Contents

Figures

Tables

Section 1.
Introduction

The Access 2000 Access Control System is designed specifically for access control applications in commercial and industrial installations. An Access 2000 system consists of a Model 2001 control/communicator panel, Model 2005 touchpad for operation and programming, a card reader and cards, battery, and transformer.

Up to 500 user codes (or cards) can be assigned to the system, and 1 to 8 doors can be used as access control points. Users are granted access by either entering a valid code at a touchpad, presenting an access card to the card reader, or both. The Access 2000 is compatible with most door locking devices currently on the market.

The Model 2001 control/communicator panel can also be used for burglary protection. It supports up to 16 security zones.

Optional accessories include downloading software for remote site programming over the telephone lines, and a printer interface for printing system activities. Other features include:

- Allows door relays to be bypassed (or latched) open.

- Any door can be controlled from any station.

- Separate "door access" and "door left open" timers for each door.

- Door relays can follow time windows using I/O statements.

- Each touchpad panic zone and duress code is a separate zone adding 24 more zones.

- High-security code option for controlling access into restricted areas.

- Up to 32 time windows for programming time restrictions and automatic arming and disarming times. Time windows can also be used to activate 4180 auxiliary outputs.

- Holiday schedule can be programmed for 16 holiday dates.

- Two dates can be supplied to adjust for daylight savings time automatically.

- Event memory stores (at least) the last 500 events, including valid access, alarms, troubles, bypasses (shunts), restores, openings, closings, and tests. The Access 2000 also stores system events including Set Time, Program, Clear Events, System Reset, Door Restore, and Access Denied. Event memory can be viewed at a touchpad or uploaded to a personal computer using the Model 5541 downloading software.

- Support of a Model 4180 Status Display module for a total of 16 outputs that can be programmed to annunciate status conditions such as armed, alarm, trouble, and tests.

- Fully programmable using built-in programmer with English prompts, or the Model 5541 downloading software.

1.1 Accessories

The following accessories are supplied with the Access 2000 system:

- 15k Ohm End-of-Line (EOL) resistors (16 supplied)
- Model 9220 Power Transformer (16.5 VAC, 40 VA)
- Touchpad quick connect cable (P/N 130294)

The following Silent Knight modules can be used with the Access 2000 system:

Table 1-1. Compatible Modules
(Manufactured by Silent Knight)

Model	What it Does
2001 Control/Communicator	Two users, 16-zone, 8-touchpad system.
2005 Touchpad	This touchpad is used for programming, operation, and on-site annunciation. Has a liquid crystal display (LCD).
2300 Access Control Card Reader	Wiegand type swipe card reader.
2330 Mullion Reader	Proximity card reader.
2340 Standard Reader	Proximity card reader.
2350 Medium Range Reader	Proximity card reader.
4175 Dual Phone Line Monitor	Used in applications where two phone lines are desired.
4180 Status Display/Relay Module	For remote annunciation of alarm and trouble status information for each zone.
4205 Slimline Door Access Touchpad	This touchpad has a weather-resistant housing. Can be used for door access, arming, and disarming.
4420 Door Access Module	Allows use of Model 4205 touchpad and Model 2300 series card readers for door access.
4792 Control	Control MCU
5260 Printer Interface (Printer not supplied by Silent Knight)	For on-site connection of a standard parallel-type printer to print records of all access activities, security situations, and system maintenance conditions.
5530 Modem (supplied with 5561 kit)	Modem for downloading; required if the 5541 software is used.
5541 Downloading Software (supplied with 5561 kit)	For remote programming of the 2001.
6712 Battery	7 AH 12V battery
9000 Receiver	Central Station Receiver
9383A Dialer	Dialer MCU

1.2 How to Use This Manual

This manual describes how to install and maintain the Access 2000 system. It covers installation details such as wiring, connection to compatible products, normal operation, troubleshooting, and central station reporting.

The Access 2000 documentation includes a separate programming manual. Refer to the *Access 2000 Programming Manual (P/N 150928)* for programming information.

The installation manual is a comprehensive guide. It provides detailed instructions and can also be used for reference. This manual is organized chronologically by the tasks that need to be performed to get the panel operating according to your needs. You can skip sections that do not apply to your installation.

In this manual, the following conventions are used:

For example:

- Touchpad buttons are shown enclosed in a box.

  CLR

- Shaded displays represent messages that you see on a touchpad liquid crystal display (LCD).

  DEFAULT IN:252s
  PRESS CLR

- Messages that appear on the LCD are shown in a different font.

  Try Again

Section 2.
Agency Listings, Approvals, and Requirements

Federal Communications Commission (FCC)

1. If requested by the telephone company, the following information must be provided before the Model 2001 control panel can be connected to the phone lines:

A.	Manufacturer:	Silent Knight Security Systems
B.	Model Number:	2001
C.	FCC registration number	AC6USA-65475-AL-E
	Ringer equivalence:	0.9B
D.	Type of jack (to be installed by the telephone company)	RJ31X

2. This device may not be directly connected to coin telephone or party line services.

3. This device cannot be adjusted or repaired in the field. In case of trouble with the device, notify the installing company or return to:

   > Silent Knight Security Systems
   > 7550 Meridian Circle
   > Maple Grove, MN 55369-4927
   > 612-493-6455
   > 800-328-0103

4. If the Model 2001 control panel causes harm to the telephone network, the telephone company will notify the user in advance that temporary discontinuance of service may be required. When advance notice is not practical, the telephone company will notify the user as soon as possible. Users have the right to file complaints, if necessary, with the Federal Communications Commission.

5. The telephone company may make changes in its facilities, equipment, operations, or procedures that could affect the operation of the equipment. If this happens, the telephone company will provide advance notice to allow you to make the necessary modifications to maintain uninterrupted service.

Warning:
This device has been verified to comply with FCC Rules Part 15. Operation is subject to the two following conditions: (1) This device may not cause radio interference, and (2) This device must accept any interference received including interference that may cause undesired operation.

Section 3.
Installation Overview

Table 3-1 lists the accessories available for use with the Model 2001 control panel. The LED number indicates through which fuse (non-replaceable) each accessory draws power. Standby (idle) and active (alarm) current draws are also shown.   Accessories with no LED indicated are resistively current limited.

Table 3-1. Accessory Current Drains

Model Number	LED #	Standby	Active (Trouble and Alarm)	Maximum Number of Devices
2001	-	125 mA	130 mA	1
2005	L5	60 mA	130 mA	4
4175	-	1 mA	1 mA	1
4180	L2 & L5	24 mA	140 mA	1
5260	L3	25 mA	25 mA	1
Wheelock Bell	L2 & L5	0	125 mA	3
8 Ohm Internal Speaker	L2 & L5	0	750 mA	1
8 Ohm External Speaker	L1	0	1000 mA	1
45 Ohm Internal Speaker	L2 & L5	0	133 mA	6
Zone Input	-	0.8 mA	5 mA	16
4420	L5	20 mA	20 mA	8
2300	-	60 mA	60 mA	8
2330, 2340, 2350	-	130 mA	130 mA	8
Battery	L4			
Smoke detectors	L5			

Using the table on the next page, first calculate the total standby and active currents for the system. After determining the current, check that the total combined active current drain on the internal fuses indicated by L2, L3, and L5 does not exceed 1200 mA (Line E in table).

3.1 Current Draw Worksheet

	Device	Number of Devices	Current per Device		Standby Current	Alarm Current
	For each device, use this formula:	*This column*	X *This column*	=	*Current per number of devices*	
	2001 Access Control System	1	Standby:	125 mA	mA	
			Alarm:	130 mA		mA
	2005 Touchpad		Standby:	60 mA	mA	
		(8 max.)	Alarm:	130 mA		mA
	4175 Dual Phone Line Monitor	1	Standby:	1 mA	mA	
			Alarm:	1 mA		mA
	4180 Status Display module	1	Standby:	24 mA	mA	
		(1 max.)	Alarm:	140 mA		mA
	5260 Printer Interface	1	Standby:	25 mA	mA	
			Alarm:	25 mA		mA
	4420 Door Access Module	1	Standby:	20 mA	mA	
		(8 max.)	Alarm:	20 mA		mA
A			**Current Subtotals:**		mA	mA
	Card Readers					
	2300 Card-Swipe		Standby:	60 mA	mA	
			Alarm:	60 mA		mA
	2330 Mullion Proximity		Standby:	130 mA	mA	
			Alarm:	130 mA		mA
	2340 Standard Proximity		Standby:	130 mA	mA	
			Alarm:	130 mA		mA
	2350 Med. Range Proximity		Standby:	130 mA	mA	
			Alarm:	130 mA		mA
B			**Current Subtotals:**		mA	mA
	Notification Devices	(4 max.)	*Refer to device manual for current ratings.*			
			Alarm:	mA		mA
			Alarm:	mA		mA
			Alarm:	mA		mA
			Alarm:	mA		mA
C			**Current Subtotal:**			mA
	Additional Devices	*Refer to device manual for current ratings.*				
			Standby:	mA	mA	
			Alarm:	mA		mA
			Standby:	mA	mA	
			Alarm:	mA		mA
			Standby:	mA	mA	
			Alarm:	mA		mA
D			**Current Subtotals:**		mA	mA
E	Total current ratings of all devices in system (add A-D):				mA	mA
F	Total current ratings converted to amperes (x .001):				A	A

3.2 Mounting

It is important to protect the 2001 control panel from water. To prevent water damage, the following conditions should be AVOIDED when mounting the units:

- Do not mount directly on exterior walls, especially masonry walls (condensation)

- Do not mount directly on exterior walls below grade (condensation)

- Protect from plumbing leaks

- Protect from splash caused by sprinkler system inspection ports

- Do not mount in areas with humidity-generating equipment (such as dryers, production machinery)

When selecting a location to mount the 2001 control panel, the unit should be mounted where it will NOT be exposed to temperatures outside the following ranges:

Temperature	0° C-49° C (32° F-120° F)
Humidity	10%-85% at 30° C (86° F) noncondensing

The panel should be accessible to "Main Drop" wiring runs. The 2001 panel should be located within a secured area, but should be accessible for testing and service. End-users responsible for maintaining the panel should be able to hear alarms and troubles. When selecting a location, keep in mind that the panel itself is the main source of alarm and trouble annunciation.

When mounting on interior walls, use appropriate screw anchors in plaster. When mounting on concrete, especially when moisture is expected, attach a piece of 3/4 inch plywood to the concrete surface and then attach the 2001 panel to the plywood. Also mount any other desired components (such as a printer interface) to the plywood.

3.3 Wiring Specifications

To avoid induced noise (transfer of electrical energy from one wire to another), keep input wiring isolated from high current output and power wiring. Induced noise can interfere with telephone communication or even cause false alarms. Avoid pulling one multiconductor cable for the entire panel. Instead, separate the wiring as follows:

High current input/output: AC power, speaker, and notification device wiring

Low current input/output: Touchpad and zone loop wiring

Audio input/output: Telephone wiring

DO NOT pull wires from different groups through the same conduit. If you must run them together, do so for as short a distance as possible or use shielded cable. Connect the shield to circuit ground at the panel only.

For the same reasons, wiring within the cabinet should be routed around the perimeter of the cabinet. It should not cross the printed circuit board where it could induce noise into the sensitive microelectronics or pick up unwanted RF noise from the high speed circuits.

High frequency noise, such as that produced by the inductive reactance of a speaker or bell, can also be reduced by running the wire through ferrite shield beads or by wrapping it around a ferrite toroid. See Figure 3-1.
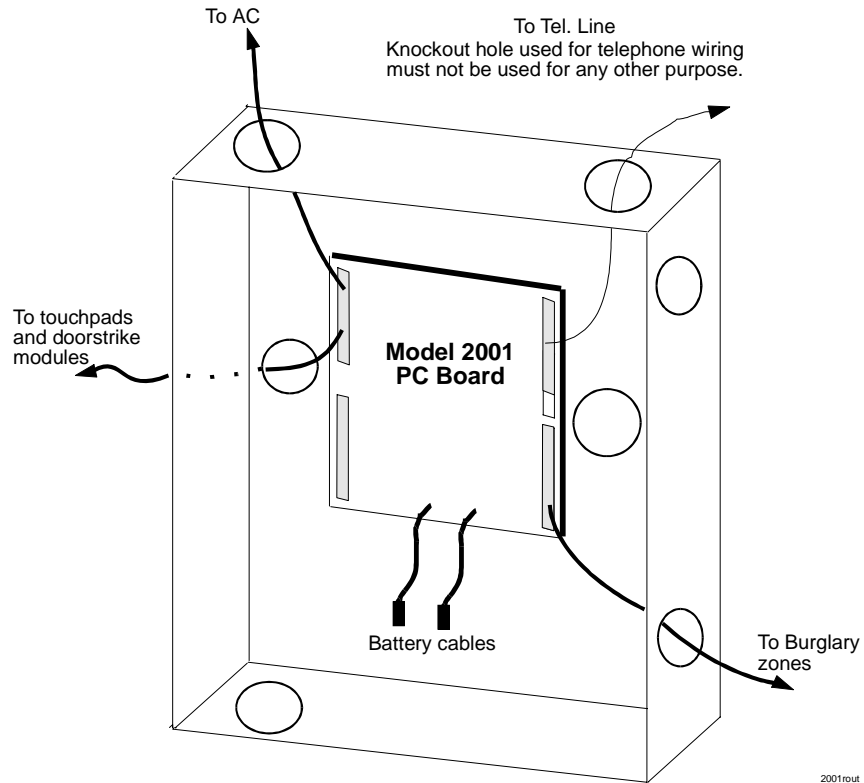
Figure 3-1. Wiring Identification

Section 4.
Control Panel Installation

Figure 4-1 shows the Model 2001 printed circuit board. (For more detail, refer to the wiring diagram in the control panel.) This section describes the general control panel installation. Section 5 describes connections for Access 2000 accessories.
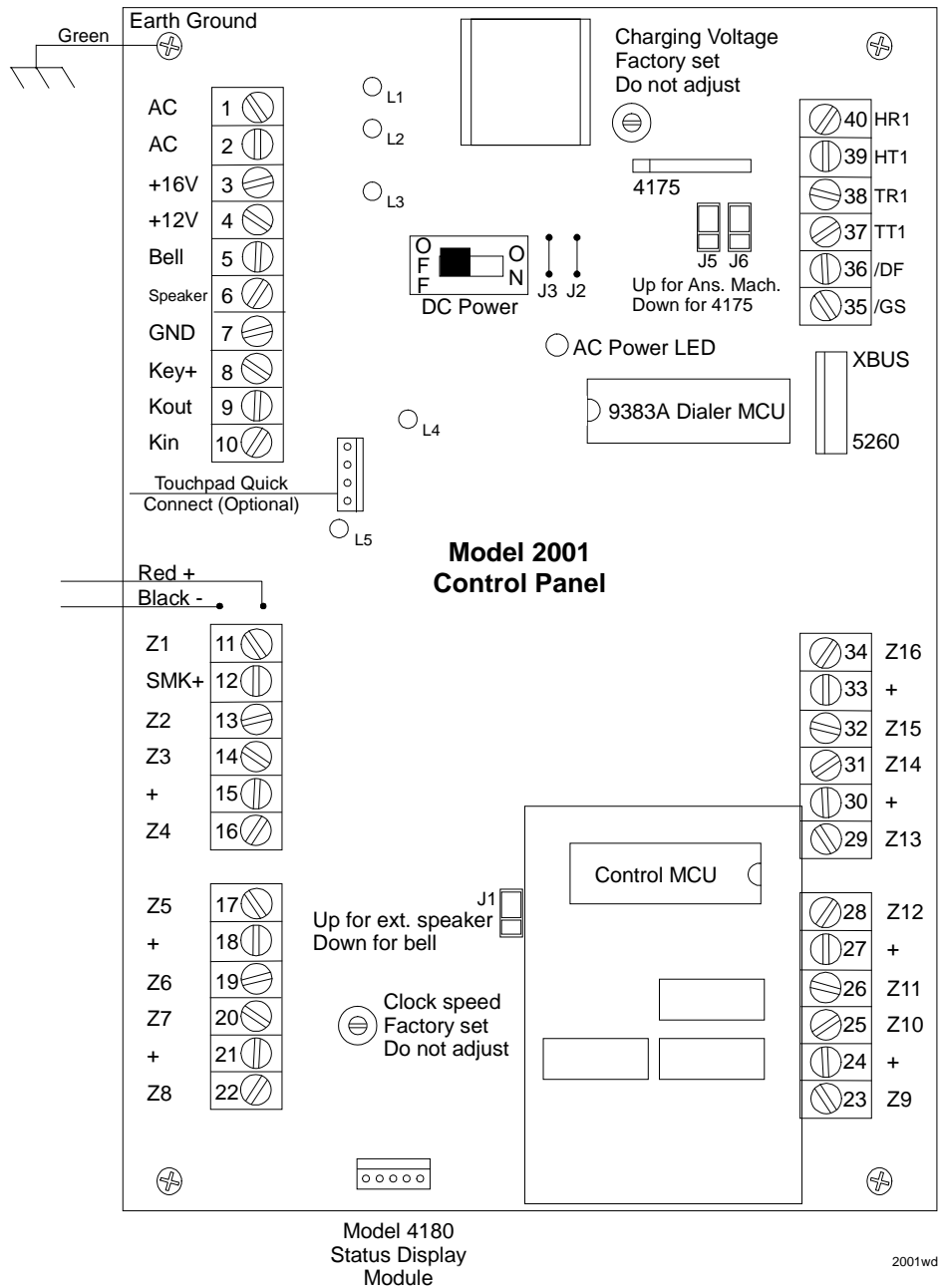
Figure 4-1. Model 2001 PC Board Layout

4.1 Power Supply Wiring

The Model 9220 Power Transformer is an external transformer included to supply power to the Access 2000 system. The Model 9220 supplies 16.5 VAC (40 VA) to power the system under normal conditions and supplies charging current to the backup battery. The primary of this transformer plugs directly into a conventional 115 VAC, 60 Hz continuous duty (unswitched) grounded outlet. The secondary is wired into terminals 1 and 2 of the Model 2001 with a two-conductor cable (preferably shielded). See below.

Caution

The Model 9220 contains an internally fused secondary winding. Do NOT short the secondary terminals together when power is applied or else the internal fuse will blow. Be sure the shield conductor cannot come in contact with the AC output screws.
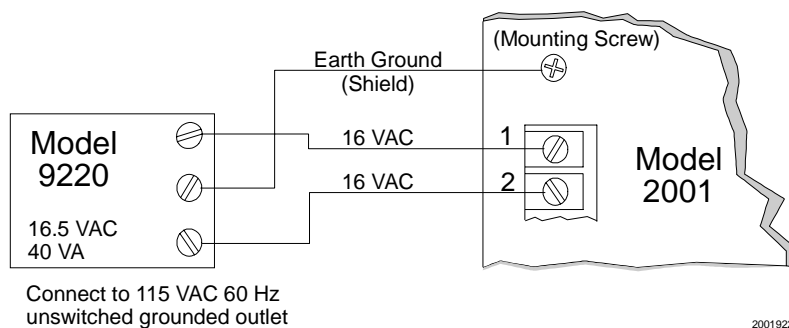
Figure 4-2. Model 9220 Connection

Warning
Make sure that the AC outlet you are using for the Model 9220 has a good connection to earth ground. Using a digital voltmeter at the outlet, measure the AC voltage between the "hot" side of the outlet and neutral. Compare that voltage to the voltage reading between the "hot" side and the ground connection. The difference between these two voltage readings cannot exceed 1 VAC. If these voltages are not within 2 VAC, the outlet does not have an earth ground and must be grounded by running a 14 gauge wire from the outlet to a good source of earth ground such as a water pipe.

Note: a licensed electrician may be required to perform this procedure.

To reduce the risk of electrical shock or fire, connect directly to a grounded (3-prong) receptacle.

4.2 Earth Ground Wire

The magnetic field of a nearby lightning strike can induce damaging currents into the wiring of an alarm system. Even distant strikes can affect the panel through the AC or telephone wiring. The Model 2001 has built-in transient protection devices, but they must be able to shunt the transient currents to earth ground or they will not work.

The green earth grounding wire (included) must have one end installed under one of the four mounting screw of the Model 2001 circuit board. The other end must be connected to a good earth ground. If this is not available through the ground wire of the building's three-conductor AC wiring, a separate heavy gauge wire should be run to a metal cold water pipe or grounding stake. This wire should be run as short as possible and sharp bends should be avoided.

4.3 Battery Cables

The Model 6712 12 VDC rechargeable, 7 AH battery provides backup power to the Model 2001 in the event of AC power interruptions. This battery will provide at least 20 hours of standby operation to the basic Model 2001 system. The use of accessories may reduce this time so that additional battery capacity may be needed.

Caution

Observe proper polarity when connecting the red (+) and black (-) battery cables
to the Model 2001 control panel.

If the AC transformer will be unplugged for more than 24 hours, the battery must be disconnected to prevent it from being discharged.

Do not use the Model 2001 auxiliary power for electric doorstrikes and magnetic door holders as they can produce potentially damaging electrical impulses. Use a separate power supply instead.

4.4 DC Power Switch

Note: The DC power switch does not function when jumpers J2 and J3 are in place (page 4-5).

The DC power switch is used to remove DC power from the circuitry of the Model 2001. When this switch is in the OFF position with AC connected, only the battery-charging circuit remains functional. If AC is not connected, the standby battery should not be connected, as leakage current through the charging circuit could discharge the battery over a period of time.

See Table 3-1 for the current drain of each accessory module. To determine the current load of your Model 2001, add all of the current drains of the modules you use (including the panel).

When the green AC power light is on, AC power is present.

4.5 LED Indicators

The Model 2001 control panel is equipped with built-in overcurrent protection devices. These devices automatically reset five minutes after the overcurrent condition has been corrected.

L1   Provides overcurrent indication for an AC siren speaker connected to terminal 3 of the Model 2001.

L2   Provides overcurrent indication for touchpads, internal speakers, and any accessories connected to terminal 4 of the Model 2001, and for the Model 4180 status module.

L3   Provides overcurrent indication for smoke detectors to terminal 12 on the Model 2001, and for devices connected to the XBUS connector.

L4   Provides reverse polarity and short circuit indication for the Model 6712 battery.

L5   Provides overcurrent indication for smoke detectors.

4.6 Cable Connectors

Touchpad Program/ Test Connector
This 4-pin connector can be used to quick connect a Model 2005 to the Model 2001 PC board. A cable (P/N 130294) should be used.

Model 4180 Status Connector
This 5-pin connector is used to connect the Model 4180 Status Display Module to the Model 2001.

Expansion Connector (XBUS)
This 12-pin connector is used to connect the Model 5260 Printer Interface. Expansion bus wiring should not exceed 4 ft. in length and must be run in conduit. As a protection against transients, maintain a physical separation of one half inch or more between field wires and the XBUS.

4.7 Other Connectors

Dual Phone Line Monitor Connector
This 12-pin connector is used to mount the Model 4175 Dual Phone Line Monitor onto the Model 2001 PC board. (See also J5 and J6.)

Shunt Block J1
Leave J1 in place (up position) if a siren (speaker) is used. Remove J1 (down position) if a DC bell or DC siren is used.

Jumpers J2 and J3
Leave J2 and J3 in place to disable the DC power switch. To enable the DC power switch, you can cut these jumpers.

Shunt Blocks J5 and J6
With shunt blocks in the up position, the Model 2001 can detect a call from the Model 5541 Downloading software even when an answering machine is used (see Figure 4-1). Shunt blocks J5 and J6 must be in the down position when using the Model 4175.

4.8 Terminal Strip Description

The Model 2001 uses plug-on terminal strips, which allow the panel to be exchanged without unscrewing each terminated wire.

To remove the terminal strip:

1. Tag each of the six terminal block wire bundles so that the blocks can be reinstalled in the correct positions.

2. Disconnect the Model 9220 AC transformer and the battery cables.

3. Each terminal block is retained by two catches on the outside. To remove, pull up and out on the inside of the block.

To replace the terminal strip:

1. Check that each pin on the terminal block is straight. Crooked pins can damage the base portion upon insertion.

2. Position the terminal block directly over its base and press straight in; the block will snap into place.

Table 4-1 below lists the function and electrical rating of each terminal. Refer to Figure 4-1 for the Model 2001 PC board layout or to the wiring diagram on the inside of the control panel.

Table 4-1. Terminal Strip Descriptions

Terminal	Terminal Description	Electrical Ratings
1	AC Input	16.5 VAC, 60 Hz, 40 VA
2	AC Input	16.5 VAC, 60 Hz, 40 VA
3	Siren Power	16 VDC (unregulated), 2 A max. (fused 2.5 A)*
* Terminal 3 will be at 20 V under normal standby (non-alarm) conditions.		
4	Auxiliary (bell) power	10.2 - 13.7 VDC, 1 A max. (fused 1.5 A)**
5	External speaker/bell output (active low)	
6	Internal speaker output (active low)	
7	Circuit ground	
8	Touchpad power	9.5 - 13.1 VDC, 1 A max. (fused 1.5 A)**
9	Data to touchpads	
10	Data from touchpads	
11	Zone 1 Input	
12	Smoke detector power	9.5 - 13.1 VDC, 1 A max. (fused 1.5 A)**

** Devices connected to terminals 4, 8, and 12 must operate over the range specified. The minimum voltage occurs when AC power is off and the battery is discharging under load. The maximum voltage occurs when AC power is on and the output is not loaded.

Total current drain of terminals 4 and 8, all touchpads, and all XBUS expansion devices must not exceed 1.2 A.

Table 4-1 continued.

Terminal	Terminal Description	Electrical Ratings
13	Zone 2 Input	
14	Zone 3 Input	
15	Loop power (current limited)	12 VDC, 15 mA max.
16	Zone 4 Input	
17	Zone 5 Input	
18	Loop power (current limited)	12 VDC, 15 mA max.
19	Zone 6 Input	
20	Zone 7 Input	
21	Loop power (current limited)	12 VDC, 15 mA max.
22	Zone 8 Input	
23	Zone 9 Input	
24	Loop power (current limited)	12 VDC, 15 mA max.
25	Zone 10 Input	
26	Zone 11 Input	
27	Loop power (current limited)	12 VDC, 15 mA max.
28	Zone 12 Input	
29	Zone 13 Input	
30	Loop power (current limited)	12 VDC, 15 mA max.
31	Zone 14 Input	
32	Zone 15 Input	
33	Loop power (current limited)	12 VDC, 15 mA max.
34	Zone 16 Input/mechanical key input	
35	Ground start output (active low)	100 mA max.
36	Dialer failed output (active low)	100 mA max.
37	Telco tip	
38	Telco ring	
39	House tip	
40	House ring	
Green wire (attached to mounting screw): earth ground		

4.9 Telephone Line Connection

Note: *To comply with industry standards, this product is equipped with line seizure. Any time the system's dialer needs to communicate with the central station, it will not be possible to use any telephones that are on the same line(s) as the system. Normally, this condition will last approximately one minute, but under adverse telephone circuit conditions, could last for as long as 15 minutes.*

4.9.1 Line 1 Wiring

The Model 2001 can communicate to the central station over the telephone line already installed in the building. If using the communicator, connect the Model 2001 to the phone line using an RJ31X type phone line jack. The telephone company will install an RJ31X jack upon request. The Model 7860 connecting cord will connect the RJ31X and can be wired into the Model 2001 as shown in Figure 4-3.
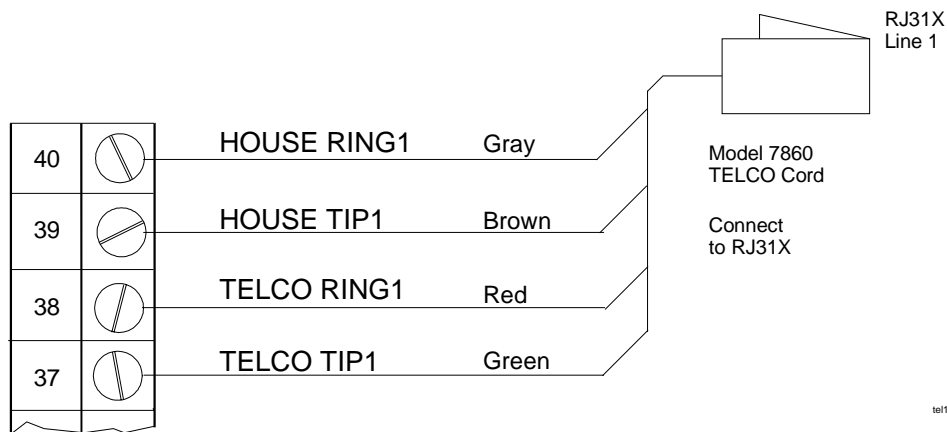
Figure 4-3. Phone Line Connection

For use with an answering machine, refer to Section 4.7.

4.9.2 Ground Start Relay

The Model 2001 normally communicates to the central station over standard "loop start" telephone networks. In some instances, it may be necessary to communicate over "ground start" telephone networks. Ground start networks require a momentary connection between one side of the telephone line and earth ground to enable dial tone. The Access 2000 will accommodate ground start trunks with the addition of a 12 VDC relay. Figure 4-4 shows the wiring of the ground start relay. If you use the ground start feature, you must select it when programming the EEPROM.
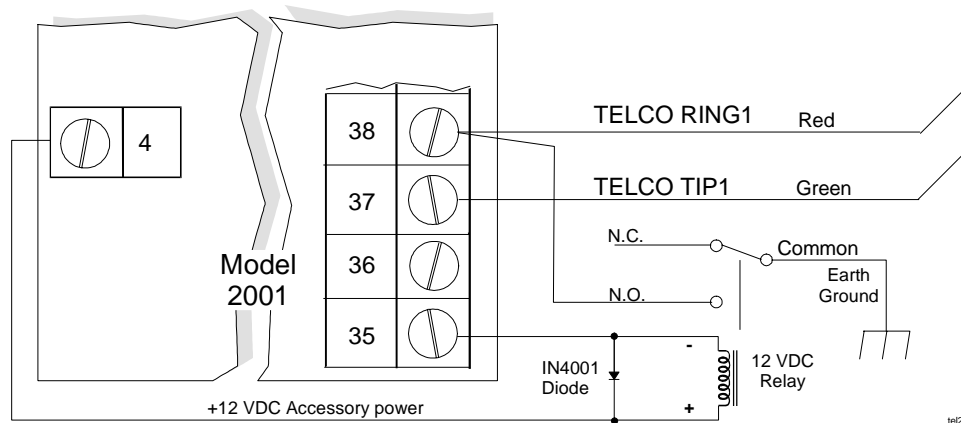
Figure 4-4. Ground Start Connection

4.9.3 External Dialer Failed Indicator

A 12 VDC device such as an indicator lamp or the coil of a 12 VDC relay can be wired as dialer failed indicator. To use a dialer failed indicator, connect the positive side of the indicator to terminal 4 (auxiliary power) and the negative side to terminal 36 (dialer failed) as shown below:
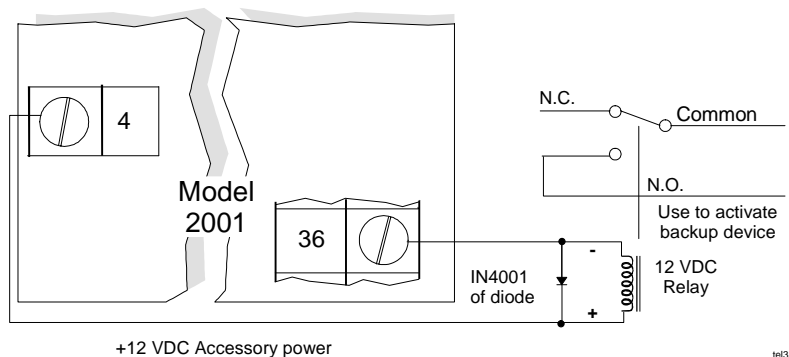
Figure 4-5. Dialer Failed Output

Section 5.
Compatible Product Installation

Use Figure 5-1 to select accessories and determine wiring needs. See Section 1.1 for a list of compatible accessories for the Access 2000 system.
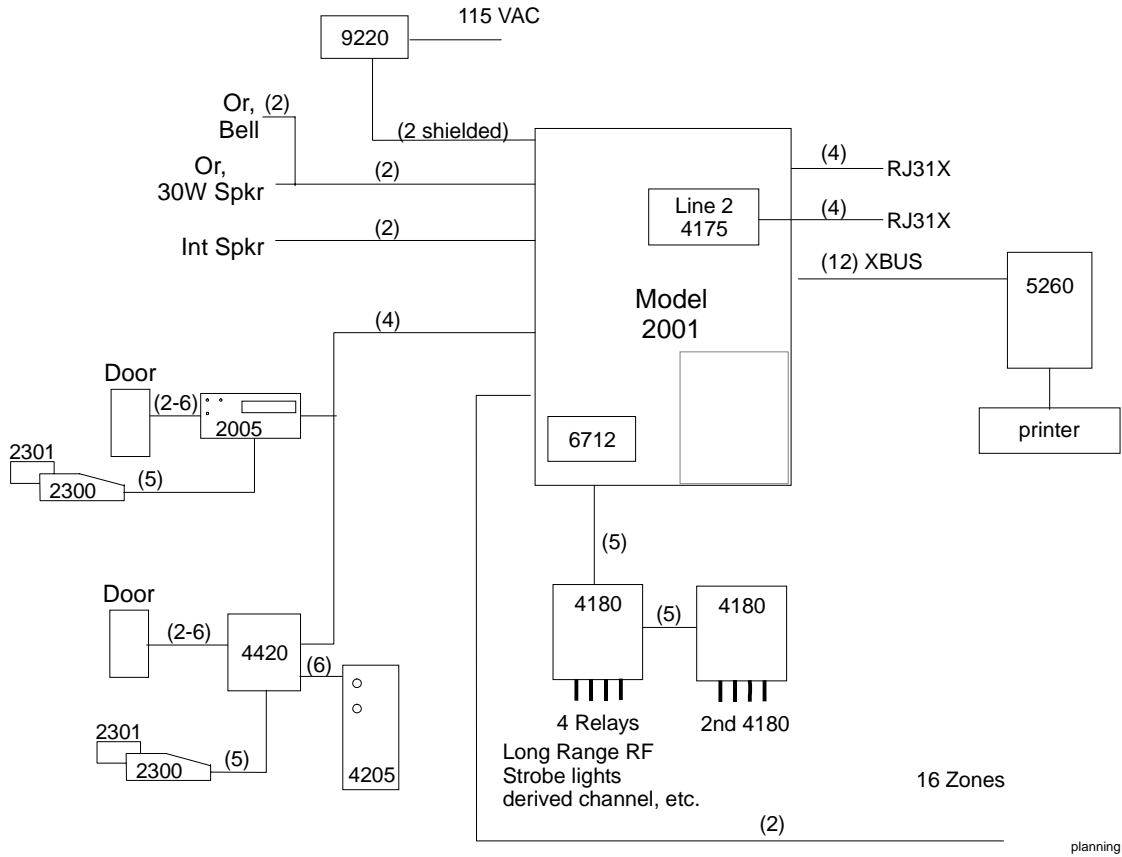
Figure 5-1. Access 2000 System Planner

5.1 Touchpad Installation

The Model 2005 touchpad is used for programming and operation of the Access 2000 system.

5.1.1 Mounting the Model 2005

1. Remove the rear mounting plate by inserting a small flat-blade screwdriver into the slot located on the bottom edge of the frame. Push in, then lift the main section away from the mounting plate.

2. Secure the mounting plate to the wall using either a #6 or #8 screw (whichever is appropriate to the type of wall material). The mounting plate should be oriented so that the protruding tab and the three posts are towards the bottom. Pull the wires through the hole in the rear mounting plate.

3. Wire the touchpad as explained in Section 5.1.2.

4. Set the top of the touchpad frame over the tabs at the top of the mounting plate, then press on the bottom until you hear it snap into position.

5.1.2 Model 2005 Touchpad Connection

The Model 2005 requires four wires to operate. Wire the touchpads as shown in Figure 5-2.
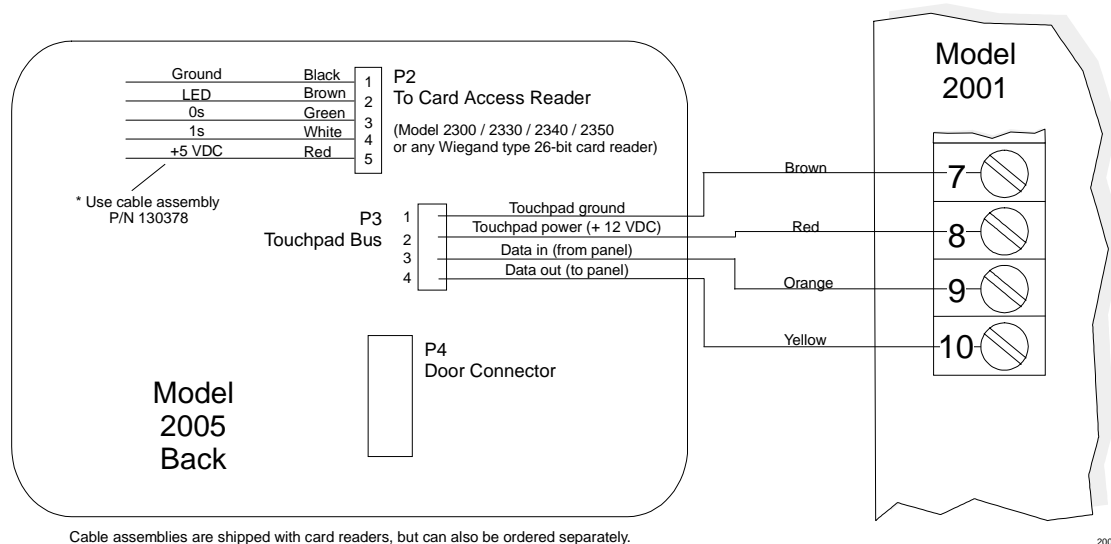
Figure 5-2. Model 2005 Touchpad Connection

For temporary connection of the Model 2005, use the cable (P/N 130294) supplied with your system. This cable can be plugged into the Model 2001 control panel during programming.
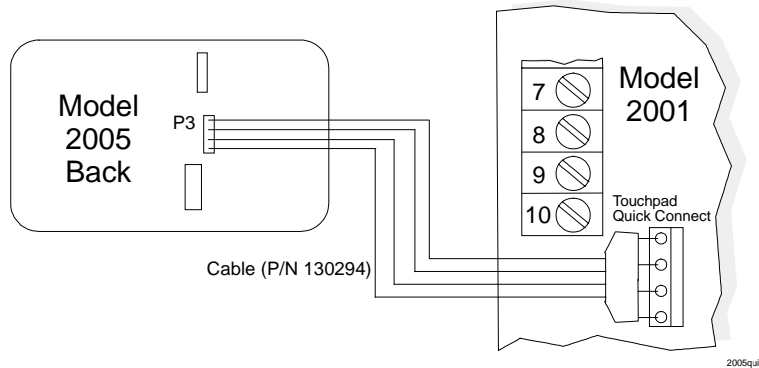
Figure 5-3. Touchpad Quick Connect

5.1.3 Setting ID Codes

When you install the system, set the ID number for each touchpad as follows:

1. Apply power.

2. Press ⓪⓪ TEST .

3. The display will read KEY ID=NN, BEEP=1, where NN is the current ID number. BEEP=1 indicates that the miniature speakers in the touchpads have been enabled. To toggle the beep function on and off, press the MUTE button while in the ID programming mode. When BEEP=0 is selected, the touchpad will beep only when keys are pressed.

4. Enter the new ID number (1-8), and press the TEST button.

5. When you re-apply the power, the system will read the updated ID number for each touchpad.

6. Repeat Steps 2-5 for each touchpad, then remove power.

Wire and test the touchpads one at a time in case of a wiring error.

Note: After you change the ID number, you will not be able to continue with the Set Time mode at that touchpad. Turn the power off and on again for normal operation.

5.1.4 Door Strike Wiring

This section describes installing a door access system with the Model 2005 touchpad. See Section 5.2 or information on installing a door access system using the Model 4420.

The 8-position connector located next to the 4-position terminal clock is used for connection of a door strike. Once accessed from the touchpad, the door strike will be active for the amount of time programmed for this option in the Model 2001 EEPROM memory.

The N.C. door contact connected to P4 pins 1 and 2 allows the system to detect the door being forced or propped open. It also causes the strike to de-energize one second after the door has been opened. If not used, the pins should be connected together (brown and red wires).
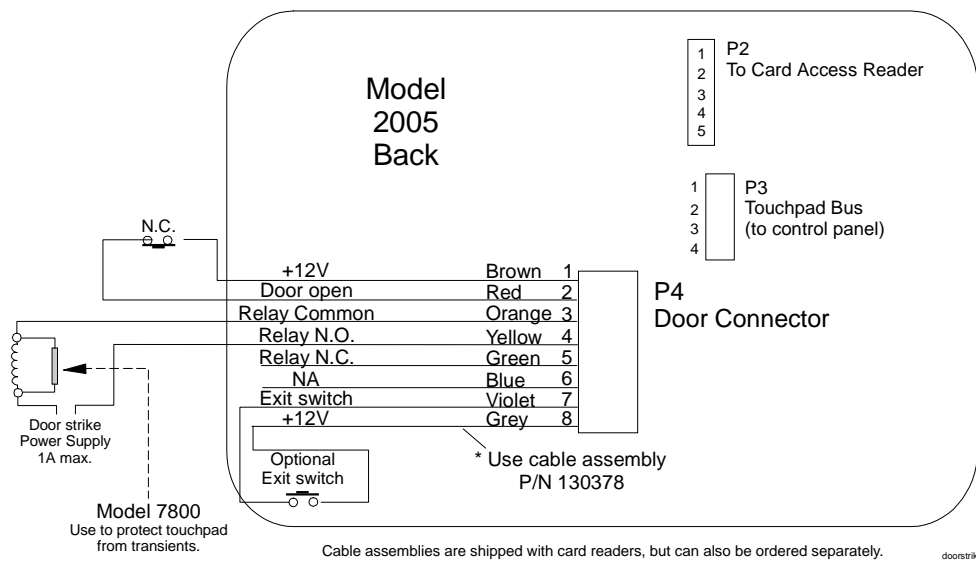
Figure 5-4. Door Strike Connection

If you want door troubles to be reported to the central station or on-site printer, select the REP DO/DF option (Menu 14) when programming the system.

If used, the exit switch should be mounted within the protected area. You can press this switch to activate the door strike without entering any code. The pair of wires to this switch must not exceed three feet in length.

The maximum ratings of the door strike relay contacts are 24 VAC/24 VDC, 1 A. Each station can have its own door strike and users can be restricted to the use of specific doors.

5.2 Model 4420 Door Access Interface Module

If the Model 2005 touchpad is not used, the Model 4420 Door Access Interface Module is required. This section describes installation of the Model 2001 when using the Model 4420. Refer to Section 5.1.4 for instructions on installing a door strike system with the Model 2005 touchpad.

Note: The Access 2000 is NOT UL listed for door access control

Specs	Rating
Power input	12 VDC
Relay contacts	5 A, 24 VAC/DC
Card reader power	5 VDC, 100 mA max.
Data 1,0 input	12 VDC max.
LED output	Open collector, 12 VDC, 100 mA max.
Data input pulse	11 µs min., 250 µs max.
Maximum bit rate	3300 B/S
Minimum bit rate	7 B/S
Format	26 bit, 24 data + 2 parity Wiegand format

The Model 4420 Door Access Module is connected to the Model 2001 control panel through a 4-wire touchpad bus, up to 1000 feet from the control panel.
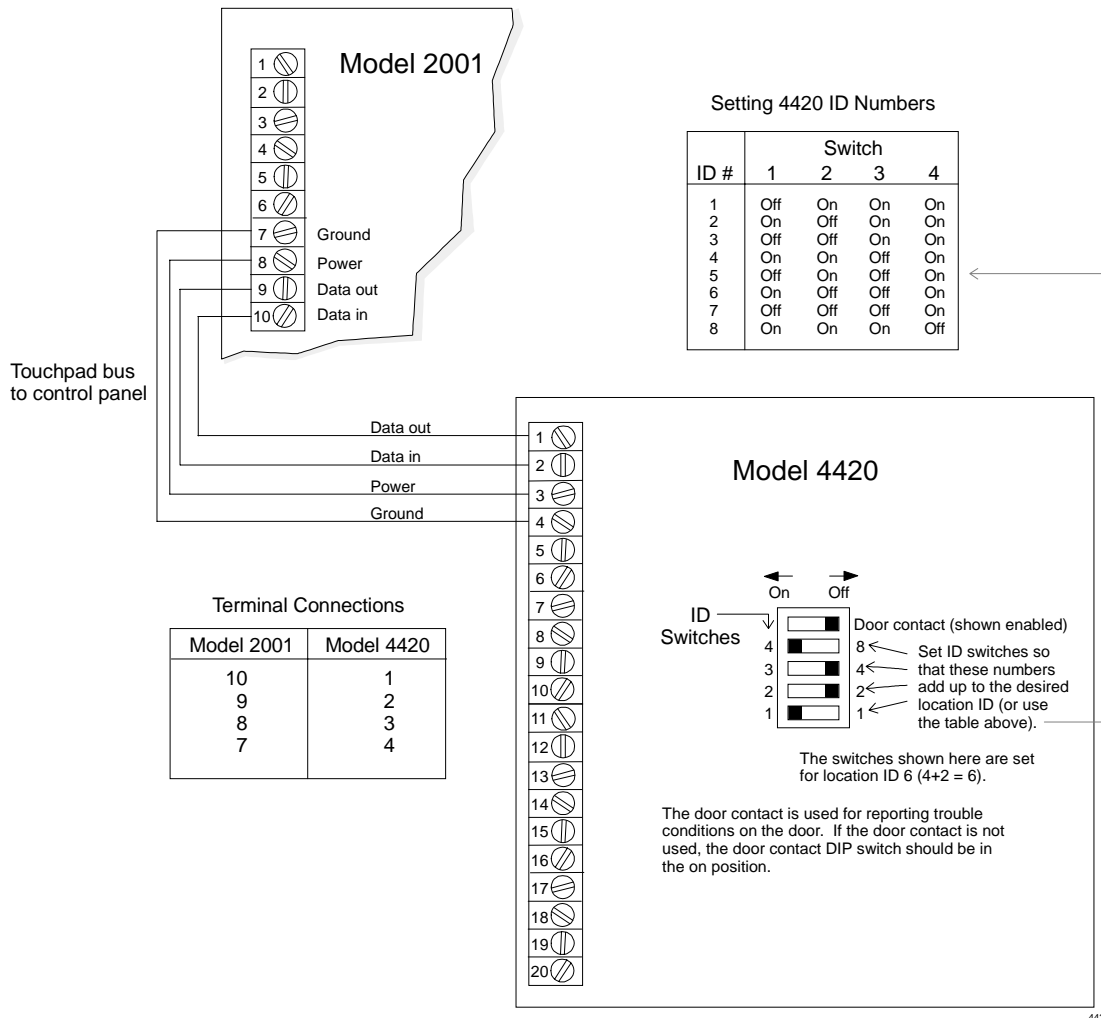
Figure 5-5. Model 4420 Access Interface Connection

The card reader is connected to the Model 4420 by a 5- or 6-wire cable. (If the card reader cable has six wires, the blue wire is not used and should NOT be connected to anything.)

The Model 4420 enables the use of the weather-resistant Model 4205 touchpad instead of the card reader. The card reader can be installed up to 500 feet away, or the touchpad can be installed up to 100 feet from the Model 4420 Door Access Module.

The control panel can be connected to a maximum of eight Model 4420 interfaces. However, only one card reader and one Model 4205 touchpad can be connected to each Model 4420.

The Model 4420 has an input for an exit switch and an input for a normally closed (N.C.) door contact. The exit switch is a normally open contact that will activate the door relay manually.

The auxiliary connector allows the installer to connect a touchpad temporarily to the door access module so that the touchpad can be used for programming.

A maximum of 8 door stations can be used.

Refer to the *Access 2000 Programming Manual (P/N 150928)* for programming details.

5.3 Card Readers

Card readers interface with the Access 2000 system through the Model 4420 Door Access Module.

The system can be used with any type of entrances, including standard and sliding doors, parking lot gates and elevator doors. The read head and circuitry are fully encapsulated to withstand tampering and environmental damage (see Figure 5-6).
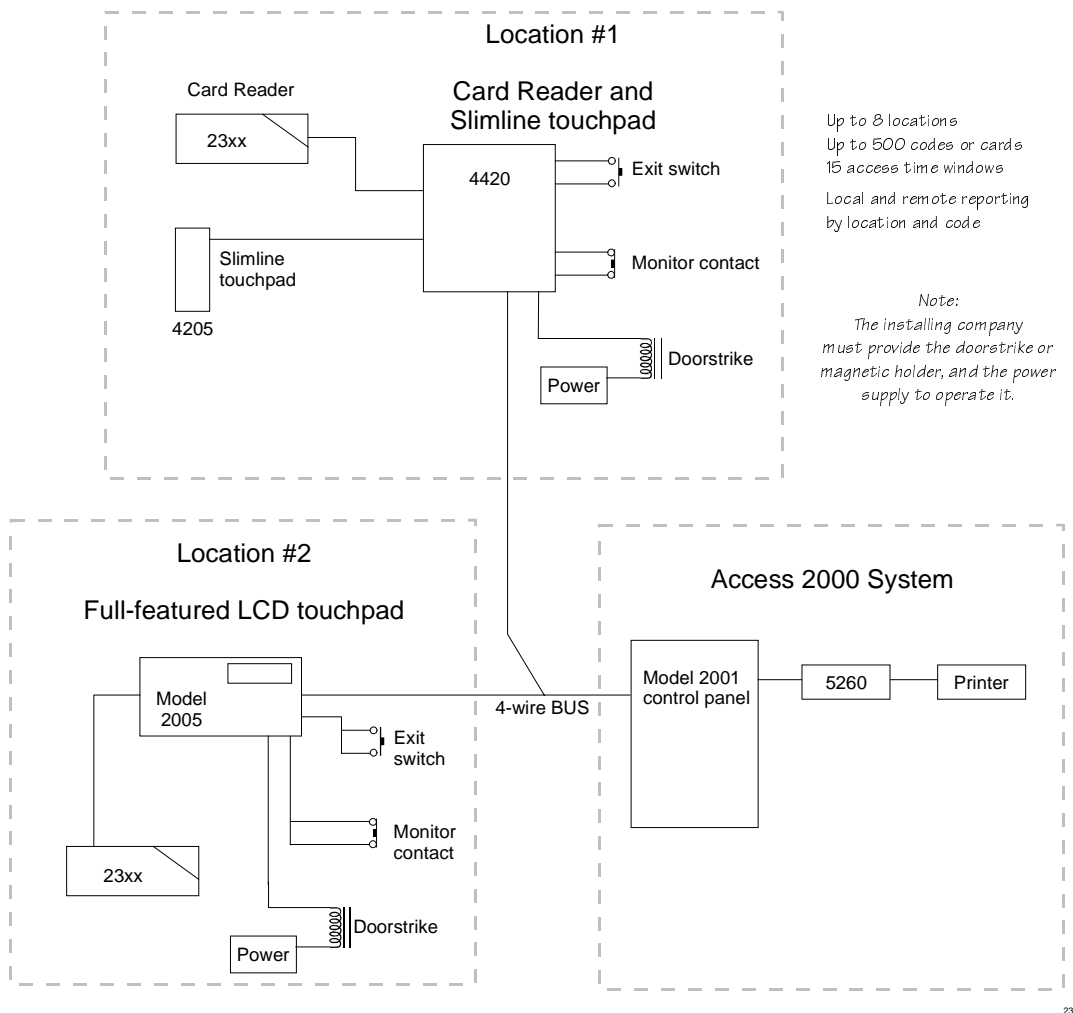
Figure 5-6. Access 2300 System Components

The Model 2300 is an indoor/outdoor "swipe" card reader that uses the Model 2301 card. The Models 2330, 2340, and 2350 are indoor/outdoor proximity card readers that use Model 4305 or 4308 proximity cards. For operation information, see the *Access 2000 Owner's Manual (P/N 150929).*

All features of touchpad door access are also available in the card access mode. Each user code can be programmed for access to a limited number of doors or only during certain time periods.

The Model 2001 can record each door access event on a printer connected to the control panel (using the Model 5260 interface). It can also send this information over a telephone line to a central alarm station to be recorded and monitored.

5.3.1 Mounting the Card Reader

The Access 2300, 2340, or 2350 Card Reader can be mounted on any flat, vertical surface. The card reader receives its power supply from the interface and can be mounted up to 100 feet away. Once the reader is mounted, cover the front by applying the pressure-sensitive dress panel or label. The Model 2330 is designed to be mounted on a typical metal commercial door frame.

If the 2300 will be in a location where it will be exposed to snow, it should be mounted in a vertical position to prevent accumulated snow from clogging the card slot.

For mounting instructions specific to each card reader, see the installation instructions and mounting templates supplied with each card reader.

5.3.2 Model 2300 / 2330 / 2340 / 2350 Card Reader Wiring

Refer to the following table and Figure 5-7 and Figure 5-8 for installing the card readers.

Card Reader	Supply Voltage	Supply Current	Output Sink Current	Output Source Current	Output Pulse Width	Operating Temperature	Max. Reader to Interface Distance
2300	5 VDC (+ or - 5%)	30 mA	48 mA	5 mA	50 μs typ.	-40°F to 150°F	500 feet
2330	12 VDC (+ or - 5%)	80 mA (max.)	48 mA	5 mA	50 μs typ.	-40°F to 150°F	500 feet
2340	12 VDC (+ or - 5%)	80 mA (max.)	48 mA	5 mA	50 μs typ.	-40°F to 150°F	500 feet
2350	12 VDC (+ or - 5%)	150 mA (max.)	48 mA	5 mA	50 μs typ.	-40°F to 150°F	500 feet
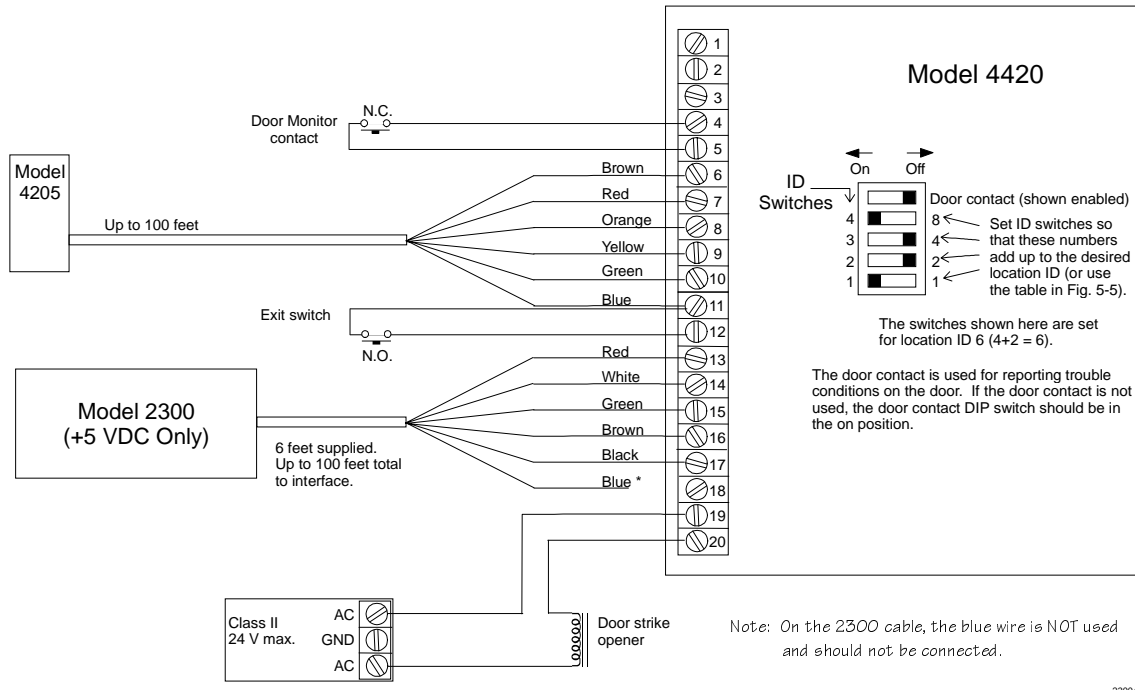
Figure 5-7. Model 4420 Connection to the Model 2300 and Model 4205
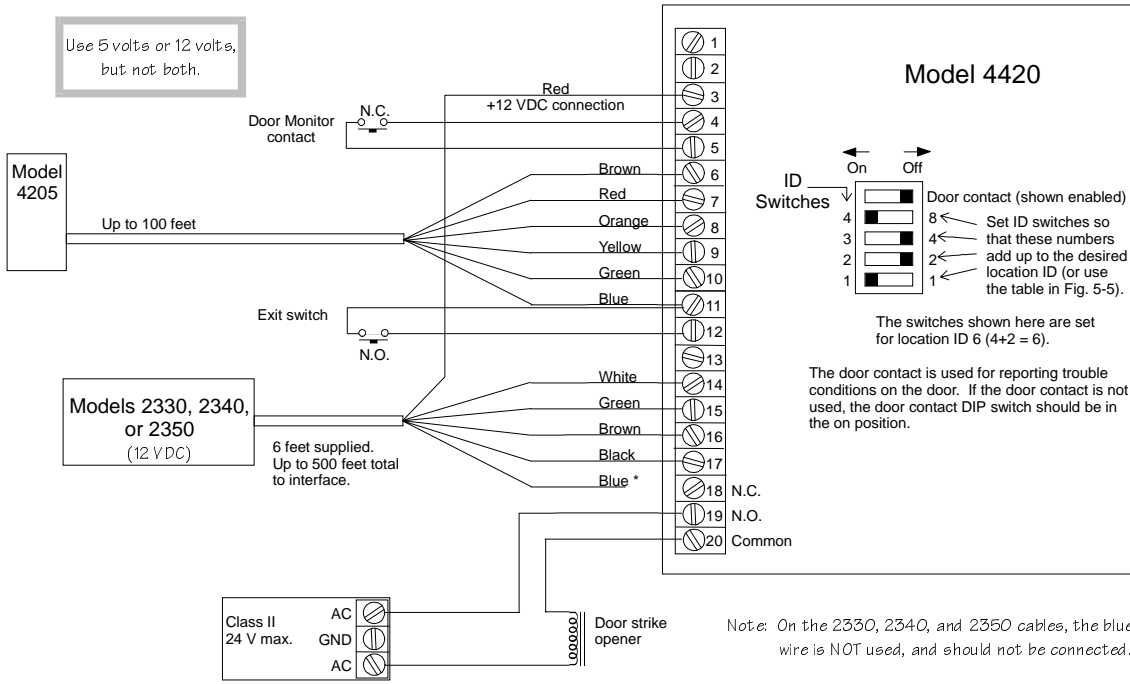
Figure 5-8. Model 4420 Connection to the Model 2330/2340/2350 Card Reader

The Model 2330, 2340, or 2350 card readers can be connected to a Model 2005 touchpad instead of to the Model 4420. Use 12V from terminal 2 (P3) as shown in Figure 5-9.
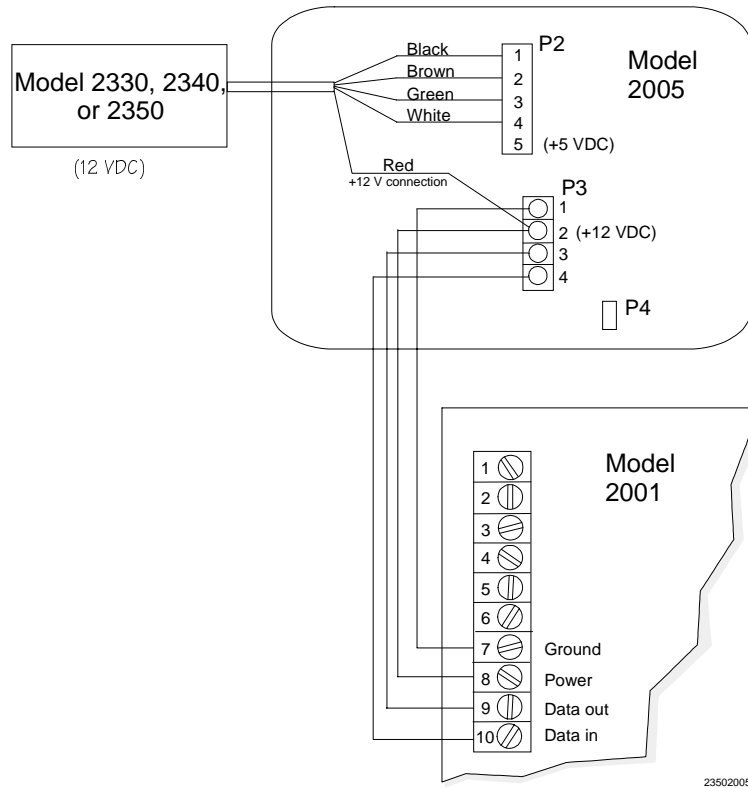
Figure 5-9. Model 2330/2340/2350 Connection to the Model 2005 Touchpad

5.4 Powering Up the System

Once you have installed the touchpads, test the basic system. To apply power, plug in the transformer and flip the DC power switch.

Test each touchpad, then remove the power again. Wire each accessory and auxiliary device with the power down. After you install each one, test it by applying power again.

Refer to Section 6 for touchpad displays at power up.

5.5 Zone Configuration and Wiring

Zones 1 through 16 can be used with Normally Open (N.O.) or Normally Closed (N.C.) contacts, or a combination of both. Figure 5-10 shows the different types of zone configurations. Loop power is available from terminals 15, 18, 21, 24, 27, 30, and 33. Smoke detector power is available on terminal 12.
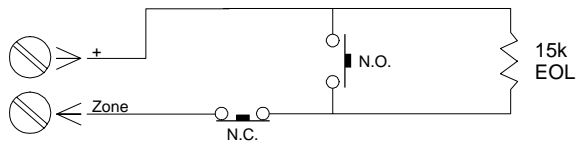
Supervision of either N.O. or N.C. contacts is optional. See the *Access 2000 Programming Manual (P/N 150928)* for more options.

Figure 5-10. Internal Zones

5.6 Local Annunciation

Types of annunciation include burglary bells, external and internal speakers, and the Model 4180 Status Display Module (Section 5.7).

5.6.1 External Speaker

Terminal 3 (+16 VDC) on the Model 2001 PC board is designed for use with an 8 Ohm, 30 Watt speaker. Connect the speaker between terminals 3 and 5 as shown in Figure 5-11. Leave shunt block J1 in the up position.
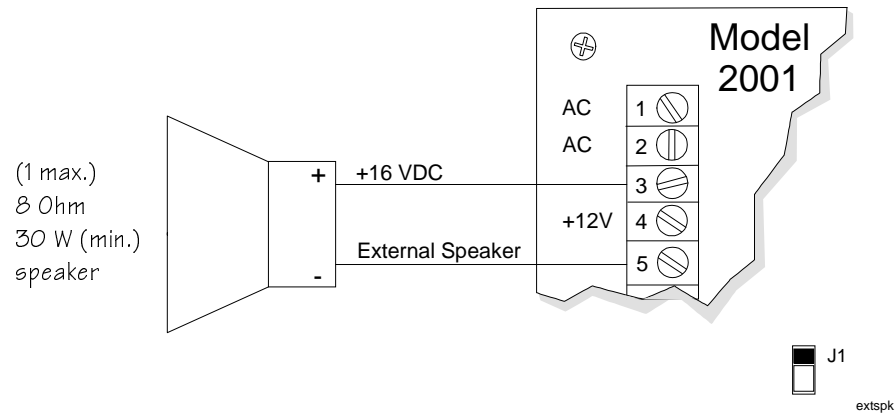
Figure 5-11. External Speaker wiring

5.6.2 Internal Speaker

If an internal speaker is to be used, near a touchpad for example, it must be connected between terminal 4 (auxiliary power) and terminal 6 (speaker output). The Model 2001 was designed for use with an 8 Ohm, 9 Watt internal speaker or up to six 45 Ohm, 2 Watt speakers.
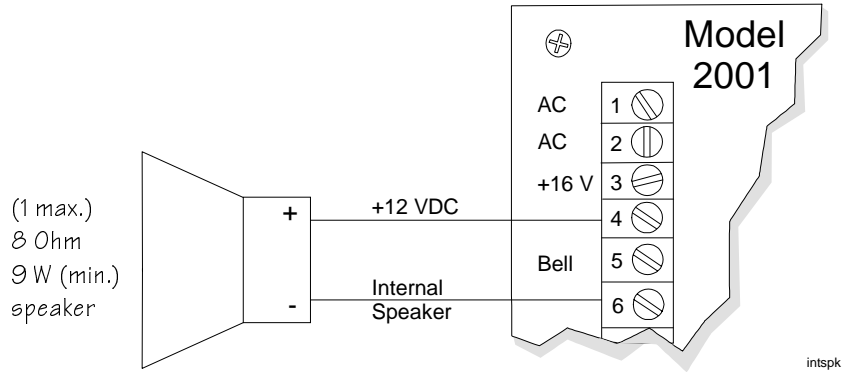
Figure 5-12. 8 Ohm Internal Speaker
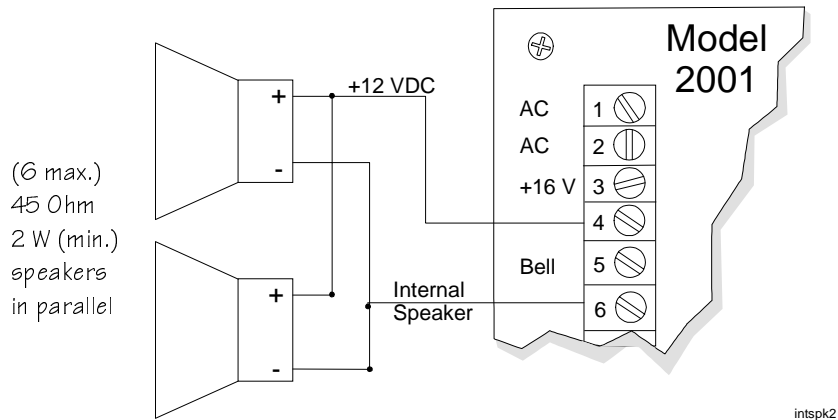
Figure 5-13. 45 Ohm Internal Speakers

5.7 Model 4180 Status Display Module

The Model 4180 Status Display Module is used to provide the Model 2001 with voltage and relay outputs, which are under the control of programmable I/O statements. See the *Access 2000 Programming Manual (150928)* for more information. Figure 5-14 shows how to wire the Model 4180 to the Model 2001.
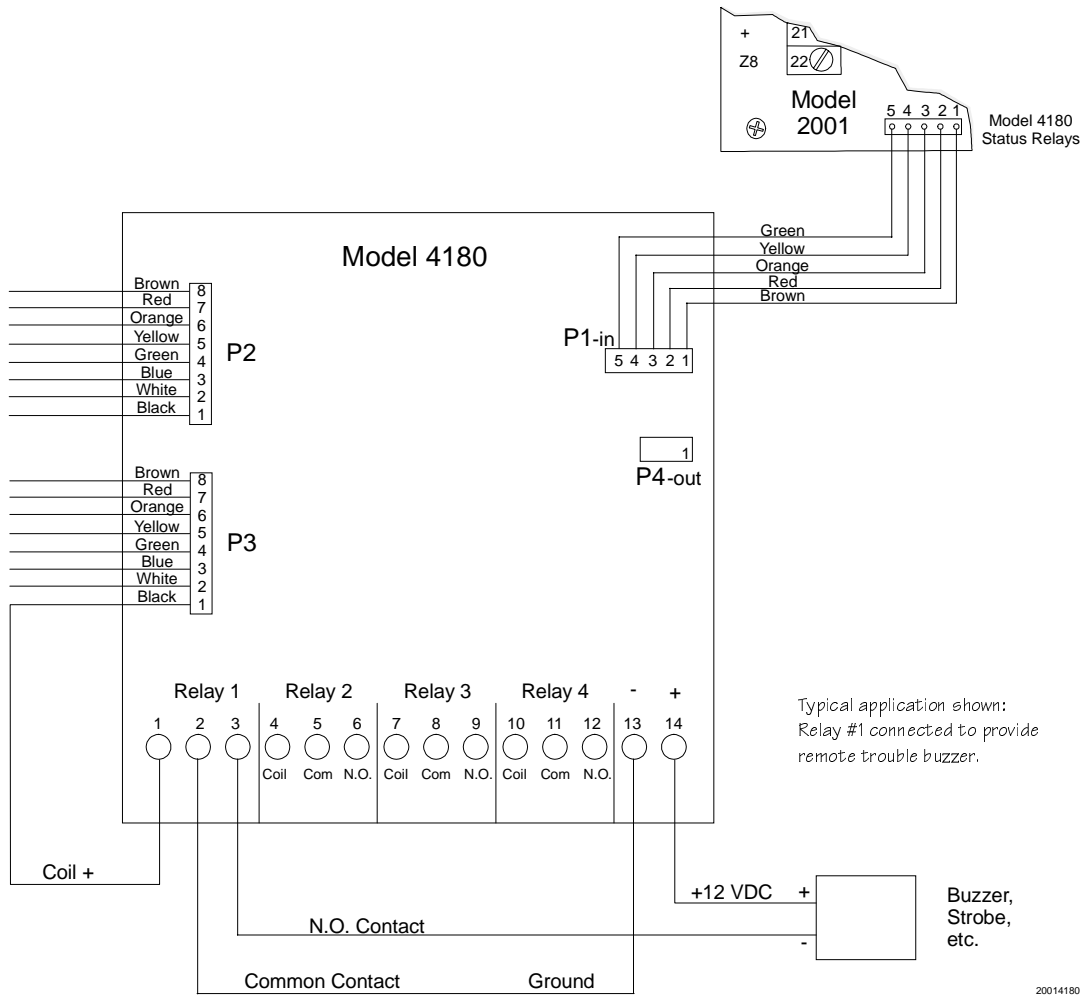
Figure 5-14. Model 4180 Status Relay Wiring

5.8 Model 4175 Dual Phone Line Monitor

The Model 4175 Dual Phone Line Monitor allows the use of two phone lines. Use the following steps to install the Model 4175:

1. Place the J5 and J6 jumpers in the down position before plugging the Model 4175 onto the Model 2001 printed circuit board.

2. Connect the second phone cord as shown in Figure 5-15. (The first phone cord for line 1 should be connected directly to the Model 2001 as described earlier.
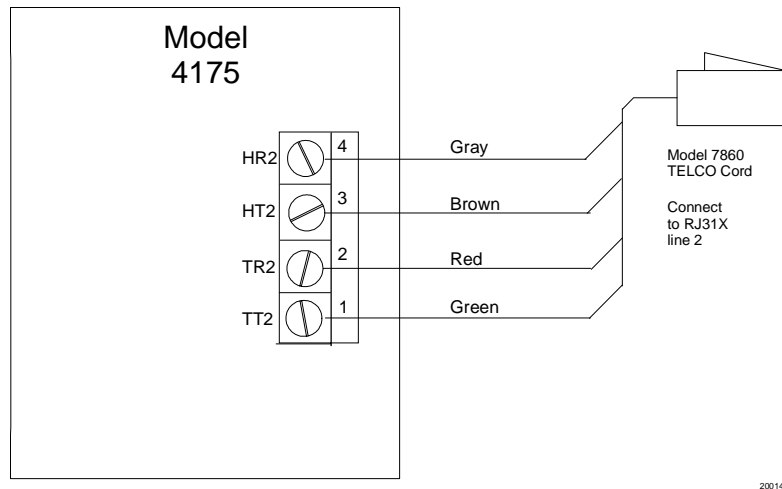
Figure 5-15. Model 4175 Connection

The Model 2001 will always try to use phone line #1 unless it is faulty. If phone line #1 is faulty, the Model 2001 automatically chooses phone line #2. If the Model 2001 fails to communicate on its first attempt (on either line), it will automatically switch to the alternate phone line. It will repeat this sequence until it reaches a receiver or the total number of attempts (chosen during programming) is exceeded.

Note: If there is an answering machine on line #1, the ring detector will not be usable for downloading. If possible, connect the answering machine to line #2.

The Model 4175 will also monitor both phone lines to detect cut or shorted phone wires. If line #2 is not used, the Model 4175 can monitor just line #1.

Section 6.
Normal Operation

The Model 2005 touchpad is used to program and operate the Access 2000 system. This section provides general operating instructions. For more details, refer to the *Access 2000 Owner's Manual (P/N 150929).*

Refer to *Access 2000 Programming Manual (P/N 150928)* for more information on programming options.

6.1 User Traffic Limitations
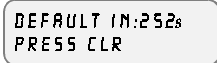
The Access 2000 system can store ID numbers for 500 users. Multiple users can operate the system simultaneously from different touchpads. This feature is especially useful in large access or area systems where users in different areas are not aware of each others' activities. The following list briefly describes other features:

- Different users can view status displays such as Event Memory and Not Ready zones at the same time without interference.

- Users can access the system during the downloading process, although zone alarms are disabled at this time to ensure that zone options are accurate. Door access and status displays can also be used during downloads.

- Other users can access the system while another user is in programming mode. For example, a user can be adding or deleting users from the system at one station while other users are accessing doors. However, only one user at a time can be in programming mode. This prevents users from making conflicting changes to the system or from using system resources that cannot be shared.

- In a large system or during heavy use (for example, if all 8 access points are in use at the same time), display responses may be slower than normal. Entry or exit delay displays may be updated less often than once per second if the system is heavily loaded.

6.2 System Power Up

At power-up (or reset), the touchpads show:
This means that the system will go into the

```
DEFAULT IN:252s
PRESS CLR
```

default arm mode in the displayed number of seconds. The display changes as the system counts down the seconds before it enters default mode. The first user to press [CLR] enters Set Time mode and the default countdown is canceled.

6.3 Model 2005 Touchpad

Refer to Section 5 of this manual for installing the Model 2005.
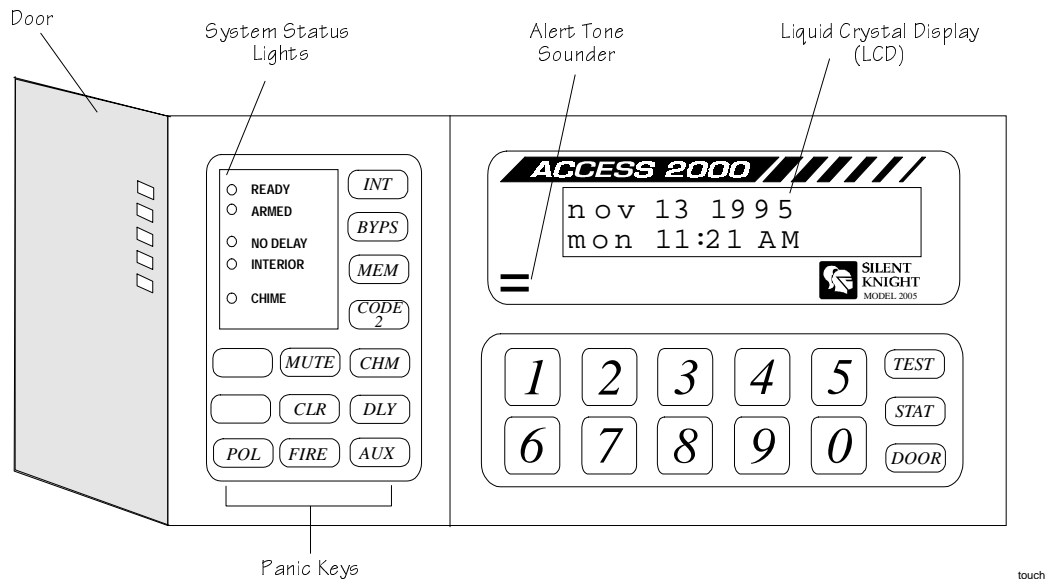
Figure 6-1. Model 2005 Touchpad

6.3.1 LED Indicators

LED	Status	Condition
ARMED	ON	System is armed
	OFF	System is disarmed
READY	ON	System is disarmed and all zones are ready to be armed.
	OFF	When the system is disarmed, one or more zones are Not Ready. When the system is armed, normal operating condition.
	Note: The system can be armed when the READY LED is off only if the FORCE ARM option (in Menu 4) was selected in programming.	
	FLASHING	System is reporting to the central station.
INTERIOR CHIME	ON	When the system is disarmed, an audible tone will sound when someone enters or exits a Chime zone. When the system is armed, an alarm will sound when someone enters or exits an interior zone.
	OFF	When the system is disarmed, no Chime tone will sound. When the system is armed, an alarm will NOT sound when someone enters or exits an interior zone.
	Note: The Chime function is not active when the system is armed..	
NO DELAY	ON	Zones programmed as delayed zones will now act as instant zones with no delay before activating an alarm.
	OFF	Delayed zones will work as programmed.

6.3.2 Touchpad Buttons

A general explanation of each Model 2005 touchpad button is described in the following table:

Button	Description
INT	Typically used only in residential installations. Press the INT button to toggle the interior zones on and off. When the INTERIOR LED is off, the interior zones are NOT part of the system (sensors are ignored). This button can be disabled once the system is armed. If the INTERIOR LED does not turn on when armed, one or more interior zones are Not Ready. *Note: The INTERIOR and CHIME LEDs toggle simultaneously.*
BYPS	**To Bypass Zones** When the system is *disarmed*, enter the number of the zone you wish to bypass and press BYPS. When the system is *armed*, enter the number of the zone you wish to bypass, press BYPS, and then enter your access code. *Note: If the BYPASS CODE option (in Menu 4) was selected during programming, you may be prompted to enter your access code even when the system is disarmed.* The LCD will display a message indicating that the zone is bypassed. If the zone is restricted, a warning tone will sound and the LCD will display the message RESTRICTED ZONE. **To Display Bypass Zones** When the system is disarmed, press BYPS. When the system is armed, press BYPS + access code. The LCD will display the zone number(s) and location of currently bypassed zones. If there are no bypassed zones, the display will remain in the normal state. **To Unbypass Zones** When the system is disarmed, enter the number of the zone you wish to unbypass and press BYPS. If a warning tone sounds, it means that the zone would go into alarm if it was unbypassed.
MEM	Used to display zones that were previously in alarm. **To Display Alarm Memory** When the panel is disarmed, press MEM to display zone alarms that have occurred since the last arming of the system or to display zones that were tripped during the Walk test. *Note: Zones are displayed by zone number, not by the order in which they occurred.* **To Clear Alarm Memory** To clear the alarm memory, press MUTE MEM.
CODE2	Typically used only in residential installations. Under normal operating conditions, secondary users can only arm the system. If enabled, these users can also disarm the system. The Code 2 feature is programmed as part of a user profile.

Touchpad buttons continued.

Button	Description
	To Enable Code 2 Press CODE2 + primary access code. Code 2 is enabled and the system is armed. **To Disable Code 2** To disable the Code 2 function, disarm the system using a primary access code. Code 2 cannot be used if the Door function is enabled.
(Blank)	Blank buttons are nonfunctional. Pressing either button will cause an error beep.
MUTE	Press MUTE twice to silence the trouble alert tone. The LCD will display TROUBLE SILENCED. If a new trouble condition occurs, the alert tone will sound again. Also used to clear alarm memory and exit from programming mode.
CHM	When the system is disarmed, press CHM to toggle the Chime feature on and off. *Note: The CHIME and INTERIOR LEDs toggle simultaneously.*
CLR	Used to erase incorrect entries. If you press the CLR button, you will have to re-enter the function.
DLY	Used to toggle the No Delay feature on and off. When arming the system, press DLY to make entry zones instant (alarms will sound immediately).
Panic keys	Press and hold for one full second to transmit an alarm to the central station, who will dispatch the appropriate authorities to your location. Panic keys are programmable, but typically used as follows: POL - Police FIRE - Fire department AUX - Non-medical emergencies
0 - 9	Enter data. Used primarily for entering access codes.
TEST	Used to enter a variety of test modes. See Section 6.5 for more information.
STAT	When the system is disarmed, pressing the STAT button displays the zones that are not ready to be armed on the touchpad LCD. If the LCD displays the message TROUBLE, press the STAT button to display the type of trouble condition. Trouble conditions display first if both trouble conditions and Not Ready zones exist.
DOOR	Used to activate the door strike relay. It cannot be used if the Code 2 function is used. The door function is typically used only in commercial installations.

6.3.3 Touchpad Functions

The Access 2000 System provides the following additional touchpad functions:

Function	Description
Door access	To gain access at a card reader or touchpad at a controlled access door, just present the card, or press DOOR and enter the PIN at the touchpad. To open a door at another station, press the number of the door and then present the card, or press DOOR and enter the PIN at the touchpad. If High Security mode is used, you must present the card and enter the PIN on the touchpad.
Display alarms	Press MEM .
Display troubles and supervisories	Press STAT .
Bypassing doors	To latch a door open or release the latch, press DOOR BYPS and then present the card or the PIN on the touchpad. The touchpad will read DOOR BYPASS when doors are latched open. Doors remain bypassed until manually unbypassed.
Display events	To display the event memory, press 1 MEM , enter an access code, then enter a start date to begin the event display. Press the digits of the month, day, and year, then press TEST . All events on or after this date will be shown. To show all the events in memory, press CLR TEST .
Clear events	To clear the event memory, press 1 0 TEST and enter a code with program mode access. Press 1 to erase the memory or 0 to quit, then press TEST to continue.
Zone display	Press 1 STAT to display all zone locations assigned to the touchpad.
Touchpad display	Press 2 STAT to view the touchpad location.
Software revision	Press 4 STAT to view the Access 2000 system software version and date (in YYMMDD format).

6.4 Audible Signals

To reset alarms, enter your access code.

To silence trouble or supervisory conditions, press MUTE + access code (if prompted).

In the following table, alarms are listed in order of priority.

Type	Sound	Description
Fire	High volume, high pitch pulsing tone	If the Access 2000 senses a fire, this alarm will sound and the system will send a fire alarm signal to the central station.
Panic	Slowly alternating, high/low pitch, constant tone	Triggered manually whenever anyone presses one of the panic buttons (POL, FIRE, and AUX buttons on the touchpad).
Intrusion	High volume, alternating high/low pitch, constant tone	An intrusion (or burglary) alarm causes this alarm to sound and sends a report to the central station.
Tamper	High volume, alternating high/low pitch, constant tone	Your system may be protected against attempts to disable it. Components such as outside bell or siren enclosures, the control cabinet, and telephone equipment can be protected from unauthorized access or tampering. Your system can be set up to monitor and report these conditions to the central station.
Auxiliary	Alternating high/low pitch pulsed tones.	Flooding and furnace failure are two examples of auxiliary alarms. You and your alarm installer will decide if your installation needs any auxiliary alarms.
Duress	Silent alarm transmitted to central station.	Occurs when you enter the 1 or 2 digit code programmed for duress before entering your access code.
Trouble or Supervisory Condition	One-second beep every few seconds.	This sound occurs when the system is malfunctioning (trouble condition) or when a water valve has been shut off (supervisory condition).
Exit/Entry Delay	One beep sounds each second during the entry delay time.	In a commercial installation, the signal may also be emitted during the exit delay.
Door Chime	A series of beeps sounds.	The beeps sound each time a perimeter door is opened or closed.

6.5 System Testing

When the system is disarmed, a user can access various test modes using the appropriate access code as shown in Table 6-1.

Table 6-1. Test Modes

Press	Test Mode	Description
⓪ TEST + code 0 or 1	Dialer test	When activated, the Model 2001 will send a Dialer test report to the central station receiver.
① TEST + code 0 or 1	Not Used	
② TEST + code 0	Walk test	This mode disables alarm reporting so that the installer can test all of the zones. A 2-second alarm will sound when each zone is tripped. Each zone test will be stored and can be viewed at the touchpad by pressing MEM . If the installation includes a Model 5260 printer interface, the Model 2001 will print a list of each zone test.
Warning: During a Walk Test, the system will not respond to real fire alarms.		
③ TEST + code 0 or 1	Reset dialer, smoke detectors, and touchpads	The dialer will abort any calls in progress. Touchpads and smoke detectors will be reset.
④ TEST + code 0 or 1	Request Download	When activated, the dialer will request downloading from the remote computer.
⑤ TEST + code 0 or 1	Not used.	
⑥ TEST + code 0	Hex EEPROM display	Do NOT use.
⑦ TEST + code 0 or 1	Program access codes	See the *Access 2000 Programming Manual (P/N 150928)*.
⑧ TEST + code 0 or 1	Set date	To set a date of October 1, 1995: Enter ① ⓪ ⓪ ① ⑨ ⑤ + TEST
⑨ TEST + code 0 or 1	Set time	When you first apply power to the system, it will come up in set time mode. Enter four digits for the time in HH:MM (military time) format. To set the time of 2:30 p.m.: Enter ① ④ ③ ⓪ + TEST

To return to normal operating mode, press MUTE MUTE .

6.6 Walk Test

The Model 2000 walk test mode allows the system to be tested without causing alarm reports. Follow the procedure below to perform a walk test.

1. Press 2 TEST followed by code 0 or code 1.

2. The LCD will display WALK TEST or your customized walk test message. See the *Access 2000 Programming Manual (P/N 150929)* for a list of system messages.

3. Arm the system. Then, trigger the sensors by walking through the armed areas. The system will operate as normal, except that it will not report alarms to the central station, and alarm tones will not be sent to the external bell. The alarm conditions will be displayed on the touchpad LCD and annunciated on the internal speakers.

   Note: The system will remain in the same armed/disarmed state after you exit the walk test mode, so be sure to arm or disarm it as desired.

   Interior zones can be armed or disarmed during the test to verify operation of the interior control key and options.

   Test the exit and entry zones to verify the delay times you have programmed.

4. To exit the walk test mode, press MUTE MUTE on any touchpad.

6.7 Adjusting LCD Contrast

To adjust the brightness on the touchpad LCD, press and hold the MUTE DLY buttons at the same time until the LCD display is at the desired brightness. The touchpad will beep until you release the buttons.

Section 7.
Central Station Reporting

This section describes the reporting formats used to report to Silent Knight receivers at the central monitoring station. The Access 2000 system is compatible with the following receivers:

- Silent Knight Model 9000 (SIA, FSK1, SK 4+2, Radionics BFSK)
- Silent Knight Model 8510/8520 (FSK1, SK 4+2)
- Radionics Model 6000/6500 (Radionics BFSK)
- FBI Model CP220 (SK 4+2, Radionics BFSK)
- Osborne/Hoffman Quickalert (SK 4+2, Radionics BFSK, SIA)

7.1 FSK 1 and SK 4+2 Formats

If reporting to a Silent Knight Model 8250 Receiver, you must use one of these two formats. Since the Model 8520 has only two digits for alarm codes, event type and zone numbers are combined into one message. The first digit of any code is the report type; the second digit is the last number of the zone.

Note: This information does not apply if you have selected the 16-zone reporting option. Zones 1-16 are reported. Refer to the Access 2000 Programming Manual (P/N 150928) for more information.

For example, any two digit code beginning with 1 is a Burglary alarm. The second digit is the last number of the zone in alarm.

Code 11 = Burglary alarm in zone 1, 11, 21, or 31
Code 15 = Burglary alarm in zone 5, 15, or 25

FSK & SK 4 + 2	Description
Intrusion Zone Codes	
1_	Burglary alarm
2_	Alarm restore or Bypass restore (burglary)
5_	Burglary Bypass
Fire, Panic, Tamper, Gas, Sprinkler, Water, Heat, Cold, and Holdup Codes	
0_	Alarm
20	Bypass Restore
50	Bypass
6_	Supervisory or Trouble alarm
7_	Restore, Supervisory Restore, and Trouble Restore

FSK and SK 4+2 codes continued on the following page.

FSK and SK 4+2 codes continued.

FSK & SK 4 + 2	Description
Other Codes	
09	Duress/Holdup
30	Dialer Test
31	Phone Line Trouble
32	Phone Line #2 Trouble
33	Expansion Trouble
34	Door Left Open or Door Forced Open
35	Phone Line Restore
36	Phone Line #2 Restore
37	Expansion Restore
39	Lost Data
4_*	Closing Report
60	AC Lost
69	Low Battery
70	AC Restore
79	Battery Restore
80	Door Station
8_*	Door Access
9_*	Open or Alarm Reset

* *For these codes, the second digit is the last digit of the user ID.*

7.2 Radionics BFSK

The Model 2001 can transmit using the Radionics BFSK format with 1400 or 2300 Hz acknowledgment. The messages printed are listed with the codes for FSK 1 and SK 4 + 2.

There are not door access reporting codes when using the BFSK format. If this option is selected during programming, the Model 2001 will send a restoral for zone 9.

The Radionics BFSK format can only report eight zone codes. Zones 9 through 16 will report as zones 1 through 8, zones 17 through 24 will report as zones 1 through 8, and so on. Due to this limitation, it is recommended that you do NOT program the Model 2001 to report in both the Radionics BFSK and either the FSK or SK 4 + 2.

It is recommended that you use no more than 8 zones if your system is programmed to report in Radionics BFSK format. However, if you choose to use more than 8 zones with the Radionics BFSK format, it is a good idea to make every 8th zone (such as zones 1, 9, 17 and zones 2, 10, 18) the same zone type (such as Fire).

If you assign the zones in this manner, the letter X shown in Table 7-1 will be a digit that represents every 8th zone number, as shown below:

Digit Reported (X)	1	2	3	4	5	6	7	8
	1	2	3	4	5	6	7	8
Zone Numbers	9	10	11	12	13	14	15	16
	17	18	19	...				

Table 7-1. Radionics BFSK English

BFSK Code	English Description
Fire Codes	
0X	Alarm Zone X
EX	Restore Zone X
FX	Trouble Zone X was Force Armed
Fire, Panic, Tamper, Gas, Sprinkler, Water, Heat, Cold, and Holdup Codes	
0X	Alarm Zone X
E0	Restore Zone 0
F0	Trouble Zone 0 was Force Armed
FX	Trouble Zone X
EX	Restore Zone X
Other Zones	
09	Alarm Zone 9
E9	Restore Zone 9
FB	Trouble Zone B
FC	Trouble Zone C
EB	Restore Zone B
CY	Close Zone X
F0	Trouble Zone 0
F9	Trouble Zone 9
E0	Restore Zone 0
BY	Open Zone X

7.3 SIA Format

The SIA format must be used with a Silent Knight Model 9000 Digital Alarm Receiver. Each message will be displayed in English followed by the zone number.

Table 7-2. SIA Messages

SIA Code	9000 Printer	Status of 5207
YT	LOW BATTERY 0	System battery is low
YR	BATTERY RESTORE 0	Battery voltage is back to normal
AT	AC TROUBLE 0	AC power is off or low
AR	AC RESTORE 0	AC power has come back on
LT	PHONE LINE TROUBLE 1	Phone line 1 is not working
LT	PHONE LINE TROUBLE 2	Phone line 2 is not working
LR	PHONE LINE RESTORE 1	Phone line 1 is back to normal
LR	PHONE LINE RESTORE 2	Phone line 2 is back to normal
ET	EXPANSION TROUBLE 0	Dialer trouble
ET	EXPANSION TROUBLE 1	Printer (5260) trouble
ET	EXPANSION TROUBLE 7	EE memory trouble
ET	EXPANSION TROUBLE 8	XBUS trouble
ET	EXPANSION TROUBLE 17-24	Touchpad 1-8 trouble
ER	EXPANSION RESTORE 0	Dialer back to normal
ER	EXPANSION RESTORE 1	Printer (5260) back to normal
ER	EXPANSION RESTORE 17-24	Touchpad 1-8 back to normal
CA	AUTO CLOSE 0	System automatically armed
CL	CLOSE ID 0	System armed by access code 0
CL	CLOSE ID 1 THRU 499	System armed by codes 1 through 499
OP	OPEN ID 0	System disarmed by access code 0
OP	OPEN ID 1 THRU 499	System disarmed by codes 1 through 499
CF	FORCE CLOSE 0	System force armed by access code 0
CF	FORCE CLOSE 0	System force armed by codes 1 through 499
CT	SUPERVISORY CLOSE 0	Failed to open (still armed)
OT	SUPERVISORY OPEN 0	Failed to close (still disarmed)
OR	OPEN RESET ALARM ID 0	Alarm reset with access code 0
OR	OPEN RESET ALARM ID (1-499)	Alarm reset with access code (1-499)
DG	DOOR ID 0	Door access granted to code 0
DG	DOOR ID 1 THRU 499	Door access granted to codes 1 though 499

SIA Messages continued on the following page.

SIA Messages continued.

SIA Code	9000 Printer	Status of 5207
DS	DOOR STATION 1	Access granted at door 1
DO	DOOR LEFT OPEN 1 THRU 8	Access door was propped open
DF	DOOR FORCED 1 THRU 8	Access door was opened without using code
RP	AUTO TEST 0	Automatic dialer test
RX	MANUAL TEST 0	System tested by access code 0
RX	MANUAL TEST (1-499)	System tested by access code (2-99)
RT	DATA LOST 0	Previous event could not be reported and the information was lost
"BURGLARY" *is used as an example below. Possible zone types are HOLDUP, FIRE, PANIC, BURGLARY, TAMPER, GAS, WATER, HEAT, COLD, and UNDEFINED*		
(B)A	(BURGLARY) ALARM 1-16	Zone is in alarm
(B)T	(BURGLARY) TROUBLE 1-16	Loop faulted
(B)B	(BURGLARY) BYPASS 1-16	Zone has been bypassed
(B)U	(BURGLARY) UNBYPASS 1-16	Zone has been unbypassed
(B)S	(BURGLARY) SUPERVISORY 1-16	RF transmitter low battery
(B)R	(BURGLARY) RESTORE 1-16	Zone restored to normal due to: Reset/Shutdown Loop Fault repaired Transmitter battery replaced
FA	FIRE ALARM 81	FIRE key
HA	HOLDUP ALARM 0	Duress
PA	PANIC ALARM 83	POL key
PA	PANIC ALARM 82	AUX key

7.4 Ademco Contact ID event Codes

The following table lists the Ademco Contact ID event codes that the Access 2000 can send.

In the "Event Qualifier" column: 1 = New event

2 = Restore event

Table 7-3: Contact ID Event Codes

Event Code	Event Qualifier	Group Number	Contact/ User #	SIA Event Description
101	1	Area #	Zone #	Emergency Alarm
101	3	Area #	Zone #	Emergency Alarm Restore
110	1	Area #	Zone #	Fire Contact Alarm
110	3	Area #	Zone #	Fire Contact Alarm Restore
113	1	Area #	Zone #	Water Alarm
113	3	Area #	Zone #	Water Alarm Restore
114	1	Area #	Zone #	Heat Alarm
114	3	Area #	Zone #	Heat Alarm Restore
115	1	Area #	Zone #	Fire Alarm
115	3	Area #	Zone #	Fire Alarm Restore
120	1	Area #	Zone #	Panic Alarm
120	3	Area #	Zone #	Panic Alarm Restore
121	1	Area #	Zone #	Duress (Holdup) Alarm
121	1	Area #	Zone #	Holdup Alarm
121	3	Area #	Zone #	Holdup Alarm Restore
130	1	Area #	Zone #	Burglary Alarm
130	3	Area #	Zone #	Burglary Alarm Restore
134	1	Area #	Zone #	Door Monitor or Egress Alarm

Table 7-3: Contact ID Event Codes continued

134	3	Area #	Zone #	Door Monitor or Egress Alarm Restore
137	1	Area #	Zone #	Tamper Alarm
137	3	Area #	Zone #	Tamper Alarm Restore
140	1	Area #	Zone #	Undefined Alarm
140	3	Area #	Zone #	Undefined Alarm Restore
153	1	Area #	Zone #	Cold Alarm
153	3	Area #	Zone #	Cold Alarm Restore
203	1	Area #	Zone #	Sprinkler Alarm
203	3	Area #	Zone #	Sprinkler Alarm Restore
300	1	Area #	Zone #	Power Supervision Trouble
300	3	Area #	Zone #	Power Supervision Restore
301	1	00	000	AC Power Trouble
301	3	00	000	AC Power Restore
302	1	00	000	Battery Trouble
302	3	00	000	Battery Restore
306	1	00	000	Remote Program Begin
330	1	Area #	Station #	At Door Station
330	3	Area #	Station #	Door Access Enabled
330	1	Area #	Station #	Door Forced Open
330	1	Area #	Station #	Door Left Open
333	1	Area #	Device #	Expansion Trouble
333	3	Area #	Device #	Expansion Trouble Restore
335	1	Area #	Device #	Printer Paper Out
335	3	Area #	Device #	Printer Paper In

Table 7-3: Contact ID Event Codes continued

336	1	Area #	Device #	Printer Off Line
336	3	Area #	Device #	Printer On Line
351	1	00	Line #	Phone Line 1 Trouble
351	3	00	Line #	Phone Line 1 Restore
352	1	00	Line #	Phone Line 2 Trouble
352	3	00	Line #	Phone Line 2 Restore
354	1	Area 3	00	Data Lost
370	1	Area #	Zone #	Burglary Trouble
370	3	Area #	Zone #	Burglary Trouble Restore
370	1	Area #	Zone #	Cold Trouble
370	3	Area #	Zone #	Cold Trouble Restore
370	1	Area #	Zone #	Door Monitor Trouble
370	3	Area #	Zone #	Door Monitor Trouble Restore
370	1	Area #	Zone #	Emergency Trouble
370	3	Area #	Zone #	Emergency Trouble Restore
370	1	Area #	Zone #	Heat Trouble
370	3	Area #	Zone #	Heat Trouble Restore
370	1	Area #	Zone #	Holdup Trouble
370	3	Area #	Zone #	Holdup Trouble Restore
370	1	Area #	Zone #	Panic Trouble
370	3	Area #	Zone #	Panic Trouble Restore
370	1	Area #	Zone #	Sprinkler Trouble
370	3	Area #	Zone #	Sprinkler Trouble Restore
370	1	Area #	Zone #	Tamper Trouble
370	3	Area #	Zone #	Tamper Trouble Restore

Table 7-3: Contact ID Event Codes continued

422	1	Area #	User #	Door Access Granted
422	1	Area #	User #	Egress Granted
570	1	Area #	Zone #	Burglary Bypass
573	3	Area #	Zone #	Burglary Unbypass
570	1	Area #	Zone #	Cold Bypass
570	3	Area #	Zone #	Cold Unbypass
570	1	Area #	Zone #	Door Monitor Bypass
570	3	Area #	Zone #	Door Monitor Unbypass
570	1	Area #	Zone #	Egress Bypass
570	3	Area #	Zone #	Egress Unbypass
570	1	Area #	Zone #	Emergency Bypass
570	3	Area #	Zone #	Emergency Unbypass
570	1	Area #	Zone #	Heat Bypass
570	3	Area #	Zone #	Heat Unbypass
570	1	Area #	Zone #	Holdup Bypass
570	3	Area #	Zone #	Holdup Unbypass
570	1	Area #	Zone #	Panic Bypass
570	3	Area #	Zone #	Panic Unbypass
570	1	Area #	Zone #	Sprinkler Bypass
570	3	Area #	Zone #	Sprinkler Unbypass
570	1	Area #	Zone #	Tamper Bypass
570	3	Area #	Zone #	Tamper Unbypass
570	1	Area #	Zone #	Undefined Bypass
570	3	Area #	Zone #	Undefined Unbypass
570	1	Area #	Zone #	Water Bypass

Table 7-3: Contact ID Event Codes continued

570	3	Area #	Zone #	Water Unbypass
571	1	Area #	Zone #	Fire or Fire Contact Bypass
571	3	Area #	Zone #	Fire or Fire Contact Unbypass
574	1	Area #	User #	ID
601	1	Area #	User #	Manual Test
602	1	Area #	000	Auto Test
602	1	Area #	000	Date Changed
602	1	Area #	000	Door Access Inhibited
602	1	Area #	User #	Door Held Open
602	1	Area #	User #	Door Restoral
602	1	Area #	00	System Power Up
602	1	Area #	00	User Code Added
602	1	Area #	00	User Code Changed
602	1	Area #	00	User Code Deleted
602	1	Area #	00	User Code Tamper
607	1	Area #	000	Test Start
607	3	Area #	000	Test End
624	1	Area #	00	Log Overflow
627	1	Area #	User #	Local or Remote Program Begin
628	1	Area #	00	Local Program Success
628	3	Area #	00	Local Program Fail

Section 8.
Troubleshooting

8.1 Trouble and Error Messages

The following list describes the possible trouble and error messages that can be displayed on the touchpad LCD:

8.1.1 Trouble Messages

AC   Loss of AC power.

BATTERY   Low battery condition or no batteries.

DATA LOST   Dialer has failed all of its attempts to communicate with the central station and the Access 2000 system has deleted the message it was trying to send.

DEVICE 0   Problem with the dialer micro 1.

DEVICE 1   Problem with the printer interface (5260).

DEVICE 7   Memory problem with the EEPROM.

DOOR 1-8   An access door is open when it should not be open.

FAILED   One of the options in programming requires you to program the number of attempts before the Access 2000 displays a FAILED condition. If this is lower than the total number of attempts, the touchpad will display FAILED, but will continue dialing until the total number of attempts has been reached.

LINE 1   Phone line #1 is faulty.

LINE 2   Phone line #2 is faulty (when using two phone lines).

PAPER   Printer is out of paper or offline

STATION 1-8   Touchpad or 4420 problem.

ZONE # <location>   Indicates which zone is in trouble.

8.1.2 Error Messages

RESTRICTED CODE   The code entered either cannot be used at that touchpad or cannot be used to access the function.

RESTRICTED DOOR   The code entered cannot be used to open that door.

RESTRICTED TIME   Code entered outside a programmed time window.

RESTRICTED ZONE   The zone cannot be bypassed or unbypassed.

TRY AGAIN   Either an invalid code was used or the Model 2001 did not understand the command.

8.2 System Troubleshooting

When troubleshooting this system, it is always best to begin by looking for the simplest possible causes for a malfunction.

8.2.1 Check Wiring

Check that all wires are properly connected to their terminals. Check for obvious wiring defects, such as missing insulation, that may cause shorts.

Wiring can be checked through simple continuity tests using your analog or digital multimeter.

1. For 2-wire cables, disconnect the cable at each end.
2. Connect each of the probes of your meter to one of the two wires and switch the meter to the ohmmeter functions. You should now see an almost infinite resistance between the two wires. A low resistance reading means that you have a short somewhere in the cable.
3. Use a clip wire and short the two wires together at the far end of the cable, away from the ohmmeter. You should now see almost no resistance on your ohmmeter. If you continue to see a very high resistance, one or both of the wires have been cut somewhere along the cable run.
4. Try to determine the location of any cuts or shorts in the cable. Shorts can be repaired with electrical tape, and cuts can usually be spliced. If it is difficult to determine where a cable malfunction is located, it may be best to run a new cable.

8.2.2 Check Accessories

Malfunctions in the system are often caused by problems in the accessories, detectors, and sensors that are attached to the Model 2001. Make sure that all accessories and external devices are in good working order before you begin to troubleshoot the Model 2001 control/ communicator cabinet. Also make sure that the telephone line is in good working order.

8.2.3 Check Power Supply

Among the common problems in a control/communicator are problems with the power supply. Check that all overcurrent indicator LEDs are off (normal condition). Make sure that the battery is properly attached and the panel is receiving power from the AC line (green LED is on).

8.3 Before You Call Technical Support

Silent Knight Technical Support staff can help you with problems that come up when installing a system. However, before you call Technical Support, follow the guidelines listed below. You may be able to solve the problem yourself and save a lot of time. Even if you need to call Technical Support after trying these steps, you will still save time by gathering information that will help Technical Support serve you better.

1. Don't panic. (Always the first step whenever a problem comes up!)

2. Check your manual for suggestions. Re-read the installation section for the device you are installing.

3. Verify that a problem exists. Try to replicate it.

4. Check connections.

5. Isolate the problem. Remove other devices that may be interfering.

6. Once you have isolated the problem, change one thing at a time. (Do not change anything until you have isolated the problem.)

7. Try to answer the following questions:

    Has the problem occurred before? If so, how was it solved then? (It is always a good idea to log problems and solutions so all installers can find and review them.)

    Has anything changed recently or has anyone else worked on the system since the last time you worked on it?