

7720ULF

Subscriber Radio

Installation and Set-Up Guide

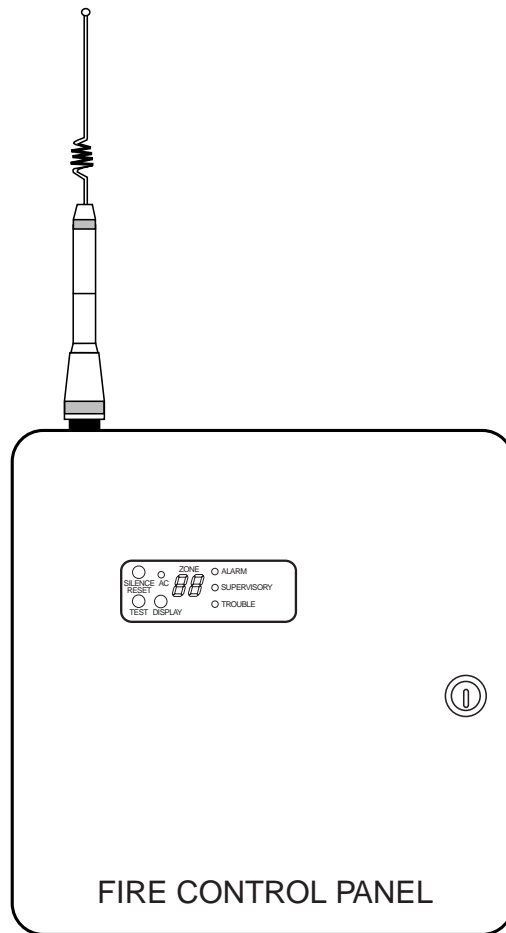


Table of Contents

.....

Section 1. INTRODUCTION AND GENERAL OPERATION.....	1-1
Standard System Features.....	1-1
Programmable Features.....	1-2
Battery.....	1-2
Transformer	1-2
Bells.....	1-2
4-Wire Smoke Detectors	1-2
Section 2. INSTALLING THE 7720ULF.....	2-1
Selecting a Site	2-1
Antenna Selection.....	2-1
Mounting the Antenna	2-2
Mounting the 7720ULF Cabinet.....	2-3
Wiring 4-Wire Smoke Detectors	2-4
Wiring for Factory Mutual Remote Station Applications	2-5
Cables	2-6
Powering the System.....	2-6
Section 3. 7720ULF APPLICATIONS.....	3-1
Slave Communicator Applications	3-1
Stand-Alone Communicator Applications.....	3-7
Special Programming	3-8
True Restores.....	3-8
Programming for 4-Wire Smoke Detectors.....	3-8
Section 4. PROGRAMMING THE 7720ULF.....	4-1
Programming Tool	4-1
Programming Selections	4-2
Reviewing Programming Selections.....	4-5
Correcting Programming Errors.....	4-5
Setting Factory Defaults	4-5
Exiting Programming Mode & Assigning Passwords.....	4-6
Section 5. TESTING THE 7720ULF.....	5-1
Radio Transmission Test.....	5-1
Radio Faults.....	5-1
Cabinet Panel Display & Button Functions.....	5-2
Silence / Reset Button	5-2
Test Button	5-2

Display Button.....	5-2
Fire Walk Test	5-3
New 7720ULF High Speed Messages.....	5-4
Section 6. SPECIFICATIONS	6-1
Appendix A. FCC STATEMENT, LIMITATIONS, & WARRANTY	A-1

List of Figures



Figure 1. Antenna Mounting	2-3
Figure 2. Connecting 4-Wire Smoke Detectors	2-5
Figure 3. 7720ULF to 7920EBB Wiring Diagram	2-5
Figure 4. 7720ULF Summary of Connections Diagram	2-7
Figure 5. 7720ULF Connection to a VISTA 100 Control Panel. Slave Communicator for Triggered Zones without Line Supervision	3-3
Figure 6. Zone Modifications for Slave Mode Configuration	3-4
Figure 7. Connection Diagram from 7720ULF to Relay with Line Supervision	3-6
Figure 8. Connection Diagram from 7720ULF to 4204 Programmable Relay Module. Slave Communicator for Triggered Zones with Line Supervision	3-6

Introduction and General Operation

In This Section

- ◆ *Standard System Features*
 - ◆ *Programmable Features*
 - ◆ *Battery*
 - ◆ *Transformer*
 - ◆ *Bells*
 - ◆ *4-Wire Smoke Detectors*
-

ADEMCO Model 7720ULF is a self-contained FIRE CONTROL/COMMUNICATING device for the protection of property and life safety. The 7720ULF serves as a subscriber's link to the AlarmNet Radio or Private network without the need for a telephone line connection. The 7720ULF transmits periodic supervisory messages to alert the Central Station to system problems. Installed as a stand-alone communicator, the 7720ULF does not require the use of an additional fire alarm control panel. The 7720ULF can also be configured as a slave communicator, providing radio signaling only. Communication is accomplished via a one-way 900 MHz radio link. A contact closure is available to indicate a radio fault. In addition, the 7720ULF can be selected to be "fail-safe" by programming the fault output to be inverted.

The Model 7720ULF is listed under UL864 and meets NFPA72, Central Station Applications (1993 Edition), as well as Factory Mutual Requirements for Remote Station Applications.



Note to the Installer: Please read the entire Installation Instructions and become completely familiar with all requirements before attempting to install a 7720ULF. Information contained in these instructions is fully compliant with UL 864 and NFPA72. However, installers should be aware that the Authority Having Jurisdiction (A.H.J.) may either have requirements that exceed those stated herein or may not permit all aspects of the 7720ULF installation described in these instructions. A.H.J. requirements supercede those stated in these instructions.

Standard System Features

- Transmission of all alarm and status messages to the master station network via radio signals, resulting in faster and more secure reporting.
- Six Style B (Class B) and two Style D (Class A) supervised zones. Zones can also be configured for VSR/WFD water flow switches and/or PIV/OSY supervisory switches.

- One Style Y (Class B) indicating output circuit providing a maximum of 500mA at 12 volts for polarized bells.
- Capability of configuring all zones as voltage trigger or dry contact inputs.
- On-board 18VAC to DC power supply. With an added battery, will provide 24-hour backup and minimum 5-minute bell.
- One trouble buzzer with reset inside locked cabinet and latching trouble LED.
- One red cabinet with key lock.
- Troubles annunciated locally and transmitted: 24-hour loop open, ground fault, low battery, no/low AC transmitter and RF fail annunciated locally.
- Self-diagnosing transmitter: Monitors for proper transmitter operation; can report antenna fault, low RF output power and key internal radio-frequency circuit problems. Faults can trigger contact closures on a Form "C" relay to indicate radio faults.
- Low battery monitoring: The system will notify the Central Station of a low battery condition whenever the battery voltage drops below 11.4V ($\pm 5\%$).
- Low battery shutdown: If for any reason the battery voltage drops below 9.75 volts, the radio will automatically shut down.

Programmable Features

The 7720ULF can be programmed with the ADEMCO Model 7720P Programming Tool. Selections are stored in nonvolatile EEPROM (Electrically Erasable Programmable ROM) available in the 7720ULF. Default values are set at the factory, making programming optional.

Battery

The 7720ULF is compliant with the National Fire Protection Agency code (NFPA72), which requires 24-hour battery backup. A 12-volt battery with a minimum capacity of 7 ampere-hours will guarantee 24 hours of operation. Use ADEMCO **Model 712BNP**.

Transformer

The 7720ULF is UL Listed with ADEMCO transformer **Model 7620TR**, rated for 18VAC, 40VA.

Bells

System Sensor PA400R (red piezo horn), MA12/24 (red horn), MA/SS-12 (horn and strobe), and SS-12 (strobe) are compatible alarm indicating devices. Temporal bell sounding pattern is supported.

4-Wire Smoke Detectors

System Sensor Model 2412THB and 2412B 4-wire smoke detectors are compatible with the 7720ULF.

Installing the 7720ULF

In This Section

- ◆ *Selecting a Site*
- ◆ *Antenna Selection*
- ◆ *Mounting the Antenna*
- ◆ *Mounting the 7720ULF Cabinet*
- ◆ *Wiring the 4-Wire Smoke Detectors*
- ◆ *Wiring for Factory Mutual Remote Station Applications*
- ◆ *Cables*
- ◆ *Powering the System*

Selecting a Site

Before starting the installation procedures, it is necessary for the installer to first verify that the prospective site is suitable for radio communication with the Master Station network. This is accomplished with the ADEMCO No. 7715 Field Alarm Signal Tester (FAST) Tool or the No. 7920SE used in FAST mode. The FAST Tool is a remote field strength indicator that receives transmissions from the network Master Stations. Refer to the No. 7715 or No. 7920SE operating instructions for information regarding FAST mode usage. Once the site has been found to be suitable, the FAST Tool is used to find the best location for the 7720ULF.



Important! The 7720ULF must communicate with a minimum of two independent repeater station receivers, as per NFPA 72, 4-2.2.3.2.

Antenna Selection

The 7720ULF is approved for use with the 7625-3dB antenna, 7825, 7674, or 7674-13 YAGI antennas (if a directional antenna is required). These antennas can also be mounted remotely using pre-assembled coaxial cable available from ADEMCO in various lengths. The 7720ULF monitors antenna integrity by use of an internal VSWR (Voltage Standing Wave Ratio) circuit. Removal of, or a short-circuit on, the antenna will cause an antenna fault, which is annunciated locally on the panel display, in compliance with NFPA72.

Mounting the Antenna

The key to a reliable installation is to locate the 7720ULF antenna where the best RF communication link can be made with the network. Generally, better communication with the network can be achieved by installing the antenna on the top floor of the building. Locating the antenna near an outside wall will also help improve the communication path. If it is inconvenient to mount the 7720ULF cabinet where the antenna works best, the antenna may be installed remotely, using coaxial cable to make the connection to the cabinet. In the event that reliable communication cannot be achieved, optional antennas Nos. 7825, 7674, or 7674-13 may be used. In addition, the antenna may be installed outdoors to further improve communication reliability.

When mounting the antenna remotely, coaxial cable must be inside conduit. Use rigid conduit for open runs, flexible conduit for runs within walls and above ceilings.

Mounting the 7625-3db Antenna Directly to the Cabinet

1. Find the best antenna location by using the FAST Tool.
2. Mount the cabinet using the procedures described in the *MOUNTING THE 7720ULF CABINET* in this section.
3. Connect the antenna to the cabinet antenna connector.

Mounting the 7625-3db Antenna Away from the Cabinet

1. Find the best antenna location by using the FAST Tool.
2. Secure the ADEMCO No. 7670F Subscriber Antenna Bracket to the mounting surface using #10 screws. Connect the antenna to the bracket connector.
3. Connect the antenna cable (50 ohm coaxial cable) to the bracket connector and to the cabinet antenna connector. To avoid signal loss through attenuation, cable lengths should be 50 feet or less. Use only the cables listed in Table 1. Tape antenna connections to seal against moisture.

Important! If it is necessary to mount the antenna outside, follow the procedures for mounting antennas away from the cabinet. When mounting the antenna, avoid obstructions such as metal ducts, pipes, foil-backed insulation, etc., as these will adversely affect transmission.

Note: For remotely mounted antennas, make sure the ground shield and/or coaxial cable connector do not come into contact with earth ground. **Making contact will cause the 7720ULF to report a ground fault.**

Using Optional 7825, 7674, or 7674-13 Antenna:

In the event that an acceptable signal strength cannot be achieved using the No. 7625-3dB antenna, as determined by the FAST Tool, optional antenna Nos. 7825, 7674, or 7674-13 may be installed outdoors in a suitable location. The 7674 and 7674-13 antennas have directional characteristics and must be aimed in the direction that provides the strongest signal. Use the FAST Tool to determine this direction, and install the antenna in precisely the same position. Connect the antenna to the 7720ULF using the shortest possible standard length 50 ohm coaxial cable from Table 1. Tape all connections with a good quality insulating tape. *Bracket No. 7670F is not required.*

Table 1.

ADEMCO Part No.	Cable Lengths
7626-5	5 feet
7626-12	12 feet
7626-25HC	25 feet
7626-50HC	50 feet

Important! To ensure the integrity of the security system, use only the cables available from ADEMCO. **DO NOT** assemble your own extension cables.

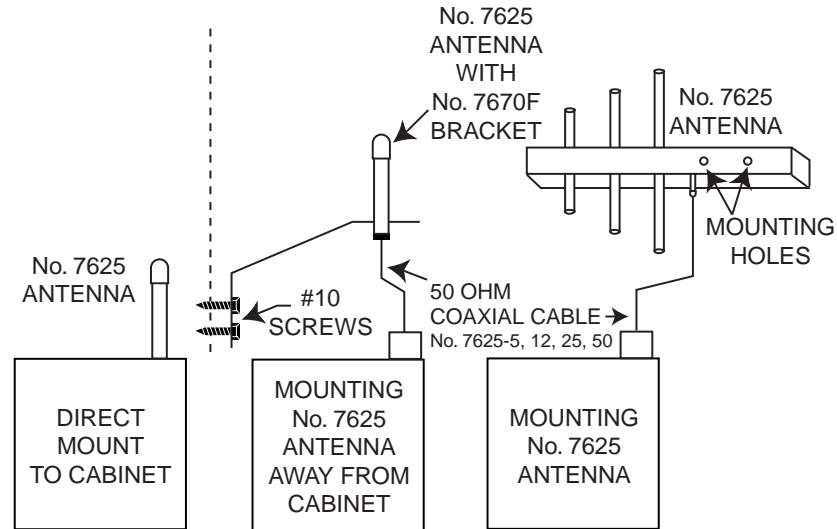


Figure 1. Antenna Mounting

Mounting the 7720ULF Cabinet

The 7720ULF cabinet must be mounted indoors, preferably in an area where it will be undisturbed. It is also beneficial to locate the cabinet in an easily accessible area to permit system testing.



Important! The most appropriate installation site enables long-term, trouble-free operation, and is not subject to environmental extremes. 7720ULF specifications state an operating temperature range of 32°F to 122°F (0°C to 50°C). It is recommended that temperature extremes be avoided by installing the cabinet in a location well within these parameters.

1. Using the template provided, locate and drill pilot holes for the four mounting screws.



CAUTION! To prevent dislodging from sheetrock, the 7720ULF should be mounted such that at least the two screws on the door hinge side of the cabinet are secured to a wall stud.

2. Install the two top corner screws, leaving their heads slightly protruding from the mounting surface. Slip the cabinet keyslot holes over the screws.
3. Install the bottom two corner screws, and tighten all screws securely.

4. Connect the antenna or coaxial cable (if antenna is mounted remotely) to the cabinet antenna connector.
-



For remotely mounted antennas, make sure the ground shield and/or coaxial cable connector do not come into contact with earth ground. Making contact will cause the 7720ULF to report a ground fault. Coaxial cable to the antenna must be in rigid conduit.

5. Route all zone connections through conduit to one of the knockout holes. See **Figure 4. 7720ULF Summary of Connections** for zone identification.
 6. Using a different conduit than that used for the zones, route the AC input wires through the conduit to one of the two knockouts on the bottom right of the cabinet. Connect the HOT and NEUTRAL wires to the two floating black transformer leads. Connect the AC EARTH GROUND terminal to the post provided on the right of the transformer.
-



Zones and AC wires must be run in separate conduit. All connections must be in accordance with the National Electrical Code and NFPA72 Central Station Applications.

DO NOT CONNECT TO POWER SOURCE AT THIS TIME!

7. Place the battery in the lower left corner of the cabinet.

Wiring 4-Wire Smoke Detectors

NFPA code requires that the integrity of conductors supplying power to 4-wire smoke detectors be monitored. This is accomplished with the addition of an End-of-Line (EOL) power supervision relay for 4-wire smoke detectors.

Figure 2 shows how to connect a 4-wire smoke detector to the 7720ULF. AUX POWER (J5, pin 5 or 6) is connected to the panel relay (J5, pin 9). Power is supplied to the smoke detector and EOL relay from the panel relay arm (J5, pin 8). The smoke detector and relay are connected to ground (J5 pin 1, 2, or 3). The zone is then connected in series with the smoke detector, EOL relay, and EOL resistor. When a power loss occurs, EOL relay contacts open across the violet wires, opening the 2K EOL resistor, and causing a failure in that zone. Refer to PROGRAMMING FOR 4-WIRE SMOKE DETECTORS section for additional information regarding software-controlled operation and required programming prompt responses.



Only Class B zones may be used for 4-wire smoke detectors.

The following 4-wire smoke detectors are compatible with the 7720ULF:

System Sensor Model 2412B
System Sensor Model 2412THB



Important! The 4-wire smoke detector and EOL Relay are powered from the 7720ULF AUX POWER line. AUX POWER is limited to 150mA maximum. Total current draw of AUX POWER and BELL OUTPUT must not exceed 600mA.

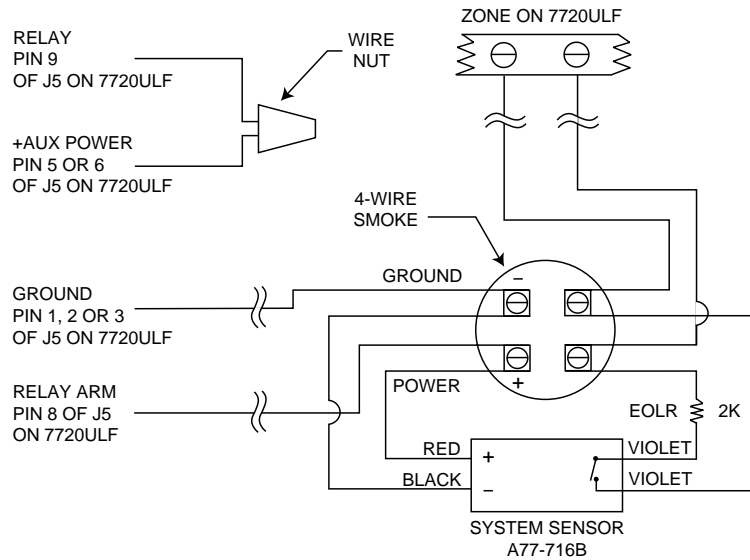
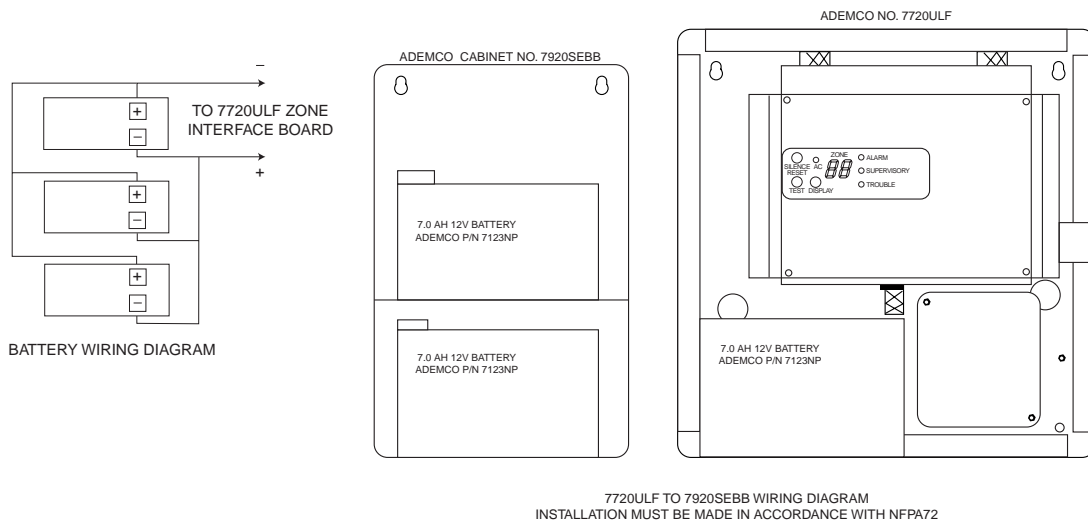


Figure 2. Connecting 4-Wire Smoke Detectors

Wiring for Factory Mutual Remote Station Applications

NFPA Standard 72 (Remote Station) requires 60 hours of battery backup for Remote Station subscriber Fire Alarm signaling equipment. This requires three 7 AMP-Hour, 12 volt batteries connected in parallel. Figure 3 shows the connection between the battery mounted in the 7720ULF chassis and two additional batteries mounted in the 7920SEBB battery cabinet. 7920SEBB must be mounted close to the 7720ULF to allow for a close-nippedled connection.



7720ULF TO 7920SEBB WIRING DIAGRAM
INSTALLATION MUST BE MADE IN ACCORDANCE WITH NFPA72

Figure 3. 7720ULF to 7920SEBB Wiring Diagram

Cables

The cables used to wire in zones must be Power Limited Fire Protective Signaling circuit cables (FPL). The Summary of Connections Diagram calls for a maximum wire run resistance of 50 ohms for each side for a Class A zone, and 300 ohms maximum for a Class B zone. Table 2 lists maximum allowable line lengths for 50 and 300 ohm resistance with either solid or stranded wire.

TABLE 2

GAUGE	50 OHMS SOLID	50 OHMS STRANDED	300 OHMS SOLID	300 OHMS STRANDED
#22	2,976 ft	X	17,857 ft	X
#20	4,762 ft	X	28,571 ft	X
#18	7,530 ft	7,800 ft	45,181 ft	46,802 ft
#16	11,962 ft	10,593 ft	71,770 ft	63,559 ft
#14	19,084 ft	16,722 ft	114,504 ft	100,334 ft
#12	30,303 ft	26,596 ft	181,818 ft	159,574 ft

Powering the System

The 7720ULF requires a nonswitchable, 24-hour continuous, 120VAC, 60 Hz dedicated branch circuit.

1. Verify that all internal cabinet connections are complete, and **be sure that the transformer input connections are adequately insulated to prevent electrical shock**. Also, keep AC input wires away from all zone and battery wires. Use tie wraps if necessary to keep these wires separated by at least 1/4-inch.
2. Connect the two battery leads as shown in **Figure 4. 7720ULF Summary of Connections**.
3. Connect the transformer input wires to a 120VAC, 60 Hz power source.
4. If the 7720ULF is not programmed, follow the programming procedure to set up the unit.



WARNING!
WHEN POWER IS APPLIED, THE TRANSFORMER WIRES CARRY HIGH VOLTAGE (120VAC) WHICH CAN CAUSE SEVERE INJURY OR DEATH. BE SURE TO INSULATE THIS CONNECTION ADEQUATELY TO PREVENT ELECTRICAL SHOCK TO PERSONNEL.

For Central Station Fire Alarm Service, the communicator in this control must transmit to a UL Listed Receiver/Central Station Automation System (Protective Signaling Service) that automatically annunciates unrestored, off-normal conditions during the 24-hour test report.

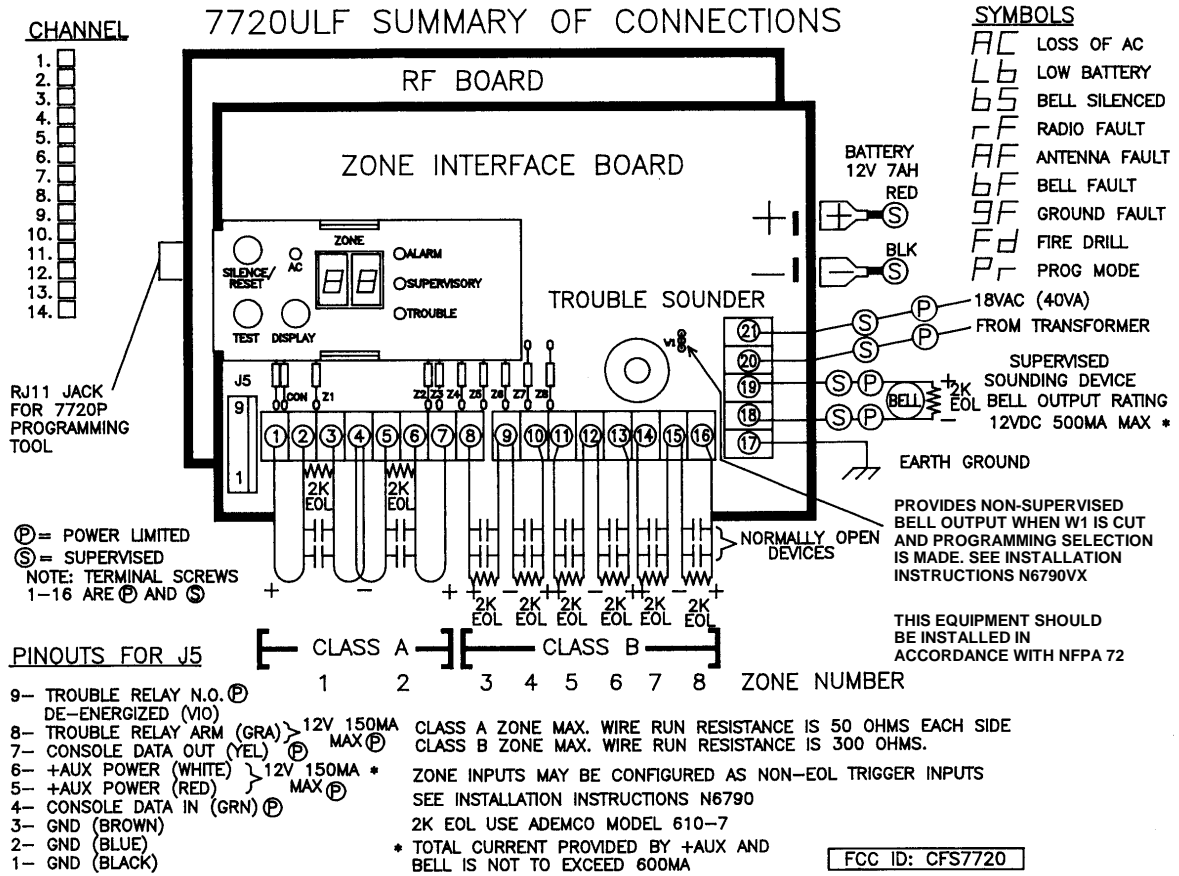


Figure 4. 7720ULF Summary of Connections Diagram

7720ULF Applications

In This Section

- ◆ *Slave Communicator Applications*
- ◆ *Stand-Alone Communicator Applications*

The 7720ULF has two basic operating modes: as a Slave Communicator or as a Stand-Alone Communicator. Basic Slave Communicator operation requires the 7720ULF to be connected to a UL rated Fire Control Panel. In this mode, the 7720ULF transmits a radio message from the data sent to it. In Stand-Alone mode, the 7720ULF also serves as the Fire Control Panel.

Slave Communicator Applications

The 7720ULF can be configured as a SLAVE COMMUNICATOR with or without line supervision. In this mode, trigger outputs from a Fire Control Panel are used to indicate the type of failure detected. The 7720ULF can be programmed with zones 1 through 8 indicating the type of failure as defined by the Central Station.

Display Under Slave Mode Operation

A number will appear on the 7720ULF display for any active (triggered) zone. If more than one zone is active, the display will scroll all active zone numbers. In addition, the ALARM and TROUBLE LEDs will turn on only with each zone that is programmed as an ALARM or TROUBLE zone, respectively, as the display scrolls. The number displayed indicates the type of fault detected, not a specific zone number from the Fire Control Panel (Refer to Figure 5). For example, when connected to a Vista 100, the display is defined as follows:

<u>Number Displayed</u>	<u>Definition</u>
1	FIRE ALARM
2	SILENT PANIC / DURESS (Burglary Only, Not Used)
3	AUDIBLE ALARM
4	FIRE SUPERVISORY
5	TROUBLE (Zone Trouble, Telco Fault, etc.)

Consider an example with a fire alarm, fire supervisory, and a zone trouble all being reported. If multiple zones are active at the same time, the display will scroll as follows:

<u>Number Displayed</u>	<u>LED On</u>
1	ALARM
4	ALARM
5	TROUBLE

Slave Communicator Without Line Supervision

The 7720ULF can be programmed as a Slave Communicator providing radio signaling only. Figure 5 shows the standard wiring connection to a Vista 100 Fire Control Panel. **The 7720ULF must be connected to the host UL Listed Fire Control Panel within conduit *not exceeding 30 inches in length*.**

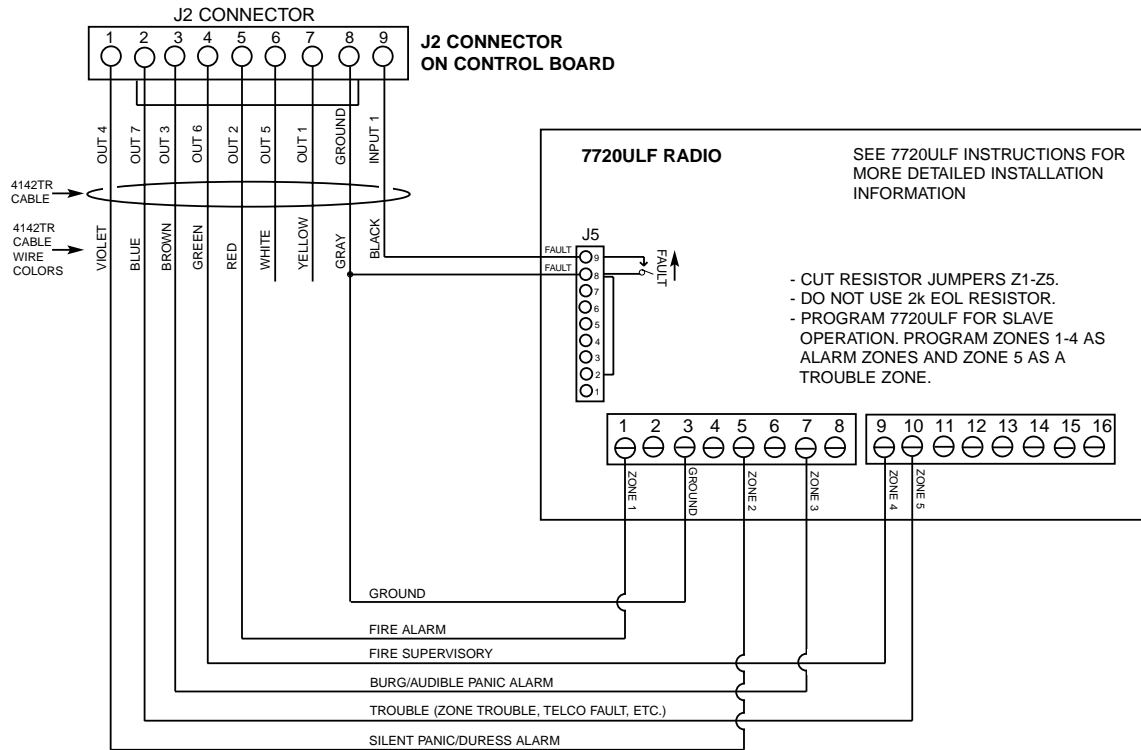
Figure 6 shows modifications required in Slave Mode configuration for zone connections. To program the unit as a Slave Communicator, answer "Y" to programming prompt #8 "**SLAVE MODE [Y/N]**" and select the zone type (such as ALARM, TELCO, OPEN/CLOSE, TROUBLE, and TEST).

Fault Relay Under Slave Mode

The fault relay will be activated for the following faults:

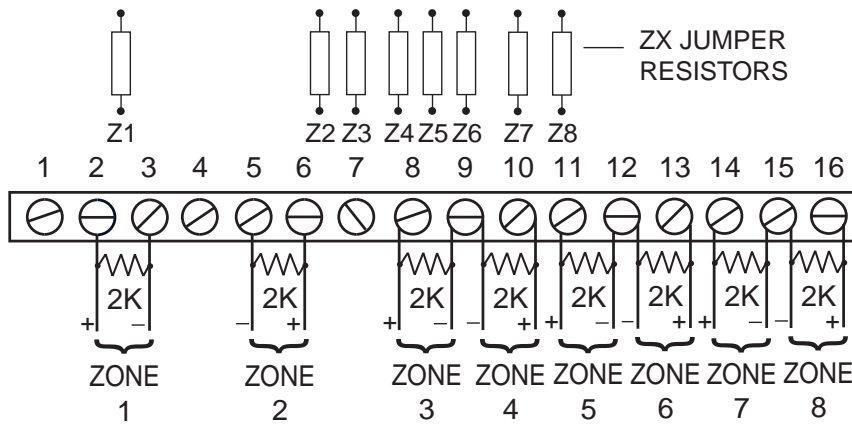
- ANTENNA FAULT
- RADIO FAULT
- GROUND FAULT
- LOW BATTERY
- AC LOSS

The relay can be programmed as normally open or normally closed, and also pulsed or latched. See *Section 4. Programming the 7720ULF*.

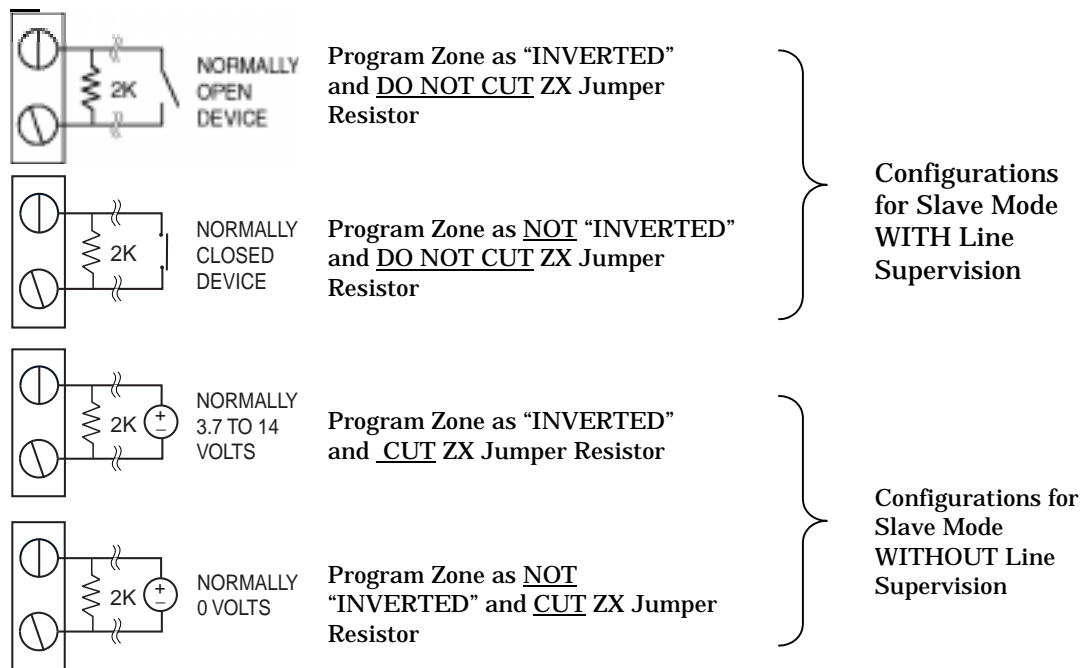


NOTES:
 • MOUNT THE 7720 WITHIN 3 FEET OF THE C-COM. RUN WIRING FROM C-COM TO 7720 IN CONDUIT.

Figure 5. 7720ULF Connections to a VISTA-100 Control Panel. Slave Communicator for Triggered Zones Without Line Supervision



SLAVE MODE PROGRAMMING



Note: Place EOL Resistors at the 7720ULF end of the connection.

Figure 6. Zone Modifications for Slave Mode Configuration

Slave Communicator With Line Supervision

The 7720ULF may also be configured to operate with line supervision with a UL Listed Fire Control Panel. In this application, the Fire Panel and 7720ULF may be installed more than 30 inches apart. This allows the installer to locate the 7720ULF in the best site for RF communication, while maintaining line integrity supervision with the Fire Panel as required by NFPA72. With line supervision, signal lines run between the Fire Control Panel and the 7720ULF are not required to be run in conduit when Fire Rated Signal Cable is used.

To program the unit to remotely supervise Fire Control Panel inputs, do the following:

1. Answer the programming prompts as follows:

- a) Slave Mode [Y/N] = "N"
- b) True Rest. [Y/N] = "N"
- c) Zx Supv [Y/N] = "Y"
- d) Bell Supv [Y/N] = "N"

The above programming will not require physically resetting the 7720ULF.

2. Use N/O contact closures to activate zone faults. Voltage and current inputs cannot be used in this mode.
3. Remove End-of-Line resistors from 7720ULF terminal block for zones connected to a host Fire Control Panel.
4. Wire the zones being used to relays connected to the detection device (see Figure 7). End-of-Line resistors are connected both at the detection device and at the relay contact closure arm. This will provide the required line supervision whereby the Fire Control Panel will detect the fault at the detection device. Change in state will close the relay, causing the 7720ULF to generate and transmit a fault signal for that zone. This configuration is for installations with 8 zones or less.

OR

5. When a 4204 programmable relay is connected as shown in Figure 8, the 7720ULF can perform Slave Communicator message reporting (as described previously in this section) for triggered inputs, with the added benefit of line supervision. Class A and B zones from the 7720ULF are wired to the Normally Open relay contacts. Status from fire, smoke, trouble, waterflow, etc. zones is monitored by the Fire Control Panel. Faults are reported on the Data line to the relay module, which trips the appropriate zone on the 7720ULF. Each time a zone is tripped on the Fire Control Panel, the fault will be shown on the 7720ULF display, when configured as in Figure 8. The relay module is programmed as follows:

Relay Number	Zone Type Programmed	Zone Display on 7720ULF
1	Fire Alarm	1
2	Fire Supervisory	4
3	Trouble (Zone Trouble, Telco Fault, etc.)	5

If the relay module is mounted remotely, it must be installed in a UL Listed enclosure, within 20 feet of, and in the same room as, the Fire Control Panel. Connections between Fire Control Panel and relay module must be run in conduit. Installing the relay module inside the Fire Control Panel cabinet eliminates this requirement. This is the recommended installation for supervised Slave mode operation. Do **not** use part # 4204CF for this application.

When installed as shown in Figures 7 and 8, all signal connections are supervised by the 7720ULF and / or Fire Control Panel, and are not required to be in conduit when Fire Rated Signal Cable is used.

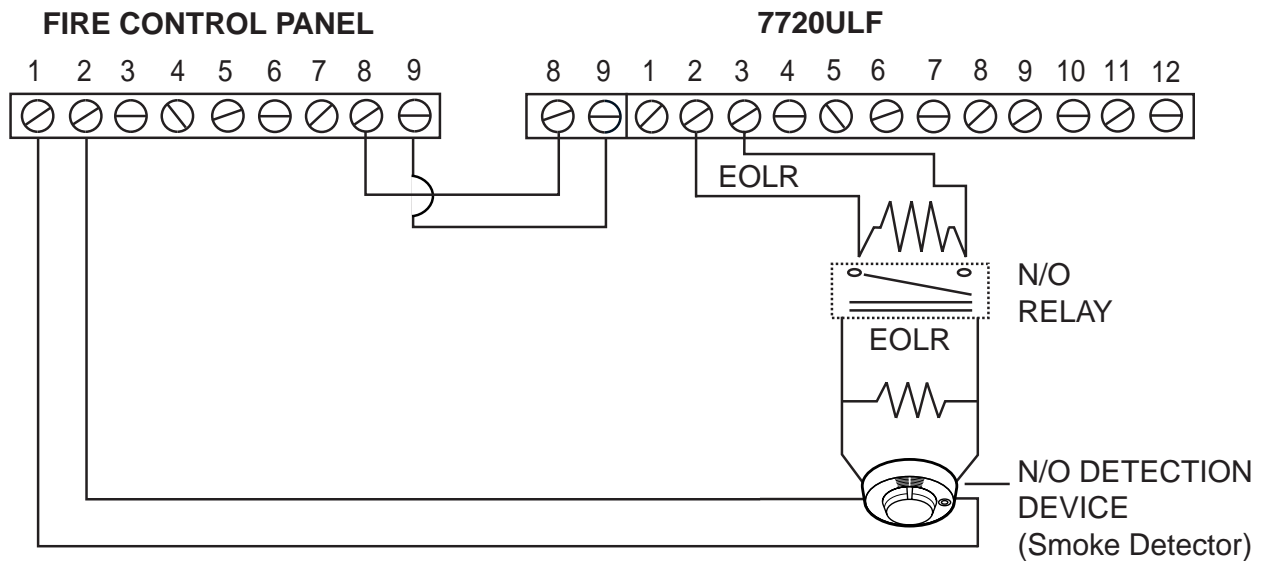
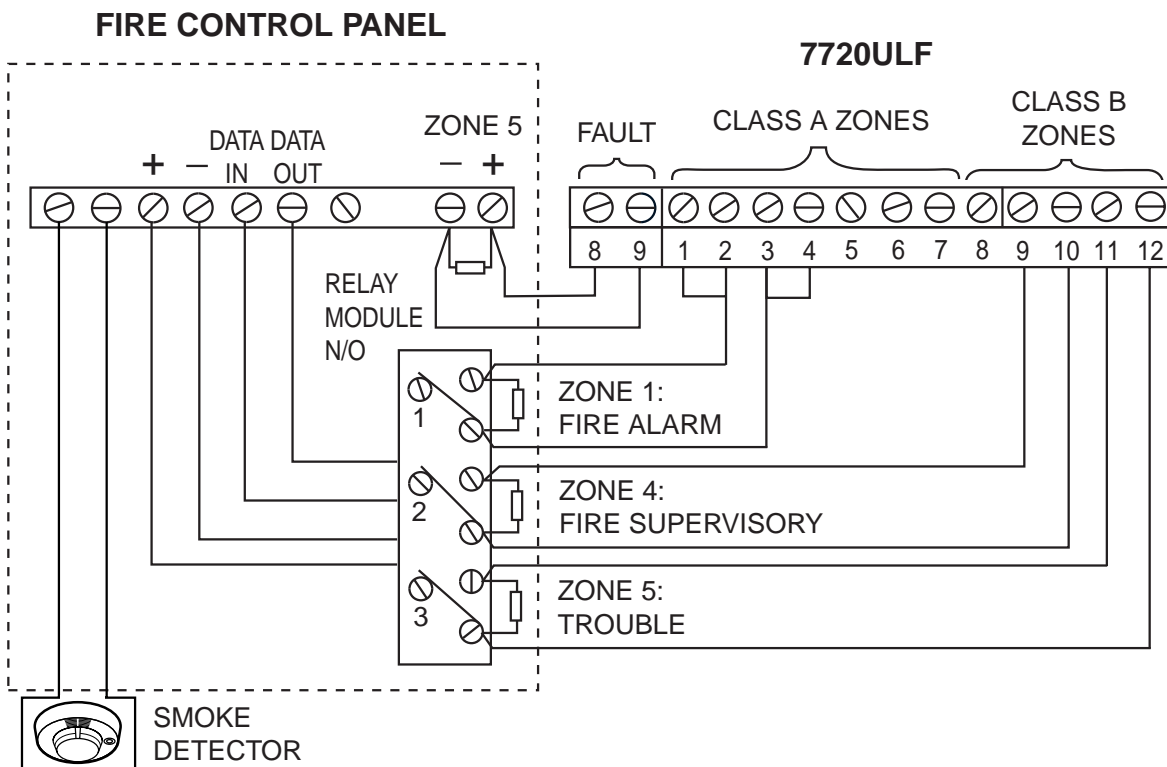


Figure 7. Connection Diagram from 7720ULF to Relay with Line Supervision



**Figure 8. Connection Diagram from 7720ULF to 4204 Programmable Relay Module.
Slave Communicator for Triggered Zones With Line Supervision.**

Fault Relay Under Slave Communicator With Line Supervision Mode

The fault relay will be activated for the following faults:

- ANTENNA FAULT
- RADIO FAULT

The relay can be programmed as normally open or normally closed, and also as pulsed or latched. See *Section 4. Programming the 7720ULF*.

Stand Alone Communicator Applications

The 7720ULF may also be configured as a Stand Alone Communicator. In this mode, 4-wire smoke detectors are supported, and up to two may be used in the zone. To program the unit as a Stand-Alone Communicator, refer to *Section 4. Programming the 7720ULF*. Wire all the zones being used to the 7720ULF panel with the End-of-Line resistors at the **detection device**. This will provide the required line supervision whereby the 7720ULF will generate and transmit a trouble signal for a failure for that particular zone. When using Fire Rated Signal Cable between the 7720ULF and the detection device, line supervision will eliminate the requirement for conduit on those lines.

Display Under Stand-Alone Mode Operation

The zone number will appear on the display for any active (triggered) zone. In STAND-ALONE mode, zones can only be configured as FIRE, SMOKE, WATERFLOW, or SUPERVISORY. If more than one zone is active, the display will scroll all active zone numbers. The ALARM, SUPERVISORY, and TROUBLE LEDs will only turn on as the display scrolls. For example, zones 1, 2, and 3 are programmed as follows:

- Zone 1: FIRE
- Zone 2: SMOKE
- Zone 3: SUPV

If all three zones are active at the same time, the display will scroll as follows:

<u>Number Displayed</u>	<u>LED On</u>
1	ALARM
2	ALARM
3	SUPERVISORY

Fault Relay Under Stand-Alone Mode

The fault relay will be activated for the following faults:

- ANTENNA FAULT
- RADIO FAULT

The relay can be programmed as normally open or normally closed, and also as pulsed or latched. See *Section 4. Programming the 7720ULF*.

When 4-wire smoke detectors are used, the fault relay is not available. Antenna and radio faults will still be annunciated locally on the 7720ULF panel display.



Special Programming

Special programming features are used for fire zones or when 4-wire smoke detectors are installed.

True Restores

True Restores allows the 7720ULF to latch all events, such as supervisory alarms, troubles, radio faults, etc., that require a person to physically press the RESET button to restore a zone back to a nominal condition. Fire and smoke alarms are an exception to this programming feature. **Any zone configured as a fire or smoke zone will always latch failures, whether True Restores is enabled or disabled.** To enable the TRUE RESTORE mode, answer "Y" to programming prompt #9 "**True Rest. [Y/N].**" If it is desired that zones configured as supervisory or trouble as well as ground fault, radio fault, and antenna fault reset automatically, then answer "N" to programming prompt #9 "**True Rest. [Y/N].**"

Programming for 4-Wire Smoke Detectors

Starting with 7720ULF software version 1.26, 4-wire smoke detectors will be supported. The new smoke detector option will only be supported in the Stand-Alone configuration of the 7720ULF.

When a zone is enabled, a new prompt selection will appear: "**Zx SMOKE [Y/N].**" Only *one* of eight zones may be configured as a smoke zone. Once a zone is selected as a smoke zone, the SMOKE prompt will not appear for any other zone.



Important! If you want to change the smoke zone to another zone, you must first disable the zone previously programmed for smoke, or change the configuration to something other than smoke.

Alarm verification is a regulatory agency requirement to prevent false alarms from cigarette smoke. The new software version will automatically perform an alarm verification of the smoke zone. The verification process is as follows:

If the smoke detector goes into alarm, power to the detector is removed for 7 seconds. At the end of the 7 seconds, power is again applied to the detector. An additional 7 seconds is allowed to elapse to determine if the smoke detector is still in alarm. If the detector is still in alarm, or goes into alarm for the next 60 seconds, the 7720ULF places that zone in alarm and transmits the new status message.

The result is a 14-second delay from the time that the smoke detector goes into alarm until the 7720ULF annunciates and transmits the message. The message transmitted by the 7720ULF for a smoke zone is the same as for a fire zone. That is, a "7" on the 9th status location, and a "1" on the corresponding zone location.

A smoke zone is similar to a fire zone in that both are always in True Restore mode, regardless of response to programming prompt #9 "True Rest. [Y/N]." This means that when a smoke zone goes into alarm, the 7720ULF latches this condition, and it will not restore the alarm until it is physically reset by pressing the RESET button on the front panel. When the RESET button is pressed, power to the smoke detector is removed for 7 seconds. This action unlatches the smoke detector if it is no longer in alarm.

Programming the 7720ULF

In This Section

- ◆ Programming Tool
- ◆ Programming Selections
- ◆ Reviewing Programming Selections
- ◆ Correcting Programming Errors
- ◆ Setting Factory Defaults
- ◆ Exiting Program Mode and Assigning Passwords

Programming Tool

The 7720P Programming Tool is powered by the 7720ULF, and plugs into a telephone connector on the 7720A PC board. See *Figure 4. 7720ULF Summary of Connections*.

Each key of the 7720P has two possible functions: a normal function and a SHIFT function. To perform a normal key function, simply press the desired key. To perform a SHIFT key function, press the SHIFT key, then press the desired function key.

Table 3. 7720P NORMAL & SHIFT KEY (shift LED lit) FUNCTIONS

Key	Normal Key Function	SHIFT Key Function
BS/ESC	[BS]: Press to delete entry	[ESC]: Resets EEPROM defaults
↓/↑	[↓]: Scroll-down programming	[↑]: Scroll-up programming
N/Y	[N]: Press for "NO" answer	[Y]: Press SHIFT-Y for "YES" answer
SHIFT	Press before pressing a SHIFT key function. Will light SHIFT LED. LED goes out once a key is pressed. Must press again for each SHIFT function desired.	
1/A	[1]: For entering the number 1	[A]: Used for entering C.S. ID number
2/B	[2]: For entering the number 2	[B]: Used for entering C.S. ID number
3/C	[3]: For entering the number 3	[C]: Used for entering C.S. ID number
4/D	[4]: For entering the number 4	[D]: Used for entering C.S. ID number
5/E	[5]: For entering the number 5	[E]: Used for entering C.S. ID number
6/F	[6]: For entering the number 6	[F]: Used for C.S. ID & FAST mode
7/S	[7]: For entering the number 7	[S]: Press to display diagnostic status
8/T	[8]: For entering the number 8	[T]: Press to send TEST messages
9/X	[9]: For entering the number 9	[X]: Press to reset the 7720ULF

Key	Normal Key Function	SHIFT Key Function
* /SPACE	[*]: Not used with 7720ULF	[SPACE]: Not used with 7720ULF
0	[0]: For entering the number 0	No SHIFT function
# /ENTER	[# /ENTER]: Press to accept variable entries	No SHIFT function

Upon power-up, the following message will appear:

7720 ULF X.XX
(c) Pittway 1993

The 7720ULF transmitter may be programmed upon power-up if the ENTER key is sent over the serial input during the first 12 seconds.

The response to the ENTER key is the following:

Program Mode

Programming Selections

The following is a list of actual prompts that will appear when automatic programming takes place. For each prompt, possible responses and the corresponding actions are shown. The second line of each display shows the current value stored in EEPROM, represented by an "x" in the PROMPT column in the table below. If the prompt requires a YES/NO response, the contents of EEPROM will be displayed as a "Y" or "N." If the value in EEPROM is invalid, "?" will be displayed within the parentheses.

#	PROMPT	RESPONSE	ACTION
1	"ID#" (xxxx) - >	0001-9999	Enter Customer Account #.
2	"Odd[Y/N]" (x) - >	Y N	Odd Networks. Even Networks.
3	"15 Min Supv [Y/N]" (x) - >	Y N	Status reporting is always enabled. Enter the desired interval: Short Form: every 15 minutes (6-hour window for COM-FAIL report). Long Form: every hour (standard 24 hour reporting for COM-FAIL).
4	"AlarmNet [Y/N]" (x) - >	Y N	AlarmNet customer. Private customer; skips to prompt #6.
5	"CS ID" (x) - >	1 - 7F	Central Station ID; skips to prompt #8.
6	"Routing Code" (x) - >	0 - 7	Enter the Private System routing code. Not applicable for AlarmNet users.
7	"Chnl #" (x) - >	1 - F	Enter the Private System number. Not applicable for AlarmNet users.

8	"Slave Mode [Y/N]" (x) - >	Y	System configured as a slave; skip to prompt #10.
		N	System configured as a stand-alone device. NOTE : See sections on SLAVE and STAND ALONE COMMUNICTOR APPLICATIONS
9	"True Rest. [Y/N]" (x) - >	Y	Restores sent after reset.
		N	Restores sent immediately. NOTE : See chapter on TRUE RESTORES for details

PROMPTS # 10 TO 25 ARE REPEATED FOR ALL 8 ZONES

#	PROMPT	RESPONSE	ACTION
10	"Zx Enable [Y/N]" (x) - >	Y	Zone monitoring enabled; if answer to prompt #8 (Slave Mode) was "Y," skip to prompt #17.
		N	No monitoring on this zone, skip to prompt #26 (if at zone 8).
11	"Zx Fire [Y/N]" (x) - >	Y	Class A/Class B fire without verification, skip to prompt #24.
		N	Not fire zone.
12	"Zx Supv [Y/N]" (x) - >	Y	Class A/Class B supervisory, skip to prompt #15.
		N	Not supervisory zone.
13	"Zx Waterflo [Y/N]" (x) - >	Y	Class A/Class B fire waterflow, skips to prompt #16.
		N	Not waterflow zone.
14	"Zx SMOKE [Y/N]" (x) - >	Y	Smoke zone with verification.
		N	Not smoke zone, cycles back to prompt #11.
15	"Supv/Open [Y/N]" (x) - >	Y	Supervisory alarm triggered by open circuit as well as short circuit.
		N	Supervisory alarm triggered by short circuit only. Skip to prompt #23.
#	PROMPT	RESPONSE	ACTION
16	"Silence Wtr [Y/N]" (x) - >	Y	Able to silence fire waterflow alarm with SILENCE/RESET key.
		N	Fire waterflow alarm self-silences only – cannot be manually silenced. Skip to prompt #23.
17	"Zx Alarm [Y/N]" (x) - >	Y	Trigger input configured as regular alarm zone, skip to prompt #22.
		N	Not alarm zone.
18	"Zx Telco [Y/N]" (x) - >	Y	Trigger input configured as telco monitoring zone, skips to prompt #22.
		N	Not telco zone.
19	"Zx O/C [Y/N]" (x) - >	Y	Trigger input configured as open/close zone, skip to prompt #22.
		N	Not open/close zone.
20	"Zx Trouble [Y/N]" (x) - >	Y	Trigger input configured as trouble zone, skip to prompt #22.
		N	Not a trouble zone.
21	"Zx Test [Y/N]"	Y	Trigger input configured as a test point, skip to prompt #22.
		N	Not test point, cycles back up to prompt #17.

	(x) - >		
22	"Zx Invert [Y/N]" (x) - >	Y N	Zone inverted (normally high). Zone not inverted (normally low).
23	"Zx Delay" (x) - >		Input delay given in multiples of 1 second entered in DECIMAL.

TO MEET REGULATORY AGENCY REQUIREMENTS, THE 7720ULF MUST BE PROGRAMMED WITH THE FOLLOWING OPTIONS. DO NOT ENTER DIFFERENT RESPONSES UNLESS THE A.H.J. (AUTHORITY HAVING JURISDICTION) RULES OTHERWISE.

Program the 7720ULF as follows:

- a) Enable Restoral signals for each enabled zone (answer "Y" to programming prompt #24).
- b) Enable ground fault supervision (answer "Y" to programming prompt #28).
- c) Enable high-security Antenna test (answer "Y" to programming prompt #32).

24	"Zx Rest. [Y/N]" (x) - >	Y N	Restorals reported. Restorals NOT reported.
25	"Zx 2CS [Y/N]" (x) - >	Y N	2nd CS Reporting enabled for zone x. 2nd CS Reporting disabled for zone x.
26	"Rel. Pulsed [Y/N]" (x) - >	Y N	Fault relay momentarily triggered Relay latched.
27	"Rel. Norm ON [Y/N]" (x) - >	Y N	Relay normally closed. Relay normally open. If answer to prompt #8 (Slave mode) was "Y," skip to prompt #32.
28	"Gnd Flt Sup [Y/N]" (x) - >	Y N	Earth ground is supervised. Earth ground is NOT supervised.
29	"Bell Supv [Y/N]" (x) - >	Y N	Bell is supervised EOL. Bell is NOT supervised.
30	"Bell Pulsed [Y/N]" (x) - >	Y N	Bell is pulsed on 1 second, off 1 second for selected duration (#31) in compliance with NFPA Temporal Bell Pulse Profile. Bell is on steady for selected duration.
31	"Bell Time Out" (x) - >	Y N	Bell duration given in multiples of 2 minutes entered in DECIMAL. Must be set to minimum 5 minutes for fire protection systems, 15-minute minimum for burglary systems. Bell does not turn off until 7720ULF is RESET manually or automatically.
32	"HS Ant. Tst [Y/N]" (x) - >	Y N	Transmitter Self-Check performed once every 135 seconds (2.25 min). Transmitter Self-Check is NOT performed.

- | | | | |
|----|-----------------------------------|--------|-------------------------------------------------------------------------------------------------|
| 33 | "2CS Sys Rpt
[Y/N]"
(x) - > | Y
N | 2nd CS Reporting Enabled for system troubles.
2nd CS Reporting disabled for system troubles. |
| 34 | "2CS Test
[Y/N]"
(x) - > | Y
N | 2nd Cs Reporting Enabled for Test messages.
2nd Cs Reporting Disabled for Test messages. |

IF ANY ZONES WERE PROGRAMMED TO REPORT TO A SECOND CENTRAL STATION, OR IF "Y" WAS ANSWER TO PROMPT #33 OR 34, THE NEXT TWO QUESTIONS ARE ASKED. OTHERWISE, THE REVIEW QUESTION IS ASKED.

35	"2nd ID#" <div style="border: 1px solid black; width: 100px; height: 15px; margin: 2px 0;"></div> (xxxxx) <div style="border: 1px solid black; width: 100px; height: 15px; margin: 2px 0;"></div> - >	Enter 2nd Account #
----	-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	---------------------

36	"2nd CS ID" <div style="border: 1px solid black; width: 100px; height: 15px; margin: 2px 0;"></div> (x) - >	Enter 2nd Central Station ID #
----	-------------------------------------------------------------------------------------------------------------	--------------------------------

All entries are then checked by the system for conflicts. If no errors are found, the following is displayed:

REVIEW?

See **EXITING PROGRAM MODE & ASSIGNING PASSWORDS** later in this Section to complete 7720ULF programming or review selections as described below.

Reviewing Programming Selections

To review selections made before exiting Programming mode, press "Y" then ENTER keys. Press the UP arrow key to display program entries. The previous question will be displayed. Use the DOWN arrow key to display subsequent programming entries.

Correcting Programming Errors

Press any key to display the first invalid entry. Correct the entry by pressing "B/S" to position the cursor over the incorrect response and enter the new response. Press ENTER to display the next invalid entry. When the last invalid entry is corrected, the system again performs a validation routine. If no errors are found, the "REVIEW?" question is displayed.

Setting Factory Defaults

This option resets all programming prompts to their factory default values by pressing the ESC key at the "REVIEW?" prompt. A confirmation prompt will appear. Press "Y" to set defaults, or press "N" to return to the "REVIEW?" prompt. If "Y" is pressed, all programmed values will be reset to their original factory settings.

Exiting Program Mode & Assigning Passwords

When the last programming prompt is answered, all entries are validated by the system. If no errors are found, the following is displayed:

REVIEW?

To exit program mode & assign passwords: Press “N” in response to the “REVIEW?” question. If no password has been assigned, the following appears:

ENTER PASSWORD?
[Y/N]

Passwords can be used to split the programming questions into two menus. If a password is desired, press “Y.” The following prompts appear. Press “N” if no passwords are desired.

CHOOSE FROM THE
FOLLOWING MENUS:

Central
Sta (1)
Subscriber
(2)

Enter “1” or “2” depending on the menu to which a password is to be assigned. When prompted, enter the desired password (up to 4 digits). You will then be prompted to re-enter the password as confirmation.

If a password has already been assigned for the current programming menu, the “ENTER PASSWORD?” prompt is replaced by the following:

CHG PASSWORD?
[Y/N]

Press “Y” or “N”, depending on whether you want to change the password for the **current** programming menu. If Yes “Y”, you will be prompted to enter the new password twice (as confirmation).

PASSWORD CLEARED

To clear the current password, press ENTER for both the new password and the confirmation, so that the display on the left appears.

When the password question(s) have been answered, the system exits the Program mode and returns to the normal mode. The 7720P will display:

DONE

The Programming Tool can then be disconnected, or can be used to trigger Test messages. Refer to *Section 5. Testing the 7720ULF*.

Testing the 7720ULF

In This Section

- ◆ *Radio Transmission Test*
- ◆ *Cabinet Panel Button Functions and Displays*
- ◆ *Fire Walk Test*

Radio Transmission Test

The 7720ULF is capable of sending a test message to confirm the radio's communication link to the Central Station.

For AlarmNet users, the test message will cause the Master Station network to send a Field Triggered Diagnostic Message to the Central Station. This message provides network information as well as signal strength and frequency characteristics of the transmitted messages. Refer to the AlarmNet User's Guide for detailed information concerning these messages.

A 7720P Programming Tool can be used to initiate the test when connected to the 7720ULF programming connector. To begin a cycle of test message transmissions, press SHIFT-8 ("T" command). To end the transmissions before the end of the cycle, simply enter the command again.

NFPA regulations require all fire alarm systems to provide two independent communication paths to supervise operation between a protected premises and a supervising station. The 7720ULF must be installed such that it is in communication with at least 2 towers when no telephone lines are used. If a telephone line is installed, the 7720ULF must communicate with at least one tower to satisfy this requirement.

Verify all RF communications through TAC center by calling: 1-800-222-6525.

Radio Faults

The last radio fault *detected* as well as the last fault *reported* to the monitoring network can be viewed by pressing "E" (SHIFT 5) on the 7720P Programming Tool. The first line of the display on the 7720P will read "Detected Fault," followed by the fault index (see table of Radio Fault Index Numbers below). The second line of the display will read "Reported Fault" followed by the fault index.

Table 4. RADIO FAULT INDEX NUMBERS

- 1** = Internal radio fault.*
- 2** = RF power detected without a valid transmission.*
- 3** = Forward power never attained.
- 4** = RF power not sustained throughout transmission.
- 5** = VSWR bad (check antenna, connections, and cable).
- CRC*** = RAM/EEPROM corruption.
- * Codes 1, 2, and CRC require factory service.

The **Detected Fault** is one that occurred on at least one transmission, but did not necessarily trip the fault relay. The **Reported Fault** is one that was present for a number of transmissions (typically at least 4 consecutive transmissions) and that tripped the fault relay, causing a report to be sent to the monitoring network.

If the Detected Fault value does not match the Reported Fault value, and the transmission cycle has completed, it indicates that the fault was not present long enough for the radio to report the condition. If the transmission has NOT completed, then the radio has not yet sampled the fault condition completely.

These values are stored in EEPROM and will be retained even when the 7720ULF is powered down. These values can be erased by pressing ESC (SHIFT BS) immediately following the viewing of the display. They are also automatically erased upon exiting the Program mode.

Cabinet Panel Button Functions & Displays

Silence/Reset Button (Stand-Alone Mode Only)

Press this button while the buzzer and/or bell are sounding to silence both. If "True Restores" was selected during programming, it will be necessary to press the SILENCE/RESET button again to restore the condition. The panel will not restore the alarm until the button is pressed again.

Test Button (Stand-Alone Mode Only)

Press this button to test the ALARM, SUPERVISORY, and TROUBLE LEDs, as well as the bell and the two 7-segment displays. For the first four seconds of the test, the above three LEDs remain lit and all segments of the two 7-segment displays are on, causing "88" to appear on the display. At the end of the four seconds, "Fd" (Fire Drill) will appear and the LEDs will return to their proper states. "Fd" will remain on the display for the remainder of the programmed bell interval or until the TEST button is pressed again. A Field Triggered Diagnostic Message is also transmitted to the Central Station when the TEST button is pressed. Press the TEST button again to end the test.

Caution: Be aware that the TEST button will energize the main bell as programmed, either pulsed or continuous, until the button is hit again.



Display Button

Only an "Alarm" will be displayed automatically by the two 7-segment displays. If a supervisory alarm or any trouble occurs, only the SUPERVISORY and/or TROUBLE LED

will be lit. The 7-segment display will not show the zone number in supervisory alarm or trouble condition.

To see which zone is in supervisory alarm or trouble, press the DISPLAY key. The first time the DISPLAY key is pressed, the SUPERVISORY LED starts to blink, indicating that any numbers being scrolled in the 7-segment display are zones in Supervisory Alarm. Press the DISPLAY key again; the TROUBLE LED starts to blink, and numbers being scrolled are zones in trouble. Press the DISPLAY key for a third time; the ALARM LED starts to blink, and numbers being scrolled are zones in alarm. If the DISPLAY key is pressed once again, the display mode is exited.

If the display mode is not exited by pressing the DISPLAY key a fourth time, it will automatically be exited one minute after the initial pressing of the DISPLAY key.

When troubles are displayed, more than just zone numbers may be scrolling in the two 7-segment displays. Two letter symbols may also be scrolling. The following is a list of the symbols and their definitions:

" AC "	AC brown-out:	AC line voltage less than 102 volts.
" Lb "	Low battery:	Battery voltage less than 11.4V during battery test interval, or absence of AC power.
" bS "	Bell silenced:	Bell was silenced using the SILENCE/RESET key or bell self-silenced due to programmed time-out and alarm condition still exists.
" rF "	Radio fault:	The RF transmitter has detected an internal fault. For additional information about the internal fault, see RADIO FAULTS in <i>Section 5</i> .
" AF "	Antenna fault:	The antenna has been disconnected or shorted.
" bF "	Bell fault:	Bell shorted, open or shorted EOL resistor.
" CC "	CRC Error:	RAM or EEPROM (Electrically Erasable Programmable ROM) is corrupted.
" gF "	Ground fault:	Earth ground connected to signal ground.
" Fd "	Fire drill:	A fire drill was initiated by pressing the TEST button.
" Pr "		Programming Mode.

The AC LED indicates when AC power is present.

Fire Walk Test (Stand-Alone Mode Only)

The Fire Walk Test enables the installer/user to verify the functionality of the installation.



The 7720ULF must be programmed before attempting to perform the Fire Walk Test.

To enter the Walk Test mode, press SHIFT 3 ("C") on the 7720P Programming Tool during the power-on sequence.

If the 7720ULF is already ON and operating, press SHIFT 9 ("X") to re-boot the unit, then press SHIFT 3 ("C") while the LEDs are sequentially flashing (ALARM, SUPERVISORY, and TROUBLE) to enter the Fire Walk Test mode.

Once in Walk Test mode, the Central Station is notified via a System Trouble message with a "1" in zone 8 and a "6" in the status channel. Locally, the bell turns on for 4 seconds and the message "Walk Test" appears on the 7720P Programming Tool to indicate that the Walk Test has begun.

In this mode, if a zone is faulted (shorted or opened), the following will occur:

1. The faulted zone number is displayed on the panel.
2. The corresponding LED is lit depending on zone programming (ALARM, SUPERVISORY, and TROUBLE).
3. The bell and buzzer are turned on for 1 second.
4. No transmission to the Central Station is sent.

When the zone is restored, the following occurs:

1. The zone number is cleared from the panel display.
2. The corresponding LED is extinguished.
3. The bell and buzzer are sounded for 2 seconds.
4. No restores are transmitted to the Central Station.

The Walk Test is automatically terminated if no zone triggers occur for 30 minutes. Otherwise, the installer/user can exit the Walk Test mode by pressing the ESC key on the 7720P Programming Tool.

Exiting the Walk Test mode will generate a System Trouble Restore and Power-On Reset message at the Central Station. That is, a single message will be sent to the Central Station: a "3" in the 8th channel (zone), and a "1" in the 4th channel (zone).

New 7720ULF High Speed Messages

The 7720ULF has the ability to report two new ADEMCO High Speed messages to the Central Station:

1. 5555 5515 6

This message indicates that the 7720ULF has either detected a problem with bell supervision, or has detected a ground fault. When this faulted condition is corrected, the Central Station will then receive the Restore message: **5555 5535 6**

2. 5555 5551 6

This message will indicate that the fire system at the protected premises has been put in Walk Test mode. While the system is in this mode, service personnel can test the functionality of the system without transmitting any alarm signals to either the Central Station or the Fire Station.

Once the Walk Test mode is exited, or if no zone triggers occur for 30 minutes, the Central Station will receive a single message indicating that the system is no longer in the Walk Test mode and the system has been reset. The message received in the Central Station will be: **5551 5553 6**

7720ULF Specifications

.....

Specifications

Dimensions:	4" x 12" x 12".
Power:	18VAC from 40VA Transformer.
Current drain:	100mA standby; 900mA in alarm.
Input triggering levels:	3.7 to 14 volts into 2k ohms.
RF power output:	5 watts nominal.
Frequency band:	928.0125 MHz to 928.3375 MHz, 25 KHz channels.
Frequency accuracy:	± 5 PPM.
Operating temp:	32° to 122°F (0° to +50° Celsius).
Storage temp:	-40° to 158°F (-40° to +70° Celsius).
Humidity:	90% relative humidity, noncondensing.
Altitude:	To 10,000 ft. operating, to 40,000 storage.
Antenna:	External Type N connector.

FCC Statement, Limitations, & Warranty

TO THE INSTALLER

Regular maintenance and inspection (at least annually) by the installer and frequent testing by the user are vital to continuous satisfactory operation of any alarm system.

The installer should assume the responsibility of developing and offering a regular maintenance program to the user as well as acquainting the user with the proper operation and limitations of the alarm system and its component parts. Recommendations must be included for a specific program of frequent testing (at least weekly) to insure the system's proper operation at all times.

"FEDERAL COMMUNICATIONS COMMISSION (FCC) STATEMENT"

This equipment has been tested to FCC requirements and has been found acceptable for use. The FCC requires the following statement for your information:

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

- If using an indoor antenna, have a quality outdoor antenna installed.
- Reorient the receiving antenna until interference is reduced or eliminated.
- Move the receiver away from the transmitter.
- Move the antenna leads away from any wire runs to the transmitter.
- Plug the transmitter into a different outlet so that it and the receiver are on different branch circuits.

If necessary, the user should consult the dealer or an experienced radio/television technician for additional suggestions.

The user or installer may find the following booklet prepared by the Federal Communications Commission helpful:

"Interference Handbook"

This booklet is available from the U.S. Government Printing Office, Washington, DC 20402. Stock No. 004-000-00450-7.

The user shall not make any changes or modifications to the equipment unless authorized by the Installation Instructions or User's Manual. Unauthorized changes or modifications could void the user's authority to operate the equipment.

THE LIMITATIONS OF THIS RADIO COMMUNICATIONS SYSTEM

While this 900 MHz Long Range Radio communications system is part of an advanced and sophisticated security system, it does not offer guaranteed protection against burglary or fire, nor does it guarantee communication of burglary or fire warning signals to a Central Station. Any alarm system, or any communications system, whether commercial or residential, is subject to compromise, or failure to warn, for a variety of reasons. Examples of some of these reasons are:

- Intruders may gain access through unprotected openings or have technical sophistication to bypass an alarm sensor, and then disconnect an alarm communicating radio transmitter.
- Signals sent by 900 MHz radio transmitters may be blocked by metal, mountains, hills, foliage and other natural and man made obstructions before they are received by a master receiving station or sent to a Central Station. Even a path previously verified as acceptable may periodically change its characteristics.
- Long-range radio communication transmitters will not work without power. Radio transmitters require a battery to work properly in the absence of A.C. power. A weak or dead battery, or improperly installed batteries may prevent these devices from functioning properly if A.C. power is disrupted for any reason.
- Radio communication systems are subject to external interference, natural or man-made, intentional or coincidental, that may keep a signal or group of signals from being successfully received by a master receiving station or a Central Station. In addition, one-way radio communication devices receive no acknowledgment from a master receiving station that their signals are being successfully received. Signals transmitted may clash with those transmitted from other systems. While statistical estimates predict successful operation, if the guidelines in the system manuals are followed, the operation of this system is still probabilistic in nature and may be subject to random signal failures.
- Radio communication devices may change their characteristics over time. Such parameters as frequency, modulation and power should be properly monitored periodically, with required adjustments made by qualified personnel.
- Radio communication devices must be installed by qualified personnel. Improper installation or selection of a transmitter's location may cause intermittent or unreliable performance.

Any electronic or mechanical device can fail. The most common cause of an alarm system or a radio communications system not functioning properly when an intrusion or fire occurs is inadequate maintenance, maintenance that is intended to find such failures as soon as possible. This alarm and communication system should be tested weekly to be sure all sensors and transmitters are working properly.

Installing an alarm system may make one eligible for lower insurance rates, but an alarm system is not a substitute for adequate insurance. Homeowners, property owners, business owners and renters should continue to insure their property and lives.

We continue to develop new and improved protection devices. Users of alarm systems owe it to themselves and their loved ones to learn about these developments.

ADEMCO LIMITED WARRANTY

Alarm Device Manufacturing Company, a Division of Pittway Corporation, and its divisions, subsidiaries and affiliates ("Seller"), 165 Eileen Way, Syosset, New York 11791, warrants its products to be in conformance with its own plans and specifications and to be free from defects in materials and workmanship under normal use and service for 18 months from the date stamp control on the product or, for products not having an ADEMCO date stamp, for 12 months from date of original purchase unless the installation instructions or catalog sets forth a shorter period, in which case the shorter period shall apply. Seller's obligation shall be limited to repairing or replacing, at its option, free of charge for materials or labor, any product which is proved not in compliance with Seller's specifications or proves defective in materials or workmanship under normal use and service. Seller shall have no obligation under this Limited Warranty or otherwise if the product is altered or improperly repaired or serviced by anyone other than ADEMCO factory service. For warranty service, return product transportation prepaid, to ADEMCO Factory Service, 165 Eileen Way, Syosset, New York 11791.

THERE ARE NO WARRANTIES, EXPRESS OR IMPLIED, OF MERCHANTABILITY, OR FITNESS FOR A PARTICULAR PURPOSE OR OTHERWISE, WHICH EXTEND BEYOND THE DESCRIPTION ON THE FACE HEREOF. IN NO CASE SHALL SELLER BE LIABLE TO ANYONE FOR ANY CONSEQUENTIAL OR INCIDENTAL DAMAGES FOR BREACH OF THIS OR ANY OTHER WARRANTY, EXPRESS OR IMPLIED, OR UPON ANY OTHER BASIS OF LIABILITY WHATSOEVER, EVEN IF THE LOSS OR DAMAGE IS CAUSED BY THE SELLER'S OWN NEGLIGENCE OR FAULT.

Seller does not represent that the products it sells may not be compromised or circumvented; that the products will prevent any personal injury or property loss by burglary, robbery, fire or otherwise; or that the products will in all cases provide adequate warning or protection. Customer understands that a properly installed and maintained alarm may only reduce the risk of a burglary, robbery, fire or other events occurring without providing an alarm, but it is not insurance or a guarantee that such will not occur or that there will be no personal injury or property loss as a result. CONSEQUENTLY, SELLER SHALL HAVE NO LIABILITY FOR ANY PERSONAL INJURY, PROPERTY DAMAGE OR OTHER LOSS BASED ON A CLAIM THE PRODUCT FAILED TO GIVE WARNING. HOWEVER, IF SELLER IS HELD LIABLE, WHETHER DIRECTLY OR INDIRECTLY, FOR ANY LOSS OR DAMAGE ARISING UNDER THIS LIMITED WARRANTY OR OTHERWISE, REGARDLESS OF CAUSE OR ORIGIN, SELLER'S MAXIMUM LIABILITY SHALL NOT IN ANY CASE EXCEED THE PURCHASE PRICE OF THE PRODUCT, WHICH SHALL BE THE COMPLETE AND EXCLUSIVE REMEDY AGAINST SELLER. This warranty replaces any previous warranties and is the only warranty made by Seller on this product. No increase or alteration, written or verbal, of the obligations of this Limited Warranty is authorized.

ADEMCO
GROUP

165 Eileen Way, Syosset, New York 11791

Copyright © 1993 PITTWAY CORPORATION



N6790V2 8/98