Section 1: About Your ORBIT-Pro

Introduction to this Manual

This ORBIT-Pro Installation and Programming Manual is designed to take you through the required steps so you can successfully install the ORBIT-Pro and have it perform as desired. To this end, the manual is divided into two distinct installation and programming sections. The first of these, beginning on page 11, discusses how to install and wire the panel to its peripherals. The next section, beginning on page 26, covers the programming of the panel using an attached keypad.
While not required for these purposes, the following documents are also available to assist you in the installation of your ORBIT-Pro.

DOCUMENT	PART NO.	DESCRIPTION
The ORBIT-Pro Installer Programming Worksheets	5IN296PW	a series of tables for recording the programmed data unique to an account
The ORBIT-Pro Upload/Download Programming Manual	5IN296UD	explains how programming can be done through the use of an IBM®-compatible Personal Computer
The ORBIT-Pro User's Manual	5IN296UM	provides information intended for ORBIT-Pro's end users

About the ORBIT-Pro

The **ORBIT-Pro** is a full-featured security system and provides sophisticated solutions for protecting, alerting, and reporting premises' alarm signals, intended to address the needs of virtually every home, office, and commercial facility. It is designed around microprocessor and **EEPROM** (**E**lectrically **E**rasable **P**rogrammable **R**ead-**O**nly **M**emory) technology–which will store, without the need for power, the system's operating program as well as its programmable parameters. The **ORBIT-Pro** supports most standard detectors and sensors, along with a variety of accessories and output devices.

It can provide monitoring and supervision for up to 96 zones. Through its 4-wire BUS, it can support a variety of optional modules including multiple *Keypads*, *Zone Expanders*, a *Wireless Interface*, supplemental *Power Supply(ies),* a *Digital Voice Module,* capabilities for *Access Control,* an *X-10 Interface,* and *Utility Outputs.* All these devices communicate with the system by sending commands and data over the BUS, which originates at the Main Board.

The **ORBIT-Pro** utilizes commercial electricity as its primary means of power and supports a rechargeable standby battery. Its components and features are listed below:

Main Board

The Main Board is the center of the system's operation. It supports 8 hardwired zones, provides continuous auxiliary power for detectors like PIRs, and other peripherals (e.g. Audio Switches and certain Shock and Glass-Break Sensors) which require it. The Main Board also maintains a source of resettable power for Smoke Detectors when latched in the alarm state. It supplies power for the operation of an external sounder and offers the appropriate type of voltage for an electronic siren(s), a bell(s), or a loudspeaker(s).
Up to 20 Zone Types are supported.
Zone terminations include Closed-Circuit, Open-Circuit, End-of-Line (EOL) Resistor, and Double End-of-Line (DEOL) Resistor (see Figure 2-4 on page 22).
It is from the Main Board that the 4-wire BUS originates and from which all system expansion takes place (see Figure 2-6 on page 24).

Zone Expansion

In addition to its eight hardwired zones, the **ORBIT-Pro** can support up to another 88 such zones (96 total) which are derived through the connection of either *8-Zone* or *16-Zone Expansion Module(s)*, including the *Wireless Expansion Modules* (not for UL Installations) discussed below.

Wireless Expansion

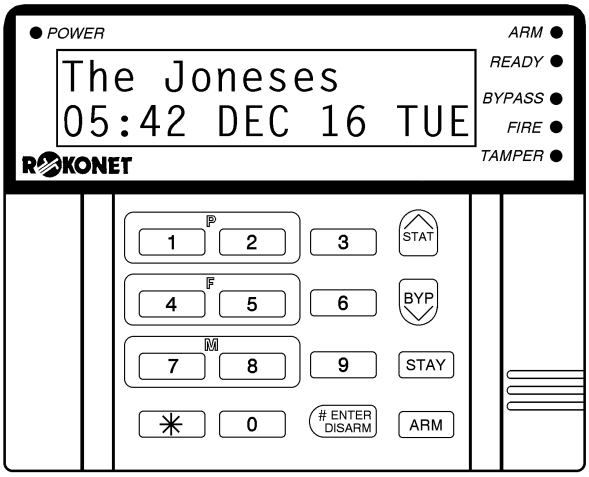
When it's either necessary or desirable to utilize wireless zones, the **ORBIT-Pro's** *Wireless Expansion Modules* will respond to Rokonet's own NOVA transmitters and to Orbit's *Rolling Code Transmitters.*. The *Wireless Module* employs superheterodyne technology, has programmable supervision time, detects a low battery condition in transmitters, tamper attempts, and provides indications of signal jamming. Wireless and hardwired zones may be mixed in the same system, with the total of all zones (hardwired plus wireless) limited to 96.

Partitions

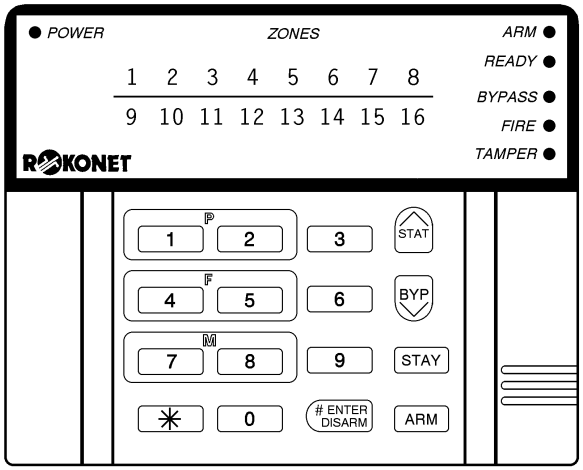
Any zone or group of zones can be assigned to any of 8 independent partitions. Partitioning allows a single **ORBIT-Pro** to protect each dwelling in a multi-family house, several departments in a commercial or institutional facility, and even several closely situated stores a strip mall. Each partition supports *zone-sharing* and *cross-zoning*.

Keypads

The **ORBIT-Pro** can support up to 16 keypads, with a choice of four styles (two *LCD-type* and two *LED-type*) from which virtually all system features may be accessed.



The LCD Keypads come in two styles: Custom Plus (shown here), with a large display and Custom (with a smaller display).



The LED Keypads also come in two styles: 16 Zone (shown here), with 16 Zone LEDs and 8 Zone (with 8 Zone LEDs).

Figure 1-1

Each keypad is equipped with three *Emergency Key* zones (P*anic, Fire, Auxiliary Emergency*) and the ability to produce a *Duress (Ambush) Code*. All keypads are tamper-protected and employ backlighting for their display and their keys, which also produce audible feedback when pressed. Keypads can be programmed to detect and discourage unsuccessful attempts at disarming, and incorporate easy-to-use *hot-key* sequences for simple zone bypassing and to display information about unsecured zones. A one key *Quick-Arm* feature, for both "Stay" and "Away" modes of operation, can be selected for ease of use.

In partitioned systems, keypads can be selectively assigned to specific partitions, but LED-type keypads can be used only in systems, which do not exceed their ability to display zone indications. Thus, the 8-LED Keypad (p/n RP296KL8) cannot be used in a system with more than 8 zones, nor can the 16-LED Keypad (p/n RP296KL16) be used when more than 16 zones are installed.

User Codes and Authority Levels

Each **ORBIT-Pro** installation typically accommodates up to 99 unique *User Codes* of up to 6 digits each–each code assignable to one of several *Authority Levels* and, if used, to multiple partitions.

Keyswitches (Not for UL Installations)

For those premises locations in which a simple keyswitch will suffice, the **ORBIT-Pro** is capable of supporting an SPST, normally-open, momentary type. The keyswitch permits the arming and disarming of the system (or one of its partitions).

Expansion Bus

Through the **ORBIT-Pro's** 4-wire BUS, which can be run up to 1000 feet, a variety of features and enhancements are made possible through the use of the appropriate *Expansion Module(s)*. Incorporating any module into the system is accomplished by its simple connection to the system's BUS, as suggested by 2-6 on page 24.

Programmable (Utility) Outputs

An "open-collector" transistor output has been incorporated into the **ORBIT-Pro's** Main Panel to help operate an external device in response to a number of system activities related to alarms, zones, partitions, the actions of a particular user, or scheduled events based on the system's internal clock.
A door-strike, a CCTV Time Lapse recorder, an "intermediate relay" will be necessary (see page 8 for additional information).
When more output flexibility is required, this single output can be augmented through the use of two types of *Programmable Output Expansion Modules:*

- the *4-output* relay module (using four programmable *Form C* relays)
- the *8-output* switching module (using eight *open-collector* transistor outputs)

X-10 Module (Not for UL Installations)

The **ORBIT-Pro** also supports the connection of an *X-10 Transmitter Module* to its 4-wire Expansion Bus. X-10 technology converts the **ORBIT-Pro's** programmable output events into a protocol understood by the *Transmitter Module*. When so triggered, this module generates activation and control signals along existing AC premises wiring to the appropriate *X-10 Receiver Modules*–appropriately placed and connected within the premises to control lighting and appliances. X-10 Transmitter Modules are available for the **ORBIT-Pro** supporting either 8 or 16 premises Receiver Modules.

Digital Communicator / "Follow-Me" Mode

The **ORBIT-Pro's** on-board Digital Communicator is capable of numerous transmission formats, including *ADEMCO Contact ID and SIA*. It can process up to 8 account numbers (i.e. one for each partition) and store up to three Central Station phone numbers–should *multiple* or *split reporting* be utilized. In addition to standard communication with the monitoring station, the **ORBIT-Pro** employs a *Follow-Me* feature, in which a phone call can be made–using tones to represent the active alarm (e.g. burglary or fire)–to a designated phone number. This feature is available for each partition and is generally useful for informing a homeowner at work, or a business owner at home, that there has been an alarm at a specific premises.
With the optional *Digital Voice Module*, it's possible to record a short message, which replaces the alarm tones normally produced in the *Follow-Me* mode.
The communicator also offers a "batch" mode from which non-urgent reports can be collected over a designated time period, and then transmitted all at once. The communicator also supports daily system testing, along with reports of entry into (and exit from) the system's *Installer Programming* mode.
Finally, a *Paging Feature* is available through the *Follow-Me* mode. If selected and programmed to do so, **ORBIT-Pro** messages containing the following information can also be sent to a user's numeric or alphanumeric pager : partition-based opening and closing signals and/or partition-based alarm signals

Power Supply Expansion

Although the **ORBIT-PRO's** Main Board provides 600 mA of auxiliary power, 250 for Switch Aux and 900 for Bell, the use of a number of additional system modules and detectors will likely exceed this limitation. As a result, the **ORBIT-Pro** permits the addition of up to eight remoteable *Power Supply Expansion Modules,* each operating from AC power and connected to the 4-wire BUS.
Each such module provides a total current capacity of 1.5 amperes and has connections for powering auxiliary devices and triggering either bell(s), electronic siren(s), or loudspeaker(s) during an alarm. Each *Power Supply Module* also supports its own standby battery, and is supervised for the *loss of AC*, a *Low Battery condition*, the *failure of its auxiliary output power*, and the *loss of sounder loop integrity*.

Digital Voice Module (Not for UL Installations)

The *Digital Voice Module* is an unique component, which provides two useful services. It permits premises' telephones and/or cellular phones to act as keypads, and/or it can also equip the **ORBIT-Pro** for Central Station two-way listen-in capability. It's also used to enhance the aforementioned *Follow-Me* feature, already described.

Access Control Expansion Module (Not for UL Installations)

One of **ORBIT-Pro's** most unique features is its ability to interface with an on-premises *Access Control* sub-system. With a maximum connection of eight such *Access Control Modules*–each supporting up to two readers–a total of 16 readers is possible, each of which may operate with *magnetic, proximity, bar code, touch*, and/or *Weigand* technology. Up to 500 users can be accommodated and up to 1200 "transactions" can be stored.

Scheduling

Through the use of the system's built-in clock, it's possible to schedule automatic arming and disarming (of one or more partitions) at the same time on selected days of the week, or at a specific time within the subsequent 24-hour period. Up to 20 vacation periods can be programmed.

Event Logging

By itself, the panel has the capability of storing up to 128 significant events, including *arming, disarming, bypassing, alarms, troubles, restorals*, and *resets*. These events are logged in order according to date and time, and when applicable, according to *Zone, Partition, User Code, Keypad*, etc. Optional *Event Log Expansion Modules* are available to store 512 and 999 events, respectively. When appropriate, such events can be displayed on an LCD Keypad or uploaded to the alarm company via the Upload/Download software and printed for further analysis.

Sensor Auto-Testing (Not for UL Installations)

Sensor Auto-Testing provides for the automatic testing of a selected group of up to 16 sensors in the installation at one (or more) selected times during the day. If all the related sensors are triggered within a selected window of time, the Auto-Test will be considered successful. The results of the test will be logged in the Event Log, and reported to the Central Station, if so desired.

Printer Adapter Module (Not for UL Installations)

A printer module, designed to interface between the **ORBIT-Pro's** 4-wire Expansion Bus and a *Centronics-type* parallel printer, will allow for the printing of all significant system events, as they occur, including Access Control activities (see above) if applicable. Each event will include the date, time, and if applicable, the affected partition and the user involved.

Bus Adapter Cable (Not for UL Installations)

With the *Bus Adapter Cable* assembly, a portable IBM®-compatible computer may be directly connected to the **ORBIT-Pro** and used for local Uploading/Downloading operations.

Program Transfer Module (Not for UL Installations)

The *Program Transfer Module* is a tiny printed circuit board capable of storing, without the need for power, the programmed configuration of any **ORBIT-Pro**. Therefore, if desired, one account's programmed configuration–once loaded into the *Program Transfer Module*–can be used as a "template" and taken to another account, where the stored configuration may be "copied" and subsequently modified.

Self Monitoring

The **ORBIT-Pro** has a “watchdog” feature, which periodically and automatically performs a comprehensive self-test and reports when operating faults are found. The panel also has a *Maintenance Mode* which, when selected, performs an active self-check on many of its components. Its *Bus Test* allows the system to verify the connections and the operation of all Keypads and Expansion Modules, whose resulting reports, individually displayed as percentages on the LCD keypad (or via the Upload/Download software), indicate the efficiency of the unit under test. Results of less than 100% may be due to faulty wiring, poor connections, or component degradation. Such early detection can help to eliminate the potential problems later on.
The **ORBIT-Pro** also incorporates “one-man” walk testing capabilities, allowing an installer or technician to check the operation of each contact and detector which, when tripped, produces audible feedback and is visibly logged at the keypad from which the test was initiated.

False Alarm Reduction

In conformance with SIA's (the *Security Industry Association*) standards for deterring false alarms, the **ORBIT-Pro** provides the following programmable features:

- swinger shutdown
- audible/visual Entry/Exit delays
- fire alarm verification
- dialer delay before an alarm transmission
- cross zoning

Synoptic Map

A program running on a PC (under Windows-NT® Operating System) and connected to the **ORBIT-Pro**’s local bus, provides a graphic display of the whole system.

Forced Arming Zone (Not for UL Installations)

When this option is enabled (on a per-zone basis), the panel can force arming with these zones opened. If a forced zone is open, the “Ready” LED will blink and the zone will be bypassed at the end of the exit time. If the zone is closed at any time during the arm period, it will be automatically unbypassed and re-included in the system.

Figure 1-2, on page 6, provides an overview of the **ORBIT-Pro’s** architecture and capabilities. You may wish to look this figure over to obtain a “big picture” of the system before continuing.

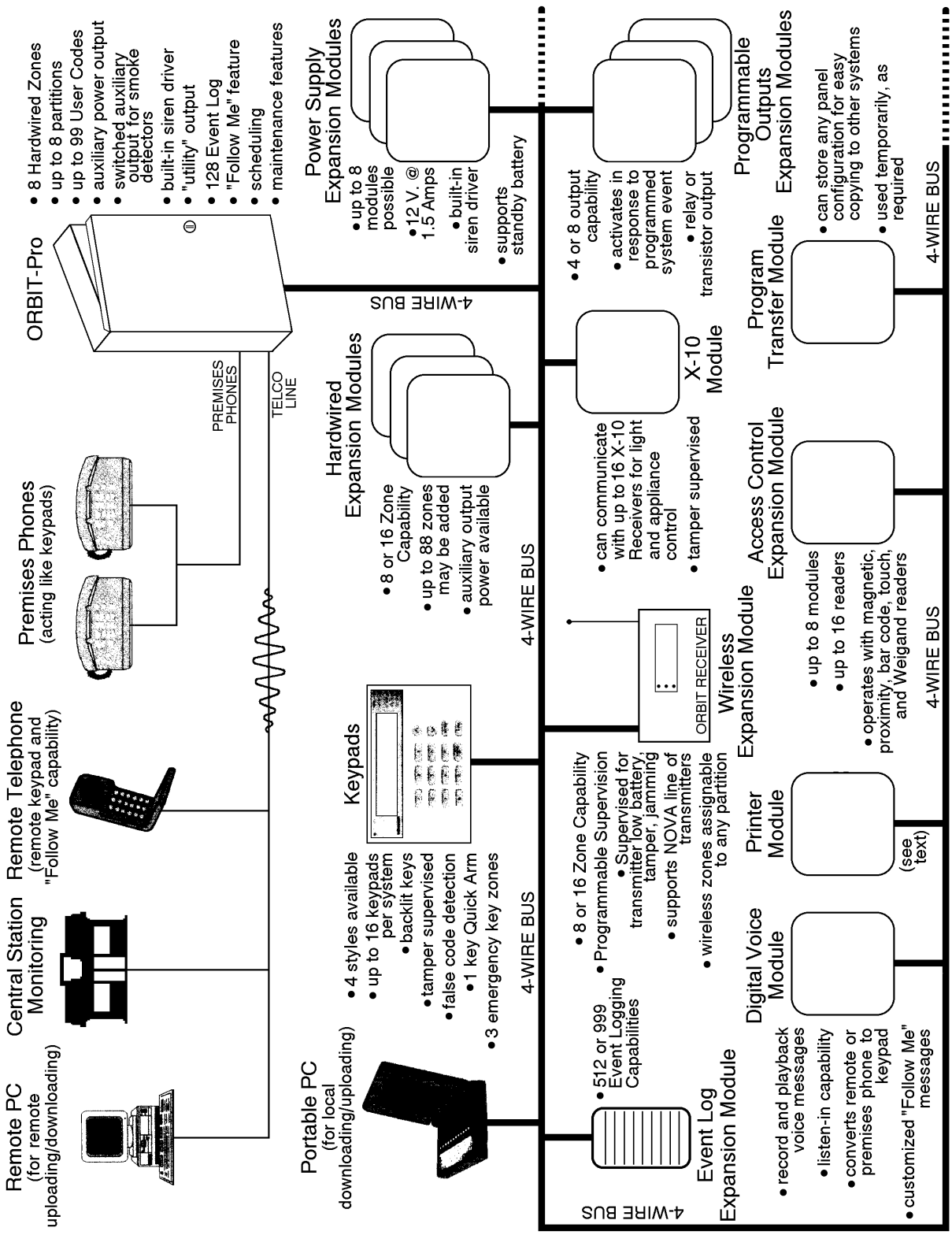

ORBIT-Pro
• 8 Hardwired Zones
• up to 8 partitions
• up to 99 User Codes
• auxiliary power output
• switched auxiliary output for smoke detectors
• built-in siren driver
• "utility" output
• 128 Event Log
• "Follow Me" feature
• scheduling
• maintenance features
Power Supply Expansion Modules
• up to 8 modules possible
• 12 V. @ 1.5 Amps
• built-in siren driver
• supports standby battery
4-WIRE BUS
Hardwired Expansion Modules
• 8 or 16 Zone Capability
• up to 88 zones may be added
• auxiliary output power available
4-WIRE BUS
X-10 Module
• can communicate with up to 16 X-10 Receivers for light and appliance control
• tamper supervised
Program Transfer Module
• 4 or 8 output capability
• activates in response to programmed system event
• relay or transistor output
Programmable Outputs Expansion Modules
• can store any panel configuration for easy copying to other systems
• used temporarily, as required
4-WIRE BUS
Access Control Expansion Module
• up to 8 modules
• up to 16 readers
• operates with magnetic, proximity, bar code, touch, and Weigand readers
4-WIRE BUS
Wireless Expansion Module
ORBIT RECEIVER
• 8 or 16 Zone Capability
• Programmable Supervision
• Supervised for transmitter low battery, tamper, jamming
• supports NOVA line of transmitters
• wireless zones assignable to any partition
4-WIRE BUS
Printer Module
(see text)
Digital Voice Module
• record and playback voice messages
• listen-in capability
• converts remote or premises phone to keypad
• customized "Follow Me" messages
Event Log Expansion Module
• 512 or 999 Event Logging Capabilities
Keypads
• 4 styles available
• up to 16 keypads per system
• backlit keys
• tamper supervised
• false code detection
• 1 key Quick Arm
• 3 emergency key zones
4-WIRE BUS
Portable PC
(for local downloading/uploading)
Remote PC
(for remote uploading/downloading)
Central Station Monitoring
Remote Telephone
(remote keypad and "Follow Me" capability)
Premises Phones
(acting like keypads)
PREMISES PHONES
TELCO LINE

Figure 1-2

Inventory Supplied with the ORBIT-Pro

The **ORBIT-Pro** is sold with one of four keypads, a metal cabinet, and various accessories. Figure 1-3 shows the typical packaging contents. Refer to Table 1-1, below, and Table 1-2, which begins on page 1-10, for further information.

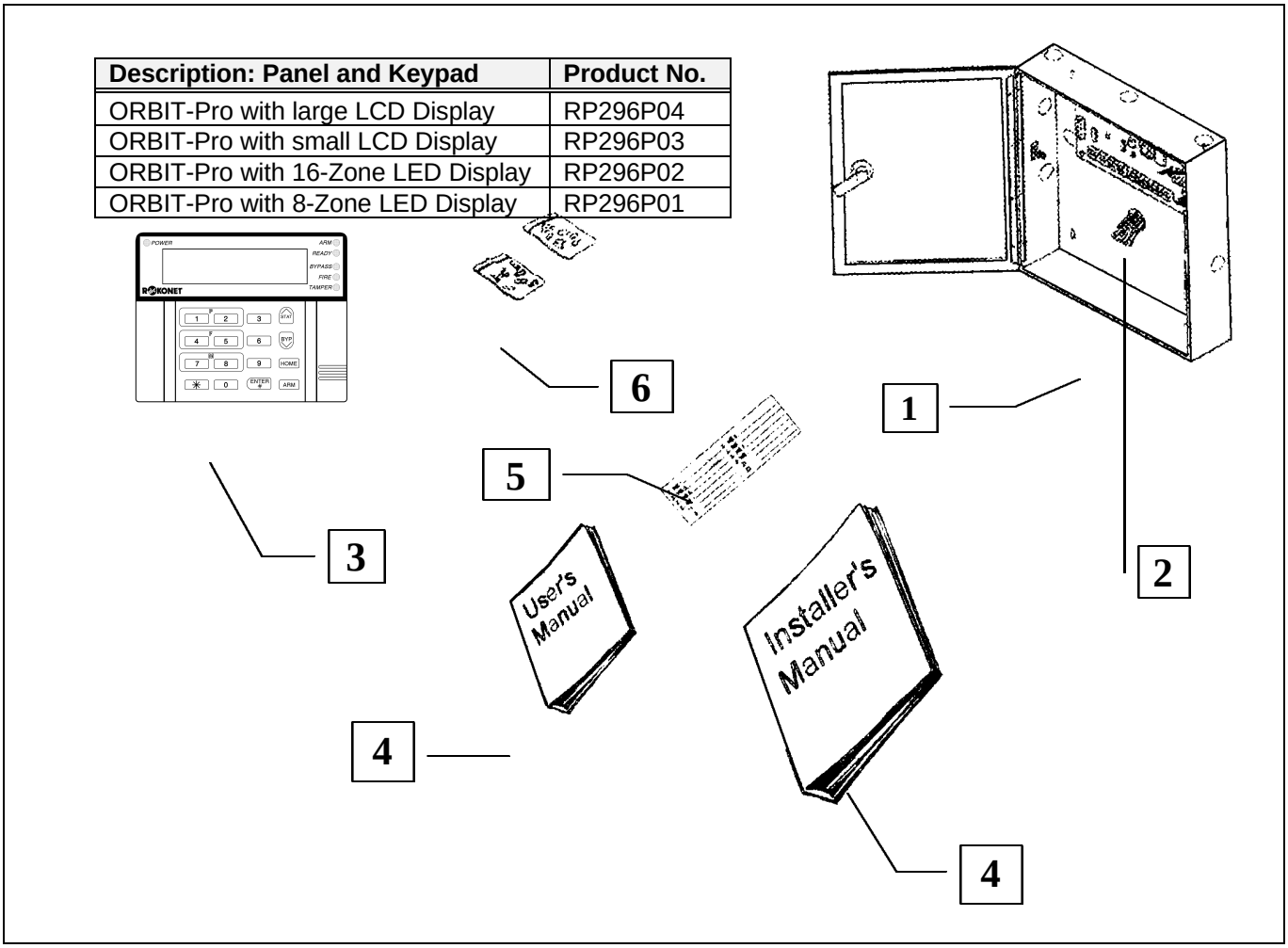


Figure 1-3

ITEM	DESCRIPTION
1	Metal Cabinet
2	Printed Circuit Board (equipped with hardware for mounting in metal cabinet)
3	Keypad (see the table within Figure 1-3)
4	Documentation, consisting of: • ORBIT-Pro: Installation and Programming Manual (this manual) • ORBIT-Pro: Installer Programming Worksheets (1 set) • ORBIT-Pro: User's Manual
5	Keypad Quick Guide (packaged within the keypad)
6	Assorted hardware, including 16 End-of-Line Resistors (2200Ω)

Table 1-1

ORBIT-Pro Accessories

ITEM	DESCRIPTION
Keypads	
RP296KL8	8-LED Keypad
RP296KL16	16-LED Keypad
RP296KCS	LCD Keypad, Custom (small display)
RP296KCL	LCD Keypad, Custom Plus (large display)
Zone Expanders	
RP296EZ8	Zone Expansion Module (8-Zone)
RP296EZ16	Zone Expansion Module (16-Zone)
Wireless Zone Expanders	
RP296EW8	Wireless Zone Expansion (Receiver) Module* (8-Zone)
RP296EW16	Wireless Zone Expansion (Receiver) Module* (16-Zone)
Power Supply Expanders	
RP296EPS	Power Supply Expansion Module
Programmable Output Devices	
RP296EO4	Utility Output Expansion Module (4-Relay Outputs: Form C)
RP296EO8	Utility Output Expansion Modules (8 Open-Collector Outputs)
Event Loggers	
RP296EL5	Event Logger Expansion Module* (512 Events)
RP296EL9	Event Logger Expansion Module* (999 Events)
Printer Module	
RP296PRT	Printer Module*
Digital Voice Module	
RP296EDV	Digital Voice Module*
X-10 Module	
RP296XT	X-10 Transmitter Module*
Uploading/Downloading	
RP296UD	Upload/Download Software* (for IBM® Compatible PCs)
RP296EE	Program Transfer Module
RP296BA	Bus Adapter (Cable) used for local PC-based Uploading/Downloading operations: connected between a PC's serial (COM) port and the **ORBIT-Pro's** J1 connector; requires Upload/Download software (above) and includes a required converter adapter terminated in a female DB25-type connector (it may be necessary to obtain a 25-pin male to 9-pin female adapter if required by your PC's COM Port)
Access Control	
RP296EAC	Access Control Module*
Miscellaneous	
RP296MA/MB/MC	ORBIT-Pro PC Board (only)
RP296B1	Metal Box for Main Board and 3 Expansion Modules
RP296B2	Metal Box for Single Expansion Module
RP296B3	Metal Box for Multiple Expansion Modules
Tamper Switch	

* represents products for which separate instructions exist

Table 1-2

Technical Data

Control Panel

Input Power:	16.5 Volts AC @ 40 Volt-Amps (VA) (via transformer)		
Rechargeable Standby Battery:	12 Volts 6 Amp-Hours (AH), typical		
Power Outputs Auxiliary Power: Switched Auxiliary: Bell/LS (External) Sounder Output:	 12 Volts DC @ 600 mA, maximum 12 Volts DC @ 160 mA, max. for UL installations 12 Volts DC @ 250 mA, maximum ** 12 Volts DC @ 80 mA, max. for UL installations 12 Volts DC @ 900 mA, maximum ** included in the 600 mA of Auxiliary Power		
Programmable Voltage (Utility) Output:	Open-Collector Active Pull-Down, 70 mA, maximum		
Cabinet Dimensions:	30.5cm x 29.7cm x 8.4cm 12.0 in x 11.7 in x 3.3 in		
Weight:	3.5 kg / 7.7 lbs.		
Main Board Dimensions:	20 cm x 11.5 cm x 3.1 cm 7.9 in x 4.8 in x 1.2 in		
Fuses:	F1	responsible for: Auxiliary Power: Switched Auxiliary: Keypad Power:	1.0 A
	F2	responsible for: Bell/LS Power:	1.0 A
	F3	responsible for: Battery Power:	3.0 A

Keypads

Current Consumption:	32 mA, typical / 72 mA, maximum
Control Panel Connection:	4-wire BUS, up to 1000 ft (300m) from panel
Dimensions:	15cm x 11.6cm x 3cm 5.9 in x 4.6 in x 1.2 in
Weight:	250 gr 0.55 lbs.

Zone Expansion Module: 8-Zone

Current Consumption:	25 mA, typical / 34 mA, maximum
Control Panel Connection:	4-wire BUS, up to 1000 ft (300m) from panel
Dimensions:	10.5cm x 6.6cm x 1.8cm 4.1 in x 2.6 in x 0.7 in

Zone Expansion Module: 16-Zone

Current Consumption:	27 mA, typical / 34 mA, maximum
Control Panel Connection:	4-wire BUS, up to 1000 ft (300m) from panel
Dimensions:	16.5cm x 6.6cm x 1.8cm 6.5 in x 2.6 in x 0.7 in

Utility Output Expansion Module: 4-Output

Current Consumption:	25 mA, typical / 140 mA, maximum
Contacts:	4 Form C (SPDT) Relays contact rating: 5 A / 24 Volts DC
Control Panel Connection:	4-wire BUS, up to 1000 ft (300m) from panel
Dimensions:	10.5cm x 6.6cm x 2.2cm 4.1 in x 2.6 in x 0.87 in

Utility Output Expansion Module: 8-Output

Current Consumption:	25 mA, typical / 30 mA, maximum
Contacts:	Open-Collector, Active Pull-Down, 70 mA, maximum
Control Panel Connection:	4-wire BUS, up to 1000 ft (300m) from panel
Dimensions:	10.5cm x 6.6cm x 1.8cm 6.5 in x 2.6 in x 0.7 in

Power Supply Expansion Module

Input Power:	16.5 Volts AC @ 40 VA (via transformer)
Rechargeable Standby Battery:	12 Volts 6 Amp-Hours (AH), typical
Power Outputs	
Auxiliary Power:	12 Volts DC @ 600 mA, maximum
Bell/LS (External) Sounder Output:	12 Volts DC @ 900 mA, maximum
Control Panel Connection:	4-wire BUS, up to 1000 ft (300m) from panel
Dimensions:	9.0cm x 9.0cm x 6.7cm 3.5 in x 3.5 in x 2.6 in

Event Log Expansion Module

Current Consumption:	25 mA, typical / 29 mA, maximum
Control Panel Connection:	4-wire BUS, up to 1000 ft (300m) from panel
Dimensions:	10.5cm x 6.6cm x 1.8cm 4.1 in x 2.6 in x 0.7 in

Printer Module

Current Consumption:	7mA, typical / 10mA, maximum
Control Panel Connection:	4-wire BUS, up to 1000 ft (300m) from panel
Dimensions:	6.2cm x 5.3cm x 1.6cm 2.44 in x 2.08 in x 0.6 in

X-10 Transmitter Module

Current Consumption:	25 mA, typical / 29 mA, maximum
Control Panel Connection:	4-wire BUS, up to 1000 ft (300m) from panel
Dimensions:	10.5cm x 6.6cm x 1.8cm 4.1 in x 2.6 in x 0.7 in

Table 1-3

Section 2: Installing Your ORBIT-Pro

It's easy to wire up the panel, its keypad(s), and any Expansion Module(s) you wish to install. In addition to the wiring, you will also have to do some preliminary physical programming on the system's keypads and modules by setting some DIP switches. The entire process is discussed in this section.

Be sure the actual work is performed by experienced personnel, licensed to carry out security system installations and capable of implementing all applicable requirements of the National Fire Protection Association (NFPA-70 and NFPA-74), as well as any federal, state, and local codes–along with any safety guidelines and regulations which might apply.

Mounting and Wiring the Control Panel

(refer to Figures 2-1 and 2-7)
Mount the Control Panel's metal cabinet at a dry location, near a source of unswitched AC Power, a good ground connection (see below, right), and access to the customer's telephone service. Use the proper hardware (e.g. anchors, mollys, toggle bolts, etc.), as required, to insure a suitable mounting. See Figure 2-1 on page 19.

Thread all electrical wires through a convenient hole in the metal cabinet. To prevent potential damage, be sure that live AC power is NOT present and that the Standby Battery is NOT connected. Your wiring, described on the following pages, may include any and all of the following:

- connections for the 4-wire BUS to include keypad(s) and Expansion Modules mounted either inside or outside the panel
- connections for Hardwired Zones
- connections to Auxiliary Power
- connections to Smoke Detector (resettable) Power
- connections to any External Sounder(s)
- if used, the Utility Output (UO1) connection (typically, will trigger a low current DC device (e.g. a 12 VDC Relay, 70 mA, maximum) connected between the UO1 and the AUX /RED terminals (see page 8 for additional information)
- connections from the RJ31X (or equivalent) telephone interface
- the Ground Connection (see the box at the right)
- connections for AC Power

What Makes a Good Ground?

Grounding provides a degree of protection against lightning and induced transients for any piece of electronic equipment which may, due to lightning or static discharge, experience permanent or general malfunctions. The ideal "ground" is considered to be a *unified earth ground* in which an 8-foot copper-clad rod, located close to the existing power and telephone ground rods, is sunk several feet into the earth. Appropriate hardware and clamps are then used to electrically connect each of these rods together, and then to the ground terminal of the device to be protected.

Since this procedure is difficult in most cases, an alternative earth ground connection can be made to a conductive metal cold water pipe within the premises. Because such pipes ultimately route their way into the earth, the attachment, to the pipe, of a suitable metal clamp and a length of wire can make an effective ground connection for the **ORBIT-Pro.** Verify that the pipe is metallic throughout its entire run into the earth since much of today's plumbing is made from PVC (plastic) compounds. Do not use a hot water pipe for grounding because it will likely attach to a heating apparatus which may not, itself, be grounded.

It may be possible to use an existing electrical ground on the premises if one is close enough to the panel. Ideally, that ground can be obtained at the metal service panel where the incoming electrical power originates. When connecting the ground wire, use a solid 14-gauge wire [or larger (numerically *lower*) size] connected between the **ORBIT-Pro's** GND terminal and run to an acceptable electrical ground connection. Keep this wire as short as possible and do not run it in conduit, coil it, bend it sharply, or run it alongside other wiring. If you must bend it or change its direction, it should have a radius of at least 8 inches at the point from which it is bent.

If in doubt, you may wish to enlist the help of a licensed electrician in matters concerning such grounding.

Wiring the Main Board

(see Figures 2-4, 2-6, 2-7 on pages 22, 24 and 25)

CONNECTION	COMMENTS
Expansion BUS and Keypad Connections AUX (Red) COM (Blk) BUS (Yel) BUS (Grn)	▪ the first four terminals at the left of the Main Board represent the system's Expansion BUS, supporting the connection of keypad(s) and Expansion Modules ▪ use a quality 4-conductor cable with an adequate gauge size (e.g. 22-18, see page 17) to accommodate any voltage drops which may occur when multiple keypads and long wire runs are employed (also see Figure 2-6 on page 24); for convenience, you may wish to match the wire colors to the BUS connections ▪ additional branches of the Expansion BUS may be derived from any other point on the BUS (see Figure 2-6, page 24) ▪ the maximum wire run permitted is 1000 feet for all legs of the BUS (see page 18)
Zone Wiring to Sensors and Detectors Zone Terminals (Z1 through Z8)	▪ connect the wiring for up to 8 hardwired zones using the wiring of your choice (e.g. twisted pair, 4-conductor cable) ▪ each zone must be wired to the appropriate zone (Z) terminal and the adjacent common (COM) connection; for example, wire Zone 1 to the Z1 and COM terminals; wire Zone 2 to Z2 and the same (COM) terminal (see Figure 2-4, page 22, and Figure 2-7, page 25) ▪ for supervision against short circuits, it's recommended (but not required) that you use a 2200Ω End-of-Line Resistor (16 are supplied) at the far end of each hardwired zone ▪ unused zones must be terminated at the control panel according to how the zone is configured in the Installer Programming section of this manual (on page 35) ▪ for intrusion detectors requiring power (e.g. PIRs, photoelectric systems, certain shock sensors, audio switches), you may want to incorporate the zone wiring and the power wiring in the same cable; if so, be sure you choose a wire gauge (e.g. 22-16) which takes into account the number of detectors and the amount of wire required ▪ only *4-wire Smoke Detectors* can be used with the **ORBIT-Pro**; 2-wire Smoke Detectors are not supported ▪ for proper 4-wire Smoke Detector supervision, a *Power Supervision Relay* is required. Wire the relay according to the layout in Figure 2-7, (on page 25); by doing so, the loss of power to the detector(s) will de-energize the relay, cause a break in the zone wiring, and a subsequent "Fire Trouble" indication generated at the panel
Power to Auxiliary Devices: Continuous Auxiliary Power AUX COM (+) (–)	▪ wire these terminals to power PIRs, glass-break detectors (4-wire types), audio switches, photoelectric systems, and any device whose operation requires a *continuous* supply of 12 Volts DC ▪ do NOT use these terminals to supply power to Smoke Detectors; they must be powered by the *Switched Auxiliary Power* (see below) ▪ wire should be of a suitable gauge (e.g. 22-16) to accommodate any voltage drop which might occur based on current requirements and distances involved ▪ when many auxiliary devices are employed in an installation, consider the use of the optional Power Supply Expansion Module, previously discussed, and covered on page 16)
Power to 4-Wire Smoke Detectors Switched (Interruptible) Auxiliary Power S.AUX COM (+) (–)	▪ wire these terminals to power Smoke Detectors (4-wire types, ONLY) and any device whose operation requires resetting after an alarm condition (see Figure 2-7 on page 25) ▪ do NOT use these terminals to supply power to devices requiring continuous power, like PIRs, audio switches, 4-wire glass break detectors, photo-electric systems, etc.; you must use the continuous (non-interruptible) supply, discussed above ▪ observe the wiring guidelines mentioned in the previous section, along with any applicable local requirements applicable to Smoke Detectors

Wiring to External Sounders External Sounders BELL/S + – Jumper J3	▪ connect suitable wire to the external sounding device(s), whether a bell, an electronic siren, or a loudspeaker ▪ consider a larger wire gauge (e.g. 18-16) if the distance separating the sounder(s) and the panel is significant; consider also the sounder'(s)s current draw when choosing a suitable wire gauge ▪ polarity must be observed for electronic siren(s) and/or polarized bells (if used) ▪ if an external sounder connection is <u>not</u> made, use a 2200Ω resistor in its place to avoid potential sounder supervision problems ▪ be sure to appropriately position the board's BELL/LS Jumper (J3), as follows: - if your external sounder is a <u>Loudspeaker</u> (*without* a built-in sound driver), position jumper J3 so it covers *both* pins; doing so causes the panel, if so programmed, to produce a *continuous* oscillating voltage for burglary/panic alarms, and an interrupted oscillating voltage for fire alarms - if your external sounder is either a <u>Bell</u> or an <u>Electronic Siren</u> (equipped *with* a built-in sound driver), position jumper J3 so it does NOT cover both pins; as such, a *steady* 12 Volts DC is produced at the sounder terminals during burglary/panic alarms; a slow, *pulsing* voltage is produced during a fire alarm
Wiring to an External, Triggerable Device Utility Output 1 AUX U01 + –	▪ wire these terminals to any device [e.g. the coil of a 12 VDC, 70 mA (max) relay] which you want activated when *Utility Output 1* is triggered (for additional information, see the *Utility Outputs* section on page 63)
Telephone Line Connections (typically derived from an installed RJ31X jack)	▪ to the Main Board's LINE terminals, connect the two wires (usually *red* and *green*) from the RJ31X jack's *Direct Connect Cord,* corresponding to the incoming telephone line ▪ to the Main Board's SET terminals, connect the two wires (usually *gray* and *brown*) from the RJ31X jack's *Direct Connect Cord,* corresponding to the premises' phones
J2 DEFAULT Jumper	▪ be sure the J2 Jumper is NOT placed over the two corresponding pins ▪ place this jumper over a single pin to prevent its loss
GROUND 	▪ refer to the grounding suggestions, previously discussed on page 11
Flying Leads RED and BLACK	▪ have the Standby Battery handy (typically 12 VDC, 6 AH, typical) but do NOT connect it at this time
AC	▪ wire the output from a 16.5 VAC, 40 VA transformer to the Main Board's AC terminals ▪ use the appropriate wire gauge (e.g. 18-16) ▪ do NOT plug in the transformer at this time

Identifying and Wiring Keypads and Expansion Modules

(refer to Figures 2-2, 2-3, 2-5, and 2-6: found on pages 20, 21, 23, and 24, respectively)

Prepare each Keypad(s) and Expansion Module(s) you plan to install according to the information found in the table below:

<table>
<tr><th>COMPONENT/MODULE</th><th>AREA</th><th colspan="10">COMMENTS</th></tr>
<tr><td>Keypads and
Expansion Modules</td><td>DIP Switches</td><td colspan="10">Program each device's I.D. number by setting its DIP switches accordingly, as described:</td></tr>
<tr><td rowspan="9">Each Keypad and Expansion Module must be given a unique I.D. number with which it is identified in the system. Use the instructions below, along with the table at the right, to set the DIP switches on the device's PC board.</td><td colspan="10"><table>
<tr><th>ID</th><th>1</th><th>2</th><th>3</th><th>4</th><th>ID</th><th>1</th><th>2</th><th>3</th><th>4</th></tr>
<tr><td>01</td><td>off</td><td>off</td><td>off</td><td>off</td><td>09</td><td>off</td><td>off</td><td>off</td><td>ON</td></tr>
<tr><td>02</td><td>ON</td><td>off</td><td>off</td><td>off</td><td>10</td><td>ON</td><td>off</td><td>off</td><td>ON</td></tr>
<tr><td>03</td><td>off</td><td>ON</td><td>off</td><td>off</td><td>11</td><td>off</td><td>ON</td><td>off</td><td>ON</td></tr>
<tr><td>04</td><td>ON</td><td>ON</td><td>off</td><td>off</td><td>12</td><td>ON</td><td>ON</td><td>off</td><td>ON</td></tr>
<tr><td>05</td><td>off</td><td>off</td><td>ON</td><td>off</td><td>13</td><td>off</td><td>off</td><td>ON</td><td>ON</td></tr>
<tr><td>06</td><td>ON</td><td>off</td><td>ON</td><td>off</td><td>14</td><td>ON</td><td>off</td><td>ON</td><td>ON</td></tr>
<tr><td>07</td><td>off</td><td>ON</td><td>ON</td><td>off</td><td>15</td><td>off</td><td>ON</td><td>ON</td><td>ON</td></tr>
<tr><td>08</td><td>ON</td><td>ON</td><td>ON</td><td>off</td><td>16</td><td>ON</td><td>ON</td><td>ON</td><td>ON</td></tr>
</table></td></tr>
<tr><td colspan="2">Keypads:
Remove the keypad's back cover in order to set up its ID.

The first keypad must be given I.D. 01, the second, I.D. 02, etc. For convenience during the installation and programming, you might want to temporarily label each keypad's I.D. on its face.

Expansion Modules:
As above; however, there is no cover to remove</td><td colspan="10">It is normal for the same sequence of I.D. numbers to be repeated for different types of devices (i.e. Keypads and Expansion Modules) used in the system. Thus, the I.D. of "01" must be used for the first Keypad, the first Zone Expander, the first Utility Output, and first Power Supply Module. A second module in any of these categories gets the I.D. of "02", etc.</td></tr>
</table>

CONNECTIONS	COMMENTS
DIP Switches	▪ each *Keypad* must be given a unique I.D. number see above
Bus Wiring AUX (Red) COM (Blk) BUS (Yel) BUS (Grn)	▪ extend the four wires within each keypad as required, and connect each to the appropriate point, either to the panel's *Expansion Bus* terminals, to the BUS terminals of another Expansion Module, to a "splice box", or to any other suitable point on the BUS ▪ for very long wire runs, use the appropriate wire gauge (22-19) to avoid excessive voltage drops (see page 18)
Tamper Switch	▪ refer to Figure 2-3 on page 21 and set the keypad's Tamper Switch as follows: - locate the rear-mounted tamper "plunger"; if the keypad is to be wall-mounted, be sure the slot in the plunger is vertically-oriented before mounting the keypad - if the keypad is not to be mounted at this time, the plunger's position can be ignored
Cover	▪ carefully replace the keypad's printed circuit board in its cover; next, join the cover and base by first hooking the tops together and then snapping the bottom in place

Wiring the Zone Expansion Module(s)

TERMINALS	COMMENTS
DIP Switches	▪ each *Zone Expansion Module* must be given a unique I.D. number identifying it to the system; if not yet done, use the table on page 14 to set the DIP switches appropriately; the first *Expansion Module* must be given the I.D. 01; the second I.D. 02, etc.
Bus Terminals AUX (Red) COM (Blk) BUS (Yel) BUS (Grn)	▪ the first four terminals at the left of the *Zone Expansion Module* are for the connection to the panel's 4-wire BUS; use a quality 4-conductor cable with an adequate gauge size to accommodate any voltage drops which may occur when multiple modules and long wire runs are employed (see Figures 2-5 and 2-6, on pages 23 and 24) ▪ additional *Zone Expansion Modules* may be connected to the system at any available point on the Expansion Bus ▪ the maximum wire run permitted is 1000 feet for all legs of the BUS ▪ depending on the cabinet housing the panel, it may be possible to mount one or more *Zone Expansion Modules* inside (see Figure 2-1 on page 19) ▪ if necessary, refer to the figure on page 6 for the "big picture"
Zone Terminals Z1 through Z8 (8-Zone Expander) Z1 through Z16 (16-Zone Expander)	▪ connect the wiring for up to 8 (or 16) hardwired zones using the wiring of your choice (e.g. twisted pair, 4-conductor cable) ▪ each zone must be wired to the appropriate zone terminal and the adjacent common (COM) connection; for example, wire Zone 1 to the Z1 and COM terminals; wire Zone 2 to Z2 and the same (COM) terminal ▪ for supervision against short circuits, it's recommended that you use a 2200Ω End-of-Line resistor (supplied) at the far end of each hardwired zone (see Figure 2-4 on page 22 for examples of zone wiring) ▪ unused zones must be terminated according to how the zone is configured in programming (see the *Zone Programming* section on page 48) ▪ for intrusion detectors requiring power (e.g. PIRs, photoelectric systems, certain shock sensors, audio switches), you may want to incorporate the zone wiring and the power wiring in the same cable; if so, be sure you choose a wire gauge (e.g. 22-18) which takes into account the number of detectors and the amount of wire required ▪ only *4-wire Smoke Detectors* are permitted on any zone ▪ for proper 4-wire Smoke Detector supervision, a *Power Supervision Relay* is required; wire the relay according to the layout in Figure 2-7 (on page 25); by doing so, the loss of power to the detector(s) will de-energize the relay, cause a break in the zone wiring, and a subsequent "Fire Trouble" indication generated at the panel
Power to Auxiliary Devices Continuous Auxiliary Power AUX COM (+) (–) **Power to 4-Wire Smoke Detectors** Switched (Interruptible) Auxiliary Power S.AUX COM (+) (–)	▪ wire these terminals to power PIRs, glass-break detectors (4-wire types), audio switches, photoelectric systems, and any device whose operation requires a *continuous* supply of 12 Volts DC see Figure 2-5 on page 23 ▪ do NOT use these terminals to power Smoke Detectors ▪ when many auxiliary devices are employed in an installation, consider the use of the optional Power Supply Expansion Module ▪ wire these terminals to power Smoke Detectors (4-wire types, ONLY) and any device whose operation requires resetting after an alarm condition (see Figure 2-7 on page 25) ▪ do NOT use these terminals to supply power to devices requiring continuous power like PIRs, audio switches, 4-wire glass break detectors, photo-electric systems, etc.; you must use the continuous (non-interruptible) supply discussed above ▪ observe the wiring guidelines mentioned above, along with any applicable requirements for Smoke Detectors in your locale

Wiring the Power Supply Expansion Module

CONNECTIONS	COMMENTS
DIP Switches	▪ each *Power Supply (Expansion) Module* must be given a unique I.D. number identifying it to the system; use the table on page 14 to set the DIP switches appropriately
Bus Terminals AUX (Red) COM (Blk) BUS (Yel) BUS (Grn)	▪ the first four terminals at the left of the *Power Supply Module* are for the connection to the *Expansion Bus,* originating at the Main Board ▪ because the *Power Supply Module* has its own source of power-derived through its connection to AC Power-do NOT connect the RED wire from the Expansion Bus to the module; connect only the *black, yellow*, and *green* wires from the bus to the appropriate BUS terminals (see Figure 2-6 on page 24) ▪ from the point at which the *Power Supply Module* is wired to the BUS, it will supply power to all modules and/or keypads located AFTER its connection; as such, do NOT make any connections to the disconnected RED wire cited above ▪ the maximum wire run permitted is 1000 feet for all legs of the BUS
Tamper TAMP COM	▪ if the *Power Supply Module* is enclosed in a metal cabinet and it's desired to "tamper" the cabinet, connect one (or more) appropriate normally-open momentary-action pushbutton switch(es), in series, between the TAMP and COM terminals ▪ it is NOT necessary to use a tamper switch if another module sharing the same metal cabinet is so equipped ▪ do NOT use an End-of-Line Resistor in the tamper switch circuit ▪ if a tamper switch is NOT used, connect a wire jumper between the two terminals
External Sounders BELL/LS + –	▪ connect suitable wire to any additional external sounding device(s)– whether a bell, an electronic siren, or a loudspeaker–that you want to be part of the system and, for convenience, driven by the *Power Supply Expansion Module* ▪ consider a large wire gauge (e.g. 18-16) if the distance separating the sounder and the module is significant; consider, too, the sounder'(s) current draw when choosing a suitable wire gauge (see page 17 for additional information) ▪ any external sounder(s) connected to the *Power Supply Module* will operate exactly like the sounder(s) connected to the Main Board
BELL/LS Jumper	▪ be sure to appropriately position the board's BELL/LS Jumper, as follows - if your external sounder is a Loudspeaker (*without* a built-in sound driver), position the BELL/LS jumper so it covers *both* pins; doing so causes the *Power Supply Module* to produce a *continuous* oscillating voltage for burglary/panic alarms, and an *interrupted* oscillating voltage for fire alarms - if your external sounding device is either a Bell or an Electronic Siren (equipped *with* a built-in sound driver), position the jumper so it does NOT cover both pins; as such, a *steady* 12 Volts DC is produced at the sounder terminals during burglary/panic alarms; a slow, *pulsing* voltage is produced during a fire alarm
Power to Auxiliary Device AUX COM (+) (–)	▪ for auxiliary devices whose location is too far from the panel, wire these terminals to power PIRs, glass-break detectors (4-wire types), audio switches, photoelectric systems, and any device whose operation requires a *continuous* supply of 12 Volts DC see Figure 2-5 on page 23) ▪ wire should be of a suitable gauge to accommodate any voltage drop which might occur based on current requirements and distance involved
AC	▪ wire the output from a 16.5 VAC, 40 VA transformer to the board's AC terminals ▪ use the appropriate wire gauge (see page 17 for additional information) ▪ do NOT plug in the transformer at this time
Flying Leads RED and BLACK	▪ at the proper time, connect these leads to the positive (+) and negative (–) terminals, respectively, of the appropriate *Standby Battery* used with the *Power Supply Module*

Wiring the Utility Output Expansion Module

CONNECTIONS	COMMENTS
DIP Switches	▪ each *Utility Output Module* must be given a unique I.D. number identifying it to the system; use the table on page 14 to set the DIP switches
Bus Terminals AUX (Red) COM (Blk) BUS (Yel) BUS (Grn)	▪ the first four terminals at the left of the board are for the connection to the *Expansion Bus* (see Figure 2-5 on page 23) ▪ additional *Utility Output Modules* may be connected to the system at any available point on the Expansion Bus ▪ the maximum wire run permitted is 1000 feet for all legs of the BUS (see page 17 for additional information) ▪ depending on the cabinet housing the panel, it may be possible to mount one or more Expansion Modules within (see Figure 2-1 on page 19)
Tamper TAMP COM	▪ if the *Utility Output Module* is enclosed in a metal cabinet and it's desired to "tamper" the cabinet, connect one (or more) appropriate normally-open (its contacts are closed when the cabinet is secured) momentary-action pushbutton switch(es), in series, between the TAMP and COM terminals ▪ it is NOT necessary to use a tamper switch if another module sharing the same metal cabinet if so equipped ▪ do NOT use an End-of-Line Resistor in the Tamper Switch circuit ▪ if a tamper switch is NOT used, connect a wire jumper between the two terminals
Relay Connections 4 Relay Module U01 U02 U03 U04	▪ for instructions on wiring devices to the relays and programming their operation, refer to page 13, and to the *Utility Output* section which begins on page 63
Triggers 8 Open-Collector Outputs UO1 through UO8	▪ for instructions on wiring devices to the triggers and programming their operation, refer to the *Utility Output* section which begins on page 63

Other Modules

All other **ORBIT-Pro** modules not discussed in these pages are equipped with their own wiring and operating instructions.

Wiring Guidelines

One of the necessary factors required in making for a successful installation is the proper use of wire and cable. Like all hardwired security systems, the **ORBIT-Pro** relies on wire to carry power and data to the Keypads, Expansion Modules, detectors, and any external sounder(s) which may be part of the installation. If the wire is too long or not thick enough for the quantity and types of components in use, excessive voltage drops could develop and deprive such devices of sufficient power–resulting in unreliable system operation and weak-sounding annunciators.

A Word About Wire

If the proper wire thicknesses are selected before beginning, power losses can be minimized. By taking into account an installation's current requirements and the wiring distances involved, Tables 2-2 through 2-5 provides useful information to help make your installation trouble-free.

Table 2-1 is offered for reference. As it indicates, a wire's diameter is assigned a numeric size, or *gauge*–a number which is based on AWG (American Wire Gauge) designations. Note that as a wire's diameter increases, however, its AWG size gets numerically lower.

AWG Gauge Size	Wire Diameter		Resistance: Feet		Resistance: Meters	
	Inches	millimeters	Ω per foot	Ω per 1000 ft	Ω per meter	Ω per 100 m
24	0.020	0.50	0.026	26.0	0.085	8.5
22	0.025	0.64	0.016	16.0	0.052	5.2
20	0.031	0.80	0.010	10.0	0.032	3.2
19	0.035	0.90	0.008	8.0	0.026	2.6
18	0.040	1.00	0.006	6.0	0.020	2.0
16	0.050	1.27	0.004	4.0	0.013	1.3
14	0.064	1.63	0.0025	2.5	0.008	0.82

Table 2-1: Wire Facts

One-Way Wire Distance Between ORBIT-Pro and Plug-In Transformer	**AWG (American Wire Gauge)** for best results use the indicated wire size or larger (numerically lower) size

in feet	in meters	22	20	18	16	14
up to 15 ft	up to 5 m	✓				
15 – 25 ft	5 – 8 m		✓			
25 – 40 ft	8 – 12 m			✓		
40 – 60 ft	12 – 20 m				✓	
60 – 100 ft	20 – 30 m					✓

Table 2-2: Wiring Between the ORBIT-Pro Main Board and the 16.5VAC / 40VA Plug-In Transformer

Wire Gauge (AWG) Size	Maximum Combined Length of All Expansion BUS Wiring	
	in feet	in meters
22	656	200
20	1092	333
19	1312	400

Table 2-3: 4-Wire Expansion BUS Wiring One-Way Lengths Based on Wire Gauge

NOTE: For maximum system stability, it is best NOT to exceed a total of 1000 feet of wire when wiring the Expansion BUS.

Total Auxiliary Power: Maximum Current Draw per Branch	Desired Wire Gauge in Particular Branch									
	18		19		20		22		24	
	Max run in		max run in		max run in		max run in		max run in	
	Feet	meters	feet	meters	feet	meters	feet	meters	feet	meters
20 mA	3920	1195	3100	945	2460	750	1550	472	970	296
30 mA	2600	793	2060	628	1640	500	1030	314	646	197
40 mA	1960	597	1550	472	1230	375	775	236	485	148
50 mA	1568	478	1240	378	984	300	620	189	388	118
60 mA	1300	396	1030	314	820	250	515	157	323	98
70 mA	1120	341	886	270	703	214	443	135	277	84
80 mA	980	299	775	237	615	187	388	118	243	74
90 mA	867	264	687	209	547	166	343	105	215	66
100 mA	784	239	620	189	492	123	310	94	194	59

Table 2-4: Auxiliary Power Branch Wiring Lengths Based on Gauge Sizes and Detector Current

NOTE: The wire lengths indicated represent the one-way distance between the source of power and the last detector in the branch.

Maximum External Sounder Current: Maximum Current Draw per Branch	Desired Wire Gauge in Particular Branch							
	18		19		20		22	
	max run in		max run in		max run in		max run in	
	feet	meters	feet	meters	feet	meters	feet	meters
100 mA	780	238	625	191	495	151	310	94
200 mA	390	119	313	95	248	76	155	47
300 mA	260	79	208	63	165	50	103	31
400 mA	195	59	157	48	124	38	78	24
500 mA	156	48	125	38	99	30	62	19
650 mA	120	37	96	29	76	23	48	15

Table 2-5: External Sounder Wiring Table

NOTE: The wire lengths indicated represent the one-way distance between the ORBIT-Pro and the external sounder in the branch.

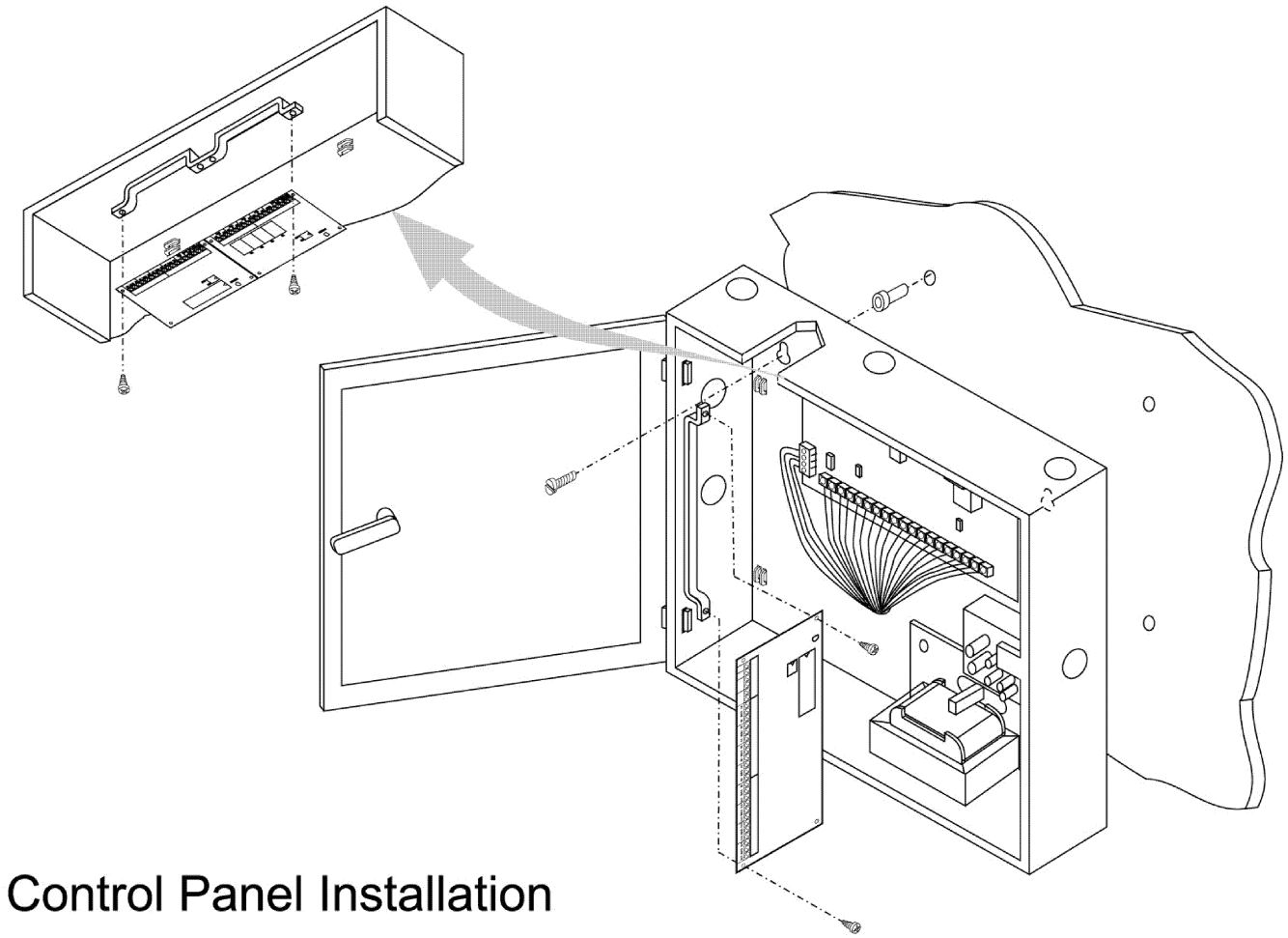
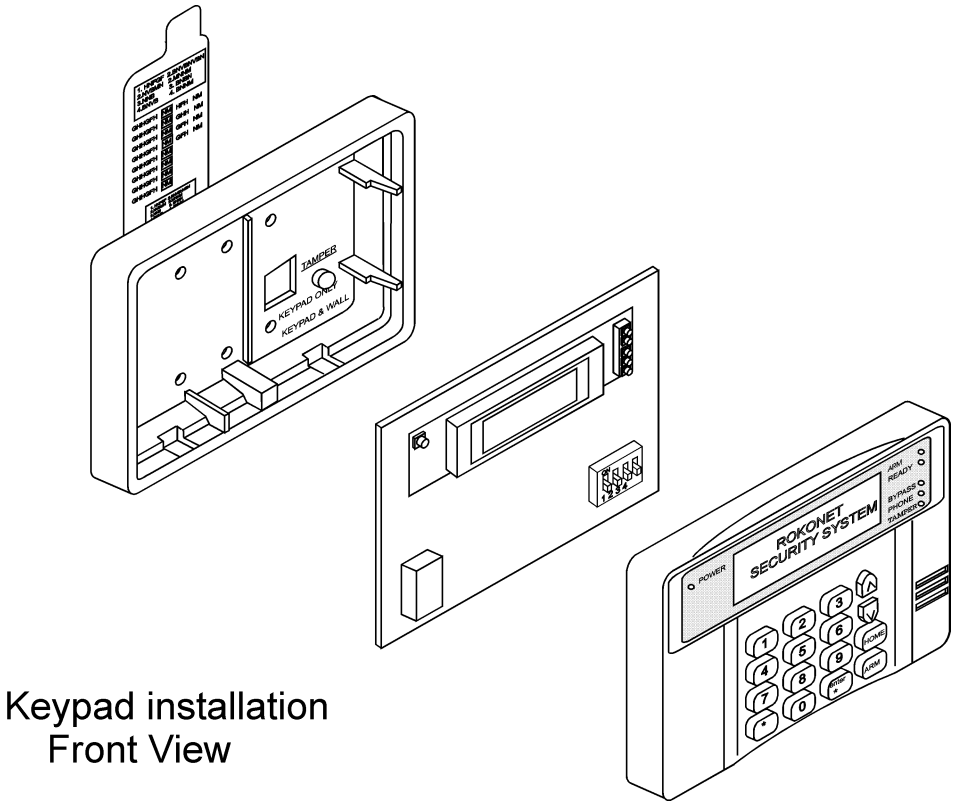


Figure 2-1



Keypad installation
Front View

Figure 2-2

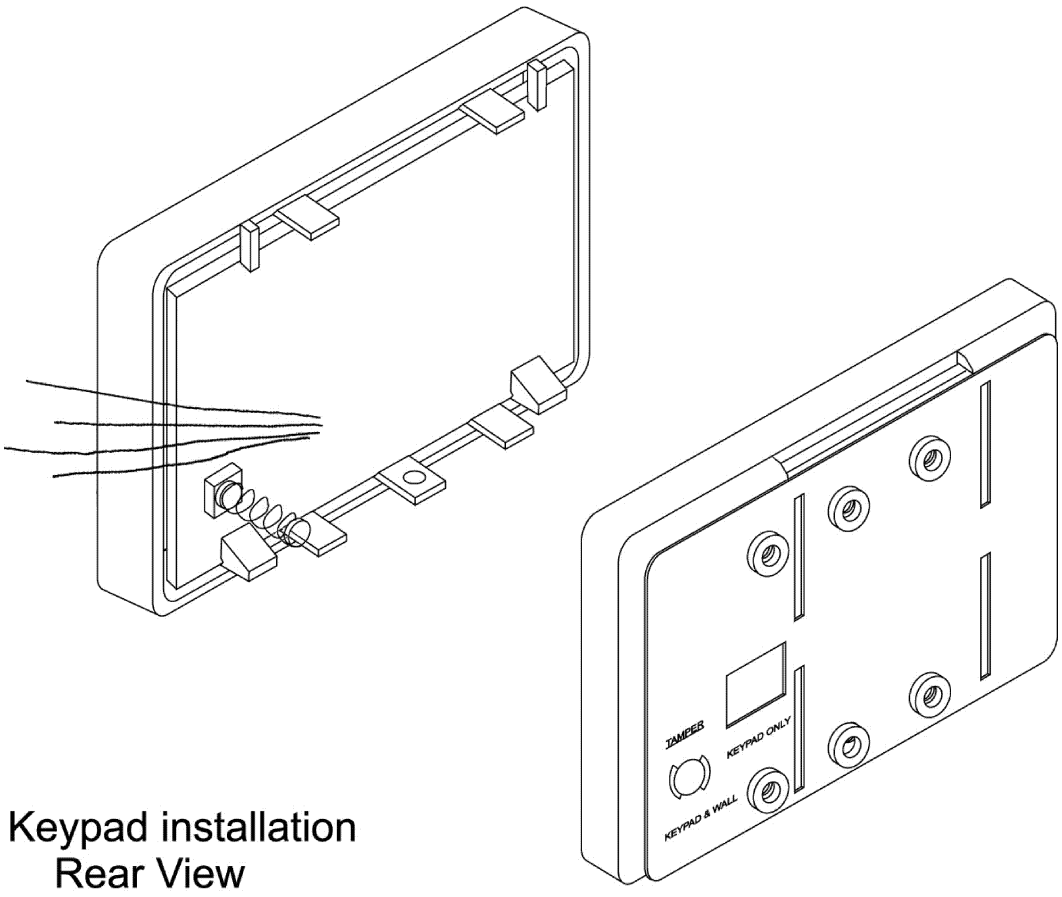
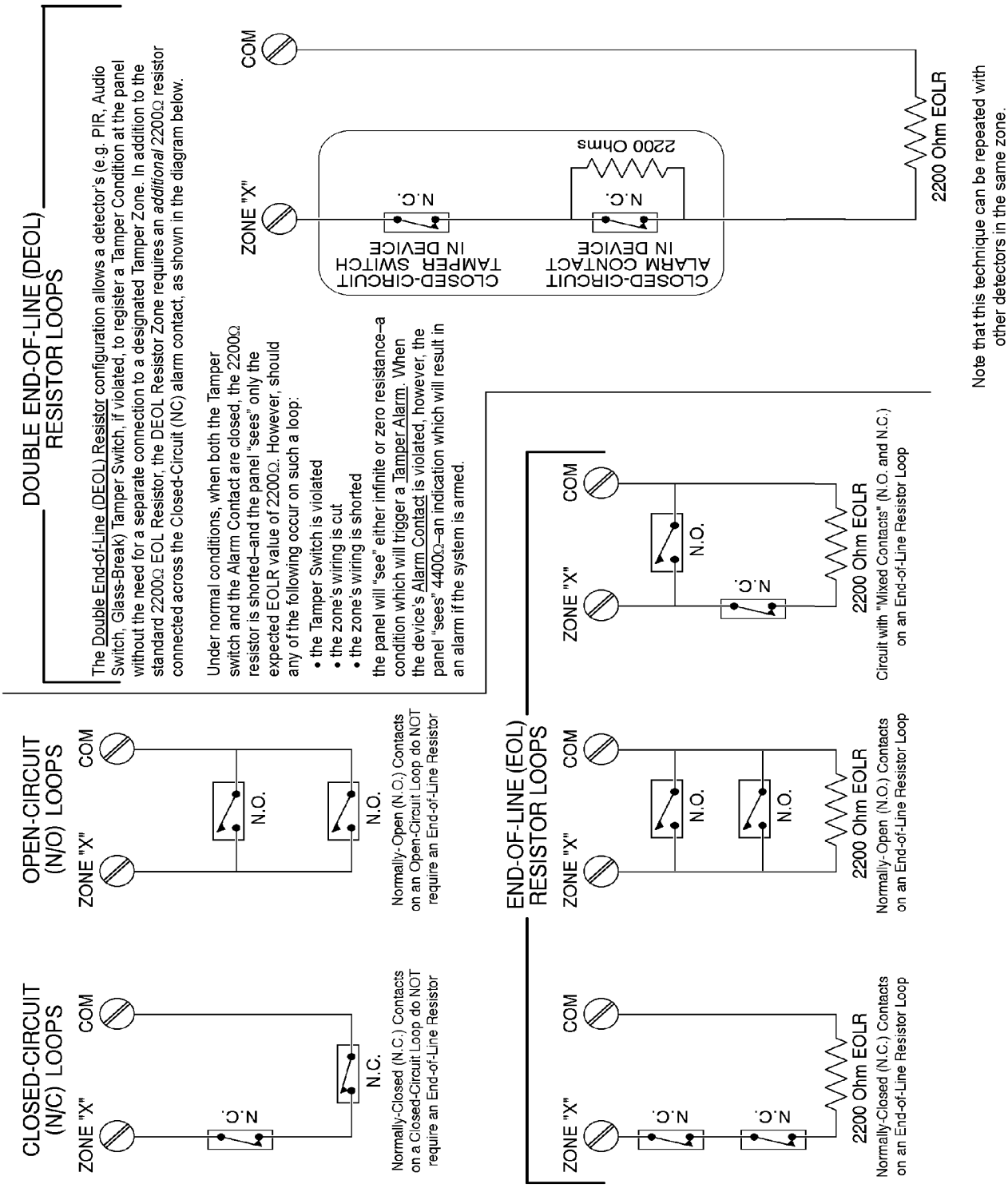

Keypad installation
Rear View
TAMPER
KEYPAD ONLY
KEYPAD & WALL

Figure 2-3

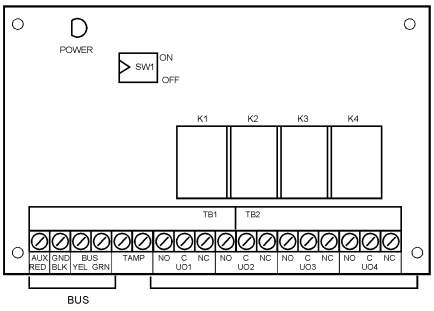


Zone Terminations

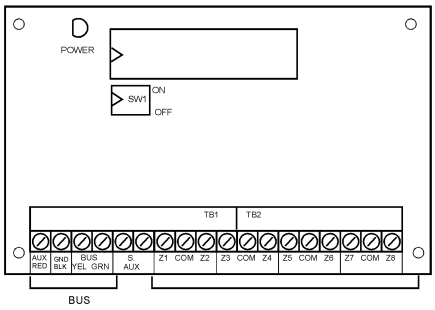
Figure 2-4

Closed-circuit and Open-circuit loops: Not for use in UL Installations

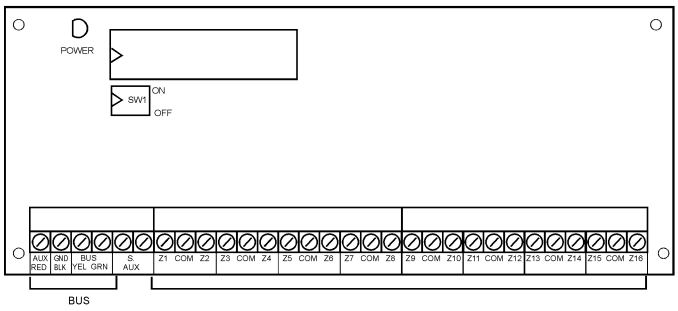
UO/4



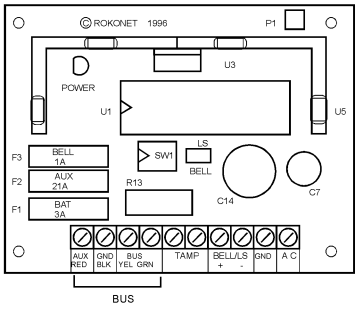
ZE-8



ZE-16

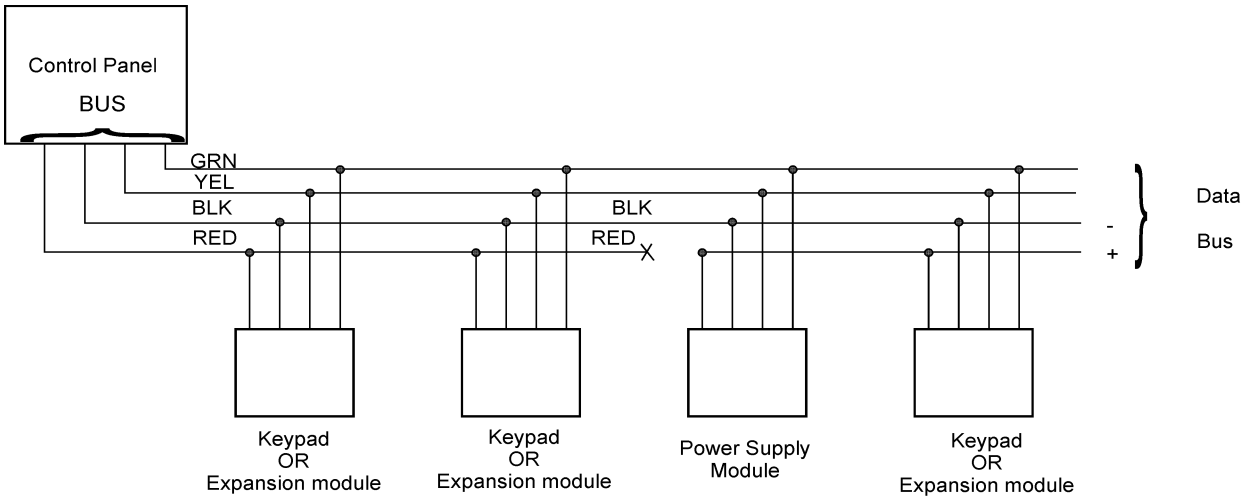


PS15



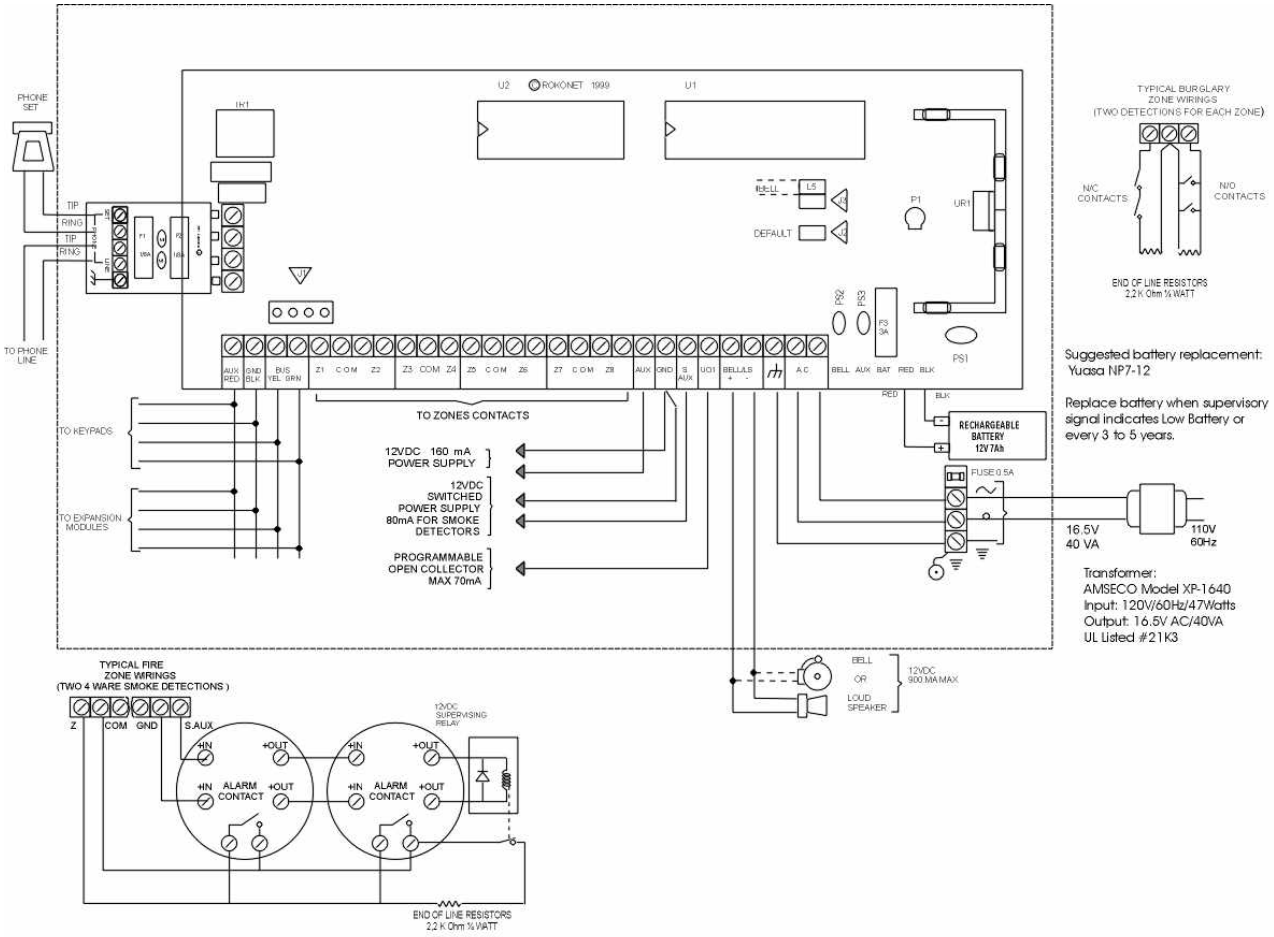
Expansion Modules

Figure 2-5



4-wire Expansion Bus

Figure 2-6



WARNINGS

* To prevent risk of electric shock, disconnect AC battery and phone cord BEFORE servicing.
* The equipment should be installed in accordance with national Fire Protection Association's Standard # 72(N.F.P.A. Batterymarch Park, Quincy, MA 02269) and Local Codes.
* Refer to User Manual (P/N 5IN296UM) and Installer Manual (P/N 5IN296IM) for detailed information on system operation and installation.
* **For continued protection against risk of fire replace fuses only with fuses of same type and rating.**
* Do not connect the mains input to a receptacle controlled by a switch
* This system should be tested at least once a week.
* The system should be tested by a qualified technician at least once every three years.
* Incorrect Connections could damage the panel.
* All circuits are Class II Power Limited except for battery circuit.

WARNING

THIS UNIT INCLUDES AN ALARM VERIFICATION FEATURE THAT WILL RESULT IN A DELAY OF THE SYSTEM ALARM SIGNAL FROM THE INDICATED CIRCUITS. THE TOTAL DELAY (CONTROL UNIT PLUS SMOKE DETECTORS) SHALL NOT EXCEED 60 SECONDS. NO OTHER SMOKE DETECTOR SHALL BE CONNECTED TO THESE CIRCUITS UNLESS APPROVED BY THE LOCAL AUTHORITY HAVING JURISDICTION.

CIRCUIT (ZONE)		
CONTROL UNIT DELAY (Seconds)		
SMOKE DETECTOR	MODEL DELAY (Seconds)	
The delay (power-up) (start up) time marked on the installation wiring diagram on the smoke detector or on the installed smoke detector(s) to be used.		

5ST296BWUL

Wiring Diagram

Figure 2-7

Section 3: Programming Your ORBIT-Pro

Summary of Installer Programming Methods

As a source of general reference, the following table lists the options available when programming an **ORBIT-Pro** installation. Except for this reference, this section will concern itself only with such programming from an LCD Keypad only.

PROGRAMMING METHODS

LOCALLY (at the panel)	**REQUIREMENTS**
• from any *LCD Keypad* (covered in this manual)	• the keypad must be DIP switch programmed and wired to the **ORBIT-Pro** • power must be applied to the **ORBIT-Pro**
• from a *portable computer* • see the *Upload/Download Programming Manual* (p/n 5IN296UD) for additional information	• the PC must be IBM®-compatible • Rokonet's *Upload/Download Software* (p/n RP296UD) must be installed • the *Bus Adapter* (p/n RP296BA) cable and plug must be connected between a serial (COM) port on the PC and the **ORBIT-Pro's** "J1" connector–or the equivalent connection * on the 4-wire BUS
• via the *Program Transfer Module* (p/n RP296EE), a tiny circuit board into which a copy of a panel's programmed configuration is stored–from which it may later be transferred to any installation when temporarily plugged into its 4-wire bus • see page 112 for detailed instructions) on the use of the *Program Transfer Module*	• the Program Transfer Module (p/n RP296EE) *
REMOTELY (at the alarm company)	**REQUIREMENTS**
• from a personal computer • see the *Upload/Download Programming Manual* (p/n 5IN296UD) for additional information)	• the PC must be IBM®-compatible • Rokonet's *Upload/Download Software* (p/n RP296UD) must be installed an applicable modem must be installed and configured access to a telephone line *

Table 3-1

***** Not for UL Installations

Preparing Your ORBIT-Pro for Installer Programming

There are three "Getting Started" options when learning how to program your **ORBIT-Pro**.

OPTION 1: You wish to program a new **ORBIT-Pro** for the first time.

OPTION 2: You wish to restore all factory defaults to an already-programmed **ORBIT-Pro**.

OPTION 3: You wish to modify the configuration of an existing **ORBIT-Pro**. For this, proceed directly to one of the following pages:

For Options 1 and 2

A. Preparing the LCD Keypad:

1- Remove all Power from Your ORBIT-Pro

a) If your **ORBIT-Pro** has NOT been wired to an LCD Keypad, remove all power (AC and Standby Battery) if present, and skip to Step 2.

b) If your **ORBIT-Pro** and at least one LCD Keypad have already been physically installed and/or wired together, remove all power (AC and Standby Battery) if present, and skip to Step 3.

2- Wire a single LCD Keypad to the ORBIT-Pro's Main Board

a) If required, add additional wiring to the keypad, by using no more than 1000 feet of the appropriate wire.

3- If necessary, check the LCD Keypad's Physical I.D. Number

If the LCD Keypad(s) have already been given an I.D. number, skip to Step 5. Otherwise, separate the keypad's cover from its base, locate the bank of four DIP switches and make sure the keypad is given the I.D. of "01", by verifying that all four switches are in the down (OFF) position

4- Reassemble the Keypad

Carefully replace the keypad's printed circuit board in its cover housing
join the unit's cover and base by first hooking the tops together and then snapping the bottoms in place

5- Setting the Keypad's Tamper Switch

If the keypad is not yet mounted, locate its rear-mounted tamper "plunger" and set its action as follows:

a) if, during programming, the keypad is to be wall-mounted, be sure the slot in the plunger is vertically-oriented, and reinstall the keypad

b) otherwise, for bench, table-top, or "hand-held" programming, turn the plunger so that its slot is horizontally-oriented

B. Preparing the Panel: (refer to Figure 2-7 on page 25)

6- Check the Condition of the ORBIT-Pro's J2 (DEFAULT) Jumper

Option 1: If you are Programming a New ORBIT-Pro:

a) Be sure the jumper is NOT placed over its corresponding pins. You may wish to place it on one of the pins for safekeeping.

b) Proceed to Step 7.

Option 2: If you are Restoring Factory Defaults to an ORBIT-Pro:

a) Place the jumper in the DEFAULT position so it covers BOTH of the corresponding pins.

b) Proceed to Step 7.

7- Apply Power to the System

Do so by plugging in the AC transformer, and/or connecting the Standby Battery to the RED and BLACK flying leads. After a moment, the keypad will display:

```
    ROKONET
Please Wait ...
```

C. Initial Programming:

8- Observe the Following and Perform these Initial Steps

```
    ROKONET
Please Wait ...
```

a) After about 20 seconds, the keypad will produce either of the two displays below. Follow the instructions in the column which is applicable to what is displayed:

If this display appears, follow the instructions in this column:

```
   To Install
    Press
```

b) press the **[ ]** key; the keypad will display:

```
INSTALLER CODE:
    _
```

c) carefully enter the **ORBIT-Pro's** default Installer Code: **[0] [2] [9] [6]** (which will appear as) and press **[ENTER]**

d) the keypad briefly displays:

```
  INSTALLATION:
  PLEASE, WAIT
```

and then, this display:

```
INSTALLER PROG:
1)SYSTEM          ↓
```

- note that the POWER LED will be flashing slowly, indicating that the Programming Mode has been entered

e) next, you must program the system to recognize the keypad; to do so, press **[7]**; the display will show:

```
ACCESSORIES:
1)ADD/DEL MDL     ↓
```

(Note: MDL=Module)

press the **[ENTER]** key; the keypad displays:

```
ADD A MODULE:
1)KEYPAD          ↓
```

f) press [ENTER] again; the display shows:

```
KEYPADS:
ID=01 TYPE=NONE
```

g)change the keypad's TYPE to LCD by pressing the **[STAY]** key until **TYPE=LCD** appears in the lower right of the display

If this display appears, follow the instructions in this column:

```
PARTITION 1
--:-- ... .. ...
```

b) Above, the term "PARTITION 1" represents the name given to a previously-programmed **ORBIT-Pro**, or to one of its partitions. Its appearance, rather than the display at the upper left, indicates that this **ORBIT-Pro** has:

- already been programmed
- protected the programmed configuration
- disabled your ability to restore the factory defaults

To enable your ability to restore the factory defaults, follow the steps below:

```
PARTITION 1
--:-- ... .. ...
```

c) press **[ ]**, then **[7]**, then **[1]**

d) at this display:

```
INSTALLER CODE:
    _
```

- enter this **ORBIT-Pro's** current Installer Code; note that this must be the Installer Code assigned to this panel when it was last in service
- if the **ORBIT-Pro's** factory default Installer Code was retained during the panel's previous use, enter **[0] [2] [9] [6]** (which will appear as) and press **[ENTER]**

e) the keypad briefly displays:

```
  INSTALLATION:
  PLEASE, WAIT
```

and then, at this display:

```
INSTALLER PROG:
1)SYSTEM          ↓
```

press **[ENTER]**, followed by **[7]**

h) press the [ENTER] key; the resulting display confirms the following information about the keypad:

```
ASSIGN TO PAR:
KEYP=01   PAR= 1
```

- it has been given the I.D. of "01" (which matches the keypad's DIP switch settings
- it has been assigned to Partition 1 (the only partition in the system, thus far)

i) save this information by pressing the **[ ]** key four times, followed by **[0]**; the keypad will then display:

```
 DO YOU WANT TO
SAVE THE DATA? Y
DEFAULT ENABLE
```

j) press **[ENTER]** to confirm; the display shows:

```
  PLEASE, WAIT
  DATA SAVING..
```

and then, a few moments later:

```
 DATA IS SAVED
 PLEASE WAIT ...
```

k) after a moment, the system will enter its ordinary operating mode

```
PARTITION 1
--:-- ... .. ...
```

f) at this display:

```
DEFAULT EN/DIS:
DEFAULT DISABLE
```

press the **[STAY]** key once so that the display reads:

```
DEFAULT EN/DIS:
DEFAULT ENABLE
```

and then press **[ENTER]**

g) remove the J2 DEFAULT jumper from its position on the Main Board, and place it over one of the two pins for safekeeping

h) press **[ ]** and then **[0]**; the keypad displays

```
 DO YOU WANT TO
SAVE THE DATA? Y
```

i) press **[ENTER]**; the display shows:

```
  PLEASE, WAIT
  DATA SAVING..
```

and then, a few moments later:

```
 DATA IS SAVED
 PLEASE WAIT ...
```

j) when the **ORBIT-Pro's** factory defaults have been restored, this display will appear

```
PARTITION 1
--:-- ... .. ...
```

- until the system's TIME and DATE are set, the display will show hyphens and periods, respectively
- "PARTITION 1" is the default designation given to the system at this time; during programming, it can be changed to give the installation a name (e.g. "The Jones's", "Elm Lumber") in a non-partitioned system, or to identify a specific area (e.g. "Sales Dept") in a partitioned system

9- Choose Among the Following Options:

to end your initial programming session now:	to wall-mount your keypad and continue programming	to continue programming
• remove power (both AC and Standby Battery) from your system until you're ready to continue with Installer Programming • the **ORBIT-Pro** will retain its programmed data • when ready, proceed with Installer Programming below	• remove power (both AC and Standby Battery) to avoid a tamper alarm • locate the keypad's tamper "plunger" and orient its slot vertically • if desired, re-apply power after mounting the keypad; the above display will appear after a few seconds • when ready, continue with Installer Programming below	• continue below

Description and Use of the LCD Keypad

The LCD Keypad has been designed to assist not only the alarm system user, but the installer, as well, in the programming of all system's parameters. The elements of the LCD Keypad are shown in Figure 3-1 see page 30, below, and described in Table 3-2 see page 30.

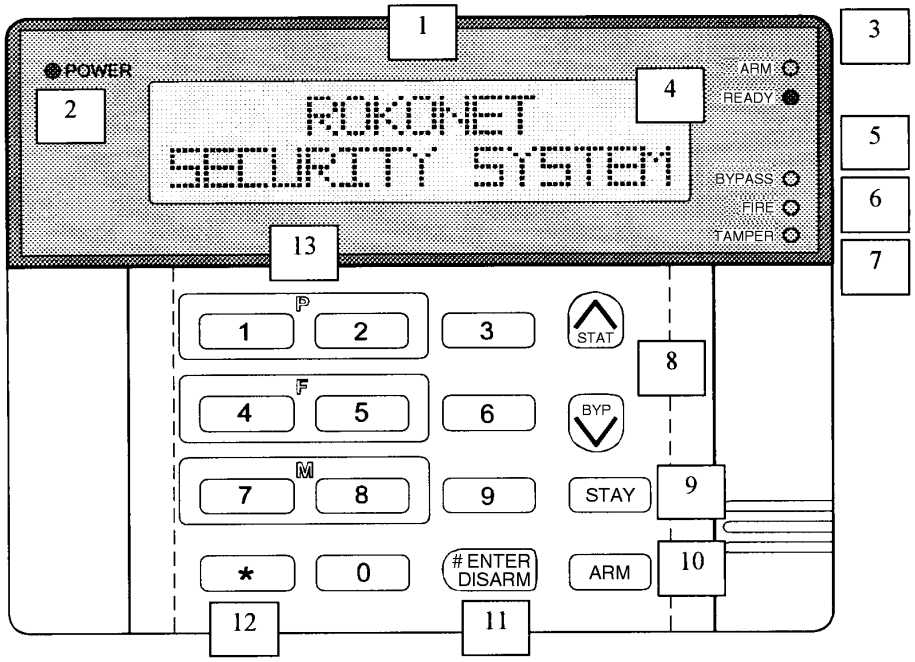


Figure 3-1: The LCD Keypad

The keys on the LCD Keypad have multiple uses that depend upon the operation being performed. Use your keypad, or refer back and forth between Figure 3-1, above, and Table 3-2 see page 30, for details on the using the LCD Keypad while programming.

Using the LCD Keypad

Not only can the LCD Keypad be used make appropriate choices within selected programming categories, it can also apply alphanumeric characters to label zones and partitions. Table 3-2, below, identifies the keypad items used for programming operations. Table 3-3, on page 31, provides information on alphanumeric labeling.

ITEM	KEY/LED	EXPLANATION IN THE PROGRAMMING MODE	
1	LCD Display	when programming, consists of two 16-character lines: ▪ the top line displays information ▪ the bottom line displays information and/or data; such data may be changed through keypad entry	
2		Power LED	must be lit; the LED will flash slowly during programming sessions
3		Arm LED	the system must be disarmed (LED unlit) to enter Installer Programming; will remain unlit while programming
4		Ready LED	will all be unlit during programming operations
5		Bypass LED	
6		Fire LED	
7		Tamper LED	
8	STAT BYP	pressing either of these keys will allow movement among the programming levels (see page 34); these keys will also change the position of the flashing cursor when editing a selection; the UP-arrow (STAT) moves the cursor to the left; the DOWN-arrow (BYP) moves the cursor to the right	
9	STAY	use this key to toggle among several programming choices within a selection (e.g. to choose between ENABLE and DISABLE, (Y) YES and (N) NO, User Authority Levels, etc.), or to display the next higher level of parameter	
10	ARM	use this key to toggle among several programming choices within a selection (e.g. to choose between ENABLE and DISABLE, (Y) YES and (N) NO, User Authority Levels, etc.), or to display the next lower level of parameter	

11	# ENTER DISARM	press this key to: • enter selected information into the system • accept the current selection and move to the next lower level in the programming hierarchy
12		press this key to exit the current programming selection and move to the next higher level in the programming hierarchy; doing so will NOT, in and of itself, store the current information/data
13	0 through 9	use the numbered keys, 0 through 9, to key in numbers and/or special characters when labeling zones and partitions

Table 3-2: LCD Keypad Programming Call-Outs

(refers to Figure 3-1 on page 30)

For Labeling: Using the LCD Keypad

The **ORBIT-Pro** can be customized by displaying alphanumeric labels to better identify system zones and partitions. "The Jones's", "Elm Lumber", "Sales Dept", and "Mastr Bedr" are just a few examples of the labels which can be created to identify the system's owner, business, location, a partition(s), or a zone.

The use of the LCD keypad for creating and editing labels differs from its use when programming system functions. Table 3-3 lists the keys and indicators used in the labeling process, along with their functions. Refer to Figure 3-1 on page 30 to reference the item call outs.

The **ORBIT-Pro** permits a total of 74 characters (letters, numbers, and symbols) for use in labeling. A list of these characters is found in the lower half of the table. A sample exercise is provided at the bottom of the page.

ITEM	KEY/LED	EXPLANATION IN THE LABELING MODE														
2		Power LED	must be lit; will flash slowly during label creating and editing													
3		Arm LED	the system must be disarmed (Arm LED unlit) and in the Installer Programming mode to perform labeling functions													
8	STAT BYP	the UP-arrow moves the cursor to the left; the DOWN-arrow moves the cursor to the right														
9	STAY	used for sequentially scrolling forward through the list of available characters (see the list below)														
10	ARM	used for sequentially scrolling backward through the list of available characters (see the list below)														
11	# ENTER DISARM	press this key to enter a completed label into the system														
See note	1	1	A	B	C	D	E	F	G	H	I	J	K	L	M	
See note	2	2	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	
See note	3	3	!	"	&	'	:	–	.	?	/	(	)			
See note	4	4	a	b	c	d	e	f	g	h	i	j	k	l	m	
See note	5	5	n	o	p	q	r	s	t	u	v	w	x	y	z	
	6 through 0	if pressed, the "6", "7", "8", "9" and "0" keys will toggle between producing their face value in the display and a blank (space)														

Table 3-3: LCD Keypad Callouts for Label Creating and Editing

Note: When labeling, each press of the 1, 2, 3, 4, or 5 keys will cause the corresponding characters to appear in the sequence listed, followed by a blank (space).

To Create or Edit a Label (see pages 46 and 56 for additional information)

1. When in the labeling mode, move the UP- or DOWN-arrow until the cursor is under the character or space to be changed. Pressing the UP-arrow moves the cursor to the left; press the DOWN-arrow to move right.
2. Select the desired character from the information given in the table. Note that the label for a partition can have up to 12 characters while the label for a zone can have up to 10 characters.
3. When done, press **[ENTER]** to enter the label into the system. Press **[ ]** to cancel.

Installer Programming Basics

The LCD Keypad offers you the facility to navigate through the menu structure as you see fit–to reach your desired destination(s). Before beginning, be sure your **ORBIT-Pro** is connected to an LCD Keypad which has been given the physical I.D. of "01", and to a power source (AC and Standby Battery). After applying power to your system, locate the display produced by your keypad. Then read and follow the applicable comments in the appropriate column.

```
To Install
 Press
```

With power applied, this display represents an **ORBIT-Pro** which is unprogrammed (i.e. has stored only factory defaults) OR one whose LCD Keypad is not properly identified to the system.

To enter *Installer Programming* from this type of display, press the **[ ]** key and proceed to the steps**,** directly below.

1- If the panel has never been programmed, or still uses the default Installer Code, enter **[0][2][9][6]**

```
INSTALLER CODE:
    _
```

If there is another Installer Code assigned to this panel, enter it instead.

2- Once done, press **[ENTER]**.

3- The display will show:

```
INSTALLER PROG:
1)SYSTEM        ↓
```

which is the starting point each time you enter Installer Programming.

```
PARTITION 1
--:-- ... .. ...
```

This display represents that of a previously-programmed **ORBIT-Pro** in which the term "PARTITION 1" is the name designated for the system or for one of its partitions. To enter *Installer Programming* from this type of display, press the **[ ]** key and proceed to the steps, below.

Note: If the time and date have NOT been previously programmed or if power to the system has been interrupted, the display will show "blanks" for these fields on the bottom line.

1- From the display showing:

```
USER FUNCTIONS
1)BYPASS        ↓
```

press **[7]** to select:

```
INSTALLER PROG:
1)ADVANCED      ↓
```

and press **[ENTER]**.

2- Enter the Installer Code currently in use for this panel, or use the factory default **[0] [2] [9] [6]**, if applicable,

```
INSTALLER CODE:
    _
```

and press **[ENTER]**.

3- The display will show:

```
INSTALLER PROG:
1)SYSTEM        ↓
```

which is the starting point each time you enter Installer Programming.

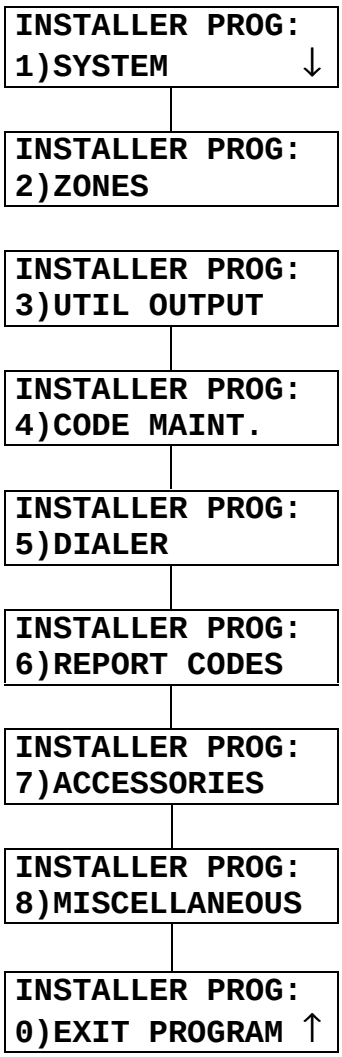
Although these steps may have been performed earlier, it's always a good idea to check that the LCD Keypad from which programming is to be performed has been properly identified to the **ORBIT-Pro**. To do so, perform the procedure in pages 27 and 28.

Programming Classifications

```
INSTALLER PROG:
1)SYSTEM          ↓
```

The SYSTEM category is one of **ORBIT-Pro's** eight programming classifications. Each category contains one or more sub-categories–all of which contribute to the system's total operation. Each of the eight classifications is listed and briefly summarized below:

CLASSIFICATION	DESCRIPTION	BEGINS ON
1) SYSTEM	general panel operation, including: ▪ defining entry/exit and sounder delays and sounder cutoff ▪ user conveniences related to audible panic operation, arming/disarming and zone bypassing, utility output operation, power loss, fire alarm verification ▪ keypad sounder and external sounder options ▪ control of User Codes ▪ trouble reporting options ▪ daylight savings time compensation ▪ keyswitch arming options ▪ pager use during alarm reporting ▪ opening/closing reporting options ▪ alphanumeric labeling for partitions ▪ programming security	page 40
2) ZONES	Zone considerations, including: ▪ zone types, partition assignments, sound(s) resulting from alarms, type of termination, loop response time, etc. ▪ zone crossing options ▪ alphanumeric labeling for zones ▪ zone maintenance features	page 48
3) UTILITY OUTPUTS	how activated, duration, pattern of operation	page 63
4) CODE MAINTENANCE	assignment of Installer Codes, User Codes and Authority Levels, Code Partition assignments	page 72
5) DIALER	all functions relating to Central Station communications, including phone numbers, account numbers, split reporting options, communication formats, restoral parameters, security considerations, swinger shutdown, "follow-me" mode options	page 76
6) REPORTING CODES	setting codes for reporting alarms, troubles, openings/closings, and tests for transmission to the Central Station, remote programming security	page 88
7) ACCESSORIES	used to add and delete Keypads and Accessory Modules (e.g. Zone Expanders, Utility Outputs, X-10, Power Supplies, and Event Loggers) as well as for testing components on the 4-wire BUS	page 100
8) MISCELLANEOUS	wireless considerations	page 110



Notice the arrow pointing down in the lower right of the display. It indicates that, in addition to the category known as **1)SYSTEM**, there are more categories which follow.

Think of the eight programming classifications as a vertically-arranged list, shown at the left, through which you can navigate with either the UP-arrow (STAT) or DOWN-arrow (BYP) keys.

The ninth classification, **0)EXIT PROGRAM** is not a programming category at all; it's simply the selection used to leave the Installer Programming mode.

Press the keypad's DOWN-arrow once. Notice how the display changes to the **2)ZONES** category. Note, too, that beside *ZONES,* as well as the next 6 categories, there is a *double-arrow* ( ) indicating that choices exist both above and below the one selected.

Finally, the last selection **0)EXIT PROGRAM** has only an UP-arrow, indicating that no more functions follow, but that others exist above it. You may want to take a moment to scroll through these selections with the keypad's arrow keys.

There are actually two methods available in selecting a category in a vertical list. The first, known as **Scrolling**, is described above and uses the two arrow keys to locate the desired selection. The second method, known as **Quick Keys**, uses a sequence of key presses which take you quickly to the desired function or location. Q*uick Keys* are often easier to use because they provide more direct results and save key presses when compared to *scrolling.*

If you refer to page 39, you will see a "map" of most programming functions designed into the ORBIT-Pro. As shown in the map, each of the eight categories at the left has several sub-categories and, although not shown in the *map*, many have unseen sub-categories beneath those shown.

Pressing **[ENTER]** when a category or function is displayed allows you to enter its first sub-category. Once there, you may be asked to type a numeric value, choose among several selections, or enter the characters which make up a customized label (see page 30).

While the map on page 39 cannot show all possibilities, the listings beginning on page 41 do so, and provide a detailed explanation for each category and function. Among them is a list of *Quick Keys* to provide for easy navigation.

On the following page there are several examples to assist you and make your programming as easy as possible. Once you get the "hang of it", you should have no problem entering data and making modifications to the configuration. As stated earlier, the large number of factory defaults should be acceptable to most installations–whether residential or commercial. Therefore, it should be largely unnecessary to address many programming functions outside of *zone types, telephone numbers, dialer functions, labeling,* and *accessories*.

INSTALLER PROGRAMMING TUTORIAL

The following exercise is designed to acquaint you with techniques for navigating through the Installer Programming map (pages 37 and 38) while performing some common functions. The examples in the tutorial are intended to be done in sequential order.

EXAMPLE 1: Setting a Zone's Parameters

I want Zone 5 in my installation to have the characteristics of an Interior Zone–so that activations occurring during the "AWAY" (ARM) mode will cause an alarm, but those occurring during the "STAY" (HOME) mode won't.

From the initial "Installer Programming" display:

```
INSTALLER PROG:
1)SYSTEM          ↓
```

go to 2)ZONES by pressing the DOWN-arrow once. The display will show:

```
INSTALLER PROG:
2)ZONES
```

Press **[ENTER]** to access the sub-categories under Zones. This is the first of the nine sub-categories possible:

```
SUBJECT: ZONES
1)ONE BY ONE      ↓
```

Read this step first before pressing any keys. To gain entry into the Zone Types category, you can either press the DOWN-arrow twice to access the following display,

```
SUBJECT: ZONES
3)ZONE TYPE
```

and then press **[ENTER]**. If so, go directly to Step 4…
OR
You can skip this display and the need for pressing **[ENTER]** and go directly to Step 4 by simply pressing the "Quick Key" **[3]**.

Below is the first display of the group of sub-categories under **ZONE TYPE.**

```
ZONE TYPE:
ZONE#=01 (00:01)
```

Note the flashing cursor below the zone number. Type **[0] [5]** to change to Zone 5, and press **[ENTER]**. See the NOTE on page 35, at the end of the tutorial.
From this display,

```
ZONE TYPE:    05
05)INSTANT
```

use either the UP- or DOWN-arrow keys to choose among the 20 available Zone Types:
In the **ORBIT-Pro**, the type of zone described in the example is known as **10)I+INSTANT** (meaning Interior + Instant).
You may use either the UP- or DOWN-arrow key to scroll to the desired Zone Type–or the "Quick Keys", and enter **[1] [0]** instead. In either case, this will appear on the display:

```
ZONE TYPE:    05
10)I+INSTANT
```

Press **[ENTER]** to confirm.

EXAMPLE 2 Setting the Acct No:

From here, let's set the Account Number used for reporting events to the Central Station. To do so, we must go from the ZONES category to the DIALER category. Referring back to the map on page 37, we can best accomplish this by first returning to the "HOME" column at the left. To do so, press the [ ] key until the display shows the original category selected [i.e. 2)ZONES]. Note that each press of the [ ] key "raises" your location in the map toward the "HOME" column, from where we can proceed.
Read this step first before pressing any keys. To gain entry into the Dialer category, you can either press the DOWN-arrow three times to access the following display,

```
INSTALLER PROG:
5)DIALER
```

and then press **[ENTER]**. If so, go directly to Step 10…
OR
you can skip this display and the need for pressing **[ENTER]** and go directly to Step 10 by simply pressing the "Quick Key" [5].
From this display:

```
SUBJ: DIALER
1)TEL. NUMBERS    ↓
```

you can get to the ACCOUNTS sub-category by pressing the DOWN-arrow key, and [ENTER]
OR
Simply by pressing [2], the corresponding "Quick Key". If so,

```
CUST. ACCOUNTS:
No:1 CODE:001111
```

the above display will appear. Note the flashing cursor is below the first digit in the Account Number.
To change the Account Number, simply enter the required digit(s). To correct an error, use the UP-arrow to move the cursor to the left and re-enter the proper digit(s). You must press [ENTER] to confirm your choice.

EXAMPLE 3: Adding A Zone Expansion Module

1- Press the [ ] key until you are returned to your previous selection in the "HOME" column.

```
INSTALLER PROG:
5)DIALER
```

2- Read this step first before pressing any keys. To gain entry into Adding Expansion Modules category, you can either press the DOWN-arrow twice to access the following display,

```
INSTALLER PROG:
7)ACCESSORIES
```

and then press **[ENTER]**. If so, go directly to Step 3…

OR

You can skip this display and the need for Pressing **[ENTER]** and go directly to Step 14 by simply pressing the "Quick Key" **[7]**.

3- At this display:

```
ACCESSORIES:
1)ADD/DEL MDL  ↓
```

press **[ENTER]** to derive the next display.

```
ADD A MODULE:
1)KEYPAD       ↓
```

4- Read this step first before pressing any keys. To add a Zone Expansion Module, you can either press the DOWN-arrow once to access the following display,

```
ADD A MODULE:
2)ZONE EXP.
```

and then press **[ENTER]**. If so, go directly to Step 4…

OR

you can skip this display and the need for pressing **[ENTER]** and go directly to Step 16 by simply pressing the "Quick Key" [2].

5- From this display:

```
ZONE EXPANDER:
ID=1  TYPE=NONE
```

press either the **[STAY]** or **[ARM]** key until the proper Zone Expansion Module appears. Choose among the following:

- ZE08 (adds 8 Hardwired Zones)
- ZE16 (adds 16 Hardwired Zones)
- WZ08 (adds 8 Wireless Zones)
- WZ16 (adds 16 Wireless Zones)

which, when installed, would have to be "DIP switch" set with the physical I.D. of "1".

6- When done, press the **[ ]** key, as required, to return to the "HOME" column.

7- Read this step first before pressing any keys. You can Exit from Installer Programming by using the DOWN-arrow key to scroll to this display:

```
INSTALLER PROG:
0)EXIT PROGRAM ↑
```

and pressing **[ENTER]**…

OR

by pressing the "Quick Key" **[0]**. In either case, the following display will appear:

```
 DO YOU WANT TO
SAVE THE DATA? Y
```

8- At this point, you may either

- press **[ENTER]** to save the changes you made; they will be stored in the **ORBIT-Pro's** configuration until such time as they should be modified or reset

OR

- for purposes of this tutorial, any changes you made can be discarded by selecting "N", using either the **[STAY]** or **[ARM]** key, followed by pressing **[ENTER]**.

In either case, after a few moments, the **ORBIT-Pro** will return to its normal (user) display.

NOTE: The (00:01) in Step 4 of Example 1 is a factory device "address" and has no bearing on your programming.

Keypad Timeout

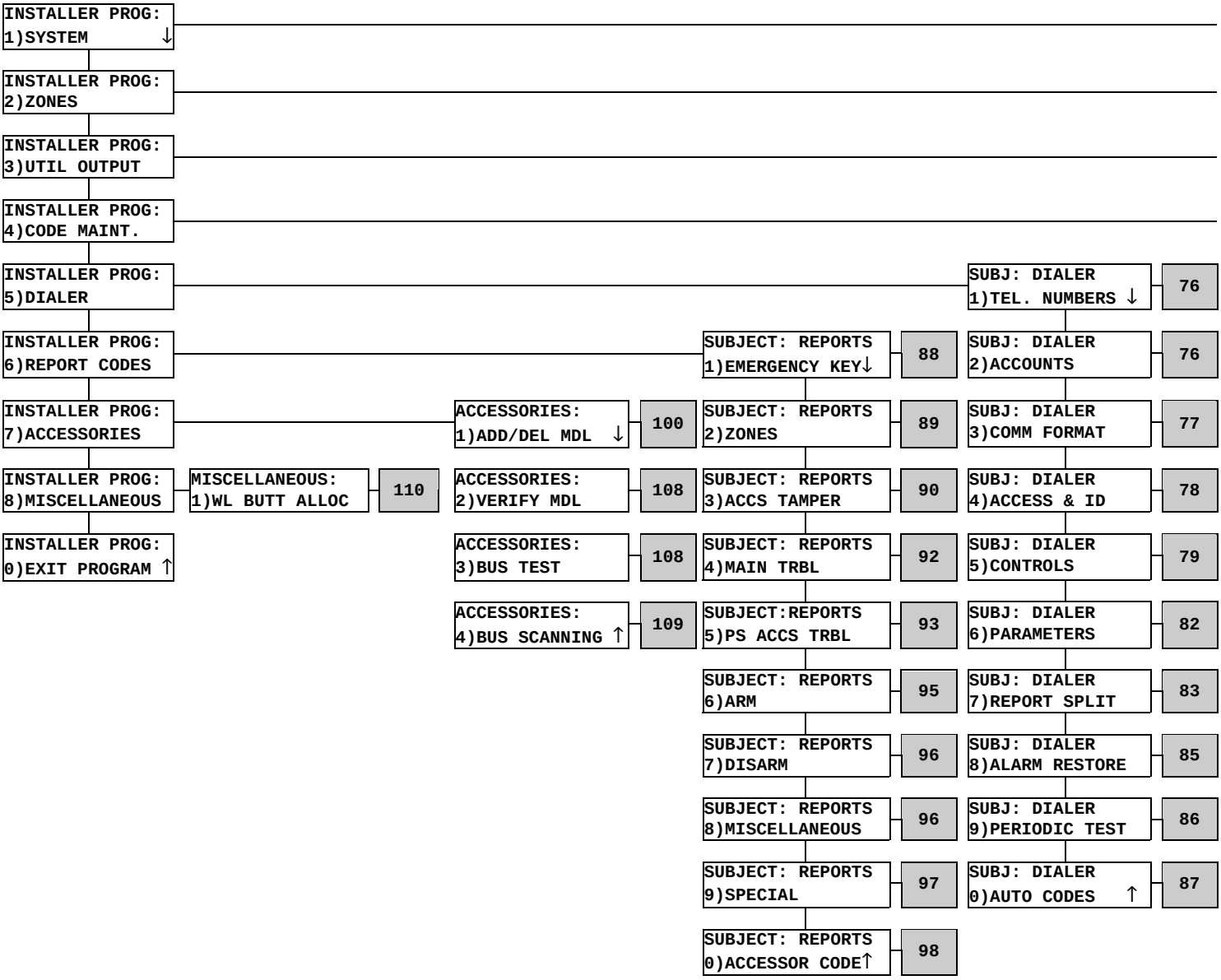
If, after 15 minutes, no entry is made to a keypad placed in the Installer Programming, it will produce an audible reminder consisting of several beeps in rapid succession, along with this display:

```
   TIMEOUT
HIT ANY KEY
```

Pressing any key will stop the beeps. To re-enter Installer Programming, you'll have to key in your Installer Code, and press **[ENTER]**.

ORBIT-Pro Installer Programming Map (Page 1 of 2)

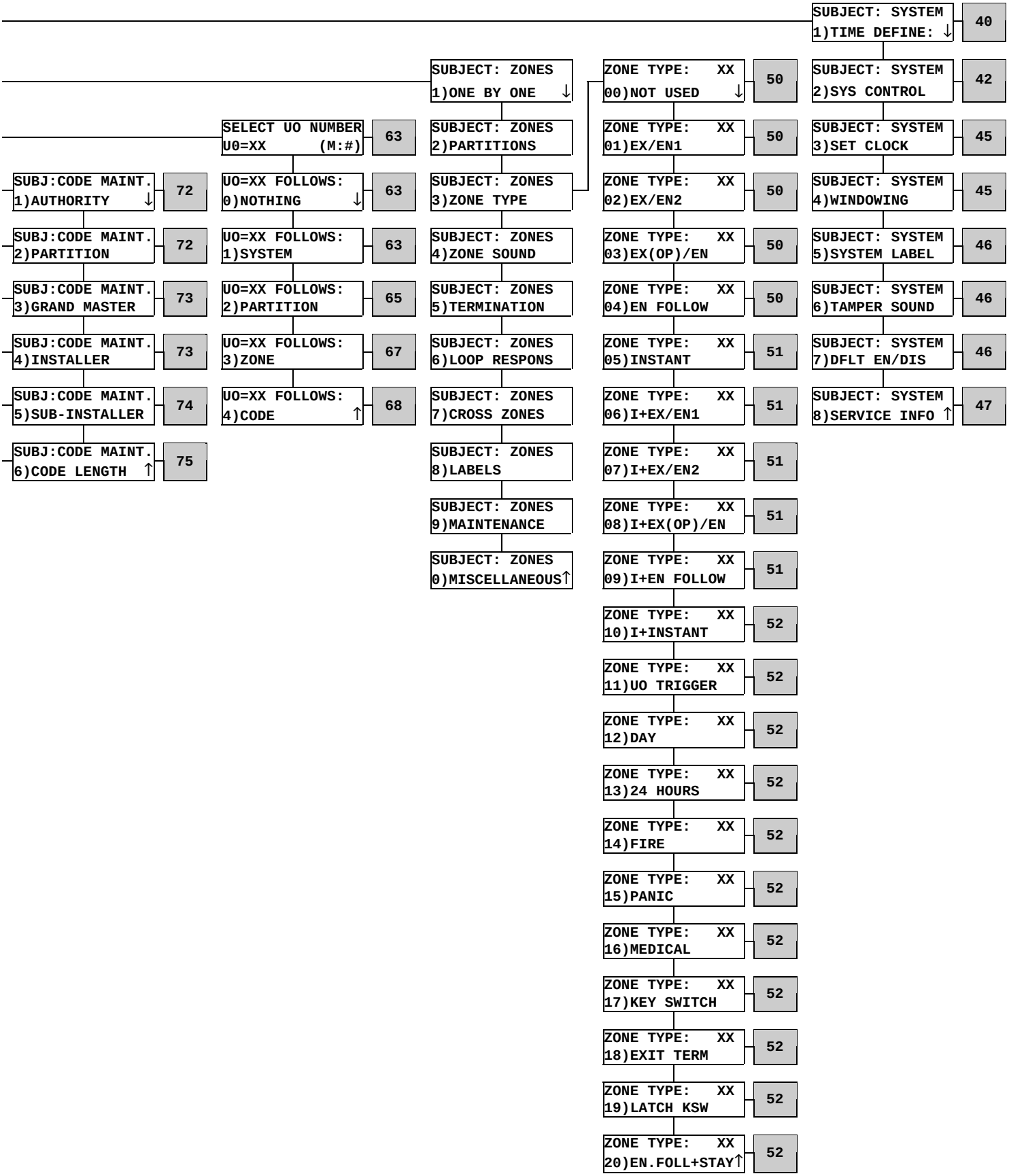
HOME



IMPORTANT:

1. The shaded boxes refer to pages where more information about the topic can be found.
2. Confirm all programmed selections by pressing the [ENTER] key before going on to the next item.
3. To return to the “HOME” column, press the [ ] key, as required, until any one of the categories in the “HOME” column appears in the display.

ORBIT-Pro Installer Programming Map (Page 2 of 2)



INSTRUCTIONS FOR USING THE PROGRAMMING MATERIAL

(on pages 40 through 112)

The remainder of this manual contains information permitting you to program virtually all aspects of the **ORBIT-Pro's** operation. As already stated, it is divided into these eight categories.

1) SYSTEM
2) ZONES
3) UTILITY OUTPUTS
4) CODE MAINTENANCE
5) DIALER
6) REPORT CODES
7) ACCESSORIES
8) MISCELLANEOUS

A sample of the programming material appears below, in tabular form. Note that the particular programming category (here, SYSTEM) appears above the table. Within the table are several columns, each described below. The first, *Quick Keys*, will be discussed separately.

Column Heading	Description
Item	▪ indicates the category, sub-category, or item to be programmed–which also appears on the LCD Keypad's display
Default	▪ where applicable, indicates the value for the category or item which was provided by the factory ▪ because the default values have been carefully chosen, they should suffice in most cases
Range	▪ where applicable, the range of values available are listed, as well
Explanation	▪ provides additional details and clarification for the categories and/or its items

```
INSTALLER PROG:
1)SYSTEM          ↓
```

SYSTEM

Quick Keys				Item	Default	Range	Explanation
1				**TIME DEFINE**	---	**Specifies the Duration of an Action**	
1	1			Exit/Entry Delay 1	---	Entry/Exit Delays (Group 1)	
1	1	1	1	Entry Delay 1	30 sec	0-255	duration of *Group 1* Entry Delay
1	1	1	2	Exit Delay 1	45 sec	0-255	duration of *Group 1* Exit Delay
1	1	2		Exit/Entry Delay 2	---	Entry/Exit Delays (Group 2)	
1	1	2	1	Entry Delay 2	45 sec	0-255	duration of [Group 2] Entry Delay
1	1	2	2	Exit Delay 2	60 sec	0-255	duration of [Group 2] Exit Delay
1	1	3		Bell Timeout	04 min	01-90	duration of external sounder(s) during alarm
1	1	4		Bell Delay	00 min	00-90	the amount of delay before the external sounder operates after the onset of an alarm; each keypad's sounder is unaffected by this value
1	1	5		Switched Auxiliary Break	10 sec	01-90	specifies the amount of time that the power supplied to the system's smoke detectors will be interrupted during a user-initiated smoke detector reset, typically performed after a Fire Alarm

The main intent of the **Quick Keys** is to independently arrive at a single programming category or item without having to navigate through the entire hierarchical programming structure, depicted on pages 37 and 38.

Note that the **Quick Keys** heading is divided into four columns containing a numerical sequence

The correct use of **Quick Keys** assumes that you are starting from the vantage point of any of the eight categories in the **HOME** column (on page 37). As a reminder of this, a mini-display of the SYSTEM category (which appears right after successfully entering Installer Programming) appears above each **Quick Key** heading.

For example, to use *Quick Keys* to set or change the Bell Timeout period:

- first, from the normal **ORBIT-Pro** User display enter the Installer Programming Mode by pressing **[ ] + [7] + [1],** enter your Installer Code (the factory default is **0 2 9 6**) and press **[ENTER]**
- next, from the SYSTEM classification: press the **[1] [1]** and **[3]** keys (if required, you may change the Bell Timeout value accordingly)

Note that when programming such categories and items in sequence, it's not always necessary to use all the Quick Keys listed. Instead, use the [ ] key to "back out: of a category–and either the [DOWN-arrow] or [UP-arrow] keys to go down or up a list, respectively. With a little practice (see the *Installer Programming Tutorial* on page 35), programming should become very easy, indeed.

1) System

The following parameters are used for programming configuration settings applicable to the entire system (see page 33). With the display showing:

```
INSTALL PROG:
1)SYSTEM          ↓
```

press **[ENTER]**. The first sub-category, **TIME DEFINE**, will appear. You may access it by pressing **[ENTER]** OR by pressing the **[1]** key.

```
INSTALLER PROG:
1)SYSTEM          ↓
```

Quick Key				Item	Default	Range	Explanation
1				**TIME DEFINE**	**---**	**Specifies the Duration of an Action**	
1	1			Exit/Entry Delay 1	---	Entry/Exit Delays (Group 1)	
1	1	1	1	Entry Delay 1	30 sec	0-255	duration of *Group 1* Entry Delay
1	1	1	2	Exit Delay 1	45 sec	0-255	duration of *Group 1* Exit Delay
1	1	2		Exit/Entry Delay 2	---	Entry/Exit Delays (Group 2)	
1	1	2	1	Entry Delay 2	45 sec	0-255	duration of *Group 2* Entry Delay
1	1	2	2	Exit Delay 2	60 sec	0-255	duration of *Group 2* Exit Delay
1	1	3		Bell Timeout	04 min	01-90	duration of external sounder(s) during alarm
1	1	4		Bell Delay	00 min	00-90	The amount of delay before the external sounder operates after the onset of an alarm; each keypad's sounder is unaffected by this value
1	1	5		Switched Auxiliary Break	10 sec	01-90	Specifies the amount of time that the power supplied to the system's smoke detectors will be interrupted during a user-initiated smoke detector reset, typically performed after a Fire Alarm
1	1	6		Wireless Module Times	---	time intervals relating to the operation of the wireless module	
1	1	6	1	Jamming Time	NONE	NONE 10 SEC 20 SEC 30 SEC	▪ specifies the amount of time that the ORBIT-Pro's wireless module will tolerate unwanted radio frequencies capable of blocking (jamming) signals produced by the system's transmitters ▪ once the specified time is reached, the panel will send a Reporting Code to the Central Station if so defined (see page 98) ▪ if Audible Jamming=YES (see page 46), the panel will also activate the external sounder ▪ NONE means that the system will neither detect nor produce any indication that signal jamming has been detected
1	1	6	2	Supervisory (S.V.) Time*	0 Hrs.	0-9	▪ Specifies how often the ORBIT-Pro will check for signals (e.g. supervisory, alarm, tamper, or trouble) distinguishing each of the system's transmitters ▪ The panel will generate a local trouble signal identifying the zone of any transmitter from which a signal was not received during the specified interval ▪ if so defined (see page 98) the panel will send the Supervision Reporting Code to the Central Station ▪ "0 Hrs" disables supervision

*Not for UL Installations

SYSTEM: TIME DEFINE (cont'd)

Quick Key				Item	Default	Range	Explanation
				TIME DEFINE (cont'd)			
1	1	7		Zone Test Times	---	specifies the Start Time and Zone Test Period for Zone Testing (see page 57 for additional information)	
1	1	7	1	Start Test At:	HR:00 MIN:00	00-24 00-59	▪ **this feature permits an automatic self-testing routine for a group of up to 16 zones; the concept and procedures are fully explained, beginning on page 57** ▪ **use the <u>Start Test At</u> parameter to define the time of day (expressed in 24-hour terms) when the test should first be performed** ▪ **use the Zone Test Period parameter to define how often (every hour to every 24 hours), after the initial test is conducted, that each subsequent test will occur**
1	1	7	2	Zone Test Period*	00	00-24	

*Not for UL Installations

SYSTEM: SYSTEM CONTROL

Quick Key				Item	Default	Explanation
1	↓			**SYSTEM CONTROL**	**---**	**Controls Specific System Operations**
1	2			Quick Arm	YES	if **YES**: eliminates the need for a User Code when arming to the STAY or AWAY modes if **NO**: a valid User Code is required for arming to STAY or AWAY
1	2	02		Quick UO	YES	if **YES**: a user may activate a Utility Output without the need to enter a User Code if **NO**: a User Code is required to activate a Utility Output
1	2	03		Allow Bypass	YES	if **YES**: permits zone bypassing by authorized system users after entering a valid User Code if **NO**: zone bypassing is NOT permitted
1	2	04		Quick Bypass	NO	if **YES**: eliminates the need for a valid User Code when bypassing zones if **NO**: qualified users must enter a valid User Code to bypass zones
1	2	05		False Code Trouble	YES	if **YES**: a False Code report (if enabled) will be sent to the Central Station if there are three successive attempts in which an incorrect User Code is entered when arming or disarming. No alarm will sound at the premises, but a trouble indication will appear on the system's keypad(s) if **NO**: a local alarm will be sounded at the premises
1	2	06		Bell Squawk	YES	if **YES**: a brief "chirp" will be produced from the system's external sounder(s) once the system is armed–at the conclusion of the Exit Delay period if **NO**: no "chirp" is produced
1	2	07		Bell 30/10	NO	if **YES**: any external sounder(s) will, after each 30 seconds of operation, cease to sound for 10 seconds if **NO**: an external sounder will operate without such interruption
1	2	08		Alarm Phone Cut	NO	if **YES**: activates the external sounder if the phone line is cut or telephone service is interrupted if **NO**: no such activation occurs
1	2	09		3-Minute Bypass	YES	if **YES**: bypasses all zones automatically for 3 minutes when power is restored to an "unpowered" system to allow for the stabilization of motion and/or smoke detectors if **NO**: no such bypassing occurs
1	2	10		Double Verification of Fire Alarms	NO	if **YES**: after the detection of smoke or fire, the following procedure is implemented to verify the condition: power to the smoke detector(s) on the affected zone is removed after 15 seconds, the power is restored if, within 1 minute, a subsequent detection of the condition occurs, the system will produce a fire alarm if **NO**: no fire alarm verification will take place
1	2	11		Audible Panic	NO	if **YES**: an external sounder(s) will operate when a "Police Alarm" is initiated at the keypad if **NO**: no external sounder operation will occur during a keypad "Police Alarm", making the alarm truly "silent" (i.e. Silent Panic/Duress)
1	2	12		AC Report Delay	NO	if **YES**: after 30 minutes without AC power, the system will report the outage to the Central Station (if so specified, see page 92) if **NO**: the system will report the loss of AC to the Central Station immediately (if so specified, see page 92)
1	2	13		Buzzer Bell	NO	if **YES:** if an alarm occurs when the system is armed to the STAY mode, each keypad will sound for 15 seconds before the external sounder(s) will operate if **NO:** an alarm in the STAY mode will cause each keypad and any external sounder(s) to operate simultaneously

Quick Key				Item	Default	Explanation
				SYSTEM CONTROL (cont'd)		
1	2	14		Alarm ZE Cut	NO	if **YES**: produces an alarm if the communication between the panel and any Zone Expander is lost if **NO**: no alarm will occur if the communication between the panel and any Zone Expander is lost; however, the system will produce a local trouble indication
1	2	15		Fire Temporal Pattern	NO	if **YES**: during a fire alarm, the external sounder(s) will produce a pattern of three short bursts, followed by a brief pause between them if **NO**: during a fire alarm, the cadence produced by external sounder(s) will be a pattern of 2 seconds ON, then 2 seconds OFF
1	2	16		Code Grand Master	NO	if **YES**: only the individual(s) with the Authority Level of Grand Master can change all User Codes, along with the TIME and DATE if **NO**: besides the Grand Master, the individual(s) with the Authority Levels of Master and Manager can change their own User Code and all codes with a lower Authority Level, along with the TIME and DATE
1	2	17		Audible Jamming Not for UL Installations	NO	• relates to the Jamming Time parameter (on page 40) if **YES**: once the specified time is reached, the panel will activate the external sounder and send a reporting code to the Central Station if so defined (see page 89) if **NO**: as above, except the external sounder will not operate
1	2	18		Technician Tamper	NO	if **YES**: it will be necessary to enter the Installer Code to reset a Tamper Alarm (indicated by a lit keypad Tamper LED); thus, Tamper Alarm (and Tamper LED) resets will require the intervention of the alarm company if **NO**: a Tamper Alarm (and the resulting Tamper LED) is reset by correcting the problem–requiring no alarm company help
1	2	19		Technician Reset	NO	if **YES**: it will be necessary to enter into the Installer Code to make "READY" an alarmed partition after it's been reset, thus requiring the intervention of the alarm company ▪ NOT READY-TECH RESET will be displayed on relevant LCD Keypads ▪ note that before the READY LED can light, all zones within the partition must be secured if **NO**: once an alarmed partition is reset, the READY LED will light when all zones are secured
1	2	20		Abort Alarm	NO	if **YES**: and an alarm is sent in error, it will be possible for the Central Station to also receive an "Abort Alarm" code, sent subsequent to the initial Alarm Code, if a valid User Code is entered to reset the alarm within 90 seconds after being initiated if **NO**: no "Abort Alarm" code will be sent once an alarm has been triggered
1	2	21		Summer/Winter Clock	NO	if **YES**: the ORBIT-Pro will automatically set its Time of Day clock one hour ahead in the spring (on the first Sunday in April) to conform to USA Daylight Savings Time and one hour back in the fall (on the last Sunday in October) to conform to USA Standard Time) if **NO**: no such accommodation is made

Quick Key				Item	Default	Explanation
				SYSTEM CONTROL (cont'd)		
1	2	22		Forced Keyswitch Arming Not for UL Installations	YES	if **YES:** and keyswitch arming is performed on any partition, any violated (not READY) zone(s) in the partition will be automatically bypassed the partition will be said to be "force armed" all intact zones will be capable of producing an alarm if **NO:** the partition cannot be armed through the use of the keyswitch until all violated (not READY) zones are secured
1	2	23		Pager	NO	This parameter relates to the use of an alphanumeric pocket pager and to the customer's desire to be notified when partition specific events occur. Initially, the pager's phone number must be programmed as a "Follow-Me" device in the ORBIT-Pro's User Functions if **YES:** allows enhanced event information to be provided to the numeric or alphanumeric pager, which will be delivered and displayed once the call is made. The following tips and examples are provided to better define this function: ▪ after entering the phone number as described above, add one (or more) "Bs" (+ 2) to delay, as required, an appropriate interval allowing the paging service to answer ▪ the following messages will be delivered automatically to the pager:

DISPLAYED	MEANING
1#	the system (or partition) is armed
2#	the system (or partition) is disarmed
3#	the system (or partition) is in alarm

▪ it is possible to further enhance the displayed message by adding meaningful characters after the "B"–for example, as a means to identify the partition being reported

▪ for example, using a "2" after the last "B"; will cause each message to be preceded by a "2"–presumably identifying the affected partition

CHARACTERS ADDED AFTER "B"	IF DISPLAYED	MEANING
1	11#	Partition 1 is armed
2	21#	Partition 2 is armed
3	32#	Partition 3 is disarmed
8	83#	Partition 3 is in alarm

if **NO:** a pager will be called only during an alarm condition in the partition to which it was programmed as a "Follow-Me" device; as such, there will be no enhancements to the standard message being delivered

Quick Key				Item	Default	Explanation
				SYSTEM CONTROL (cont'd)		
1	2	24		Arm Pre-Warning	NO	if **YES:** for any partition(s) set up for Auto-Arming (refers to the user's *Daily-Arm* function; see the *ORBIT-Pro User's Manual* for additional details), an audible Exit Delay (warning) countdown will commence 255 seconds prior to the automatic arming ▪ during this period, Exit Delay beeps will be heard in those keypads assigned to the partition(s) to be armed and programmed for such annunciation ▪ if a valid User Code is entered at any time during the countdown, it will delay, by 45 minutes, the partition's automatic arming ▪ if, after the partition has been "auto-armed", it is disarmed as described above, it can no longer be automatically armed for the current day ▪ the extended 255 seconds warning does not apply to automatic STAY mode arming if **NO:** Auto Arming for any partition(s) so programmed will take place at the designated time ▪ the programmed Exit Delay period and any audible ▪ annunciation will occur as expected
1	2	25		Low Battery Arm	YES	if **YES:** it will allow arming the system when a low battery condition is detected (also in Power Supply expansion module) if **NO:** it will not allow arming the system when low battery is detected
1	2	26		Eng. Tamper	NO	if **YES:** after Tamper alarm, system will not be ready to arm and TAMPER LED is not restored if **NO:** after Tamper alarm, system will be ready
1	2	27		Blank Display	NO	if **YES:** the display will show the message: "Enter code". Only Power, Tamper and Fire LEDs will operate as usual. Entering a valid code will return the display to normal operation. One minute after last operation on the keypad, it will return automatically to "blank mode" if **NO:** display will operate normally

1	**3**			**SET CLOCK**	**---**	**Sets the System's DATE and TIME**
1	3	1		System Date	JAN 1 1999	Allows the current DATE to be set (see page 30 for instructions on using the keypad)
1	3	2		System Time	00:00	Allows the current TIME to be set using the 24-hour format

1	**4**			**WINDOWING**	---	**Defines a Time Window and its Effective Days** Allows for the "Exception Reporting" of Opening/Closing signals when the system is either disarmed or armed outside of the specified time window
1	4	1		Window Start	H:00 M:00	Sets the window's START time (in a 24-hour format)
1	4	2		Window Stop	H:00 M:00	Sets the window's STOP time (in a 24-hour format)
1	4	3		Window Days	ALL	▪ sets the days of the week in which the window is activated ▪ use either the **[↓]** or **[↑]** keys to select among the days of the week ▪ use the **[STAY]** key to toggle between "Y" and "N" as to whether the window should be active for the given day ▪ the window and the days chosen here will also apply to the automatic arming and disarming of the system if so desired by the user (see the *ORBIT-Pro User's Manual* for details)

SYSTEM: SYSTEM LABEL

Quick Key				Item	Default	Explanation
1	**5**			**SYSTEM LABEL**	---	**Creates and Edits System and Partition Labels**
1	5	0		Global	ROKONET	Allows editing of the global (system) label
1	5	1 through 8		Partitions 1 through 8	PARTITION 1 PARTITION 2 PARTITION 3 PARTITION 4 PARTITION 5 PARTITION 6 PARTITION 7 PARTITION 8	Allows editing of the label used to name each partition EXAMPLE: To assign the name of "The Jones's" to Partition 1, follow these steps: a) at the display below, press **[ENTER]** **SYSTEM LABELS:** **1)PARTITION 1** b) press the **[2]** key repeatedly until a **T** appears in the display; press the DOWN-arrow (BYP) key once to move the cursor to the right c) press the **[4]** key repeatedly until an **h** appears in the display; again, press the DOWN-arrow to advance the cursor d) press the **[4]** key repeatedly until an **e** appears and press the DOWN-arrow key to advance the cursor e) press the **[6]** (or **[7]**, **[8]**, **[9]**, or **[0]**) key to create a **space** and press the DOWN-arrow to advance the cursor f) press the **[1]** key until a **J** appears use the elements of this procedure to assign other Partition Labels–each of which may contain up to 12 characters.

1	**6**			**TAMPER SOUND**		**Sets the Sound(s) Produced by a Tamper Violation of a Keypad and/or an Expansion Module**
1	6	1 through 5			BELL/A BUZZER/D (5)	1- Silent 2- Bell (External Sounder) Only 3- Buzzer (Keypad Piezo) Only 4- Bell + Buzzer 5- Bell/A Buzzer/D ▪ if the system was armed when the Tamper Violation occurred, the Bell (External Sounder) will operate ▪ if the system was disarmed when the Tamper Violation occurred, the keypad will annunciate

SYSTEM: DEFAULT ENABLE/DISABLE

1	**7**			**DEFAULT ENABLE/ DISABLE**		**Relates to What Happens if the Main Board's DEFAULT (J2) Jumper is in Place When All Power to the Panel is Reapplied after Being Removed:**
1	7				ENABLE	▪ if **ENABLE** is selected: the panel will lose its previously programmed configuration, including all Labels and User/Installer Codes. It will return to its original, factory-defaulted configuration from which it can be reprogrammed by anyone who knows the default User and Installer Codes ▪ if **DISABLE** is selected: the system will be prevented from being modified by an unauthorized person; thus, the panel will maintain its previously-programmed configuration, keeping all Parameters, Labels, and User/Installer Codes intact. As with any instance of a total loss of power, it will be necessary to reset the system's TIME and DATE

SYSTEM: SERVICE INFORMATION

Quick Key				Item	Default	Explanation
1	**8**			**SERVICE INFORMATION**	---	**Supplies Servicing Information Accessible to the System's Users**
1	8	1		Service Name	ORBIT SECURITY	▪ allows the placement and/or editing of the name of the ▪ alarm company from whom service may be obtained
1	8	2		Service Phone	SYSTEM	▪ allows the placement and/or editing of the phone number ▪ to call when service is required

2) Zones

The following parameters are used for programming the characteristics of each of the system's protective zones. With the display showing:

```
INSTALLER PROG:
2)ZONES
```

press **[ENTER]** to begin. The first sub-category, **ONE BY ONE**,

```
SUBJECT: ZONES
1)ONE BY ONE    ↓
```

```
INSTALLER PROG:
2)ZONES         ↓
```

Quick Key	Item	Default	Explanation

2	**ONE-BY-ONE**
	includes programming for each of the following zone parameters:
	▪ Partitions
	▪ Zone Type
	▪ Zone Sound
	▪ Zone Termination
	▪ Zone Response
	▪ Zone Label
			permits the sequential programming of the set of a Zone's Parameters, which include its: <u>Partition Assignment</u>, <u>Type</u>, <u>Sound</u>, <u>Termination</u>, <u>Loop Response</u>, and <u>Label</u>
			▪ to program the full complement of parameters for each zone–on a
			▪ one-by-one basis–follow these steps:
			`SUBJECT: ZONES`
			`1)ONE BY ONE ↓`
			from this display, press **[ENTER]**
			a) specify the two-digit Zone Number from which you wish to start your programming (e.g. 01)
			b) press **[ENTER]** again to access the category on Partition Assignments
			`P=12345678 Z=xx`
			`Y.......`
			▪ the "xx" in the Z=xx designation refers the number of the zone currently eligible for a partition assignment(s)
			▪ use the **[STAY]** key to toggle between YES (Y) or NO (N), as to whether the currently-selected zone is to be assigned to the designated partition
			▪ a system "without" partitions is regarded as having a single partition (i.e. Partition 1)
			▪ use either the **[STAT]** or **[BYP]** keys to move the cursor left or right, respectively
			▪ keep in mind that in a multi-partitioned system, a zone may be assigned to more than one partition.
			▪ when done, press **[ENTER]** to proceed to the next category–**Zone Types** for instructions on programming **Zone Types**, as well as the remaining four zone categories, refer to the following pages:
			For **Zone Types:** page 50
			For **Zone Sounds:** page 53
			For **Zone Terminations:** page 54
			For **Loop Response:** page 54
			For **Zone Labeling:** page 56

- IMPORTANT:
- in *One-By-One*, the listing of each zone's parameters are sequential; thus, once Zone 1's parameters have been programmed, they will be followed by Zone 2's, then Zone 3's, and so forth
- if you choose to program one or more of the system's zones using the *One-By-One* method, changes you make to any (or all) of the Zone Parameters will NOT be recorded unless you go through the entire *One-by-One* list–which ends with the *Zone Label* parameter of the last zone you wish to program
- after making any changes to the above-mentioned *Zone Label* parameter, press [ENTER]
- doing so will produce a one-second tone
- only then can you be assured that change(s) you made to the zone being programmed will be recorded when you exit the One-by-One Programming Mode
- as an alternative to *One-By-One* programming (in which all of a zone's parameters may be programmed at the same time), you can select a single parameter and program (or review) it for each of the system's zones
- to do so, choose a specific zone parameter among the following six zone categories:

ZONES: ZONE PARTITIONS
ZONES: ZONE TYPE

Quick Key				Item	Default	Explanation
2	**2**			**PARTITIONS**	all zones are assigned to Partition 1	▪ programs the *Partition Assignment(s)* for each zone **SUBJECT: ZONES** **2)PARTITIONS** from this display, press **[ENTER]** specify its two-digit Zone Number press **[ENTER]** again **P=12345678 Z=xx** **Y** ▪ the "xx" in the Z=xx designation refers the number of the zone currently being given a partition(s) assignment ▪ when programming a zone's partition assignment(s), keep in mind that in a multi-partitoned system, a zone may be assigned to more than one partition ▪ a system "without" partitions is regarded as having a single partition (i.e. Partition 1) ▪ use the **[STAY]** key to toggle between YES (**Y**) or NO ( ), as to whether the currently-programmed zone is assigned to the designated partition or use keys 1 to 8 to toggle partition status to YES (**Y**) or NO ( ) ▪ use either the **[STAT]** or **[BYP]** keys to move the cursor left or right, respectively
2	**3**			**ZONE TYPE**	---	▪ programs the *Zone Type* for each zone; there are 20 Zones Types, each defined below ▪ to program the Zone Type for any zone: **SUBJECT: ZONES** **3)ZONE TYPE** from this display, press **[ENTER]** specify its two-digit Zone Number press **[ENTER]** again, and select among the following:
		Zone Type				
2	3	zz	00	Not Used	---	▪ used to disable a zone ▪ all unused zones should be given this designation
		+ E N T E R	01	Exit/Entry 1	default for Zone 1	▪ used for entry/exit doors ▪ if violated, zones given this designation will not cause an intrusion alarm during the Entry and Exit Delay periods specified under *Exit/Entry 1* in the Time Define section
			02	Exit/Entry 2	---	▪ as above, except that *Exit/Entry 2* time intervals apply
			03	Exit(OP)/Entry		▪ used for an entry/exit door that, for convenience, may be kept open during the disarmed period ▪ such a zone behaves as described in *Entry/Exit 1*, above, except that, if faulted at the time the system is armed, it will be bypassed and NOT prevent system arming ▪ to avoid an intrusion alarm, however, it must be secured before the expiration of the Exit Delay period
			04	Entry Follower	default for Zone 2	▪ usually assigned to motion detectors and to interior doors protecting the area between the entry door and the keypad ▪ a zone(s) given this designation will cause an immediate intrusion alarm when violated unless an Entry/Exit zone was violated first ▪ if so, an Entry Follower zone(s) will remain bypassed until the end of the Entry Delay period

ZONES: ZONE TYPE (cont'd)

Quick Key				Item	Default	Explanation
				ZONE TYPE (cont'd)		
2	3	xx + ENTER	0	Instant	default for all zones except 1 and 2	▪ usually intended for non-entry/exit doors, window protection, shock detection (but generally NOT for motion detectors) ▪ causes an immediate intrusion alarm if violated (after the expiration of the Exit Delay)
			0	I+Exit/Entry 1 (Interior+Exit/Entry 1)	---	▪ usually assigned to motion detectors and to interior doors protecting the area between the entry door and the keypad ▪ if the system is armed to the **AWAY** (Arm) mode: a zone(s) so programmed will provide a delay (specified by *Exit/Entry 1*) allowing entry within, and exit from, an armed premises ▪ if the system is armed to the **STAY** mode: a zone(s) so programmed will be bypassed
			0	I+Exit/Entry 2 (Interior+Exit/Entry 2)	---	▪ usually assigned to motion detectors and to interior doors protecting the area between the entry door and the keypad ▪ if the system is armed to the **AWAY** (Arm) mode: a zone(s) so programmed will provide a delay (specified by *Exit/Entry 1*) allowing entry within, and exit from, an armed premises ▪ if the system is armed to the **STAY** mode: a zone(s) so programmed will be bypassed **IMPORTANT NOTE:** ▪ for greater security when arming to the "STAY" mode, it is possible for the user to eliminate the Entry Delay period associated with any zone(s) classified as *Entry/Exit 1*–by pressing the **[STAY]** key twice in succession when arming the system ▪ in effect, doing so makes it an INSTANT zone during the "STAY" mode of operation
2	3	xx + ENTER	0	I+Exit(OP)/Entry (Interior+Exit(OP)/Entry)	---	▪ used for an entry/exit door that, for convenience, may be kept open when the system is disarmed ▪ if the system is armed to the **AWAY** (Arm) mode: refer to the explanation in Zone Type 03, above ▪ if the system is armed to the **STAY** mode: the zone will be bypassed
			0	I+Entry Follow (Interior+Entry Follower)	---	▪ generally used for motion detectors and/or interior (e.g. foyer) doors which would have to be violated, after entry, in order to disarm the system ▪ if the system is armed to the **AWAY** (Arm) mode: refer to the explanation in Zone Type 04, above ▪ if the system is armed to the **STAY** mode: the zone will be bypassed
			1	I+Instant (Interior+Instant)	---	▪ usually assigned to motion detectors unaffected by user movements during the Entry Delay period ▪ if the system is armed to the **AWAY** (Arm) mode: a violation of this zone causes an immediate intrusion alarm (after the expiration of the Exit Delay period) ▪ if the system is armed to the **STAY** mode: the zone will be bypassed
			1	UO Trigger	---	▪ used for a device or zone, which, if violated (at any time) will trigger a previously-programmed *Utility Output*, capable of activating an external indicator, relay, appliance, etc.

Quick Key				Item	Default	Explanation
				ZONE TYPE (cont'd)		
2	3	xx + ENTER	12	Day	---	▪ usually assigned to an infrequently-used door, a movable skylight, and, if used, to window foil protecting non-movable glass ▪ its intent is to alert the system user if a violation occurs during the disarmed period ▪ if the system is armed (to either **AWAY** or **STAY**): a violation of this zone causes an immediate intrusion alarm (after the expiration of the Exit Delay period) ▪ if the system is disarmed: a violation of this zone attempts to alert the user by causing the POWER LEDs on all keypads to flash rapidly–directing the user to view the system's TROUBLE indications ▪ optionally, such a violation can be reported to the Central Station as a Zone Trouble (see page 89)
			13	24 Hours	---	▪ usually assigned to protect non-movable glass, fixed skylights, and (possibly) for shock detection systems ▪ a violation of such a zone will always cause an instant intrusion alarm, regardless of the system's state
			14	Fire	---	▪ intended for smoke or other types of fire detectors; can also be used for manually-triggered panic buttons or pull stations (if permitted) ▪ if violated, will cause an immediate fire alarm. ▪ a fault in the wiring to any fire zone, if supervised, will cause a Fire Trouble, manifested by a rapid flashing of the keypads' FIRE LED
			15	Panic	---	▪ generally used for external panic buttons and wireless panic transmitters ▪ if violated, an immediate panic alarm will be annunciated
			16	Auxiliary emergency	---	▪ generally used for external auxiliary emergency-alert buttons and wireless auxiliary emergency transmitters ▪ if violated, an immediate auxiliary emergency alarm will be annunciated
			17	Key Switch	---	▪ If desired for system arming and disarming, connect an external SPST spring-loaded momentary-action keyswitch to any zone terminals given this designation
			18	Exit Termination	---	▪ generally used to avoid false alarms due to a user's exiting from the premises after the Exit Delay time has elapsed
			19	Latch Keyswitch	---	▪ If desired for system arming and disarming, connect an external SPST latching-type (non-momentary) keyswitch to any zone terminals given this designation
			20	Entry Follower + Stay	---	▪ usually assigned to motion detectors and to interior doors protecting the area between the entry door and the keypad ▪ when the system is armed to the STAY mode, a zone(s) given this designation will behave like an Entry/Exit zone, in that it is subject to the Entry and Exit Delays specified under *Exit/Entry 1* (in the System/Time Define section) ▪ when the system is armed to the AWAY mode, a zone(s) given this designation will behave like an Entry Follower Zone, in that it will cause an immediate intrusion alarm when violated unless an Entry/Exit zone was violated first ▪ if so, an *Entry Follower + Stay* zone(s) will remain bypassed until the end of the Entry Delay period

ZONES: ZONE SOUND

Quick Key				Item	Default	Explanation
				ZONE SOUND	---	▪ programs ONLY the sounds produced when each of the system's zones triggers an alarm ▪ reports to the Central Station, if programmed, are unaffected by any of the following selections ▪ to program the Zone Sound for any zone: a) from this display, press **[ENTER]** b) specify its two-digit Zone Number c) press **[ENTER]** again, and select among the following:
Zone Sound						
2	4	xx + ENTER	1	Silent		▪ no sound is produced
			2	Bell Only	Default for all zones	▪ activates the external sounder(s) for the duration of the Bell Timeout interval, or until a User Code is entered, followed by use of the **[ENTER]** key
			3	Buzzer Only		▪ activates each keypad's internal piezo "buzzer"
			4	Bell + Buzzer		▪ the external sounder(s) and the keypads' "buzzer(s)" are activated simultaneously
			5	Door Chime		▪ besides offering security protection, the Door Chime designation is generally used as an audible annunciator to indicate the violation of a zone(s) during the disarmed period ▪ if the system is DISARMED: a momentary annunciation will be heard from the system's keypad(s) whenever the zone is violated after being secured ▪ if the system is ARMED: only the external sounder(s) will produce the alarm

Quick Key				Item	Default	Explanation
2	**5**			**TERMINATION**	---	▪ programs ONLY the terminations used for each of the system's zones ▪ the actual (physical) termination for each zone must be agree with that selected below ▪ a listing and explanation of zone terminations can be found in Figure 2-4 on page 22 **SUBJECT: ZONES** **5)TERMINATION** ▪ to select the Zone Termination for any zone: a) from this display, press **[ENTER]** b) specify its two-digit Zone Number c) press **[ENTER]** again, and select among the following:
	Zone Termination					
2	5	xx + ENTER	1			▪ uses normally-closed contact(s) and no terminating End-of-Line Resistor (see page 22)
			2		default for all zones	▪ uses normally-closed (NC) and/or normally-open (NO) contacts in a zone terminated by a supplied 2200Ω End-of-Line Resistor
			3			▪ uses normally-closed (NC) contacts in a zone using at least two 2200Ω End-of-Line Resistors to distinguish between alarms and tamper conditions
			4			▪ uses normally-open contact(s) and no terminating End-of-Line Resistor
2	**6**			**LOOP RESPONSE**	---	▪ sets the minimum time for which a zone violation must exist before the zone will trigger an alarm condition **SUBJECT: ZONES** **6)LOOP RESPONS** ▪ to select the Zone Termination for any zone: a) from this display, press **[ENTER]** b) specify its two-digit Zone Number c) press **[ENTER]** again, and select among the following:
	Loop Response					
2	6	xx + ENTER	1	Normal	default for all zones	500 ms (milliseconds)
			2	Long		1 second
			3	Fast		10 ms (milliseconds)

ZONES: CROSS ZONES

Quick Key				Item	Default	Explanation
2	**7**			**CROSS ZONES** Not for UL Installations	no cross zoning	▪ for additional immunity to false alarms, two related zones may be linked together so that both must be violated within a designated time interval (between 1 and 9 minutes) before an alarm will result ▪ such linking may be appropriate for use with motion detectors in “hostile” or “false-alarm prone” environments ▪ the ORBIT-Pro allows for 10 unique sets (pairs) of zone links (pairs of zones) which can be manually-specified, as required **SUBJECT: ZONES** **7)CROSS ZONES** a) from this display, press **[ENTER]** to reveal the first zone link **ZONE CROSSING:** **01) 01 WITH 01** b) from this display, press **[ENTER]** to modify the first set (01) of zone links **CROSSING SET 01:** **1ST=01 2ND=01** c) as required, manually select the zone pairs by making changes to the number of the first zone in the set, followed by the number of the second zone ▪ if necessary, use the UP-arrow (STAT) and/or DOWN-arrow (BYP) keys to properly position the cursor ▪ zones “crossed with themselves” are not valid pairs ▪ you may wish to establish a number of zone links, but leave them deactivated at this time (see below) d) press **[ENTER]** when completed, and select the parameter governing the pairing, below:
			Cross Zoning	Pair Parameter:		▪ chooses how the **ORBIT-Pro** will process violations of paired zones
2	7		1	▪ None		▪ use to temporarily disable any associated zone pairings
2	7		2	▪ Ordered		▪ use to effect an alarm if it’s desired that the first listed zone be tripped before the second
2	7		3	▪ Not Ordered		▪ use to effect an alarm in which either zone in the pair may be tripped first ▪ if so, the specified zone order (1st, 2nd) has no bearing on the alarm activation
				Time Slot:	1 min	▪ choose a time interval between 1 and 9 minutes defining the active internal
				repeat the entire process, as required, for any additional zone links (up to 10) desired		

ZONES: LABELS

Quick Key				Item	Default	Explanation
2	**8**			**LABELS**	ZONE 01 ZONE 02 ZONE 03 ZONE 04 etc.	▪ allows for the creation and/or editing of up to 10-characters describing each of the system's zones ▪ **SUBJECT: ZONES** **8)LABELS** a) from this display, press **[ENTER]** to allow for zone labeling **ZONE LABEL:** **ZONE#=01 (00:01)** b) from this display, press **[ENTER]** to label Zone 1; alternatively, you can enter another zone number **ZONE LABEL: 01** **ZONE 01** c) to assign the name of "Mary's Bedr" to Zone 1, refer back to the material on page 30 and to these steps: ▪ press the **[1]** key repeatedly until an **M** appears in the display;. press the DOWN-arrow (BYP) key once to move the cursor to the right ▪ press the **[4]** key until an **a** appears in the display; again, press the DOWN-arrow to advance the cursor ▪ press the **[5]** key repeatedly until an **r** appears; press the DOWN-arrow to advance the cursor ▪ press the **[5]** key repeatedly until a **y** appears; press the DOWN-arrow to advance the cursor ▪ press the **[3]** key repeatedly until an **apostrophe** appears; press the DOWN-arrow key ▪ press the **[5]** key until an **s** appears ▪ press the **[6]** (or **[7]**, **[8]**, **[9]**, or **[0]**) key to create a **space** and press the DOWN-arrow to advance the cursor ▪ begin the next word with a **B**, by pressing the **[1]** key as required ▪ continue this procedure and when done, press **[ENTER]** to go on to the next zone; repeat this procedure, as required, to label other zones in the system d) once done, press the **[ ]** key to exit the labeling mode

ZONES: MAINTENANCE

Quick Key				Item	Explanation
2	**9**			**MAINTENANCE**	▪ provides some useful tools to perform system maintenance
2	9	1		Copy a Zone	▪ copies, to a designated zone, all the parameters belonging to a specified zone, except the “Label” parameter **COPY ZONES:** **FROM :01 TO:01** ▪ use the cursor keys to select the zone from which a copy is to be made and the zone to which the copy is intended ▪ using this function provides no confirmation before advancing to another “Copy Zone” opportunity ▪ use the **[ ]** key to “back out” of the display ▪ the process will be executed as soon as the display is changed
2	9	2		Delete a Zone	▪ used to “de-activate” a designated zone by setting its *Zone Type* to “Not Used”–while maintaining all previously-programmed parameters **DELETE ZONES:** **ZONE:01** ▪ use the cursor keys to select the zone which is to be deleted ▪ this process can also be used to temporarily disable a zone from the protection scheme ▪ using this function provides no confirmation before advancing to another “Delete Zone” opportunity ▪ use the **[ ]** key to “back out” of the display ▪ the process will be executed as soon as the display is changed
2	9	3		Add/Copy Partition	▪ assigns, to a designated partition, all the zones (and their respective parameters) belonging to a specified partition, while keeping the original partition intact ▪ thus, copying “Partition 1” to “Partition 2” simply duplicates all Partition 1’s zones in “Partition 2 **ADD/COPY PAR:** **ADD:1 TO:1** ▪ use the cursor keys to select the “source” and “destination” partitions ▪ using this function provides no confirmation before advancing to another “Delete Zone” opportunity ▪ use the **[ ]** key to “back out” of the display ▪ the process will be executed as soon as the display is changed
2	9	4		Delete a Partition	▪ deleting a designated partition removes all zones assigned to it, effectively removing the partition from the system **DELETE PAR:** **PARTITION:1** ▪ you will be asked to confirm your choice by selecting either “Y” or “N” with the **[STAY]** key and pressing **[ENTER]** ▪ use the **[ ]** key to “back out” of the display

Quick Key				Item	Explanation
				MAINTENANCE (cont'd)	▪ the following material relates to the assignment of zone attributes (e.g. Zone I.D., Partition, Type, Sound, etc.) to any (NOVA) wireless detectors used in the system ▪ the capability to receive data from wireless detectors requires that the ORBIT-Pro be equipped with at least one Wireless Zone Expander ▪ wireless background information for the ORBIT-Pro is provided in the instructions furnished with the Wireless Expansion Module and the system's individual transmitters
2	9	5		Wireless Zone Allocation Not for UL Installations	▪ allows for the "learning in" of data from the system's wireless transmitters; consult the individual transmitter's instructions ▪ from this display: **ZONE MAINTENANCE 5)WL ZONE ALLOC** press **[ENTER]**
2	9	5	xx + ENTER		▪ using either the UP- or DOWN-arrow keys, position the cursor and select the zone number intended for the first wireless transmitter ▪ note that the first eight zones are reserved for the hardwired zones on the panel's Main Board ▪ press **[ENTER]** **ZONE ALLOCAT: ZONE#=09 (1:01)**
					▪ at this display, pressing **[ENTER]** allows skipping to the next transmitter assignment **ZONE=09 (ALLOC): 1) SKIP ↓**
					▪ to write (or overwrite) data into the selected location, press **[ENTER]** **ZONE=09 (ALLOC): 2) (RE)WRITE**
					▪ to erase the data in the selected location, press **[ENTER]** **ZONE=09 (ALLOC): 3) ERASE**
					▪ confirm your choice by pressing **[STAY]** and **[ENTER]** **ERASE LOCATION ARE YOU SURE? N**
					▪ to chose supervision (YES/NO) press **[ENTER]** **ZONE=09 (ALLOC): 4) SUPERVISION ↑**
2	9	6		Wireless Communication Test	▪ allows to perform communication test between the transmitters and the receiver. ▪ to perform the test, press **[ENTER]** **ZONE MAINTENANCE 06)WL COMM TEST**
					▪ the first wireless assigned zone will show. To proceed, initiate a transmission from the selected zone, and allow for a few seconds for the receiver to react. The result will show in "percentage" as an indicator of the quality of the communication. **COMMUN. QUALITY: 01)ZONE 09:100%↓**
					▪ using either the UP or DOWN arrow keys, select the zone number for the next wireless transmitter to be tested, if so desired. **COMMUN. QUALITY: 02)ZONE 10:000%**

Quick Key				Item	Explanation

2	9	7		Zone Self Test
				
				Not for UL Installations
					▪ this feature provides an automated self test for a selected group of localized intrusion sensors (e.g. glass break detectors, sound discriminators, shock sensors) which can respond to an artificial source of noise and/or vibration
					▪ automated self-testing is especially useful when such sensors are placed in high security areas in which a failure cannot be tolerated
					▪ up to 16 zones which have a detector meeting the above criteria can be specified for such testing
					▪ the source of the noise or vibration (e.g. a sound or vibration generator) must be a device which can be placed in the vicinity of the designated sensors–close enough so that they will be triggered when the selected noise source is activated
					▪ a designated Utility Output (see page 63) will act as the source of switched power for the source of noise (or vibration) source–and will be triggered to conform to the schedule described below
					▪ it will be necessary to define the time of day when the first test will be initiated, and then how often thereafter (every hour to every 24 hours) the test will be repeated
					▪ if all the related sensors are triggered during the test, the appropriate message will be sent to the Central Station (if a reporting code for this event has been defined–see page 97) indicating the successful completion of the self-test; in this regard, an entry will also be placed in the system's Event Log to the same effect
					▪ if, during any test period, one (or more) of the designated sensors fails to trip, a "self-test failure" message will be generated (see page 97) and sent to the Central Station; similarly, a record of the failure will be entered in the Event Log
					▪ the specifics of setting up the Zone Self Test are listed below:
					CHOOSING ZONES FOR SELF-TESTING
					`ZONES FOR TEST`
					`01)NONE ↓`
					from this display, press **[ENTER]** to specify the first of 16 possible zones for Self-Testing
					`LOCATION 01:`
					`ZONE:00 (00-96)`
					enter the two-digit zone number of the first selected zone; if necessary, use the DOWN-arrow (BYP) or UP-arrow (STAT) to position the cursor, and press **[ENTER]**
					press **[ENTER]** again, and repeat b), above, for the next selected zone; continue this process until all such zones are selected and be sure to enter the selected zones correctly
					when done, press the **[ ]** key

Quick Key				Item	Explanation
2	9	7		Zone Self Test (cont'd)	**CHOOSING A TESTING SCHEDULE** ▪ in Installer Programming, locate: 1)SYSTEM / 1)TIME DEFINE / 7)ZONE TEST TIMES **TIME DEFINE:** **7)Z.TEST TIMES** i) when at this display, press **[ENTER]** to proceed: **ZONE TEST TIMES** **1)START TST AT:↓** ii) press **[ENTER]** again **START TEST AT:** **HOUR:00 MIN:00** iii) at this display, define the time (in 24-Hour format) when the first test will begin; use the DOWN-arrow (BYP) and/or UP-arrow (STAT), as required, to reposition the cursor iv) press **[ENTER]** v) press the DOWN-arrow once to obtain this display: **ZONE TEST TIMES** **2)Z.TEST PERIOD↑** vi) and press **[ENTER]** **ZONE TEST PERIOD** **PERIOD:10(00-24)** vii) enter the desired interval separating each test (between 01 and 24 hours) and press **[ENTER]** viii) press the **[ ]** key to exit **SETTING UP THE UTILITY OUTPUT TO TRIGGER THE NOISE SOURCE** ▪ for background information on Utility Outputs, refer to page 1-4 at the top level of Installer Programming, refer to 3)UTIL OUTPUT i) from this display: **INSTALLER PROG:** **3)UTIL OUTPUT** ii) press **[ENTER]** **SELECT UO NUMBER** **UO=01 (0:1)** iii) choose a Utility Output to trigger the noise source (see page 3-41), by selecting an unused UO number (e.g. UO2); press **[ENTER]** **UO=02 FOLLOWS:** **0)NOTHING ↓** iv) at this display, press **[1]** to select SYSTEM

Quick Key				Item	Explanation
2	9	7		Zone Self Test (cont'd)	**UO=02 FOLLOWS:** **1)SYSTEM** i) and press **[ENTER]** **SYS.EVENT: UO=02** **1)BELL FOLLOW ↓** ii) at this display, press **[8]** **SYS.EVENT: UO=02** **8)SENSORS TEST ↑** iii) and press **[ENTER]** again **PATTERN UO=01:** **2)PULSE N/O ↑** iv) at this display, select the manner in which the UO will operate; typically, by choosing PULSE N/O, the UO, acting like a normally-open switch, will close for a predetermined period, completing a circuit which can activate a noise source; press **[ENTER]** v) at this display, you may accept or rename the output if you choose, and press **[ENTER]** **LABEL FOR UO=02** **OUTPUT 02** vi) finally, press **[ENTER]**; press the **[ ]** key, as required

Quick Key				Item	Default	Explanation
2	**0**			**MISCELLANEOUS**		
2	0	1	xx + ENTER	Forced Arming Not for UL Installations	NO	▪ allows the enabling or disabling of forced arming for each of the system's zones ▪ forced arming, if enabled for a particular zone(s), permits the system to be armed, even though such zones may be faulted ▪ if any zone(s) enabled for forced arming is faulted, the keypad's READY LED will blink during the disarmed period ▪ after the system is armed, all zones enabled for forced arming will be bypassed at the conclusion of the exit delay period ▪ if a faulted zone–one enabled for forced arming–becomes secured during the armed period–it will become "unbypassed", and be included among the system's armed zones ▪ from this display: **MISCELLANEOUS:** **1)FORCED ARM** a) press **[ENTER]**, and at the resulting display, **FORCED ARM:** **ZONE#=01 (00:01)** b) arming will be enabled; press **[ENTER]** **FORCED ARM: 01** **2)DISABLE** ↑ c) use the UP-arrow or DOWN-arrow key to select ENABLE or DISABLE, as it pertains to the selected zone d) press **[ENTER]** e) repeat the above procedure for any zone(s) whose forced armed status should be changed f) when done, press the **[ ] key**, as required, to go back to a different level of programming g) if desired, codes reporting both the forced arming–and the zone(s) bypassed in the process–will be sent to the Central Station (see page 95 and 89, respectively)

3) Utility Outputs

By adding one or more **Utility Output Expansion Modules** to the system, an extensive list of switched output possibilities become available. After selecting a System Event used to trigger the intended Utility Output, press **[ENTER]** to select the desired PATTERN OF OPERATION, and its duration.
The programming parameters found in this section allow you to choose the event that will trigger a selected Utility Output, along with the manner in which the output will be applied.
With the display showing:

```
INSTALL PROG:
3)UTIL OUTPUT
```

press **[ENTER]** to begin.

With the display showing:

```
SELECT UO NUMBER
UO=01      (0:1)
```

enter the two-digit number of the Utility Output you wish to program, using a “leading zero” for numbers between 1 and 9 (e.g. 01, 02, etc.) and press **[ENTER]**.

```
UO=01 FOLLOWS:
0)NOTHING       ↓
```

At this time, you’re ready to program the selected Utility Output using the information found in the table below. Keep in mind that each of the system’s Utility Outputs may be assigned to a single type of event–relating to activities in one of four major categories.

- the **System**
- a **Partition**
- a **Zone**
- use of a **User Code**

```
INSTALLER PROG:
3) UO           ↓
```

Quick Key				Utility Output Follows	Default	Explanation
				NOTHING		disables the selected Utility Output
				SYSTEM	---	▪ the Utility Output will follow the chosen System Event, selected among those listed below: ▪ after making your selection, press **[ENTER]** ▪ proceed to PATTERN of OPERATION, on page 69.
			1	Bell Follow	---	activates when an alarm is triggered
			2	No Telephone Line	---	activates when a telephone line problem is detected
			3	Communication Failure	---	activates when successful communication with the Central Station cannot be achieved
			4	Trouble Follow	---	▪ activates when a system trouble condition is detected ▪ troubles include those found in the system’s general operation as well as those unique to an Expansion Module ▪ detectable troubles in this category include: ▪ Bell Circuit fault ▪ Fire Loop trouble ▪ loss of Auxiliary Power ▪ Phone Line failure ▪ 4-wire BUS failure ▪ Clock not set ▪ False Code trouble

UTILITY OUTPUT: SYSTEM (cont'd)

Quick Key				Utility Output Follows	Default	Explanation
				SYSTEM (cont'd)		
			5	Ground Pulse	---	▪ activates when the **ORBIT-Pro's** dialer must dial out ▪ rarely used, this option is typically intended for older phone systems which require a "Ground Start" (a momentary connection between one side of the phone line and "earth" ground) to obtain dial tone ▪ when the Utility Output is programmed (and properly wired) for this purpose, it will provide a 2-3 pulse needed to furnish dial tone to the dialer ▪ if the Ground Pulse option is used, the "Pattern of Operation" options, which follow, will not apply
			6	Low Battery Follow	---	▪ activates when the **ORBIT-Pro's** rechargeable standby battery is found to have insufficient reserve capacity
			7	AC Loss Follow	---	▪ activates when the source of the panel's AC power has been interrupted
			8	Sensors Test Not for UL Installations	---	▪ relates to the ORBIT-Pro's Zone Self-Test, described on page 59 ▪ if selected, the designated Utility Output is intended to be part of the circuit providing switched power for the source of noise (or vibration) used in the procedure

UTILITY OUTPUT: PARTITION

Quick Key				Utility Output Follows	Default	Explanation
				PARTITION	---	▪ the Utility Output will follow the chosen Partition Event, selected among those listed below: from this display: **P=12345678 UO=xx** **Y.......** ▪ designate the partition(s) whose READY condition will activate the chosen Utility Output by using the **[STAY]** key to toggle between YES (Y) or NO (□) and either the **[STAT]** or **[BYP]** keys to move the cursor left or right, respectively, as you make your choices the "xx" in the UO=xx designation refers the number of the UO currently being programmed after making your selection, press **[ENTER]** ▪ proceed to PATTERN of OPERATION, and setting the duration of operation.
			0	Ready Follow	---	▪ activates the designated Utility Output whenever the selected partition(s) is in the READY state; select by pressing **[ENTER]**
			0	Alarm Follow	---	▪ activates the designated Utility Output whenever the selected partition(s) experiences any ALARM; select by pressing **[ENTER]**
			0	Arm Follow	---	▪ activates the designated Utility Output whenever the selected partition(s) is armed to either the AWAY or STAY mode; select by pressing **[ENTER]**
			0	Burglary Follow	---	▪ activates the designated Utility Output whenever the selected partition(s) experiences a BURGLARY (intrusion) alarm; select by pressing **[ENTER]**
			0	Fire Follow		▪ activates the designated Utility Output whenever the selected partition(s) experiences a FIRE alarm–either when a FIRE zone is triggered, or when a keypad's FIRE alarm keys ([4] and [5]) are ▪ simultaneously pressed; select by pressing **[ENTER]**
			0	Panic Follow	---	▪ activates the designated Utility Output whenever the selected partition(s) experiences a PANIC alarm– either when a PANIC zone is triggered, or when a keypad's PANIC alarm keys ([1] and [2]) are simultaneously pressed; select by pressing **[ENTER]**
			0	Auxiliary emergency Follow	---	▪ activates the designated Utility Output whenever the elected partition(s) experiences a AUXILIARY EMERGENCY alarm–either when a AUXILIARY EMERGENCY zone is triggered, or when a keypad's AUXILIARY EMERGENCY alarm keys ([7] and [8]) are simultaneously pressed; select by pressing **[ENTER]**
			0	Duress Follow	---	▪ activates the designated Utility Output whenever the selected partition(s) experiences a DURESS alarm (initiated at the keypad); select by pressing **[ENTER]**
			0	Buzzer Follow	---	▪ activates the designated Utility Output whenever a keypad in the chosen partition sounds its BUZZER during Auto-Arming, Entry-Exit Delays, and alarm conditions; select by pressing **[ENTER]**

UTILITY OUTPUT: PARTITION (cont'd)

Quick Key				Utility Output Follows	Default	Explanation
				PARTITION (cont'd)		
			10	Chime Follow	---	▪ activates the designated Utility Output whenever a keypad in the chosen partition (and programmed to do so), annunciates its CHIME; select by pressing **[ENTER]**
			11	Exit/Entry/Follow	---	▪ activates the designated Utility Output whenever the selected partition(s) initiates an ENTRY or EXIT DELAY period; select by pressing **[ENTER]**
			12	Fire Trouble	---	▪ activates the designated Utility Output whenever a FIRE TROUBLE is detected in the chosen partition; select by pressing **[ENTER]**
			13	Day (Zone) Trouble	---	▪ activates the designated Utility Output whenever a DAY ZONE TROUBLE is detected in the chosen partition; select by pressing **[ENTER]**
			14	Trouble Follow	---	▪ activates the designated Utility Output whenever any TROUBLE condition is detected in the chosen partition; select by pressing **[ENTER]**
			15	Stay Follow	---	▪ activates the designated Utility Output whenever the selected partition(s) is armed to STAY mode

UTILITY OUTPUT: ZONE

Quick Key				Utility Output Follows	Default	Explanation
				ZONE	---	▪ the Utility Output will follow the chosen Zone Event and Zone Number, selected among those listed below: ▪ after making your selections, press [ENTER] ▪ proceed to PATTERN of OPERATION, and period of duration.
			1	**Zone Follow**	---	▪ activates the designated Utility Output whenever the selected zone is tripped; select by pressing [ENTER] ▪ the tripped zone need not be armed to trigger the Utility Output
				zones 1 through “x”	---	▪ select the zone for which the violation will activate the designated Utility Output ▪ next, press [ENTER] to select the desired PATTERN OF OPERATION,
			2	**Alarm Follow**	---	▪ activates the designated Utility Output whenever the selected zone causes an alarm; select by pressing **[ENTER]**
				zones 1 through “x”		▪ select the zone for which an alarm condition will activate the designated Utility Output ▪ next, press **[ENTER]** to select the desired PATTERN OF OPERATION,
			3	**Arm Follow**		▪ activates the designated Utility Output whenever the selected zone is armed by the system; select by pressing **[ENTER]**
				zones 1 through “x”		▪ select the zone, which, when armed, will activate the designated Utility Output ▪ next, press **[ENTER]** to select the desired PATTERN OF OPERATION,

UTILITY OUTPUT: CODE

Quick Key				Utility Output Follows	Default	Explanation
		4		**CODE**	---	▪ activates the designated Utility Output whenever the system's user does the following: ▪ chooses the User Functions Mode and selects ACTIVITIES/UTIL OUTPUT ▪ after designating a Utility Output, the user must enter his code ▪ if approved for triggering the Utility Output, the UO will function as programmed ▪ as the installer, you must designate which of the system's User Code(s) will be capable of triggering the selected UO ▪ this function works as described ONLY if, in Installer Programming, the *Quick Utility Output* parameter under *System Control* is disabled (see page 42) ▪ also refer to the *ORBIT-Pro's User's Manual* for clarification and additional information about triggering Utility Output(s) via User Code(s) ▪ proceed to PATTERN of OPERATION, on page 69.
			00 - 98	(User) Codes for UO	---	▪ use the DOWN-arrow and/or UP-arrow keys to select among the 99 available User Codes ▪ at the desired code, use the **[STAY**] key to toggle between "Y" or "N" to select (or not) the number(s) [e.g. 00, 01, 02, etc], corresponding to the particular user, chosen to trip the designated Utility Output ▪ when done, press **[ENTER]** to select the desired PATTERN OF OPERATION, provided on page 69.

UTILITY OUTPUT (cont'd)

Quick Key	Pattern of Operation:	Default	Explanation
			choose among the following patterns for the selected utility output.
1	Pulse N/C	20 seconds	▪ the Utility Output will always be activated (N/C) before being triggered ▪ when triggered it will de-activate for the Pulse Duration specified below, then re-activate automatically ▪ if selected, press **[ENTER]** and choose the desired Pulse Duration, between 01-90 seconds; press **[ENTER]** ▪ proceed to Choosing a Label for the UO, below
2	Latch N/C	---	▪ the Utility Output will always be activated (N/C) before being triggered ▪ when triggered it will de-activate and remain so (latch) until the operation restored. ▪ press [ENTER] ▪ proceed to Choosing a Label for the UO, below
3	Pulse N/O	20 seconds	▪ the Utility Output will always be de-activated (N/O) before being triggered ▪ when triggered it will activate for the Pulse Duration specified below, then de-activate automatically ▪ if selected, press **[ENTER]** and choose the desired Pulse Duration, between 01-90 seconds; press **[ENTER]** ▪ proceed to Choosing a Label for the UO, below
4	Latch N/O	---	▪ the Utility Output will always be de-activated (N/O) before being triggered ▪ when triggered it will activate and remain so (latch) until the operation restored. ▪ press **[ENTER]** ▪ proceed to Choosing a Label for the UO, below

	LABEL FOR UTILITY OUTPUT	---	▪ for the user's convenience (see page 30), you may create and/or edit a ten character description for the selected Utility Output ▪ to do so, follow the instructions on keypad labeling, found in the examples on pages 46 and 56

4) Code Maintenance

The ORBIT-Pro supports up to 99 unique *User Codes* (known by a number from "00" through "98")–each of which can identify different system users–either to the Central Station (if *Opening and Closing Reports* are utilized), or to those with the need to view the system's *Event Log* (see the *ORBIT-Pro User's Manual* for details) to determine system activities.

The User Codes, themselves, may be set by any individual(s) with the authority to do so by utilizing a mode called *User Functions* (see the *ORBIT-Pro User's Manual* for details). As such, the actual numbers comprising most codes need not be known to the alarm company.

Additionally, each *User Code* must be linked to one of six *Authority Levels*. Unlike the process of determining the codes themselves, *Authority Levels* are assigned through the *Installer Programming* Mode, and will be detailed in this section.

Table 3-4 describes names each *Authority Level* and describes the "accessibility" it provides:

AUTHORITY LEVEL	DEGREE OF ACCESS	GENERAL COMMENTS
Grand Master	• **arming and disarming** • **bypassing zones** • **access to all partitions** • **viewing system status, trouble, alarm memory, and Event Log(s)** • **deleting Event Log(s) contents** • **changing the Grand Master's Code** • **assigning, deleting, and changing other User Codes** • **setting the system's Time and Date** • **setting schedules for automatic arming and disarming** • **resetting the Switched Auxiliary Output** • **activating designated Utility Outputs** • **control of "Follow Me" activities and its dialing process** • **specific control of upload/downloading activities** • **administering system tests, including Walk Testing** • **control of keypad sounds**	• **there may be only one Grand Master code in the system** • **the Grand Master code is designated as Code 00** • **only the Grand Master can change the Grand Master code** •
Manager	• **all of the above, <u>except</u>:** • **changing the *Grand Master's* Code** • **performing Walk Testing**	• **there may be only one *Manager* code in the system** • **the *Manager* code is designated as Code 01** • **the *Manager* can change all User Codes except that of the *Grand Master***

Table 3-4: User Code Hierarchy