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INSTALLATION AND OPERATION MANUAL FOR

MODEL 3008 DIRECTPLEX

SUBSCRIBER'S CONTROL PANEL

REVISED: FEBRUARY 1999
SOFTWARE: DXOS18LB/L18E69
DXOS18LF/L18E65BF

CONTENTS

GENERAL INFORMATION

The DIRECTPLEX Model 3008 is a microprocessor-based, subscriber's control panel that can monitor a maximum of eight zones, all of which are home-run wired (directly connected) to the panel using a variety of input loop wiring. The zone types (exit, follower, night, etc.) have been pre-assigned so that minimum programming is required at time of installation. The panel features 11 light-emitting diodes that indicate whether the panel is armed or not, report on power and shunt conditions, and display the status of individual zones.

The control panel accommodates one Master user code, one Service user code, and up to 34 general user codes. The extent of access to the panel for each general user is determined by the Master user who selects, from a list, the options allowed the general user. When the panel is in operation, an alarm log is maintained containing the date, time, and event description of the last
} 300 events. The user's name can also be entered and will then appear on the alarm log in addition to the previous information. All these functions require the use of a remote keypad or a service programming keypad.

The panel has 19 pre-assigned outputs, 3 of which are available directly from the panel relays and the remaining 16 from C-LEMs. Additionally, at time of installation, the installer may now re-assign any of the outputs to any of the three on-board relays.

} L **Note:** The two symbols in the margins draw attention to the following: The } signifies that the panel requires the use of a remote keypad or a service programming keypad. The L signifies a new function or option or one that has changed from the previous manual.

ACCESSORIES

Model 3220, 3230 and 3240 remote keypads can be connected to the DIRECTPLEX panel to provide a full display of panel activity at any number of locations and also to permit programming of the control panel. As well, the Model 3220BF service programming keypad may be used to program the control panel. Model 1101 Command Line Encoder Modules (C-LEMs) can also be connected to the panel to provide additional dry contacts.

INSTALLATION PLANNING GUIDE AND CHECKLIST

Installation of the system involves a number of distinct steps, from mounting the panel and wiring the system, through configuring and programming the system, and finally performing a thorough system test. The various steps involved are outlined below.

First-time users are well advised to configure a simple system on the bench to become fully familiar with the operation of the control panel's features before attempting to install a system at the site.

MOUNTING THE PANEL AND WIRING THE SYSTEM

Locate the control panel in an area that has convenient access and then fasten the panel securely to a wall at about chest height. Eight mounting holes are provided.

The printed circuit board is mounted on the front door of the panel with seven fixing screws. If the printed circuit board has to be removed from the panel, care should be taken with the pushbuttons on the keypad.

ZONE WIRING

All zones 1 through 8 are home-run wired (directly connected) to the panel. Refer to pages 7 through 15 for drawings of how door contacts, PIRs, etc. are connected to the panel.

MULTIPLEX PORT

Remote keypads and C-LEMs can be wired to the multiplex port of the DIRECTPLEX control panel using a four-conductor cable. This capability is unique to the DIRECTPLEX panel. The panel will not support LEMS or COMBO LEMS. Remote keypads should be home-run wired to the panel while C-LEMs may be connected in series (daisy chained). The maximum cabling length is 500 feet per device. The panel's auxiliary 12-volt DC power *must be used* to power the C-LEMs and may be used to supply power to no more than three remote keypads. For cabling runs less than 200 feet, one "telephone-style" 22-gauge quad wire is used to connect each remote keypad to the panel; however, if the cabling distance exceeds 200 feet, two quad wires should be used, one for telemetry and the other paralleled to supply DC power from the panel. If more than three keypads are to be installed, an extra power supply is required.

Only one quad wire is required to connect C-LEMs. Refer to pages 19 through 20 for further wiring information. The panel's auxiliary DC power should not be used to supply disruptive loads like mechanical bells or strobe lights.

SPRINKLER TRANSFORMER

If the DIRECTPLEX control panel is used to monitor a ULC-certificated sprinkler riser or fire alarm panel, then the Model 1055 Sprinkler Transformer *must be used* to provide AC power to the panel. See the installation instructions supplied with that item.

APLEX/MIDIPLEX/DIRECTPLEX INSTALLER SET-UP BOOKLET

This booklet contains a summary of all commands and choices that an installer would need to install and service a system. This booklet should be used in conjunction with the information contained in this manual. Please familiarize yourself with this document.

TERMINAL CONNECTIONS

TERMINAL	OPERATION/FUNCTION	
36	Earth/Water-Pipe Ground	
35	AC Input (16 VAC, 30 VA min.)	
34	AC Input (16 VAC, 30 VA min.)	
33	12 VDC Aux. Power +ve (Fuse F2)	
32	12 VDC Aux. Power +ve (Fuse F2)	
31	Standby Battery +ve (Red wire, Fuse F1, 13.5-13.8 VDC)	
30	Standby Battery -ve (Black wire)	
29	0 VDC (Power -ve)	
28	0 VDC (Power -ve)	
27	Relay 1 N/C	
26	Relay 1 Common	Default: Output 7 (Timed Bell Cut-off)
25	Relay 1 N/O	
24	Zone 1 Input	
23	Zone 1, 2 Common	Circuit Type: Links* LK2, LK3
22	Zone 2 Input	
21	Zone 3 Input	
20	Zone 3, 4 Common	Circuit Type: Links* LK4, LK5
19	Zone 4 Input	
18	Zone 5 Input	
17	Zone 5, 6 Common	Circuit Type: Links* LK6, LK7
16	Zone 6 Input	
15	Zone 7 Input	
14	Zone 7, 8 Common	Circuit Type: Links* LK8, LK9
13	Zone 8 Input	
12	Relay 2 N/O	
11	Relay 2 Common	Default: Output 1 (Intrusion Alarm) **Normally energized**.
10	Relay 2 N/C	
9	Relay 3 N/C	
8	Relay 3 Common	Default: Output 2 (Fire Alarm)
7	Relay 3 N/O	
6	RX Data (DVACS^{tm} = 150 Baud, 8 Data bits, Even parity)	
5	TX Data (DVACS^{tm} = 150 Baud, 8 Data bits, Even parity)	
4	0 VDC (-ve) (Signal ground & Remote keypad/C-LEM -ve)	
3	+12 VDC (Fused at 1.25 amp, Fuse F2) (Remote keypad/C-LEM +ve)	
2	Multiplex Port Data Line (Remote keypad data)	
1	Multiplex Port Control Line (Remote keypad/C-LEM clock)	

***Changing links requires reconfiguring zones** (see page 34).

NOTES CONCERNING THE TERMINAL CONNECTIONS

Terminal 1 is the multiplex port control (clock) line. This output is used to control remote keypads and C-LEMs.

Terminal 2 is the multiplex port data line. This input is used to receive data from remote keypads.

Terminal 3 provides an auxiliary 12 volts (actually 13.6 volts) DC, fused at 1.25 amp (Fuse 2), used for powering C-LEMs and remote keypads. Should this fuse fail in service, we recommend replacing it with a 2.0-amp fuse. You may obtain a package of three fuses by ordering product code 3310 from your distributor or replacement fuses can be obtained from electronic wholesalers or retailers carrying the BUSSMAN or LITTLEFUSE line (BUSS product code GMA 2 or LITTLEFUSE 211.2).

Terminal 4 is a signal ground/power negative. This terminal is used for remote keypad/ C-LEM power negative, telemetry negative, and the DVACS^{tm} signal ground.

Terminal 5 is the TX (transmit) line for DVACS^{tm}/logging printer use.

Terminal 6 is the RX (receive) line for DVACS^{tm}/logging printer handshake use. If real-time event logging is desired, connect a Data Terminal Ready (DTR) lead from your printer (pin 4 or pin 20) to this terminal or else connect a 2K2-ohm resistor between terminal 3 and terminal 6. This does not apply when the panel is used with DVACS^{tm} service.

Terminals 7, 8, and 9 (relay 3) and 10, 11, and 12 (relay 2) connect to Form C contact (SPDT) relays with a 2-amp, 24-volt DC resistive load rating. Note that the relay number *does not* always indicate the output number. The output number can be re-assigned by reconfiguring the relays (see page 33). See page 3 above for default settings.

Terminals 13 through 24 are the inputs for zones 1 through 8. See pages 7 through 15 for wiring drawings and page 3 above for terminal screw assignment. Each pair of zone inputs, 1 and 2, 3 and 4, 5 and 6, 7 and 8, can be configured for one of High, Low, 1 EOL, or 2 EOL loop wiring (see page 6) by first setting the jumper pairs, LK2 and LK3, LK4 and LK5, LK6 and LK7, and LK8 and LK9 respectively (see pages 7 and 9), as required. When the selections have been made, the zones must be reconfigured (see page 34).

Terminal 25, 26, and 27 (relay 1) connect to a Form C contact (SPDT) relay with a 2-amp, 24-volt DC resistive load rating. Note that the relay number *does not* always indicate the output number. The output number can be re-assigned by reconfiguring the relays (see page 33). See page 3 above for default settings.

Terminals 28 and 29 are the auxiliary power negative.

Terminals 30 and 31 are used to connect the standby battery negative and positive respectively. Flexible wires terminated with Faston lugs have been provided. Connect the red lead to the

positive (+ve) post and the black lead to the negative (-ve) post. **Watch polarity! Reversal will damage pcb.**

Terminals 32 and 33 provide an auxilliary 12 volts (actually 13.6 volts) DC, fused at 1.25 amp (Fuse 2), used for powering C-LEMs, remote keypads, PIRs, glass breaks, etc. Should this fuse fail in service, we recommend replacing it with a 2.0-amp fuse. You may obtain a package of three fuses by ordering product code 3310 from your distributor or from retailers carrying the BUSSMAN or LITTLEFUSE line (BUSS product code GMA 2 or LITTLEFUSE 211.2).
Note: The ULC listing for the DIRECTPLEX panel is based on the operation of the standby battery for 24 hours. This condition is met when a suitable battery is used. See the chart below to determine the required battery capacity. If you use the auxilliary power terminals, the standby battery capacity must be increased to provide for the extra load current.

Terminals 34 and 35 are connected to a 16- to 18-volt AC, 30-va minimum transformer.

Terminal 36 should be connected to the grounding screw located on the rear of the cabinet and thence to a cold-water pipe or Hydro ground using a heavy-gauge wire (18 ga. or 16 ga.) routed over the shortest possible distance. **A solid, direct connection is essential for effective operation of the lightning-protection devices on the printed circuit board. Grounding the enclosure also reduces the risk of static electricity as users enter their codes.**

The following chart may be used to determine the standby battery requirements for the DIRECTPLEX control panel:

Product	Current Draw from 12-Volt Battery	Amp-Hour Battery Requirements for 24-Hour Standby
3008 Panel (All LEDs On)	0.14 amp	3.4 amp-hr.
3220 Keypad (Display On)	0.25 amp	6.0 amp-hr.
3220 Keypad (Display Off)	0.045 amp	1.0 amp-hr.
1224 Convertor + **L1** Subset	0.3 amp	7.2 amp-hr.
List 3 Subset (No 1224 needed)	0.040 amp	1.0 amp-hr.
Typical PIR	0.04 amp each unit	1.0 amp-hr.

For example: A 3008 panel plus one 1224 convertor and two PIRs requires 3.4+7.2+2(1.0)=12.6 amp-hr. standby. This system requires a minimum of two 6.5 amp-hr. batteries wired in parallel. A 3008 panel plus one L3 F1F2 subset and one 3220 keypad with display off (closed/armed period) requires 3.4+1.0+1.0=5.4 amp-hr. In this case, one 6.0 amp-hr. battery would be sufficient.

LOOP-WIRING CONFIGURATIONS

A major feature of the DIRECTPLEX Model 3008 control panel is the flexibility of the input loop wiring. Each ***pair of zone inputs*** (e.g., 1 and 2, 3 and 4, etc.) may be set up as a normally closed loop (High *or* Low), or an open and cross loop (High *and* Low), or a single end-of-line resistor loop (1 EOL), or a double end-of-line resistor loop (2 EOL, EUROPLEX loop). The panel can replace a number of other panels without requiring the rewiring of existing loops.

For burglar alarm applications, a High loop is usually used for alarm contact monitoring and is a normally closed, low resistance (less than 50 ohms) loop that *opens on alarm*. A Low loop is usually used for 24-hour supervision of the loop wiring or tamper monitoring. It is also a normally closed, low resistance (less than 50 ohms) loop that *opens on alarm*. In a non-ULC-listed installation, a Form B contact (SPST-NC) may be used. In a ULC-listed installation, a combination of High and Low loops is used to provide for supervision of the door switches, motion sensors, etc. Form C (SPDT) contacts that *open and cross* in alarm are used in these installations. In the event that you are replacing a panel that currently uses High and Low loop wiring, it would not be necessary to replace the door contacts and motion sensors as the normally closed High and Low loops can be immediately connected to the control panel. Note that since the zone inputs are ***configured in pairs***, you will have two High loops and two Low loops. It may be beneficial to split the present wiring to take advantage of the extra zoning.

A 1 EOL loop is a two-wire, single end-of-line resistor loop that is used with Form A (SPST-NO) contacts to provide alarm (*short-across-loop*) monitoring and with Form B (SPST-NC) contacts to provide supervisory (*break-in-loop*) monitoring on the same input. In a burglar alarm application, this type of loop is used to connect normally open floor mats, temperature switches, etc. to the panel. In a fire alarm/sprinkler riser application, this type of loop is used to connect normally open fire alarm thermostats (heat detectors), smoke detectors, manual pull-stations, fire hall alarm relay contacts, waterflow switches, etc. to the panel. **Note that the panel cannot be used as a local fire alarm control panel because of the unsupervised bell circuit.**

A 2 EOL loop is a two-wire, double end-of-line resistor loop. This type of loop is usually used with Form B (SPST-NC) contacts to provide alarm (*open- across-one-resistor*) and supervisory (*break-in-loop or short-across-loop*) monitoring on the same loop. In mid-1995, ULC standards were changed and the use of 2 EOL loops with Form B contacts became acceptable for listed installations. Loops with Form C (SPDT) contacts can also be used in a listed installation to provide tamper (*short-across-the-loop*), disconnect (*break-in-the-loop*), and general alarm (*removal-of-one-resistor*) monitoring on the same loop. In a burglar alarm application, this type of loop is used to connect normally closed door contacts, motion sensors, foil/lacing wire, etc. to the panel. In a fire alarm application, this type of loop is used to connect normally closed heat detectors, smoke detectors (one per loop) to the panel.

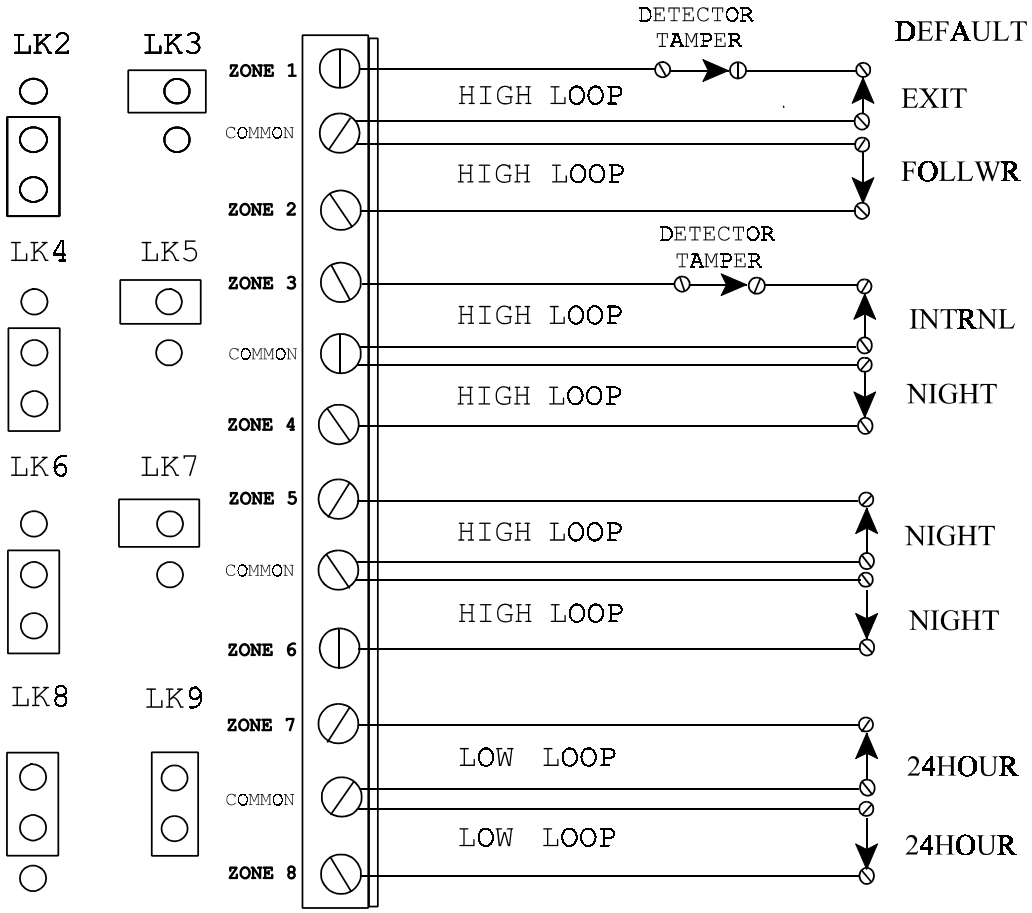
The zone inputs are configured for High, Low, 1 EOL, or 2 EOL loop wiring by setting the appropriate jumper links located to the left of the input-loop terminal strip. Zone inputs are configured in pairs (e.g., zone inputs 1 and 2, controlled by links LK2 and LK3, may be 2 EOL; zone inputs 3 and 4, controlled by links LK4 and LK5, may be High; zone inputs 5 and 6, controlled by links LK6 and LK7, may be High; and zone inputs 7 and 8, controlled by links LK8 and LK9, may be Low). Note: When-ever any of the jumper-link settings are changed, the zones must be reconfigured (see page 34).

LOOP-WIRING CONFIGURATIONS cont.

Circuit Wiring for Non-ULC-Listed Burglar Alarm Systems Configured for High or Low Loops Using Model 3008 Panel

In the factory, the zone input links on a DIRECTPLEX **Model 3008** control panel are set as High (alarm) loops for zones 1 to 6 and as Low (supervisory) loops for zones 7 and 8. Determine the requirements for your installation and change the links accordingly.

For non-ULC-listed installations using High or Low loops, use Form B (SPST-NC) contacts wired to *open on alarm*. For the High loops, links LK2, LK4, and LK6 are on the lower two pins and links LK3, LK5, and LK7 are turned sideways on one pin.

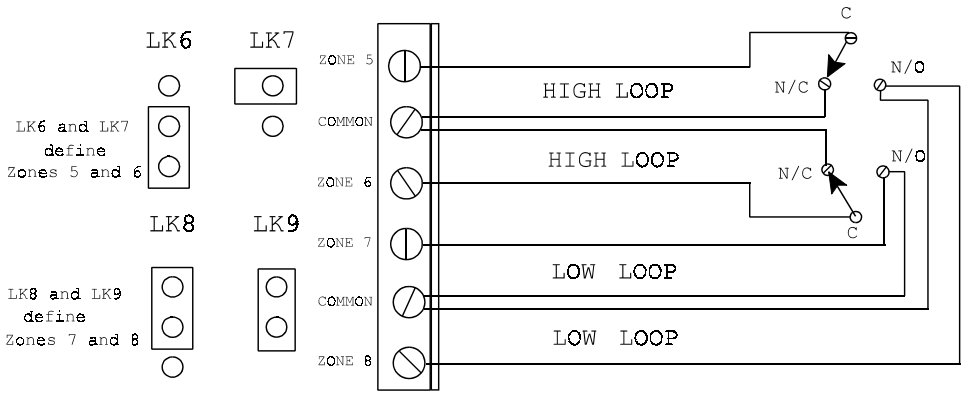


LOOP-WIRING CONFIGURATIONS cont.

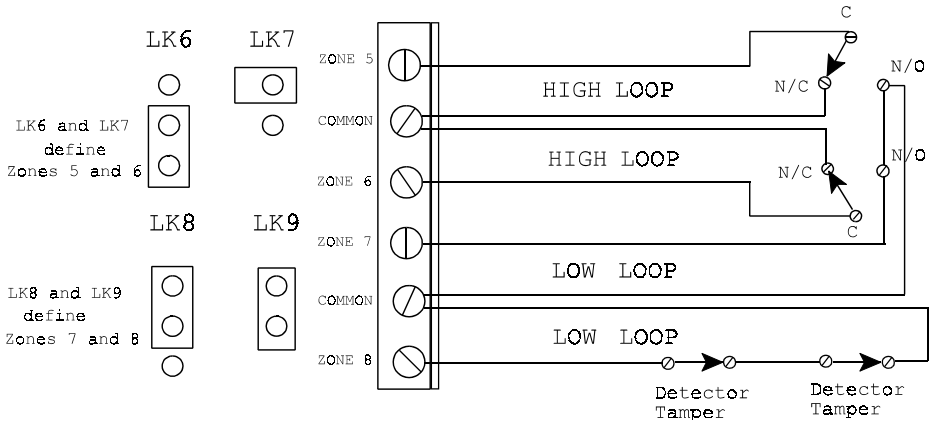
Circuit Wiring for ULC-Listed Installations Configured for High and Low Loops

For ULC-listed installations using High (alarm) and Low (supervisory) loops, use Form C (SPDT) contacts wired as *open-and-cross* loops.

In the first example, each High loop is supervised by an individual Low loop. Zones 5 and 6 are configured for High loops (link LK6 is on the lower two pins and link LK7 is turned sideways on one pin) and zones 7 and 8 are configured for Low loops (links LK8 and LK9 are on the top two pins).



In the following example, a single Low loop is used to supervise the two High loops and the second Low loop is used to supervise the detector tamper contacts.

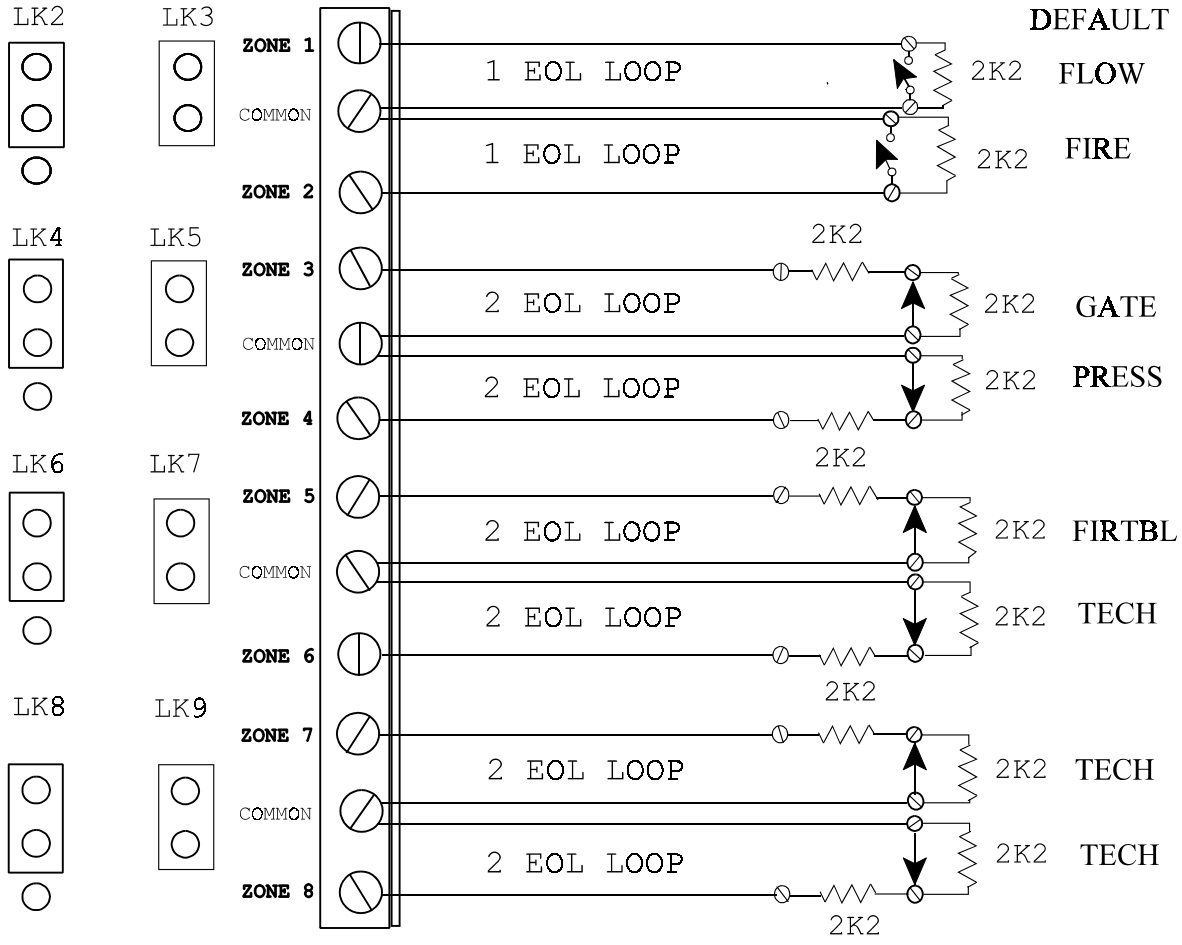


LOOP-WIRING CONFIGURATIONS cont.

Circuit Wiring for ULC-Listed Fire/Sprinkler Alarm Monitoring Configured for 1 EOL and 2 EOL Loops Using a Model 3008BF Panel

In the factory, the zone input links on a DIRECTPLEX **Model 3008BF** are set as 1 EOL (alarm) loops for zones 1 and 2 and as 2 EOL (supervisory) loops for zones 3 to 8. Determine the requirements for your installation and change the links accordingly.

To provide fire alarm and flow switch monitoring using 1 EOL loops, use Form A (SPST-NO) contacts connected across the loop wires (two-wire, Class B). A *short across the loop* will result in a fire alarm. A *break in the loop* will result in a trouble alarm. To provide pressure, temperature, gate valve, etc. monitoring, use Form B (SPST-NC) contacts wired to *open on alarm*. For 1 EOL loops, link LK2 is on the top two pins and LK3 is on. For 2 EOL loops, links LK4, LK6, and LK8 are on the top two pins and links LK5, LK7, and LK9 are on.

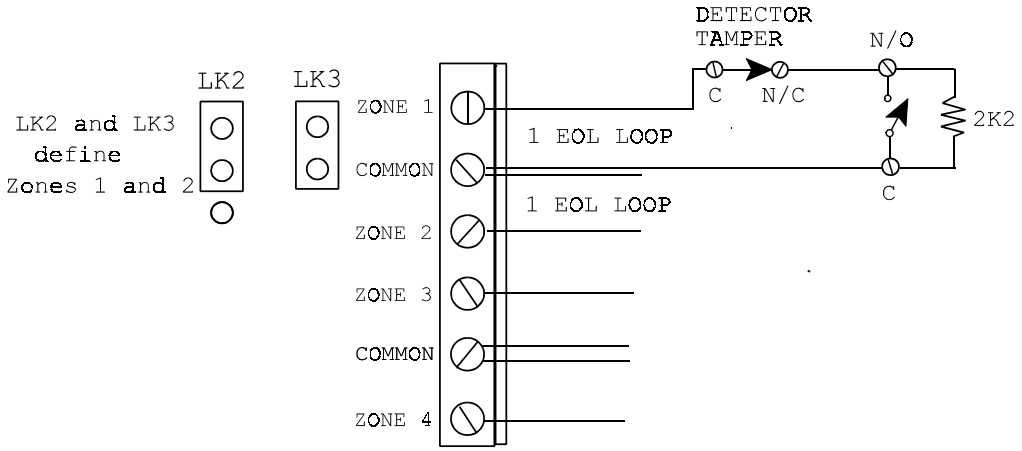


LOOP-WIRING CONFIGURATIONS cont.

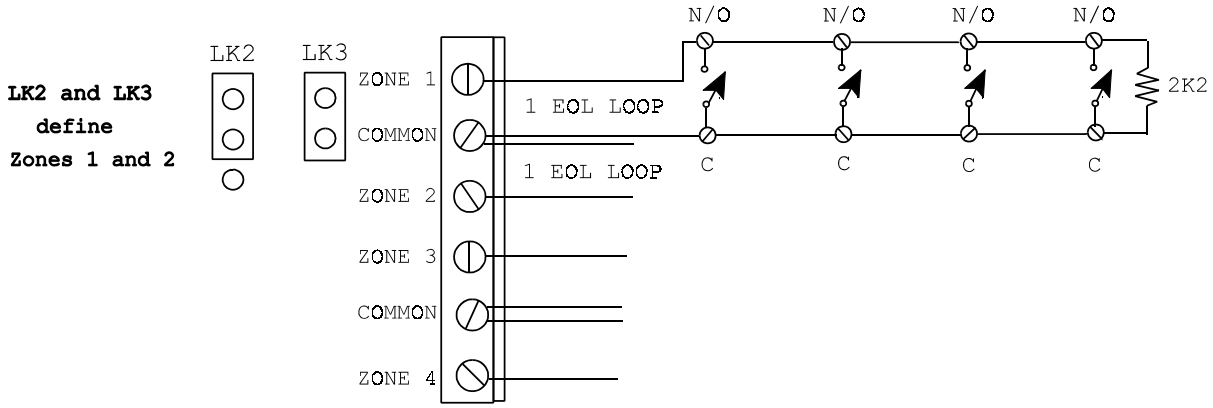
Circuit Wiring for Non-ULC-Listed Installations Configured for 1 EOL Resistor Loops

For non-ULC-listed installations using 1 EOL resistor loops, use Form A (SPST-NO) contacts connected across the resistor for alarm monitoring. A *short across the loop* will result in an alarm. Each 1 EOL loop must have this contact connected in parallel with its 2,200-ohm (red-red-red) terminating resistor. In addition, Form B (SPST-NC) contacts may be connected in series with the loop for supervisory monitoring. A *break in the loop* will result in a disconnect alarm.

In this example, zones 1 and 2 are configured as 1 EOL zone inputs and both links are on the top two pins. Both Form A and Form B contacts are used.



If a number of normally open devices are to be connected to a 1 EOL loop, then wire the loop as shown below. Form A contacts are used here.

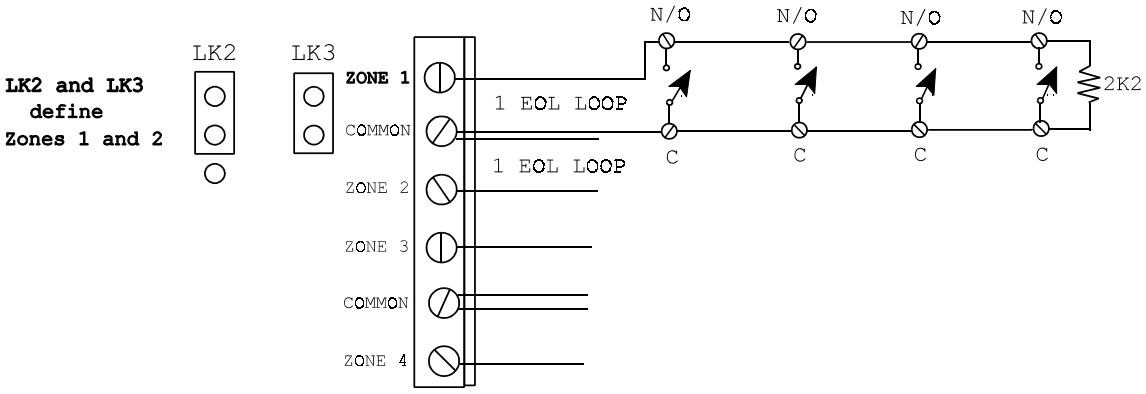


LOOP-WIRING CONFIGURATIONS cont.

Circuit Wiring for N/O Fire Detectors Configured for 1 EOL Resistor Loops

To provide fire alarm monitoring using 1 EOL resistor loops, use Form A (SPST-NO) contacts connected across the loop wires (two-wire, Class B). A *short across the loop* will result in a fire alarm. A *break in the loop* will result in a trouble alarm. A 2,200-ohm (red-red-red) terminating resistor must be installed in the last detector, or beyond the last detector using an end-of line resistor plate.

In this example, zones 1 and 2 are configured as 1 EOL resistor inputs to provide a two-wire, Class B circuit. Both links are on the top two pins.

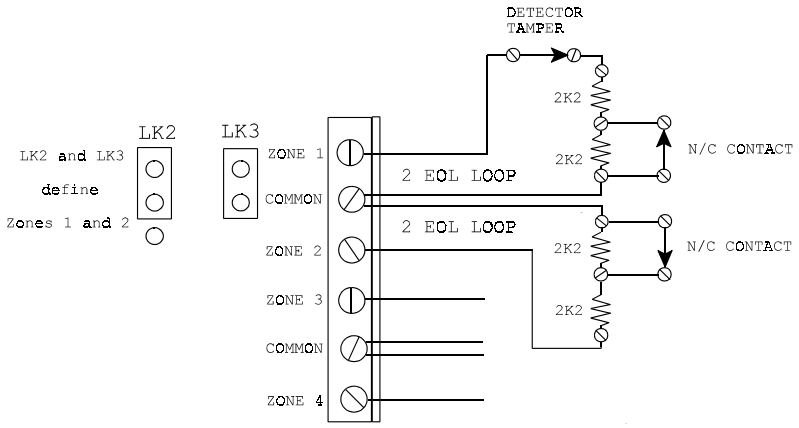


LOOP-WIRING CONFIGURATIONS cont.

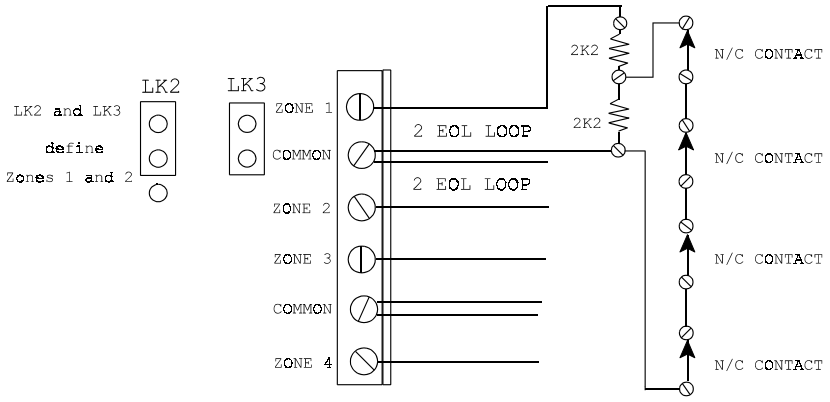
Circuit Wiring for ULC-Listed Installations Configured for 2 EOL Resistor Loops

Effective mid-1995, for ULC-listed installations using 2 EOL resistor loops, you may use a Form B (SPST-NC) contact connected in parallel with one of the two resistors. A *short across the loop* will result in a tamper alarm, a *break in the loop* in a disconnect alarm, and operation of the Form B contact (*open across one resistor*) in a general alarm. Each 2 EOL loop must have two 2,200-ohm (red-red-red) resistors in series with the loop and the normally closed alarm contacts are connected across one of the resistors. In the case of motion sensors, etc., the tamper contacts are connected in series with the loop.

In the following example, zones 1 and 2 are configured as 2 EOL zone inputs and both links are on the top two pins.



Note: If a number of doors, windows, etc. are connected in series and the resulting loop is connected in parallel with one of the two resistors, **it becomes unacceptable for ULC Burglary Certification.** In a sprinkler system, gate valves and pressure switches may be connected in series and this is acceptable for ULC Fire Certification.

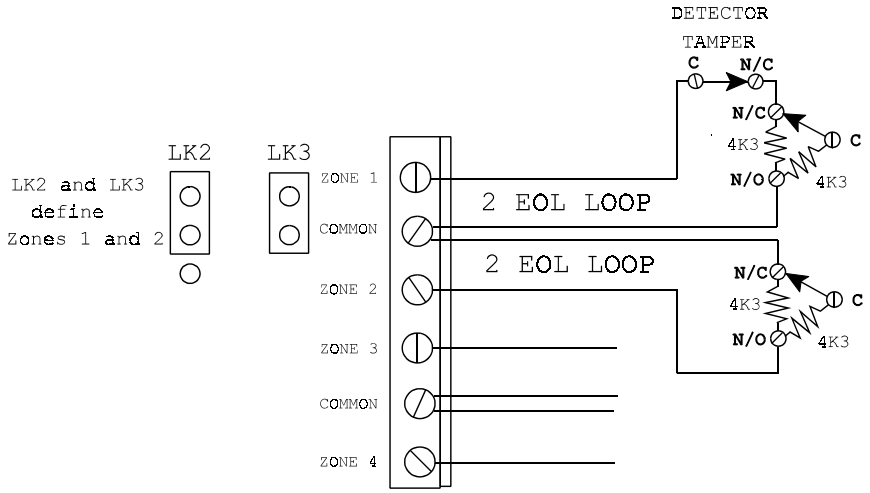


LOOP-WIRING CONFIGURATIONS cont.

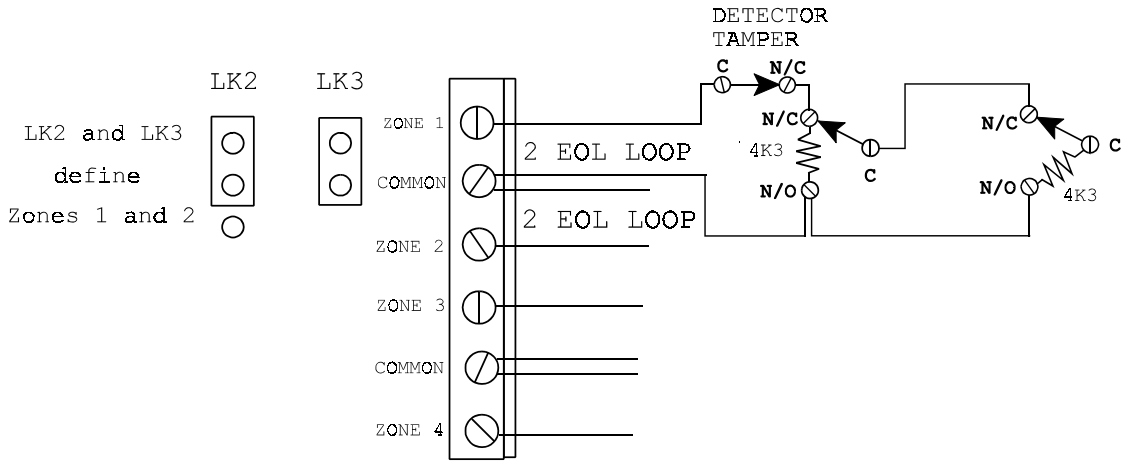
Circuit Wiring for ULC-Listed Installations Configured for 2 EOL Resistor Loops cont.

For ULC-listed installations using 2 EOL resistor loops, you may also use Form C (SPDT) contacts connected as a switched-parallel resistor pair. A *short across the loop* will result in a tamper alarm, a *break in the loop* in a disconnect alarm, and operation of the Form C contact (*removal of one resistor*) in a general alarm. Each 2 EOL loop must have two 4,300-ohm (yellow- orange-red) resistors.

In the following example, zones 1 and 2 are configured as 2 EOL zone inputs and both links are on the top two pins.

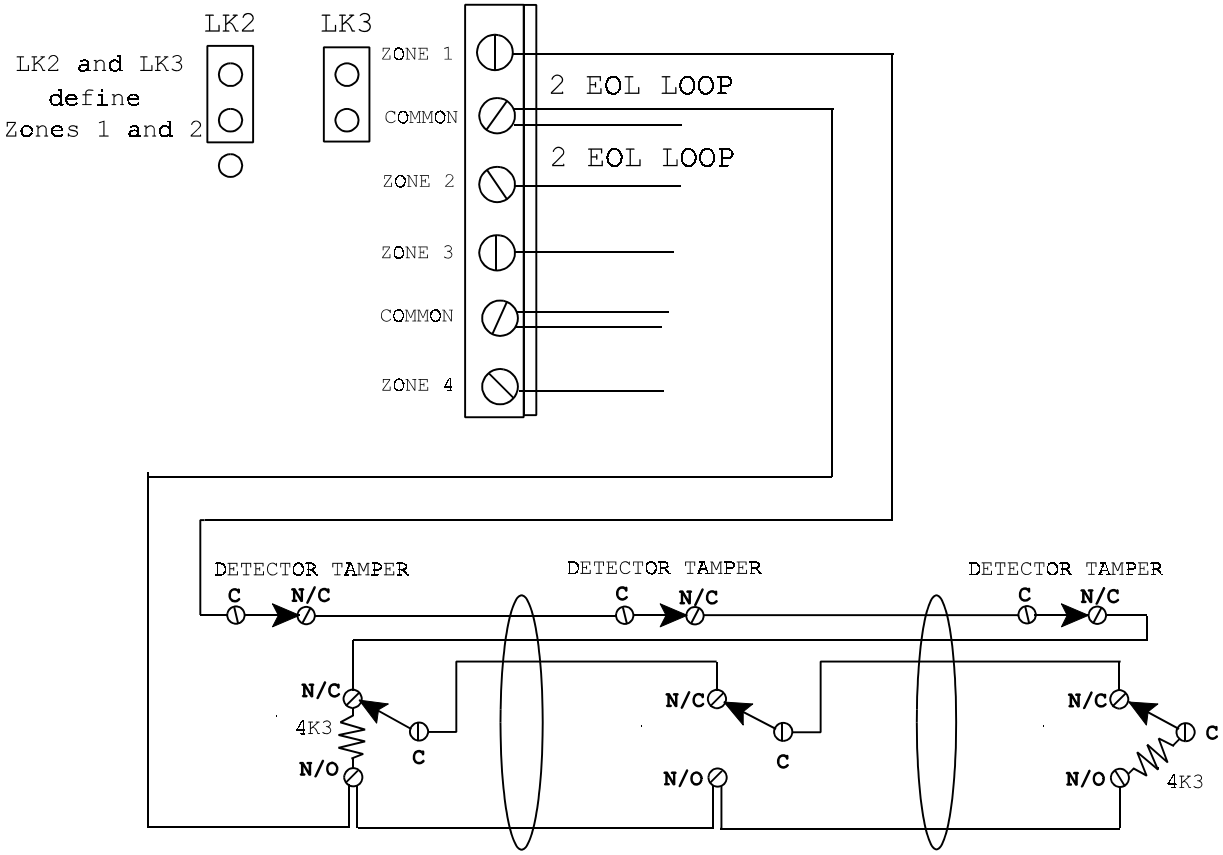


The next example illustrates how two Form C contacts are connected in series. Note that only two 4,300-ohm resistors are used.



Circuit Wiring for ULC-Listed Installations Configured for 2 EOL Resistor Loops cont.

The following example illustrates how three or more Form C contacts are connected in series. Note that the first contact must have a 4,300-ohm resistors and the last contact must have a 4,300-ohm resistor.

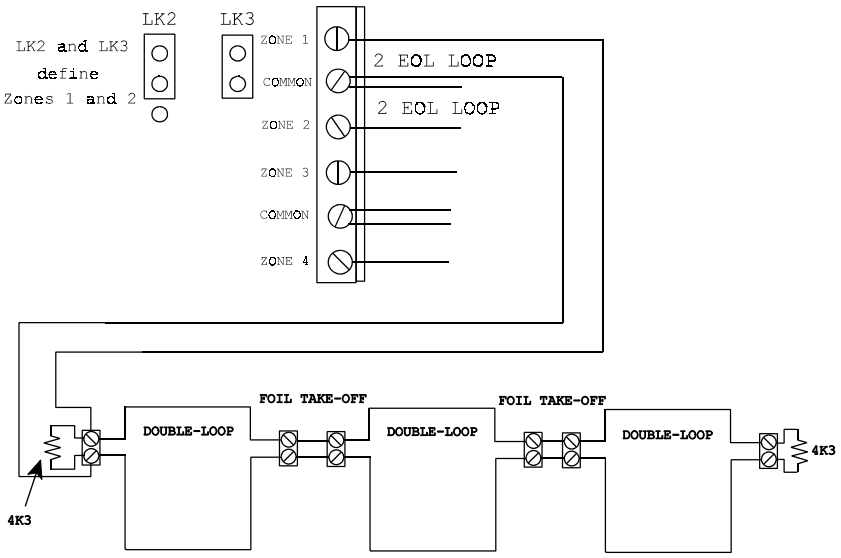


Pay close attention to the wiring as an interchange on the conductors will cause a tamper alarm (a short in the loop).

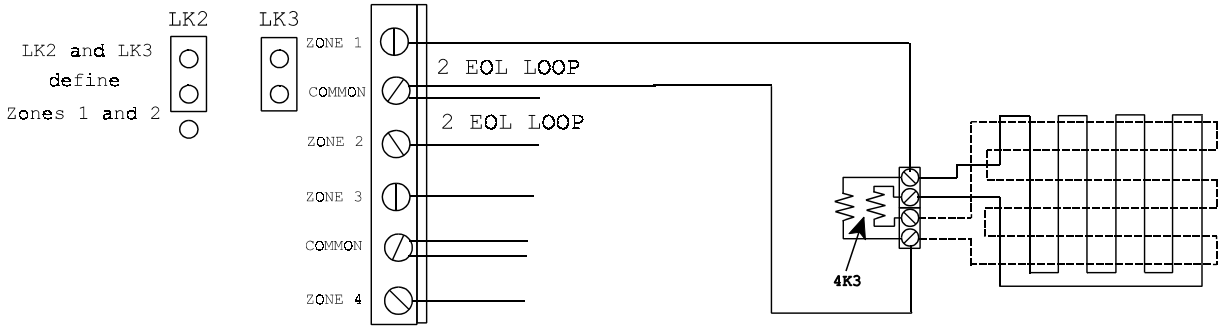
Circuit Wiring for ULC-Listed Installations Configured for 2 EOL Resistor Loops cont.

For ULC-listed installations using 2 EOL resistor loops with double-loop foil or lacing wire, connect the foil or lacing wire as shown in the following drawings. A *short across the foil take-off block* or a *short between the lacing wire* will result in a tamper alarm and a *break in the foil or lacing wire* will result in an open alarm.

In the following double-loop foil example, zones 1 and 2 are configured as 2 EOL zone inputs and both links are on the top two pins. The first foil take-off block must have a 4,300-ohm (yellow-orange-red) resistor and the last foil take off-block must have a 4,300-ohm resistor.



In the following double-loop lacing-wire example, zones 1 and 2 are configured as 2 EOL zone inputs and both links are on the top two pins. The lacing-wire loops are supervised with two 4,300-ohm resistors.



MODEL 3220 REMOTE KEYPAD

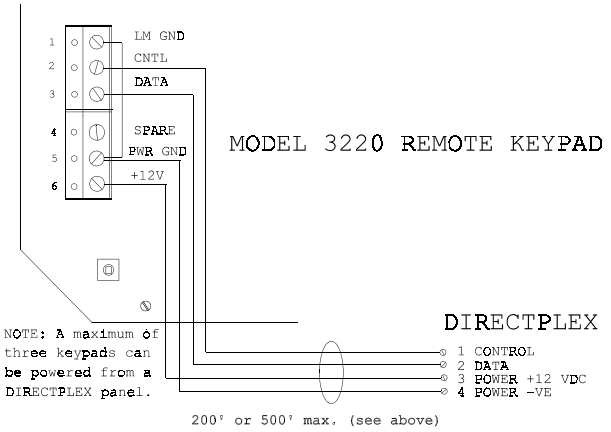
Model 3220 remote keypads can be connected to the control panel to provide a full display of panel activity at any number of locations and also to permit programming of the control panel. The remote keypad has a 20-character, red-LED, alpha-numeric display that shows alarm messages, open zones, date and time, etc. Zone descriptions and user names can also be entered and zone descriptions displayed. In addition, the remote keypad also has a green power LED and a red system armed/alarm memory LED. When the red LED is steady, the system is armed. If the red LED is flashing, an alarm has occurred. The Model 3220 remote keypad also has a tamper switch that will send a signal to the control panel if the housing is opened or the unit is removed from the wall.

Remote keypads can be wired to the multiplex port of the DIRECTPLEX panel using a four-conductor cable. This capability is unique to the DIRECTPLEX panel. Each remote keypad is home-run wired to the panel and *the maximum cabling length is 500 feet per keypad*. Each remote keypad requires 12 volts DC at 200 ma., supplied either from the control panel's auxilliary DC power or from an external power supply. The panel's auxilliary DC power will support up to three remote keypads. If more than three keypads are to be installed, an extra power supply is required. The panel's auxilliary DC power should not be used to supply disruptive loads like mechanical bells or strobe lights.

If the cabling distance is less than 200 feet, then one "telephone-style" 22-gauge quad wire can be used to connect each remote keypad to the panel; however, if the cabling distance exceeds 200 feet, two quad wires should be used to connect each remote keypad, one for telemetry and the other paralleled to supply DC power from the panel.

WIRING THE MODEL 3220 REMOTE KEYPAD TO THE MULTIPLEX PORT

Wiring the Model 3220 keypad to the multiplex port requires four conductors, two conductors for power and two conductors for communication. Remove the six-pin terminal block from the printed circuit board header pins before connecting any wiring. Connect the multiplex port and the power feed to the terminal block as shown in the drawing. Connect a link between terminal 1 and terminal 5. Push the terminal strip back onto the header pins. **Watch polarity !**



MODEL 3230 REMOTE KEYPAD

The recently introduced Model 3230 remote keypad is a second-generation version of the popular Model 3220 remote keypad. It features a restyled, updated keyboard and lower power consumption. Model 3230 remote keypads can be connected to the control panel to provide a full display of panel activity at any number of locations and also to permit programming of the control panel. The remote keypad has a 20-character, red-LED, alpha-numeric display that shows alarm messages, open zones, date and time, etc. Zone descriptions and user names can also be entered and zone descriptions displayed. In addition, the remote keypad also has a green power LED and a red system armed/alarm memory LED. When the red LED is steady, the system is armed. If the red LED is flashing, an alarm has occurred. The Model 3230 remote keypad also a tamper switch that will send a signal to the control panel if the housing is opened.

Remote keypads can be wired to the multiplex port of the DIRECTPLEX panel using a four-conductor cable. This capability is unique to the DIRECTPLEX panel. Each remote keypad is home-run wired to the panel and *the maximum cabling length is 500 feet per keypad*. Each remote keypad requires 12 volts DC at 100 ma., supplied either from the control panel's auxilliary DC power or from an external power supply. The panel's auxilliary DC power will support up to three remote keypads. If more than three keypads are to be installed, an extra power supply is required. The panel's auxilliary DC power should not be used to supply disruptive loads like mechanical bells or strobe lights.

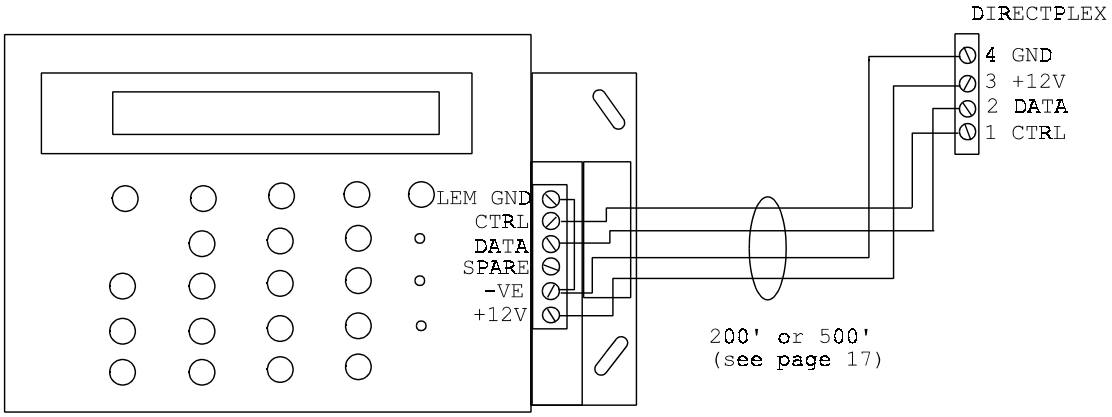
If the cabling distance is less than 200 feet, then one "telephone-style" 22-gauge quad wire can be used to connect each remote keypad to the panel; however, if the cabling distance exceeds 200 feet, two quad wires should be used to connect each remote keypad, one for telemetry and the other paralleled to supply DC power from the panel.

WIRING THE MODEL 3230 REMOTE KEYPAD TO THE MULTIPLEX PORT

On the Model 3230 remote keypad, a keyhole is located about half-way down the back of the plastic housing. This keyhole and two slots at the right-hand side are used to mount the keypad on the wall. To mount the keypad, you must install a number eight, flat-head or round- head screw five inches to the left of where the connecting wire will come through the wall, leaving the screwhead to protrude 1/16" from the wall. The next step is to feed the connecting wire through the back plate. To do this, you must first remove the right-hand part of the cover by loosening the fixing screw located at the bottom of the keypad. Dress the wire and then slide the keyhole firmly onto the screwhead. Make sure that the plastic plate is snug to the wall. Level the plate and install the remaining two screws on the right-hand side. (Note that it is not necessary at any stage to remove the printed circuit board from the back plate.)

Wiring the Model 3230 remote keypad to the multiplex port requires four conductors, two conductors for power and two conductors for communication. Identify the six-pin terminal block. Connect the multiplex port and the power feed to the terminal block as shown in the following

drawing. If the +12-volt DC conductor in your cable is live, do not let this conductor touch any of the multiplex conductors or damage may be done to the control panel.



MODEL 1101 COMMAND LEM (C-LEM)

The Model 1101 Command Line Encoder Module (C-LEM) is a remote relay module that is connected to the multiplex port and may be located up to a maximum cabling length of 500 feet from the DIRECTPLEX control panel. The C-LEM is fitted with a Form C (SPDT) relay that is capable of switching a 24-volt DC, 2-amp, resistive load. C-LEMs must be programmed to specific address values that determine their function and when they will operate. Several C-LEMs may be programmed to the same address, in which case they will all respond identically. C-LEM addresses are not monitored by the panel and therefore the panel does not know if any C-LEMs are connected. C-LEM addresses may be coded from 1 to 32; however, the software features referred to in this manual have a maximum C-LEM address of 28.

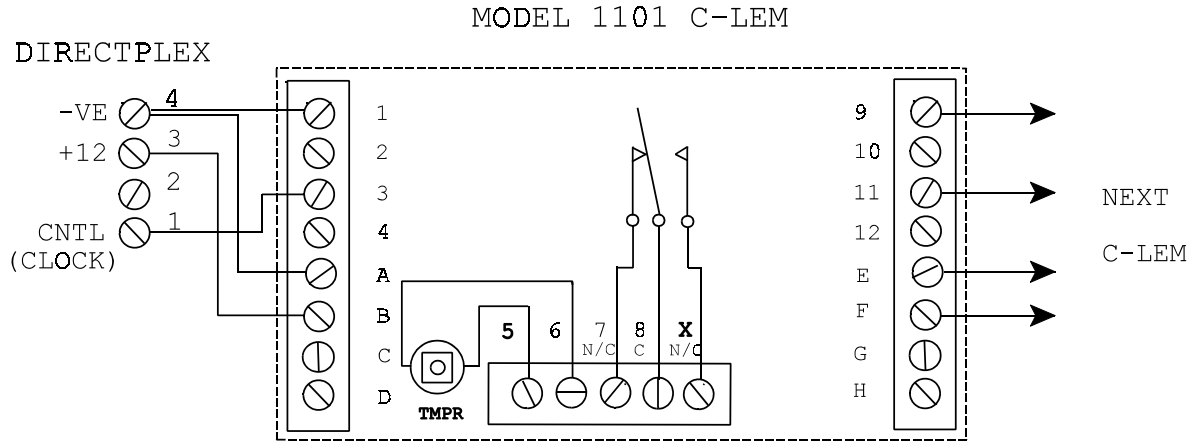
MODEL 1101 C-LEM CODING TABLE

C-LEM ADDRESS	DIL SW. NO. (Set to OFF)
1	8
2	7
3	7,8
4	6
5	6,8
6	6,7
7	6,7,8
8	5
9	5,8
10	5,7
11	5,7,8
12	5,6
13	5,6,8
14	5,6,7
15	5,6,7,8
16	4
17	4,8
18	4,7
19	4,7,8
20	4,6
21	4,6,8
22	4,6,7
23	4,6,7,8
24	4,5
25	4,5,8
26	4,5,7
27	4,5,7,8
28	4,5,6 **LIMIT of 3008**

MODEL 1101 COMMAND LEM (C-LEM) cont.

WIRING THE C-LEM TO THE MULTIPLEX PORT

C-LEMs can be wired to the multiplex port of the control panel using a four-conductor cable. Each C-LEM is home run wired to the panel using one "telephone-style" 22-gauge quad wire and the maximum cabling length is 500 feet. The panel's auxilliary 12-volt DC power *must be* used to power the C-LEM. The use of an extra field-installed power supply *is not allowed*.



The quad wire is used to connect the multiplex port to terminals 1 and 3 for telemetry and to supply DC power from the panel to terminal A (-ve) and terminal B (12 volts DC).

Terminals 5 and 6 are the dry contacts from the tamper microswitch on the C-LEM printed circuit board. To provide tamper supervision for the C-LEM cover, you may wish to link this microswitch in series with the tamper circuit of a nearby zone. Terminals 7, 8, and X are Form C (SPDT) contacts used to connect to an appropriate load.

Note: You may add additional C-LEMS to provide more output functions by connecting them in tandem. By convention, connect terminals 9, 11, E, and F from one C-LEM to terminals 1, 3, A, and B respectively on the next C-LEM. If this tandeming occurs at the end of a long quad- wire run and involves more than four C-LEMs, check that the voltage on terminals A and B is not less than 11 volts. If it is less than 11 volts, erratic operation of the relays will occur. This can only be overcome by running another quad wire from the panel's auxiliary 12-volt DC power supply to provide extra power for the C-LEM relays. This power quad should be paralleled to reduce wire resistance.

PANEL OUTPUTS

Included in the control panel are three Form C (SPDT) relays. These relays have been arbitrarily designated as relay 1, 2, and 3 (see page 3). These relays have been defaulted to operate on program outputs 7, 1, and 2 respectively (see the chart below); however, they may be reconfigured to follow any of the outputs listed. Only one relay can be assigned per output. Operating in tandem with these panel relays are C-LEM outputs 1, 2, and 7 which can be used to provide remote-location duplicates of the outputs on the main control panel. Additionally, C-LEM outputs 3, 4, 5, 6, and 8 through 19 have been factory-assigned to provide dry-contact output for certain functions (refer to ZONE TYPES on page 22). Note that all C-LEMs and INTRUSION output RELAY 2 are normally energized. These relays will fail in alarm in the event all power to the panel is removed. Panel relays 1 and 3 are normally de-energized and will operate on alarm. All panel relays and most C-LEMs are reset upon entry to the DISARM mode.

OUTPUT ASSIGNMENT

	PANEL/C-LEM OUTPUT NO.	FUNCTION	PANEL RELAY DEFAULT
	1	Intrusion Alarm	Relay 2
	2	Fire Alarm	Relay 3
L	3	Port Splitter Control/Clear To Arm	
	4	System Fully Armed	
	5	Fire Trouble	
	6	System Fault (AC Fail, Fuse Blown, etc.)	
	7	Timed Bell Cut-off	Relay 1
	8	Remote Buzzer	
L	9	Panic	
	10	Internal Bell	
	11	Monitor Zone	
	12	Technical Zone (Sets anytime; resets when all Tech zones normal.)	
L	13	Holdup/Duress	
	14	Fire Door Zone	
	15	Telco Line-cut Zone	
	16	Sprinkler Gate Valve Zone	
	17	Sprinkler Pressure Drop Zone	
	18	24 Hour Zone	
	19	Smoke Detector Reset (Operates for 2 seconds to reset smoke detector power)	

ZONE TYPES

As received from the factory, the eight zones in the panel are pre-assigned as specific zone types. Each of the zones may be re-assigned with a new zone type using a Model 3220 remote keypad if it is part of the installation or a Model 3220BF service programming keypad. The zone types have been given descriptive names and their characteristics are described below.

The following is a list of the zone types as pre-assigned from the factory:

MODEL 3008 (with pushbuttons)	MODEL 3008BF (without pushbuttons)
Zone 1 = EXIT	Zone 1 = FLOW
Zone 2 = FOLLWR	Zone 2 = FIRE
Zone 3 = INTRNL	Zone 3 = GATE
Zone 4 = NIGHT	Zone 4 = PRESR
Zone 5 = NIGHT	Zone 5 = FIRTBL
Zone 6 = NIGHT	Zone 6 = TECH
Zone 7 = 24HOUR	Zone 7 = TECH
Zone 8 = 24HOUR	Zone 8 = TECH

} Reference is made in the following section to flashing alarm messages. If a remote keypad has been installed as part of the system these messages will be displayed on the keypad. Otherwise, the flashing zone LED on the panel will be the only indication of an alarm condition.

Any activation of a zone input will result in the transmission of an alarm condition to a central/monitoring station when the panel is in the appropriate arming mode, with the exception of the OUTSRV and FIRDR2 zone types. In addition, normally closed contacts may be configured with High and/or Low loops and 1 EOL or 2 EOL resistor loops. Normally open contacts should be configured with 1 EOL loops to cause the same effect as the normally closed contacts.

FOLLWR: This zone type is used to provide protection along the exit and entry path(s) between the control panel or the remote keypad and the exit and entry door(s). At the expiry of the exit time, this type of zone is an instant-acting zone except for the following two cases. During exit, no alarm will occur from any follower zone within the exit time allowed, and similarly, during entry, no alarm will occur within the entry time allowed. After the exit delay time expires, the FOLLWR zone responds as an instant-acting NIGHT zone. Straying from the follower path into other non-follower zones during the exit/entry time will also cause an immediate alarm.

L **REMARM:** This zone type is used to allow remote arming and disarming of the control panel from keyswitch plates, digital keypads, access control systems, etc. It provides for two methods of operation as chosen from the Remarm Toggle variable (see page 52). In the first method, each momentary closure of the dry contact will toggle the armed/disarmed status of the panel. If the momentary closure operation is used, the normally open, dry contact is closed for a moment to

both arm and disarm the panel; therefore, many arming stations wired in parallel may be used. In the second method, a two-position switch is used to provide a closed contact, thus arming the panel, or an open contact, thus disarming the panel. To select the operating method, set the Remarm Toggle variable to a one (1) or a zero (0) respectively. In addition, two other variables may be chosen: Via the Disarm Only variable, the REMARM zone will either disarm the panel only or arm and disarm the panel (see page 52). Similarly, the Forced Remarm variable allows forced remote arming. If any zones are in alarm at the time of arming, the panel will arm anyway (see page 52). Note: A Clear-to-Arm status is available from CLEAR TO ARM output C-LEM 3 and a System Armed status is available from SYSTEM ARMED output C-LEM 4. To wire a Form A (SPST-NO) contact as a momentary switch, see the drawing for contacts configured for 1 EOL resistor loops on page 10. To wire a Form B (SPST-NO) contact as a two-position switch, see the first drawing for contacts configured for 2 EOL resistor loops on page 12.

NOTPT2: This zone type is *not active* when the panel is in PART ARM 2 mode, but *is active* when the panel is in PART ARM 1 or FULL ARM mode at which time the zone responds as an instant-acting NIGHT zone. This zone type is used with space or interior protection that must be inoperative when the panel is partly armed and the customer is remaining within the protected area (the "home/away" philosophy of a residential panel).

DOUBLE-knock: This zone type is a special type of NIGHT intrusion zone. Two activations must occur, within a specified time period, in order to cause an alarm. This period is the value of the Double-Knock variable (see page 51) as entered in the panel by the installer during set-up. The same zone or another DOUBLE-knock zone may provide the second activation. This zone type is only active when the panel is in the FULL ARM mode. **When the double-knock timer has started, the second activation must occur within the specified time period or the timer will reset**. Use this option for motion detectors or inertia detectors that could create false alarms by being tripped once but that will be tripped more than once during the course of a genuine intrusion. (See also TWIN zone type, below.)

EXIT: This zone type is used to monitor the final exit and entry points, usually the main entrance door, employee entrance, etc. When the panel is placed in PART ARM 1 mode, this zone is inoperative and unrestricted exit or entry is possible. When the panel is placed in PART ARM 2 or FULL ARM mode, the exit door must be closed by the time the exit timer (see Exit Time variable, page 50) expires to avoid an IMPROPER CLOSING alarm. When you enter the premises through an exit door, the piezo-sounder will start beeping and the panel must be disarmed or placed in PART ARM 2 mode before the entry timer (see Entry Time variable, page 49) expires to avoid a full alarm condition.

FIRE: This zone type is used with smoke detectors, manual-pull stations, fire alarm thermostats, fire hall alarm relay contacts of evacuation alarm panels, etc. A normally open contact is wired as a two-wire, single end-of-line resistor loop and the zone input is configured for a 1 EOL. A normally closed contact is wired as a two-wire, double end-of-line resistor loop and the zone

input is configured for a 2 EOL. ***Contact closure or opening*** will operate FIRE ALARM panel RELAY 3 (default) and output C-LEM 2 and cause the event to be logged. If the Alert & Display variable (see page 51) is set to one (1) for an attended site, then the piezo-sounder will beep and the display will show the flashing alert message ***** FIRE ALARM ***** , alternating with a flashing zone description. The loop wiring of a FIRE zone is also supervised for trouble conditions. A break in the loop wiring (disconnect) will operate FIRE TROUBLE output C-LEM 5 and cause the event to be logged. As before, if the Alert Display variable is set to one (1), then the piezo-sounder will beep and the display will show the flashing alert message **** FIRE TROUBLE ****. FIRE TROUBLE output C-LEM 5 will restore only when *all* FIRE zones and FLOW zones have returned to normal. **Note: For monitoring the trouble relay on a fire alarm panel see the zone type FIRTBL below.**

NOTPT1: This zone type is *not active* when the panel is in PART ARM 1 mode, but *is active* when the panel is in PART ARM 2 or FULL ARM mode at which time the zone responds as an instant-acting NIGHT zone. This zone type is used with space or interior protection that must be inoperative when the panel is partly armed and the customer is remaining within the protected area (the "home/away" philosophy of a residential panel).

24HOUR: This zone type is used with foil, fine wire, emergency doors, etc. When the panel is in DISARM mode, an alarm on this zone will operate INTRUSION ALARM panel RELAY 2 (default) and 24HOUR output C-LEM 18, which may be used for local annunciation (buzzer, lamp, etc.) and cause the event to be logged. If the Alert & Display variable (see page 51) has been set to one (1) for an attended site, then the piezo-sounder will beep and the display will show the flashing alert message **** INTRUDER ALARM ****, alternating with a flashing zone description. When the panel is in PART ARM 1, PART ARM 2, or FULL ARM mode, this zone responds as an instant-acting NIGHT zone.

INTRNL: This zone type is similar to the NOTPT1 and NOTPT2 zones; however, it is *not active* when the panel is in either the PART ARM 1 or PART ARM 2 mode, but *is active* when the panel is in FULL ARM mode at which time this zone responds as an instant-acting NIGHT zone. Use these three zone types (NOTPT1, NOTPT2, INTRNL) to configure a system for "home", "sleep", and "away" operation.

KEY: This zone type is used when manual control of exit and entry timers is desired (e.g., high-risk customers such as jewellery stores). A two-position keyswitch or similar secure device must be installed outside the protected area. Then, when the panel is armed and the customer has exited from the premises, he or she must operate this switch in order to zero the remaining exit time and to fully arm the system. In a similar manner, the switch must be re-operated in order to start the entry timer before the customer re-enters the premises. Note: The main exit/entry door should be assigned as a FOLLWR zone type (not EXIT zone type) to create an instant-acting alarm if an intrusion occurs. As well, the entry (see page 49) and exit (see page 50) delay time variables should be set to a longer time than for normal entry or exit, say five minutes (300

seconds). This is important in a KEY zone because the keyswitch is outside the protected area; hence, when the exit door is closed, the piezo-sounder beeping inside cannot always be heard by the customer outside.

TLFLT: This zone type is used to monitor the relay output of a dialler line-cut module. An alarm on a TLFLT zone will operate TLFLT output C-LEM 15, reduce the Bell Delay to 1 second, and cause the event to be logged. When the TLFLT zone is restored, C-LEM 15 will be reset, the Bell Delay will be reset to the variable value, and the event will be logged.

MONITR: This zone type is used to monitor cold storage room doors, internal doors, fire/smoke doors, etc. that should not be open for longer than a preset period of time. You may assign multiple zones as a MONITR zone; however, there is only one monitor timer. If the timer is started by one MONITR zone and a second MONITR zone is opened, the timer will not be restarted by this second such zone, thereby giving an erroneous open time for the second zone. During the disarmed period, if a MONITR zone is open for longer than the time allowed in the Mon/Ftbl Delay variable (see page 51), then MONITOR output C-LEM 11 will operate, the event will be logged, the piezo-sounder will beep, and the display will show the flashing alert message ****MONITOR ALARM****, alternating with a flashing zone description. When the panel is in FULL ARM mode, this zone responds as an instant-acting NIGHT zone.

NIGHT: This zone type is an absolutely instant-acting, intrusion zone. When the panel is in FULL ARM, PART ARM 1, or PART ARM 2 mode, a violation of this zone will cause an immediate full alarm. TIMED BELL output panel RELAY 1 (default), TIMED BELL output C-LEM 7, INTERNAL BELL output C-LEM 10, central/monitoring station INTRUSION ALARM output panel RELAY 2 (default), and INTRUSION ALARM output C-LEM 1 will operate and the event will be logged. When the panel is in DISARM mode, as with all other zones, a TAMPER alarm (short on loop wiring) or DISCONNECT alarm (open on loop wiring) will operate TECHNICAL FAULT output C-LEM 6 and cause the piezo-sounder to beep, the event to be logged, and the display to show the flashing alert message ***ZONE TAMPER ALARM*** , alternating with a flashing zone description.

FIRDR1: This zone type is used with fire exit doors that should never be opened when the premises is occupied. Violation of this zone is displayed locally *and* at the central/monitoring station. There is also available a companion zone type, FIRDR2 which only displays locally during the disarmed period (see below). When the panel is in DISARM, PART ARM 1, or PART ARM 2 mode, an alarm on this zone will operate FIREDR group-output C-LEM 14, FIREDR individual-zone output C-LEM (20+the zone number: e.g., 20+1, 20+2, 20+3, etc. to avoid conflict with the preprogrammed outputs 1 through 8, see page 21) and cause the piezo-sounder to beep, the event to be logged, and the display to show the flashing alert message ***FIRE DOOR OPENED*** , alternating with a flashing zone description. When the panel is in FULL ARM mode, this zone responds as an instant-acting NIGHT zone.

PANIC: This zone type should be used with *latching* panic buttons to ensure that activation is detected. Activation at any time will operate CONTINUOUS BELL panel RELAY 1 (default), CONTINUOUS BELL output C-LEM 7, and PANIC output C-LEM 9 and cause the piezo-sounder to beep, the event to be logged, and the display to show the flashing alert message *****PANIC ALARM ***** , alternating with a flashing zone description. PANIC is an audible HOLDUP!

HOLDUP: This zone type should be used with *normally-closed latching* holdup buttons to ensure that activation will be detected. An open at any time will operate HOLDUP output C-LEM 13 and cause the event to be logged but piezo-sounder will not beep. Note: Since the panel will display a zone description any time a zone is violated, you should program a zone description that avoids the use of the word HOLDUP; choose some innocuous phrase such as TEST ZONE X.. HOLDUP is a silent PANIC!

TECH: This zone type is used to provide supervisory monitoring of non-burglary conditions (e.g., freezer monitor, boiler flame-out, building temperature, etc.). You may use normally closed switches (2 EOL) or normally open switches (1 EOL) or a mixture of both. If the Audible Tech variable (page 49) is set to one (1) *and* the Alert & Display variable (see page 51) is set to one (1) for an attended site, then the piezo-sounder will beep and the display will show a flashing zone description. A TECH zone alarm can have two distinct outputs: you may use an *individual* output C- LEM to give a one-for-one dry contact that follows the state of the zone input (e.g., alarm equals contact closure, restore equals contact open) or you may choose to have a *group-following* output C-LEM 12 that will respond to any zone labelled TECH. The *group-following* output C-LEM will reset only when *all* TECH zones are normal. **To avoid conflict with the pre-programmed outputs 1 through 19 (see page 27), TECH zone individual output C-LEMs have been offset by 20 plus the zone number**. For example, TECH zone 4 will operate individual output C-LEM 24; TECH zone 8 will operate individual output C-LEM 28; etc. When TECH zone 4 restores, output C-LEM 24 will also reset. The group-following output C-LEM is rigidly assigned. For example, if TECH zone 6 alarms, the group-following TECH output C-LEM 12 will operate; however, if TECH zone 4 alarms at a later time, there will be no further action from output C-LEM 12 since it is already operated. When *all* TECH zones restore, output C-LEM 12 will reset.

FIRDR2: This zone type is used with fire exit doors that should never be opened when the premises is occupied. *Violation of this zone is only displayed locally*. A companion zone type, FIRDR1 (see above), is also available. When the panel is in DISARM or PART ARM 1 mode, an open on this zone will operate FIREDR group output C-LEM 14 and cause the piezo-sounder to beep and the display to show a flashing zone description; however, the event will not be logged *nor* transmitted to the central/monitoring station. In DISARM or PART ARM 1 mode, then, response is solely the responsibility of the customer. When the panel is in PART ARM 2 mode, an alarm will be logged and the central/monitoring station will be alerted as well. When the panel is in FULL ARM mode, this zone responds as an instant-acting NIGHT zone.

FIRTBL: This zone type is used to monitor the *trouble-relay contacts* of a local fire alarm control panel. **IT IS NOT A FIRE ALARM ZONE INPUT AS DESCRIBED IN THE FIRE ZONE TYPE ABOVE!** Because many fire alarm control panels respond immediately to local AC power failures, a delay timer has been incorporated into the zone. The time value is selected in the Mon/Firtbl Delay variable (see page 51). The default value is 10 seconds but it may be reduced to 0. Note that this one timer is used for both MONITR zones and FIRTBL zones. If both zone types are to be used, then determine a common time value suitable for both applications. An open on this zone will start the timer. If the zone restores before the time expires, the timer is reset and no further action occurs. If the zone remains open at the expiry of the time, FIRE TROUBLE panel voltage output 5 and output C-LEM 5 will operate and the event will be logged. If the Alert & Display variable (see page 51) is set to one (1) for an attended site, the piezo-sounder will beep and the display will show the flashing alert message ****FIRE TROUBLE**,** alternating with a flashing zone description and the warning message **++CALL SERVICE++.** When all FIRTBL zones are normal, FIRE TROUBLE panel voltage output 5 and output C-LEM 5 will reset. A tamper or a disconnect on this zone will operate TECHNICAL FAULT panel voltage output 6 and output C-LEM 6 and cause the piezo-sounder to beep, the event to be logged, and the display to show the flashing alert message ***ZONE TAMPER ALARM*,** alternating with a flashing zone description.

TWIN: This zone type is a special type of NIGHT zone and is similar to the DOUBLE-knock zone type (see above); however, *two TWIN zones must open* within the time allowed by the Double-Knock variable (see page 51) to cause an alarm. This zone type is only active when the panel is in PART ARM 2 or FULL ARM mode. You may therefore twin (pair) zones with detectors of different types (e.g., a PIR and an ultrasonic covering the same area). As with a DOUBLE-knock zone, when one TWIN zone operates, the double-knock timer is started and a second TWIN zone *must operate* within the specified time period or the timer is reset.
Note: If only one zone is assigned as a TWIN type, **it will never create an alarm!** Also, you may have more than two TWIN zones but, if one twin starts the timer, *any* other TWIN zone going into alarm will complete the event and result in a full alarm.

GATE: This zone type is used to monitor the gate valve or the Post Indicator Valve (PIV) in a sprinkler system. When a gate valve closes (i.e., the switch contacts open), GATE output C-LEM 16 will operate and the event will be logged. If the Alert Display variable (see page 51) is set to one (1) for an attended site, then the piezo-sounder will beep and the display will show the flashing alert message ***SPRINKLER SUPERVY*** , alternating with the warning message **++ CALL SERVICE ++** and a flashing zone description. In the course of servicing the sprinkler riser, the gate valve switch may have to be operated a number of times in succession; the audible piezo-sounder on the panel will sound on the first activation. If this alarm is acknowledged with the zero (0) button as opposed to the DISARM button, then the piezo-sounder will be silenced despite repeated operation of the switch until the panel is finally disarmed.

PRESR: This zone type is used to monitor the pressure switch on a sprinkler riser. When a pressure drop occurs, PRESSURE output C-LEM 17 will operate and the event will be logged. If the Alert Display variable (see page 51) is set to one (1) for an attended site, then the piezo-sounder will beep and the display will show the flashing alert message ***SPRINKLER SUPERVY*** , alternating with the warning message **++ CALL SERVICE ++** and a flashing zone description. A pressure switch may close and open intermittently if the pressure hovers around the set-point; therefore, the audible piezo-sounder will sound only on the first activation. If this alarm is acknowledged with the zero (0) button as opposed to the DISARM button, then the piezo-sounder will be silenced despite repeated operation of the switch.

FLOW: This zone type is used to monitor the normally open FLOW switch on a sprinkler riser. A contact closure causes the retard timer (see Retard Time variable, page 52) to count down. If the switch contact is still closed at the expiry of the retard time, the panel will execute the FIRE routine (see above). If the switch opens before the timer finishes counting down, the retard timer will reset and no further action will occur.

ACKNOWLEDGING AND RESETTING OUTPUTS

Common to all the above zone activity is the method for acknowledging alarms and resetting the panel after an alarm:

ACKNOWLEDGING ALARMS - When an alarm occurs (e.g., on a FIRE zone or 24HR zone), the appropriate zone LED will flash on the panel. Additionally, the piezo-sounder may beep or the audible bells may sound (e.g., FIRE alarm or INTRUSION alarm). This condition can be stopped by acknowledging the alarm at the control panel or at a remote keypad if one has been installed. At the panel, having noted which zone LED is flashing, enter your user code
L (factory default service user code 1010 or master user code 1020) and then press the DISARM button. The piezo-sounder and bells will silence and the zone LED will extinguish or remain lit. If the LED extinguishes, then the zone has reset; if the LED remains lit, then the zone is still in
} alarm and further investigation may be necessary. At the remote keypad, the display will be flashing a zone description if one has been previously entered; otherwise, the display will be flashing the zone type, alternating with a status message such as *** FIRE ALARM ***. Enter
L your user code (factory default code 1020 or service user code 1010) and then press the DISARM button. The display will show **CLEAR DISPLAY**, followed by date and time. As before, if the zone message disappears, the zone has cleared; if the zone message remains on the display, further investigation may be necessary.

RESETTING OUTPUTS - Panel relays or C-LEM outputs involved in alarm conditions can only be reset (turned off) by disarming the panel. Enter your user code (factory default master user code 1020 or service user code 1010) and then press the DISARM button.

C-LEM OUTPUTS

In a number of zone types, reference has been made to the use of C-LEMs to provide dry contact outputs for various functions. Because the DIRECTPLEX control panel has programmable on-board relays, all of these output functions can be assigned to any of the three on-board relays (see Configure Relays on page 33). If more than three outputs are required, then C-LEMs must be added to the system.

POWERING UP THE PANEL

INITIAL ACTIVATION OF THE PANEL

The DIRECTPLEX Model 3008 control panel as received from the factory has been given a COLD START and all settings will be at their default value. When power is applied to the panel, it will execute a SYSTEM RESET START. On powering up, you will be concerned with entering the customer's name and address and configuring the relays and zones. When the powering up is finished, you will be ready to program the panel.

} **Before applying power, ensure that either a remote keypad is installed on the system or that a Model 3220BF service programming keypad is plugged into the right-hand, 8-pin jack J2 (labelled KEYPAD)**. Most of the following activities will require one of these keypads. Connect a 16- to 18-volt, 30-va minimum transformer to terminals 34 and 35 (labelled AC AC). Connect a 12-volt, 6.5-amp-hr. minimum, gel-type standby battery to the flexible leads provided. **Watch polarity!** At this time, the panel will automatically activate.

When power is applied to the control panel, the keypad will display its software version and then the control panel's speed: **DIRECTPLEX 11MHZ**; operating system version number and date: **DXOSLB18 13 DEC94**; followed by the copyright message: **© EUROPLEX 1993-94**; and finally the application program version and date: **DPLX V1.23 9APR97**. Three choices are always available within the next three seconds: A COLD START can be chosen by pressing the FULL ARM button (see below). An option to configure relays and zones can be chosen by pressing the PART ARM 1 button (see page 33). As well, an option to reset both the master user and service user codes to their default values can be chosen by pressing the PART ARM 2 button (see page 35).

} COLD START WITH ZAP

It may sometimes be necessary to clear the panel's RAM memory in the field. For example, it will be necessary to start anew if the panel has been removed from a previous location and is to be installed in a new location or if severe transients (lightning, etc.) have caused corruption of the memory. **A COLD START will clear the whole of the memory, destroying all existing log, zone, and user information.**

To select a COLD START, press the FULL ARM button within three seconds when the display shows the final start-up message **DPLX V1.23 9APR97**. If the FULL ARM button is not pressed within these three seconds, the panel will automatically complete the SYSTEM RESET START. To return to a COLD START option at this point or at any other time, you must effect a new SYSTEM RESET START (see page 31) or a SOFT START (see page 32) and wait for the final start-up message **DPLX V1.23 9APR97.**

If a COLD START is initiated, then the piezo-sounder will beep and the display will show **ZAP?**. Press the YES button to accept the selection. (If you decide to leave the RAM memory unchanged at this stage, press the NO button and the panel will automatically switch to SYSTEM

RESET START). If the YES button is pressed, the display on the keypad will repeat the software version of the keypad and then the control panel start-up messages. Wait until the display shows **ENTER NAME/ADDRESS ?** Press the YES button within the next five seconds, and the display will show a flashing cursor, /\, in the farthest-left position. Enter at least the name of the site as this will be printed in the heading of the system log, print reports, and on-line report and will provide a useful record for all print-outs. (See page 63 for information on how to select the letters of the alphabet.) Once this information is entered, position the cursor up and press the RETURN/ENTER button. The display will show **ALL MEMORY CLEARED** and then **PROM CHKSUM= nnnnH** and the piezo-sounder will beep. At this point, press the RETURN/ENTER button to continue and the display will show **CONFIGURE RELAYS ?**. Proceed to the section called CONFIGURE RELAYS (see page 33).

Note: If, during the COLD START, you push the NO button in answer to the name and address query or fail to respond within the five seconds allowed, you must select either a SOFT START (see page 32) or the SET DATA FORMAT function (see pages 55-56) to enter this information. If at any other time you wish to view or change the name and address, you must select SET DATA FORMAT.

} SYSTEM RESET START

When power is applied to the control panel or the CPU reset button is pressed, the panel will effect a SYSTEM RESET START. This start-up is the one method by which the DIRECTPLEX control panel *can be restarted either with or without the use of a remote keypad or a service programming keypad*. During the SYSTEM RESET START, the Power, Shunt, and Armed LEDs on the panel will be lit and the eight zone LEDs will flash consecutively during the start-up procedure. When the start-up procedure is finished, the Power Led will be on and the Shunt and Armed LEDs should be off. The zone LEDs will now reflect the status of the zones and the
L piezo-sounder will be beeping. Enter the master user code (factory default 1020) or the service user code (factory default 1010) and then push the DISARM button to silence the piezo-sounder.

When power is applied to the control panel or the CPU reset button is pushed and a remote
L keypad is in use, then the keypad will show the usual start-up messages ending with **DPLX V1.23 7APR97**. When this message appears, three choices are available within the next three seconds: An option to COLD START can be chosen by pressing the FULL ARM button (as discussed above). An option to configure relays and zones can be chosen by pressing the PART ARM 1 button (see page 33). As well, an option to reset both the master user and service user codes to their default values can be chosen by pressing the PART ARM 2 button(see page 35). If none of these buttons is pressed within three seconds, the keypad will display **SYSTEM RESET**. This will be followed by **BUSY . . RE-SCHEDULING** and then **DATE and TIME**, alternating with flashing alert messages. As well, the piezo-sounder will be beeping. If any zones are open, then **ZONE TYPE ZONE NUMBER OPEN** will also be displayed. To

acknowledge the piezo-sounder and the alert messages, enter either the master user code (factory default 1020) or the service user code (factory default 1010) and press the DISARM button. The keypad will show **WAIT . . .** and then **CLEAR DISPLAY** and then return to **DATE and TIME** if all zones are closed. To return to the **DPLX V1.23 7APR97** message and the three options available at that point, you must effect another SYSTEM RESET or a SOFT START.

Any zone inputs that are configured as 1 EOL resistor loops and that are in a disconnect condition (break in the loop) or zone inputs configured as 2 EOL resistor loops that are in a tamper or disconnect condition (short across the loop or break in the loop) will not be included in the on-line count by the control panel when the program continues. Individual responses from the zone inputs can be checked in the SINGLE-ZONE MONITOR option of the SERVICE MODE mode (see page 45) .

Note: A SYSTEM RESET START does not ask for name and address information. To enter this data, select a SOFT START *if you know that no previous name and address entry exists* (see below). Otherwise, you must select the SET DATA FORMAT function (see page 55). If at any other time you wish to view or change name and address, you must also select SET DATA FORMAT.

SOFT START

A SOFT START is used to restart the control panel from a remote keypad. To select this restart, enter the service user code (factory default 1010) and press the R button (shift 7). The display will show **ARE YOU SURE ?**. Press the YES button to effect a restart. The keypad will show the usual start-up messages ending with **DPLX V1.23 7APR97**. When this message appears, three choices are available within the next three seconds: An option to COLD START can be chosen by pressing the FULL ARM button (as discussed above). An option to enter the name and address *if none has previously been entered* (see page 63 for information on how to select the letters of the alphabet) and then to configure relays and zones (see pages 33 and 34) can be chosen by pressing the PART ARM 1 button. As well, an option to reset both the master user and service user codes to their default values can be chosen by pressing the PART ARM 2 button (see page 35). If none of these buttons is pressed within three seconds or the NO button was pressed in answer to **ARE YOU SURE ?**, the display will show **SYSTEM RESET**. This will be followed by **BUSY . . RE-SCHEDULING** and then **DATE and TIME**, alternating with flashing alert messages. As well, the piezo-sounder will be beeping. Refer to pages 31-32 under SYSTEM RESET for the procedure to follow.

Note: If during a SOFT START, you push the NO button in answer to the name and address query or fail to respond within the five seconds allowed, you must reselect a SOFT START to enter this information. If a previous name and address entry exits, you must chose the SET DATA FORMAT function (see pages 55-56) to view or change this information.

} CONFIGURE RELAYS

The three on-board relays can be configured to follow any output as described in the section on output assignments (see page 21). Only one relay should be assigned to an output; however, if you have a situation that requires dry contacts to operate different loads, then you may assign the same output to different relays. When you receive the panel, the relays have been defaulted as follows:

Output 7 (Timed Bell Cut-off) ÷ Relay 1
Output 1 (Intrusion Alarm) ÷ Relay 2
Output 2 (Fire Alarm) ÷ Relay 3

You can assign or re-assign the outputs to the panel relays in a SYSTEM RESET START or a SOFT START. (This procedure is also available in a COLD START for situations where no programming exists or the stored data has been erased.) Press the PART ARM 1 button within the three seconds allowed when the display on the keypad shows the message **DPLX V1.23 7APR97**. (If you fail to press this button in time, refer to pages 31-32 to see how to return to this option.) In a few seconds, the keypad will display **CONFIGURE RELAYS ?**. If you do not wish to assign the outputs to the relays, press the NO button and you will proceed to the next choice. If you wish to assign the outputs, press the YES button and the display will show **RELAY 1 = 7**. Enter the new output number and then press the RETURN/ENTER button and the display will show **RELAY 2 = 1**. Enter the new output number and then press the RETURN/ENTER button and the display will show **RELAY 3 = 2**. Enter the new output number and then press the RETURN/ENTER button and the display will show **CONFIGURE ZONES ?**. If you have made changes to the zone input links when installing the loop wiring (e.g., changed a HIGH loop to a 2 EOL resistor loop), press the YES button (see page 34 for the procedure to follow); otherwise, press the NO button. If the NO button is pressed, the display will show **ZONE 1 2 3 4 5 6 7 8**, where each number indicates the presence of an on-line zone. If a zone is off line, the number of that zone will be missing from the list. In a moment, the display will show **ON-LINE O ! N,** where O represents the old number of on-line zones and N represents the new number of on-line zones. When the correct number of zones is displayed, press the YES button to accept the count and to exit from this procedure or press any other button to return to **CONFIGURE RELAYS ?**. If the YES button is pressed, the display will show **BUSY . . . RE-SCHEDULING** and then **DATE and TIME**, alternating with flashing alert messages. As well, the piezo-sounder will be beeping. Refer to pages 31-32 under SYSTEM RESET for the procedure to follow.

} CONFIGURE ZONES

This procedure allows you to program the panel to match the hardware selection made with the jumper links. The control panel must be told whether each zone pair has been configured as a High loop, a Low loop, a 1 EOL resistor loop, or 2 EOL resistor loop. Zone inputs must be configured properly to allow any newly connected loops to come on line; otherwise, they will be ignored by the panel or they may operate in reverse.

On a Model 3008 control panel, the zone input jumper links have been preset at the factory for High loops on zones 1 to 6 and Low loops on zones 7 and 8. On a Model 3008BF control panel, the zone input jumper links have been preset at the factory for 1 EOL loops on zones 1 and 2 and 2 EOL loops on zones 3 through 8. The zone inputs are configured in pairs. The input loops (see page 6 for a discussion of loop types) must be wired to match the hardware jumper link settings. When all the input loops are connected and the wiring has been checked, you may configure the zones. The panel will then perform a check of the loops and bring on line those loops that are correctly configured.

If the YES button was pressed in answer to **CONFIGURE ZONES ?** above, the display will show **ZONE 1, 2 HIGH**. Continue to press the NO button until the desired selection is displayed. Press the YES or RETURN/ENTER button to accept this configuration and the display will show **ZONE 3, 4 HIGH**. As before, make the desired choice. In a similar manner, select zones 5 and 6 and finally zones 7 and 8. When all the zones have been configured, the display will show **ZONE 1 2 3 4 5 6 7 8** , where each number indicates the presence of an on-line zone. If a zone is off line, the number of that zone will be missing from the list. In a moment, the display will show **ON-LINE O ! N,** where O represents the old number of on-line zones and N represents the new number of on-line zones. When the correct number of zones is displayed, press the YES button to accept the count and to exit from this procedure or press any other button to return to **CONFIGURE RELAYS ?**. If the YES button is pressed, the display will show **BUSY . . . RE-SCHEDULING** and then **DATE and TIME**, alternating with flashing alert messages. As well, the piezo-sounder will be beeping. Refer to pages 31-32 under SYSTEM RESET for the procedure to follow.

Any zone inputs that are configured as 1 EOL resistor loops and that are in a disconnect condition (break in the loop) or zone inputs configured as 2 EOL resistor loops that are in a tamper or disconnect condition (short across the loop or break in the loop) will not be included in the on-line count by the control panel when the program continues. Individual responses from the zone inputs can be checked in the SINGLE-ZONE MONITOR option of the SERVICE MODE mode (see page 45).

RESETTING USER 1 AND 2 IDS

Service user number 1's *code* and master user number 2's *code* can be reset to their factory default values if either one of these has been lost. At factory default values, service user number 1 will again have code 1010 and master user number 2 will again have code 1020. After these codes have been defaulted, they may then be re-assigned. *Note that only these two user codes will be defaulted. All other user codes remain unchanged!*

If it is the *master* user's code (user number 2) that has been lost, the *serviceperson* (user number 1) can reset this code in a SYSTEM RESET START (see page 31) or a SOFT START (see page 32). If it is the service user's code (user number 1) that has been lost, then the serviceperson must select a SYSTEM RESET START at the control panel because a SOFT START cannot be executed without a service user code. *In both cases*, press the PART ARM 2 button within the three seconds allowed when the display on the keypad shows the message **DPLX V1.23 7APR97**. (If you fail to press this button in time, refer to pages 31-32 to see how to return to this option.) In a few seconds, the keypad will beep and the display will show **RESET USR 1 & 2 IDS?**. Press the YES button to reset the service user's code to 1010 and the master user's code to 1020 or press the NO button to leave them unchanged.

PROGRAMMING THE PANEL

FUNCTIONS AND MODES

There are eight functions or modes available at the control panel. Seven of these and 18 additional ones are available with a Model 3220, 3230 or 3240 remote keypad or Model 3220BF service programming keypad. Access to these functions by each of the 34 general users is usually assigned by the master user (see page 47). Activities pertaining to installation and service are accessed by the service user and usually require the use of a keypad.

When the control panel is initially powered up, *the service user, user number 1, will automatically be assigned code 1010 and the master user, user number 2, will be assigned code 1020*. These are the default codes to allow access into the programming functions or modes. Both codes should be changed later.

FUNCTIONS AND MODES AVAILABLE AT THE PANEL

The following table shows the selection of functions and modes available at the control panel. All of these functions and modes are self-completing; in other words, they exit automatically. To gain access, enter the appropriate user code and then press the appropriate button.

FUNCTION OR MODE	USER NUMBER		PANEL DESIGNATION
ACKNOWLEDGE ALARMS	1	2	DISARM
DISARM	1	2	DISARM
PART ARM		2	PART ARM
FULL ARM	1	2	FULL ARM
BELL TEST	1	2	5
SINGLE-ZONE SHUNT	1	2	FN2, DISARM
USER SET OWN ID	1	2	FN2, PART ARM
SET USER IDS	1	2	FN2, FULL ARM
DURESS (Optional)	All Users		0

ACKNOWLEDGE ALARMS (DISARM button):This function is used to acknowledge receipt of an alarm condition (e.g., from a FIRE zone or 24HR zone). When an alarm occurs, the appropriate zone LED on the panel will be flashing and the piezo-sounder may be beeping and the audible bells may be sounding. To stop the flashing alert and to silence the piezo-sounder and bells, you must acknowledge the alarm. Note which zone LED is flashing, enter your user code , and then press the DISARM button. The piezo-sounder and bells will silence and the zone LED will extinguish or remain lit. If the LED extinguishes, then the zone has reset; if the LED remains lit, then the zone is still in alarm and further investigation may be necessary.

DISARM (DISARM button): This is the normal daytime or open-period operating mode. To disarm the panel, enter your user code and then press the DISARM button. The piezo-sounder, all

relays, and most C-LEMs will then reset. C-LEM 5 (Fire Trouble), C-LEM 12 (Group Tech), and C-LEM 13 (Duress/Holdup) will not reset at this time but will reset when all zones of the same type return to normal. When the panel is in DISARM mode, the Power LED will be lit, the Armed LED will be off, and the zone LEDs will light to identify those zones that are presently in alarm.

PART ARM (PART ARM button): This mode provides protection around the perimeter of a premises and at exit/entry points while allowing freedom of movement within the premises. In a residential setting, this is known as the "sleep" mode of operation. Enter your user code and then press the PART ARM button. In this mode, the Power LED and the Armed LED will be lit. For further information about the status of zone LEDs, refer to the PART ARM 2 explanation on page 40). When the panel is in PART ARM mode, FOLLWR, NOTPT2, and INTRNL zones will not cause an alarm if they operate; however, an instant, full alarm will occur if a perimeter zone is violated and a full alarm will occur after the entry time expires if an exit/entry door is opened. To avoid a full alarm when entering, you must enter your user code and then press the DISARM or PART ARM button before the timer and beeping expire.

If you wish to leave while the premises is in PART ARM mode, enter your user code and then press the PART ARM button if others still remain inside or enter your user code and then press the FULL ARM button (see below) if you are the last to leave. Both actions will start the exit timer but the piezo-sounder will not start beeping if PART ARM mode is chosen. In a residential setting, other persons may be asleep and therefore the exit timer *will be counting down silently*. The beeping will start as soon as the exit door is opened indicating that the timer is operating! **Do not delay unnecessarily when leaving!!**

FULL ARM (FULL ARM button): This is the nighttime or closed-period operating mode. In this mode, only the Power LED and the Armed LED will be on. Ensure that all zone LEDs are off before you enter your user code. Enter your user code and then press the FULL ARM button. If any zones are in an alarm condition, the piezo-sounder will sound a long beep to indicate that the panel cannot arm. When all zones are normal, the piezo-sounder will beep slowly to indicate that exit time is in progress. If an EXIT zone or a FOLLWR zone is violated during this time, the beeping will accelerate and stay this way until the zone is restored. During this exit time and the subsequent entry time, a violation of any NIGHT zone will cause an instant, full alarm and the violated zone will be logged in the system log. At the expiry of the exit time, all zones except the EXIT zone become instant-acting.

BELL TEST (5 button): This function will turn on both the intrusion output and the external bells and/or sirens (TIMED BELL output panel RELAY 1 (default), INTRUSION output panel RELAY 2 (default), TIMED BELL output C-LEM 7, and INTRUSION output C-LEM 1). They will remain on for the duration of the time entered in the Bell Time variable (see page 52) or until the panel is disarmed. Enter your user code and then press the 5 button. To end the bell test, enter your user code and then press the DISARM button.

SINGLE-ZONE SHUNT (FN2, DISARM buttons): This function provides a simple method of shunting a single zone and is only available at the panel. Enter your user code, press the FN2 button, and then press the DISARM button. The Shunt LED will flash quickly to indicate that you have selected the SINGLE-ZONE SHUNT function. Press the button with the number of the zone that is to be shunted. The Shunt LED will change to a steady light and the LED beside the zone that is shunted will flash slowly. If an illegal zone number is entered, the piezo-sounder will beep and the panel will exit from the SINGLE-ZONE SHUNT function. If this function is selected in error, press the FN1 button when the Shunt LED is flashing quickly to cancel the choice. If more than one zone is to be shunted, then repeat this procedure for each additional zone.

To clear all shunts, enter your user code, press the FN2 button, and then press the DISARM button. The Shunt LED will flash quickly to indicate that you have selected the SINGLE-ZONE SHUNT function. Press the 0 (zero) button to clear all shunts. The Shunt LED will also extinguish at this time.

SET ID AT PANEL (FN2, PART ARM buttons): This function allows a user to program the panel with a confidential code of his or her own choice. Enter your present user code, press the FN2 button, and then press the PART ARM button. Now you can enter a new four-digit user code. To complete this procedure, press the FN2 button. Remember this entry because it is your new code! This function may be repeated any number of times.

SET USER IDS (FN2, FULL ARM buttons): This function allows a user to program user codes for all other users. **Note: The following user *options* have been defaulted to yes during the cold start; DISARM, FULL ARM, and CLEAR DISPLAY. Additional options such as shunt zones, user set own id, etc. must be turned on by using a programming keypad or remote keypad.** Enter your user code, press the FN2 button, and then press the FULL ARM button. Notice that zones LEDs 1 to 4 are flashing. Enter the user *number* (e.g., 12) and then press the FN2 button. Notice that zones LEDs 5 to 8 are now flashing. Enter the user *code* for this user and then press the FN2 button. The zone LEDs will stop flashing and will go out or return to their original status.

DURESS (0 button): This mode allows any user to disarm the panel while simultaneously sending a silent signal for help if this option has been chosen in the Enable Duress variable (see page 53). The DURESS mode is an option that is turned on by the installer or service-person. This same procedure may be used to send in a hold-up alarm at any time the premises is open. Enter 0 (zero) followed by your user code and then press the desired function button (e.g., DISARM). This action will disarm the panel and send a silent duress/ambush/holdup code to a Model 4000 receiver either by DVACS^{tm} service or the Model 1431 modem. If the DVACS^{tm}/ modem communication is not available, C-LEM 13 may be installed to provide a separate dry contact for connection to a digital communicator or some other device.

FUNCTIONS AND MODES AVAILABLE AT A KEYPAD

The following table shows the selection of functions and modes available from a Model 3220 or Model 3230 remote keypad or a Model 3220BF service programming keypad. Some of these functions are self-completing while others require further action. Some functions will display a flashing sub-menu. **Do not leave a keypad with a sub-menu showing**. Always complete your selection and exit to date and time to avoid the possibility of unauthorized access into the system. To select a function or a mode from a remote keypad, enter the appropriate user code and then press the appropriate button.

L	FUNCTION OR MODE	USER NUMBER		KEYPAD DESIGNATION	PAGE
}	OPTIONS AVAILABLE	1	2	HELP	40
	ACKNOWLEDGE ALARMS	1	2	0	40
	DISARM	1	2	DISARM	40
}	PART ARM 1		2	PART ARM 1	40
	PART ARM 2		2	PART ARM 2	40
	FULL ARM	1	2	FULL ARM	41
}	BELL TEST	1	2	5	41
}	NEW CLOSING TIME		2	6	41
L	DURESS	1	2	0	42
}	SYSTEM LOG	1	2	YES	42
}	BLOCK SHUNT/CLEAR	1	2	NO	43
}	SERVICE MODE	1		A (SHIFT YES)	44
}	SET IDS/OPTIONS	1	2	C (SHIFT DISARM)	46
}	ASSIGN ZONES/VARIABLES	1		D (SHIFT PART ARM 1)	48
}	DISABLE MODE	1		F (SHIFT FULL ARM)	53
}	DAYLIGHT SAVING TIME CHNGE	1	2	H (SHIFT HELP)	54
}	HOLIDAY SCHEDULE	1	2	N (SHIFT 4)	54
}	RELAY/C-LEM TEST	1		O (SHIFT 5)	54
}	PRINT REPORTS	1		P (SHIFT 6)	54
}	RESTART SYSTEM/SOFT START	1		R (SHIFT 7)	55
}	SET DATA FORMAT	1		S (SHIFT 8)	55
}	SET DATE/TIME	1	2	T (SHIFT 9)	60
}	SET TIME COMMANDS	1	2	U (SHIFT BACKSPACE)	60
	USER SET OWN ID		2	Y (SHIFT 0)	60
}	TIME ADVANCE	1	2	! (SHIFT SHIFT YES)	60

Note: These functions and modes are available when a Model 3220, Model 3230 or Model 3240 remote key-pad is installed as part of the system or a Model 3220BF service programming keypad is plugged into the control panel. *To alert the user, a star (}) will appear in the margin beside each function or mode described below that can* ***only be selected with a keypad****.*

} **OPTIONS AVAILABLE (HELP button)**: This function is included to help the user who is not sure of the options that are available. Enter your user code and then press the HELP button. The keypad will display **SELECT AN OPTION. . .** , followed by the first option available to you. The option will have a **?** beside it. If you wish to select this option, press the YES button. If you do not wish to select this option, press the NO button to continue on to the next available option. If no option is chosen, you must wait 30 seconds for the keypad to return to date and time.

ACKNOWLEDGE ALARMS (0 button): This function is used to acknowledge receipt of a flashing alarm condition (e.g., ***** FIRE ALARM *****). See also DISARM below. Enter your user code and then press the 0 (zero) button. This action will stop the flashing display, silence the piezo-sounder, turn off the bells, and clear the messages.

DISARM (DISARM button): This is the normal daytime or open-period operating mode. To disarm the panel, enter your user code and then press the DISARM button. The piezo-sounder, all relays, and most C-LEMs will then reset. (The exceptions are FIRE TROUBLE C-LEM 5,
L TECH output C-LEM 12, HOLDUP and DURESS output C-LEM 13, GATE VALVE output C-LEM 16, and PRESSURE DROP output C-LEM 17, all of which reset when the appropriate zone resets.) When the panel is in DISARM mode, the keypad display will show the date and time alternating with any zones that are presently in alarm. If a description has been entered, the actual zone description will be displayed (e.g., **1. SIDE DOOR**) instead of the zone type, number, and state (e.g., **NIGHT 1 OPEN**).

} **PART ARM 1 (PART ARM 1 button):** This mode provides protection around the perimeter of the premises but allows freedom of movement within the premises and unrestricted access through the exit/entry door. In a residential setting, this is known as the "home" mode of operation. Enter your user code and then press the PART ARM 1 button. Depending on the setting of the Part 1/2 Disply variable (see page 52), the keypad may be blank or may display **PART ARM 1** or **PART ARM 1** alternating with date and time and any unmonitored zones that are open. At the panel, the Power LED and the Armed LED will be lit. Depending on the Part 1/2 Disply variable, some zone LEDs may be lit to indicate a violation of those zones that will not cause an alarm in PART ARM 1 mode. When the system is in PART ARM 1 mode, EXIT, FOLLWR, NOTPT1, and INTRNL zones will not cause an alarm if they are violated.

PART ARM 2 (PART ARM 2 button): This mode provides protection around the perimeter of the premises and at exit/entry points while allowing freedom of movement within the premises. In a residential setting, this is known as the "sleep" mode of operation. Enter your user code and then press the PART ARM 2 button. Depending on the setting of the Part1/2 Disply variable (see page 52), the keypad may be blank or may display **PART ARM 2** or **PART ARM 2** alternating with date and time and any unmonitored zones that are open. At the panel, the Power LED and the Armed LED will be lit. Depending on the Part 1/2 Disply variable, some LEDs may be lit to indicate a violation of those zones that will not cause an alarm in PART ARM 2 mode. When the system is in PART ARM 2 mode, FOLLWR, NOTPT2, and INTRNL zones will not cause an alarm if they are violated; however, an instant, full alarm will occur if a perimeter zone is violated

and a full alarm will occur after the entry time expires if an exit/entry door is opened. To avoid a full alarm when entering, you must enter your user code and then press the DISARM or PART ARM button before the timer and beeping expire..

If you wish to leave while the premises is in PART ARM mode, enter your user code and then press the PART ARM button if others still remain inside or enter your user code and then press the FULL ARM button (see below) if you are the last to leave. Both actions will start the exit timer but the piezo-sounder will not start beeping immediately if PART ARM mode is chosen. In a residential setting, other persons may be asleep and therefore the exit timer *will be counting down silently*. The beeping will start as soon as the exit door is opened indicating that the timer is operating! **Do not delay unnecessarily** when leaving!!

FULL ARM (FULL ARM button): This is the nighttime or closed-period operating mode. In this mode, the keypad display may be blank or showing date and time depending on the setting of the Full Arm Disp variable (see page 51). Enter your user code and then press the FULL ARM button. If any zones are in alarm condition, the piezo-sounder will sound a long beep and display will show **CANNOT ARM**. When all zones are normal, the piezo-sounder will beep slowly to indicate that exit time is in progress. If an EXIT zone or a FOLLWR zone is violated during this time, the beeping will accelerate and stay this way until the zone is restored. During this exit time and the subsequent entry time, a violation of any NIGHT zone will cause an instant, full alarm and the violated zone will be logged in the system log. At the expiry of the exit time, all zones except the EXIT zone become instant-acting.

BELL TEST (5 button): This function will turn on both the intrusion output and the external bells and/or sirens (TIMED BELL output panel RELAY 1 (default), INTRUSION output panel RELAY 2 (default), TIMED BELL output C-LEM 7, and INTRUSION output C-LEM 1). They will remain on for the duration of the time entered in the Bell Time variable (see page 52) or until the panel is disarmed. Enter your user code and then press the 5 button. To end the bell test, enter your user code and then press the DISARM button.

} **NEW CLOSING TIME (6 button):** The Master user and selected general users may program a new closing time if they intend to stay later than the regularly scheduled closing time for that day. If the Late-to-Close Warning feature has been selected in the Closng/Autoarm variable (see page 50), new closing times can be entered at any time of the day before a *PAST CLOSING TIME* alarm is to occur. This Late-to-Close Warning feature, in conjunction with a programmed Closing Delay variable (see page 50), gives the customer extra time to exit after a regularly scheduled or newly chosen closing time (see page 61). No alarm will be created until the expiry of the delay time. An audible and a visual display warning is given to alert the customer at the beginning of the delay time. The NEW CLOSING TIME function may also be used to program a new closing time for that day for use with the autoarm feature. The new closing time entered is only valid for the day in question and does not alter the regular, daily scheduled closing time. Enter your user code and then press the 6 button. The keypad will display **NEW CLOSING TIME** for a moment and then will display a message similar to **19:55/[1 NEW CLOSING**. The cursor will be flashing on

the first digit. Enter a new closing time using military (24-hour) time. Press the RETURN button to complete the entry. If an illegal numeric entry has been made, the display will show **** INVALID ENTRY ****, the piezo-sounder will beep, and the original entry will return. Enter the correct time and press the RETURN button. If no entry is made, the keypad will beep every 30 seconds until an entry is made or the RETURN button is pressed. The keypad then will display **BUSY . . RE-SCHEDULING** and in a moment will return to date and time. If no new closing time is entered or the panel is not armed by the newly programmed closing time and the Late-to-Close Warning feature has been selected, the keypad will display a **CLOSING TIME SOON !** warning message and the piezo-sounder will beep. At this time, either arm the panel or repeat the above procedure. At the expiry of the closing delay time, if neither of these actions is taken, then the panel will generate a ***PAST CLOSING TIME *** alarm.

L **DURESS (0 button):** This mode allows any user to disarm the panel while simultaneously sending a silent signal for help if this option has been chosen in the Enable Duress variable (see page 53). The DURESS function is an option that must be turned on by the installer or service-person. To create a duress alarm, enter a zero (0) before your code and then press a valid function or mode key (e.g., 0 + 1234 + DISARM). The function will be executed and a silent duress alarm sent to the central/monitoring station. If DVACS^{tm} or autodial-modem communication is not
L available, C-LEM 13 may be installed to provide a separate dry contact for connection to a digital communicator or some other device. Notice that the duress function is 0 + code + function; whereas acknowledge alarms is code + 0. During the open period, a duress alarm can be sent by following the procedure above; however, since the pressing of the buttons results in an audible beep thus alerting anyone to the action, it is advised to install a holdup button to create a silent alarm.

} **SYSTEM LOG (YES button):** This function is used to print or display the historical log. Enter your user code and then press the YES button. In a DVACS^{tm}/autodial modem installation, the display will briefly show **SYSTEM LOG** and then the log will be scrolled on the display. In a non-DVACS^{tm}/non-autodial modem installation, the display will show **PRINT LOG ?**. If a serial-input printer is connected to the communications port (see page 55), press the YES button to create a hard-copy record of the system log. While the printing is in progress, the display will show **PRINTING SYSTEM LOG**. If a printed copy is not required, press any other button. The display will briefly show **SYSTEM LOG** and the log will then be scrolled. To abort the system log at any time, press the NO button. The format of the displayed output is as follows: Starting with the last event and working back in time, the keypad will show three messages for each alarm entry:

Message 1 is **DATE**TIME**
Message 2 is **ZONE NUMBER or USER NUMBER**
Message 3 is **ZONE DESCRIPTION or ACTION TAKEN BY USER**

The date and time are separated by ****** to distinguish an historical log display from the normal DISARM mode display. The content of the second and third messages will depend on whether it

was a user action (e.g., SET DATE/TIME), in which case the user number will be the second message and action taken will be the third message, or a zone changing state, in which case the zone number will be the second message and the zone description will be the third message. The alarm log is capable of storing 300 of these three-part entries. While the log is being displayed, you may press the RETURN/ENTER button to advance each line entry on the display. You may also press the DISARM (+) button to move just the time entry back in time quickly (i.e., to the older log entries) or you may press the PART ARM 1 (-) button to advance just the time entry forward in time quickly (i.e., to rewind the log to the most recent entry). When you stop pressing these buttons, the log will again continue its slow scroll back in time. This will allow you to easily review any display. When all entries have been displayed, the word **FINISHED** will appear and the keypad will return to date and time. Press the NO button to abort the system log.

} **BLOCK SHUNT/CLEAR (NO button):** This function allows the user to shunt a single zone or blocks of zones, clear existing shunts, or re-apply a previously determined pattern of shunted zones. Zones that are shunted **will still report a tamper or disconnect state**. Enter your user code and then press the NO button. The display will show a flashing sub-menu: **MEMORY--SHUNT--CLEAR**.

SHUNT - To shunt a zone or block of zones, press the PART ARM 2 button. The display will show **SHUNT FROM 1**. Enter the number of the first zone to be shunted and then press the RETURN/ENTER button. The next message displayed will be **SHUNT TO #**. If only one zone is to be shunted, press the RETURN/ENTER button; otherwise, enter the number of the last zone in the block of zones to be shunted and then press the RETURN/ENTER button. If you have shunted an on-line zone, the display will show **1 SHUNTS**, the piezo-sounder will beep, and **QUIT ?** will be displayed. Press the YES button to exit or any other button to return to the sub-menu. The display will now continuously show the number of zones shunted.

CLEAR - To clear the shunts, press the HELP button. The message **CLEAR FROM 1** will then appear. The procedure for clearing is the same as for shunting. Follow the steps described above. Shunted zones are automatically cleared on entry to DISARM mode following a previous arming.

MEMORY - Shunted zones are cleared automatically after one use: that is, when the panel is disarmed, all shunts are removed. However, the system remembers which zones were shunted and the MEMORY feature allows these shunts to be re-activated with the press of a single button. This feature is very useful when the same group of zones are regularly being shunted. Zones can only be cleared from the shunt memory by using the CLEAR option described above. To select MEMORY, press the DISARM button. The display will show **PRE-PROGRAMMD SHUNT** and then the number of shunts, if any. The piezo-sounder will beep and then the display will show
QUIT ?. If there are no shunts programmed, the display will immediately show **QUIT ?**. The number of shunted zones is continuously displayed.

} **SERVICE MODE (A button):** To select this mode, enter the Service user code and then press the A button (shift YES). The display will show a flashing sub-menu: **REPORT--TEST-MONITOR**

ON-LINE REPORT - The on-line report displays all zones that are connected to the panel and whose state was not disconnected at the last initialization. The report starts with the lowest-numbered zone and increases numerically until all the on-line zones have been reported. To select ON-LINE REPORT, press the DISARM button. In a DVACS[tm]/autodial modem installation, the panel cannot print a report and will immediately start displaying the report. If the panel is taken out of DVACS[tm] /autodial modem mode and a printer has been temporarily added to the panel, the display will show **PRINT ON-L REPORT ?** Should you wish to print this report on the serial-input printer, press the YES button; otherwise, press any other button. You may use the RETURN/ENTER button and the PART ARM 1 button respectively to advance or rewind the display. The NO button will abort the report. When the display shows **QUIT ?** you may choose to return to the sub-menu by pressing the NO button or to exit this function by pressing the YES button.

WALKTEST - This option is designed to ensure that all zones and their associated detectors are working correctly (i.e., reporting alarm and restore conditions). If possible, connect a printer to the panel when performing a walktest to produce a concise, date-stamped report showing the name and address of the installation, the number of zones tested, and a list of any untested zones.

To select WALKTEST, press the PART ARM 2 button. The keypad will display **WALKTEST**. Create an alarm on zone 1 to verify that it is on line. If the zone is on line, the display will show **TEST 1 : 1 OPEN**. To identify zone 1, press the HELP button and the display will briefly show the zone description. When zone 1 is reset, the panel will report this by displaying **TEST 2 : 1 CLOSED**. The panel has now set up for zone 2 and is waiting for that zone to be tested before proceeding. (In the phrase **TEST 2 : 1 CLOSED**, **2** represents the zone on the system that is **to be** tested and **1** represents the **last** zone tested.)

If zones other than the one requested by the display are tested, their number and state (open or closed) will be shown; however, the panel will not ask for them when their position in the sequence occurs. If a zone cannot be tested, it may be disregarded by pressing any button. The NO button is used to exit.

Note: TIMED BELL output RELAY 1(default) can be turned on very briefly (less than one second) on every zone change by pressing the FULL ARM button. Pressing the FULL ARM button again will cancel this function. This is useful to the serviceperson working alone.

SINGLE-ZONE MONITOR - This option allows the user to examine input loops and to observe their state and analogue values. To select SINGLE-ZONE MONITOR, press the HELP button. Enter a zone number, say 4, and then press the RETURN/ENTER button to examine this zone. Use the DISARM (+) button to advance to the next zone number and the PART ARM 1 (-) button

to go back to the previous zone number. The analogue values shown below are representative of the different conditions that are possible for zones configured as HIGH loops.

NIGHT 4 CLOSED [104]	if the input is On Line
NIGHT 4 CLOSED *104*	if the input is Not On Line
NIGHT 4 CLOSED /104/	if the input is Disabled
***NIGHT 4 CLOSED [104]**	if the input is Manually Shunted
/NIGHT 4 CLOSED [104]	if the input is Program Shunted
+NIGHT 4 CLOSED [104]	if both Manually & Program Shunted

The piezo-sounder is used in this option to indicate the state of the zone under test. The relationship between the beeping sound and the state of the zone is as follows:

STATE OF INPUT	PIEZO-SOUNDER
CLOSED	Off
OPEN	Long beep
SHORT	Short beep
DISCON	Continuous

NOTES:

1. The piezo-sounder may be turned off by pressing the PART ARM 2 button. Press this button again to re-enable the piezo-sounder.

2. To confirm that the zone you have chosen is the correct one, you may press HELP button to display its description.

3. As in the WALKTEST option above, you may press the FULL ARM button and TIMED BELL output RELAY 1 (default) will trip briefly every time the displayed zone changes state.

TROUBLE-SHOOTING INPUT LOOPS:

The following section is included to give the installer some guidance in trouble-shooting zone inputs. In this example, Zone 5, a NIGHT zone configured as a HIGH loop, has been chosen.

1. In the SINGLE-ZONE MONITOR option, if a short is connected between terminals 17 and 18, the display will show **NIGHT 5 CLOSED [104]**.

2. If the circuit is opened between terminals 17 and 18, the display will show **NIGHT 5 OPEN [0]**.

The number in square brackets represents the analogue value of voltage at the zone input and should be within ±2 of this value. By examining different inputs, you will be able to determine the analogue values for all zones and these can be printed or recorded for future reference when trouble-shooting faulty zones. The analogue readings will be near the typical values but will increase as the loop resistance increases. A table of acceptable analogue values follows:

HIGH LOOPS

INPUT COND.	TYP.	MIN.	MAX.
CLOSED	106	55	120
OPEN	0	0	54

LOW LOOPS

INPUT COND.	TYP.	MIN.	MAX.
CLOSED	0	0	54
OPEN	124	55	127

1 EOL RESISTOR LOOPS

INPUT COND.	TYP.	MIN.	MAX.
CLOSED	40	25	54
OPEN	0	0	24
DISCON	124	55	124

2 EOL RESISTOR LOOPS

INPUT COND.	TYP.	MIN.	MAX
SHORT	0	0	24
CLOSED	40	25	54
OPEN	60	55	79
DISCON	124	80	124

} **SET IDS/OPTIONS (C button):** The panel has a capacity for 34 general users. The specific functions and modes that each general user is allowed to use (e.g., full arm, shunt zones, etc.) are usually assigned by the master user. Access will be denied and the piezo-sounder will beep when a general user attempts to enter a function or mode other than that permitted in his or her list. As well, the display will show **** INVALID ENTRY ****. To select this function, enter the Master
L user code (factory default 1020) and then press the C button (shift DISARM). The keypad will display a flashing a sub-menu: **IDS--OPTIONS-NAMES**

IDS (IDENTIFICATION CODES) - To select or change identification codes (IDS), press the DISARM key. The panel will display **ENTER USER NO. 1**. If user number 1 is to be chosen, press the RETURN/ENTER key. If a user other than number 1 is to be chosen, enter his or her number and then press the RETURN/ENTER key. The next message displayed will be **ENTER**
L **CODE** _ _ _ _ _. User codes must have four digits. Enter any numeric code from **1000** up to **9999**. (Note that, unlike in the previous software, *numeric codes 1 to 0999 are not allowed*. This is because the new Duress alarm feature described on pages 38, 42, and 63 uses a lead 0 numbering scheme.) Codes are never displayed as they are entered because they may be seen by others near the panel or at a remote keypad. Instead, a * will be displayed for every digit entered. After a code is assigned, you must press the RETURN/ENTER key to advance to the next user number. If this user requires a code, then press the RETURN/ENTER key and follow the procedure described above. Note: **No two user codes should be the same!!** The panel does *not* test for duplicate codes and will accept them at this time. Later, when the panel examines code entries during operation, it will log all activities associated with the two duplicate code holders against only the lower user *number*. To exit, press the NO key when the display shows **ENTER**

USER NO. #. The **QUIT ?** message will appear and you may press the YES key to exit or any other key to return to the sub-menu.

REMOVING A USER CODE: This can only be done by using a Model 3220BF programming keypad or at a Model 3220/3230 remote keypad. This function cannot be done by using the buttons on the Model 3008 panel itself. At the very best, if no keypad is available, an authorized user can assign a new code known only to him/her thus replacing the old code. At a programming keypad or at a remote keypad, select IDs as above, enter the user number in question, press the RETURN/ENTER key, enter a single ***** (PART ARM 2 button) for the code, and the display will show **ENTER USER NO. X**. This has deleted the old code. Press the NO key to quit and the display will show **QUIT?**. Press the YES key to exit. Note: If the Model 3008 panel has software *prior to January 1996*, enter 0000 (four zeros) instead of the ***** (PART ARM 2 button).

RESETTING USER 1 AND 2 IDS: If through the course of staff changes, etc., the Service user's **code** or the Master user's **code** has been lost, then **these two user codes only** may be reset to the factory default value (i.e., Service user 1 will again have code 1010 and Master user 2 will again have code 1020). New codes may then be assigned. All other user codes will remain unchanged! See page 35 for the procedure to follow.

OPTIONS - To select OPTIONS, press the PART ARM 2 button. The keypad will display **ENTER USER NO. 1**. You may press the RETURN/ENTER button for user number 1 or enter the number of any other user and then press the RETURN/ENTER button. The keypad will now display **DISARM NO**. If you do not wish to allow this general user to disarm the panel, press the RETURN/ENTER button. The **NO** choice will remain and the next option will follow. If this option is to be allowed, press the YES button. This changes the **NO** to a **YES** on the keypad to confirm your choice. The next option will then appear, along with the present choice. Repeat this procedure for each user for all 12 options listed below. The PART ARM 1 (-) button may be used to return to a previous option. Hint: If you are only changing a few options, you may wish to exit before all 12 options have been displayed. Press the HELP button and the next user will appear. To exit from this option, press the NO button whenever the display shows **ENTER USER NO. #**. The display will now show **QUIT ?** and you may press the YES button to exit or any other button to return to the sub-menu.

The following is a list of all possible options available when a Model 3220 remote keypad is used with the DIRECTPLEX control panel:

DISARM	BELL TEST	BLOCK SHUNT/CLEAR
PART ARM 1	NEW CLOSING TIME	SET DATE/TIME
PART ARM 2	CLEAR DISPLAY	SET ID AT PANEL
FULL ARM	SYSTEM LOG	SET IDS/OPTIONS

If the service user, user number 17, is at the keyboard and has entered his or her user code and selected the SET IDS/OPTIONS function, the procedure for assigning identification odes and options is the same as above; however, in the OPTIONS option, a *different list* will be presented.

DISARM		SYSTEM LOG	SET IDS/OPTIONS
FULL ARM	L	BLOCK SHUNT/CLEAR	SERVICE MODE
BELL TEST		SET DATE/TIME	DISABLE MODE
CLEAR DISPLAY		ASSIGN ZONES/VARIABLES	

L At the DIRECTPLEX control panel, eight options may be assigned to all users: DISARM, PART ARM, FULL ARM, BELL TEST, SINGLE-ZONE SHUNT, USER SET OWN ID, SET IDS and DURESS.

NAMES - To select NAMES, press the HELP button. The keypad will display **ENTER USER NO. 1**. If user number 1 is to be chosen, press the RETURN/ENTER button. If a user other than number 1 is to be chosen, enter his or her number and then press the RETURN/ENTER button. The display will show a flashing cursor, /\, in the farthest-left position. Enter a user's name up to a maximum of 20 characters. (See page 63 for information on how to select the letters of the alphabet.) When the entry is complete, make sure that the cursor is at normal shift (up) and then press the RETURN/ENTER button. The keypad will now display the next user number. If this user's name is to be entered, press the RETURN/ENTER button and follow the procedure described above. To exit, press the NO button when the display shows **ENTER USER NO. #**. The **QUIT ?** message will then appear and you may press the YES button to exit or any other button to return to the flashing sub-menu.

} **ASSIGN ZONES/VARIABLES (D button):** This function is used to enter the actual location of each zone or a description associated with it (e.g., 1. FRONT DOOR, 6. FACTORY PASSIVE, etc.). To select this function, enter the Service user code and then press the D button (shift PART ARM 1). The keypad will display a flashing sub-menu: **DESCS---TYPES--VARS**.

ZONE DESCRIPTIONS - To select ZONE DESCRIPTIONS, press the DISARM button. The keypad will display **ENTER ZONE NO. 1**. If this is the desired zone, press the RETURN/ ENTER button; otherwise, enter the number of the required zone and then press the RETURN/ ENTER button. The display will show a flashing cursor, /\, in the farthest-left position. Enter the zone number, a space or period, and then a zone description up to 18 characters long. (See page 63 for information on how to select the letters of the alphabet.) When the entry is complete, make sure that the cursor is at normal shift (up) and then press the RETURN/ENTER button. The key-pad will now display the next zone number. If this zone is to be described, press the RETURN/ ENTER button and follow the procedure described above. To exit, press the NO button whenever the display shows **ENTER ZONE NO. #**. The **QUIT ?** message will then appear and you may press the YES button to exit or any other button to return to the flashing sub-menu.

ZONE TYPES - To select ZONE TYPES, press the PART ARM 2 button. The keypad will display **SET FROM 1**.You may press the RETURN/ENTER button for user number 1 or enter the number of any other user and then press the RETURN/ENTER button. The keypad will now display **SET TO #**. If a range of zones is required, enter the upper limit and then press the RETURN/ENTER button; otherwise, just press the RETURN/ENTER button. The keypad will now display **EXIT ?**. If you do not wish this zone type to be assigned to your zone number or range of zone numbers, press the RETURN/ ENTER button. The next zone type will then appear on the display. If this zone type is to be chosen, press the YES button; otherwise, just press the NO button or the RETURN/ENTER button. When the YES button is pressed, the display will again show **SET FROM 1**. Enter the new starting zone number and repeat the procedure described above. When all zone type choices have been made and the display shows **SET FROM 1**, press the NO button. The **QUIT ?** message will appear and you may press the YES button to exit or any other button to return to the sub-menu.

SYSTEM VARIABLES - To amend system variables, press the HELP button. The system variables will now be presented. For each variable, you will be required to enter a time value in seconds (e.g., 10 minutes = 600 seconds) or to select a condition with a numeric entry. Note: The time entries can range from 1 to 9999 seconds and 0 seconds means infinite time (forever). If the value is not to be changed, press the RETURN/ENTER button to advance to the next item. Use the PART ARM 1 (-) button to return to the previous entry.

AC FAIL DLY TIME 1: This variable is used to allow an extra amount of time to occur before the control panel reports an AC power failure. The normal delay period is six seconds. This consists of five seconds built in to the panel's operating system plus the one second default value of this variable. You may select any value from 1 to 9999 seconds, which, added to the internal five seconds, will form the new delay time. A value of zero (0) will default back to a one (1).

AUDIBLE TECH ? 0: This variable allows for an audible alert from a TECH zone. Change this value to a 1 to cause the piezo-sounder to beep when an alarm occurs on a TECH zone.

KEYPD FIR/PANIC? 0: This variable permits the YES and NO buttons on any Model 3220 or 3230 Remote Keypad to be used as *direct entry* Fire and Panic alerting respectively. Change the value to a one (1) to enable this feature. *Press and hold* the YES button for three seconds and notice that the beeper will beep and the keypad will display the flashing alert message ****FIRE ALARM****. In a similar manner, press and hold the NO button for three seconds and the keypad will show the the flashing alert message ***PANIC ALARM*** ; however the keypad will *not* beep. To clear either of these messages, enter your user code and then press either the 0 button or the DISARM button.

ENTRY TIME 30: This is the delay time in seconds that a user is allowed to disarm the panel after an exit/entry door is opened. (**Do not** enter 0.)

EXIT TIME 30: This is the delay time in seconds that a user is allowed to exit the premises via the FOLLWR and EXIT zones from the moment the system is placed in FULL ARM or PART ARM 2 mode. (**Do not** enter 0.)

ABORT ALARM DELAY 0: In certain installations, it may be desirable to minimize false alarms by permitting an authorized user to disarm the panel after an alarm has occurred without alerting the central/monitoring station. To achieve this, we have set a delay time during which the panel may be disarmed even though an intrusion alarm has been created. The intrusion alarm may be caused by incorrectly entering the premises through an instant door, walking under an instant acting motion sensor, or taking too long to disarm the panel. Select a value in seconds that would allow the user sufficient time to disarm the panel *after an alarm has occurred*. Note that this time is *not* the same as the entry time; but rather is a further time period after the entry timer has expired which allows the user to disarm the panel.

CLOSNG/AUTOARM 0: Depending on the value chosen, the panel will execute a number of different time-related tasks.

0 - No Late-to-Close Warning or auto-arming or auto-disarming.
1 - Late-to-Close Warning. (No auto-arming or auto-disarming.)
2 - Auto-arming. (No auto-disarming or Late-to-Close Warning.)
3 - Auto-arming and auto-disarming. (No Late-to-Close Waring.)

Late-to-Close Warning - Enter 1 if you wish to turn on the Late-to-Close Warning feature. Having done this, you may change the Closing Delay variable (see below) from its previous value to whatever extra time you choose to have before an actual closing alarm will be created. See the NEW CLOSING TIME function (page 41) and the section titled LATE-TO-CLOSE WARNING FEATURE (page 61) for further information.

L Auto-arming - Enter 2 if you wish to turn on the auto-arming feature. The Late-to-Close Warning feature will no longer be available. If the panel has not been armed by the regularly scheduled closing time, it will automatically be armed at this time. This activity will be logged and ascribed to user 36. If any zones are in an alarm condition, the panel will be force armed and an IMPROPER CLOSING signal will be sent to the central/monitoring station. If any of these zones restore, then this restoral will also be logged and transmitted to the central/ monitoring station. Note: The NEW CLOSING TIME function (see page 41) may be used to program a new closing time for that day only for either of the auto-arming selections.

L Auto-arming and Auto-disarming - Enter 3 if you wish to turn on the auto-arming and auto-disarming feature. The Late-to-Close Warning feature will no longer be available. If the panel has not been armed by the regularly scheduled closing time, it will automatically be armed at this time and the activity will be logged and monitored as above. If the panel has not been disarmed by the subsequent regularly scheduled opening time, it will automatically be disarmed at this time.

Before the automatic disarming occurs, the panel will check for any holiday scheduling entered in the HOLIDAY SCHEDULE function (see page 54). All actions will again be ascribed to user 36.

CLOSING DELAY 900: This variable sets the delay time in seconds allowed after the regularly scheduled or newly chosen closing time before a *PAST CLOSING TIME* alarm will occur. It is used in conjunction with the Late-to-Close Warning feature.

SHUNT LIMIT 8: This is the highest zone number that can be shunted.

ALERT & DISPLAY? 1: This variable is used to enable the display on a keypad to show alert and warning messages for FIRE zones, 24 HOUR zones, AC Power failure, and Fuse/Battery problems. The piezo-sounder in the panel and in any keypads installed as part of the system will beep to signal such problems. If the panel is installed in an unattended location (e.g., a sprinkler room), then warning and alert messages will be unnecessary. Enter a 0 to turn off the alert feature.

DOUBLEKNOCK TIME 900: This is the time in seconds within which the two activations of DOUBLE-knock and TWIN zone types must occur in order to cause a full alarm.

FULL ARM DISP 0: This variable controls the action of the LEDs on the control panel and of the display on the remote keypads when the panel is in the FULL ARM mode. It can be set to one of the following values:

0 - Panel LEDs off and the remote keypad display remains blank.
1 - ALERT messages only are displayed on the remote keypad.
2 - ALERT and WARNING messages are displayed on the remote keypad.
3 - Panel LEDs will flash on alarm and the remote keypad will show ALERT and WARNING messages. OPEN zones and DATE and TIME will be continuously displayed.
4 - Same as a 3, plus zone type, state, and description on the remote keypad.

For example: If, while the panel is armed, an immediate indication of an alarm is required, then set the variable to 3.

MON/FTBL DELAY 10: This is the delay time in seconds that a MONITOR zone type or a FIRTBL zone type can remain in alarm before the panel responds.

BELL DELAY 1: When an alarm occurs, this is the time delay in seconds between the immediate operation of INTRUSION panel relay output 1 and output C-LEM 1 and the activation of TIMED BELL panel relay output 7 and output C-LEM 7. (**Do not** enter 0.)

LOG OUTPUTS? 0: When a panel relay or a C-LEM is operated or reset, this action can be stored in the system log and simultaneously be printed on the system printer. As this action creates unnecessary, wasteful log data, it should only be used in certain instances. If needed, set this variable to 1.

PART 1/2 DISPLY 0: If the panel is to be used in the PART ARM 1 or PART ARM 2 mode, it is advisable to indicate this fact on the panel for the benefit of people remaining in the protected area. Set this variable to 2 to allow this to happen. The chart for the Full Arm Display variable above also applies.

RETARD TIME 3: This variable is used to set the amount of retard time that must expire before a FLOW zone type will create an alarm. The allowable values are 1 second to 60 seconds. Values entered outside this range will default to the minimum (3) or maximum (60) values.

RETRIGGER 1: This variable controls the re-triggering of the external bell relay during an alarm. It can be set to one of the following values:

0 - The bell relay will reset after the bell time expires and **will not** re-trigger on any further zone violations.
1 - The bell relay will reset after the bell time expires and **will** re-trigger when a zone is violated.
2 - The bell relay will reset after the bell time expires **only** if all zones on the system have closed (restored). If any of the zones are open (in alarm), then the bell relay will remain operated.

BELL TIME 900: This is the time in seconds that TIMED BELL panel relay output 7 and output C-LEM 7 will operate before an automatic shutdown.

L REMARM TOGGLE? 1: This variable is used in conjunction with the REMARM zone type (see page 22). If it is left as 1, then momentary short circuits to the end-of-line resistor from dry contacts toggle the armed/disarmed mode of the panel. If it is changed to 0, a two-position dry contact can provide both a continuous closed contact to arm the panel and a continuous open contact to disarm the panel.

L FORCED REMARM? 0: This variable is used in conjunction with the REMARM zone type (see page 22). If it is left as 0 and the panel is armed using a REMARM zone and one or more zones are in alarm, then the panel will not arm. If it is changed to 1 and the panel is armed as before and one or more zones are in alarm, the panel will arm and the message *IMPROPER CLOSING* will be logged and sent to the central/monitoring station.

DISARM ONLY? 0: This variable is used in conjunction with the REMARM zone type (see page 22). If it is left as 0, then the REMARM zone will both arm *and* disarm the panel. If it is changed to 1, then the REMARM zone will *only* disarm the panel.

ARM/DISRM ALRT? 0: This variable is only to be used with a central/monitoring station that is **not equipped with an automation computer**. If the station operator is to be alerted when the customer has armed or disarmed his or her system (e.g., for purposes of manually preparing an opening/closing summary), then set this variable to 1. **(Do not set this variable to 1 when using an automation computer.)**

L COMMS TEST 0: This variable is used to cause a periodic communications test to be sent to the central/monitoring station. Such a test can be used to prove the integrity of the system in low traffic applications such as fire alarm panel monitoring, sprinkler riser monitoring, building temperature monitoring, etc.. To select the frequency of the testing, you must enter a numeric value (e.g., 0= No test, 1= Every day, 2= Every second day, 3= Every third day, etc.). The test will occur at 03:00 hours and this time can be changed by using the SET TIME COMMANDS function (see page 60).

L SUPVRY SHUTDOWN 0: This variable is used to allow a fixed number of alarm and restore signals from a sprinkler riser (gate valve, post indicator valve, or pressure drop switches) to be sent to the central/monitoring station, after which no more signals are sent for a period of 90 minutes (5400 seconds) or unless the service technician manually resets the timer either by simply pressing the DISARM key once or by entering his or her code and then pressing the DISARM key. This shutdown **does not apply** to the FLOW and FIRE zones!

L ENABLE DURESS? 0: The old DURESS function has been changed. This variable is used to activate the duress alarm feature. Leave the variable at 0 to deny the duress feature or change it to 1 to enable the duress feature. To create a duress alarm, the user must enter a zero (0) and then their code and then press a *valid* function key (e.g., DISARM). It does not matter what the function is because the function will be executed and a duress alarm sent as well.

SYSTEM VARIABLES RECHECK:

When the **ENABLE DURESS? 0** variable is displayed, press the PART ARM 1 (-) button to check the variables. This will start a reverse scroll through the list. When the entire list has been checked, press the NO button and the display will show **QUIT ?**. Press the YES button to exit or the NO button to return to the flashing sub-menu.

} **DISABLE MODE (F button):** This mode is used by the serviceperson to disable zones. The steps are similar to those followed in the shunt function; however, the main difference is that disabled inputs are treated as if they were *no longer on line* (i.e., *no change of any state is reported*).

To select the DISABLE mode, enter the Service user code and then press the F button (shift FULL ARM). If some zones are already disabled, the message **CLEAR ALL DISABLES** ? will appear. Respond by pressing either the YES or NO button. If you select the YES button, then press the NO button to exit; otherwise, proceed with the rest of this section to create a new disable. The disabling procedure starts with the message **DISABLE FROM 1**. Enter the first zone number to be disabled and then press the RETURN/ENTER button. The display now will show **DISABLE TO #**. Enter the last zone number to be disabled, which may be the same as the first, and then press the RETURN/ENTER button. The keypad will display **N DISABLES**, where **N** is the number of zones disabled. Exit is automatic. Disabled zones are not cleared on entry to

the DISARM mode but the number of disables, if any, is displayed each time any arming or disarming mode is entered.

} **DAYLIGHT SAVING TIME CHANGE (H button):** Any time during the week that the Daylight Saving Time change occurs, enter your user code and then press the H button (shift HELP). When this mode is selected, the keypad will continuously display **HOUR CHNGE ON SUNDAY** and the time will advance or retard by one hour at 2 a.m. on the following Sunday morning. The panel will figure out whether to advance or retard the hour by looking at the current month. Once selected, the message **HOUR CHNGE ON SUNDAY** will be automatically cleared when the hour change takes place. The hour change may be cancelled by reselecting this mode. If this mode is entered in error, re-enter your user code and press the H button. The display will show **CANCEL HOUR CHANGE** for a moment and the message will be removed.

} **HOLIDAY SCHEDULE (N button):** This function is used in conjunction with the auto-arming and auto-disarming feature of the Closng/Autoarm variable (see page 50) to program holiday dates that will change regularly scheduled opening times. To select this function, enter your user code and then press the N button (shift 4). The keypad will show **ENTER MAX HOLS 1**. Enter a value from 1 to 15 representing the maximum number of holidays to be programmed and then press the RETURN/ENTER button. The keypad will show **ENTER MONTH 1**. Enter the numeric value of the month in which the holiday occurs and then press the RETURN/ENTER button. The keypad will show **ENTER DAY 1**. Enter the numeric value of the day of the month and then press the RETURN/ENTER button. If more holidays are to be entered, follow the procedure above. After the last holiday is entered, the keypad will return to date and time.

} **RELAY/C-LEM TEST (O button):** This function allows all outputs on the panel to be examined and tested. Enter the Service user code and then press the O button (shift 5). The display will show **OUTPUT 1 ON**. The current state of the output, on or off, will be indicated and the state may be changed by pressing the YES button. Use the DISARM (+) button to advance to the next output and the PART ARM 1 (-) button go back to the previous output. Press the NO button to quit. At this point, the outputs will remain as set in the test. To reset any changed outputs to their normal state, you must disarm the panel.

} **PRINT REPORTS (P button):** This function allows all system reports to be printed; however, the serial port will have to be configured for printer use before this function can be performed. If
L a Model 3302R3 Port Splitter is in use no reconfiguration will be necessary; otherwise, select the SET DATA FORMAT function (see below) for the procedure to follow. After the reports have been printed, the serial port will have to be re-configured to its former setting before the control panel can be set back on line to the central/monitoring station. The following reports are available:

1. SYSTEM VARIABLES
2. USER NAMES AND OPTIONS
3. CHANGED LITERALS
4. ON-LINE REPORT
5. SYSTEM LOG

Enter the Service user code and then press the P button (shift 6). The display will show **PRINT ALL REPORTS ?**. Press the YES button to print all the reports or press the NO button repeatedly to select the desired report. During the ON-LINE REPORT and/or LOG you may press the NO button to abort these at any time.

} **RESTART SYSTEM/SOFT START (R button):** This function is used to restart the panel from either a Model 3220, 3230, 3240 remote keypad or a Model 3220BF service programming keypad. Enter the Service user code and then press the R button (shift 7). See also SOFT START on page 32.

} **SET DATA FORMAT (S key):** This function allows the panel communications to be configured for connection to a number of devices including a printer, an autodial modem, a computer, and the DVACS(tm) network. Enter the Service user code and then press the S key (shift 8). There are many options to be chosen; the actual options presented will depend on the device being configured. Some options require a yes or no selection (e.g., **TRANSMIT NAME YES**, where the flashing **YES** indicates the current setting). Others will require a numeric entry.

L The display will show **COMMS MODE 0**. The following chart summarizes the choices:

0 - Used in a polled environment (e.g., DVACS(tm), PANELMAN, autodial modem, etc.).
1 - Used when a serial-input logging printer is directly connected to the panel.
2 - Used when the panel is both polled and a Model 3302R3 port splitter is connected to the panel to permit simultaneous use of a logging printer.

If **0** is the desired selection, press the RETURN/ENTER key. The display will show **SYSTEM ID 0**. Proceed to where SYSTEM ID is shown below in bold type. If a logging printer *only* is desired, enter a 1 and then press the RETURN/ENTER key. The word length (data bits), parity, and baud rate will be chosen later. When configured for a printer only, the RX panel input is used as a "busy input" from the printer and should normally be held high (+ve) to allow real time events (e.g., arming, disarming, zone shunting, etc.) to be printed. If the printer does not provide a busy output, RX should be linked to +12 volts DC via a 2K2-ohm resistor (see chart below). If a logging printer *and* polling is desired, enter a 2 and then press the RETURN/ENTER key. The logging printer word length (data bits) and baud rate are fixed at eight data bits and 2400 baud respectively. The *printer parity* must match the polling application (i.e., even parity for DVACS(tm), no parity for autodial modem). At this time, RX becomes the receive data line. See complete instructions accompanying the EUROPLEX Model 3302R3 port splitter.

COMMS MODE 1: LOCAL PRINTER CONNECTION

DIRECTPLEX	PRINTER
4 -ve (Gnd)	7 (Gnd)
5 Tx	3 (Rx)
6 Rx	4 (RTS) On/Off line **

** The On-/Off-line output may vary between printers. The above is valid for the Citizen Model GSX 190 dot-matrix printer (EUROPLEX product code 1510). Consult your serial-interface manual for other printers.

If the Comms Mode was changed to a 1 or 2 and the RETURN/ENTER key was pressed, the display will show **TRANSMIT NAME NO**. If the name and address of the installation are *not* to be printed at the start of *any* data sent to the printer, press the RETURN/ENTER key to proceed. However, if you wish this information to be printed, press the YES key. The display will show **ENTER NAME/ADDRESS** for a moment and then the current name and address, if any. This can be edited or entered as required. This feature is intended for installations where a number of DIRECTPLEX control panels share a common printer and printing the name allows identification of the data from each control panel. Press the RETURN/ENTER key to proceed.

The display now shows **SYSTEM ID 0**. This is the DIRECTPLEX polling address and is used when communicating with the EUROPLEX Model 1431/1432 autodial modem, PANELMAN software (product code 3305AP3), or when connected to the DVACS(tm) network. Any commands sent to a DIRECTPLEX control panel contain the system ID and the panel will only respond if the ID in the command matches its own system ID. All panels on a common network [as in the case of the DVACS(tm) network] must have a *unique* system ID. Allowable addresses are 1 to 255. If you are using the Model 1431/1432 autodial modem or the PANELMAN program, set this address to 1. If you are using a logging printer only, then leave this value at 0. Press the RETURN/ENTER key to proceed.

The display will now show **ACCESS CONTROL 543**. This value, from 0 to 543, controls the types of remote commands that can be sent to a DIRECTPLEX control panel in a polled environment (e.g., when used with a DVACS(tm) network or PANELMAN program) and can be used to restrict remote-control capability on high-security installations. A value of 543 allows **all** commands to be sent and a value of 0 allows only polling. To select a value for access control, consult the table below. If a logging printer only is to be used, this value may be left at 543. Otherwise, decide which commands are to be allowed and add the numbers in the right-hand column of the table for those commands. This number is the access control value. Enter this number into the control panel and press the RETURN/ENTER key to proceed.

CONTROL FUNCTION	SELECT
Output Control - turn on/off outputs	1
Input Control - shunt/unshunt zones	2
Write Commands - IDs/options, time, etc	4
Read Commands - zone state, output state, literal	8
Write DISARMed - write commands allowed in DISARM mode	16
Read Commands - Ids/options	512
	543

For example: Suppose that only read commands (read zone states, read output states) and write

commands (set IDs, options, time, etc.) are allowed when the DIRECTPLEX control panel is in DISARM mode. Then set the access control to 24 (8 + 16). Press the RETURN/ENTER key to proceed.

The display will now show **LOG FILTER**. All data reported to a central/monitoring station, either on the DVACS(tm) network or through an autodial modem, is obtained from the log that contains a record of *all activity*. The log filter provides a means of filtering this data such that only the required data is reported. The panel defaults to reporting *all logged data*. The log filter can be set to meet the installation requirements by adding up the values, shown in the right-hand column in the table below, of the various data types that are to be reported.

LOG DATA TYPE	SELECT
1 - Zone activations	1
2 - Status changes	2
3 - User actions	4
4 - Output switching	8
5 - Variable values	16
6 - Single-byte variable	32
7 - User-defined message format	64
8 - Date change (never reported)	N/A
9 - Not used	256
10 - Zone shunting	512
11 - Zone unshunting	1024
12 - Zone disabling	2048
13-15 - Not used	4096
	8191

For example: If only zone activations are to be reported, set the log filter to 1. If zone activations and user actions are required, set the log filter to 5 (1 + 4). The default value is all choices (8191). Enter the new value or press the RETURN/ENTER key to proceed.

The display will now show **DIAL MODE 0**. Press the RETURN/ENTER key to leave the value at 0 for logging printer only and DVACS(tm) operation and the display will show **DATA BITS =8 ?**; in this case, proceed to page 59 where this display is shown in bold type; otherwise, an autodial modem may be connected to the DIRECTPLEX control panel to allow remote communications over the switched telephone network. A number of choices allow data to be sent to a remote printer or computer. If an autodial modem is connected, set DIAL MODE 0 to 1 or 3. Enter the appropriate value as determined from the following chart and press the RETURN/ENTER key to proceed.

0 - No autodial modem connected.

1 - A logging printer is connected to an autodial modem at the remote location. When any event is logged by the panel, *but not filtered* by the log filter, the remote location will be dialled

immediately and any logged data will be sent to the remote printer. When all the data is sent, the panel will instruct the autodial modem to hang up.

L 2 - Enter this value if you wish only to call-in to the panel with the PANELMAN program.

3 - A personal computer with PANELMAN program or a EUROPLEX Model 1430 autoanswer modem/polling multiplexer interface. The following options appear for dial modes 1, 2, and 3 but they are relevant for dial mode 3 only. The display will show **ACCESS MODE 0**. Leave this value unchanged if unrestricted access is to be allowed when *dialling remotely into* the panel using the PANELMAN program. If you wish to *restrict access* by means of a password, enter a 1. If you wish to have the panel *dial back to you* after you have previously established contact with the panel, enter a 2. Press the RETURN/ENTER key and the display will show **ACCOUNT #A 0**. The numbering scheme for a control panel when used with the autodial modem is from 000-000 to 099-254. This six-digit value has been broken down into two three-digit values, account #a and account #b. Enter a three-digit value ranging from 000 to 099 in the account #a window. Note that a value up to 127 can be entered in account #a; however, this will create a six-digit account number and most central/monitoring station automation computers cannot handle account numbers greater than five digits. Press the RETURN/ENTER key and the display will show **ACCOUNT #B 0**. Enter a three-digit value ranging from 000 to 254 and then press the RETURN/ENTER key.

The display will momentarily show **ACCESS CODE** followed by a blank screen with the cursor flashing at the left. If you have chosen password protection (access mode 1) when dialling into a control panel, enter your password here; otherwise, press the RETURN key. The password may be an alphanumeric string up to 127 characters long. You may have a unique password for every panel because the PANELMAN program will store the password on a per customer basis. Press the RETURN/ENTER key to proceed.

The display will show **DIAL LIMIT 5**. This value may be changed to reflect the number of times that an attempt is made to call out to the central/monitoring station. The maximum allowed value is 15. The panel will check both stored telephone numbers in attempting to dial out and, if the dial limit is reached, the flashing alert message **CALL NOT ANSWERED** will be displayed. Enter a new value or press the RETURN/ENTER key to proceed.

The display will show **ENTER DIAL COMMAND** for a moment, followed by the dial command **AT E0 X3 S0=8 DP**. This command is sent to the autodial modem ahead of the telephone number and tells the autodial modem to listen (AT), turn the echo off (E0), do not wait for dial tone (X3), set the auto-answer to eight rings (S0=8), and choose the dialling method to use (default command is DP for pulse dialling). You may edit this command as necessary; however, you should check with the factory to ensure that you are using the correct command structure. The most common change will be to edit DP to DT for tone dialling. For more details on dial commands, consult any commercial autodial modem manual. Press the RETURN/ENTER key to proceed.

The display will now show **ENTER TEL. NO. 1**, followed in a moment by a blank screen.

Enter the telephone number of the autodial modem at the remote location. A two-second pause between numbers can be included by entering a comma (shift shift PART ARM 1) (e.g., 9,4167548992). Press the RETURN/ENTER key to proceed.

The display will now show **ENTER TEL. NO. 2**. If an alternative location is available for use when no connection can be made with the first number, then enter that telephone number; otherwise, either leave this entry blank or re-enter the first number. Press the RETURN/ENTER key to proceed.

If access mode 2 (the dial-back option) was chosen above, the display will now show **ENTER DIAL-BACK NUM,** followed in a moment by a blank screen. Enter a telephone number that the panel can call to allow linking to the PANELMAN program. Press the RETURN/ENTER key to proceed. The display will now show **TRANSMIT NAME YES** or **TRANSMIT NAME NO**. Press the YES key to select yes, the NO key to select no, or the RETURN key to maintain the current setting. If no is selected, the display may show **DATA BITS =7 ?** or **DATA BITS =8 ?** (proceed to the next paragraph). If the panel is in dial mode 1 and yes is selected, the name and address of the installation will be transmitted to a remote printer every time that data is sent. This allows any EUROPLEX 3000 series control panel to access a common remote printer by ensuring that the data from each panel can be uniquely identified on the printout. When yes is selected, the display will show **ENTER NAME/ADDRESS** for a moment and then the current name and address, if any. This can be entered or edited as required. Press the RETURN/ENTER key to proceed.

The display may now show **DATA BITS =7 ?** or **DATA BITS =8 ?**. When the panel is sending or receiving data, it will transmit or listen for a seven-bit or eight-bit data word. In some applications, the word length must be changed. If the panel is in dial mode 1, the word length of the remote printer may be already set as seven bits long. When the panel is in dial mode 3, the word length *must* be eight bits long for either remote or local use with PANELMAN program and for remote communication with the EUROPLEX Model 1430 auto-answer modem/polling multiplexer interface. Press the RETURN/ENTER key to accept the value shown or press the NO key to change to the other value. If the NO key is pressed to select an eight-bit word, the display will show **PARITY =EVEN**. As above, if the dial mode is 3, *no parity* is required for remote use with PANELMAN program or with the the Model 1430 auto-answer modem/polling multiplexer interface. Press the YES key to accept even parity or press the NO key to select no parity. If the NO key is pressed, the display will show **PARITY =NONE** for a moment (if the NO key was pressed previously to change an eight-bit word to a seven-bit word, the parity is automatically set to even).

The display may now show **BAUD RATE =150 ?**. This is the default communication speed. Depending on the application, this may be changed to other speeds by pressing the NO key and then pressing the RETURN/ENTER key when the desired value appears. To leave this value unchanged, press the RETURN/ENTER key. The panel now returns to date and time.

} **SET DATE/TIME (T button):** In this function, the existing date and time will be displayed using a numeric format. A flashing cursor will indicate the first of the characters that are to be updated and the 2 (backspace) and YES (forwardspace) buttons may be used to position the cursor. To select this function, enter your user code and then press the T button (shift 9). The display is in the format MM/DD/YY HH:MM:SS and the date and time must be entered in this way. Therefore, to enter Feb. 14, 1995, 2:46 p.m., enter 02/14/95 14:46:00. Use the YES button to forwardspace to the next number location or use the FULL ARM button to enter a **/** and the HELP button to enter a **:**. To complete the entry, press the RETURN/ENTER button. Note that 24-hour military time is used and **** INVALID ENTRY **** will be displayed if the correct format is not used. The display will now show **ENTER DAY NO. 1**. Since the panel can perform time tasks, it must be told what day of the week it is. Enter 1 = Sunday, 2 = Monday, 3 = Tuesday, 4 = Wednesday, etc. Press the RETURN/ENTER button and the panel will exit to the date and time.

} **SET TIME COMMANDS (U button):** This function provides a convenient method for setting all time commands on the panel. Enter your user code and then press the U button (shift BACKSPACE). A time command contains a *time* (hour:min.) and an *action* that is executed at that specified time. The panel contains a number of default time commands (closing times, autodial-modem dial time, etc.). This function will search through all time commands and display any that it finds. When a time command is displayed, only a numeric entry is allowed and only
L the time part of the command can be modified. **Enter 24 00 as a time value if you do not want a particular time task to execute!** After the time is changed, press the RETURN/ENTER button to proceed to the next time command. Repeat this process until all times have been reviewed. Press the NO button at any time to exit from this function.

SET ID AT PANEL (Y button): This function allows a general user to program the panel with a code of his or her own choice. The general user now has an absolutely confidential code. The master user must first authorize this procedure in the SET ID/OPTIONS function. In that function, the master user will have answered yes to the option USER SET OWN ID and entered a temporary ID code for the general user. The general user may now, at any time, enter his or her temporary code and then press the Y button (shift 0). The display will show **USER SET OWN ID** for two seconds, followed by **ENTER CODE _ _ _ _ _**. Enter a code of your choosing and then press the RETURN/ENTER button. Remember this code! You alone know it!

} **TIME ADVANCE (! button):** This function is used to test time tasks in the panel without waiting for the real time to occur. Enter the Service user code and then press the ! button (shift shift YES). The time clock in the panel will now be reset to five seconds before the first chronological time task. The panel will display **TIME ADVANCE** and the task will execute. This procedure must be repeated for each time task. *When all tests are finished, you must re-enter the present time and date* (see SET DATE/TIME on page 60)

NOTES CONCERNING PANEL OPERATION

ARMING AND DISARMING INFORMATION

Arming and disarming instructions are printed on the front of the control panel. For additional information, consult the DIRECTPLEX USER BOOKLET.

} LATE-TO-CLOSE WARNING FEATURE

The DIRECTPLEX Model 3008 control panel allows for a Late-to-Close Warning feature that, in conjunction with a programmed Closing Delay variable, gives the customer extra time to exit after a regularly scheduled or newly chosen closing time; no alarm will be created until the expiry of the delay time. An audible and a visual display warning is given to alert the customer at the beginning of the delay time. The following is a description of the steps that a serviceperson must take to activate this feature and the steps the user must take when presented with the warning.

SET-UP BY THE SERVICEPERSON - To select the Late-to-Close Warning feature, enter the Service user code and then press the D button (shift PART ARM 1). Press the HELP button to select variables from the flashing sub-menu. Press the RETURN/ENTER button until the display shows **CLOSNG/ AUTOARM 0**. Enter 1 for the Late-to-Close Warning feature. Press the RETURN/ ENTER button and the display will show **CLOSING DELAY 900**. The default value is 900 seconds or 15 minutes. Enter a new value if desired or press the NO button to exit.

The serviceperson must next set or confirm the closing times for each day of the week. Enter the Service or Master user code and then press the U button (shift BACKSPACE). This will access the SET TIME COMMANDS option. Press the RETURN/ENTER button until a closing time appears: for example, **17:55/[8 SUN. CLOSE]**. Using the number buttons only, enter the
L required closing time for SUNDAY. If you are not open on a Sunday, enter 24 00 to disable the time task or leave the default value unchanged since the panel will *not* create a closing alarm if you are already closed. Press the DISARM (+) button to select the next entry, which is Monday, and enter the closing time as necessary. Similarly, enter the relevant times for the remainder of the week. The PART ARM 1 (-) button may be used to reverse scroll through the selections.

The panel can now alert the customer to the fact that closing time has arrived; however, the Closing Delay variable will allow the amount of time assigned to it to elapse before an actual *PAST CLOSING TIME* alarm is sent. Within that time, the following actions must be taken.

OPERATION BY THE USER - If the premises is not armed before the regularly scheduled closing time for that day, the piezo-sounder will beep and the panel will display the flashing alert message **CLOSING TIME SOON !**. The user now has the fixed amount of time of the Closing Delay variable to arm the panel or to choose a new closing time by entering the NEW CLOSING TIME function. To enter a new closing time, enter your user code and then press the 6 button. The keypad will display **NEW CLOSING TIME** for a moment and then a previous new

closing time; for example, **19:55/[1 NEW CLOSNG]**. Enter the revised closing time (military format) and press the RETURN/ENTER button. If an illegal numeric entry has been made, the display will show **** INVALID ENTRY ****, the piezo-sounder will beep, and the original entry will return. Enter the correct time and press the RETURN/ENTER button. The keypad will now display **BUSY. . RE-SCHEDULING** and in a moment will return to date and time. The panel is now reprogrammed with a new closing time. The new time entered is only valid for the day in question and does not alter the regular, daily scheduled closing time. If the premises is not armed by the new closing time, then the same procedure as above will apply. If a closing warning is not acknowledged by the end of the closing delay time, then the *PAST CLOSING TIME* alarm will be sent.

} SLOW ENTRY ALARM FEATURE

When the panel is in FULL ARM or PART ARM 2 mode, an entry through an EXIT zone will cause the piezo-sounder to start beeping. This is to remind the user to disarm the panel. If the user waits too long, the entry time will expire and a full alarm will occur. When the panel is finally disarmed, the display will show the flashing alert message ***SLOW ENTRY ALARM***, alternating with a flashing zone description.

DOOR CHIME FEATURE

A door chime feature is available that will annunciate the opening of the EXIT door by causing the piezo-sounder to beep for three seconds. The beeping will only occur when the door is opened and not if the door is left open or subsequently closed.

Press the PART ARM 2 button on a keypad or the PART ARM button on the control panel twice in three seconds and the display will show **DOOR CHIME ON**. If you do not wish the piezo-sounder to beep, press the PART ARM 2 button twice again and the message will disappear from the keypad indicating that the door chime is turned off.

SMOKE DETECTOR RESET FEATURE

If you are using smoke detectors that latch up in alarm and require temporary removal of DC power to allow them to reset, then you may use C-LEM 19 to provide this power interruption. Connect the power feed to the smoke detectors through the normally closed contacts of the C-LEM (see page 20).

When a FIRE alarm condition occurs and the panel is disarmed or the alarm condition is acknowledged to turn off FIRE ALARM output panel RELAY 3 (default)/C-LEM 2, then C-LEM 19 will operate for approximately three seconds and then reset. This will interrupt the power to the smoke detectors allowing them to reset.

DURESS ALARM FEATURE

A Duress alarm feature is available that will allow the user to transmit a duress alarm to the central/monitoring station while simultaneously executing a *valid* function or mode change. The duress feature must be activated by the serviceperson (see Enable Duress variable, page 53).

To create a duress alarm, enter a zero (0) before your code and then press a valid function or mode key (e.g., 0 + 1234 + DISARM). The function selected will be executed and a silent duress alarm will also sent to the central/monitoring station.

SPRINKLER TRANSFORMER

If the DIRECTPLEX control panel is used to monitor a sprinkler riser or a fire alarm panel, then the Model 1055 Sprinkler Transformer *must be used* to provide AC power to the panel as per the Canadian Electrical Code.

ENTERING THE LETTERS OF THE ALPHABET

Descriptions requiring the entry of the letters of the alphabet (e.g., customer names and addresses, user names, zone descriptions) are entered with a Model 3220BF service programming keypad. The front of this keypad features a template surrounding the buttons that contains the letters of the alphabet and certain characters. Notice that each button has two or three letters and characters associated with it. To select these letters or characters, you must use the flashing cursor in the display. The cursor is normally pointing up (/\) and this is called NORMAL SHIFT. In text-entry mode, the letter or character below a button will be selected when that button is pressed and the cursor is in normal shift. In the case of the NO button, this is the letter “X”. If the SHIFT/ DELETE button (generally referred to as the SHIFT button) is pressed once when the cursor is in normal shift, the cursor changes to a < symbol and the letter or character above and to the left of the button becomes available. For example, in the case of the NO button, this is a “B” and, in the case of the ENTER button, it is a “SPACE”. This cursor mode is called LEFT SHIFT. Pressing the SHIFT button a second time will change the cursor to a > symbol and the letter or character above and to the right of the button will become available. This is a “:” in the case of the NO button and "%" in the case of the ENTER button. This cursor mode is called RIGHT SHIFT. Pressing the SHIFT button again will return the cursor to a /\ symbol and each button will have its original meaning. If you examine the layout of the buttons, you will see that the letters used most often are available in left shift. This is convenient for zone description entries as most descriptions can be completed without having to shift between characters. Each time a button is pressed, an audible feedback (a short beep from the piezo-sounder) is created to confirm the operation of a button.

All buttons have an auto-repeat capability. If a button is pressed for longer than one second, the

panel will generate about four duplicate characters a second until the button is released. The SHIFT button operates differently. If pressed for longer than one second, it will **delete characters** at about half the normal repeat rate. This is used when editing to delete errors made during zone description entries, name entries, etc. **To correct an error,** ensure that the flashing cursor is pointing up. Press the BACKSPACE button to position the cursor over the error. Press and hold the SHIFT button to delete the incorrect character or characters, reposition the cursor and enter the correct character or characters (these will appear on the display, automatically moving the rest of the entry to the right), and use the YES button (in normal shift) to move the cursor right (forwardspace) to continue.

To summarize the editing functions:

- BACKSPACE: Cursor in normal shift; press the t button (²).
- DELETE: Press and hold the SHIFT/DELETE button.
- FORWARDSPACE: Cursor in normal shift; press the YES button (÷).
- SPACEBAR: Cursor in left shift; press the ENTER button.

DIRECTPLEX USER BOOKLET

Two separate booklets are included with every panel to provide a condensed summary of the operation of the system. Please consult the one entitled DIRECTPLEX USER BOOKLET for information on how to arm and disarm the control panel, how to acknowledge alarms, how to program user codes, etc. This booklet should be left with the customer when the installation is complete.

APLEX/MIDIPLEX/DIRECTPLEX INSTALLER SET-UP BOOKLET

This booklet contains a summary of all commands and choices that an installer would need to install and service a system. This booklet should be used in conjunction with the information contained in this manual. Please familiarize yourself with both documents.

NOTES CONCERNING AUTODIAL MODEMS

AUTODIAL MODEMS

This section describes the connection and operation the Model 1431 Hayes[tm]-compatible autodial modem to the DIRECTPLEX control panel and the connection of a second Model 1431 autodial modem to a serial-input printer to allow off-site monitoring of the panel's operation.

SMART MODEM SET-UP

The following general information pertains to the set-up conditions required for Hayes[tm]-compatible, self-powered autodial modems. This set-up is usually performed on a suitable dip-switch field or may be programmed into certain types of modems. Set the DIP switches for the panel modem and the printer modem as follows:

FUNCTION	DIRECTPLEX PANEL END	PRINTER END
Word Response	OFF	OFF
No Echo	ON	ON
Auto-Answer	OFF	ON
Carrier Detect	ON	ON
Bell 103/212	OFF	OFF

REMOTE PRINTER SET-UP FOR USE WITH SMART MODEM

Configure the printer for a data format of 7 data bits, even parity, 1 stop bit, and a baud rate of 1200. Set the printer to add a line-feed when it receives a carriage return character.

CONNECTION OF MODEMS TO THE PANEL AND TO THE PRINTER

1. Connecting the DIRECTPLEX control panel to the autodial modem.

A suitable 25-pin or 9-pin D-style connector must be prepared to connect the panel to the modem. A modular, "telephone-style" cord is used to connect the autodial modem to the switched telephone network and the "house" phone is usually plugged into the autodial modem using another modular-style cord.

DIRECTPLEX	MODEM
4 (-ve)	7 (Gnd)
3 (+ 12 VDC)	4 (RTS usually +12 VDC input)
5 (Tx)	2 (Rx)
6 (Rx)	3 (Tx)

NOTES CONCERNING AUTODIAL MODEMS cont.

2. Connecting the remote printer to the autodial modem.

Connect the printer to the modem with a null-modem cable. You may use a self-powered external "pocket-style" modem that derives its power from the printer or an external line-operated modem. It is recommended that the printer be powered from an UPS. The telephone line plugs into the autodial modem using a modular, "telephone-style" cord.

AUTODIAL OPERATION

When the DIRECTPLEX control panel wants to send data to a printer, it dials the programmed number and then waits until the autodial modem at the printer end signals that a connection has been made. At this time, data is sent to the printer and the autodial modem at the panel end hangs up. If no reply is received from the first number, the panel will try two more times and then dial the second number. The panel will make three attempts to make a connection to this number and, if unsuccessful, will try the first number again. This process will be repeated three times or until a connection is made. Similarly, each time a new log entry (alarm, etc.) occurs, the autodial procedure will be repeated. If both telephone numbers are dialled and no reply is obtained, then the message **CALL NOT ANSWERED !** will be logged and also appears as a flashing alert message on any keypads installed as part of the system.

Before dialling a number, the panel checks the dial-command string and telephone-number string for corruption of data. If a corruption is detected, the number will not be dialled and the message **TEL. DATA ERROR** will be logged and appears as a flashing alert message on any keypads installed as part of the system.

In the event of a communications failure during transmission of data between the control panel and the printer caused by autodial-modem power failure, loss of carrier, etc., the panel will stop sending data and will backtrack by two entries to ensure that no data has been lost. It will then wait a number of seconds, redial the number, and if a connection is made, recommence transmission of the data.

NOTES CONCERNING DVACS[tm] TECHNOLOGY

DVACS[tm] - DIGITAL/VOICE ACCESS and CONTROL SYSTEM

Where the service is provided, the DIRECTPLEX control panel may be connected to a Schedule 3A Data Channel equipped with the DVACS[tm] option for on-line central/monitoring station service with companies using the EUROPLEX Model 4000 Polling Multiplexer. The following connections must be established between the panel and the F1F2 subset:

DIRECTPLEX		F1F2 SUBSET
4(Gnd)	<——————>	Gnd (Yellow of six cond.)
5(Tx)	——————>	Rx (White of six cond.)
6(Rx)	<——————	Tx (Blue of six cond.)

The panel is also equipped with a 6-pin jack labelled J1 (COMMS) to simplify the connection to the F1F2 subset. A 6-conductor, 6-foot modular-to-modular cord is supplied with the panel for this purpose. If the J1 jack is used, terminals 4, 5, and 6 will not be used.

Select the serial-data set-up using the procedure on page 55. The DIRECTPLEX control panel has been pre-programmed for the required DVACS[tm] parameters and all that is required is
L to enter the **SYSTEM ID** number. Valid addresses are 1 to 62 and 64 to 127.

The following data configuration has been pre-set for DVACS[tm] service:

	COMMS MODE	**0**	Press the RETURN/ENTER button.
	SYSTEM ID	**0**	Enter polling address and press the RETURN/ENTER button.
L	**ACCESS CONTROL**	**543**	(Can have value 0 to 543.) Press the RETURN/ENTER button.
	LOG FILTER	**8191**	(Can have values 0 to 8191.) Press the RETURN/ENTER button
	DIAL MODE	**0**	Press the RETURN/ENTER button.
	DATA BITS =	**8**	Press the RETURN/ENTER button.
L	**PARITY=**	**EVEN**	Press the RETURN/ENTER button.
	BAUD RATE =	**150**	Press the RETURN/ENTER button.

You must obtain the SYSTEM ID (polling address) from your central/monitoring station. After you have completed the data configuration, ask the station to set your customer on line. *Only the station personnel can do this*.

} A service diagnostic is available for use with the DVACS[tm] installation. Do not enter your user code! Press the HELP button twice within three seconds. The display will show **POLL TIME =** #. The # value indicates the time *between* polls. If this value is 0, then no polling is occurring.

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Either the customer address has not been set on-line, the wiring connection from the F1F2 subset to your panel is incorrect, or the link between the customer's F1F2 subset and the central/ monitoring station is out of service. Typical times will be 150 minus the time between polls (i.e., on a ten-customer circuit, the poll time would show 140). This represents the difference in time between 150 seconds and the time a poll command was received (i.e., 10 seconds). To turn this diagnostic off, press the HELP button twice again. The poll time message will automatically disappear after a period of time equal to the bell cut-off time; if the bell cut-off time is 15 minutes (900 seconds), then the message will disappear 15 minutes after it is first turned on. Press the Help button twice again and the process will repeat itself. Note: This diagnostic indicates *receipt only* of the correct polling address from the station. If there is a wiring problem from the transmit line of the panel terminal 5 to the F1F2 subset or a defect in the EIA (RS-232) portion of the F1F2 subset, then the panel will still indicate an off-line condition in the central/ monitoring station. You may wish to use the Model 1905 Comms/Cord tester to further indicate the presence of data on the circuit or the integrity of the connecting cord.

If the control panel will not go on line, you can perform the following effective test:

At the F1F2 subset, unplug the cord from the jack labelled F1F2 or LINE. The Loop and Carrier LEDs should extinguish. Check for the following voltages *as measured on the control panel's terminal block:*

4 (-ve) to 5 (Tx)	-0.5	VDC from a List 1 subset (old 24VDC unit)
	0	VDC from a List 3 subset (new 12VDC unit)
4 (-ve) to 6 (Rx)	+10	VDC from a List 1 subset
	-9	VDC from a List 3 subset

Plug the cord back into the subset jack. Remeasure the control panel's terminal block:

4 (-ve) to 5 (Tx)	-0.5	VDC from a List 1 subset (old 24VDC unit)
	0	VDC from a List 3 subset (new 12VDC unit)
4 (-ve) to 6 (Rx)	-5	VDC and pulsing from a List 1 subset
	-9	VDC and pulsing from a List 3 subset

These measurements indicate that the F1F2 subset is functioning properly. Reconfirm with the telephone company that the hub card leg is turned up (in service) and then request the central/monitoring station to set your control on line again.

PRINTING AND DVACS$^{(tm)}$

In this manual, reference has been made to the printing of the system log, on-line reports, etc. Printing these items is not possible when the panel is set up for DVACS^{tm} service because the serial port has been used with the DVACS^{tm} data channel. To print a log, report, etc., unplug the modular cord from the jack labelled J1 (COMMS) or disconnect any wires in terminals 5 and 6 of the 3008 PCB. Prepare a printer cable, connecting terminal 4 (-ve) of the 3008 PCB to terminal 7 (-ve) of the printer and terminal 5 (Tx) of the 3008 to terminal 3 (Rx) of the printer (see page 55 for the setup parameters of the 3008 serial-port). Do not leave the DVACS^{tm} cord plugged into the J1 jack of the 3008 PCB when the printer is also connected as this may damage the F1F2 subset.

INDEX