect to your line, you may want to contact your local telephone company.

US Equipment Maintenance Facility
Digital Security Controls Ltd.
160 Washburn St.Lockport, NY 14094

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 20 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 PC4216 low current module provides 16 separate outputs. Each output may be programmed to operate under the control of 1 of 20 options as listed in the programmable options section of the installation manual. Up to other 8 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.

Planned additions to the PC4000 include a graphic annunciator with 128 zone maximum capacity with an optional provision for the LCD4500 keypad.

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 Fully Programmable Main Board 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, 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

161 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 ❶
- 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 10 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.

Local Downloading
It is possible to perform a local download with the PC4000 by using any zone as a Forced Answer Zone (Zone Type 15), and hooking the modem directly into the phone line connections (Tip and Ring). Once a local download is initiated from the downloading computer, only tripping any Forced Answer Zone is necessary to start a download. When any zone defined as Forced Answer is trippped, the panel will automatically seize the phone lines and look for a downloading computer.

❶ *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 September 1990 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, short the tamper contact to ground on each one. Follow instructions in the Programming Guide, 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 ❶
- 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 ❶
- 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

Dimensions

- 11" x 11.8" x 3.3" deep (279 x 295 x 84 mm)

Weight

- 6.5 lbs (3 kg)

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)

❶ *Values shown are in conformance with UL specifications which do not take into account current that may be available from a stand-by battery.*

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 Guide").

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 400 mA 12 VDC ❶ 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 Guide".)

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. This allows 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 Guide" 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 four colored wires from the keypads (or any module) to these terminals. If there is more than one device, connect in parallel across the keypad terminals at the control panel (i.e. all reds wires together, all blacks together, all yellows together and all greens together). The COMBUS power supply terminals are fused electronically.

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 Programming Guide, System Options, Zone Termination. 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 RNG	Green wire Red wire	▶	*Incoming line from telephone company*
T-1 R-1	Brown wire Grey wire	▶	*Outgoing line to house telephone(s)*

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.

❶ *Values shown are in conformance with UL specifications which do not take into account current that may be available from a stand-by battery.*

Instructing End-user

Fill out the system reference guide in the user Instruction Manual. Check off sections in the manual which apply to the user's system and make additional notes if necessary.

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 in the Instruction Manual.

The Basic System

The PC4000 comes with a PC4000 main board, 1 LCD-4500 keypad, and 1 Main Control Cabinet. It has 16 zones, 1 programmable output, 1 switched supply, 1 alarm output, and a communicator with phone line connections. All 8 partitions are available to be used if more keypads are added. The main board and keypad can be operated as a stand alone 16 zone panel.

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 accomodate 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 wires to the Combus terminals on the panel.

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.

Initial Power Up

After following the hook up procedure, connect the battery. The panel will not power up until AC is then applied. Upon initially applying AC to the PC4000 panel, a keypad must be assigned to the first partition. This is done by placing a LCD-4500 keypad onto the COMBUS and pressing any button on the keypad. The panel will then recognize this keypad and respond to key presses.

If the keypad does not respond, check to see if there is AC at the AC terminals. If there is 16 VAC present, check to see if the Aux fuse is blown and make sure the keypad wires are not shorted.

Testing the System

See Installers' 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 as described in "Bench Testing" section 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.

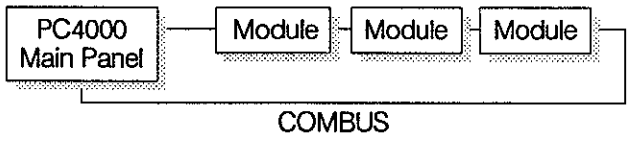
Check the "TROUBLE" light on the keypad. If it is on, press [*] then [2] to determine the trouble. The "Trouble Display" section in "Keypad Commands" gives a description of the different trouble conditions.

COMBUS Power

The PC4000 main board and each module have 4 terminals marked COMBUS. The GRN and YEL terminals on the COMBUS are for communications between the main board and the modules. The BLK terminal is common ground, and the RED terminal is the voltage supply for powering the modules.

The COMBUS supplies power to the modules. The PC4000 main board cannot power the maximum number of modules that can be added. When planning the location and wiring of modules, current consumption must be calculated. If more current is required than the PC4000 main board supplies, the PC4204 module can be used to power some of the modules. See "COMBUS Repower" on the hookup diagram for the PC4204.

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 be run 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 is cut or broken.



Programming

Read the "System Manual" and "Programming Guide" thoroughly to become familiar with the PC4000 system. Before programming the PC4000, fill out the programming work sheets. This will help you plan the system setup and speed up programming.

When wiring is complete, power the system by connecting the AC lines. All keypads should display the message "PC4000 DSC Ltd.". Press any key on a keypad. The keypad will beep and display the message "4500 Mod. #01". The keypad has now been enrolled and assigned to Partition 1. By default, the 16 zones on the main board are assigned to Partition 1. This can be changed later during Installer's Programming.

The Trouble light will be ON. Program the correct time to clear the loss-of-time trouble. See "System Master Codes" in the System Manual for instructions on programming the time. If the trouble light is still ON after the time has been programmed, press [*][2] to view the trouble condition(s). See [*][2] Trouble Display in the System Manual for a description of trouble conditions.

To enroll more modules, enter the Module Hardware section in Installer's Programming. If you intend to have a PC4400 on the system, enroll it next. It will print out a restoral code for each module as it is enrolled. You may have to program the RS-232 options in Installer's Programming if default settings are not compatible with your printer. Enroll any other keypads next so they can be used to enroll modules. This will save the installer from having to return back to the same keypad all the time.

The zones on the PC4000 can be assigned to different partitions. By default, only Partition 1 is enabled. If keypads are enrolled onto partitions that have not yet been enabled, the keypads will display random characters. To correct this, enable the partitions the keypads are assigned to. See "Add/Edit Partition" in the Programming Guide.

After enrolling all the modules, confirm them to ensure they are enrolled. See "Confirm Module" in the Programming Guide.

Perform a diagnostics check to determine if there are any problems with the COMBUS. Create a tamper on each module to ensure it is enrolled and working. See "Diagnostics" in the Programming Guide.

IMPORTANT NOTE: If a module is removed from the system without having first been deleted, or if a module loses communication with the main panel, the PC4000 will attempt a system reset to reinitialize communication. The main panel will shut off power to the COMBUS, powering down the modules. A few seconds later it will power up again. If it is unsuccessful in communicating with the module, a Module Communications Trouble will occur and the trouble light will come ON. Use the Diagnostics section in the Installer's Programming mode to view which module has lost communication. If two or more modules lose communication, the PC4000 will do a system reset for each module that was lost. For example, if 8 modules lose communication, the PC4000 will perform 8 system resets.

If the panel is to be programmed using a computer and the downloading software package DLS-1 V5.0, program the DLS section in Installer's Programming after all hardware is enrolled. If you have an on-site computer, you can download to the PC4000 by connecting your modem directly to the TIP and RING terminals on the PC4000. One of the zones will have to be programmed for "Forced Answer". This zone will make the PC4000 seize the phone lines, allowing the computer to initiate communication.

When programming from the keypads, it is suggested that the steps below be followed:

1. Continue to program by assigning zone types and options.
2. Program system options and partition toggle options. If two or more partitions are to have all the same options enabled, use the Copy command to speed up programming. WARNING: the partition label is also copied. Be sure to change the partition label after copying to prevent confusion. Note that zone assignment is not copied.
3. Program keypad options and special messages.
4. Program Bell output. Program the switched auxiliary power supply (SW AUX). Program PGM outputs for the main board, PC4204 and PC4216. If any of the these outputs are programmed for "Inv Fire/Burg", "Inv Burg Only", or "Inv Fire Only", do not enable them on partitions that are not enabled, as the outputs will not work for any of the partitions.
5. Program communication and reporting codes.

Be sure to program the code assignment before programming the user codes. Instruct the user on programming access codes and access code labels.

If the [*][4] or [*][7] commands have been programmed to be available to the user, be sure to provide instructions on their use and function.

To help ensure the security of the system, make sure the Installer's code, Grand Master Access code and the DLS access code have been reprogrammed so they do not contain the default settings.

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 master user.

- 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 buzzer will beep.

- If the security code was entered incorrectly, the buzzer will beep steadily for 2 seconds.
- If the code was entered correctly but the ready light was not on, the keypad buzzer 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.

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. The "Zones Bypassed" message will come on immediately following the exit delay as long as no entry-exit zones are tripped during the exit delay. 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.

[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] (#) To Exit - 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. If the "Zones Bypassed" message comes on when arming the panel, the [*][1] command should be used to see which zones are bypassed so that zones are not unintentionally bypassed. 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 user code can be bypassed, depending on the type of access code chosen.

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
- Smoke Detector Loop Trouble
- Loss of Time
- COMBUS Communications Fault
- COMBUS Low Voltage
- 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 is blown. Only one low battery alarm or restoral transmission takes place per arming period. Battery voltage is checked once every 4 minutes, so the battery trouble may not restore instantly when the battery is restored.

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 the "Maximum 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 is blown or the bell circuit is open, a keypad trouble and a Bell Circuit trouble transmission are generated.

Smoke Detector Loop 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 or reset, the internal time of day clock needs to be set to the correct time. This trouble is cleared when the trouble display is viewed and exited or when an attempt is made to reset the internal time of day clock. See "System Master Codes" for resetting the time of day clock.

COMBUS Communications 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.

COMBUS Low Voltage...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.

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 "Alarm 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 the log, view memory, 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 is erased when used to arm.

Arm Only OTU 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 [1], [2], [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

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.

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].

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.

Auto Arm Control

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

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.

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 the bell's for two seconds and sends a test code transmission to the monitoring station.

Door Chime

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

The Door Chime feature is enabled or disabled by pressing the [*] key to toggle from "N" to "Y" or "Y" to "N". All zones are programmable and can be defined as chime zones by the installer. When the chime zone is activated, the keypad buzzer will beep quickly 5 times. The "Beeping" on doors can be eliminated temporarily by using zone bypass, only when the panel is disarmed.

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 all zones in other partitions. It must be enabled by the installer in the Installer's Programming section.

Sensor Reset

[*]+[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 sensor reset 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 section.

"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] Users Programming Commands" section for activating the "Quick Arm" feature. Users with a one-time use access code should not use this feature, because the one-time use code is only erased when it is used to arm the system.

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.

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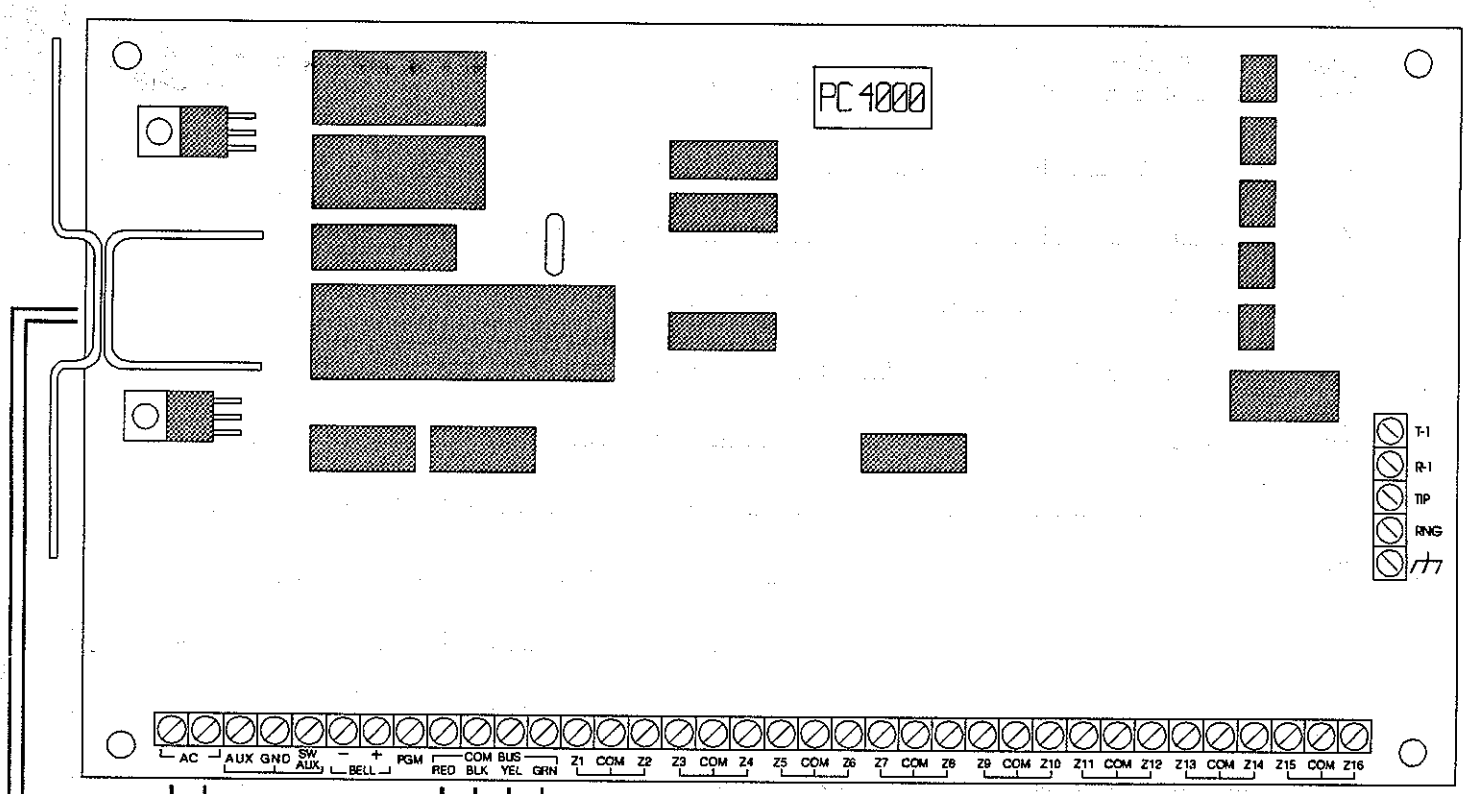
WIRING DIAGRAM PC 4000 MAIN CONTROL BOARD



+ RED
− BLK
BATTERY
12 VDC
MINIMUM
4 Ah

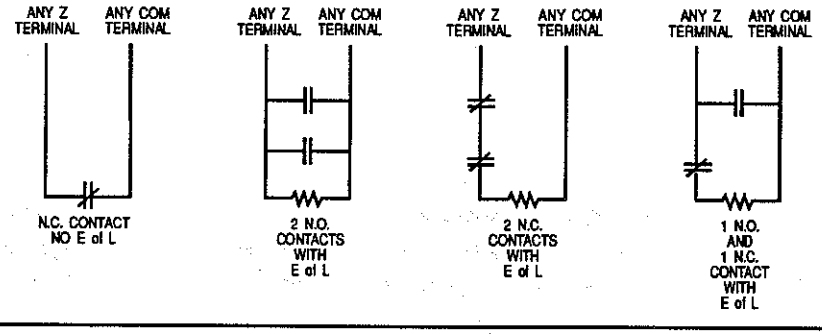
120 V
40 VA

TRANSFORMER
16-18 V @ 40 VA

DO NOT
CONNECT TO
RECEPTACLE
CONTROLLED BY
A SWITCH

COMBUS TO
ALL MODULES

TYPICAL ZONE CIRCUITS



PROGRAMMING WORK SHEETS

PC4000

Zone Assignment

System Zone	Partition 1 2 3 4 5 6 7 8	Zone Label	Zone Type	Alarm Code	Trouble Code	Restoral Code	Audible Pulsed Bypassable Chime Force Armable Shut Downable TX Delay
Z1							
Z2							
Z3							
Z4							
Z5							
Z6							
Z7							
Z8							
Z9							
Z10							
Z11							
Z12							
Z13							
Z14							
Z15							
Z16							

System Zone	(1) ▶ (0) ▶ (1)→(8) ▶ (3) ▶ (0)
Zone Label	(1) ▶ (0) ▶ (1)→(8) ▶ (3) ▶ (1) ▶ WHICH ZONE ▶ (0)
Zone Type	(1) ▶ (0) ▶ (1)→(8) ▶ (3) ▶ (1) ▶ WHICH ZONE ▶ (1)
Alarm Code	(0) ▶ (05) ▶ (3) ▶ (00)
Trouble Code	(0) ▶ (05) ▶ (3) ▶ (01)
Restoral Code	(0) ▶ (05) ▶ (3) ▶ (02)
Audible	(1) ▶ (0) ▶ (1)→(8) ▶ (3) ▶ (0) ▶ WHICH ZONE ▶ (2)
Pulsed	(1) ▶ (0) ▶ (1)→(8) ▶ (3) ▶ (0) ▶ WHICH ZONE ▶ (2)
Bypassable	(1) ▶ (0) ▶ (1)→(8) ▶ (3) ▶ (0) ▶ WHICH ZONE ▶ (2)
Chime	(1) ▶ (0) ▶ (1)→(8) ▶ (3) ▶ (0) ▶ WHICH ZONE ▶ (2)
Force Armable	(1) ▶ (0) ▶ (1)→(8) ▶ (3) ▶ (0) ▶ WHICH ZONE ▶ (2)
Shut Downable	(1) ▶ (0) ▶ (1)→(8) ▶ (3) ▶ (0) ▶ WHICH ZONE ▶ (2)
TX Delay	(1) ▶ (0) ▶ (1)→(8) ▶ (3) ▶ (0) ▶ WHICH ZONE ▶ (2)

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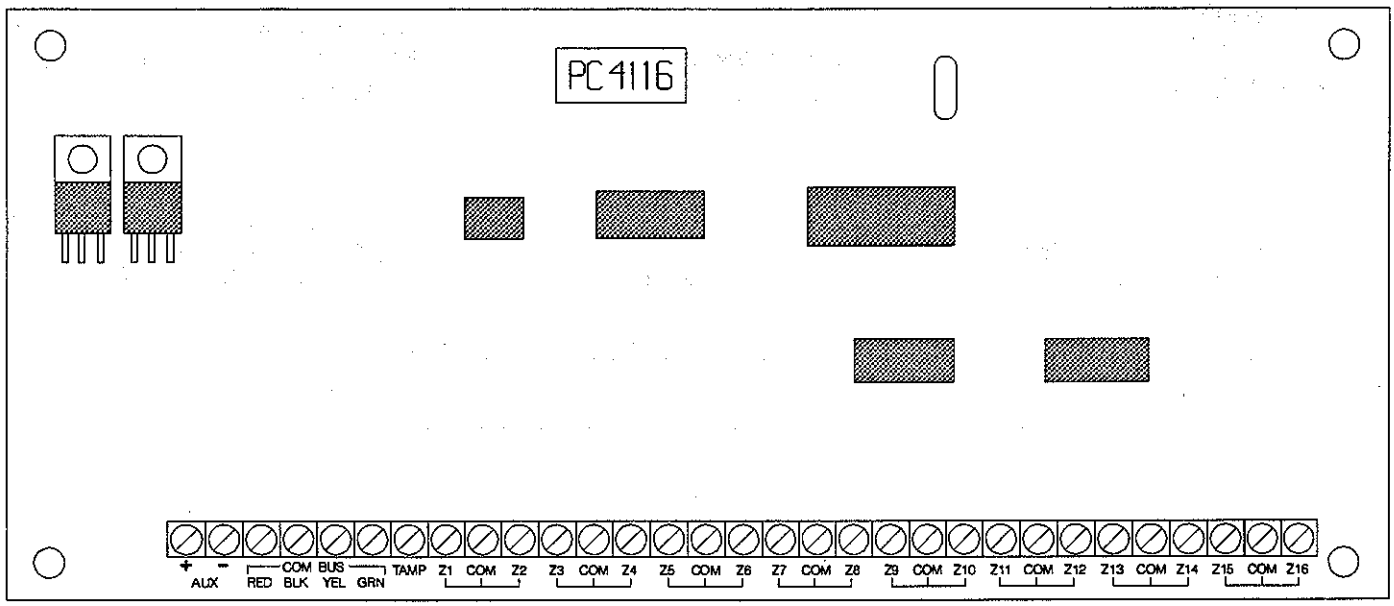
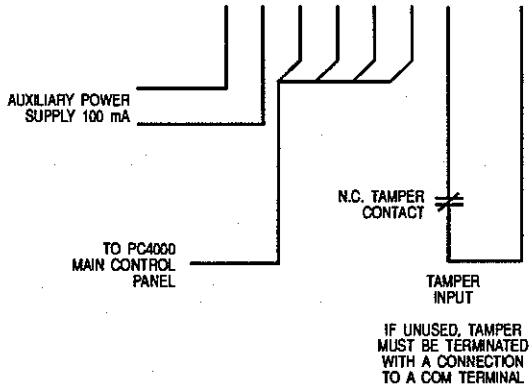
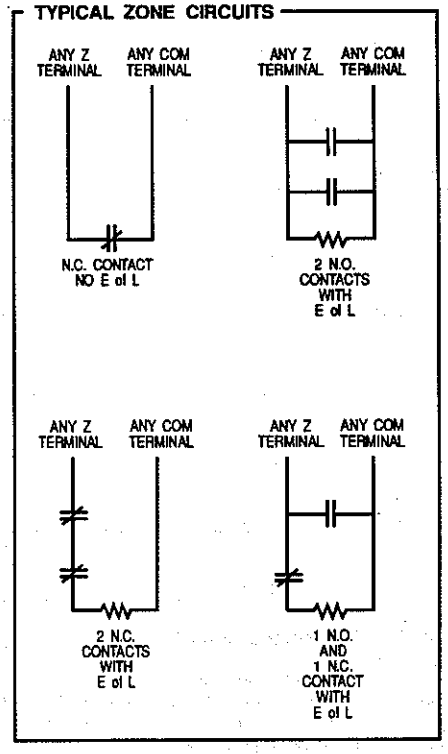
WIRING DIAGRAM PC 4116 16 ZONE EXPANSION MODULE







MODULE SPECIFICATIONS

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

PROGRAMMING WORK SHEETS

PC4116

Zone Assignment

4116 Module # ___ ___

Location/Identifier _____

Tamper Alarm Reporting Code ___ ___

Tamper Restoral Reporting Code ___ ___

System Zone	Input #	Partition 1 2 3 4 5 6 7 8	Zone Label	Zone Type	Alarm Code	Trouble Code	Restoral Code	Audible	Pulsed	Bypassable	Chime	Force Armable	Shut Downable	TX Delay
___	Z1													
___	Z2													
___	Z3													
___	Z4													
___	Z5													
___	Z6													
___	Z7													
___	Z8													
___	Z9													
___	Z10													
___	Z11													
___	Z12													
___	Z13													
___	Z14													
___	Z15													
___	Z16													

Tamper Alarm Reporting Code	(0) ▶ (05) ▶ (3) ▶ (03) ▶ (2)
System Zone	(1) ▶ (0) ▶ (1)→(8) ▶ (3) ▶ (0)
Zone Label	(1) ▶ (0) ▶ (1)→(8) ▶ (3) ▶ (1) ▶ WHICH ZONE ▶ (0)
Zone Type	(1) ▶ (0) ▶ (1)→(8) ▶ (3) ▶ (1) ▶ WHICH ZONE ▶ (1)
Alarm Code	(0) ▶ (05) ▶ (3) ▶ (00)
Trouble Code	(0) ▶ (05) ▶ (3) ▶ (01)
Restoral Code	(0) ▶ (05) ▶ (3) ▶ (02)
Audible	(1) ▶ (0) ▶ (1)→(8) ▶ (3) ▶ (0) ▶ WHICH ZONE ▶ (2)

Tamper Restoral Reporting Code	(0) ▶ (05) ▶ (3) ▶ (04) ▶ (2)
Pulsed	(1) ▶ (0) ▶ (1)→(8) ▶ (3) ▶ (0) ▶ WHICH ZONE ▶ (2)
Bypassable	(1) ▶ (0) ▶ (1)→(8) ▶ (3) ▶ (0) ▶ WHICH ZONE ▶ (2)
Chime	(1) ▶ (0) ▶ (1)→(8) ▶ (3) ▶ (0) ▶ WHICH ZONE ▶ (2)
Force Armable	(1) ▶ (0) ▶ (1)→(8) ▶ (3) ▶ (0) ▶ WHICH ZONE ▶ (2)
Shut Downable	(1) ▶ (0) ▶ (1)→(8) ▶ (3) ▶ (0) ▶ WHICH ZONE ▶ (2)
TX Delay	(1) ▶ (0) ▶ (1)→(8) ▶ (3) ▶ (0) ▶ WHICH ZONE ▶ (2)

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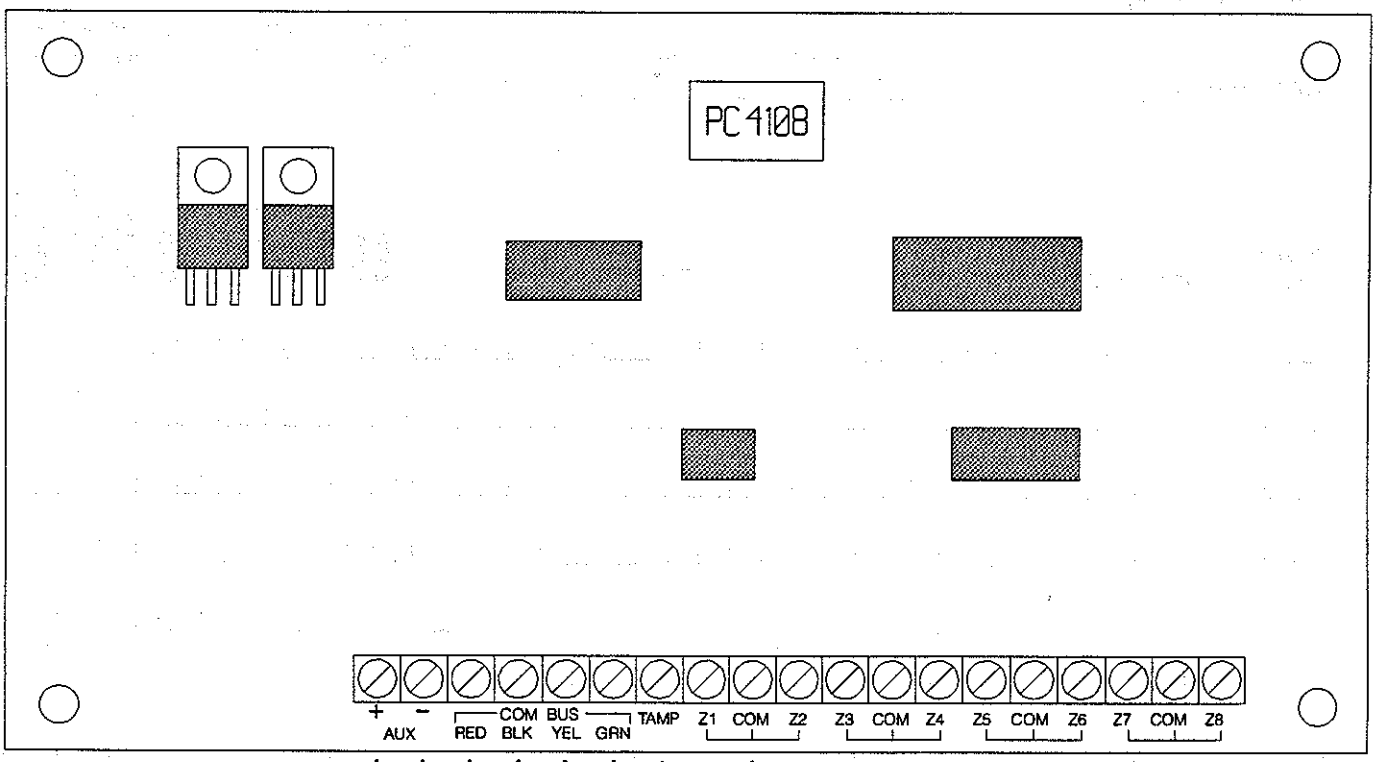
Security Products

WIRING DIAGRAM PC 4108 8 ZONE EXPANSION MODULE



AUXILIARY POWER SUPPLY

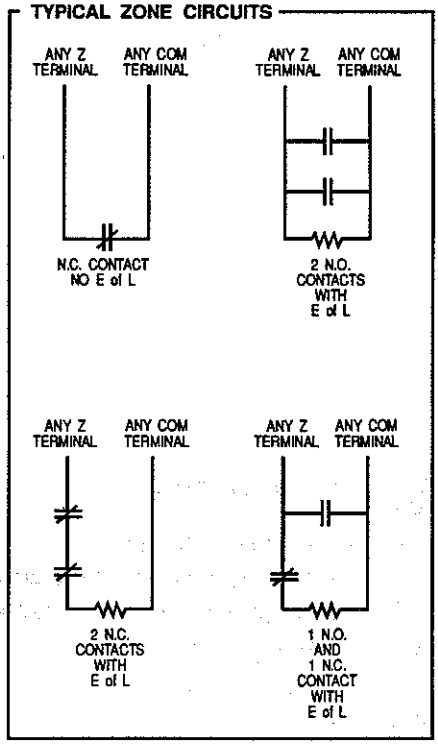
TO PC4000 MAIN CONTROL PANEL

N.C. TAMPER CONTACT

TAMPER INPUT

IF UNUSED, TAMPER MUST BE TERMINATED WITH A CONNECTION TO A COM TERMINAL

TYPICAL ZONE CIRCUITS



MODULE SPECIFICATIONS

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

PROGRAMMING WORK SHEETS

PC4108

Zone Assignment

4108 Module # ___ Location/Identifier _____ Tamper Alarm Reporting Code ___ Tamper Restoral Reporting Code ___

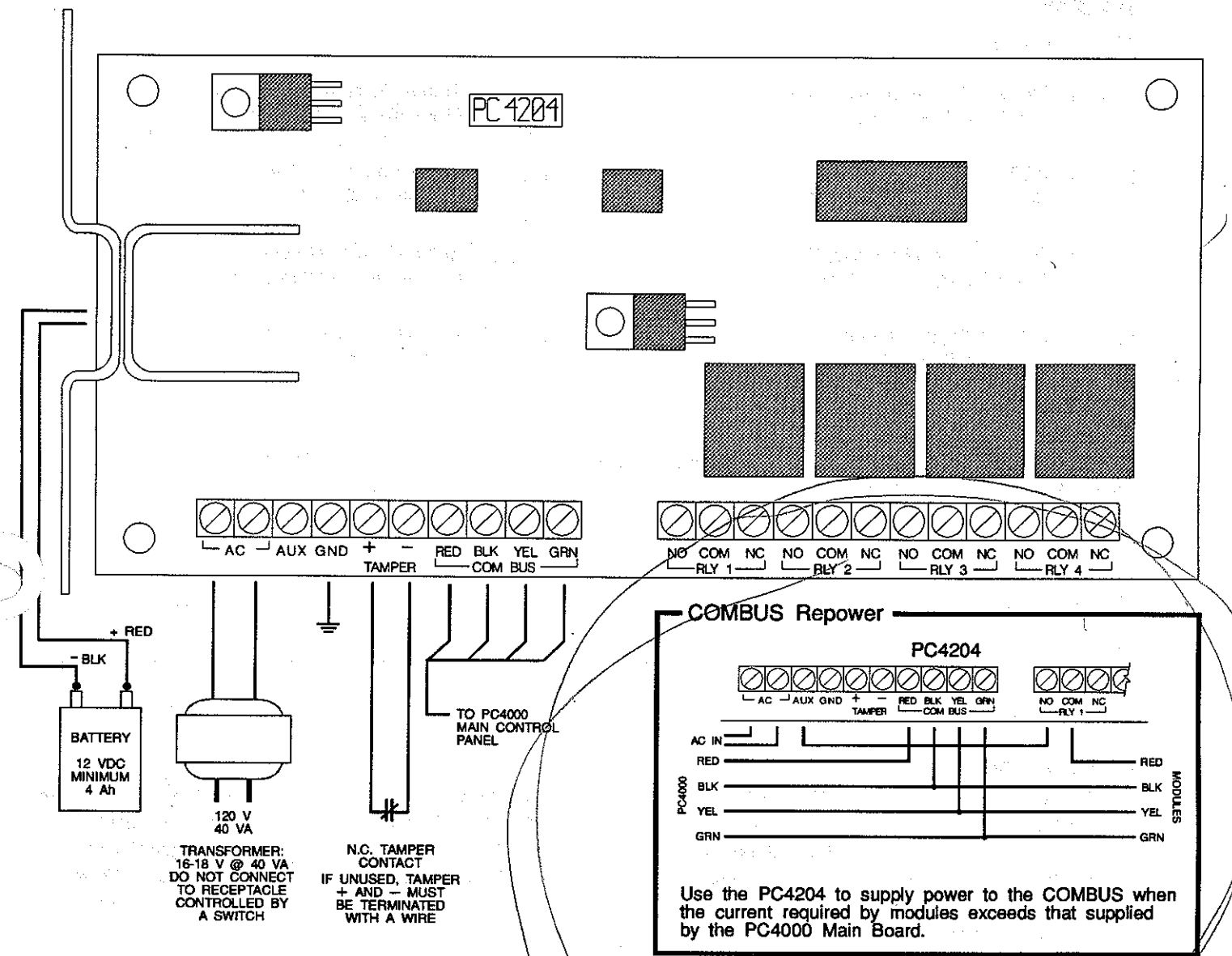
System Zone	Input #	Partition 1 2 3 4 5 6 7 8	Zone Label	Zone Type	Alarm Code	Trouble Code	Restoral Code	Audible	Pulsed	Bypassable	Chime	Force Armable	Shut Downable	TX Delay
	Z1													
	Z2													
	Z3													
	Z4													
	Z5													
	Z6													
	Z7													
	Z8													

Tamper Alarm Reporting Code	(0) ▶ (05) ▶ (3) ▶ (03) ▶ (2)
System Zone	(1) ▶ (0) ▶ (1)→(8) ▶ (3) ▶ (0)
Zone Label	(1) ▶ (0) ▶ (1)→(8) ▶ (3) ▶ (1) ▶ WHICH ZONE ▶ (0)
Zone Type	(1) ▶ (0) ▶ (1)→(8) ▶ (3) ▶ (1) ▶ WHICH ZONE ▶ (1)
Alarm Code	(0) ▶ (05) ▶ (3) ▶ (00)
Trouble Code	(0) ▶ (05) ▶ (3) ▶ (01)
Restoral Code	(0) ▶ (05) ▶ (3) ▶ (02)
Audible	(1) ▶ (0) ▶ (1)→(8) ▶ (3) ▶ (0) ▶ WHICH ZONE ▶ (2)

Tamper Restoral Reporting Code	(0) ▶ (05) ▶ (3) ▶ (04) ▶ (2)
Pulsed	(1) ▶ (0) ▶ (1)→(8) ▶ (3) ▶ (0) ▶ WHICH ZONE ▶ (2)
Bypassable	(1) ▶ (0) ▶ (1)→(8) ▶ (3) ▶ (0) ▶ WHICH ZONE ▶ (2)
Chime	(1) ▶ (0) ▶ (1)→(8) ▶ (3) ▶ (0) ▶ WHICH ZONE ▶ (2)
Force Armable	(1) ▶ (0) ▶ (1)→(8) ▶ (3) ▶ (0) ▶ WHICH ZONE ▶ (2)
Shut Downable	(1) ▶ (0) ▶ (1)→(8) ▶ (3) ▶ (0) ▶ WHICH ZONE ▶ (2)
TX Delay	(1) ▶ (0) ▶ (1)→(8) ▶ (3) ▶ (0) ▶ WHICH ZONE ▶ (2)

DSC
Security Products

WIRING DIAGRAM PC 4204 4 ZONE RELAY OUTPUT BOARD



MODULE SPECIFICATIONS

- 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
- Four wire (QUAD) hook-up to COMBUS
- Nominal current draw of 25 mA
- Provide Tamper and Trouble Reporting Codes
- Low COMBUS supervision to PC4000 Main Board
- 1.5 Amp output

Please Hook it up like this.

PROGRAMMING WORK SHEETS

PC4204

4204 Module # |__|__|

|__|__| Tamper Alarm Reporting Code
(0) ▸ (05) ▸ (3) ▸ (03) ▸ (4)

|__|__| Tamper Restoral Reporting Code
(0) ▸ (05) ▸ (3) ▸ (04) ▸ (4)

|__|__| AC Trouble Reporting Code
(0) ▸ (05) ▸ (3) ▸ (11) ▸ (01)→(16)

|__|__| AC Restoral Reporting Code
(0) ▸ (05) ▸ (3) ▸ (11) ▸ (01)→(16)

|__|__| Battery Trouble Reporting Code
(0) ▸ (05) ▸ (3) ▸ (11) ▸ (01)→(16)

|__|__| Battery Restoral Reporting Code
(0) ▸ (05) ▸ (3) ▸ (11) ▸ (01)→(16)

|__|__| Auxiliary Supply Trouble
(0) ▸ (05) ▸ (3) ▸ (11) ▸ (01)→(16)

|__|__| Auxiliary Supply Restoral
(0) ▸ (05) ▸ (3) ▸ (11) ▸ (01)→(16)

	Option # (0) ▸ (08) ▸ (1) ▸ (01)→(16) ▸ (1)→(4)	Location/Identifier	Partition(s) 1 2 3 4 5 6 7 8
RLY 1	|__|__|	|_____|	|_|_|_|_|_|_|_|_|
RLY 2	|__|__|	|_____|	|_|_|_|_|_|_|_|_|
RLY 3	|__|__|	|_____|	|_|_|_|_|_|_|_|_|
RLY 4	|__|__|	|_____|	|_|_|_|_|_|_|_|_|

List of Output Options:

[00] Burglary/Fire Output
[01] Inverted Burglary/Fire Output
[02] Burglary Output
[03] Inverted Burglary Output
[04] Fire Output
[05] Inverted Fire Output
[06] Utility Output
[07] Sensor Reset (Sw Aux)
[08] Partition Status
[09] Latched Strobe
[10] Trouble Output
[11] Courtesy Pulse
[12] Chime Follower
[13] TLM
[14] TLM and Alarm
[15] Failure to Comm
[16] Active Communicator
[17] Ground Start
[18] Kissoff Output
[19] COMBUS Power
[20] Ready Status

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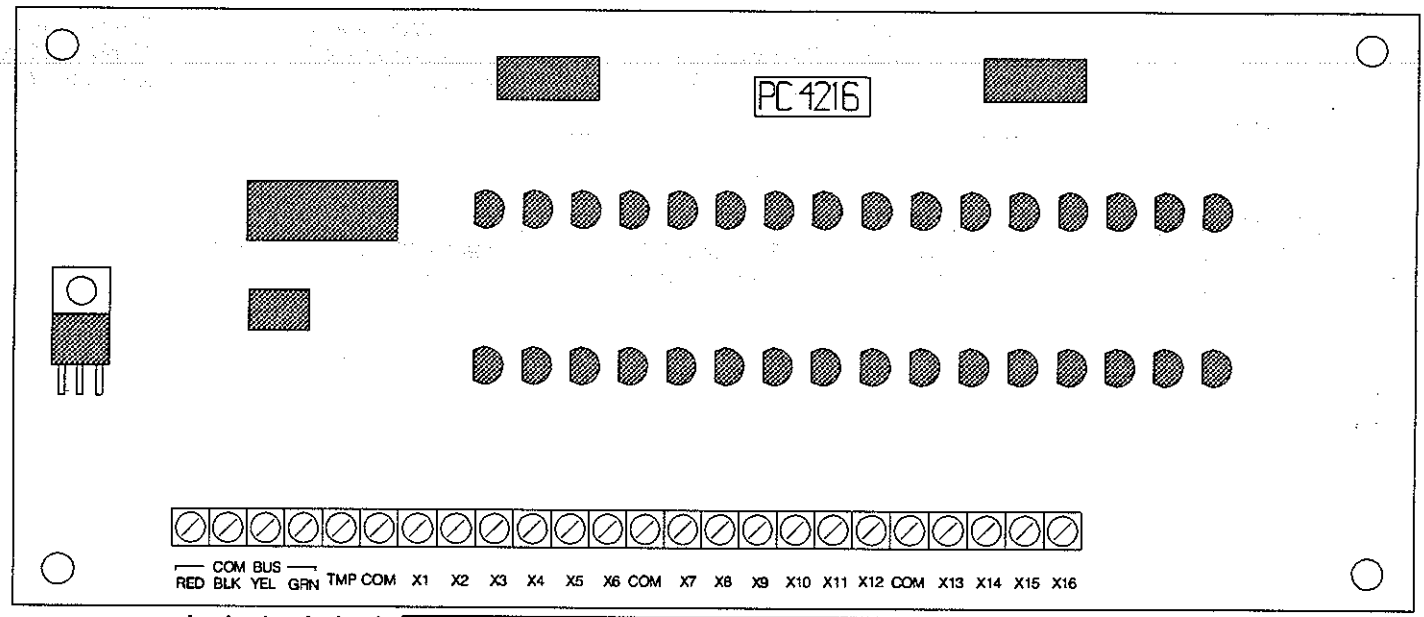
Security Products

WIRING DIAGRAM PC 4216 16 CHANNEL OUTPUT MODULE



Outputs X1 to X16 switch to +12 V

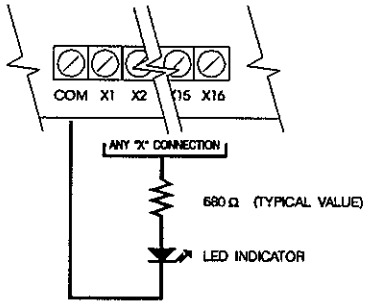
TO PC4000 MAIN CONTROL PANEL

N.C. TAMPER CONTACT

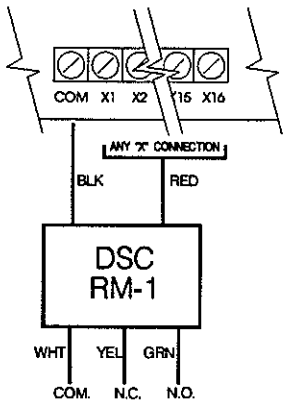
TAMPER INPUT

IF UNUSED, TAMPER MUST BE TERMINATED WITH CONNECTION TO A COM TERMINAL

INDICATOR



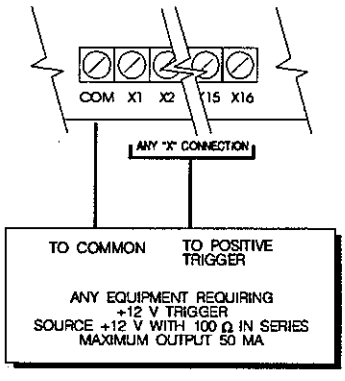
RELAY OUTPUT



MODULE SPECIFICATIONS

- 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
- Provide Tamper and Trouble Reporting Codes
- Low COMBUS supervision to PC4000 Main Board

VOLTAGE OUTPUT



PROGRAMMING WORK SHEETS

PC4216

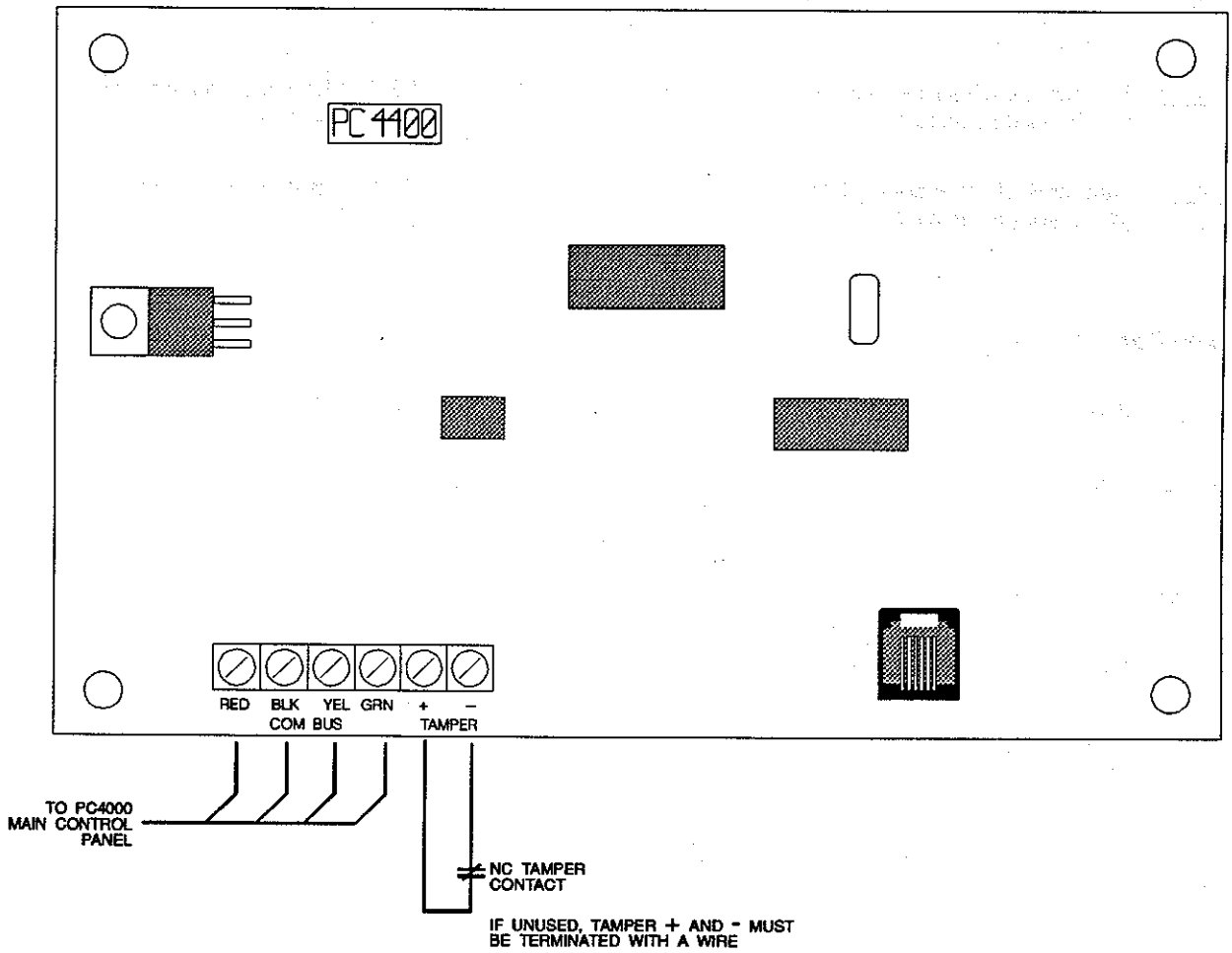
	Outputs Follow Option (0) ▸ (08) ▸ (2) ▸ (1)→(9)	Tamper Alarm Reporting Code (0) ▸ (05) ▸ (3) ▸ (03) ▸ (3)	Tamper Restoral Reporting Code (0) ▸ (05) ▸ (3) ▸ (04) ▸ (3)
4216 Module # ☐	☐	☐☐	☐☐

List of Output Options:

1. 4216 Custom	2. Alarms 1-16	3. Alarms 17-32	4. Alarms 33-48	5. Alarms 49-64
6. Alarms 65-80	7. Alarms 81-96	8. Alarms 97-112	9. Alarms 113-128	

DSC
Security Products

WIRING DIAGRAM PC 4400 RS-232 INTERFACE MODULE



MODULE SPECIFICATIONS

- True RS-232 technology
- Handshake software switches
- Protocol XON / XOFF or DTR
- 4 possible baud rates: 300, 600, 1200 or 2400
- Four wire (QUAD) hook-up to COMBUS
- Nominal current draw of 35 mA
- Provide Tamper and Trouble Reporting Codes
- Low COMBUS supervision to PC4000 Main Board
- Maximum cable length: 200 feet (61 meters)

PROGRAMMING WORK SHEETS

PC4400

4400 Module # |__| Location/Identifier |_____|

|__|__| Tamper Alarm Reporting Code
(0) ▸ (05) ▸ (3) ▸ (03) ▸ (1)

|__|__| RS-232 Trouble Reporting Code
(0) ▸ (05) ▸ (3) ▸ (12)

|__|__| Tamper Restoral Reporting Code
(0) ▸ (05) ▸ (3) ▸ (04) ▸ (1)

|__|__| RS-232 Restoral Reporting Code
(0) ▸ (05) ▸ (3) ▸ (12)

Baud Rate (0) ▸ (09) ▸ (0)

|__|__| 300

|__|__| 1200

|__|__| 600

|__|__| 2400

Handshake (0) ▸ (09) ▸ (1)

	Default	
Handshake Off	No	Yes/No |__|