D7024

Fire Systems

EN

Operation and Installation Guide

Fire Alarm Control Panel

BOSCH

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1.0 Notices

1.1 FCC Compliance

This equipment was tested and complies with the limits for a Class "A" digital device, pursuant to Part 15 of the Federal Communications Commission (FCC) rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. There is no guarantee that interference will not occur in a particular installation. If this equipment causes harmful interference to radio or television reception, determined by turning the equipment off and on, the user should try to correct the interference by one or more of the following measures:

- Re-orient or relocate the receiving antenna.
- Increase the separation between the equipment and the receiver.
- Connect the equipment into an outlet on a circuit different from that the receiver is connected to.
- Consult the dealer or an experienced radio and television technician for help.

1.2 FCC Telephone Connection to Users

This control complies with Part 68 of the FCC rules.

A label located on the enclosure's inside contains the equipment's ringer equivalence number (REN) and other information. Upon request, you must provide this information to your local telephone company.

The REN is used to determine the number of devices that can be connected to your telephone line and have all of devices ring when your telephone number is called. In most areas, the sum of all device RENs connected to one line should not exceed five (5). Verify the number of devices you can connect to your line by contacting your local telephone company to determine the maximum REN for your local calling area.

This equipment might not be used on coin services provided by the telephone company. Do not connect this control to party lines.

If this equipment harms the telephone network, the telephone company might temporarily discontinue your service. If possible, you will be notified in advance. If advanced notice is not practical, you will be notified as soon as possible. The telephone company will inform you of your right to file a complaint with the FCC. The telephone company might change its facilities, equipment, operations, or procedures affecting your equipment's function. If this occurs, you will be notified in advance to give you an opportunity to maintain uninterrupted telephone service.

If you experience trouble with this equipment, contact the manufacturer for service or repairs.

The telephone company might ask you to disconnect the equipment from the network until the problem is corrected or until you verify the equipment is not malfunctioning. The manufacturer, not the user, must make the repairs to this equipment.

To protect against accidental disconnection, there is room to mount the Telco jack the control panel cabinet.

Control panel operation might also be affected if events such as accidents or acts of God interrupt telephone service.

1.3 Industry Canada

The Industry Canada label identifies certified equipment. This certification means the equipment meets specific telecommunications network protective, operational, and safety requirements. Industry Canada does not guarantee the equipment will operate to the user's satisfaction.

Before installing this equipment, ensure you can connect to the facilities of the local telecommunications company. Install the equipment using an acceptable connection method. Be aware that compliance with the above conditions might not prevent degradation of service in some situations.

An authorized Canadian maintenance facility, designated by the supplier, must make repairs to certified equipment. If you make any repairs or changes to this equipment, or the equipment malfunctions can give the telecommunications company cause to request you to disconnect the equipment.

For your own protection, ensure the electrical ground connections of the power utility, telephone lines, and internal metallic water pipe system (if present) are connected.

Do not attempt to make electrical ground connections. Contact the appropriate electrical inspection authority or an electrician.

2.0 Overview

2.1 System Overview

The D7024 Fire Alarm Control Panel (FACP) is a fully integrated hardwire fire alarm system. It can support four input points and expand to 255 using the D7039 Multiplex Expansion Module and the D7034 Four-Point Expander. The D7024 supports 16 individual users and can expand to 100 using the D7039.

The D7024 FACP has a built-in liquid crystal display (LCD) keypad. Up to four additional keypads can be used to provide user interface with the system and programming access for the installer.

The D7024 FACP also includes:

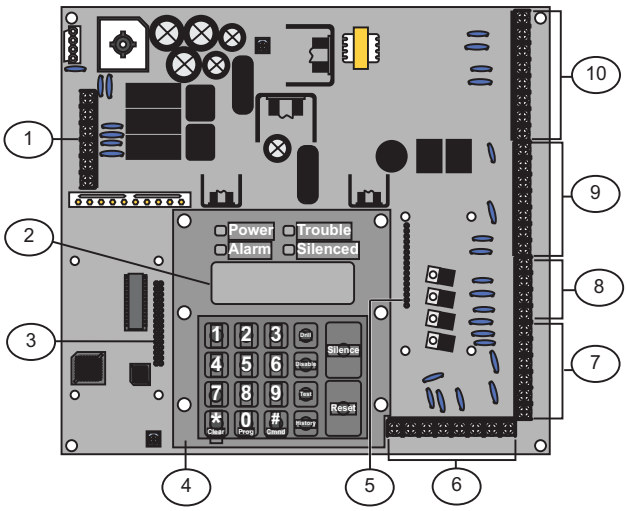
- Built-in dual-line communicator
- Menu driven keypad programming
- Freely programmable alpha display
- 99 Event History buffer
- 16 User Codes
- Underwriters Laboratories, Inc. (UL) Listed, California State Fire Marshall (CSFM), Material and Equipment Acceptance (MEA) Approved
- Year 2000 compliant

Installing the D7039 adds:

- 247 addressable input points (255 total)
- 499 user codes

Figure 1 shows the location of the D7024 Control Board components.

Figure 1: D7024 Control Board



1 – NAC terminal strip
2 – LCD
3 – D7039 Multiplex Expansion Module connector pins
4 – Keypad
5 – D7034 Point Expander connector pins
6 – Option bus terminal strip
7 – Zone input terminal strip
8 – Auxiliary power terminal strip
9 – Relay terminal strip
10 –Telco terminal strip

This guide applies to panels equipped with version 2.04 or higher software.

Table 1: On-board Conventional Points

Number of Two-wire Zones	Four zones, expandable to eight using a D7034 Expander
Type of Circuit	Class “B”, Style B. Use a D7014 Class “A” Zone Converter to convert to Class “A”, Style D as needed
End-of-Line (EOL) Resistor	2.21 kΩ (P/N: 25899), UL listed
Supervisory Current	8 mA to 20 mA
Required Current for Alarm	25 mA
Maximum Short Circuit Current	44 mA
Maximum Line Resistance	150 Ω
Circuit Voltage Range	20.4 VDC to 28.2 VDC
Maximum Number of Detectors for each Zone	20, two-wire
Total Detector Standby Current	3 mA, maximum
Response Time	Either fast (500 ms) or programmable (from 1 to 89 sec)
Dirty Detector Monitoring	Implements Bosch Security Systems Chamber Check™ and CleanMe™ protocol to monitor conventional loops for dirty detectors. CleanMe™ is a Trademark of SLC Technologies Inc.

2.2 On-board Conventional Points

All on-board points and points implemented with the D7034 work with two- or four-wire detectors. The system has an optional alarm verification feature (*Table 1*).

All onboard points, and points implemented with the D7034 Four Point Expander, are continuously monitored for detectors signaling a dirty condition using the Bosch Security Systems Chamber Check and CleanMe protocol. To prevent nuisance reports, there is a 2-min delay before a dirty detector is annunciated, and a 6-min delay after the detector restores from the dirty condition before the control panel restores the condition.

2.3 Off-board Addressable Points (with D7039 Multiplex Expansion Module)

The D7039:

- adds two Class “B”, Style 4 signaling line circuits (SLCs)
- individually supervises each point for proper connection to the common bus. When more than ten points are troubled, up to ten troubles are shown for each bus, and the balance of the troubles is indicated by a common bus failure message.
- can set response time to fast, or programmed from 1 to 89 sec.

SLC input points are implemented with a D7042 Eight Input Remote Module.

2.4 Enclosure Housing

The standard enclosure is manufactured from 18 Ga., cold-rolled steel and measures 21 in. (53 cm) high, 15 in. (38 cm) wide, 4 in. (11 cm) deep.

This enclosure includes a keyed lock. The LEDs and LCD are visible through the door.

2.5 Remote LCD Keypads

- Maximum number: 4 D7033s
- Wiring requirements: Refer to Refer to *Section 4.2 Option Bus Wiring Requirements* on page 19.

2.6 Remote LED Annunciators

- Maximum number: 8 D7030s.
- Wiring requirements: Refer to *Section 4.2 Option Bus Wiring Requirements.*

Connect all option bus devices to the same bus, either Bus A or Bus B. Do not connect some devices to Bus A Terminals YA and GA, and connect others to Bus B Terminals YB and GB. Power Terminals RA and RB and Ground Terminals RA and RB can be connected interchangeably to either set of terminals.

For flexible configuration, LED annunciators show output zone information rather than point information. The first installed annunciator, the one with the lowest number address on the bus, shows Zones 1 to 8 on the

annunciator and Zones 9 to 16 on the D7032 Eight LED Annunciator Expander requires D7030X for operation, connecting to the annunciator. The second annunciator and expander pair shows Zones 17 to 32, and the third shows Zones 33 to 48. The fourth annunciator and expander pair shows Zones 49 and 50 and some system zones (*Table 2*).

Table 2: LED Assignments for LED Annunciators 4 and 8

LED	Zone Shown	Description
1	49	User defined
2	50	User defined
3	Reserved	
4	52	General Fire Alarm (non-silencable)
5	53	General Fire Alarm (silencable)
6	Reserved	
7	Reserved	
8	Reserved	
9	Reserved	
10	58	General Supervisory Alarm (non-silencable)
11	Reserved	
12	Reserved	
13	61	General Waterflow (non-silencable)
14	Reserved	
15	63	General Fire Alarm, Monitor, Supervisory, and Waterflow (non-silencable)
16	Reserved	

This pattern repeats when additional annunciator and expander pairs are installed, with the fifth pair showing Zones 1 to 16, the sixth pair showing Zones 17 to 32, and so on.

2.7 Communicator

The communicator can report to two telephone numbers with full single, double, and back-up reporting. It communicates in Security Industry Association (SIA), Modem IIIa^2, Contact ID, binary frequency-shift keying (BFSK), 3/1, and 4/2 Tone burst formats.

You must enable and configure the communicator before it will operate. The communicator and telephone line monitors are disabled in the default factory configuration.

Phone Line and Phone Number Selection: To ensure the delivery of critical reports, the FACP uses two telephone lines and two telephone numbers for reporting. Reports can be directed to one or both of two telephone numbers using the report steering feature in the control panel programming. Note that Account Number 1 is used with Phone Number 1 and Account Number 2 is used with Phone Number 2. Except for test reports, the control panel automatically selects the telephone line used.

Reporting begins using Phone Line 1, unless the line monitor shows it to be bad at the start of reporting. If the report is not successful after two attempts on Line 1, the control panel automatically switches and uses Phone Line 2. The only exception occurs when test reports (Manual or Automatic) are sent. Test reports are sent to alternating telephone lines, regardless of the telephone monitor or an initial failure to report. This allows both telephone lines to be tested if the user sends two Manual Test Reports. The first report uses one line and the second uses the other line. During normal operation, the Automatic Test uses a different line each day.

Because the control panel automatically selects which line to use, both telephone lines must use the same dialing sequences for reporting. For example, a line requiring you to dial "9" for an outside line cannot be paired with a line that does not require "9". Private branch exchange (PBX) lines and ground start telephone lines do not comply with National Fire Protection Association (NFPA) requirements for digital communication.

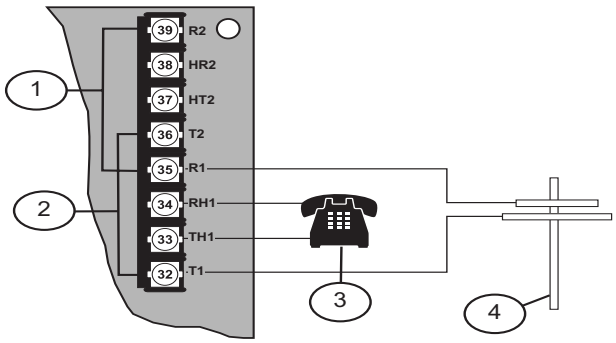
When the central station receives the Automatic Test Report only every other day, this indicates that one telephone line at the protected premises is inoperative. This condition must be corrected immediately, as other critical reports can be delayed during the time the communicator is performing retries to send the test signal through the inoperative telephone line (once each 48 h).

While two independent telephone lines are required for UL864 Central Station service, the FACP can be configured with one telephone line if the communicator is only used for supplemental reporting on a local, remote station, or auxiliary system.

Connect Jumper T1 to T2 and R1 to R2 if the control panel is installed with only one telephone line.

Communicator reports might be delayed if the dialer outputs are not connected together on an installation where the control panel has only one telephone line.

Figure 2: Supplemental Reporting



1 – Jumper from R1 to R2
2 – Jumper from T1 to T2
3 – House telephone
4 – Telco line

2.8 Users

The system allows up to 16 users, or up to 100 users with the D7039 installed. A personal identification number (PIN), the four-digit code entered at the keypads, and an authority level determine which functions are performed can be assigned to each user. Refer to *Section 5.6 Personal Identification Numbers* on page 28.

2.9 Lightning Protection

This system is intended for installation entirely within one building.

Metal oxide varistors (MOVs) and spark gaps provide protection from lightning surges and static discharges.

2.10 Backup Battery Calculation

Table 3 is used to calculate the standby battery capacity required by NFPA when using the D7024.

Table 3: Standby Battery Capacity Calculations

Device	Quantity	Standby Current/ Device	Total Standby	Alarm Current/Device	Total Alarm
D7024 Control Panel	1	200 mA	200 mA	380 mA	380 mA
D184 Local Energy Kit		10 mA		0.45 mA	
D7014 B to A Initiating Circuit Converter		11 mA		11 mA	
D7015 B to A NAC Converter		1 mA		46 mA	
D7034 4-Point Expander		44 mA		160 mA	
D7035/B Octal Relay		8 Ma + 30 mA*		8 Ma + 30 mA*	
D7048/B Octal Driver Module		10 mA		10 mA	
D7036 Annunciator Keypad		80 mA		100 mA	
D7031 Remote Keyswitch		0 mA		0 mA	
D7030X 8-Point LED Annunciator		27 mA		132 mA	
D7030X-S2 8-Point LED Annunciator		35 mA		175 mA	
D7030X-S8 8-Point LED Annunciator		35 mA		175 mA	

Table 3: Standby Battery Capacity Calculations					
D7032 8-Point LED Annunciator Expander		1 mA		90 mA	
D7033 Keypad		80 mA		100 mA	
D7039 Multiplex Expansion Module		150 mA	150 mA	150 mA	150 mA
D7042/B Addressable 8-Point Input		8 mA		8 mA	
D7050 Photo Smoke Detector		0.50 mA		0.56 mA	
D7050-TH Photo Smoke Detector		0.50 mA		0.56 mA	
D7045 Multiplex Pull Station		0.55 mA		0.55 mA	
D7044 Multiplex Single Input Fire		0.55 mA		0.55 mA	
D7052 Multiplex Dual Input Fire		0.55 mA		0.55 mA	
D7053 Multiplex I/O Module Fire		0.70 mA		0.70 mA	
Smoke Detectors					
Bells, Horns, and so on					
Other Sensors					
Other					
		Grand Total Standby Current		**Grand Total Alarm Current**	
* Add 30 mA for each relay activated.					

The 24 VDC current requirements for the D7030, D7033 and D7035 are shown at 75% of the 12 VDC level shown on the specification sheets for these models. The D7024 regulates 24 VDC power from the battery to 12 VDC for these accessories.

The required battery size to support the system can be calculated using *Table 3* and *Table 4*.

Table 4: Calculating the Required Battery Size		
Grand Total Standby Current (in amps)	CS	
Total Hours of Standby Required (24 or 60)	HS	
Total Standby Capacity (multiply CS X HS)	TS= CS X HS	
Grand Total Alarm Current (in amps)	CA	
Total Hours of Alarm Time Required (usually 0.083 or 0.25)	HA	
Total Standby Capacity (multiply CA X HA)	TA= CA X HA	
Total Capacity Required (add TA + TS)	TC = TA + TS	
Required Capacity with 20% Derating (TC X 1.2)	C = TC X 1.2	

2.11 Standby Current Load

1. Use *Table 4* to estimate the size of the battery required to support the standby load.
2. Use the second table to estimate the size of the battery required to support the alarm load.
3. Add the results for the total battery size.
4. Select the next larger standard battery for the system.
   If the results show a requirement for a battery over 40 Ah, reduce the current or add an external power supply. Refer to *Table 5* on page 11 for the units in amp hours (Ah). The calculations include a 20% derating factor.

Table 5: Standby Load Battery Size in Ah

Standby Load Battery Size Chart	Capacity Required for 24 H	Capacity Required for 48 H	Capacity Required for 60 H	Capacity Required for 72 H	Capacity Required for 80 H
Grand Total Standby Current					
100 mA to 200 mA	5.8	11.5	14.4	17.3	19.2
201 mA to 300 mA	8.6	17.3	21.6	25.9	28.8
301 mA to 400 mA	11.5	23.0	28.8	34.6	38.4
401mA to 500 mA	14.4	28.8	36.0	X	X
501 mA to 600 mA	17.3	34.6	X	X	X
601 mA to 700 mA	20.2	X	X	X	X
701 mA to 800 mA	23.0	X	X	X	X
801 mA to 900 mA	25.9	X	X	X	X
901 mA to 1000 mA	28.8	X	X	X	X
1001 mA to 1100 mA	31.7	X	X	X	X
1101 mA to 1200 mA	34.6	X	X	X	X
Alarm Load Battery Size Chart	**Capacity Required for 5 Min**	**Capacity Required for 10 Min**	**Capacity Required for 15 Min**	**Capacity Required for 30 Min**	**Capacity Required for 45 Min**
Grand Total Standby Current					
250 mA to 500 mA	0.1	0.1	0.2	0.3	0.5
501 mA to 999 mA	0.1	0.2	0.3	0.6	0.9
1.0 A to 1.5 A	0.2	0.3	0.5	0.9	1.4
1.6 A to 2.0 A	0.2	0.4	0.6	1.2	1.8
2.1 A to 2.5 A	0.3	0.5	0.8	1.5	2.3
2.6 A to 3.0 A	0.3	0.6	0.9	1.8	2.7
3.1 A to 3.5 A	0.4	0.7	1.1	2.1	3.2
3.6 A to 4.0 A	0.4	0.8	1.2	2.4	3.6
4.1 A to 4.5 A	0.5	0.9	1.4	2.7	4.1
4.6 A to 5.0 A	0.5	1.5	1.5	3	4.5
5.1 A to 5.5 A	0.6	1.1	1.7	3.3	5

2.11.1 Compatible Devices

Table 6: Compatible Devices

Device	Description
D7014 Class “A” Zone Converter	Converts a Class “B”, Style B initiating circuit on the control panel to a Class “A”, Style D circuit for connection to field wiring. This module connects to one of the control panel's conventional inputs.
D7015 Class “A” NAC Converter	Converts a reversing Class “B” NAC to a Class “A” circuit. Compatible with any Class “B”, Style Y NAC that uses a 2.21 kΩ EOL resistor. When used on a Class “B”, Style Y NAC, it implements a Class “A”, Style Z NAC. This connects to NAC output on the control panel.
D7030 Eight-Point LED Annunciator	Identifies the location of a fire alarm for up to eight zones, and up to eight are allowed for each system.
D7030X Eight Point LED Annunciator	Identifies the location of a fire alarm for up to eight zones, and up to eight are allowed for each system.
D7030X-S2 Eight Point LED Annunciator	An eight-zone LED annunciator, of which two zones are reserved for supervisory functions. It has Power and Trouble LEDs plus eight zone LEDs that can be individually labeled.

Table 6: Compatible Devices	
D7030X-S8 Eight Point LED Annunciator	An eight-zone LED annunciator with all eight zones reserved for supervisory functions. It has Power and Trouble LEDs plus eight zone LEDs that can be individually labeled.
D7031 Remote Key-switch	Allow you to silence notification appliances and reset the control panel from a remote location.
D7032 Eight Point LED Annunciator Expander (future release)	Attaches to a D7030X and identifies the location of a fire alarm for eight additional zones. Up to eight are allowed for each system.
D7033 Four-Wire Alpha-numeric LCD Keypad	Connects to either four-wire option bus, up to four allowed for each system.
D7034 Four Point Expander	Allows the D7024 FACP to support four additional points. The D7034 plugs into the control panel and provides four Class “B”, Style B loops identical in characteristics to the loops on the control panel. One D7034 is allowed for each system.
D7035/B Octal Relay Module	Allows eight Form “C” Relay outputs to be added to the system. The outputs are fully programmable and can be activated by system events.For complete flexibility, each output operates independently of the other seven. The D7035 connects to the option bus, up to two allowed for each system. Refer to the *D7035 Installation Guide* (P/N: 37280) for the required enclosure modification. The D7035B is pre-installed on a mounting skirt.
D7036 Fire Annunciator Keypad	A four-wire LCD annunciator keypad used with the D7024 to establish the location of a fire alarm.
D7038 Remote NAC Power Supply	Adds four NFPA 72 Class “B”, Style Y NACs through the option bus, and is supervised by the control panel. Connects to either four-wire option bus of the D7024 Control Panel, up to two allowed for each system.
D7039 Multiplex Expansion Module	Provides either two, two-wire (Class “B”, Style 4) multiplex buses or one, four-wire (Class “A”, Style 6) multiplex bus. In Class”A” Mode, up to 120 additional addressable points can be added. In Class “B” Mode, up to 240 additional addressable points can be added. Connects directly to the control panel, allowing one for each system.
D7042B Eight-Input Remote Module	Provides eight Class “B”, Style B input points. Up to 15 modules can be connected to MUX Bus A, and 15 on MUX Bus B. The D7042 is powered by 12 VDC supplied by the option bus power terminals, in addition to the two-wire data connection. Do not use the D7042 on an SLC configured for Class “A”, Style 6 operation.
D7048B Octal Driver Module	Provides eight open collector transistor outputs for addition to the D7024 FACPs. It connects to the control panels through the option bus.
D7045 Mux Pull Station	UL Listed fire alarm initiating device.
D7044 Mux Single Input Fire	General purpose device connecting a contact device to the control panel’s multiplex bus with a supervised local loop. All operating power for the D7044 is drawn from the control panel.
D7044M Mux Mini Contact Module	A general purpose device connects a contact device to the control panel’s multiplex bus with a supervised input loop. All operating power for the D7044M is from the control panel.
D7052 Mux Dual Input Fire	A general purpose device connecting to the control panel’s multiplex bus. It provides two supervised input zones for connecting conventional normally-open (NO) inputs. All operating power for the D7052 is from the control panel.
D7053 Mux I&O Module Fire	A general purpose device connecting the control panel’s multiplex bus. It implements a supervised local loop, and a Form “C” Relay output. Up to 20 modules can be connected to each MUX bus. All operating power for the D7053 is from the control panel.

Table 7 summarizes address restrictions for the D7042, D7052, and D7053 Modules.

Table 7: D7042 Address Restrictions

9*	10	11	12	13	14	15	**16**
17*	18	19	20	21	22	23	**24**
25*	26	27	28	29	30	31	**32**
33*	34	35	36	37	38	39	**40**
41*	42	43	44	45	46	47	**48**
49*	50	51	52	53	54	55	**56**
57*	58	59	60	61	62	63	**64**
65*	66	67	68	69	70	71	**72**
73*	74	75	76	77	78	79	**80**
81*	82	83	84	85	86	87	**88**
89*	90	91	92	93	94	95	**96**
97*	98	99	100	101	102	103	**104**
105*	106	107	108	109	110	111	**112**
113*	114	115	116	117	118	119	**120**
121*	122	123	124	125	126	127	**128**
129*	130	131	132	133	134	135	**136**
137*	138	139	140	141	142	143	**144**
145*	146	147	148	149	150	151	**152**
153*	154	155	156	157	158	159	**160**
161*	162	163	164	165	166	167	**168**
169*	170	171	172	173	174	175	**176**
177*	178	179	180	181	182	183	**184**
185*	186	187	188	189	190	191	**192**
193*	194	195	196	197	198	199	**200**
201*	202	203	204	205	206	207	**208**
209*	210	211	212	213	214	215	**216**
217*	218	219	220	221	222	223	**224**
225*	226	227	228	229	230	231	**232**
233*	234	235	236	237	238	239	**240**
241*	242	243	244	245	246	247	**248**
249	250	251	252	253	254	**255**	

Note: Install the D7042 Modules only at addresses that are followed by an asterisk (*). Do not install the D7052 and D7053 Modules (Class “B”) on addresses in bold.

3.0 Installation and Setup

The shipping box includes:

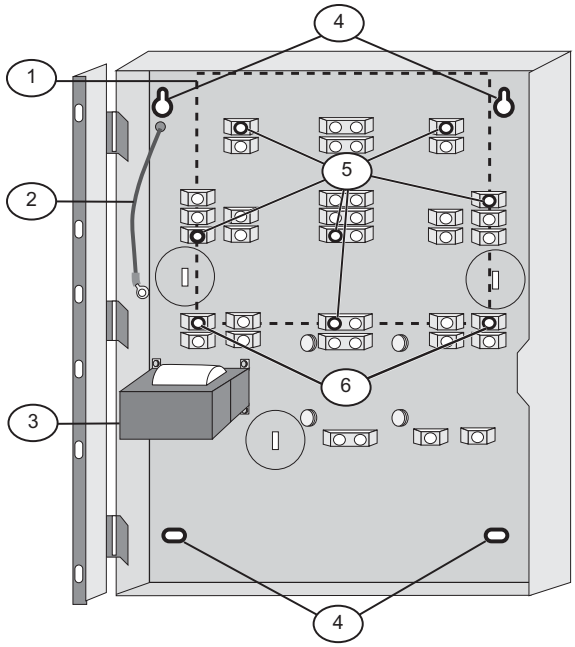
- One D7024 FACP in a static-resistant bag
- One enclosure with transformer
- One hardware pack
- One enclosure lock, washer, and keys
- Six EOL resistors

The hardware pack includes the hardware needed to install the control panel in the enclosure.

3.1 Installing the Enclosure

1. Using the enclosure as a template, mark the top mounting holes on the mounting surface (*Figure 3*).

Figure 3: Installing the Enclosure



1 – Control panel location
2 – Ground wire
3 – Transformer
4 – Mounting holes (4)
5 – Standoff retainer holes (6)
6 – Support post retainer holes (2)

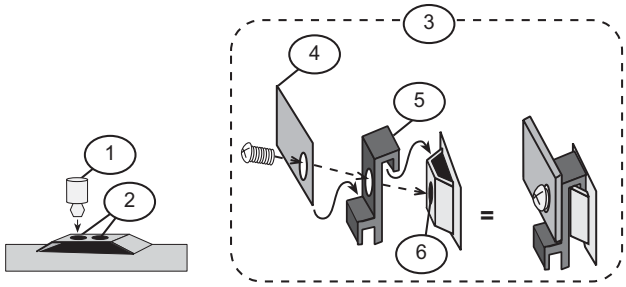
2. Start the mounting screws (not supplied) for these two holes first. Slide the enclosure onto these screws so the screws move up into the thinner section of the holes. Then tighten the screws.
3. Screw the remaining two screws into either set of bottom mounting holes.
4. Knock out the desired wire entrances on the enclosure.

3.2 Installing the Control Panel

The D7024 Control Board is static sensitive. Touch ground before handling the control board to discharge any static electricity in your body. For example, run the ground wire to the enclosure before handling the control board. Continue touching the enclosure while installing the control board.

1. Insert the three support posts in the retainer holes on the enclosure (*Figure 3* and *Figure 4*).

Figure 4: Installing the Standoff and Support Post



1 – 0.125-in. nylon standoff
2 – Retainer holes (2)
3 – Support post assembly
4 – Corner of circuit board
5 – Support post
6 – Retainer hole in enclosure

2. Press the 0.125-in. nylon standoffs (P/N: 30503) into the retainer holes (*Figure 3* and *Figure 4*).
3. Slide the top of the control board into the retainer tabs (the slots under the top of the frame) so the control board resets on the posts.
4. Secure the bottom of the control by screwing the two bottom corners through the support posts and through to the control board retainer holes (*Figure 4*).
5. When the control board is installed, use the nuts to connect the ground wire between the door and the enclosure. Use the second ground wire to connect the AC power ground. Both grounds connect to the enclosure's stud to the left of the circuit board.

3.3 Installing Optional Equipment

The two expansion options, the D7034 Four Point Expander and D7039 Multiplex Expansion Module, connect directly to the control panel. These options are automatically detected and supervised when the control panel is powered up.

When the control panel is powered up after installing one of these options, one of the following windows appears:

```
4Z EXP DETECTED
PRESS CLEAR KEY
```

```
NAC EXP DETECTED
PRESS CLEAR KEY
```

```
MUX DETECTED
PRESS CLEAR KEY
```

Press [CLEAR] to verify the installation of the device and automatically set it up for supervision.

If you do not press [CLEAR] during the power-up time-out period, the control panel resumes operation using the last verified status of the affected expander, and shows an installation error condition.

Expansion devices such as point expanders, NAC expanders, and multiplex expanders are disabled if they are removed from the control panel configuration after installation. Once installed, it is not possible to disable supervision of these devices.

Refer to the expander installation instructions for additional information.

When the D7039 Multiplex Expansion Module is first installed, in most cases the system shows an EEPROM fault. You must run the default procedure to synchronize the EEPROM on the expansion module with the EEPROM in the control panel. Cycle power to the control panel and re-install the option bus devices after the default procedure.

Replacing a D7039 Multiplex Expansion Module causes expansion point and PIN programming to be lost. Reprogram all multiplex point and PINs when replacing the D7039.

When the D7039 is first installed, or any time the control panel is powered up with a D7039 that has no points programmed into it, the system automatically starts the multiplex auto-programming process:

```
AUTO PROGRAM?
  :YES(1)/NO(0)
```

Press the [1] key to start auto-programming. Press [0] to allow the control panel to continue normal startup. The menu automatically closes with **NO** selected if no key is pressed after several minutes. Refer to *Section 7.9.4 Auto Program* on page 57 for Auto-Programming Mode instructions.

4.0 Control Panel Terminal Connections

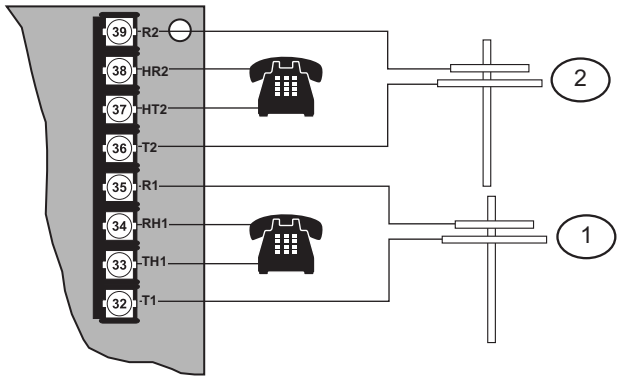
Refer to *Figure 5* through *Figure 10* when connecting the control panel terminal.

Incorrect connections can cause damage to the equipment and personal injury.

Before servicing the equipment, remove all power including the transformer, battery, and telephone lines.

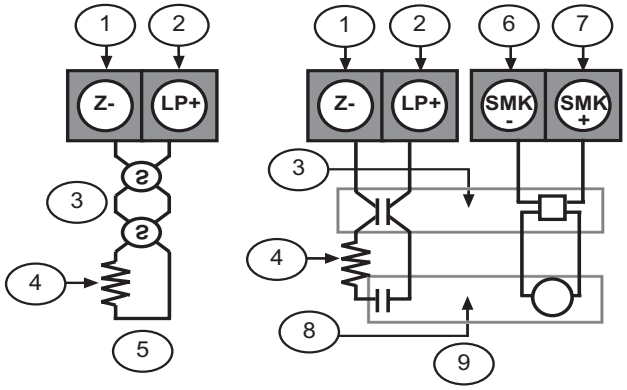
Do not use shared cable for option bus, telephone, or NAC wiring.

Figure 5: Telephone Line Wiring



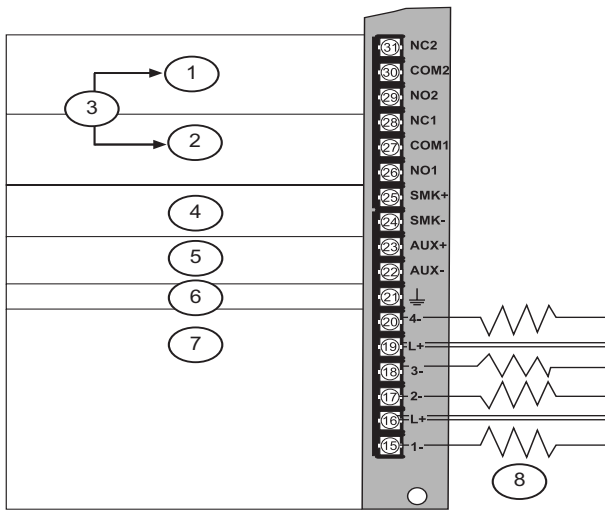
1 – Phone Line 1 (supervised)
2 – Phone Line 2 (supervised)

Figure 6: Typical Fire Wiring



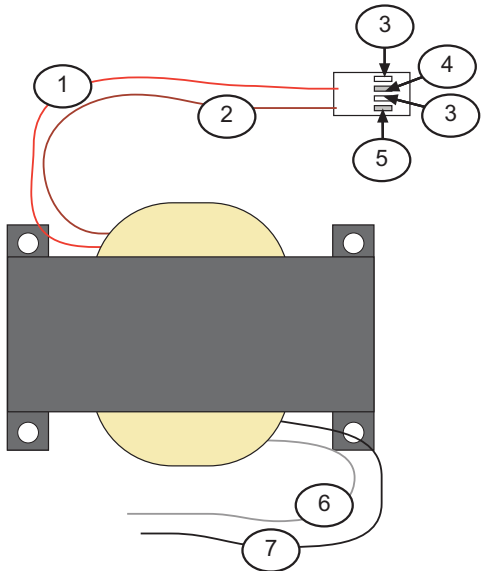
1 – Input
2 – Loop power +
3 – Smoke detector
4 – EOL resistor
5 – Typical two-wire smoke detector wiring (supervised). Refer to the D7022 Series, D7024 Smoke Detector Compatibility List (P/N: 34445) for a list of compatible two-wire smoke detectors.
6 – Smoke power -
7 – Smoke power +
8 – D275 EOL relay
9 – Typical four-wire smoke detector wiring. For example, a D285 in a D292 Base.

Figure 7: Relay Wiring



1 – Relay 2. Contacts rated at 5 A, 24 V (unsupervised)
2 – Relay 1. Contacts rated at 5 A, 24 V (unsupervised)
3 – For connection to listed power limited Class 2 or Class 3 sources only
4 – Switched (supervised) smoke power: 24 V. 1 A maximum (filtered). Refer to the D7022 Series, D7024 Smoke Detector Compatibility List *(P/N: 34445).*
5 – Unswitched (unsupervised) auxiliary power: 24 V, 1 A maximum (unfiltered)
6 – Earth ground
7 – Input points 1 to 4 (supervised): Points are intended for connection to normally-open or normally-closed alarm contacts. They can also be used for compatible two-wire smoke detectors. All EOL resistors are 2.21 kΩ (P/N: 25899), UL Listed. Initiating devices are Class "B", Style B. Two-wire compatibility identifier "A."
8 – Refer to the D7022 Series, D7024 Smoke Detector Compatibility List *(P/N: 34445).*

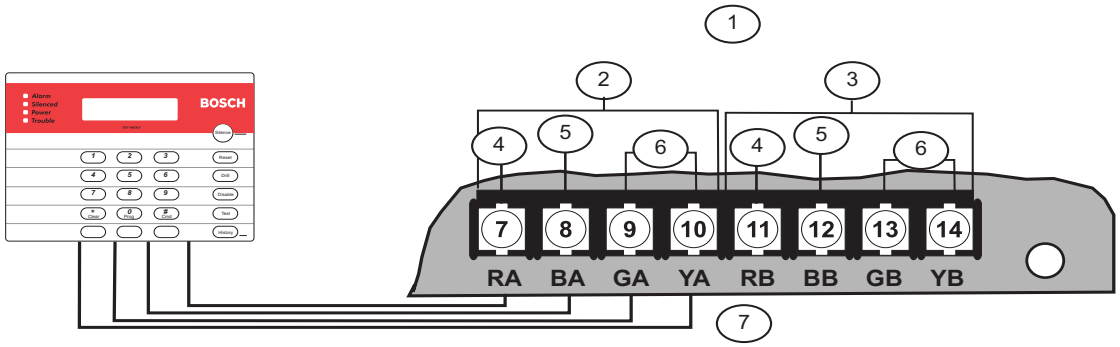
Figure 8: Transformer (Supervised)



1 – Red wire
2 – Brown wire
3 – NC
4 – AC power 2
5 – AC power 1
6 – White wire
7 – Black wire

All wiring except battery terminal and primary AC power is power-limited. Separate the primary AC and battery wires from other wires by at least 0.25 in. (64 mm). Also tie the wire to prevent movement.

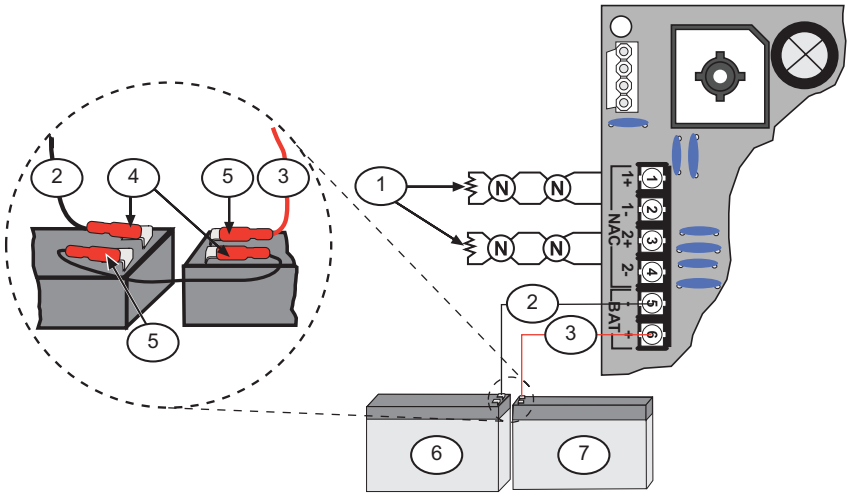
Figure 9: Option Bus (Supervised, Style 4)



1 – Option power (A + B) 500 mA, maximum
2 – Option Bus A
3 – Option Bus B
4 – +12 V
5 – Com
6 – Data
7 – Connect option bus devices to Option Bus A or Option Bus B.

Connect all option bus devices to the same bus, either Bus A or Bus B. Do not connect some devices to Bus A Data Terminals YA or GA and some to Bus B Data Terminals YB or GB. Power Terminals RA and RB and Ground Terminals BA and BB can be connected interchangeably to either set of terminals.

Figure 10: Backup Battery Wiring



1 – 2.21 kΩ EOL, supervised (P/N: 25899)
2 – Black wire
3 – Red wire
4 – Terminal -
5 – Terminal +
6 – Backup Battery #1
7 – Backup Battery #2

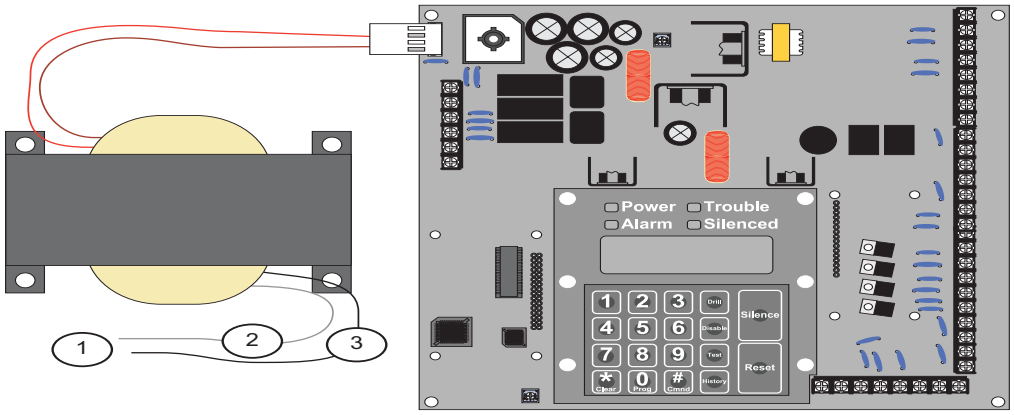
Table 8: NACs and Batteries
Notification Appliance Circuit
NAC 1+: +24 V in alarm; ground in standby.
NAC 1-: Ground in alarm; supervisory voltage in standby.
NAC 2+: +24 V in alarm; ground in standby.
NAC 2-: Ground in alarm; supervisory voltage in standby.
Batteries
BAT - and BAT +: Requires two 12 V batteries in series for a combined voltage of 24 V. Charge current equals 1.1 A maximum.
Note: Only use indicating devices listed in the *D7024 NAC Compatibility List* (P/N: 34950).

Do not short terminals. Shorting terminals can cause an explosion or burn.

4.1 Power Supply Connections

Use wire nuts to connect the primary side of the transformer, with the black and white wires, to the 120 V, 60 Hz dedicated circuit breaker. Connect the earth ground to the threaded ground stud on the left side of the enclosure (*Figure 11*).

Figure 11: Connecting the Transformer to the D7024 Control Board



1 – Primary
2 – White wire
3 – Black wire

4.2 Option Bus Wiring Requirements

Use 18 AWG (1.2 mm) or larger wire to connect option bus devices to the FACP. The total length of wire connected to the option bus terminals must not exceed 4000 ft (1219 m), regardless of the gauge wire used.

Connect all option bus devices to the same bus, either Bus A or Bus B. Do not connect some devices to Bus A Data Terminals YA or GA and some to Bus B Terminals YB or GB. Power Terminals RA and RB, and Ground Terminals BA and BB can be connected interchangeably to either set of terminals.

Do not use shared cable for option bus, addressable points bus, telephone, or NAC wiring.

Avoid shielded or twisted pair wire, except for special applications where a reduced length of wiring (approximately 50%) is acceptable for an unusually harsh electrical environment to be tolerated.

The length of wire allowed between the control panel and the last device on a wiring run depends on the current drawn on that wiring run. Reducing the number of devices on a wiring run allows the individual runs to be longer.

When devices are all the same type on a given wire run, use the guidelines in *Table 9*.

Table 9: Option Bus Wiring Guidelines

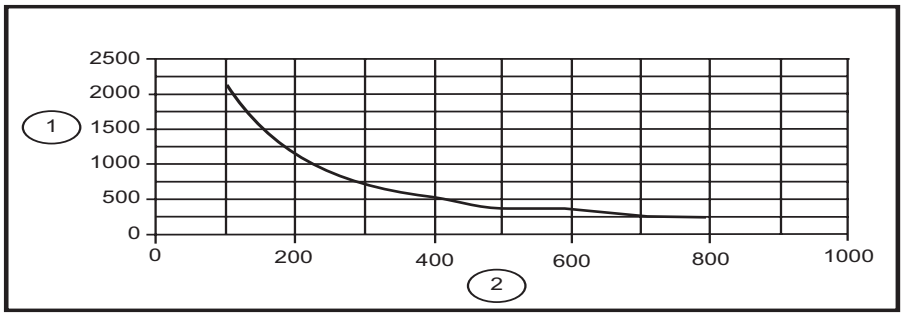
Device	Number of Wiring Run	Maximum Allowed Cable Length to Last Device (18 AWG [1.2 mm])	Current Draw (for reference)
D7030 LED Annunciator	1	1000 ft (304 m)	175 mA
D7030 LED Annunciator	2	500 ft (152 m)	175 mA x 2 = 350 mA
D7030 LED Annunciator	4	250 ft (76 m)	175 mA x 4 = 700 mA
D7033 Remote Keypad	1	2000 ft (608 m)	100 mA
D7033 Remote Keypad	2	21000 ft (304 m)	100 mA x 2 = 200 mA
D7033 Remote Keypad	4	500 ft (152 m)	100 mA x 4 = 400 mA
D7035 Remote Relay	1	500 ft (152 m)	330 mA
D7035 Remote Relay	2	250 ft (76 m)	330 mA x 2 = 660 mA
D7036 LCD Annunciator	1	2000 ft (608 m)	100 mA
D7036 LCD Annunciator	2	1000 ft (304 m)	100 mA x 2 = 200 mA
D7036 LCD Annunciator	4	500 ft (152 m)	100 mA x 4 = 400 mA
D7038 Remote NAC	2	4000 ft (1216 m)	< 50 mA each

When there are more than one type of device installed on a given wiring run, total the alarm current drawn by all the devices on the wiring run to determine the maximum allowable distance between the option bus terminals on the control panel and the last device on the wire run (the device furthest from the control panel).

Add all alarm loads for option bus devices on the wire run, and use to determine the maximum allowed length for the run. For example, if the total load of option bus devices on a particular run is 400 mA, the maximum length of the run can be up to 500 ft (152.4 m). No more than 4000 ft (1219.2 m) of wire can be connected to the option bus terminals, even if the individual lengths of the runs are all within limits.

Figure 12 shows the lengths for 18 AWG (1.2 mm). For 16 AWG (1.5 mm) wire, cable lengths can be 1.5 times longer, and for 14 AWG (1.8 mm) wire, cable lengths can be 2.5 times longer. The maximum length of connected wire (4000 ft [1219 m]) still applies.

Figure 12: Option Bus Cable Length versus Current Draw



1 – Cable length (ft)
2 – Current draw (mA)

5.0 System Operation

5.1 Operating Modes

The D7024 FACP system operates in one of three modes; Alarm, Trouble, or Normal.

5.1.1 Alarm

When an alarm occurs, FIRE ALARM or a similar messages (depending on the type of alarm) appears in the top line of the display. The display overrides the other system displays. The display's second line shows the point number in alarm, alternating with the programmed description for the affected point. If more than one alarm (or other off-normal condition) is active, they appear on the display's second line, one after another. The built-in sounder emits a steady tone, and outputs programmed to activate with the current alarm condition(s) activate.

When the control panel is not scanning the inputs, such as during smoke power reset, alarm verification delay, or on-site programming, the Trouble LED flashes to indicate this condition.

Fire Silence and Reset

When you hear a fire alarm, exit the premises immediately. Do not enter the premises unless accompanied by the appropriate Emergency Services personnel or after you have permission. When it is determined there is no fire, you can silence the horns and bells to further investigate the devices that initiated the alarm. You can also reset the system, returning it to normal operation.

Before using the [RESET] key, determine which smoke detector alarmed so the monitoring company can verify its operation.

If the system is configured for alarm silencing, [SILENCE] turns off the horns and bells, but does not reset the alarm status and does not return the tripped input to normal service. Any detectors tripped remain in alarm and can be checked (usually by a device LED) to determine which detector caused the alarm. When the detectors causing the alarm are identified, reset the system to return it to normal service.

The [RESET] key clears the system alarm status and briefly turns off power to the detectors to reset them. This command is required after a fire alarm affecting a point programmed for latching operation (normal configuration). Latching is also needed to reset a Class "A", Style 6 Multiplex SLC wiring fault troubles (future), and reset trouble indications from the D7014 Class "A" Zone Converters.

5.1.2 Trouble

When a trouble condition occurs (such as wiring for a point is cut, AC power fails, and so on), the sounder activates with a beep every 10 sec. The Trouble LED lights and the LCD shows `SYSTEM TROUBLE`, followed by a description of the trouble condition. The system can diagnose and show a variety of trouble conditions, including those affecting the input points, NACs, power, battery, system grounding, and internal operations of the FACP. Immediately notify your installing company if the System Trouble message appears.

Press [SILENCE] to silence the system trouble beep. When problems are remedied, press [RESET] to clear the System Trouble.

To prevent intermittent system faults (such as ground fault or initiating loop open fault) from interfering with central station operations, the control panel limits reporting to 100 Trouble Reports in 24 h. When the limit is exceeded, the control panel transmits a Data Lost Report and inhibits additional Trouble Reports and Automatic Test Reports. Non-trouble Reports and Off-Normal at Test Reports are not limited. The 24-h period resets at 9:00 a.m. or when a Manual Test Report is sent. Refer to Refer to *Section 12.0 Appendix C: Fire Communicator Reporting Summary* on page 67 for trouble explanations.

The software incorporates a system supervisor function to automatically supervise the system software for proper operation. If there is a system failure, a CPU Fault message appears, and a description of the failure is recorded (optionally) in the History Buffer. History buffer recording for CPU faults can be enabled by programming Output Zone D of onboard Relay 2 to Zone 51 (unused). The History Buffer message, if enabled, appears as `CPUFLTxxx`, where `xxx` is an error code. If `CPU FAULT` appears, contact Bosch Security Systems Technical Support and report the History Buffer code, along with a description of the operations that caused the fault.

Unusual conditions during programming and debugging can cause a CPU FLT message in the History Buffer. If this appears when the control panel is in service, report it to Technical Service.

Off-Normal Displays

Control panel alarms and problems are indicated by a message appearing on the top line of the display. Contact your installing company if problems persist. Refer to *Table 10* on page 22 for a description of these messages.

When one of these messages appears on the top line, the second line shows rotating messages with detailed information for all off-normal conditions currently detected.

Table 10: Off-Normal Displays

Message	Description
FIRE ALARM	One or more fire points are in alarm.
WATERFLOW ALARM	One or more waterflow points are in alarm.
SUPERVISORY ALARM	One or more supervisory points are in alarm.
MONITOR ALARM	One or more monitor points are in alarm.
FIRE TROUBLE	One or more fire points are in alarm (or waterflow, supervisory, monitor).
FIRE DIRTY	One or more smoke detectors are dirty (or waterflow, supervisory, monitor).
FIRE DISABLE	One or more fire points are disabled (or waterflow, supervisory, monitor).
SYSTEM TROUBLE	A trouble condition exists, such as AC power failure, telephone line trouble, and so on.

5.1.3 Normal

When the system is operating normally, `SYSTEM NORMAL` appears on the top line of the display, the Power LED is on steady, and no other LEDs are lit. If the system is programmed to require a PIN, `ENTER PIN:` appears in the second line of the LCD. Otherwise, the control panel bypasses this display and shows a rotating menu of possible user actions.

5.2 Using the System

5.2.1 Scrolling Menus

Generally, a keypad that does not require a PIN shows `SYSTEM NORMAL` in the top line and `SELECT:` in the bottom line, followed by the scrolling menu items:

- `PROG/0`
- `CMND/# TEST`
- `HISTORY`
- `DISABLE`
- `DRILL`

On a keypad requiring a PIN, enter the PIN first to view the menu. The scrolling menu items flash one at a time at 1-sec intervals through the list and then start over.

Refer to *Section 6.0 Programming* on page 30 for the items that appear in the following format:

```
SYSTEM NORMAL
SELECT: PROG/0
SELECT: CMD/#
SELECT: TEST
SELECT: HISTORY
SELECT: DISABLE
SELECT: DRILL
```

5.2.2 Selecting Menu Items

Depending on the system level you are at (such as menu, submenu, sub-submenu), you can select an item three ways:

1. At the Main Menu, the items TEST, HISTORY, DISABLE, and DRILL each have an exclusive key on the keypad. Press the corresponding key to select the menu item.

2. For menu items PROG and CMND, the PROG and CMND keys are not exclusive, but shared with other characters. The character sharing the corresponding key is displayed in the second line following a forward slash. To select one of these items, press the corresponding key. For example, the PROG key is also “0”.

3. The corresponding key to a sub-menu item might appear in the second line preceding a dash. Press the corresponding key to select that item. For example, press [1] to select PROG TIMES.

While a menu like this is active, you do not need to wait for the desired menu item to appear before making your selection. You can select an item on the current menu rotation at any time.

5.2.3 Selecting a Main Menu Item

When a Main Menu item is selected, the keypad might prompt you to enter your PIN. If so, enter the number and press [#/CMND], or press the key labeled with the desired command. The default PIN is 9876. The display automatically goes to the submenu.

5.2.4 Backtracking through a Menu

To return to a preceding screen at any time, press [*/CLEAR]. To return to the SYSTEM NORMAL display, press [*/CLEAR] and move backward through the menu until you reach SYSTEM NORMAL. You cannot return any further than SYSTEM NORMAL.

5.2.5 Entering Data

When a submenu item prompts you to enter data, enter the data and press [#]. Data that already exists at a particular location appears. You can either accept that data or enter new data.

Pressing [#/CMD] to enter data returns you to the preceding submenu.

5.2.6 Drill

The Drill command activates all NACs and no relays. It creates a History Log entry that can optionally be reported to the central station.

5.2.7 Disable

The Disable command disables input points, outputs, or the dialer. When a device is disabled, the system shows this condition on the LCD and System Trouble LED. The Disable All Inputs operation takes several seconds to perform, during which time the system display remains fixed.

5.2.8 History

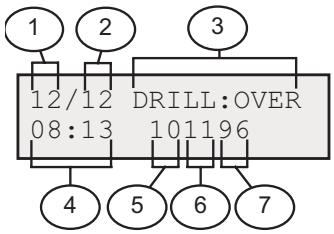
When systems without a D7039 Multiplex Expansion Module lose all AC and standby battery power, all History events are cleared.

Pressing [HISTORY] at the Main Menu shows a list of system events that occurred.

A D7024 FACP with a D7039 Multiplex Expansion Module supports up to 499 History events. A D7024 FACP without a D7039 Multiplex Expansion Module supports up to 99 History events.

After pressing [HISTORY], the most recent system event appears on the top line of the LCD with the time and date below it (*Figure 13*). The example in *Figure 13* shows the Main Menu accessed and the [HISTORY] key pressed.

Figure 13: History Event Details



1 – Event number
2 – Total number of stored events
3 – Event name
4 – Time
5 – Month
6 – Day
7 – Year

While the first event appears, the system reminds you by toggling the bottom line every 4 sec between the time and date the event occurred and the following display:

```
12/12  DRILL:OVER
7-BACK 9-FORWARD
```

Press [7] to return to the History Buffer or press [9] to scroll to the next event record.

Table 11 identifies the History Event abbreviations.

Table 11: History Event Abbreviations

Abbreviation	**Meaning**	**Abbreviation**	**Meaning**
ALRM	Alarm	OFFNORM	Off Normal at Test
ARST	Alarm Restore	PH1	Phone Line 1
AUTOTST	Auto Test	PH2	Phone Line 2
BATT:LOW	Battery Low	RSTR	Restore
BAT:RSTR	Battery Restore	S	Supervisory
CPUFLT	Internal Error	SMK:FLT	Smoke Power Fault
DRILL:BEG	Drill Begin	SYSRESET	System Reset
DRILL:OVR	Drill Over	SYSRST	System Restore
DRST	Dirty Restore	SYSTRB	System Trouble
DRTY	Dirty	SYS:WDOG	Automatic CPU Reset (Watchdog)
DSBL	Disable	TRBL	Trouble
EE2	EEPROM	TRST	Trouble Restore
ENBL	Enable	TST:BEG	Test Begin
F	Fire	TST:OVR	Test Over
M	Monitor	W	Waterflow
MANULTST	Manual Test		

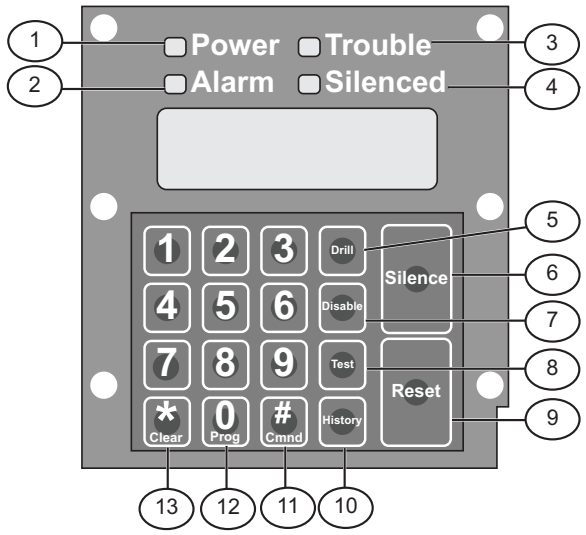
Refer to *Section 12.0 Appendix C: Fire Communicator Reporting Summary* on page 67 for additional History Log identification information.

5.3 Keypads

5.3.1 Built-in Keypad

The keypad built into the control panel is an alphanumeric LCD keypad. It has a two-line by 16-character display to provide information on various control panel functions. Generally, the first line shows common system status information; the second line describes specific devices that might be relevant to the current system status.

Figure 14: Built-in Keypad



1 – Power LED
2 – Alarm LED
3 – Trouble LED
4 – Silenced LED
5 – DRILL] key
6 – SILENCE] key
7 – [DISABLE] key
8 – [TEST] key
9 – RESET] key
10 –[HISTORY] key
11 –[#/CMD] key
12 –[0/PROG] key
13 –[/CLEAR] key*

Table 12 describes the LEDs and keys on the built-in keypad.

Table 12: LEDs and Keys

LED or Key	Definition
Power LED (green)	Lights when the AC power is present, and flashes when the D7024 operates from battery power.
Alarm LED (red)	Lights when the system registers an alarm and the alarm is not reset.
Trouble LED (yellow)	Lights when the system detects a problem with its wiring or internal circuitry. Flashes while Programming Mode is active, and when inputs are not active (such as during a smoke power rest or an alarm verification.
Silenced LED (yellow)	Lights when the user manually silenced an alarm or trouble condition. Turns off when the condition that silenced is corrected.
[DRILL]	Manually activates the NACs. Creates a History Log entry and can be optionally reported to the central station.
[SILENCE]	Quiets the bells and sirens for an alarm or trouble condition only if the system is configured to do so.
[DISABLE]	Allows the system to disable or enable inputs, NACs, relays (outputs), and dialer.
[TEST]	Allows you to select one of seven Test Modes. Refer to Refer to *Section 5.4 Testing* on page 26.
[RESET]	Briefly turns off power to the detectors to reset them, clearing any off-normal conditions. The timing is programmable from 1 to 16 sec.
[HISTORY]	Allows you to view the record of system events.
[#/CMD]	Accepts data when in Programming Mode.
[0/PROG]	Selects the Programming Mode.
[*/CLEAR]	During programming, allows you to exit menus or the Programming Mode entirely.

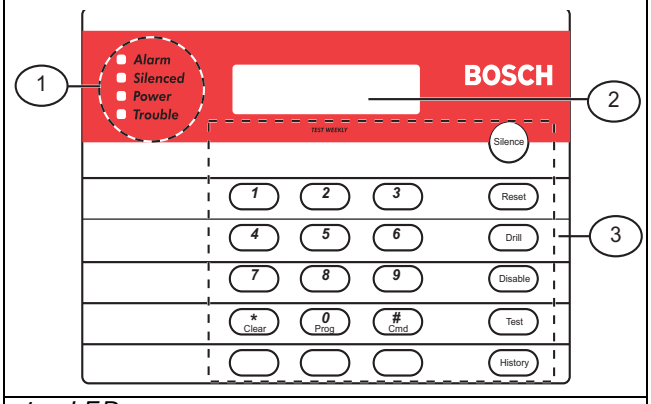
When keys are being pressed, the display shows the current action on the first line, while showing rotating menu choices on the second line. A built-in sounder is used to annunciate keystroke entries and as a warning device.

For Abbreviations on Panel Display, refer to *Section 11.0 Appendix B: D7024 Control Panel Display Messages* on page 66.

5.3.2 D7033 Keypad

The D7033 Keypad is an alphanumeric LCD keypad. Up to four of keypads can be mounted apart from the main control panel to provide additional locations for system status and control. The LCD and keys operate identically to those of the built-in keypad on the control panel (refer to *Section 11.0 Appendix B: D7024 Control Panel Display Messages* on page 66).

Figure 15: D7033 Keypad



1 – LEDs
2 – Keypad display
3 – Keys

5.4 Testing

Use the [TEST] key on the built-in and D7033 keypads to select any of the seven special test modes.

5.4.1 Walk Test

Walk Test allows a technician to manually alarm each point to ensure the detectors connected to a point report an alarm to the control panel. While in this mode, the LCD shows the system test status, and the trouble sounder sounds every 10 sec. Outputs programmed for general alarm or fire alarm output, or outputs mapped to points using zones activate during Walk Test as points are alarmed and restored.

When selecting Walk Test, you have three output activation options:

- SHORT ACTIVE: 1-sec activation
- LONG ACTIVE: 5-sec activation
- NO ACTIVE: Outputs do not activate

As each point is alarmed, the outputs activate once when selected and power is reset. As each point is triggered, alarms and restorals are logged into the control panel's History Logger. When the point returns to standby, the outputs activate twice. The control panel attempts to reset points ten times to restore them. Points remaining alarmed when exiting Walk Test causes an immediate alarm.

5.4.2 Communicator Test

The communicator sends a Test Report. While communication is in progress, the Power LED flashes. When the communication succeeds, a long keypad beep sounds, the Power LED returns to normal, and the display returns to normal.

Pressing [*/CLEAR] to terminate the Communicator Test function resets the communicator and discards all unsent reports. When an off-normal condition occurs during a Communicator Test, the test automatically resets, clearing all reports so the off-normal condition can be reported normally.

This test is available only if your system transmits alarms and system information to a monitoring service, and is programmed by the security installing company allowing Communicator Tests.

5.4.3 Call for Remote Programming

Program telephone numbers 1 and 3, along with the Account Code 1. The control panel calls Phone Number 3 and attempts to connect for downloading. If the control panel is already using the telephone line, it sounds the three-beep error tone. This function requires an access code with programming authority (Level 1).

5.4.4 Test Battery and NACs

During a power failure, your control panel has a built-in battery that continues to power the system for several hours. The control panel automatically recharges the battery when power is restored. In this mode, the system operates the local NACs and tests the battery for 2 sec. The test result appears at the end of the test and are not reported to the central station.

Press [*/CLEAR] or [#/CMND] to return the display to Standby Mode or the unit times out after 3 min.

5.4.5 Answer for Remote Programming

The control panel immediately picks up the telephone line to answer a remote programming call. While programming is underway, the Trouble LED flashes. This feature also allows a connection for remote programming and on-site PC downloading. If the control panel is already using the telephone line for a report communication, it sounds the three-beep error tone. Remote programming requires an access code with programming authority (Level 1).

5.4.6 Manually Activate Outputs

Allows a selected output to be manually turned on and turned off.

5.4.7 Read Zone Input Levels

Shows the status of a selected on-board point. The loop current through the point is shown.

Normal loops show 11 mA to 15 mA. Loops in alarm show over 25 mA; loops in trouble show less than 6 mA.

5.4.8 Addressable Point Test (MUX Test)

The Addressable Point Test allows the activation of the special test mode for addressable (multiplex) devices. This only applies if the optional D7039 Addressable Point Bus Expander Module is installed.

When this test mode is selected, the system asks which bus to test, 1 or 2. Select 1 to test Points 9 to 128; select 2 to test Points 129 to 255. *Table 13* describes the Addressable Point Test options.

Table 13: Addressable Point Test Options

Option	Description
List Devices	All device point numbers on the selected bus appear. Some devices such as a dual point module can implement two or more points.
Show Holes	Lists places on the bus without assigned devices to locate programming errors or identify an available address for a new device.
Show Extras	The system scans the bus to identify devices present on the bus, but not programmed into the system. Scanning the bus takes approximately 60 sec, with another 60 sec to restore the bus after scanning. The system cannot identify devices above Address 128 on Bus 1 or below Address 129 on Bus 2. When you know a device is connected to the system but it cannot be found, ensure it is connected to the correct bus (Addresses 9 to128 for Bus 1; Addresses 129 to 255 for Bus 2).
Show Missing	Lists devices programmed into the system but not present on the bus. Unless a device is programmed into the system (such as using MUX EDIT), it is not considered missing.
Show Status	Shows detailed status information for a device after you select it and press [#/CMND]. Not all status conditions apply to or are supported by all devices. Eight conditions appear in the display and automatically update every 5 sec. You can view the status of any MUX device regardless of which bus you select to test when you entered Test Mode.

In the format XxLxRxDxMxTxFxAx that appears in the display, "x" is either 0 or 1 depending on whether the condition is false or true. The letters indicate the condition:

- **X:** Reserved for future use.
- **L (Commanded Relay State):** The way the output relay should be set.
- **R (Actual Relay State):** The way the output relay is actually set.
- **D (Detector Dirty):** The detector is excessively sensitive.
- **M (Missing Device):** The device is not found on the loop. Unless a device is programmed into the system (such as using MUX EDIT), it is not considered missing.
- **T (Tamper):** The sensor case is open.
- **F (Loop Fault):** The loop from a contact input device is open, or there is a device fault.
- **A (Loop Alarm):** The point is in alarm.

Pressing [*/CLEAR] terminates the display for any of these modes. For example: X0L0R0D0M0T0F0A0, meaning relay off, not dirty, not missing, no tamper, no fault and no alarm.

5.4.9 Sensitivity Test

This test is reserved for future use.

5.5 Point and Zone Mapping

The control panel supports a flexible system to map input points to output points. The system is defaulted so all NAC outputs are activated by a fire alarm. By programming output zones, you can implement almost any desired output activation scheme such as floor above/floor below activation or conditional elevator recall.

Input Points: Smoke detectors, pull stations, and so on.

Zone: A group of input points. Zones 1 to 50 are configurable, Zones 52 to 63 are automatically activated.

Output Points: NACs (such as bells and strobes) and relays.

Inputs activate zones, and zones activate outputs.

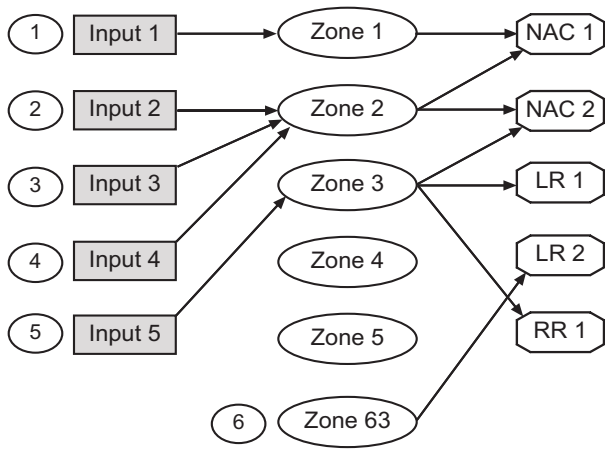
Zones 1 through 50 are available for the installer to program. Each input can activate one zone, but any number of inputs can drive the same zone.

Zones above 50 are automatically activated by inputs. For example, any input configured as a waterflow type activates Zone 61 when it is alarmed. Any output driven by Zone 61 activates when any waterflow type point is alarmed.

For Zone Drive Inputs, up to four zones can drive each output. When any of the zones driving an output is active, the output is active.

The following example shows how inputs drive zones and zones drive outputs.

Figure 16: Mapping Inputs, Zones, and Outputs



1 – Input Point 1 is assigned to Zone 1 and mapped to NAC Point 1.
2 – Input Point 2 is assigned to Zone 2 and mapped to NACs 1 and 2.
3 – Input Point 3 is assigned to Zone 2 and mapped to NACs 1 and 2.
4 – Input Point 4 is assigned to Zone 2 and mapped to NACs 1 and 2.
5 – Input Point 5 is assigned to Zone 3 and mapped to NAC 2, LR 1, and RR 1.
6 – General Alarm Zone 63 drives LR 2.

Note: LR = Local Relay, RR = Remote Relay

Up to 64 zones can be assigned. The installer can assign Zones 1 to 50. Zones 51 to 63 are hard-coded to pre-assigned conditions. Refer to *Table 14*.

Table 14: Pre-Assigned Zones

Zone	Pre-Assigned Condition
51	Reserved for future use.
52	General Fire Alarm (non-silenceable). Same as Zone 53, but remains active even while the system is silenced.
53	General Fire Alarm (silenceable). Active when a fire alarm condition is present, but does not activate for waterflow.
54	Activates for approximately 7 sec before dialing to initiate dial tone on a ground start telephone system.
55	Reserved.
56	Reserved.
57	Communication trouble. Active when the dialer failed to communicate and remains active until communication through the digital communicator is restored.
58	General Supervisory Alarm (non-silenceable). Active when any supervisory alarm condition is present.
59	Alarm Verification. Active while alarm verification is in progress. This starts when an alarm is first detected and is to be verified. Clears in 2 min or when the system is reset.
60	No AC. Active when the AC power fails.
61	General Waterflow (non-silenceable). Active when any waterflow alarm is present.
62	General Trouble. Active while a system trouble is present, but not active in Test and Programming Modes.
63	General Fire Alarm, Monitor, Waterflow (non-silenceable). Active while any alarm, including supervisory, is present. Remains active even while the system is silenced.

5.6 Personal Identification Numbers

The personal identification number (PIN) is the four-digit code you enter at the keypad to gain access to the system. A PIN is assigned to each user number. The user number identifies each person using the system, for a possible 16 numbers (00 to 15). User numbers 00 to 99 are available with the installation of a D7039 Multiple Expansion Module. The authority level assigned to each user number determines which functions each user can perform.

Your system can have up to 100 different PINs, each four-digits long. Because there is one PIN for each user number, assigning the same PIN to multiple user numbers causes the three-beep error tone. The change is not made.

User number 00 is designated as a Master Code. It can be used to silence alarms, reset, disable, and program the D7024. This number is shipped from the factory with the default sequence of 9876. When you change the default sequence to a number of your personal preference, you are automatically assigned maximum authority.

Never program PINs with common sequences such as 1111, 1234, or 2468 because they are easily violated.

Authority levels are assigned to PINs to determine which functions each user can perform. *Table 15* describes the four authority levels.

Table 15: PIN Authority Level

Authority Level	Allowed Operations
Maximum (1)	All control panel operations, including programming
Medium (2)	System test modes, fire drill, reset, disable, silence, view history.
Minimum (3)	Silence, view history.
None (0)	None.

5.7 Communicator Operation

The D7024 contains an integrated communicator that can be enabled to send reports to a monitoring station. When enabled, communicator operation fully automatic.

The communicator must be enabled and configured before it will work. The communicator and telephone line monitors are disabled in the default factory configuration.

To disable a telephone number, set FORMAT to 0 = Disable. To completely disable the communicator, set FORMAT to 0 = Disable for both telephone numbers, and set MONITOR to 0 = NO for both telephone lines.

Do not install the D7024 FACP on a telephone line that might be needed for other emergency use.

When events occur, the communicator sends them to the monitoring station in priority order according to NFPA requirements. Fire and waterflow alarms are sent first, supervisory alarms and trouble reports are sent next, and all other reports are sent last.

Priority reporting can send a Restoral Report after several Alarm Reports in a situation where a point sends multiple alarms, indicating a point is restored when it returned to alarm. The sequence “alarm”, “restore”, “alarm” is transmitted as alarmed “restore” when priority sorting is applied.

Priority sorting on events sent to a monitoring station can cause the message sequence to indicate a point is restored when it is not.

The communicator can store 32 events while waiting for the monitoring station to accept the events. If more than 32 reportable events occur before the monitoring station accepts events, some event information is lost and a Data Lost Report is sent to the central station.

The D7024's communicator is equipped with a line seizure relay to prevent interference with outgoing event reports. In a system where the fire communicator shares the telephone line with other equipment on the premises, the telephone line might be unavailable to the other equipment for up to 15 min if there is a fault with the central station acceptance of the event data. Telephone lines for FACPs must not be shared with other equipment.

6.0 Programming

After any programming change, and especially after remote programming changes, a complete functional checkout of the control panel's operation is required. Hazards to life and property can occur if the system is not tested to detect possible improper programming.

When programming the system, enter only valid information within the ranges specified in the programming table. Incorrect programming causes improper system operation. While using built-in programming, invalid input values might not be rejected in every case. Ensure that only the intended values are entered while programming to prevent improper system operation.

6.1 Point Programming

6.1.1 Point Functions Overview

Each point in the system can be programmed with its own characteristics. Point functions simplify the point programming by allowing you to define a common set of characteristics for similar points, and assigning those characteristics to selected points as a point function. There are 16 point functions, each with programmable configuration features (such as fire, waterflow, and so on), local only operation, silencing, and loop response.

Each point is assigned to use the characteristics of one point function and then programmed for additional characteristics, such as response to an open circuit, enabled status, output zone, verification, latching, and point description.

Before programming the control panel, determine the types of functions required and map the input points to the functions.

For example, you can determine you have the following functions:

- 1 = Pull Station
- 2 = Smoke Detector
- 3 = Reset Keyswitch
- 4 = Silence Keyswitch
- 5 = Supervisory Input
- 6 = Monitor Input
- 7 = Local Test
- 8 = Waterflow Sensor

Refer to *Table 16* for the characteristics that correlate with each function.

Table 16: Point Function Characteristics

Function	Configuration	Local Only?	Silenceable?	Loop Resp.
1. Pull Station	Fire	No	No	Fast
2. Smoke Detector	Fire	No	No	Fast
3. Reset Keyswitch	Reset	Yes	No	Fast
4. Silence Keyswitch	Silence	Yes	No	Fast
5. Supervisory Input	Supervisory	No	Yes	Fast
6. Monitor Input	Monitor	Yes	Yes	Fast
7. Local Test	Fire	Yes	Yes	Fast
8. Waterflow Sensor	Waterflow	No	No	Programmed

Use *Table 17* to map input points to functions.

Table 17: Mapping Input Points to Functions

Function	**Points**
1.Pull Station	1,6
2.Smoke Detector	2, 9 to 100
3. Reset Keyswitch	3
4. Silence Keyswitch	4
5. Supervisory Input	106 to 110
6. Monitor Input	111 to 116
7. Local Test	101 to 105
8. Waterflow Sensor	5

6.2 Alpha Programming

When programming the point descriptions, use the numeric keys to enter alphanumeric information like you use telephone buttons to process information over the telephone lines. Each key represents four or more letters or symbols (*Table 18*).

Table 18: Programming the Points Using the Alphanumeric Keys

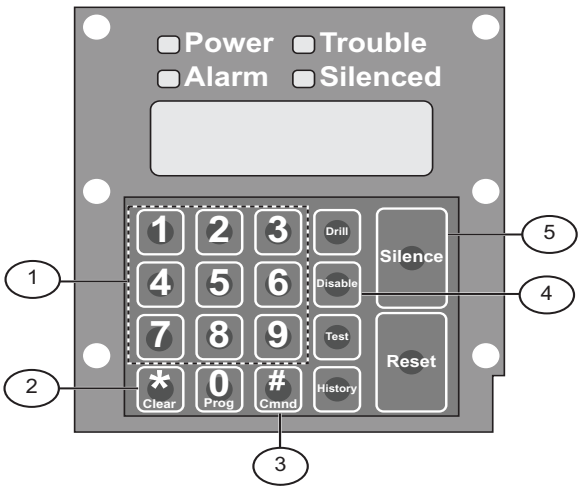
Key	**Values**								
	SPACE	1	,	‘	&	/	#	!	-*
	A	B	C	2**					
	D	E	F	3**					
	G	H	I	4**					
	J	K	L	5**					
	M	N	O	6**					
	P	R	S	7**					
	T	U	V	8**					
	W	X	Y	9**					
	Q	Z	0						
	Enters the description and returns to the Programming Menu.								
	Returns to the Programming Menu without entering changes.								
	Moves the cursor one space to the right.								
	Moves the cursor one space to the left.								

Note: A different character is entered each time you press a numeric key. For example, repeatedly pressing [2] enters A, B, C, 2, A, B, and so on.

* Press [1] nine times to reach this value.

** Press the listed key four times to reach this value.

Figure 17: Essential Alpha Programming Keys



1 – Number keys 0 to 9. Enter alphanumeric values.
2 – [/CLEAR]. Exits alpha programming or the Programming Mode entirely.*
3 – [#/CMND]. Accepts data in Programming Mode.
4 – [DISABLE]. Moves the cursor one space left.
5 – [SILENCE]. Moves the cursor one space right.

6.3 Format Programming

6.3.1 4/2

When the 4/2 format is used, reports generated by points consist of an event type (first digit) and a point number (second digit). Digits can be programmed for the following events:

- Fire Alarm
- Fire Restoral
- Waterflow Alarm
- Supervisory Alarm
- Point Trouble
- Trouble Restore
- Point Disable
- Disable Restoral
- Monitor Alarm

The same event type (first digit) is sent for any point. The point number is the second digit. Access 7- PROG FORMATS > 1- 4/2 POINT RPT to program each point.

Additionally, each of the 18 system events can be programmed with a unique two-digit code. Events programmed this way include System Silence, Fire Drill, Phone 1 Trouble, and Phone 2 Restoral. To program, access 7- PROG FORMATS > 2- 4/2 RPT CODS.

The 4/2 and 3/1 formats cannot report full point data for each points. Points 1 to 10 have unique reporting codes that repeat every 10 points. For example, Point 31 has the same point report as Points 11 and 21.

6.3.2 BFSK

Similar to the system event programming for 4/2 formats, each of the five system events can be programmed for two unique digits when the BFSK format is used. Access PROG FORMATS > 3- BFSK RPT CODS to program.

The BFSK format only supports a three-digit account number. The control panel transmits the first three programmed digits. The BFSK and tone burst formats require an “A” (hex character) be entered at the control panel for the receiver to show “0”. Because the BFSK format can only report eight points, Points 8 to 255 are reported as Point 8.

6.3.3 SIA

When the control panel is silenced, the report sent using the SIA format can be programmed. By default, the control panel sends “KB” when silenced. You can program any letters sent for this condition by entering the hexadecimal ASCII code. All other SIA reports are fixed and do not require programming.

6.3.4 Contact ID

All the Contact ID Reports are fixed and do not require programming.

6.3.5 3/1

The 3/1 reporting codes are determined by programming the 4/2 codes. Only the first digit, the left digit of the two-digit code, and the first three digits of the account number are transmitted.

6.3.6 Modem IIIa^2

Modem IIIa^2 Reports are all fixed and do not require programming.

6.4 Programming Menu Tree

Figure 18: Programming Menu Tree

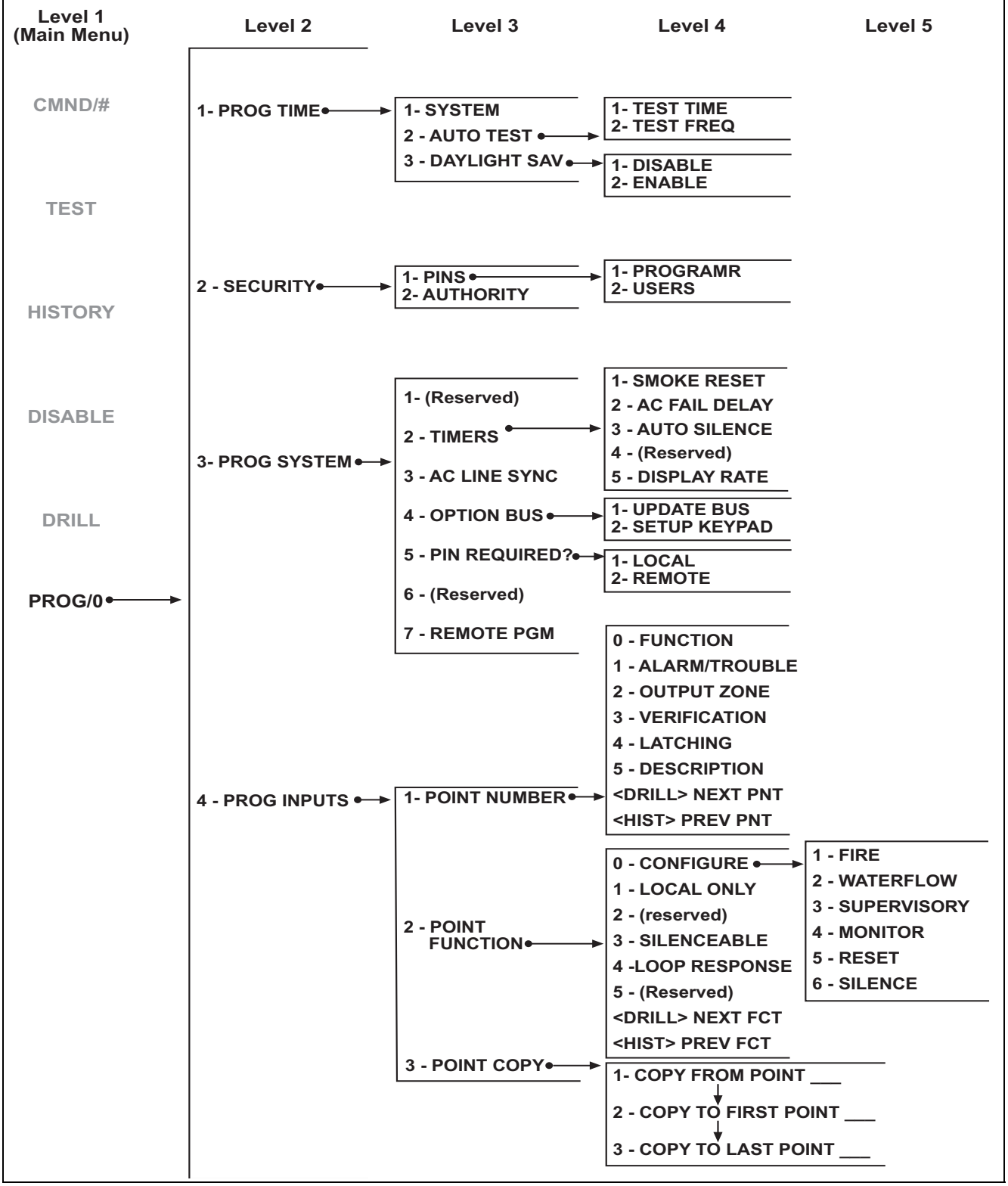
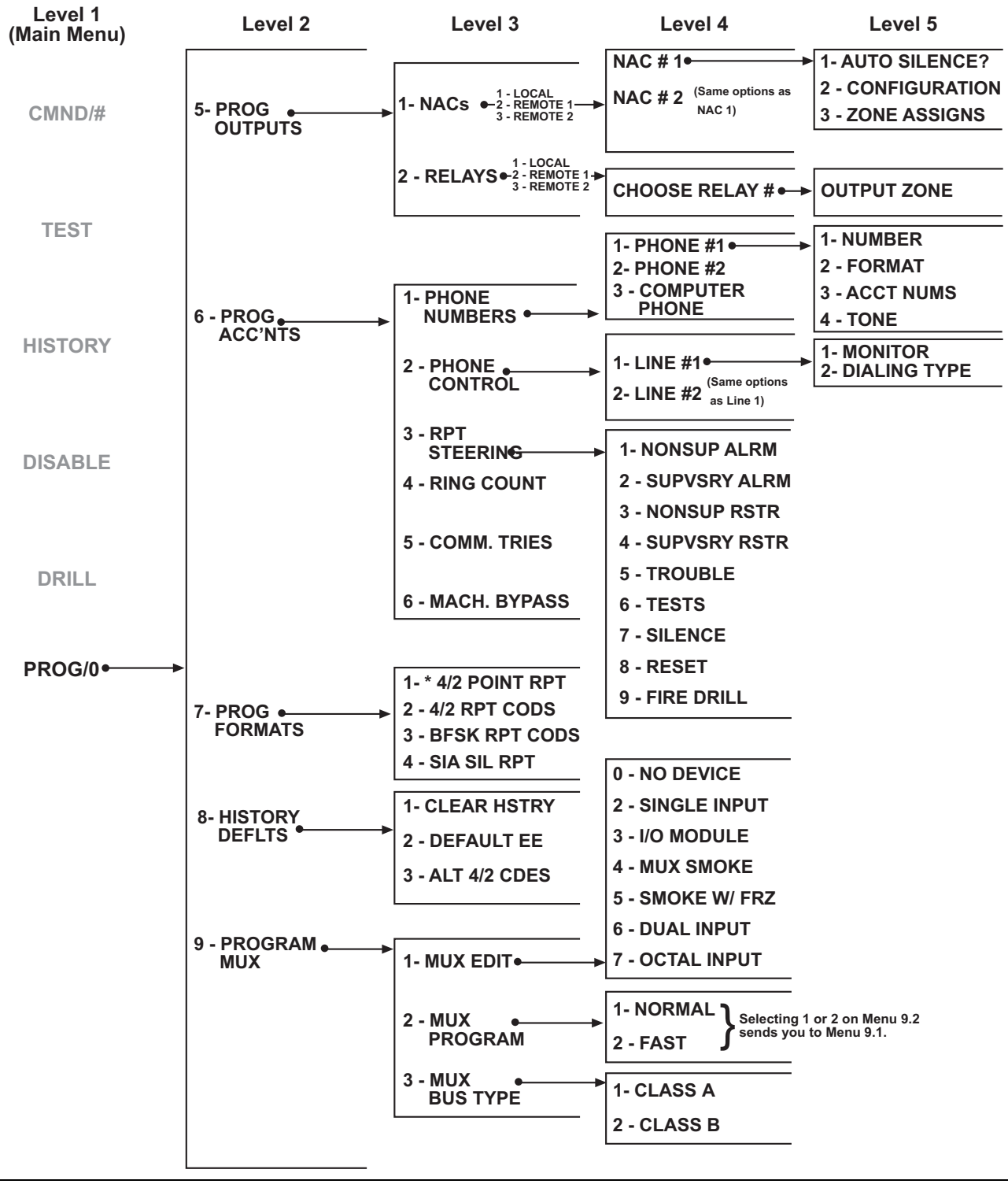


Figure 18: Programming Menu Tree



Local NAC 3 and NAC 4 are reserved for future use.

6.5 Understanding Shortcuts

Use the shortcuts in this section to reduce repetition and provide speedy instructions to control panel programming.

Main Menu is the first level in the system. For all system programming, <PROG/0> is be your Main Menu option. The first number in the shortcut is "0."

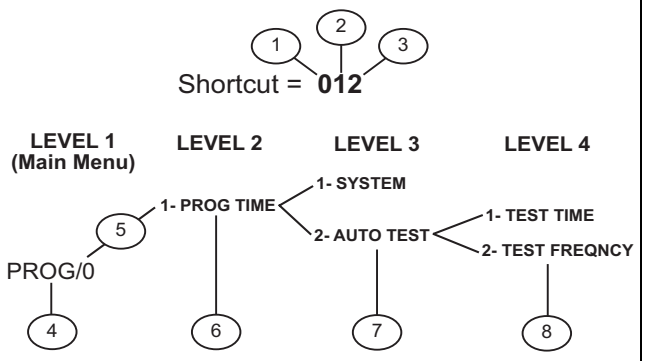
The second level in your system provides eight options:

- 1- PROG TIME
- 2- SECURITY
- 3- ROG SYSTEM
- 4 -PROG INPUTS,
- 5- PROG OUTPUTS,
- 6- PROG ACCOUNTS
- 7- PROG FORMATS
- 8- HISTORY DEFAULTS

The second number in the shortcut enters the Level 2 option and brings you to Level 3. When the D7039 MUX Expander is installed, a ninth option, PROGRAM MUX, appears. Level 3 provides the third set of options that branch from Level 2 (*Figure 19*). The third number in the shortcut represents the option selected in Level 3.

The example in *Figure 19* shows the shortcut to TEST FREQ and TEST TIME. The Programming Menu Tree (*Figure 18* and *Figure 19*) shows that you access TEST TIME and TEST FREQ by selecting the following options sequentially from Level 1 to Level 3: PROG/0 > PROG TIME > AUTO TEST. The shortcut is a list of the buttons you press to access the fourth level option you want. When you enter the shortcut, follow the procedure for the specific function you are programming.

Figure 19: Programming Shortcut



1 – Press [0] to select PROG at the Main Menu scrolling at the SYSTEM NORMAL display.[1]
2 – Press [1] to select PROG TIME at Sub-Level 2.
3 – Press [2] to select AUTO TEST at Sub-Level 3.[2]
4 – First number in the shortcut
5 – Password
6 – Second number in the shortcut
7 – Third number in the shortcut
8 – Fourth number in the shortcut

[1] Refer to *Section 5.2 Using the System* on page 22.Enter PIN if prompted.

[2] Follow the procedure. This example is for TEST TIME and TEST FREQNCY. Refer to *Section 7.1.2 Automatic Test* on page 36.

6.6 Remote Programming

The system remains operational during remote programming allowing new alarms to terminate the remote programming session and report normally. Using the keypads to perform other functions during remote programming, such as tests and disables, can cause remote programming to disconnect or other unexpected operations. Do not download programming changes that can cause alarms. The session disconnects when the alarm occurs, before the session completes. To indicate the system is in a special operating mode with user input inhibited, but alarm monitoring continuing SYSTEM TROUBLE, RMT PRG ACTIVE appears during remote programming. Sounders do not activate during this mode, but other outputs programmed for Zone 62, general system trouble, activate.

Trouble conditions occurring during a remote programming session do not annunciate at the control panel until the session ends. These conditions are available in the remote programmer diagnostic displays during the session. Alarm conditions terminate remote programming and appear immediately.

When remote programming is disables, it can still connect to the control panel for diagnostics and view the current programming, with the exception of PINs). To change programming, you must enable remote programming. Use the following programming items to enable remote programming:

- 0-3-7 Remote Programming refer to *Section 7.3.5 Remote Programming* on page 40).
- 0-6-1 Computer Phone (refer to *Section 7.6.1 Phone Numbers* on page 48).
- 0-6-1 Account Number 1 (refer to *Section 7.6.2 Phone Control* on page 50, Account Numbers).
- 0-6-2 Dialing Type (refer to *Section 7.6.2 Phone Control* on page 50, Dialing Type).
- 0-6-4 Ring Count (refer to *Section 7.6.4 Ring Count* on page 51).
- 0-6-6 Machine Bypass (refer to *Section 7.6.6 Machine Bypass* on page 52).

You need an access code with maximum authority (1) to initiate remote programming from the control panel.

7.0 Control Panel Programming

Main Menu:

```
SYSTEM NORMAL
SELECT:PROG/0
SELECT:CMD/#
SELECT:TEST
SELECT:HISTORY
SELECT:DISABLE
SELECT:DRILL
```

Programming Menu:

```
PROG/0
  1- PROG TIME
  2- SECURITY
  3- PROG SYSTEM
  4- PROG INPUTS
  5- PROG OUTPUTS
  6- PROG ACC'NTS
  7- PROG FORMATS
  8- HISTORY DEFLTS
  9- PROGRAM MUX
```

7.1 PROG Time

```
PROG TIME
  1- SYSTEM
  2- AUTO TEST
  3- DAYLIGHT SAV
```

7.1.1 Program Time

Shortcut:

0-PROG > **1**-PROG TIME > **1**-SYSTEM

The following window appears:

```
ENTER DATE
MMDDYY: ________
```

1. Enter the date and press [#] to access:

```
ENTER TIME
HHMM: _________
```

2. Enter the time and press [#].

7.1.2 Automatic Test

Test Time

Shortcut:

0-PROG > **1**-PROG TIME > **2**-AUTO TEST

This test allows you to program the time of day the Automatic Test occurs using a 24-h clock. For example, 11:00 p.m. = 2300. The following window appears:

```
AUTOMATIC TEST
  1- TEST TIME
  2- TEST FREQNCY
```

1. Press [1] to select Test Time. The following window appears:

```
AUTO TEST TIME
HHMM: _________
```

2. Enter the time followed and press [#].

Test Frequency

Shortcut:

0-PROG > **1**-PROG TIME > **2**-AUTO TEST

This feature allows you to program how often the Automatic Test Reports are sent. The first test is sent when the programmed test time matches the system time. Subsequent reports are sent according to the selected interval. The following window appears:

```
AUTOMATIC TEST
  1- TEST TIME
  2- TEST FREQNCY
```

1. Press [2] to select **TEST FREQNCY** and access:

```
AUTO FRQNCY (__)
  1- 6 HOURS
  2- 12 HOURS
  3- 24 HOURS
  4- 7 DAYS
  5- 28 DAYS
```

2. Press the number key corresponding to your selection.

   The current setting appears in parentheses on the first line.

3. After you program the test frequency, the preceding window appears.

7.1.3 Daylight Savings

Shortcut:

0-PROG > **1**-PROG TIME > **3**-DAYLIGHT SAV

This feature enables automatic adjustment of system time for Daylight Savings. The dates for the adjustment are pre-programmed in the system. The following window appears:

```
DAYLIGHT SAV
1- DISABLE
2- ENABLE
```

1. Press [1] to DISABLE or [2] to ENABLE.
2. After programming, the preceding window appears.

7.2 Security

```
SECURITY
1- PINS
2- AUTHORITY
```

7.2.1 PINs

Programmer PIN

Shortcut:

0-PROG > **2**-SECURITY > **1**-PINS

The Programmer PIN is the code the installer uses to configure and operate the control panel. The factory default code is 9876 and can be changed at any time. The following window appears:

```
PROGRAM PINS
1- PROGRAMR PIN
2- USER PINS
```

1. Press [1] for PROGRAMR PIN and access:

```
USER 0
ENTER PIN: _____
```

2. Enter the PIN and press [#].
3. After programming the programmer PIN, the preceding window appears.

Program User PINs

Shortcut:

0-PROG > **2**-SECURITY > **1**-PINS

Up to 15 additional user codes, or up to 99 additional users when the D7039 is installed, can be programmed for the unit to protect the system from unauthorized operation. Also, a record of individual system user actions is kept. The following window appears:

```
PROGRAM PINS
1- PROGRAMR PIN
2- USER PINS
```

1. Press [2] for USER PINS and access:

```
OTHER PINS
USER (01-15)
```

2. Enter the user for whom you want to program a PIN and press [#]. For example, for User 5, press [5]. The following window appears:

```
USER 5
ENTER PIN: _____
```

3. Enter the PIN and press [#].
4. After programming the User PIN, the preceding window appears.

7.2.2 Authority

Shortcut:

0-PROG > **2**-SECURITY > **2**-AUTHORITY

This feature determines which system actions a user can perform. Refer to *Table 19* for PIN authority levels.

Table 19: PIN Authority Levels

PIN Authority Level	**Allowed Operations**
Maximum (1)	All control panel operations, including programming.
Medium (2)	System test modes, fire drill, reset, disable, silence, view history.
Minimum (3)	Silence, view history.
None (0)	None.

The following window appears:

```
AUTHORITY
USER (01-15)
```

1. Enter the user for whom you want to program authority and press [#]. The following window appears and scrolls its options:

```
USER 1 ATHRY ( )
    0- NONE
    1- MAXIMUM
    2- MEDIUM
    3- MINIMUM
```

2. Press the number key corresponding to your selection. The current setting appears in parentheses on the first line.
3. After programming, the preceding window appears.

7.3 PROG System

```
PROG SYSTEM
1- (reserved)
2- TIMERS
3- AC LINE SYNC
4- OPTION BUS
5- PIN REQUIRED?
6- (reserved)
7- REMOTE  PGM
```

7.3.1 Program Timers

Shortcut:

0-PROG > **3**-PROG SYSTEM > **2**-TIMERS

The following window appears:

```
TIMERS
    1- SMOKE RESET
    2- AC FAIL DLY
    3- AUTO SILENCE
    4- (reserved)
    5- DISPLAY RATE
```

Smoke Reset

Shortcut:

0-PROG > **3**-PROG SYSTEM > **2**-TIMERS

This feature designates the length of time the smoke detector power is turned off after reset. The system does not register alarms for 5 sec after power on.

The display scrolls through the TIMERS options.

1. Press [1] for SMOKE RESET to access:

```
SMOKE RESET (_ _)
(1-16 SEDS): _ _
```

2. Enter the value and press [#]. The current setting appears in parentheses on the first line.
3. After programming, the preceding window appears.

AC Fail Delay

Shortcut:

0-PROG > **3**-PROG SYSTEM > **2**-TIMERS

This feature sets the number of hours the control panel waits after an AC failure and before sending an AC Failure Report. A setting of "DC" causes the system to send a report when 25% of the battery capacity is used.

The display scrolls through the TIMERS options.

1. Press [2] for AC FAIL DELAY to access:

```
AC FAIL DELAY
    1- WAIT FOR DC
    2- ENTER TIME
```

2. The wait for DC function causes the AC Fail Report to be sent when the battery is 25% depleted, based on the measured voltage of the battery. If you want to WAIT FOR DC (25 percent of capacity), press [1].
   The current setting appears in parentheses on the first line, either "DC", or the number of hours selected.
3. After programming the AC Fail Delay, the preceding screen appears. If you want to ENTER TIME, press [2] to access:

```
AC FAIL DLY (_ _ _)
(01-24 HRS):_ _ _ _
```

4. Enter the time and press [#].
   The current setting appears in parentheses on the first line.
5. After programming the AC Fail Delay, the preceding window appears.
   When WAIT FOR DC is the current selection, the Enter Time Menu shows DC as the time in hours.

Auto Silence

Shortcut:

0-PROG > **3**-PROG SYSTEM > **2**-TIMERS

This feature silences an alarm on selected NACs after a specified amount of time. When you use Auto Silence, pressing [0] disables the feature.

The only way to turn off an alarm is to manually silence it. Entering a time between 5 and 99 min sounds the alarm for that amount of time before automatically silencing.

If the condition is not corrected after an alarm is automatically or manually silenced, the alarm sounds again after 24 h.

Reset the system after silencing it to allow the alarmed zones to restore and detect new alarms.

The display scrolls through the TIMERS options.

1. Press [3] for AUTO SILENCE and to access:

```
AUTO SILENCE (_ _)
(0,5-99 min):_ _ _
```

2. Enter the desired length of time, or press [0] to disable, and press [#].
   The current setting appears in parentheses on the first line.
3. After programming the auto silence, the preceding window appears.

Display Rate

Shortcut:

0-PROG > **3**-PROG SYSTEM > **2**-TIMERS

This feature allows you to set the speed at which menus are appear on the LCD. The speed times are measure in units of 0.25 sec. The display scrolls through the TIMERS options.

1. Press [5] for DISPLAY RATE and access the following window:

```
DSPLY RATE (_ _)
.25 X (1-16):_ _ _
```

2. Enter the desired value and press [#].
   The current setting appears in parentheses on the first line.
3. After programming the display rate, the preceding window appears.

7.3.2 AC Line Synch

Shortcut:

0-PROG > **3**-PROG SYSTEM > **3**-AC LINE SYNC

When AC power is available, the control panel uses the line frequency to stabilize the real-time clock. This setting must match the frequency of the local AC power (60 Hz in the United States). The following window appears:

```
AC LINE SYN (_ _)
      1- 50 Hz
      2- 60 HZ
```

1. Press the number key corresponding to your selection and then press [#].
   The current setting appears in parentheses on the first line.
2. After programming AC Line Synch, the preceding window appears.

7.3.3 Option Bus

Update Bus

Shortcut:

0-PROG > **3**-PROG SYSTEM > **4**-OPTION BUS

When devices are added or removed from the option buses, this feature queries both option buses and updates the list of connected devices. This enables the new devices and removes supervision for devices that are no longer present.

Ensure the number of devices shown when this operation completes matches the number of devices installed on both buses. Devices not detected during the update bus operation do not operate and are not supervised.

These menu items are only allowed at the local keypad.

The following window appears:

```
OPTION BUS (M/M)
      1- UDPATE BUS
      2- SETUP KEYPDS
```

1. Press [1] to program system to update bus.
2. After programming Update Bus, the following window appears:

```
UPDATE COMPLETE
TOT BUS DEVS:X
```

Then the preceding window appears.

Setup Keypad

Shortcut:

0-PROG > **3**-PROG SYSTEM > **4**-OPTION BUS

This feature tells the system how many keypads should be supervised. It automatically performs an update bus operation when it completes.

```
OPTION BUS
      1- UDPATE BUS
      2- SETUP KEYPDS
```

1. Press [2] to set up keypads and access:

```
# OF KEYPADS (_ _)
(0-4):_ _ _ _
```

2. Enter the desired value and press [#].
   The current setting appears in parentheses on the first line.
3. After setting the keypads, the Update Bus operation proceeds and the preceding window appears.

7.3.4 PIN REQUIRED

Local

Shortcut:

0-PROG > **3**-PROG SYSTEM > **5**-PIN REQUIRED?

A PIN can be required before operations are performed using the local, built-in keypad. The following window appears:

```
PIN REQUIRED?
      1- LOCAL
      2- REMOTE
```

1. Press [1] to require a PIN at the local keypad and access:

```
REMOTE KEYPD PIN?
_ _ _ _:YES(1)NO(2)
```

2. Press the number key corresponding to your selection.
   The current setting appears in front of the colon on the second line.
3. After making your selection, the preceding window appears.

Remote PIN

Shortcut:

0-PROG > **3**-PROG SYSTEM > **5**-PIN REQUIRED?

The following window appears:

```
PIN REQUIRED?
      1- LOCAL
      2- REMOTE
```

1. Press [2] to select remote PIN and access:

```
REMOTE KEYPD PIN?
_ _ _ _:YES(1)NO(2)
```

2. Press the number key corresponding to your selection and then press [#].
   The current setting appears in front of the colon on the second line.
3. Select the PIN to access the preceding window.

A PIN can be required before operations are performed using the remote keypads on the option bus. If the remote keypads are not secured, set this option to **YES** to comply with NFPA and UL requirements.

7.3.5 Remote Programming

Shortcut:

0-PROG > **3**-PROG SYSTEM > **7**-REMOTE PGM

Remote programming allows you call the control panel from a remote site by telephone to reconfigure any of the programmable options. When remote programming is disabled, you can still connect to the control panel for diagnostics and to view the current program, except for PINs that are suppressed while remote programming is disabled.

```
REMOTE PGM
    0- DISABLE
    1- ENABLE
```

Press [0] to select DISABLE or [1] to select ENABLE and access the preceding window.

After any programming change, and especially after remote program changes, a complete functional checkout of the control unit's operation is required. Hazards to life and property can occur if the system is not tested to detect possible improper programming.

7.4 PROG Inputs

```
PROG INPUTS
    1- POINT NUMBER
    2- POINT FUNCT
    3- POINT COPY
```

Firmware version 2.0 introduces the concept of point functions. Point functions allow quick programming of similarly functioning points, such as pull stations and smoke detectors with common settings. Refer to Refer to *Section 6.1.1 Point Functions Overview* on page 30 for more information.

7.4.1 Point Number

Shortcut:

0-PROG > **4**-PROG INPUTS > **1**-POINT NUMBER

```
POINT NUMBER
(1-255):_ _
```

1. Enter the point number you want to program and press [#].
   After entering the point number, the display scrolls through the following PROG INPUT options:

```
PROG POINT
    0- FUNCTION
    1- ALARM/TROUBL
    2- OUTPUT ZONE
    3- VERIFICATION
    4- LATCHING
    5- DESCRIPTION
<DRILL>NEXTPNT
<HIST>PREV PNT
```

2. Press the number key corresponding to your selection.
3. Press [DRILL] to access the next point. For example, if you program Point 2 and press [DRILL] you access the setting for Point 3.
4. Press [HISTORY] to return to the preceding point. For example, if you program Point 2 and press [HISTORY] you access the setting for Point 1.

Assigning Point Functions

Shortcut:

0-PROG > **4**-PROG INPUTS > **1**-POINT NUMBER

A point function is a set of characteristics you can assign to selected points. This feature assigns each point to one point function from 16 point functions. Refer to *Section 6.1 Point Programming* on page 30 for additional information.

See the loop response (refer to *Section 7.4.2 Point Function* on page 43 for the limitations when assigning points to point functions programmed with a response time other than Fast.

1. Enter the point number you want to program and press [#].
   The display scrolls through the PROG INPUT options.
2. Press [0] to select FUNCTION and access:

```
POINT FUNC.(_ _ _)
(01-16):_ _ _
```

3. Enter the function number you want to assign to the point and press [#].
   The current setting appears in parentheses on the first line.
4. After assigning a point function, the preceding window appears.

Alarm and Trouble Status

Shortcut:

0-PROG > **4**-PROG INPUTS > **1**-POINT NUMBER

This feature allows you to program the system response to an open loop condition. A shorted loop always causes an alarm condition. An alarm occurs when a point goes into an open circuit state, alarming the system. A Trouble occurs when a point goes into an open circuit state, causing the system to respond with a trouble condition.

1. Enter the point number you want to program and press [#].
   The display scrolls through the PROG INPUT options.
2. Press [1] to select ALARM/TROUBLE and access:

```
OPEN STATUS (_ _)
      1- ALARM
      2- TROUBLE
```

3. Press [1] to select ALARM on open loop and ALARM on shorted loop.
4. Press [2] to select TROUBLE on open loop and ALARM on shorted loop.
   The preceding window appears. The current setting appears in parentheses on the first line.

Output Zones

Shortcut:

0-PROG > **4**-PROG INPUTS > **1**-POINT NUMBER

Enter the point number you want to program and press [#].

1. The display scrolls through the PROG INPUT options.
2. Press [2] to select OUTPUT ZONE and access:

```
OUTPUT ZONE ZZZ
(00-50):_ _ _
```

3. Press the number key corresponding to your selection. ZZZ indicates the point being programmed with the current setting appears on the second line.
4. After setting the output zone, the preceding window appears.

Verification

Shortcut:

0-PROG > **4**-PROG INPUTS > **1**-POINT NUMBER

This feature resets the detector once to verify the alarm recurs before annunciating or sending a signal. The total delay introduced by this feature is equal to the smoke power reset time plus 5 sec.

You cannot select alarm verification for points configured as WATERFLOW or SUPERVISORY types.

1. Enter the point number you want to verify and press [#].
2. As the display scrolls through the PROG INPUT options, press [3] to select VERIFICATION and access:

```
ALARM VERIF (ZZZ)
_ _ _:YES(1)NO(0)
```

   ZZZ indicates the point being programmed with the current setting appears on the second line.
3. Press [1] to verify or [0] to not verify. The preceding window appears.

Latching

Shortcut:

0-PROG > **4**-PROG INPUTS > **1**-POINT NUMBER

If a zone is non-latching, the system automatically resets the alarm status (and not smoke power) when the input restores to the standby condition. Otherwise, manually reset the system.

1. Enter the point number you want to program and press [#].
   The display scrolls through the PROG INPUT options.
2. Press [4] to select LATCHING and access:

```
LATCHING?ZZZ
_ _ _:YES(1)NO(0)
```

   ZZZ indicates the point being programmed with the current setting appears on the second line.
3. Press the number key corresponding to your selection and to access the preceding window appears.

Point Description

Shortcut:

0-PROG > **4**-PROG INPUTS > **1**-POINT NUMBER

For this feature, the numeric keys are used to enter alphanumeric information to identify each input (initiating circuit). The system allows one 16-character description for each input.

1. Enter the point number you want to program and press [#].
   The display scrolls through the PROG INPUT options.
2. Press [5] to select DESCRIPTION and access:

```
PNT DSCRPTN ZZZ:
________________
```

3. Enter the description using the numeric, [SILENCE], and [HISTORY] keys.
4. Press [#] to save the description.

7.4.2 Point Function

Shortcut:

0-PROG > **4**-PROG INPUTS > **2**-POINT FUNCTION

There are 16 point functions, each with programmable features for configuration (such as fire, waterflow, and so on), local only operation, silencing, and loop response. The following window appears:

```
POINT FUNC.(_ _ _)
(01-16):_ _ _
```

1. Enter the function number you want to program and press [#] to access:

```
PROG FUNCT
        0- CONFIGURE
        1- LOCAL ONLY
        2- (reserved)
        3- SILENCABLE
        4- LOOP RESPONS
        5- (reserved)
<DRILL>NEXTPNT
<HIST>PREV PNT
```

2. Enter the function you want to program.

Configure

Shortcut:

0-PROG > **4**-PROG INPUTS > **2**-POINT FUNCTION

Table 20: Configure Options

Option	When activated:
Fire	Point shows FIRE ALARM on the control panel and keypads, a Fire Alarm Report, if programmed. Fire points are forced to a latching characteristic when first configured.
Waterflow	Point shows WATERFLOW ALARM on the control panel and keypads, activates selected output devices, and sends a Waterflow Alarm Report, if programmed. Waterflow points are forced to a non-verify characteristic when first configured.
Supervisory	Point shows SUPERVISORY ALARM on the control panel and keypads and sends a Supervisory Alarm Report, if programmed. Supervisory points are forced to a non-verify characteristic when first configured.
Monitor	Point shows MONITOR ALARM on the control panel and keypads, activates selected output devices, and sends a Fire Alarm Report, if programmed. When using the SIA format for communication to the central station, a UA Alarm is sent instead of an FA Alarm.
Reset	Point initiates a panel-reset operation to clear alarms and reset smoke detectors. Only Points 1 to 8 can be configured as reset points.
Silence	Point initiates a control panel silence operation to turn off sounders if the control panel is configured to allow silencing. Only Points 1 to 8 can be configured as silence points.

1. Enter the point number you want to program and press [#].
   The display scrolls through the PROG FUNCTION options.
2. Press [0] to select CONFIGURE and access:

```
ACTVTN TYPE (_ _)
        1- FIRE
        2- WATERFLOW
        3- SUPERVISORY
        4- MONITOR
        5- RESET
        6- SILENCE
```

3. Press the number key corresponding to your selection.
   The current setting appears in parentheses on the first line. Then the preceding window appears.

Local Only

Shortcut:

0-PROG > **4**-PROG INPUTS > **2**-POINT FUNCTION

Enabling this feature means the input point gives local annunciation only, with no Communicator Report.

1. Enter the point number you want to program and press [#].
   The display scrolls through the PROG FUNCTION options.
2. Press [1] to select LOCAL ONLY and access:

```
LOCAL ONLY
_ _ _:YES(1)NO(0)
```

3. Press [1] to enable or [0] to disable.
   The preceding window appears.

Silencing

Shortcut: **0**-PROG > **4**-PROG INPUTS > **2**-POINT FUNCTION

1. Enter the point number you want to program and press [#].
   The display scrolls through the PROG FUNCTION options.
2. Press [2] to select SILENCEABLE and access:

```
SILENCABLE? (FF)
_ _ _:YES(1)NO(0)
```

3. Press [1] to enable or [0] to disable.
   The preceding window appears.

FF indicates the function that is being programmed.

Loop Response

Shortcut:

0-PROG > **4**-PROG INPUTS > **2**-POINT FUNCTION

This feature allows you to configure points to activate with standard response time (Setting 1) or with one system-wide programmed response time (Setting 2).

1. Enter the point number you want to program and press [#].
   The display scrolls through the PROG FUNCTION options.
2. Press [4] to select LOOP RESPONSE and access:

```
RESPNS TIME (_ _ _)
      1- FAST (.5 sec)
      2- PRGRMMD
```

3. Press the number key corresponding to your selection.
   The current setting appears in parentheses on the first line. Then the preceding window appears.

When you select a programmed response time, the system prompts you to enter a time from 1 to 89 sec. This time is applied to all functions that share a single programmable response time setting. If the response time is set for multiple functions, the last time set is used.

When set for fast response operation, multiplex points have a response time of approximately 1 sec. The multiplex point response time is the maximum time an input must be held to guarantee an alarm. Response time increases as points on the bus are off-normal (in alarm or with a loop or detector trouble) to a maximum of 20 sec where all points on the bus are in trouble and one point is in alarm. On a fully loaded system with only a few points in alarm or trouble, fast response time remain at approximately 1 sec. For programmed response, the response time tolerance is ± 3 sec when only a few points are off-normal, and increases up to 20 sec when all points are off-normal.

The onboard point response time tolerance is ± 1 sec for programmed response time, and +0.5 to 0.25 sec for fast response time.

A limit of 20 points can be assigned to point functions programmed with a response time other than Fast. If more than 20 points are assigned to functions programmed with a response time other than Fast, the error message `MAX PROGRAMD POINTS EXCEEDED` appears. Changing a point function from Fast to Programmed can cause this error, depending on how many points reference the point function.

<DRILL> NEXT FCT: Press [DRILL] to move to the next function. For example, programming Point Function 2 and pressing [DRILL] accesses the Point Function 3 setting.

<HIST> PREV FCT: Press [HISTORY] to return to the preceding function. For example, programming Point Function 2 and pressing [HISTORY] accesses the Point Function 1 setting.

7.4.3 Point Copy

Shortcut:

0-PROG > **4**-PROG INPUTS > **3**-POINT COPY

This feature copies the settings you entered for one point to one or more other points.

The following window appears:

```
COPY FROM
POINT:_ _ _
```

1. Enter the point you want to copy from and press [#].

```
COPY TO FIRST
POINT:_ _ _
```

2. Enter the first point you want to copy to and press [#].

```
COPY TO LAST
POINT:_ _ _
```

3. Enter the last point you want to copy to and press [#].
   The PROG INPUTS Menu appears.

This feature does not copy the description. Point copy is only intended for use on input points. Do not copy from an output point (future use) or copy over a programmed output point. The copy operation automatically stops, with an error message, if outputs are encountered. While copying to a large number of points, the remote keypads might briefly display SYSTEM FAULT because they are not updated during the copy operation.

7.5 PROG Outputs

```
PROG OUTPUTS
    1- NACs
    2- RELAYS
```

7.5.1 Programming NACs

Shortcut:

0-PROG > **5**-PROG OUTPUTS > **1**-NACs

The main panel includes two local NACs, NAC 1 and NAC 2. The D7024 can also support up to two D7038 Remote NAC Power Supplies offering a total of eight remote NACs, for NACs for each RNAC.

The following window appears:

```
NAC OUTPUTS
1- LOCAL
2- REMOTE 1
3- REMOTE 2
```

Press the number key corresponding to your selection.

Local NACs

Shortcut:

0-PROG > **5**-PROG OUTPUTS > **1**-NACs

The display scrolls through the NAC options.

1. Press [1] for LOCAL to access:

```
ONBOARD NAC
1- NAC #1
2- NAC #2
3- NAC #3
4- NAC #4
```

Onboard NAC 3, NAC 4 are not currently supported.

2. Press the number key corresponding to your selection.
   The display scrolls through the following:

```
PROG NAC
    4- (reserved)
    5- CONFIGURATION
    6- ZONE ASSIGNS
```

3. Press the number key corresponding to your selection.
   When [2] is selected from the PROG NACs Menu, the following selections scroll:

```
NAC CONFIG ()
1- STEADY
2- PULSING
3- TEMPORAL
4- WHEELOCK
5- GENTEX
```

This option allows you to choose the control pattern for the selected NAC (*Table 21*).

Table 21: NAC Patterns

NAC	Pattern
Steady	Output turns on and stays on while the NAC is active.
Pulsing	Output turns on and off each second.
Temporal	Output turns on and off to implement the ANSI standard evacuation pattern (Code 3).
Wheelock	Output is configured to support Wheelock devices with sync capability, including the ability to silence a horn and strobe combination horn. The Wheelock configuration is not supported by remote NACs implemented using a D7038 Remote NAC Power Supply.
Gentex	Output is configured to support Gentex devices with sync capability, including the ability to silence a horn and strobe combination horn. The Gentex configuration is not supported by remote NACs implemented using a D7038 Remote NAC Power Supply.

4. After programming the desired pattern configuration, the preceding window appears.
   Selecting **3** from the PROG NACs Menu prompts you to enter four zones to activate this output.

```
OUTPUT ZONE A (XX)
(00-63):
```

5. Enter the desired zone to activate this output and press [#].
   You are prompted to enter up to four zones (A, B, C, or D).
6. Enter "00" or leave it set at "00" for any unused zones to prevent unintentional output activation.
   When all four zones are programmed, the preceding window appears.

Table 22: Pre-Assigned Zone Quick Reference

Zone	Pre-Assigned Condition
52	General Fire Alarm (non-silencing)
53	General Fire Alarm (silencing)
54	Ground Start
57	Communication Trouble
58	General Supervisory Alarm (non-silencing)
59	Alarm Verification
60	AC Failed
61	General Waterflow Alarm (non-silencing)
62	General Trouble
63	General Fire Alarm, Monitor, Waterflow supervisory (non-silencing)

"XX" indicates the current setting for each of the four output zone settings.

Remote NACs

Shortcut:

0-PROG > ***5***-PROG OUTPUTS > **1**-NACs

Only use this option with the D7038. The display scrolls through the NAC options.

1. Press [2] for REMOTE 1 or [3] for REMOTE 2.
   One of the following windows appears:

```
REM EXP NAC#1)
1- NAC #1
2- NAC #2
3- NAC #3
4- NAC #4
```

   or

```
REM EXP NAC#2)
1- NAC #1
2- NAC #2
3- NAC #3
4- NAC #4
```

2. Press the number key corresponding to the NAC you want to program.
   The display scrolls through the following selections:

```
PROG NAC
        4- (reserved)
        5- CONFIGURATION
        6- ZONE ASSIGNS
```

   The options for remote NACs are the same as for local NACs, except the Wheelock and Gentex configuration are not supported on remote NACs.

Table 23: Remote NAC Configuration	
Configuration	**Description**
Steady	Output is programmed to turn on steady for a fire alarm.
Pulsing	Output is programmed to pulse for a fire alarm in the normal manner.
Temporal	Output is programmed to pulse for a fire alarm in Temporal 3.
Zone Assignment	Each output can be assigned up to four zones; Zone A, B, C, or D. 00 = disabled, 1 to 63.

3. Press the number key corresponding to your selection.
4. After programming the local NACs, the preceding window appears.

7.5.2 Programming Relays

Shortcut:

0-PROG > **5**-PROG OUTPUTS > **2**-RELAYS

The main panel includes two onboard relays, Relay 1 and Relay 2. The D7024 can also support up to two D7035 Octal Relay Modules (Remote Relay 1 and Remote Relay 2), offering a total of 16 remote relays (eight relays for each module).

The following window appears:

```
RELAY OUTPUTS
    1- LOCAL
    2- REMOTE 1
    3- REMOTE 2
    4- MULTIPLEX
```

Press the number key corresponding to your selection.

The Multiplex Relay Programming option is only visible if the D7039 Multiplex Expander is installed, and is reserved for future use.

Local Relays

Shortcut:

0-PROG > **5**-PROG OUTPUTS > **2**-RELAYS

The display scrolls through the Relay options.

1. Press [1] for LOCAL to access:

```
ONBOARD RELAY
(1-2):
```

2. Enter the number corresponding with the relay you want programmed and press [#].
   The display prompts you to enter four zones to activate this output:

```
OUTPUT ZONE A (XX)
(00-63):
```

3. Enter the first zone (00 to 63) you want to map to drive this output and press [#].
   A similar display for Zone B, C, and D appears, allowing up to four zones to drive this output.
4. When all four zones are assigned, the preceding window appears.

Table 24: Pre-Assigned Zone Quick Reference	
Zone	**Pre-Assigned Condition**
52	General Fire Alarm (non-silencing)
53	General Fire Alarm (silencing)
54	Ground Start
57	Communication Trouble
58	General Supervisory Alarm (non-silencing)
59	Alarm Verification
60	AC Failed
61	General Waterflow Alarm (non-silencing)
62	General Trouble
63	General Fire Alarm, Monitor, Waterflow supervisory (non-silencing)

An output point cannot be assigned to more than four zones. It is not necessary to map each output to four zones. Each zone can have several outputs mapped to it.

Remote Relays

Shortcut:

0-PROG > **5**-PROG OUTPUTS > **2**-RELAYS

The display scrolls through the relay options.

1. Press [2] for REMOTE 1 or [3] for REMOTE 2 to access:

```
REMOTE RELAY @ X
(1-8):
```

The @_ shows the relay module address in the system. The lower number address is Relay 1, the higher address is Relay 2.

2. Enter the relay you want to assign and press [#].
   The display reads:

```
OUTPUT ZONE A (XX)
(00-63):
```

3. Enter the output number, 00 to 63, you want to map to Zone A and press [#].
   A similar display for Zone B appears.
4. When all four zones are assigned, the preceding window appears.

Table 25: Pre-Assigned Zone Quick Reference

Zone	Pre-Assigned Condition
52	General Fire Alarm (non-silencing)
53	General Fire Alarm (silencing)
54	Ground Start
57	Communication Trouble
58	General Supervisory Alarm (non-silencing)
59	Alarm Verification
60	AC Failed
61	General Waterflow Alarm (non-silencing)
62	General Trouble
63	General Fire Alarm, Monitor, Waterflow supervisory (non-silencing)

An output point cannot be assigned to more than four zones. It is not necessary to map each output to four zones. Each zone can have several outputs mapped to it.

Multiplex Relays

Shortcut:

0-PROG > **5**-PROG OUTPUTS > **2**-RELAYS

Do not use this menu to program addresses configured as inputs.

The display scrolls through the relay options.

1. Press [4] for MULTIPLEX and access:

```
MUX OUTPUT
(009-255):
```

2. Enter the number corresponding with the output you want programmed and press [#].
   To determine the output number of a multiplex relay, note that multiplex relays are the second point of an I/O module. Adding 1 to the address of the I/O module gives the relay module address. When the relay is selected, the display prompts you to enter four zones to activate this output.

```
OUTPUT ZONE A (XX)
(00-63):
```

3. Enter the first zone, 00 to 63, you want to map to drive this output and press [#].
   A similar display for Zone B, C, and D appears allowing up to four zones to drive this input. When all four zones are assigned, the preceding window appears.

An output point cannot be assigned to more than four zones. It is not necessary to map each output to four zones. Each zone can have several outputs mapped to it.

7.6 PROG Accounts

```
PROG ACC'NTS
    1- PHONE NUMS
    2- PHON CONTROL
    3- RPT STEERING
    4- RING COUNT
    5- COMM. TRIES
    6- MACH. BYPASS
```

7.6.1 Phone Numbers

Shortcut:

0-PROG > **6**-PROG ACC'NTS > **1**-PHONE NUMS

The system can be programmed with two reporting telephone numbers. Phone #1 is used with Account Number 1 and Phone #2 is used with Account Number 2. Remote programming occurs on Phone Line 1 using Phone #3.

PHONE #1: Phone Number 1

PHONE #2: Phone Number 2

COMPTR PHONE: Sets the number to call for remote programming.

The following window appears:

1. Press the number key corresponding to the

```
PHONE NUMBER
    1- PHONE #1
    2- PHONE #2
    3- COMPTR PHONE
```

   telephone number you want to configure, such as Phone #1. The following window appears:

```
PHONE NUMBER #1
    1- NUMBER
    2- FORMAT
    3- ACCT NUMS
    4- TONE
```

2. Press the number key corresponding to your selection.

   Refer to the following sub-sections (Number, Format, Account Numbers, and Tone) for telephone number option descriptions.

Number

The display scrolls through the Phone Number options.

1. Press [1] for NUMBER and to access:

```
PHN NMBR 1: ????
>????????????????
```

2. Press [SILENCE] to ignore the wait for dial tone character.
3. Enter the telephone number and press [#]. The preceding menu appears.

Several special control characters can be included in the telephone number by pressing [TEST] and a digit:

Table 26: Telephone Number Control Characters

Press	**See**	**Do**
[TEST] 1	*	Touch Tone "*"
[TEST] 2	#	Touch Tone "#"
TEST] 3	/	3-sec delay
[TEST] 4	>	Wait for dial tone

Table 27 identifies keys that assist when entering telephone numbers.

Table 27: Telephone Number Assistance Keys

Press	**Action**
[SILENCE]	Advance to next position.
[DISABLE]	Go back one position.
[RESET]	Clear position.

If the Wait for Dial Tone is not specified, the control panel waits 7 sec after going off-hook and then dials, whether or not the dial tone is present.

Except for unusual situations, begin all telephone numbers with the Wait for Dial Tone character. This ensures the reports are delivered as quickly as possible even if an incoming telephone call must be disconnected.

Format

Shortcut:

0-PROG > **6**-PROG ACC'NTS >**1**-PHONE NUMS

This feature allows you to select which communication format to use. It also allows you to disable communication for the telephone number. To disable the dialer, set the format for Phone Lines 1 and 2 to "disabled" and turn off the monitoring feature of both lines.

The display scrolls through the Phone Number options.

1. Press [2] for FORMAT to access:

```
PHONE FORMAT (_ _)
    0- DISABLE
    1- 3/1 REPORT
    2- 4/2 REPORT
    3- BFSK REPORT
    4- SIA, 110 RPT
    5- CONTACT ID
    6- SIA, 300 RPT
    7- MDM 3A2
```

2. Press the number key corresponding to your selection.

   The preceding window appears.

Account Numbers

Shortcut:

0-PROG > **6**-PROG ACC'NTS > **1**-PHONE NUMS

The account numbers identify the control panel when it reports to the central station.

The display scrolls through the Phone Number options.

1. Press [3] for ACCOUNT NUMS and access:

```
ACCOUNT #1: 0000
NEW NUMBER: 0000
```

   The existing number appears on the top line.

2. Enter the new number on the second line and press [#].
   The preceding window appears. The hexadecimal digits A through F can be entered by pressing [TEST] followed by [1] for A, [2] for B, [3] for C, [4] for D, [5] for E, and [6] for F.

Tone

Shortcut:

0-PROG > **6**-PROG ACC'NTS, > **1**-PHONE NUMS

The tone and frequency programming items modify the reporting format when 3/1 or 4/2 tone burst reporting is selected as the format. Three parameters are selected with one setting; the data tone frequency, the acknowledge tone frequency, and the data rate. The frequency the control panel uses to send data pulses can be set for 1900 Hz (19D) or 1800 Hz (18D). The receiver's acknowledge tone frequency the control panel responds to can be set to 1400 Hz (14A) or 2300 Hz (23A). The rate at which the data pulses are sent can be set from 10, 20, or 40 pulses per second (10 PPS, 20 PPS, or 40PPS).

The display scrolls through the Phone Number options (refer to *Section 7.6.1 Phone Numbers* on page 48).

1. Press [4] for TONE to access:

```
FREQ (_ _)
    1- 19D,14A,10PS
    2- 18D,23A,10PS
    3- 19D,14A,20PS
    4- 18D,23A,20PS
    5- 19D,14A,40PS
    6- 18D,23A,40PS
```

2. Press the number key corresponding to your selection.
   The preceding window appears.

7.6.2 Phone Control

Shortcut:

0-PROG > **6**-PROG ACC'NTS > **2**-PHONE CONTROL

In addition to features associated with each telephone number, there are features associated with each telephone line.

```
PHONE CONTROL
    1- LINE #1
    2- LINE #2
```

Press the number key corresponding to your selection. For example, Line #1. Line #1 and Line #2 have the same options. The following window appears:

```
PHONE CONTROL #1
    1- MONITOR LINE
    2- DIALING TYPE
```

Refer to Monitor Line and Dialing Type for phone control options.

Monitor Line

Shortcut:

0-PROG > **6**-PROG ACC'NTS, > -PHONE CONTROL

The telephone line monitor feature supervising the telephone line to the control panel connection can be disabled for each telephone line.

1. Select Line 1 or Line 2.
   The display scrolls through the Phone Control options.
2. Press [1] for MONITOR LINE and to access:

```
MONITOR LINE #1
_ _ _ _:YES(1)NO(0)
```

3. Press [1] for YES or [2] for NO.
   The preceding window appears.

Dialing Type

Shortcut:

0-PROG, **6**-PROG ACC'NTS, **2**-PHONE CONTROL

This feature determines the format the control panel uses for dialing on each telephone line. First, the tone and pulse setting attempt tone dialing, and if that fails, switches to pulse dialing.

1. Select Line 1 or Line 2.
   The display scrolls through the Phone Control options.
2. Press [2] for DIALING TYPE and to access:

```
PHONE CONTRO (_ _)
    1- PULSE ONLY
    2- TONE/PULSE
    3- TONE ONLY
```

3. Press the number key corresponding to your selection.
   The preceding window appears.

7.6.3 Report Steering

Shortcut:

0-PROG > **6**-PROG ACC'NTS > **3**-RPT STEERING

You can direct the classes of reports to different telephone numbers. Non-supervisory alarms include fire alarms, waterflow alarms, and monitor alarms.

Supervisory alarms come from points configured as a supervisory type. Non-supervisory restorals include fire, waterflow, and monitor restorals. Supervisory restorals only come from points configured as a supervisory type.

Trouble reports include all point and system troubles and restorals. Tests include the Auto Test, Manual Test, and Off-Normal at Test reports. The control panel allows the Silence Report, Reset Report, and Drill Report to be individually directed.

If any reports are directed to Phone Number 2 (including the default, Phone 2 backup), a telephone number and account number must be programmed for Phone Number 2. The control panel indicates a Comm Fault if it sends a report (using Phone Number 1 parameters) that references unprogrammed Phone Number 2 parameters.

The display scrolls through the following items:

```
REPORT STEERING
    1- NONSUP ALRM
    2- SUPVSRY ALRM
    3- NONSUP RSTR
    4- SUPVSRY RSTR
    5- TROUBLE
    6- TESTS
    7- SILENCE
    8- RESET
    9- FIRE DRILLS
```

1. Press the number key corresponding to your selection.
   The following window appears with the headings depending on your choice. In the example, the non-supervisory alarm is selected:

```
NONSUP ALRM(_ _)
    1- PHONE 1 ONLY
    2- PHONE 2 ONLY
    3- PHON 1 AND 2
    4- PNN 2 BACKUP
    5- NO REPORT
```

   - PHONE 1 ONLY: Report sent to Phone #1 only.
   - PHONE 2 ONLY: Report sent to Phone #2 only.
   - PHONE 1 AND 2: Report sent to Phone Numbers 1 and 2.
   - PHONE 2 BACKUP: Report sent to Phone #1, then to Phone #2 if #1 fails.
   - NO REPORT: No report sent.
2. Press the number key corresponding to your selection.
   The preceding window appears.

7.6.4 Ring Count

Shortcut:

0-PROG > **6**-PROG ACC'NTS > **4**-RING COUNT

The number of rings before the control panel seizes the line to attempt remote programming must remain set to "0" for UL 864 local, auxiliary, or remote station installations.

The following window appears:

```
RING COUNT
(01-15,00=DIS)_ _ _
```

Enter the information and press [#/CMND] to access the preceding window. Press [0] [0] to disable ring detection.

7.6.5 Communication Tries

Shortcut:

0-PROG > **6**-PROG ACC'NTS > **5**-COMM. TRIES

The system always makes ten attempts to communicate an event. The parameter determines after which attempt the system indicates a failure condition. Do not select 1 because a failure is indicated whenever a report is sent.

The following window appears:

```
COMM ATTMPTS(_ _)
(01-10):_ _
```

Enter the information and press [#] to access the preceding window.

7.6.6 Machine Bypass

Shortcut:

0-PROG > **6**-PROG ACC'NTS > **6**-MACH BYPASS

The downloading computer can dial back to connect downloading if an answering machine answered the telephone before the control panel. When this option is selected and if the control panel detects the telephone line ringing within 1 min of the last ringing cycle, it answers on the first ring and seizes the telephone line.

The following window appears:

```
MACHINE BYPASS
_ _ _ _:YES(1)NO(0)
```

Enter the information and press [#] to access the preceding window.

7.7 PROG Formats

```
    PROG FORMATS

1- 4/2 ZONE REPT
2- 4/2 RPT CODS
3- BFSK RPT CDS
4- SIA SIL RPT
```

This feature uses hexadecimal digits 0 through F. Because keys A through F are not available on the keypad, the following keys substituted:

- [A] = History
- [B] = Test
- [C] = Disable
- [D] = Drill
- [E] = Silence
- [F] = Reset

7.7.1 4/2 Zone Report

Shortcut:

0-PROG > **7**-PROG FORMATS > **1**-**4/2** POINT REPORTS

4/2 Reports have an event type (first digit) and a point number (second digit). These reports apply to points, and only when the 3/1 or 4/2 format is selected.

The following window appears:

```
4/2 ZONE RPT
        0- FIRE ALRM D1
        1- FIRE RSTR D1
        2- WATERFLOW D1
        3- SUPERVISE D1
        4- TROUBLE D1
        5- TRBL RSTR D1
        6- DISABLE D1
        7- DSBL RSTR D1
        8- MONITOR
        9- MORE
```

1. Press the number key corresponding to your event type selection (D1 = Digit#1).
2. Press [9] to access the second digit options, point numbers, and access:

```
4/2 ZONE RPT
        1- POINT 1 D2
        2- POINT 2 D2
        3- POINT 3 D2
        4- POINT 4 D2
        5- POINT 5 D2
        6- POINT 6 D2
        7- POINT 7 D2
        8- POINT 8 D2
        9- MORE
```

3. Press [9] to access the second digit options, point numbers and access:

```
4/2 ZONE RPT
1- POINT 9 D2
2- POINT 10 D2
3- RETURN TO D1
```

4. Press the number key corresponding to your selection.

   A window allowing you to enter hexadecimal digits appears. The heading depends on the item you previously selected:

```
FIRE ALARM D1 (  )
0 THRU 9
<HISTORY>:  A
<TEST>:     B
<DISABLE>:  C
<DRILL>:    D
<SILENCE>:  E
<RESET>:    F
```

5. Enter the digit to be reported for the selected condition by pressing a number key or a special keys if a hexadecimal character is needed.
6. Press [#] to access and the preceding display.

7.7.2 4/2 Report Codes

4/2 Report codes apply to system conditions only when you select the 3/1 or 4/2 format. You can program two digits sent for each condition. *Table 28* identifies the reports you can program.

Table 28: 4/2 Reports

Report	Description
System in Test, System in Test Restore	Sent for Walt Test operations.
Silence	Sent when you press [SILENCE].
Fire Drill, Fire Drill Restore	Sent for fire drill operations.
Open Reset Report	Sent when you press [RESET].
Low Battery, Low Battery Restore, AC Failure, AC Failure Restore	Sent for power problems.
Test Report	Sent for manual or automatic Communicator Tests.
Off-normal at Test	Sent if the control panel is off-normal at the Automatic Test time.
Phone Trouble, Restore	Sent for telephone line problems.
System Trouble, Restore	Sent for general system problems.

```
4/2 RPT CODS
    0- SYSTM IN TST
    1- SYS TEST RST
    2- SILENCE
    3- FIRE DRILL
    4- FIRE DRL RST
    5- OPEN RST RPT
    6- LOW BATTERY
    7- LOW BATT RST
    8- AC FAILURE
    9- MORE
```

1. Press [9] to allow you to program additional reports

```
4/2 RPT CODS
    0-  AC  FAIL  RST
    1- TEST REPORT
    2- OFF NORM TEST
    3- PHONE 1 TRBL
    4- PN 1 TRB RST
    5- PHONE 2 TRBL
    6- PN 2 TRB RST
    7- SYSTEM TROUB
    8- SYS TRB RST
```

2. Press [9] to return to the preceding group of reporting codes.
3. Press the number key corresponding to your code selection.
4. A window allowing you to enter two hexadecimal digits appears. The heading depends on the item you previously selected:

```
SYSTM IN TST (  )
0 THRU 9
<HISTORY>:  A
<TEST>:     B
<DISABLE>:  C
<DRILL>:    D
<SILENCE>:  E
<RESET>:    F
```

5. Enter the digits you want reported for the selected condition by pressing a number key or one of the special keys if a hexadecimal character is needed.
6. Press [#] to access the preceding display.

7.7.3 BFSK Report Codes

When BFSK reporting is used, most reporting codes are fixed and do not require programming. The control panel can send the following reports (*Table 29*) that are programmed, non-standard BFSK codes.

Table 29: BFSK Reports

Report	Description
Off-normal at Test	Sent when the control panel is off-normal at the Automatic Test time.
Open Reset Report	Sent when you press [RESET].
Silence	Sent when you press [SILENCE].
Fire Drill, Fire Drill Restore	Sent for fire drill operations.

```
BFSK RPT CDS
    1- OFF NORM TEST
    2- OPEN/RESET
    3- SILENCE
    4- FIRE DRILL
    5- FR DRIL RSTR
```

Press the number key corresponding to your report code selection. A window allowing you to entry two hexadecimal digits appears.

7.7.4 SIA Silent Report

When using SIA reporting, all reporting codes but one are fixed and do not require programming (the SIA Silent Report is not a standard SIA Code).

All data is entered has hexadecimal values. Enter the required ASCII value using hexadecimal numbers, one for the left character or byte and one for the right character or byte. Use the factory default KB = 0 x 4B, 0 x 42 (refer to the Standard Table of ASCII Values).

```
SIA SIL RPT
    1- LEFT BYTE
    2- RIGHT BYTE
```

1. Press [1] to select the left byte, enter the digits, and press [#].

```
LEFT BYTE (____)
0 THRU 9
<HISTORY>   A
<TEST>      B
<DISABLE>   C
<DRILL>     D
<SILENCE>   E
<RESET>     F
```

2. Enter the right byte the same way you enter the left byte.

7.8 History Defaults

Shortcut:

0-PROG > **8**-HSTRY DEFLTS

The following window appears:

```
PROG DEFAULTS
    1- CLEAR HSTRY
    2- DEFAULT EE
    3- ALT 4/2 CDES
    4- (reserved)
```

7.8.1 Clear History

Shortcut:

0-PROG > **8**-HSTRY DEFLTS > **1**- CLEAR HISTORY

You can clear some or all History records in the system using this menu item. The following window appears:

```
HIST ITEMS=____
DEL OLDEST 000
```

Enter the number of History records you want to delete, and press [#]. The preceding menu appears.

7.8.2 Default EE

Shortcut:

0-PROG > **8**-HSTRY DEFLTS > **2**- DEFAULT EE

Use this option to set the control panel to its original factory-programming configuration. You are prompted to press [#] to complete the operation, or you can press [*/CLEAR] to not complete the default.

All programming, including zone configurations and option installations, are lost when this operation is performed. You must turn off the control panel power off and then turn it back on after defaulting. This reinstalls the four zone expander, the local NAC expander, and the MUX expander. Update the option bus and setup keypads (Prog System Menu) to reinstall option bus devices.

This option is only available from the local keypad. The following window appears:

```
SETTING EEPROM
TO DEFAULT...
```

When the operation is complete, the preceding menu appears. This operation takes several minutes when the D7039 Multiplex Expander is installed.

7.8.3 Alternate 4/2 Codes

Shortcut:

0-PROG > **8**-HSTRY DEFLTS, > **3**- ALT 4/2 DEVICES

You can set all programming for 4/2 codes to an alternative set of default reports (refer to *Section 13.0 Appendix D: Programming Defaults List* on page 75).

If you want to initiate a complete control panel default, use the default EE option first, and followed by this option. The following window appears:

```
SETTING EEPROM
TO DEFAULT...
```

When the operation is complete, the preceding menu appears.

7.9 Programming MUX

Shortcut:

0-PROG > **9**-PROGRAM MUX

This menu is accessible only when the D7039 Multiplex Expander is installed.

Unprogrammed devices on the bus do not operate or are not supervised.

Do not install more than one device programmed to the same address on the bus. Doing so can inhibit alarm reporting from both devices.

Intermittent Trouble Reports from a particular MUX point address can indicate more than one device is programmed to that address.

The following window appears:

```
PROGRAM MUX
        1- MUX EDIT
        2- MUX PROGRAM
        3- BUS TYPE
        4- AUTO PROGRAM
```

7.9.1 MUX Edit

Shortcut:

0-PROG > **9**-PROGRAM MUX > **1**- MUX EDIT

Use the MUX Edit option to add MUX devices to the system. Use the address switches to program each device with a unique address. The following window appears:

```
DEVICE TYPE (__)
0- NO DEVICE
2- SINGLE INPUT
3- I/O MODULE
4- MUX SMOKE
5- SMOKE W/FRZ
6- DUAL INPUT
7- OCTAL INPUT
```

- 0- NO DEVICE
- 2- SINGLE INPUT (refers to the D7044/M, D7045, and D7052 [Class “A”])
- 3- I/O MODULE (refers to the D7053)
- 4- MUX SMOKE (refers to the D7050, D7050TH, and D343)
- 5- SMOKE W/FRZ (not used)
- 6- DUAL INPUT (refers to the D7052 [Class “B”])
- 7- OCTAL INPUT (refers to the D7042/B)

1. Press the number corresponding to the device you are adding, or press [0] if you are removing a device.
   When the device type is selected, the following window appears:

```
POINT NUMBER
(009-255)009
```

2. Enter the address of the point being added and press [#].
   The device type window appears again, allowing you to add more devices. Note that eight points are added at when the D7042 is edited into the control panel.

7.9.2 MUX Program

Shortcut:

0-PROG > **9**-PROGRAM MUX > **2**-MUX PROGRAM

7.9.3 MUX Bus Type

Shortcut:

0-PROG > **9**-PROGRAM MUX > **3**- MUX BUS TYPE

This option configures the system for two independent Class “B”, Style 3.5 buses, allowing addresses up to 255. Class “A” operation is not supported by the D7042 Eight Input Module. Do not select Class “A” operation.

The following window appears:

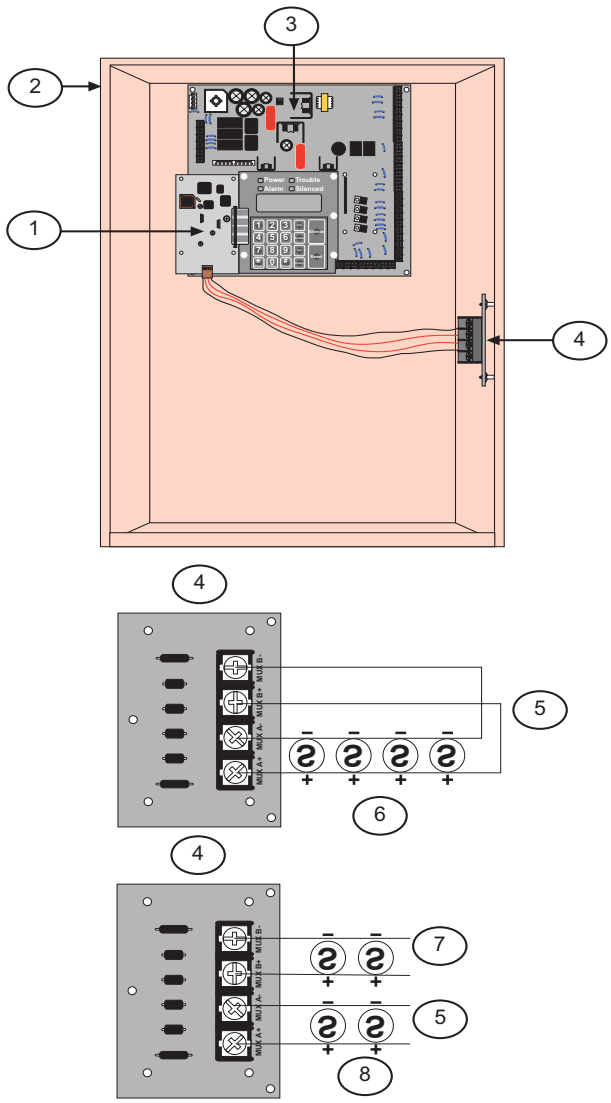
```
MUX BUS TYPE (__)
      1- CLASS A
      2- CLASS B
```

Press [2] to select Class “B” operation if the setting was accidentally changed from its default setting. Refer to the *D7042 Installation Guide* (P/N: 42638) for Class “B” configuration wiring.

Refer to the *D7039 Multiplex Expansion Module Installation Guide* (P/N: 38685) for Class “A” and Class “B” wiring instructions.

Figure 20 shows the D7039 and I/O mounting locations inside the D7024 Enclosure.

Figure 20: D7039 Mounting Location



1 – D7039 Multiplex Expansion Module
2 – Enclosure
3 – D7024 Control Board
4 – I/O Module for the D7039
5 – Addresses 9 to 128
6 – Mux bus wired Class “A”
7 – Addresses 129 to 255
8 – Mux bus wired Class “B”

7.9.4 Auto Program

Shortcut:

0-PROG > **9**-PROGRAM MUX >**4**- MUX BUS TYPE

By scanning the buses for missing or new multiplex devices, this option allows the installer to configure the DS7400M to operate with the existing devices on the multiplex buses. The following display appears:

```
AUTO PROGRAM?
_____:YES(1)/NO(0)
```

Press [1] to continue auto programming or [0] to cancel. When you press [1], the D7024 checks for pre-existing programming errors where devices are incorrectly programmed in the space required for a lower addressed multi-point device, such as a dual point module. If a point is programmed under another device, the following error message appears for 5 sec, and the auto programming process aborts:

```
ADDRESS ERROR 1
AT ADDRESS xxx
```

If no errors are found, the D7024 begins a scanning process that takes approximately 1 min to complete, while showing the following:

```
AUTO PROGRAM
RESTORING
PLEASE WAIT ...
```

When scanning is complete, the D7024 checks for missing devices. Missing devices are addresses with no devices on the multiplex buses, but programmed into the D7024's site specific memory area. If missing devices are detected, the D7024 shows the following menu. ("xxx" is the missing device's first point address):

```
MISSING PT @ xxx
      0- DELETE POINT
      1- KEEP POINT
      2- DEL REMAIN
      3- KEEP REMAIN
```

Table 30: Missing Point Options

Option	When selected
DELETE POINT	The missing point and any addresses it implemented (up to eight for an octal input module) are permanently deleted from the site specific memory area. If the deleted device is an I/O module, the output zones programmed for the relay reset to 0. If additional devices are found to be missing, the above display repeats for each missing device.
KEEP POINT	The D7024 retains the programming for the current point and continues scanning for additional missing points.
DEL REMAIN	The D7024 prompts with `# KEY TO CONFIRM`. If [#/CMND] is pressed, all missing points are deleted from the site-specific memory area and the Auto Program process continues with the Devices Found Menu. If another key is pressed, the current point remains and the control panel continues scanning for additional missing devices.
KEEP REMAIN	No additional points are deleted and the Auto Program process continues with the Device Found Menu. Points individually deleted with the Delete Point command before selecting the Keep Remain command remain deleted when Keep Remain is selected.

Use the Delete Remaining feature with caution. Devices missing from the multiplex buses during the Delete Remaining operation, even momentarily, are permanently deleted. These points do not operate and do not generate trouble conditions even if they are returned to the bus.

When Point Delete is complete, the D7024 shows the total number of points deleted from the control panel for period of 5 sec. "sax" indicates the number of points that were removed from the control panel's site-specific configuration.

```
AUTO PROGRAM
xxx POINTS DELETED
```

Verify that only the expected number of points was removed from the system. Points removed from the control panel's site-specific configuration do not operate and cannot be supervised even if they are returned to the bus.

When Point Delete is complete, auto programming automatically checks for new devices on the buses. A new device is found when it is present on one of the multiplex buses, but its address is not programmed into the control panel's site-specific memory. If a new device is detected, the D7024 shows the following menu (where "xxx" is the address of the first new device found):

```
NEW DEVICE @ xxx
2 - SINGLE INPUT
3 - I/O MODULE
4 - MUX SMOKE
5 - SMOKE W/FRZ
6 - DUAL INPUT
7 - OCTAL INPUT
0 - NO DEVICE
```

This menu allows the device type to be defined. Press the number key corresponding to the device type installed at the address. If a detected device should not be installed and left inactive, press [0] to bypass the new device.

Ensure the correct device type is selected for each point. Incorrectly specified device types can cause multiplex devices to malfunction or fail to operate.

All inputs are configured to use Point Function 10 as they are added. Points added during Auto Programming are not configured for the following operation:

- Point Function 10 (Fire Alarm, Fast Response, Non-silenceable, Not Local-only)
- Open Status = Trouble
- Output Zone 9
- Alarm Verify = NO
- Latching = YES

You can change input point programming when Auto Programming completes using the Input-Programming Menu.

When I/O modules are added during Auto Programming, the relay (second point) is configured to activate on any alarm, non-silenceable (Zone 63). You can change this when Auto Programming completes using the Output-Programming Menu.

As new devices are added, the D7024 performs some basic error checks. The following errors can appear when adding a device:

```
ADDRESS ERROR #
AT ADDRESS xxx
```

In the preceding message, "xxx" is replaced by the affected address, and "#" is replaced by a code number that indicates the type of error. *Table 31* identifies the auto programming error messages.

Table 31: Auto Programming Error Messages

Code	Error	Description
1	New point is under an existing point.	The new point is in the space required for an existing multi-address device. This is checked when auto programming first starts.
2	Point overlaps existing point.	There are already devices configured at one of the addresses required for the new multi-point device.
3	Point is at an illegal address.	The addresses at which multi-address devices can be installed are restricted. Refer to Refer to *Table* 7 on page 13 or the specific device's installation instructions for details.
4	Too many multiplex relays.	Only 20 I/O devices can be supported on a given bus.

When the point-add operation is complete, the D7024 shows the total number of points added to the control panel for a period of 5 sec. Verify the number of devices added matches the expected number.

```
AUTO PROGRAM
xxx POINTS ADDED
```

If a new device is not detected on the bus during the point-add operation, the device does not operate and does not generate trouble conditions even if it remains connected to the bus.

When the point-add operation is complete, it shows the total number of points on the system ("xxx" is the total number of points, not devices).

```
AUTO PROGRAM
xxx MUX POINT
```

Verify the system shows the exact number of points expected. Points not included in the total count do not operate and do not generate trouble conditions.

After the count of total points appears for approximately 10 sec, the D7024 restores the multiplex system to normal operation. This process takes approximately 50 sec, showing the following message during the restoral process:

```
AUTO PROGRAM
RESTORING
PLEASE WAIT ...
```

Before returning the system to service, test it for proper operation. At a minimum, test each added multiplex point after you complete Auto Programming. Test according to NFPA 72 Chapter 7-1.6.2 (1999).

7.9.5 Removing MUX Devices

Shortcut:

0-PROG > **9**-PROGRAM MUX > **1**- MUX EDIT

Use the MUX Edit feature to remove a previously programmed multiplex device.

```
PROGRAM MUX
      1- MUX EDIT
      2- MUX PROGRAM
      3- BUS TYPE
      4- AUTO PROGRAM
```

1. At the Program MUX Menu, press [1] to select MUX Edit.
   The following window appears:

```
DEVICE TYPE (__)
0- NO DEVICE
2- SINGLE INPUT
3- I/O MODULE
4- MUX SMOKE
5- SMOKE W/FRZ
6- DUAL INPUT
7- OCTAL INPUT
```

2. Press [0] for NO DEVICE and enter the address for the point you want to delete.
   After the device is deleted, you return to the Device Type (MUX Edit) Sub-menu. An unsuccessful deletion causes the following error message, followed by the Device Type (MUX Edit) Sub-menu.

```
ERROR -
DEVICE FAILED
```

If you remove one point of a dual point address (such as a D7042 Eight Point Input Module), the second and subsequent points at this address are also removed. For example, if the first point of a D7042 is removed, the remaining seven points are also removed.

8.0 Installation Guide for UL Listed Systems

8.1 D7024 UL Listings

The D7024 is UL Listed for Commercial Fire Alarm (Type Service: Auxiliary, Local, Central Station, and Remote Station; Type Initiating: Automatic, Manual, Sprinkler Supervisory, and Waterflow), UL Standard UL864.

Install the control panel according to NFPA 72 for commercial fire installations.

8.2 Installation Considerations

- Failure to install and program the control panel according to requirements in this section voids the UL Listed mark.
- The standby battery capacity is 40 Ah at 24 VDC.
- The total nominal current must not exceed 1140 mA in standby nor 4 A in alarm.
- Mount the control panel indoors and within the protected area.
- Ground according to Article 250 of the NEC (NFPA 70).
- Connect points to UL Listed, compatible devices.
- Use the supplied nut to connect the ground wire (provided with the enclosure) between the door and the enclosure.
- Do not program Ground Start.
- Select telephone monitoring if using the digital alarm communicator transmitter (DACT).

8.3 Programming the D7024

Test the system after installation and after re-programming, including programming performed by downloading.

When used in UL Listed installations, the control panel must conform to certain programming requirements. The following is a list of the required program entries and required accessories for specific UL Listed installations.

8.3.1 Commercial Fire Alarm (Central Station [DACT] and Local)

Required Accessories

- At least one D285 Smoke Detector with a D287, D288, D292, D293 Series Base, or another UL Listed compatible smoke detector.
- At least one D432A Horn and Strobe or D443 Bell. Provide 85 dB for UL985 and NFPA 72 requirements. Use other UL Listed compatible devices with a voltage range from 20 VDC to 31 VDC for this application. Install it inside the protected area.
- Use four-wire detectors UL Listed power supervision devices, such as the D285 in a D292 or D293 Series Base. A compatible UL Listed EOL relay is the D275.
- Use all points with the EOL resistor provided.

Report Programming

- Program non-supervisory and supervisory reports for the points used.
- Program Trouble Reports.
- Set an AC Failure Report Delay for 25% of the estimated standby time; or set it to report at 25% depletion of battery capacity.
- Set Automatic Test Report frequency at least every 24 h.

Timer Programming

Program Auto Silence Time for no less than 5 min, or to "0" to disable.

Point Programming

For fire points: open = trouble, latching.

Alarm Output Programming

Program NACs to activate from appropriate input points.

Communications Programming (if Used for Central Station Service)

Select a communication format compatible with the central station. Enable the monitoring of both telephone lines.

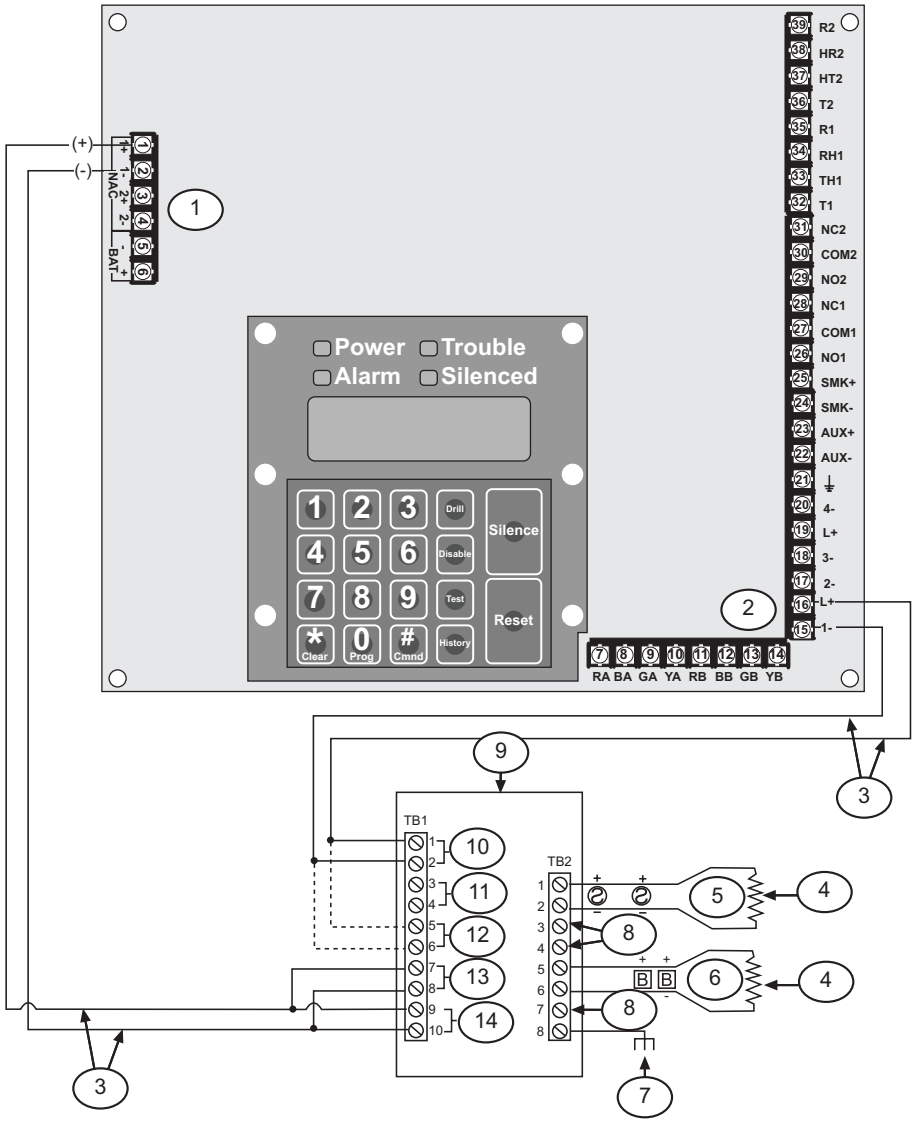
8.3.2 UL Listed Accessory Devices

D132B Multi-use Reversing Relay Module

The D132B is a multi-purpose, fully configurable, smoke power-reversing module for activating detectors with local annunciation. The D132B operates both two-wire and four-wire circuits, and works with Class "A" or Class "B" initiating circuits.

An alarm latch connection allows an initiating loop held in alarm after the detector loop power is reversed to activate any sounders. The D132B does not affect the compatibility between the FACP and detectors, or the FACP and NACs. Refer to the *D132B Installation Guide* (P/N: 40895) for installation instructions. Refer to *Figure 21* on page 61 for an example.

Figure 21: Wiring the D132B



1 – NAC output
2 – Input point
3 – Power limited and supervised
4 – 2.21 kΩ EOL power limited and supervised (P/N: 25899)
5 – 24 V two-wire reversing detectors
6 – 24 V NACs
7 – Earth ground
8 – Not used
9 – D132B
10 –Loop
11 –Class "A" (not used)
12 –Optional alarm latch
13 –NAC input
14 –12 VDC/24 VDC

D184A Local Energy Kit

The D184A is a UL Listed module that connects local energy signaling devices to the D7024 for auxiliary service operation. Refer to the *D184A Installation Guide* (P/N: 41175) for more information.

D185 Reverse Polarity Module

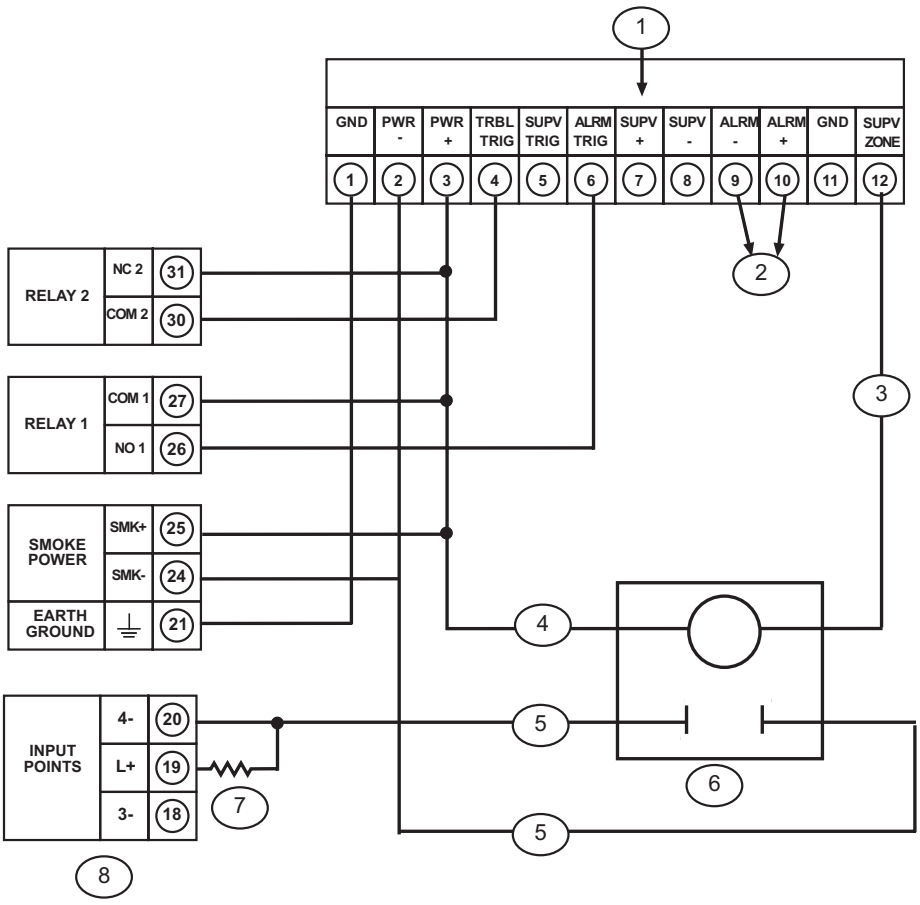
The D185 Reverse Polarity Module is a UL Listed module connecting the control panel with either a single set or a pair of leased telephone company (Telco) lines in NFPA 72 remote station applications. It relays system alarm status information from the control panel to a monitoring station. The D185 operates with either 12 or 24 VDC supply.

The D185 can signal alarm, trouble, and supervisory conditions (refer to the *D185 Installation Manual* (P/N: 32906) for details).

Figure 22 shows the module being used to signal alarm and trouble conditions only. With a third relay, available from the eight-relay expansion module and an additional leased line, supervisory conditions can also be signaled.

In this example, Relay 1 must be programmed to operate on Alarm (Zone 63) and Relay 2 must be programmed to operate on Trouble (Zone 62). Input 4 is programmed as a monitor point. Any alarm interrupts the voltage to the monitoring station. Placing the D185 in Test Mode causes a MONITOR TROUBLE 4.

Figure 22: Wiring the D185



1 – D185 Module
2 – To monitoring station
3 – Black wire
4 – Yellow wire
5 – Blue wire
6 – D275 EOL
7 – 2.21 kΩ EOL (P/N: 25899)
8 – Fire panel

9.0 Fire Safety

Do not consider any fire detection device or system 100% foolproof.

This fire alarm system provides an early warning of a developing fire. This system does not ensure protection against property damage or loss of life resulting from a fire. Any fire alarm system might fail to warn for various reasons, such as smoke not reaching a detector located behind a closed door.

Regularly test this system (when installed, modified, and at least annually thereafter) to ensure continued performance.

When considering detectors for residential applications, refer to NFPA Standard 72. This standard is available at a nominal cost from:

National Fire Protection Association
Batterymarch Park
Quincy, MA 02269

9.1 Smoke Detector Layout

9.1.1 General Considerations

- Proper location of detection devices is one of the most critical factors in a fire alarm system.
- Do install smoke detectors in dead air spaces or close to ventilating or air conditioning outlets because smoke can be circulated away from the detector. Install in locations near air inlets.
- Avoid areas subject to normal smoke concentrations such as kitchens, garages, or near fireplaces.
- Do not install smoke detectors where normal area temperatures are above +100°F (+38°C) or below +32°F (0°C).
- Avoid areas of high humidity and dust concentrations.
- Mount ceiling detectors where the edge is no closer than 4 in. (10 cm) from any wall.
- Place the top edge of wall mounted detectors between 4 in. and 12 in. (10 cm and 30 cm) from the ceiling.
- For exact mounting information, refer to the instructions provided with the smoke detectors.

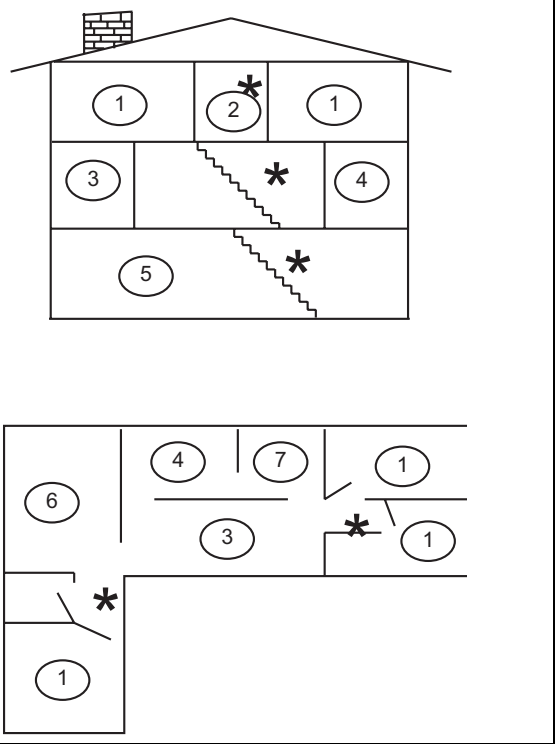
9.1.2 Family Residence Installations

Providing a Fire Warning System

Most fire deaths occur in the home, mostly during sleeping hours. The minimum level of protection requires smoke detectors installed outside of each separate sleeping area and on each additional story of the dwelling.

For added early warning protection, install detectors in all separated areas including the basement, bedrooms, dining room, utility room, furnace room, and hallways.

Figure 23: Smoke Detector Location in Residential Settings



1 – Bedroom
2 – Hallway
3 – Living room
4 – Dining room
5 – Basement
6 – Recreation room
7 – Kitchen

9.2 Escape Plan

A fire warning is wasted unless people planned in advance for a rapid and safe exit from the building.

- Draw a floor plan of the entire building showing two exits from each sleeping area and two from the building. Because stairwells and hallways might be blocked during a fire, the plan must provide exits from sleeping area windows. Make copies of the plan and practice it with all people.
- Pre-arrange a meeting place outside and away from the building. When you are out of the building, all occupants must immediately go to the pre-selected location and be accounted for.
- Provide a barricade between people and fire, smoke, and toxic gases, such as closing all sleeping area doors before retiring.
- Instruct children on opening their bedroom windows and exiting safely from the building. If exiting is not possible, teach them to remain at the open window and shout for help until it arrives.
- If there is a fire alarm after retiring, wake the children by shouting to them from behind your closed door. Tell them to keep their bedroom doors closed.
- If the top of your bedroom door is uncomfortably hot, do not open it. There is most likely fire, intolerable heat, or smoke on the other side. Shout to all family members to keep their bedroom doors closed and to exit the building using alternate routes.
- If the top of the door is not uncomfortably hot, brace the bottom of the door with your foot and the top with one hand, then open the door about 1 in. (2.5 cm). Be prepared to slam the door shut if there is any pressure against the door or if hot air rushes in.
- If there is no evidence of excessive heat or pressure, leave the room and close the door behind you. Shout appropriate instructions to all family members and immediately leave the building using the pre-planned routes. If heavy smoke is present, drop to your hands and knees or crawl to remain below the smoke level.

10.0 Appendix A: D7024 Control Panel Display Abbreviations

Table 32: D7024 Control Panel Display Abbreviations

Abbreviation	Definition	Abbreviation	Definition
3/1	3/1 Tone Burst reporting format)	KPAD, KYPAD, KYPD	Keypad
4/2	4/2 Tone Burst (reporting format)	LRelay	Local Relay
@	Option Bus Address (1 to 16)	LOC	Local
ACTVTN	Activation	MACH	Answering Machine
A, ALRM	Alarm	M, MONI, MON	Monitor
ALT	Alternate	NAC	Notification Appliance Circuit
ANN, ANUN	Annunciator	NMBR, NUM	Number
BAT, BATT, BATTRY	Battery	NONSUP	Non-Supervisory
BX	Box (such as city box)	NORM, NRM	Normal
CATE	Catastrophe	OUT	Output
CDES, CODS, CDS	Codes	OVRC	Overcurrent
CMPTR	Computer	PAS	Positive Alarm Sequence
COMM	Communicator	PHN, PHON	Phone
CONFIG	Configure	PROG, PRGMNG	Programming
DESCRIPTION	Description	PRGMMD	Programmed
DIG	Digit	PT, PNT	Point
DLY	Delay	PWR	Power
DRL, DRIL	Drill	REM, REMOT	Remote
D, DSBL, DISABL	Disable	RESPNS	Response
DSPLY	Display	RLY	Relay
EE	EEPROM	RPRT, RPT	Report
ERelay	Expander Relay	RST	Restore
EXP	Expander	SIL	Silence
FAIL	Failure	SMK	Smoke
F, FIR, FR	Fire	S, SUPERVISORY, SUPRVSRY, SUPV, SPV, SUPVSY	Supervisory
FLT	Fault	SHRT	Short
FRQNCY, FREQ, FREQUENCY	Frequency	SYS, SYSTM	System
FUNC	Function	T, TRBL, TRB, TROUB	Trouble
GRND	Ground	TST	Test
HI	High	VER	Version
HSTRY	History	W, WFLW, WTF	Waterflow
INIT	Initialize	ZN, ZON	Zone

11.0 Appendix B: D7024 Control Panel Display Messages

Table 33: D7024 Control Panel Display Messages

Message	Description
FIRE DIRTY PT XX	A smoke detector with the Chamber Check® feature indicates a dirty chamber.
FIRE DSBL PT	Fire point is disabled from the keypad.
FIRE TRBL PT XXX	Trouble condition for specific points on the system. Check the control panel wiring and field wiring for shorts or opens. Also check point programming to ensure the control panel knows which points should be on the system.
FIRE TROUBLE	General fire zone trouble message. Refer to the second line of the display for more information.
INST FLT 4Z EXP	There is a missing D7034 Four Zone Expander Board or the expander appeared unexpectedly since the last time the system was powered up.
INST FLT MX EXP	There is a missing D7039 MUX Expander Module or the expander appeared unexpectedly since the last time the system was powered up.
MONI DSBL PT	The monitor point is disabled from the keypad.
MONI TRBL PT XXX	Trouble with a monitor point.
MUX BUS A FAILURE MUX BUS B FAILURE	Wiring problem on Bus A or Bus B in Class “B” Mode. Check the wiring for shorts or opens.
MUX CPU FAILURE	A CPU failure occurred on the D7039 Expander Board. Ensure the D7039 is correctly installed on the header pins. If the message persists, call for service immediately.
SUPV DSBL PT	The supervisory point is disabled from the keypad.
SUPV TRBL PT XXX	Trouble with a supervisory point.
SYSTEM TROUBLE	General trouble message. Refer to the second line of display for more information.
TRBL OPEN LNAC	A Local NAC circuit is open. Check the field wiring and the EOL resistor.
TRBL OPEN RNAC	A D7038 Remote NAC is open. Check the field wiring and the EOL resistor.
TRBL OPT BUS@XX	A wiring fault occurred on Option Bus Terminals 7 to 14. There are specific address problems with the option bus devices. Check the wiring for the specific device address shown.
TRBL OVRC LNAC TRBL OVRC RNAC	Overcurrent condition occurred on one of the NACs. Check the field wiring on the notification appliances for shorts.
TRBL SHRT LNAC	There is a short on the local NAC.
TRBL SHRT RNAC	There is a short on the D7038 Remote NAC.
TROUBLE AC FAIL	AC power failure to the control panel. Check the circuit breaker or fuse for AC power problems.
TROUBLE ANN	Trouble with one or more annunciators connected to the control panel.
TROUBLE COMM FLT	There is a communicator problem. Check the control panel's telephone lines and programming for the communicator problem.
TROUBLE EEPROM	An EEPROM failure occurred. Call for service immediately.
TROUBLE EXP	A D7034 Four Zone Expander board problem occurred. Ensure the D7034 is properly connected to the D7024 PCB.
TROUBLE GRND FLT	Ground fault problem occurred. Ensure no control panel wiring is shorted to the earth ground.
TROUBLE KPAD@XX	Specific keypad address failure occurred. Check the keypad's wiring and address settings.
TROUBLE LOW BATT	The control panel's backup batteries are not charging, or are missing.
TROUBLE MUX CLASS “A“	There is a failure on the Mux wiring in Class “A” Mode. Check the wiring for shorts or opens.
TROUBLE PHONE	There is a problem with the control panel's telephone lines. Check the telephone wiring and line monitor programming.
TROUBLE RELAY@XX	One of the control panel's auxiliary relays might be shorted.
TROUBLE SMK PWR	There is a short on the smoke power Terminals 24 and 25.
WFLOW DSBL PT	Waterflow point is disabled from the keypad.
WFLW TRBL PT XXX	There is trouble with a waterflow or sprinkler point.

12.0 Appendix C: Fire Communicator Reporting Summary

Table 34: Fire Communicator Reporting Summary

Report	Index	Default Values		Alternate Default		3/1	BFSK	SIA	Contact ID	Modem IIIa[2]
		4/2 Digit 1	4/2 Digit 2	4/2 Digit 1	4/2 Digit 2					
POINT FIRE ALARM	0	0	p	0	p	0	z0	FAz	1 110 00 zzz	Refer to *Table 35* on page 71.
POINT WATERFLOW ALARM	1	0	p	0	p	0	z0	SAz	1 113 00 zzz	Refer to *Table 35* on page 71.
POINT SUPERVISORY ALARM	2	0	p	0	p	0	z0	SSz	1 200 00 zzz	Refer to *Table 35* on page 71.
POINT MONITOR ALARM	3	0	p	0	p	0	z0	UAz	1 140 00 zzz	Refer to *Table 35* on page 71.
POINT FIRE TROUBLE	4	6	p	6	p	6	Fz	FTz	1 373 00 zzz	Refer to *Table 35* on page 71.
POINT WATERFLOW TROUBLE	5	Refer to #4.	p	Refer to #4.	p	Refer to #4.	Fz	STz	1 373 00 zzz	Refer to *Table 35* on page 71.
POINT SUPERVISORY TROUBLE	6	Refer to #4.	p	Refer to #4.	p	Refer to #4.	Fz	STz	1 373 00 zzz	Refer to *Table 35* on page 71.
POINT MONITOR TROUBLE	7	Refer to #4.	p	Refer to #4.	p	Refer to #4.	Fz	UTz	1 373 00 zzzs	Refer to *Table 35* on page 71.
POINT FIRE DIRTY	8	Refer to #4.	p	Refer to #4.	p	Refer to #4.	Fz	*FSz	1 385 00 zzz	Refer to *Table 35* on page 71.
POINT WATERFLOW DIRTY	9	Refer to #4.	p	Refer to #4.	p	Refer to #4.	Fz	*FSz	1 385 00 zzz	Refer to *Table 35* on page 71.
POINT SUPERVISORY DIRTY	10	Refer to #4.	p	Refer to #4.	p	Refer to #4.	Fz	*FSz	1 385 00 zzz	Refer to *Table 35* on page 71.
POINT MONITOR DIRTY	11	Refer to #4.	p	Refer to #4.	p	Refer to #4.	Fz	*UTz	1 373 00 zzz	Refer to *Table 35* on page 71.

Table 34: Fire Communicator Reporting Summary

POINT FIRE DISABLE	12	B	p	5	p	B	Fz	FBz	1 571 00 zzz	Refer to *Table 35* on page 71.
POINT WATERFLOW DISABLE	13	Refer to #12.	p	Refer to #12.	p	Refer to #12.	Fz	FBz	1 571 00 zzz	Refer to *Table 35* on page 71.
POINT SUPERVISORY DISABLE	14	Refer to #12.	p	Refer to #12.	p	Refer to #12.	Fz	FBz	1 571 00 zzz	Refer to *Table 35* on page 71.
POINT MONITOR DISABLE	15	(Refer to #12.	p	Refer to #12.	p	Refer to #12.	Fz	FBz	1 571 00 zzz	Refer to *Table 35* on page 71.
POINT FIRE ALARM RESTORE	16	3	p	2	p	3	Ez	FRz	3 110 00 zzz	Refer to *Table 35* on page 71.
POINT WATERFLOW RESTORE	17	Refer to #16.	p	Refer to #16.	p	Refer to #16.	Ez	SHz	3 113 00 zzzs	Refer to *Table 35* on page 71.
POINT SUPERVISORY RESTORE	18	Refer to #16.	p	Refer to #16.	p	Refer to #16.	Ez	SRz	3 200 00 zzzs	Refer to *Table 35* on page 71.
POINT MONITOR RESTORE	19	Refer to #16.	p	Refer to #16.	p	Refer to #16.	Ez	URz3	140 00 zzz	Refer to *Table 35* on page 71.
POINT FIRE TROUBLE RESTORE	20	3	p	3	p	3	Ez	FJz	3 373 00 zzzs	Refer to *Table 35* on page 71.
POINT WATERFLOW TROUBLE RESTORE	21	Refer to #20.	p	Refer to #20.	p	Refer to #20.	Ez	SJz	3 373 00 zzz	Refer to *Table 35* on page 71.
POINT SUPERVISORY TROUBLE RESTORE	22	Refer to #20.	p	Refer to #20.	p	Refer to #20.	Ez	SJz	3 373 00 zzz	Refer to *Table 35* on page 71.
POINT MONITOR TROUBLE RESTORE	23	Refer to #20.	p	Refer to #20.	p	Refer to #20.	Ez	UJz	3 373 00 zzz	Refer to *Table 35* on page 71.
POINT FIRE DIRTY RESTORE2	24	Refer to #20.	p	Refer to #20.	p	Refer to #20.	Ez	FJz	3 385 00 zzz	Refer to *Table 35* on page 71.
POINT WATERFLOW DIRTY RESTORE	25	Refer to #20.	p	Refer to #20.	p	Refer to #20.	Ez	FJz	3 385 00 zzz	Refer to *Table 35* on page 71.

Table 34: Fire Communicator Reporting Summary

POINT SUPERVISORY DIRTY RESTORE	26	Refer to #20.	p	Refer to #20.	p	Refer to #20.	Ez	FJz	3 385 00 zzz s	Refer to *Table 35* on page 71.
POINT MONITOR DIRTY RESTORE	27	Refer to #20.	p	Refer to #20.	p	Refer to #20.	Ez	UJz	3 373 00 zzz	Refer to *Table 35* on page 71.
POINT FIRE DISABLE RESTORE	28	3	p	2	p	A	Ez	FHz	3 571 00 zzz	Refer to *Table 35* on page 71.
POINT WATERFLOW DISABLE RESTORE	29	Refer to #28.	p	Refer to #28.	p	Refer to #28.	EZ	FHz3	571 00 zzz	Refer to *Table 35* on page 71.
POINT SUPERVISORY DISABLE RESTORE	30	Refer to #28.	p	(Refer to #28.	p	Refer to #28.	Ez	FHz	3 571 00 zzz	Refer to *Table 35* on page 71.
POINT MONITOR DISABLE RESTORE	31	Refer to #28.	p	Refer to #28.	p	Refer to #28.	Ez	FHz	3 571 00 zzz	Refer to *Table 35* on page 71.
SYSTEM IN TEST	40	F	1	3	3	F	FD	TS0	1 607 00 000	Refer to *Table 35* on page 71.
SYSTEM IN TEST RESTORE	41	E	1	3	7	E	ED	TE0	3 607 00 000	Refer to *Table 35* on page 71.
SILENCE	42	9	F	9	F	9	FD	KBuu	1 400 00 uuu	Refer to *Table 35* on page 71.
FIRE DRILL	43	F	2	3	3	F	FD	FI0	1 607 00 000	Refer to *Table 35* on page 71.
FIRE DRILL RESTORE	44	E	2	3	7	E	ED	FK0	3 607 00 000	Refer to *Table 35* on page 71.
OPEN RESET	45	9	F	9	F	9	FD	ORuu	1 401 00 uuu	Refer to *Table 35* on page 71.
LOW BATTERY	46	F	9	6	9	F	F9	YT0	1 302 00 000	Refer to *Table 35* on page 71.
LOW BATTERY RESTORE	47	E	9	7	9	E	E9	YR0	3 302 00 000	Refer to *Table 35* on page 71.

Table 34: Fire Communicator Reporting Summary

AC FAIL	48	F	A	6	0	F	FA	AT0	1 301 00 000	Refer to *Table 35* on page 71.
AC FAIL RESTORE	49	E	A	7	0	E	EA	AR0	3 301 00 000	Refer to *Table 35* on page 71.
AUTO TEST	50	E	E	3	0	E	EE	RP0	1 602 00 000	Refer to *Table 35* on page 71.
OFF NORMAL AT TEST	51	F	D	3	3	F	FD	YX0	6 300 00 000	Refer to *Table 35* on page 71.
PHONE 1 TROUBLE	52	F	B	3	1	F	FB	LT1	1 351 00 000	Refer to *Table 35* on page 71.
PHONE 1 RESTORE	53	E	B	3	5	E	EB	LR1	3 351 00 000	Refer to *Table 35* on page 71.
PHONE 2 TROUBLE	54	F	C	3	2	F	FC	LT2	1 352 00 000	Refer to *Table 35* on page 71.
PHONE 2 RESTORE	55	E	C	3	6	E	EC	LR2	3 352 00 000	Refer to *Table 35* on page 71.
SYSTEM TROUBLE	56	F	D	3	3	F	FD	ET	1 300 00 ccc	Refer to *Table 35* on page 71.
SYSTEM TROUBLE RESTORE	57	E	D	3	7	E	ED	ER	3 300 00 ccc	Refer to *Table 35* on page 71.
MANUAL TEST	58	Refer to #50.	Refer to #50.	Refer to #50.	Refer to #50.	Refer to #50.	EE	RX0	1 601 00 000	Refer to *Table 35* on page 71.
DATA LOST	59	Refer to #56.	Refer to #56.	Refer to #56.	Refer to #56.	Refer to #56.	FD	RT0	1 354 00 000	Refer to *Table 35* on page 71.
EEPROM FAILURE	60	Refer to #56.	Refer to #56.	Refer to #56.	Refer to #56.	Refer to #56.	FD	UT1	81 307 00 018	Refer to *Table 35* on page 71.
EEPROM RESTORAL	61	Refer to #57.	Refer to #57.	Refer to #57.	Refer to #57.	Refer to #57.	ED	UJ1	83 307 00 018	Refer to *Table 35* on page 71.

Table 34: Fire Communicator Reporting Summary

SMOKE POWER FAULT	62	Refer to #56.	Refer to #56.	Refer to #56.	Refer to #56.	Refer to #56.	FD	YP0	1 320 00 000	Refer to *Table 35* on page 71.
SMOKE POWER RESTORE	63	Refer to #57.	Refer to #57.	Refer to #57.	Refer to #57.	Refer to #57.	ED	YQ0	3 320 00 000	Refer to *Table 35* on page 71.
REMOTE PROGRAM-MING FAIL	66	F**	D**	F**	D**	F**	FD	RU0	1 413 00 000	Refer to *Table 35* on page 71.
REMOTE PROGRAM-MING SUCCESS	67	E**	D**	E**	D**	E**	ED	RS0	1 412 00 000	Refer to *Table 35* on page 71.

Note: c = System trouble condition code; p = Programmable digit for each zone; u = User ID; z = Zone digit; * = Default values shown for programmable items; * = Shaded items not programmable; *** = Codes not programmable

When the Modem IIIa^2 reporting format is used with a Bosch receiver, the receiver output is as shown in *Table 35*.

Table 35: Receiver Output

Report	Index	Receiver Output
POINT FIRE ALARM	0	`dd/dd tt:tt ql ACCT aaaa FIRE ALARM` `+++ ACCT aaaa AREA=1 POINT=zzz`
POINT WATERFLOW ALARM	1	`dd/dd tt:tt ql ACCT aaaa FIRE ALARM` `+++ ACCT aaaa AREA=1 POINT=zzz`
POINT SUPERVISORY ALARM	2	`dd/dd tt:tt ql ACCT aaaa FIRE SUPRVISION` `+++ ACCT aaaa AREA=1 POINT=zzz`
POINT MONITOR ALARM	3	`dd/dd tt:tt ql ACCT aaaa FIRE ALARM` `+++ ACCT aaaa AREA=1 POINT=zzz`
POINT FIRE TROUBLE	4	`dd/dd tt:tt ql ACCT aaaa FIRE TROUBLE` `+++ ACCT aaaa AREA=1 POINT=zzz`
POINT WATERFLOW TROUBLE	5	`dd/dd tt:tt ql ACCT aaaa FIRE TROUBLE` `+++ ACCT aaaa AREA=1 POINT=zzz`
POINT SUPERVISORY TROUBLE	6	`dd/dd tt:tt ql ACCT aaaa FIRE TROUBLE` `+++ ACCT aaaa AREA=1 POINT=zzz`
POINT MONITOR TROUBLE	7	`dd/dd tt:tt ql ACCT aaaa FIRE TROUBLE` `+++ ACCT aaaa AREA=0 POINT=zzz`
POINT FIRE DIRTY	8	`dd/dd tt:tt ql ACCT aaaa ANALOG SERVICE` `+++ ACCT aaaa AREA=0 POINT=zzz`
POINT WATERFLOW DIRTY	9	`dd/dd tt:tt ql ACCT aaaa ANALOG SERVICE` `+++ ACCT aaaa AREA=1 POINT=zzz`
POINT SUPERVISORY DIRTY	10	`dd/dd tt:tt ql ACCT aaaa ANALOG SERVICE` `+++ ACCT aaaa AREA=1 POINT=zzz`
POINT MONITOR DIRTY	11	`dd/dd tt:tt ql ACCT aaaa FIRE TROUBLE` `+++ ACCT aaaa AREA=1 POINT=zzz`
POINT FIRE DISABLE	12	`dd/dd tt:tt ql ACCT aaaa COMMAND BYPASS` `+++ ACCT aaaa AREA=1 ID=uuu POINT=zzz`
POINT WATERFLOW DISABLE	13	`dd/dd tt:tt ql ACCT aaaa COMMAND BYPASS` `+++ ACCT aaaa AREA=1 ID=uuu POINT=zzz`
POINT SUPERVISORY DISABLE	14	`dd/dd tt:tt ql ACCT aaaa COMMAND BYPASS` `+++ ACCT aaaa AREA=1 ID=uuu POINT=zzz`

Table 35: Receiver Output

POINT MONITOR DISABLE	15	dd/dd tt:tt ql ACCT aaaa COMMAND BYPASS +++ ACCT aaaa AREA=1 ID=uuu POINT=zzz
POINT FIRE ALARM RESTORE	16	dd/dd tt:tt ql ACCT aaaa FIRE ALM RESTOR +++ ACCT aaaa AREA=1 POINT=zzz
POINT WATERFLOW RESTORE	17	dd/dd tt:tt ql ACCT aaaa FIRE ALM RESTOR +++ ACCT aaaa AREA=1 POINT=zzz
POINT SUPERVISORY RESTORE	18	dd/dd tt:tt ql ACCT aaaa FIRE ALM RESTOR +++ ACCT aaaa AREA=1 POINT=zzz
POINT MONITOR RESTORE	19	dd/dd tt:tt ql ACCT aaaa FIRE ALM RESTOR +++ ACCT aaaa AREA=1 POINT=zzz
POINT FIRE TROUBLE RESTORE	20	dd/dd tt:tt ql ACCT aaaa FIRE TBL RESTOR +++ ACCT aaaa AREA=1 POINT=zzz
POINT WATERFLOW TROUBLE RESTORE	21	dd/dd tt:tt ql ACCT aaaa FIRE TBL RESTOR +++ ACCT aaaa AREA=1 POINT=zzz
POINT SUPERVISORY TROUBLE RESTORE	22	dd/dd tt:tt ql ACCT aaaa FIRE TBL RESTOR +++ ACCT aaaa AREA=1 POINT=zzz
POINT MONITOR TROUBLE RESTORE	23	dd/dd tt:tt ql ACCT aaaa FIRE TBL RESTOR +++ ACCT aaaa AREA=1 POINT=zzz
POINT FIRE DIRTY RESTORE	24	dd/dd tt:tt ql ACCT aaaa ANALOG RESTORE +++ ACCT aaaa AREA=1 POINT=zzz
POINT WATERFLOW DIRTY RESTORE	25	dd/dd tt:tt ql ACCT aaaa ANALOG RESTORE +++ ACCT aaaa AREA=1 POINT=zzz
POINT SUPERVISORY DIRTY RESTORE	26	dd/dd tt:tt ql ACCT aaaa ANALOG RESTORE +++ ACCT aaaa AREA=1 POINT=zzz
POINT MONITOR DIRTY RESTORE	27	dd/dd tt:tt ql ACCT aaaa FIRE TBL RESTOR +++ ACCT aaaa AREA=1 POINT=zzz
POINT FIRE DISABLE RESTORE	28	dd/dd tt:tt ql ACCT aaaa FIRE TBL RESTOR +++ ACCT aaaa AREA=1 POINT=zzz
POINT WATERFLOW DISABLE RESTORE	29	dd/dd tt:tt ql ACCT aaaa FIRE TBL RESTOR +++ ACCT aaaa AREA=1 POINT=zzz
POINT SUPERVISORY DISABLE RESTORE	30	dd/dd tt:tt ql ACCT aaaa FIRE TBL RESTOR +++ ACCT aaaa AREA=1 POINT=zzz
POINT MONITOR DISABLE RESTORE	31	dd/dd tt:tt ql ACCT aaaa FIRE TBL RESTOR +++ ACCT aaaa AREA=1 POINT=zzz
SYSTEM IN TEST	40	dd/dd tt:tt ql ACCT aaaa WALK TEST START +++ ACCT aaaa AREA=1 ID=uuu
SYSTEM IN TEST RESTORE	41	dd/dd tt:tt ql ACCT aaaa WALK TEST END +++ ACCT aaaa AREA=1 ID=uuu
SILENCE	42	dd/dd tt:tt ql ACCT aaaa SENSOR RESET +++ ACCT aaaa AREA=0 ID=uuu RELAY#=0
FIRE DRILL	43	dd/dd tt:tt ql ACCT aaaa FIRE WALK START +++ ACCT aaaa AREA=1 ID=uuu
FIRE DRILL RESTORE	44	dd/dd tt:tt ql ACCT aaaa FIRE WALK END +++ ACCT aaaa AREA=1 ID=uuu
OPEN RESET	45	dd/dd tt:tt ql ACCT aaaa SENSOR RESET +++ ACCT aaaa AREA=1 ID=uuu RELAY#=0
LOW BATTERY	46	dd/dd tt:tt ql ACCT aaaa BATTERY LOW
LOW BATTERY RESTORE	47	dd/dd tt:tt ql ACCT aaaa BATTERY RESTORE
AC FAIL	48	dd/dd tt:tt ql ACCT aaaa AC FAILURE
AC FAIL RESTORE	49	dd/dd tt:tt ql ACCT aaaa AC RESTORAL
AUTO TEST	50	dd/dd tt:tt ql ACCT aaaa TEST REPORT
OFF NORMAL AT TEST	51	dd/dd tt:tt ql ACCT aaaa TEST-OFF NORMAL

Table 35: Receiver Output

PHONE 1 TROUBLE	52	dd/dd tt:tt ql ACCT aaaa PHONE LINE FAIL +++ ACCT aaaa PHONE LINE=1
PHONE 1 RESTORE	53	dd/dd tt:tt ql ACCT aaaa PHONE RESTORAL +++ ACCT aaaa PHONE LINE=1
PHONE 2 TROUBLE	54	dd/dd tt:tt ql ACCT aaaa PHONE LINE FAIL +++ ACCT aaaa PHONE LINE=2
PHONE 2 RESTORE	55	dd/dd tt:tt ql ACCT aaaa PHONE RESTORAL +++ ACCT aaaa PHONE LINE=2
SYSTEM TROUBLE	56	dd/dd tt:tt ql ACCT aaaa EQUIPMENT FAIL +++ ACCT aaaa SDI=001 COND=ccc
SYSTEM TROUBLE RESTORE	57	dd/dd tt:tt ql ACCT aaaa EQUIP RESTORAL +++ ACCT aaaa SDI=001 COND=ccc
MANUAL TEST	58	dd/dd tt:tt ql ACCT aaaa TEST REPORT
DATA LOST	59	dd/dd tt:tt ql ACCT aaaa COMM FAIL +++ ACCT aaaa PHONE#=1
EEPROM FAILURE	60	dd/dd tt:tt ql ACCT aaaa EQUIPMENT FAIL +++ ACCT aaaa SDI=001 COND=18
EEPROM RESTORAL	61	dd/dd tt:tt ql ACCT aaaa EQUIP RESTORAL +++ ACCT aaaa SDI=001 COND=18
SMOKE POWER FAULT	62	dd/dd tt:tt ql ACCT aaaa EQUIPMENT FAIL +++ ACCT aaaa SDI=001 COND=3
SMOKE POWER RESTORE	63	dd/dd tt:tt ql ACCT aaaa EQUIP RESTORAL +++ ACCT aaaa SDI=001 COND=3
REMOTE PROGRAMMING FAIL	66	dd/dd tt:tt ql ACCT aaaa RAM ACCESS FAIL
REMOTE PROGRAMMING SUCCESS	67	dd/dd tt:tt ql ACCT aaaa RAM ACCESS OK

Note: dd/dd tt:tt - Date and time; aaaa = Account number; uuu = User ID; zzz = Point; ccc = Numeric identifier

When the Modem IIIa^2, SIA, or Contact ID reporting formats are used, an additional numeric identifier is transmitted with system trouble messages to provide a specific indication of the particular fault. This identifier is also recorded in the History Log. *Table 36* lists the numeric identifiers.

Table 36: Numeric Identifiers

Condition	Identifier in History Log (reported with System Trouble Report)	Condition	Identifier in History Log (reported with System Trouble Report)
Option bus device at address 1 failed.	2	User disabled multiplex bus outputs.	45
Option bus device at Address 2 failed.	3	User disabled dialer.	46
Option bus device at Address 3 failed.	4	User disabled Relay 1.	47
Option bus device at Address 4 failed.	5	User disabled Relay 2.	48
Option bus device at Address 5 failed.	6	User disabled remote relay module 1.	49
Option bus device at Address 6 failed.	7	User disabled remote relay module 2.	50
Option bus device at Address 7 failed.	8	Class “A”, Style 6 wiring failure on MUX bus.	51
Option bus device at Address 8 failed.	9	MUX bus A (9 to 128) failed.	52
Option bus device at Address 9 failed.	10	MUX bus B (129 to 255) failed	53
Option bus device at Address 10 failed.	11	MUX module processor failure.	54
Option bus device at Address 11 failed.	12	Rremote NAC module 1, output 1 wiring fault.	55

Table 36: Numeric Identifiers

Option bus device at Address 12 failed.	13	Remote NAC module 1, output 2 wiring fault.	56
Option bus device at Address 13 failed	14	Remote NAC module 1, output 3 wiring fault.	57
Option bus device at Address 14 failed.	15	Remote NAC module 1, output 4 wiring fault.	58
Option bus device at Address 15 failed.	16	MUX bus A (9 to 128) hardware failure.	59
Communication failure (Restoral Report for DATA LOST).	17	MUX bus B (129 to 255) hardware failure.	60
EEPROM failure.	18	NAC 1.	61
Ground fault- wiring short.	20	User disabled NAC 2.	62
NAC 1 open wiring.	21	User disabled NAC 3 (expansion).	63
NAC 2 open wiring.	22	User disabled NAC 4 (expansion).	64
NAC 3 (expansion) open wiring.	23	Remote NAC module 2, output 1 wiring fault.	65
NAC 4 (expansion) open wiring.	24	Remote NAC module 2, output 2 wiring fault.	66
Remote NAC module 1 AC failure.	25	Remote NAC module 2, output 3 wiring fault.	67
Remote NAC module 2 AC failure	26	Remote NAC module 2, output 4 wiring fault.	68
NAC 1 shorted wiring.	27	User disabled remote NAC module 1, output 1.	69
NAC 2 shorted wiring.	28	User disabled remote NAC module 1, output 2.	70
Remote NAC module 1 ground fault-wiring short.	31	User disabled remote NAC module 1, output 3.	71
Remote NAC module 2 ground fault-wiring short	32	User disabled remote NAC module 1, output 4.	72
NAC 1 overcurrent.	33	User disabled remote NAC module 2, output 1.	73
NAC 2 overcurrent.	34	User disabled remote NAC module 2, output 2.	74
NAC 3 overcurrent.	35	User disabled remote NAC module 2, output 3.	75
NAC 4 overcurrent.	36	User disabled remote NAC module 2, output 4.	76
Remote NAC module 1 low battery.	37	Four zone expander installation fault.	77
Remote NAC module 2 low battery.	38	NAC (DS9482) expander installation fault.	78
NAC 1 to 4 overcurrent protection failure.	39	MUX (DS9431) expander installation fault.	79

13.0 Appendix D: Programming Defaults List

PROG TIME

SYSTEM: Last date in EE 0000
AUTO TEST
TEST TIME: 0200
TEST FREQ: 24 hours
DAYLIGHT SAV: 2- enable

SECURITY

PINS
PROGRAMMER: 9876
USERS: User 1 = 1234, User 2 = 0000

AUTHORITY

USER 1: 2
OTHERS: 0

PROG SYSTEM

TIMERS
SMOKE RESET: 6 sec
AC FAIL DELAY: 6 h
AUTO SILENCE: 0 min
DISPLAY RATE: 4 x 0.25 = 1 sec
AC LINE SYNCH2 (60- Hz)
OPTION BUS
UPDATE BUS: Queries both option buses and updates list of connected devices.
SETUP KEYPAD: 0
PIN REQUIRED:
LOCAL: No
REMOTE: Yes
REMOTE PGM: 0- DISABLE

PROG INPUTS

POINT NUMBER (1 to 4, 5 to 8, 9 to 255)
FUNCTION
Point Function 1 = 1
Point Function 2 = 2
Point Function 3 = 3
Point Function 4 = 4
Point Function 5 = 5
Point Function 6 = 6
Point Function 7 = 7
Point Function 8 = 8
Point Function 9 - 255 = 10
ALARM/TROUBLE: Trouble On Open
OUTPUT ZONE
Point Zone 1 = 1
Point Zone 2 = 2
Point Zone 3 = 3
Point Zone 4 = 4
Point Zone 5 = 5
Point Zone 6 = 6
Point Zone 7 = 7
Point Zone 8 = 8
Point Zone 9 - 19 = 9
Point Zone 20 - 39 = 10
Point Zone 40 - 59 = 11 etc.
VERIFICATION: No
LATCHING: Yes (Point 4 = No)

POINT FUNCTION (1 to 16)

	1 to 3, 5 to 10, 3 to 16	4	11	12
CONFIGURE	fire	water	supv	monitor
LOCAL ONLY	no	no	no	no
SILENCE-ABLE	no	no	no	no
LOOP REPSONSE	fast	16s	fast	fast

PROG OUTPUTS

NACs
NAC #1:
CONFIGURATION: Temporal
ZONE ASSIGNS:
Zone A: 53
Zone B: 0
Zone C: 0
Zone D: 0
NAC #2:
CONFIGURATION: Steady
ZONE ASSIGNS:
Zone A: 53
Zone B: 0
Zone C: 0
Zone D: 0

RNAC 1

Outputs 1, 2, 3, 4
Configuration: Steady
Zone Assignment:
Zone A: 53
Zone B: 0
Zone C: 0
Zone D: 0

RNAC 2

Outputs 1, 2, 3, 4
- Configuration: Steady
- Zone Assignment:
  - Zone A: 53
  - Zone B: 0
  - Zone C: 0
  - Zone D: 0

RELAYS

LOCAL RELAY #1
- Zone A: 63
- Zone B: 0
- Zone C: 0
- Zone D: 0

LOCAL RELAY #2
- Zone A: 62
- Zone B: 0
- Zone C: 0
- Zone D: 0

REMOTE 1 (D7035)
- Relay 1/Zone A: 63
- Relay 2/Zone A: 62
- Relay 3/Zone A: 61
- Relay 4/Zone A: 60
- Relay 5/Zone A: 58
- Relay 6/Zone A: 57
- Relay 7/Zone A: 56
- Relay 8/Zone A: 53

REMOTE 2
- Relay 1/Zone A: 1
- Relay 2/Zone A: 2
- Relay 3/Zone A: 3
- Relay 4/Zone A: 4
- Relay 5/Zone A: 5
- Relay 6/Zone A: 6
- Relay 7/Zone A: 7
- Relay 8/Zone A: 8

PROG ACCOUNTS

PHONE NUMBERS

PHONE 1, 2
- NUMBER: > (wait for dial tone)
- FORMAT: 6 - (SIA 300)
- ACCT NUMS:0000
- TONE: 1 to 10 PPS, 1900/1400

PHONE CONTROL

LINE 1, 2
- MONITOR: Yes
- DIALING TYPE: Pulse Only

REPORT STEERING

ALL SUB-MENU ITEMS: Phone 2 Back-up
RING COUNT: 00
COMM TRIES: 10
MACH BYPASS: No

PROG FORMATS

4/2 ZONE REPORT

```
0-  FIRE ALRM D1   :0
1-  FIRE RSTR D1   :3
2-  WATERFLOW D1   :0
3-  SUPERVISE D1   :0
4-  TROULBE D1     :6
5-  TRBL RSTR D1   : 3
6 -  DISABLE D1     : B
7 -  DSBL RSTR D1   : 3
8 -  MONITOR D1     : 0
9 -  MORE

1-  POINT 1 D2     :1
2-  POINT 2 D2     :2
3-  POINT 3 D2     :3
4-  POINT 4 D2     :4
5-  POINT 5 D2     :5
6-  POINT 6 D2     :6
7-  POINT 7 D2     :7
8-  POINT 8 D2     :8
1-  POINT 9 D2     :9
2-  POINT 10 D2    :10
```

4/2 RPT CODS

```
SYSTM IN TST    :F1
SYS TEST RST    :E1
SILENCE         :9F
FIRE DRILL      :F2
FIRE DRL RST    :E2
OPEN RST RPT    :9F
LOW BATTERY     :F9
LOW BATT RST    :E9
AC FAILURE      :FA
AC FAIL RST     :EA
TEST REPPORT    :EE
OFF NORM TST    :FD
PHONE 1 TRBL    :FB
PH 1 TRB RST    :EB
PHONE 2 TRBL    :FC
PH 2 TRB RST    :EC
SYSTEM TROUB    :FD
SYS TRB RST     :ED
```

BFSK RPT CDS

```
OFF NRM TST    :FD
OPEN/RESET     :FD
SILENCE: FD    :FD
FIRE DRILL     :FD
FIR DRIL RSTR  :FD
```

SIA SIL RPT

```
LEFT BYTE      :0 x 4B "K"
RIGHT BYTE     :0 x 42 "B"
```

HISTORY DEFAULTS

```
ALT 4/2 CODES
 4/2 POINT REPORTS
   FIRE ALRM D1     : 0
   FIRE RSTR D1     : 2
   WATERFLOW D1     : 0
   SUPERVISE D1     : 0

   TROUBLE D1       : 6
   TRBL RSTR D1     : 7
   DISABLE D1       : 5
   DSBL RSTR D1     : 2
   MONITOR D1       : 0
   POINT 1 D2       : 1
   POINT 2 D2       : 2
   POINT 3 D2       : 3
   POINT 4 D2       : 4
   POINT 5 D2       : 5
   POINT 6 D2       : 6
   POINT 7 D2       : 7
   POINT 8 D2       : 8
   POINT 9 D2       : 9
   POINT 10 D2      : 0
 4/2 POINT CODS
   SYSTM IN TST     : 33
   SYS TEST RST     : 37
   SILENCE          : 9F
   FIRE DRILL       : 33
   FIRE DRL RST     : 37
   OPEN RST RPT     : 9F
   LOW BATTERY      : 69
   LOW BATT RST     : 79
   AC FAILURE       : 60
   AC FAIL RST      : 70
   TEST REPORT      : 30
   OFF NORM TST     : 33
   PHONE 1 TRBL     : 31
   PN 1 TRB RST     : 35
   PHONE 2 TRBL     : 32
   PN 2 TRB RST     : 36
   SYSTEM TROUB     : 33
   SYS TRB RST      : 37
```

MULTIPLEX

MUX BUS TYPE: 2- CLASS B

14.0 Appendix E: Telephone Monitor Troubleshooting

14.1 COMM FLT/DATA LOST

A common cause of the COMM FLT/DATA LOST fault is failing to program Phone Number 2 or Account Number 2 while some reports are directed to Phone 2 Backup. The reports continue to be made to Phone Number 1, but this message warns the installer Phone Number 2 is not available if it becomes needed.

Other communications problems that might cause this condition include:

- Events occurring faster than the dialer can send them, overflowing the 32 event buffer
- Programming errors such as missing telephone numbers or account codes
- More than 100 trouble type reports in 24 h
- Other problems in contacting a receiver.

Check the dialing type, format selection, telephone numbers, account codes, telephone line condition, and tone programming (if tone burst formats are used).

Refer to *Section 5.7 Communicator Operation* on page 29 for more information.

14.2 Trouble Telephone

To troubleshoot telephone monitor problems:

1. Use a voltmeter to measure the voltage across each telephone line (tip to ring) while the telephone line is idle.

The voltage present during ringing for an incoming call can be more than 100 VAC.

   - Generally, this standby Telco battery voltage ranges from 30 VDC to 50 VDC. Any voltage above 5 VDC is accepted by the control panel.
   - The polarity of the voltage does not matter.
2. Check for other devices that might use the telephone line, such as fax machines, credit card verifiers, or PBX systems.
   - Note that NFPA 72 requirements mandate a dedicated telephone line for fire reporting.
   - If the devices cannot be removed, ensure they are wired so the control panel's line seizure relay disconnects them when needed.
   - Measure the line voltage while these devices are in use, ensuring it remains above 5 V.
3. Check for intermittent faults in the telephone line.
   - Make a test call and verify the line is free of distortion and noise.
   - Temporarily swap Lines 1 and 2 on the control panel to verify the problem indication moves to the control panel's other telephone line channel. In this case, the telephone line is causing the problem rather than the line monitor.
4. Verify the fault message is `Phone Fault` and not `Com Fault`.
   - `Com Fault` is often caused by failing to program a telephone number or account number for Phone Number 2 while routing reports to Line 1, Backup Line 2.
   - If only one telephone number is available for reporting, set report steering for all events to Phone 1 only.
   - `Com Fault` can also be caused if one of the telephone lines has Telco battery voltage, but does not complete a call. Make test calls to the receiver(s) on both telephone lines, listening for the receiver ACK tone.
5. Ensure two telephone lines are available.

According to NFPA requirements, the Auto Test Report is sent on a different telephone line each time it is sent. If only one telephone line is connected to the control panel, a `Com Fault` is generated on every other test call.

15.0 Specifications

Table 37: Specifications

Temperature	Storage and Operating Temperature: +32° to +120°F (0° to +49°C)
Power	**Input Power:** 120 V, 60 Hz, 1.5 A (maximum 2.0 fused supply circuit) **NAC Power:** Each NAC has 24 VDC nominal, unfiltered (special application) power with up to 2.5 A capacity, but limited by overall 4.0 A capacity. Refer to the *Technical Service Note* (P/N: 34950) for compatible NAC devices. **Auxiliary Power:** 24 VDC nominal, unfiltered, 1 A (special application) **Initiating Circuit Power (Smoke):** 24 VDC nominal, filtered, 1.0 A. Refer to the *D7022 Series, D7024 Smoke Detector Compatibility List* (P/N: 34445) for compatible smoke detection devices. **Option Bus Power:** 12 VDC nominal, 500 mA **Optional Standby Batteries:** Two 12 V, in series, ranging from 7 Ah to 40 Ah
NACs	Two on-board notification circuits, NAC 1 and NAC 2. These are 24 V outputs for notification devices with up to 2.5 A capacity, but limited by overall 4.0 A capacity on each circuit. Wired for standard Class “B”, Style Y operation. Use the D7015 Class “B” to Class “A” NAC Converter to convert to Class “A”, Style Z as needed. **Configurable for Patterns:** Steady, pulsing, ANSI Code 3, synchronized Wheelock, synchronized Gentex.
Relays	**Local Relays:** The main panel includes two Form “C” relays. The relay contacts are rated at 5 A, 28 VDC. No overcurrent limiting is performed on these relay contacts.The default selection for the relays is to indicate general alarm and general system trouble. By programming the relays using point and zone mapping, they can be programmed to activate on a variety of conditions. **D7035 Remote Relay Module:** An Octal Relay Module that provides eight Form “C” relay outputs. It connects to the D7024 through the option bus. The outputs are fully programmable, like the local relays. Each output operates independently of the other seven to provide complete flexibility. Communication with the D7035 is supervised. **Contact Rating:** 5 A at 28 VDC **Number of Modules**: 2 units maximum **Wiring Requirements:** Refer to *Section 4.2 Option Bus Wiring Requirements* on page 19.

16.0 Index

Notes

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