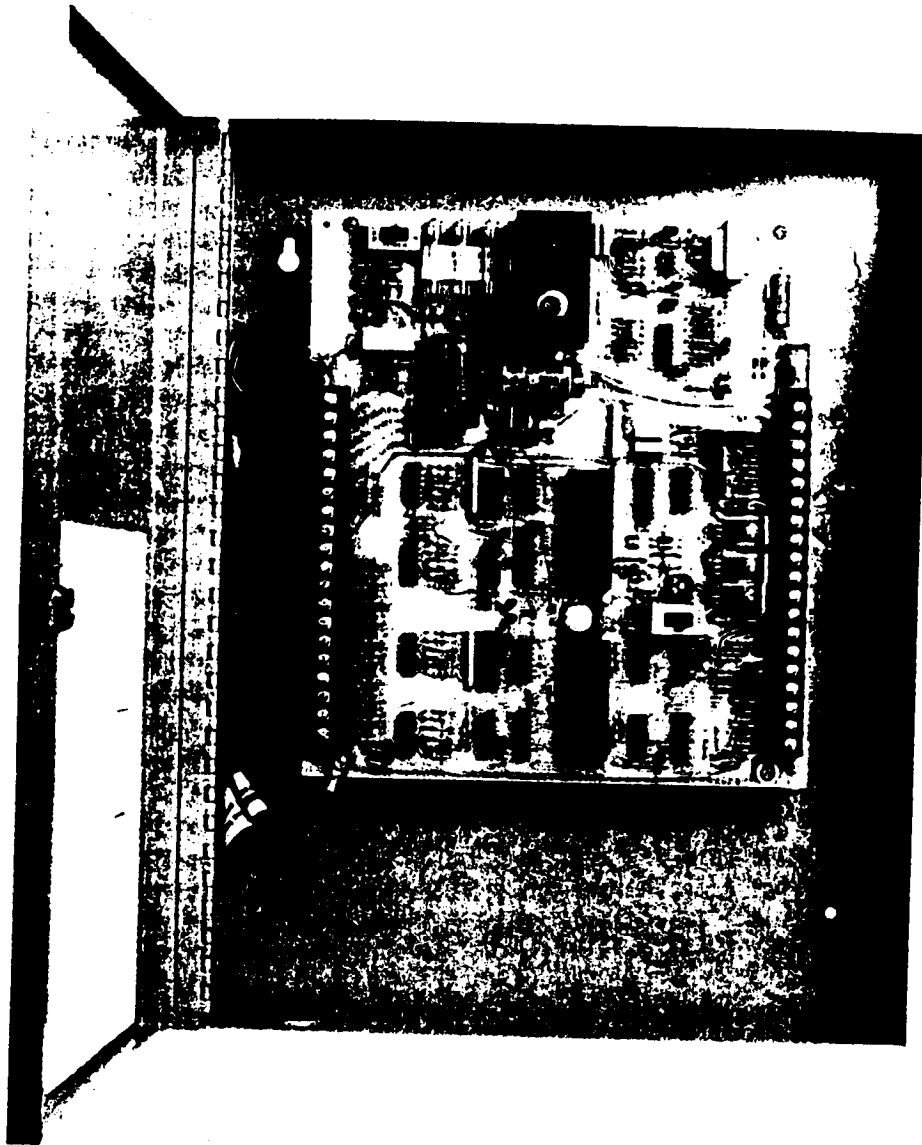


MODEL 5241

UL LISTED

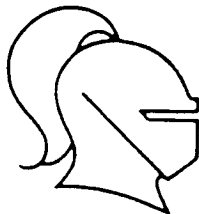
CONTROL/COMMUNICATOR



INSTALLATION MANUAL

WITH INSTRUCTIONS FOR USE IN UL LISTED BURGLAR OR FIRE ALARM INSTALLATIONS

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INTRODUCTION

The Model 5241 is an 8-zone combination Control/Communicator with remote access and zone annunciation capabilities via the Model 7240 Digital Key Module.

The 5241 is housed in a sturdy steel cabinet with a locking hinged cover.

The 5241 also includes a UL Listed Class II transformer (Model 9220) that plugs directly into a conventional (unswitched) wall outlet, two PROMs (Model 5290) and Prom Coding Forms, eight EOL resistors (Model 7630) and an AC Surge Suppressor (Model 7890).

TELEPHONE REQUIREMENTS

1. Before connecting this device the telephone company must be notified and provided with the following information:

A. Manufacturer - Silent Knight

B. Model number - 5241

C. FCC registration number - AC 698R-68913-AL-E

D. Type of jack (to be installed by the telephone company) - RJ31X

NOTE: The telephone company must also be notified if this device is permanently disconnected.

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

3. The telephone company under certain circumstances may temporarily discontinue services and/or make changes in its facilities and services which may affect the operation of this device; however, the telephone company is required to give adequate notice in writing of such changes or interruptions.

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

Silent Knight Security Systems
1700 Freeway Blvd. N.
Minneapolis, Minnesota 55430

WARNING: This equipment generates and uses radio frequency energy and if not installed and used properly; ie, in strict accordance with this manual, may cause harmful interference to radio communications. It has been tested and found to comply with the limits for a Class A computing device pursuant to Subpart J of Part 15 of FCC Rules, which are designed to provide reasonable protection against such interference when operated in a commercial environment. Operation of this equipment in a residential area is likely to cause interference in which case the user at his own expense will be required to take whatever measures may be required to correct the interference.

UL CERTIFICATION REQUIREMENTS

The Model 5241 is U.L. Listed for use as a Grade C Burglar Alarm Control/Transmitter and/or as a Fire Alarm Transmitter. If the 5241 is to be used as part of a certificated system then read carefully the MODEL 5241 UL INSTALLATION addendum and pay special attention to the UL requirements shown in this manual.

The applicable standards are:

Burglar Alarm Control/Transmitter - UL 611
Fire Alarm Transmitter - UL 864 and NFPA 71

If the 5241 is used in a non-certificated application then the references to these requirements in this manual may be ignored.

FEATURES

- * Built-in 12 volt DC power supply for charging backup battery.
- * Built-in speaker and siren/bell drivers.
- * Remote Digital Key modules for Arming/Disarming, zone control, annunciator and status control/display and door strike access.
- * Mechanical key override input.
- * Automatic or touch pad accessed zone lock-out.
- * Optional repeat alarm lock-out. If an alarm occurs 4 times in the same zone during a predetermined period, the 5241 will lock-out that zone and report the lock-out to the Central Station.
- * Optional Opening and Closing reporting with up to 10 different codes which will identify who armed or disarmed the system.
- * Optional Duress (ambush/holdup) activation from the Digital Key module.
- * Optional Self-Test reports at predetermined intervals.
- * Detection of both shorts and opens in the 8 protected loops with separate alarm reports for each zone.
- * Supervisory on any or all of the 8 zones with separate reports for each zone.
- * Loss-of-AC reporting after a predetermined delay.
- * Low Battery. True low battery testing even with AC power present.
- * Optional Restore-to-normal reporting on each of the 8 zones, Low battery and Loss of AC.
- * Built-in line seizure relay.
- * Rotary or Touch Tone dialing. Two phone number and/or two telephone line reporting with separate Account numbers, phone numbers and dialing and reporting formats. (Telephone numbers up to 16 digits each.)
- * Multiple reporting formats including Silent Knight Model 8520 with or without FSK, the older Model 850 and newer Radionics receivers.
- * Option to report to both phone numbers even if the 5241 reports successfully to the first one.
- * Failure-to-communicate output and optional silent zone switchover to audible.
- * Prom programming.

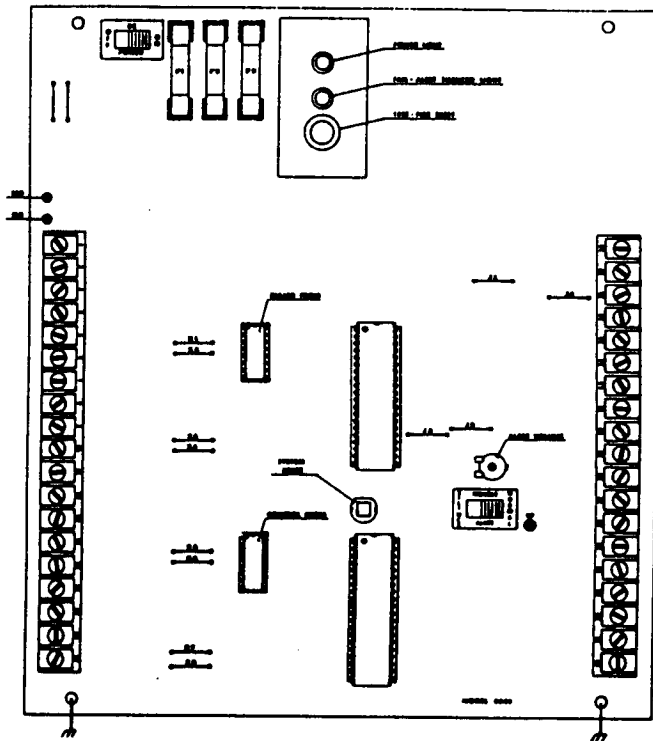


Figure 1.1

P.C. BOARD

Figure 1.1 shows a representation of the printed circuit board of the 5241. This board contains the switches, fuses, and indicators needed to set up, monitor, reset, and protect the system. These components are described in the following paragraphs.

A.C. POWER TRANSFORMER

An external transformer (Model 9220) connected to terminals 1 and 2 by a 2 conductor cable (preferably shielded) supplies 16.5 VAC (30VA minimum) to power the system under normal conditions and to supply charging current to the backup battery.

NOTE: Compliance with UL 864/NFPA 71 requires an enclosed transformer. You may use the Model 9220 if it is enclosed in a UL Listed open back NEMA screw-cover housing, or you may use a UL Listed wired-in transformer (Edwards #598) which can be wired into an electrical box. In either case the connection between the transformer and the 5241 cabinet must be made with energy limiting cable run through conduit, in compliance with the National Electrical Code (see 5241 UL INSTALLATION addendum for suggested mounting methods).

BATTERY CABLES

An external 12V battery (Model 6812) connected to the RED (+) and BLACK (-) cables supplies backup power to the system in case AC power is interrupted.

CAUTION: To prevent damage to the 5241 observe proper polarity when connecting the battery cables.

NOTE: The Model 6812 12V 4.5AH battery provides over 24 hours of standby to the basic 5241 system. The use of accessories may reduce the standby time so that additional battery capacity may be needed to meet the 24 hour UL requirement.

FUSES

F-1 is a 2 1/2 amp fast-blow fuse which provides over-current protection for the external speaker/bell power output (Terminal 3.)

F-2 is a 1 1/2 amp slow-blow fuse which provides over-current protection for the internal speakers and any accessories connected to terminal 4.

F-3 is a 1/2 amp slow-blow fuse which provides over-current protection for the smoke detectors and all other accessories connected to Terminal 5.

POWER LIGHT

The Power light is normally ON and will remain ON unless one or more of the following conditions occur:

- * A.C. power is removed.
- * Any of the 3 fuses are open.
- * The Test/Fire switch is being pressed.

FAIL/ALERT SILENCED LIGHT

The Fail/Alert Silenced light is normally OFF and will remain OFF unless one of the following occurs:

- * The communicator failed to communicate with the Central Station.
- * The alert tone has been disabled by the Trouble/Alert speaker switch.

TEST/FIRE RESET SWITCH

Causes the Communicator to report a test code and momentarily removes power from Terminal 5 which will reset the Smoke Detectors.

D.C. POWER SWITCH

The 5241 is shipped from the factory with this switch disabled so that the system cannot be turned OFF. It is a requirement of UL864/NFPA71 that the system can only be turned OFF by a qualified service person. The switch can be enabled by cutting two jumpers (see Power Switch Enable Jumpers). Moving the switch to the OFF position will remove power from the Control/Communicator and all accessories, with the exception of the standby battery:

CAUTION: Even with the Power Switch in the OFF position, the charging voltage is still present in the battery cables.

TRUBLE-ALERT SPEAKER SWITCH

This switch is used to silence the "Trouble" alert tone which will sound if one or more of the supervised loops becomes defective. Moving the switch to the Silence position silences the "Trouble" alert tone and turns on the Fail/Alert silenced light.

NOTE: When the switch is in the silence position, the entrance alert and touch pad annunciator will also be silenced.

ALERT VOLUME ADJUSTMENT

Next to the Trouble/Alert Switch is a potentiometer which controls the volume of the alert and annunciator tones at the key stations.

SYSTEM RESET SWITCH

This switch is used to reset the Control and Dialer microprocessors without removing power from the system. Pressing this switch will erase all previously programmed Arm/Disarm access codes. The speaker driver output will activate for 1/3 second whenever the control is reset.

FAIL-TO-COMMUNICATE SOLDER PAD

The solder pad marked DF (Dialer Failed-to-communicate) will switch low (0VDC) after the communicator has unsuccessfully tried the total number of times (that it was programmed for) to dial out and make contact with the Central Station. It can be used to turn on a light or to activate a relay which would provide a visual or audible indication that an alarm had occurred but was not reported to the Central Station. Connect the light or relay between (DF) negative and Terminal 4 positive.

JUMPER WIRES

POWER SWITCH ENABLE JUMPERS

The DC POWER switch will have no effect (the system will remain ON) unless these 2 jumpers are cut. The jumpers are located just to the lower left of the switch, above the battery cables.

ZONE JUMPERS

These 8 jumpers are labeled Z1 through Z8 and must be cut if the corresponding zone is a FIRE zone (see section on Zone Wiring and Programming).

MISCELLANEOUS JUMPERS

These 4 jumpers are labeled J1 through J4 and have the following effects on operation of the 5241:

BELL JUMPER (J1)

This jumper must be cut when using a bell instead of speakers on Terminal 31.

READY BLINK DISABLE JUMPER (J2)

This jumper may be cut to disable flashing of the READY LED when the Dialer activates.

SIREN SHUTDOWN CONTROL JUMPER (J3)

If this jumper is cut then the external sirens will sound only while the Dialer is active.

INTERNAL SIREN ENABLE JUMPER (J4)

If this jumper is cut then the alarm sounds will also be heard at the 7240 Key Stations.

NOTE: The 7240 speaker is not loud enough to serve as the primary audible alarm in a UL Certificated installation.

PROMs (Programmable Read Only Memories)

Two PROMs are used to tailor the 5241 to a particular installation. One PROM contains the zone configuration and local alarm timing variables. The second PROM contains the two phone numbers and dialer related timing variables. Each PROM must be programmed with the Silent Knight Model 5500 or Model 5506 Programmer before being installed. The following is a list of the options in each PROM:

CONTROL PROM

Items 1 through 9 are selectable for each of the 8 zones.

- 1) 24-hour (always armed).
- 2) Normally closed loop.
- 3) Slow alarm detection.
- 4) Supervised for Trouble.
- 5) Fire zone (pulsing siren sound).
- 6) Silent alarm
- 7) Delayed audible alarm.
- 8) No audible shutdown (until disarmed)
- 9) Exit/Entry delayed.

Items 10 through 17 are YES/NO options

- 10) Automatic zone lock-out when arming.
- 11) Zone lock-out from digital key module.
- 12) Automatic lock-out of repeating alarm zones.
- 13) Fail-to-report (switchover to audible alarm).
- 14) Duress (hold-up, ambush) from digital key.
- 15) Automatic self-test of dialer while armed.
- 16) Opening/Closing reporting.
- 17) Exit warning tone.

Items 18 through 25 are timing options

- 18) Door strike activation time (1 to 255 seconds).
- 19) Shutdown/reset time (1 to 255 minutes).
- 20) Audible alarm delay time (1 to 255 minutes).
- 21) Exit delay time (1 to 255 seconds).
- 22) Entry delay time (1 to 255 seconds).
- 23) Repeat alarm lock-out time limit (1 to 16 hours).
- 24) Self-test time interval (1 to 24 hours).
- 25) Slow detection time (.1 to 60 seconds).

Items 26 through 28 are digital key access options.

- 26) "Default" access code.
- 27 & 28) 2 access codes which will Arm but not Disarm the system.

DIALER PROM

- 1) Maximum number of attempts.
- 2) Attempts before "Fail-to report."
- 3) Attempts before switching to 2nd phone line/number.
- 4) Attempts before switching back to 1st phone line/number.
- 5) 1st account number.
- 6) 1st phone number.
- 7) Reporting format for 1st number.
- 8) Dialing format for 1st number (Rotary or Touch Tone).
- 9) 2nd account number.
- 10) 2nd phone number.
- 11) Reporting format for 2nd number.
- 12) Dialing format for 2nd number (Rotary or Touch Tone).
- 13) Loss of AC power detection delay (1 to 16 hours).
- 14) Restore to normal reporting (by zone).

Items 15 through 23 are usually left in a standard format.

- 15) Ground Start relay used.
- 16) Report to both phone lines/numbers.
- 17) Dial on 1st attempt even without dial tone.
- 18) Dial on subsequent attempts even without dial tone.
- 19) Delay 2 seconds before looking for dial tone.
- 20) Long dial tone required before dialing.
- 21) Wait for dial tone time (1 to 19 seconds).
- 22) Wait for acknowledgement tone time (4 to 58 seconds).
- 23) Delay between attempts time (4 to 64 seconds).

PROM INSERTION AND REMOVAL

To insert PROM:

Loop PROM puller (plastic loop) between the two rows of pins on the PROM and carefully press into place in the socket. Pressure must be applied evenly so that the PROM goes in squarely (use thumb and forefinger at each end of PROM for best results.)

Be sure to put the Dialer PROM in the Dialer socket and the Control PROM in the Control socket. (See Fig. 1.1 Page 1)

Be sure to insert each PROM with the notched end facing the top of the panel.

Be sure that all 16 pins have gone into the socket and have not been folded under. Bent pins can be carefully straightened with tweezers or small pliers.

To remove PROM:

Pull straight out on the PROM puller (plastic loop). Save the loop for re-use.

If the loop is missing, use a small screwdriver to gently lever out the PROM. Slip the screwdriver under one end of the PROM and raise it slightly. Then move to the other end and finish removal.

DIGITAL KEY PAD MODEL 7240

The Model 7240 is a Digital Key control, status display and zone annunciator display which can be remotely located from the 5241. The following paragraphs describe each of the functions of the 7240.

ZONE ANNUNCIATOR (Digital Readout)

The Annunciator is a single seven-segment digital readout which, when accessed, will display the following:

* First digit of an access code being programmed or requested.

* Zones not ready.

* Zones locked-out.

* Zones in alarm.

ARMED LIGHT

The system Armed light will be ON when the system's controlled zones are Armed. OFF when the controlled zones are Disarmed. FLASHING when any zone is in alarm.

READY LIGHT

The Ready light, when ON, indicates that all sensors in the controlled zones are in a secured state and that those zones are ready to be Armed. When the Ready light is OFF it indicates that one or more sensors in the controlled zones are active (not Secured). The system will not Arm when the Ready light is OFF (Optional). When the Ready light is FLASHING, it indicates that the communicator is reporting.

NOTE: Cut J2 if you do not want the ready light to blink when the communicator is active. If both the Ready and Armed lights are ON and not flashing, the system is in the access code program mode.

DIGITAL KEY PAD

The Digital Key pad consists of 10 touchswitches numbered 0 through 9, a touch switch labeled ON/OFF and a touch switch labeled DOOR. These switches are used for a variety of functions as described in the following:

* Arming and Disarming of controlled zones

* Programming access codes

* Locking out zones

* Duress (ambush, hold-up) activation

* Accessing the zone annunciator

* Activating a door strike

SPEAKER

The built-in speaker of the 7240 sounds alarm warnings, plus an alert tone (at a reduced volume) during the Entry time delay (and Exit delay if the program option is selected), if a "Trouble" is detected with any of the supervised loops and each time a touch switch is used.

SYSTEM OPERATION

ARM/DISARM ACCESS CODE PROGRAMMING

Whenever power is first applied to the system or when the RESET switch is pressed on the 5241 P.C. board, the system will position itself in the ACCESS CODE PROGRAM MODE. The system will stay in this mode for 68 seconds or longer provided the touch switches are being pressed. Because the 5241 can accept up to 10 access codes of from 2 to 5 digits long, it is advisable for you to make a list, prior to programming, of the codes that you wish to program, as in Example 1.

ACCESS CODE PROGRAM LIST

CODE 0 <u>7</u> <u>9</u> <u>8</u> <u>2</u>	CODE 5 <u>7</u> <u> </u> <u> </u>
CODE 1 <u>3</u> <u>8</u> <u>0</u> <u>0</u>	CODE 6 <u>7</u> <u>8</u> <u> </u>
CODE 2 <u>3</u> <u>3</u> <u>0</u> <u> </u>	CODE 7 <u>8</u> <u>9</u> <u> </u>
CODE 3 <u>4</u> <u>4</u> <u>1</u> <u>2</u>	CODE 8 <u>9</u> <u>0</u> <u>1</u>
CODE 4 <u>4</u> <u>4</u> <u>2</u> <u> </u>	CODE 9 <u>9</u> <u>8</u> <u>8</u>

Example 1

Note that the first digit of the access code must be different for each of the 10 codes. This first digit is the code designator and is used when reporting openings and closings to indicate which access code was used to arm or disarm. As you can see from example 1, each access code can be of varied length and can repeat digits in any sequence.

To program access codes proceed as follows:

1) Make sure the system is still in the program mode by observing the READY and ARMED lights. If both are ON and not flashing proceed to step 2. If not, go to the 5241 and press the RESET switch.

2) Press the 0 touch switch. The speaker should beep and the number 0 will appear in the display.

3) Enter the rest of the code in sequence. Note that the display does not change.

NOTE: If you wait more than 5 seconds between digits the display will go blank and you must start over for that code.

4) Once all the digits for that code have been entered, press the ON/OFF touch switch. The display will go blank and a longer beep will sound, indicating that the code has been accepted and stored into memory.

5) If there are more codes then enter them the same way you did for code 0.

When all the codes desired have been entered, press the ON/OFF touch switch 3 times. This will take the 5241 out of the program mode and into the disarmed condition.

If, while programming the access codes, you make a mistake, simply press the DOOR touch switch and start over for that code only. You do not have to re-enter any of the codes which were already accepted.

If while still in the program mode, you wish to change a previously programmed code, simply program that code just as if it had never been entered. The new code will automatically replace the old.

If you have already exited the program mode and wish to change one or more of the codes proceed as follows:

1) Enter the 0 access code.

2) Press the 0 touch switch twice. The Ready and Armed lights should both come on indicating that the system is in the program mode.

3) Proceed to change the codes and then exit the program mode by pressing the ON/OFF touch switch 3 times.

NOTE: You need not program all ten codes, but you must program the 0 code; otherwise the system will flash a "0" in the zone display, indicating that the 0 code is in "Default".

NOTE: You must exit the program mode by pressing the ON/OFF key 3 times (or the Mechanical Key once); otherwise the system will arm itself automatically after 68 seconds. If any zones are not Ready, the 5241 will also go into alarm.

ARMING/DISARMING CONTROLLED ZONES

Those zones which have been selected as controlled zones, either Exit/Entry or Instant, by the Control PROM are directly controlled by the Digital Key Module. Their status is indicated by the Ready and Armed lights of the 7240. If the Armed light is OFF and the Ready light is ON, the controlled zones can be Armed by entering a proper access code and then pressing the ON/OFF touch switch. All 10 of the access codes will Arm the system; however, 2 of these codes may be programmed NOT to Disarm, if so desired.

LOCKING OUT ZONES

There are 3 ways that zones can be locked out of the system, all of which are selected in the Control PROM. The following is a description of each type of lock-out:

AUTOMATIC LOCK-OUT (FORCED ARMING)

If this option is selected, it allows the system to be Armed even though one or more of the controlled zones are not Ready. The communicator will report not only who Armed the system, but also which zones were locked out.

MANUAL LOCK-OUT

If this option is selected, it allows the user, via the Digital Key Module, to selectively lock-out controlled zones prior to arming the system. This is done by first entering the proper access code; then, BEFORE pressing the ON/OFF touch switch, enter the digits corresponding to the zone or zones that are to be locked out. Then press the ON/OFF touch switch. The communicator will report the closing code and which zones are locked out.

REPEAT ALARM LOCK-OUT

The 5241 can be programmed such that if any one zone goes into alarm 4 times in a row, that zone will lock-out at the beginning of the 4th alarm. The communicator will report the lock-out to the Central Station in place of the alarm code.

DURESS (Ambush, Holdup) ACTIVATION

If someone is forcing the user to Disarm the system he can signal the Central Station of the situation by pressing the digit 9 after entering his access code and before pressing the ON/OFF touch switch. The communicator will report who disarmed the system and the Duress alarm code. Duress can also be activated when arming or when accessing the door strike.

ACCESSING THE ZONE ANNUNCIATOR

DISPLAYING ZONES NOT READY

If the system is disarmed and the Ready light is off, the zone or zones which are NOT READY can be displayed by pressing the DOOR touch switch.*

DISPLAYING LOCKED OUT ZONES

If the system is Armed, the zone or zones, if any, which have been locked-out either manually or automatically can be displayed by entering an access code and then pressing the digit 0.*

DISPLAYING ZONES WHICH CAUSED ALARM

If the system is Armed you must first Disarm before the zones in alarm can be displayed. To display the zones previously in alarm press the ON/OFF touch switch.

NOTE: The Armed light will be flashing whenever any zone is in alarm even if the system was not armed prior to the alarm. If the system WAS Armed prior to the alarm the Armed light will be ON for more time than it is OFF. If the system WAS NOT Armed prior to the alarm the Armed light will be OFF for more time than it is ON.

* When accessed, the zone display will begin sequencing through the zones, beginning with the lowest numbered zone, displaying each for approximately one second until all the zones to be displayed have been shown once. To see zones again the access procedure must be repeated.

ACCESSING AN ELECTRIC DOOR STRIKE

The 5241 can be used to open a door using an electric door strike by entering a proper access code and then pressing the DOOR touch switch instead of the ON/OFF switch.

SELF-TEST

The Self-Test feature, if selected, will cause the communicator to activate and report a test code to the Central Station. How often the self-test occurs is programmable from once an hour to once a day. The self-test will only occur when the system is Armed and the start of the report period begins with the Arming of the System.

NOTE: Both UL611 and UL864 require that a Self-Test or other code be reported at intervals no greater than 24 hours.

DEFAULT ACCESS CODE

The Default Access Code is programmed into the Control PROM and is used as a means of accessing the 5241 in the event that all power, including the standby battery is lost to the system.

When power is returned to the 5241 all of the previously programmed access codes will have been erased. If no new codes are entered during the 68-second programming period following the return of power, the 5241 will automatically program itself to the Default Code, and will automatically arm itself.

A flashing zero in the zone display will indicate to the user that the default code must be used to Disarm, and that the access codes must be reprogrammed.

MECHANICAL KEY (Terminal 10)

This input can be used in place of, or in parallel with, the model 7240 Digital Key. The input requires a momentary closure to +12VDC each time you wish to Arm/Disarm or reset an alarm condition.

If the Open/Closing option has been selected the 5241 will report a code 40 for closing and a code 90 for Opening when using the mechanical Key to Arm and Disarm.

Connect the normally open Mechanical Key switch between Terminals 4 & 10.

NOTE: When using only a mechanical key to control the system, you should activate the key switch to exit the program mode.

INPUT DESCRIPTION

As previously stated, the zone inputs to the 5241 can be configured in a variety of individual and/or combination of ways. Each of these options are described in the following:

1) 24-HOUR ZONE

A zone programmed as a 24-hour zone will be monitored continuously by the 5241 for an alarm condition. If a sensor is violated, the system will go into alarm regardless of the status of the system Armed light. To turn off an alarm caused by a 24-hour zone the sensor or sensors must be returned to the non-alarm state, an access code entered and the ON/OFF touch switch pressed. **NOTE:** If a zone is not selected as a 24-hour zone, it will automatically become a controlled zone.

2) ZONE INPUT

Selecting this option will cause the zone to respond to a low voltage (0VDC) rather than a high voltage (+12VDC) to cause an alarm. This option, together with the Zone Jumpers (Z1-Z8), determine what type of sensors (normally open and/or normally closed) may be connected to each zone loop. This is explained in detail in the section on Zone Wiring and Programming.

3) DELAYED INPUT ZONE

Zones programmed for delayed input will not respond to the activation of that input until the end of the delay time period. The input delay is programmable in steps from 100 milliseconds up to 1 minute.

4) SUPERVISED ZONE

A zone programmed as supervised will be monitored continuously for a break in the wires of that loop. An End-Of-Line (EOL) resistor, Model 7630, must be connected across the last sensor of the loop.

5) FIRE ZONE

A zone programmed as a Fire zone will cause a different Alarm sound for the speakers or bells than for the other zones. The Fire zone sound will override all other alarm sounds. The fire alarm can be reset by entering the access code or using a mechanical key, but the smoke detectors must first be reset (see Fire Reset Switch).

6) SILENT ZONE

Zones selected as Silent, when in alarm, will cause all other functions of the 5241 to operate normally, but will not generate the audible signal to the speakers or bells.

7) DELAYED AUDIBLE ZONE

A zone can be programmed to cause an instant alarm (dialer will report) but have a delay time, programmable from 1 to 255 minutes, before the audible signal to the speakers and/or bells is turned ON.

8) NO RESET/SHUTDOWN ZONE

Zones programmed for NO RESET/SHUTDOWN once activated will continue to generate the audible signal to the speakers/bells until manually reset.

9) EXIT/ENTRY ZONE

The Exit/Entry zones provide a means by which people using the system may come and go from the premise once it has been secured without causing an alarm.

These zones are controlled (Armed and Disarmed) by the Digital Key modules. Separate delay times can be programmed for the Exit and the Entry of 1 to 255 seconds each.

During the Exit delay time, which begins with the Arming of the System, Exit/Entry sensors can be violated without causing an alarm unless one of these sensors is left unsecured. If this happens, the 5241 will go into alarm at the end of the Exit delay.

NOTE: A warning tone during the exit delay time is an optional feature.

During the Entry delay time, which begins with the violation of an Exit/Entry sensor the 5241 will automatically generate a warning tone reminding the user that the system must be Disarmed. If the system is not Disarmed, it will go into alarm at the end of the Entry delay time.

NOTE: Multiple sensors in an entry corridor must all be on the same zone; since only one zone can delay at a time, the others would cause an instant alarm.

OUTPUT DESCRIPTION

DOOR STRIKE (Terminal 19)

The 5241 can be used to access an electric door strike by connecting an external 12 volt D.C. relay between Terminals 4 (+) and 19 (-) and then using the contacts of that relay to activate the door strike.

Accessing the door strike is accomplished by first entering a proper access code at the Model 7240 Digital Key and then pressing the "Door" touch switch. This will cause terminal 19 to switch to ground (OVDC) for the time interval which has been programmed in the Control PROM.

INTERNAL SPEAKERS (Terminal 30)

This output, used by the 7240 Keystations, generates all the alert and annunciator tones which include the Exit/Entry warning, the Trouble alert and the touch switch annunciator/tone.

NOTE: Cut internal speaker jumper (J4) if you also want the high volume alarm sounds at the 7240 keystations.

EXTERNAL SIREN OR BELL (Terminal 31)

This output generates the alarm sounds (tone pulsed OVDC) for use with a 15-watt or greater paging horn, or, if the bell option is selected by cutting J1, steady OVDC for an Intrusion Alarm or pulsed OVDC for a Fire Alarm. Connect the External Horn between Terminals 3 (+) and 31 (-). Connect the Bell, if used in place of the Horn, between terminals 4 (+) and 31 (-).

NOTE: Cut external speaker jumper (J3) if you want the external speaker active only when communicator is reporting. Cut bell jumper (J1) if using bell. If a bell is used on this output, a transient suppressor Model 7800 must be connected directly across the contacts inside the bell to suppress contact sparking!

ALARM (Terminal 32)

An external 12 volt D.C. lamp or relay between terminals 4 (+) and 32 (-) would be activated whenever the system was in Alarm, regardless of whether the zone in alarm was Silent or whether the Siren Shutdown time had expired. Terminal 32 would remain active (OVDC) until the system was Disarmed.

GROUND START (Terminal 33)

Some phone systems require that a momentary "earth ground" be applied across one side of the telephone line to obtain a dial tone instead of the more conventional method of momentarily shorting the tip and ring of the line. These telephone systems are called "Ground Start" systems. For the 5241 to work with this type system, the coil of a 12 volt D.C. relay must be connected between terminals 4 (+) and 33 (-) and the contacts of this relay used to short the telephone line to Earth Ground. The Ground Start output will switch to 0VDC for 2.5 seconds at the beginning of each dialing sequence.

SECOND PHONE LINE (Terminal 34)

An external 12 volt D.C. DPDT relay (Model 7140) between terminals 4 (+) and 34 (-) could be used to seize a second pair of telephone lines (see figure 2.6).

DIGITAL COMMUNICATOR REPORTING FORMATS

The following describes the four reporting format selections. Select the formats in the Dialer PROM appropriate for the type of Digital Receiver(s) to which alarm data will be reported.

SILENT KNIGHT FSK

The FSK (Frequency Shift Keyed) format is a high speed data format which works only into updated Silent Knight Model 8520 receivers. It will transmit the entire alarm message in approximately 3 seconds, for a total connect time of less than 6 seconds.

SILENT KNIGHT 8520 (Slow or Fast)

This format will work into updated Silent Knight Model 8520 receivers (contact Silent Knight Customer Service if you are unsure of an older receiver.) The codes sent in this format are the same as for the FSK format, but the data is sent by a slower interrupted tone method. Normally you should select the Fast 8520 format, but in certain cases the Slow format may be used to overcome noise, ringing, or line loss in the phone lines.

The Silent Knight FSK and 8520 formats transmit a 4-digit account number and 2-digit alarm codes as follows:

SILENT KNIGHT ALARM CODES

01-08 Zones 1-8 respectively are in Alarm (first report)
09 Duress
10 not used
11-18 Zones 1-8 respectively are in Alarm but have been previously reported.
19-20 not used
21-28 Zones 1-8 respectively have been Restored to Normal from an Alarm condition.
29 not used
30 Dialer Test
31-38 not used
39 Dialer Failed-to-communicate. If the 5241 makes the maximum number of attempts but is unable to report successfully to the Central Station then the code 39 will be sent on the next activation.

NOTE: The condition which caused the initial activation would be lost if it had changed before the next activation.

40-49 Closing report. The tens' digit (4) indicates the Closing. The units' digit (0-9 respectively) indicates who Closed (Armed) by identifying the access code used.
50 not used
51-58 Zones 1-8 respectively have Locked Out (either manually or automatically).
59 not used
60 ~~AC Power lost~~
61-68 Zones 1-8 respectively are in Trouble (supervised loop has been broken).
69 Low Battery voltage
70 AC Power restored
71-78 Zones 1-8 respectively have been Restored to Normal, from a trouble condition.
79 Battery voltage restored
80-89 not used
90-99 Opening report. The tens' digit (9) indicates the Opening. The units' digit (0-9 respectively) indicates who Opened (Disarmed) by identifying the access code used.

OTHER FORMATS

The 5241 can also send data in two other formats for receivers other than the Silent Knight 8510/8520. These other formats send only four digits at a time, but send expanded data by transmitting a 3-digit account number in the first message and placing part of the alarm code in the account number field in subsequent messages. Notice that New and Old (previously reported) Alarms are not differentiated in these formats. These formats are described as follows:

SILENT KNIGHT 850 (Slow or Fast)

This format will work into old Silent Knight Model 850 receivers, as well as Adeco and Radionics receivers. The same digits are used as in the Silent Knight 8520 formats, but their placement is altered as in the following example:

Conditions:

- Zone 1 - Alarm (old)
- Zone 4 - Locked Out
- Zone 5 - Trouble
- Zone 8 - Alarm (new)

Transmission: (2 messages required for verification)

- 987 0
- 987 0 Event at account 987
- 111 1
- 111 1 Alarm zone 1
- 555 4
- 555 4 Lockout zone 4
- 666 5
- 666 5 Trouble zone 5
- 111 8
- 111 8 Alarm zone 8

RADIONICS HEX (Slow or Fast)

This format works only with Radionics receivers using the expanded (HEX) Radionics format, and only if the receiver line card is set for 1400Hz acknowledge tone. The first digit of each alarm code is converted to a Hexadecimal digit according to Radionics standards, which the receiver converts into an English Language message on its printout. Since Radionics has no unique codes for Test or Lockouts, these are reported as Cancel by zone, as follows:

Condition	Report
Dialer Test	Cancel Zone 0
Lockout Zone 1-8	Cancel Zone 1-8 (respectively)
Failed-to-communicate	Cancel Zone 9

ZONE MEMORY

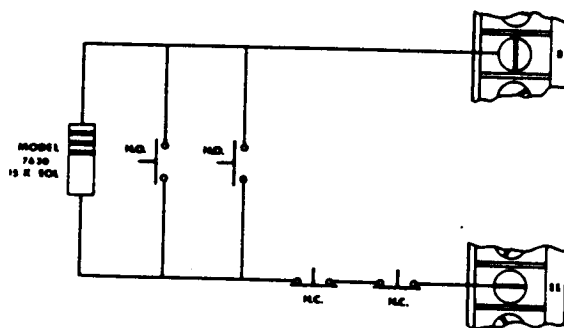
The status of the eight zones and the two power sources, when they are in Alarm or Trouble will be remembered and reported along with other new conditions until they are restored. Other events, such as Restores, Openings, Closings, etc. will be reported only once.

ZONE WIRING AND PROGRAMMING

Each of the 8 zones can be programmed as either an INTRUSION ZONE or a FIRE ZONE. Each zone is protected by an electrical loop. A small current flows through the loop at all times and the 5241 will respond to an increase or decrease in this current. The eight Zone Jumpers (Z1-Z8) control the response of the 5241 to each zone loop. If the jumper is intact then shorting the loop or breaking the loop will cause an Alarm - this is an Intrusion Zone. If the jumper is cut then shorting the loop cause an Alarm and breaking the loop may cause a Trouble - this is a Fire Zone.

NOTE: For the purposes of this manual, Normally Closed contact refers to a switch whose contacts conduct when in the non-alarm state and do not conduct when in the alarm state. A switch, which by itself is normally open, becomes normally closed if it is installed so that it is closed when its zone is secure. Conversely, Normally Open contact refers to a switch whose contacts do not conduct when in the non-alarm state and do conduct when in the alarm state.

INTRUSION ZONES

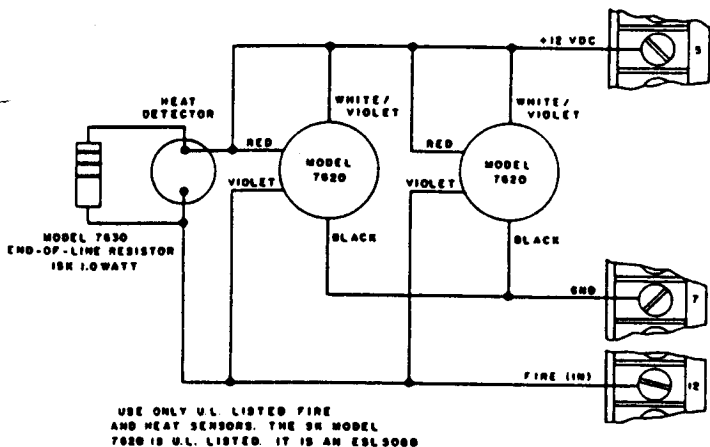


Do NOT cut the Zone Jumper.

- 1) 1 2 3 4 5 6 7 8 : 24-Hour Zones
- 2) ① 2 3 4 5 6 7 8 : Zone Input
- 3) 1 2 3 4 5 6 7 8 : Slow Detection
- 4) 1 2 3 4 5 6 7 8 : Supervised Zones
- 5) 1 2 3 4 5 6 7 8 : Fire Zones

Figure 2.1

Fig. 2.1 shows a sample wiring of an Intrusion Zone and a portion of the Control Panel Coding Form showing Zone 1 as an Intrusion zone. An Intrusion zone may be either controlled or active 24-Hours. Both Normally Open and/or Normally Closed contacts may be used. Normally Closed contacts are wired in series with the loop. Normally Open contacts are wired in parallel across the loop, and a 15K End-Of-Line resistor is wired in series with the loop and in parallel with the Normally Open contacts furthest from the panel.



Cut the Zone Jumper (Z2).

- 1) 1 2 3 4 5 6 7 8 : 24-Hour Zones
- 2) 1 2 3 4 5 6 7 8 : Zone Input
- 3) 1 2 3 4 5 6 7 8 : Slow Detection
- 4) 1 2 3 4 5 6 7 8 : Supervised Zones
- 5) 1 2 3 4 5 6 7 8 : Fire Zones

Figure 2.2

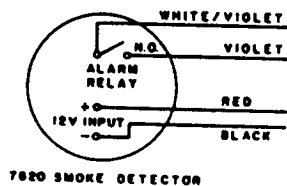


Figure 2.3

Fig. 2.2 shows a sample wiring of a Fire Zone and a portion of the Control Panel Coding Form showing Zone 2 as a Fire Zone. A Fire Zone should be supervised and active 24-Hours. Terminal 5 is used to power both the loop and the smoke detectors. This power can be interrupted by pressing the Test/Fire Reset switch. When wiring a Fire Zone you must cut the corresponding zone jumper.

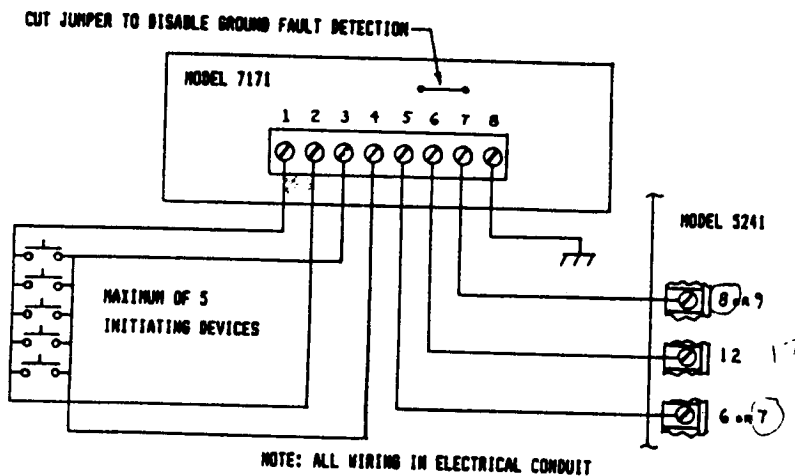
Fig. 2.3 shows the internal connections of the model 7620 smoke detector. A maximum of ten 7620s may be used.

UL FIRE ZONES

Fire loops using EOL resistors can only be rated Class B. Breaking the loop will cause a Trouble, but will also prevent an Alarm from being detected. Commercial installations require UL Class A loops to comply with UL 864/NFPA 71. This type of loop uses four wires and can still detect an Alarm even if one of the wires is broken. The 5241 does not provide this type of loop input, and so must be interfaced through another device.

CONNECTION TO THE MODEL 7171 4-WIRE-LOOP MODULE

The Model 7171 4-Wire-Loop module provides the Class A supervision needed to comply with UL864/NFPA71. One module is needed for each zone used for Fire Alarm detection. Up to 7 modules may be used, the 8th zone being used for phone line supervision. Fig. 2.4 shows the wiring of a 7171 module (use a different zone for each 7171 module). Refer to the 7171 Installation sheet for detailed information. Program each Fire zone as shown: (zone 2 used as an example)



Cut the Zone Jumper (Z2).

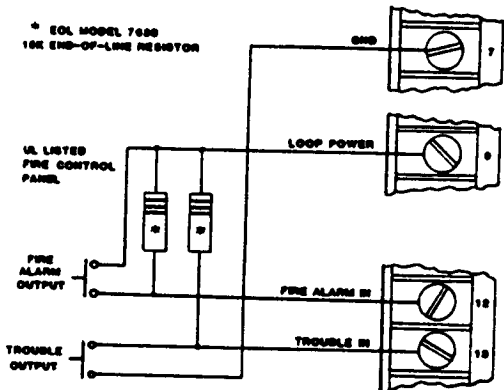
- 1) 1 2 3 4 5 6 7 8 : 24-Hour Zones
- 2) 1 2 3 4 5 6 7 8 : Zone Input
- 3) 1 2 3 4 5 6 7 8 : Slow Detection
- 4) 1 2 3 4 5 6 7 8 : Supervised Zones
- 5) 1 2 3 4 5 6 7 8 : Fire Zones

Figure 2.4

CONNECTION TO A UL LISTED FIRE CONTROL PANEL

The 5241 can function as a Fire Transmitter only, by connecting it to another Fire Control panel. This might be desired if another Fire Control panel is already in place, or if a Fire Control with more features, such as increased Alarm Bell capacity, is needed. The 5241 can also be connected to an existing combination Control/Transmitter by wiring a zone input to the unused transmitter output of the existing unit. This would allow simple retro-fitting of the 5241 to older leased-line transmitters.

The connection between the 5241 and the Fire Control panel does not require Class A supervision, but Class B supervision (as provided by an End-Of-Line resistor) is recommended, and the two units should be located near each other to minimize the length of interconnecting wiring, which must of course be protected by electrical conduit.



Cut the Zone Jumper (Z2).

- 1) 1 2 3 4 5 6 7 8 : 24-Hour Zones
- 2) 1 2 3 4 5 6 7 8 : Zone Input
- 3) 1 2 3 4 5 6 7 8 : Slow Detection
- 4) 1 2 3 4 5 6 7 8 : Supervised Zones
- 5) 1 2 3 4 5 6 7 8 : Fire Zones

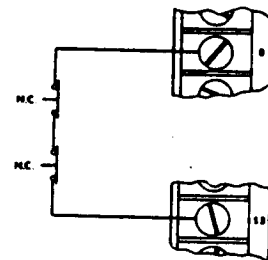
Figure 2.5

Fig. 2.5 shows a sample wiring of the 5241 to a UL Listed Fire Control Panel with separate dry contact outputs for Fire Alarm and Trouble. Two zones of the 5241 are used to accommodate the normally open contacts. Also shown is a portion of the Control Prom Coding Form. Zone 2 and zone 3 are both programmed as Fire zones, although zone 2 will only report Alarm and zone 3 will only report Trouble. (Refer to the 5241 UL Installation addendum for additional Fire zone configurations.)

ADDITIONAL ZONE CONFIGURATIONS

NOTE: These zone configurations may NOT be used in UL installations.

NORMALLY CLOSED CONTACTS - DAY SUPERVISED



Cut the Zone Jumper (Z3).

- 1) 1 2 3 4 5 6 7 8 : 24-Hour Zones
- 2) 1 2 3 4 5 6 7 8 : Zone Input
- 3) 1 2 3 4 5 6 7 8 : Slow Detection
- 4) 1 2 3 4 5 6 7 8 : Supervised Zones
- 5) 1 2 3 4 5 6 7 8 : Fire Zones

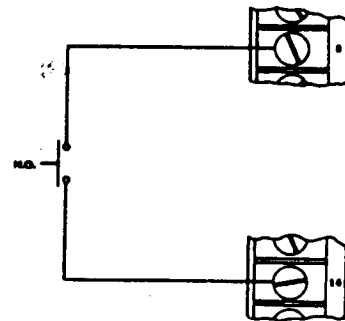
Figure 2.9

Fig. 2.9 shows a zone which uses Normally Closed contacts only, typically foil. No EOL resistor is needed. Breaking the loop while the system is disarmed will cause a Trouble and breaking the loop while the system is armed will cause an Alarm.

NOTE: If this type of zone is reset from an alarm condition before the loop has been restored, a Trouble signal will be generated.

NOTE: This is the only case in which you would both cut the zone jumper and select the zone in step #2.

NORMALLY OPEN CONTACTS - NOT SUPERVISED

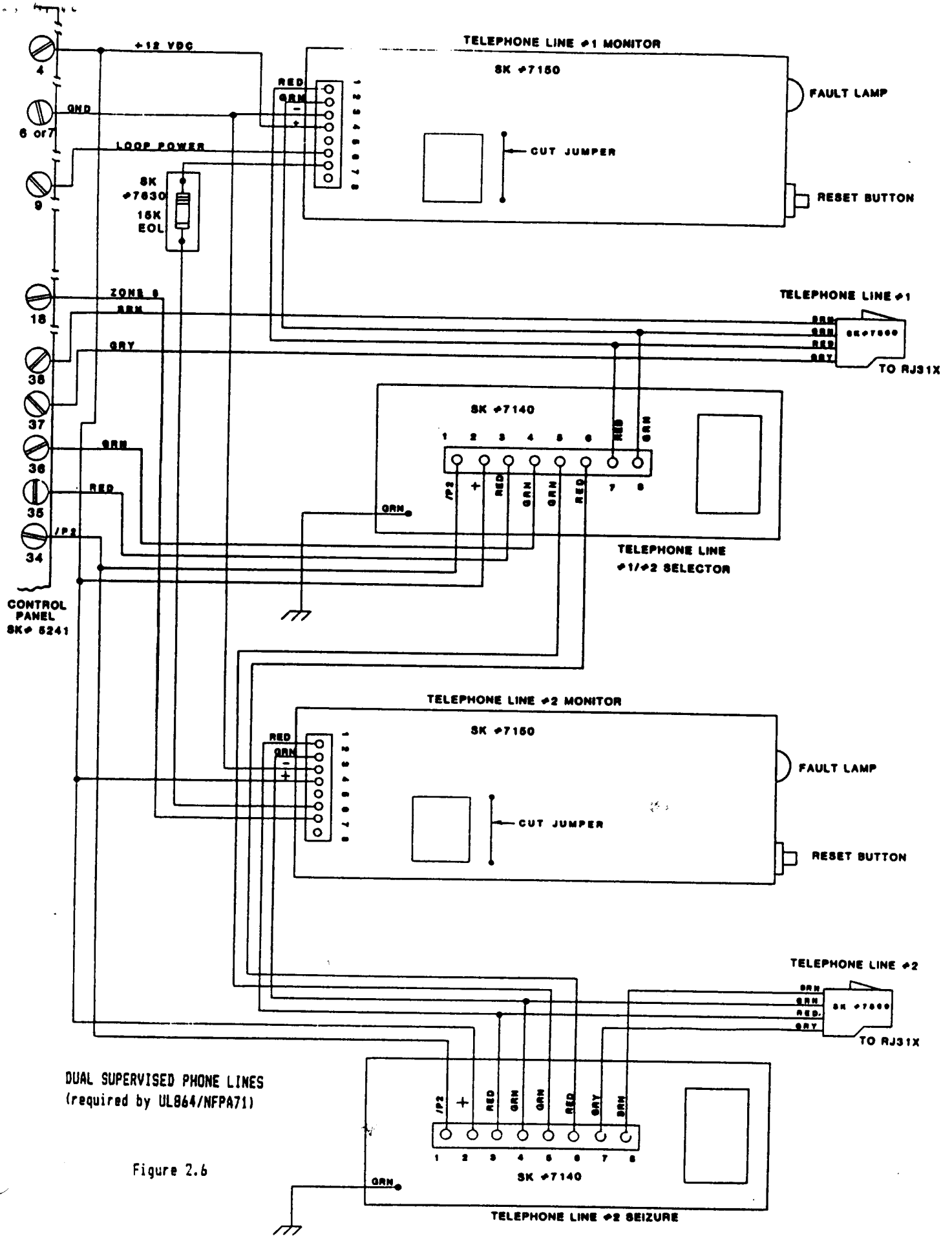


Cut the Zone Jumper (Z4).

- 1) 1 2 3 4 5 6 7 8 : 24-Hour Zones
- 2) 1 2 3 4 5 6 7 8 : Zone Input
- 3) 1 2 3 4 5 6 7 8 : Slow Detection
- 4) 1 2 3 4 5 6 7 8 : Supervised Zones
- 5) 1 2 3 4 5 6 7 8 : Fire Zones

Figure 2.11

Fig. 2.11 shows a zone which uses Normally Open contacts and no EOL resistor. Breaking the loop will not be detected. Shorting the loop will cause an Alarm if the zone is armed.



DUAL SUPERVISED PHONE LINES
(required by UL864/NFPA71)

Figure 2.6

BUAIC SUPERVISED PHONE LINES

Fig. 2.6 shows how to add a second phone line and phone line supervision to the 5241. Two Model 7140 Relay modules are used for line switching and to provide line seizure for the 2nd phone line, and two Model 7150 Phone Line Monitor modules are used for phone line supervision. This additional circuitry is required to comply with UL864/NFPA71.

NOTE: As of this printing, Silent Knight is developing the Model 7190 Fire Control Accessory panel, which incorporates the circuitry shown along with an audible Trouble indicator and space for an enclosed AC outlet and four Model 7171 4-Wire-Loop modules. The Model 7190 will allow a much simpler and neater installation for systems complying with UL864/NFPA71. Contact the Silent Knight factory for more information.

Cut the Zone Jumper (Z8).

- 1) 1 2 3 4 5 6 7 8: 24-Hour Zones
- 2) 1 2 3 4 5 6 7 8 : Zone Input
- 3) 1 2 3 4 5 6 7 8 : Slow Detection
- 4) 1 2 3 4 5 6 7 8: Supervised Zones
- 5) 1 2 3 4 5 6 7 8 : Fire Zones

Figure 2.7

Fig. 2.7 shows a section of the Control Panel Coding Form with zone 8 selected for Phone Line Supervision as in figure 2.6. The Alarm detection of zone 8 can also be utilized for Tamper detection by wiring a normally open; ie, open when secure (panel cover closed) tamper switch between terminals 9 and 18 of the 5241.

The programming shown is also applicable if the Model 7190 is used.

ACCESSORY WIRING

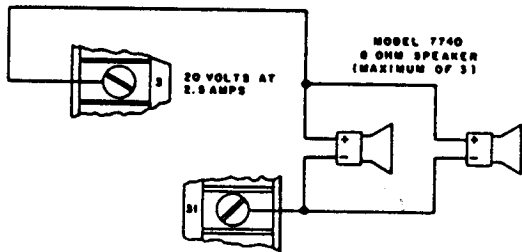


Figure 3.1

Fig. 3.1 shows the wiring of speakers between the high volume audible output (Terminal 31) and the 20VDC output (Terminal 3).

NOTE: Only one 8-ohm siren speaker (1 Amp load) is permitted UL864/NFPA71 in order to meet the standby time requirements. The Model 7740 Siren Speaker is NOT UL Listed. The Model VT-158U made by Atlas Sound is UL Listed.

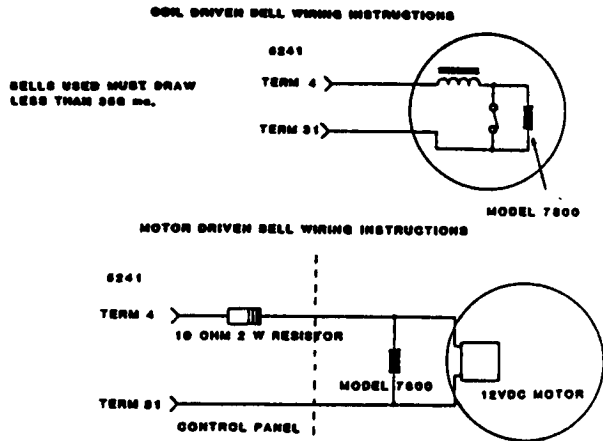


Figure 3.2

Fig. 3.2 shows the wiring of a bell between the high volume audible output (Terminal 31) and the 12VDC output (Terminal 4). Either coil driven or motor driven bells may be used; however, any bell will create electrical noise which could cause erratic operation of other accessories unless the supplied transient suppressor (Model 7800) is connected at the bell as shown. The Bell Jumper (J1) on the 5241 must be cut when using a bell.

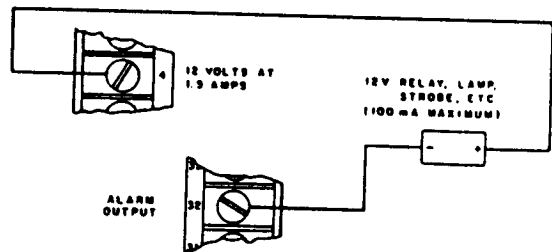


Figure 3.3

Fig. 3.3 shows the wiring of a relay or other 12VDC device to the Alarm output. This output becomes active (12VDC) when an alarm occurs and remains active until the system is disarmed.

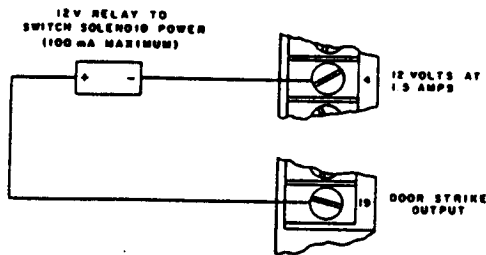


Figure 3.4

Fig. 3.4 shows the wiring of a 12 volt D.C. relay to the DOOR STRIKE output. The relay contacts would switch power to a solenoid door bolt, allowing users to open the door by entering their secret combination at the 7240 keystation.

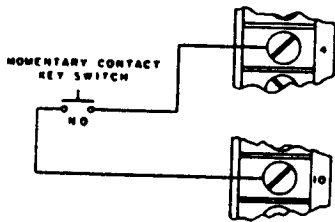
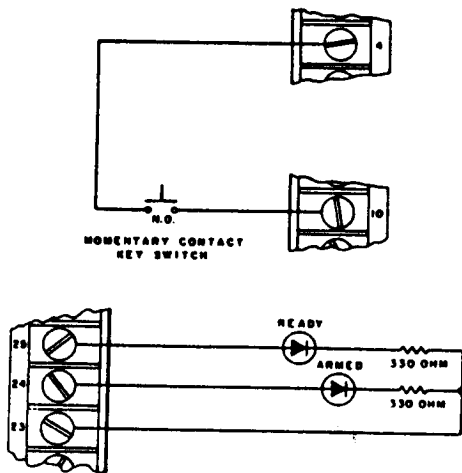


Figure 3.5

Fig. 3.5 shows the wiring of a momentary contact key switch to the MECHANICAL KEY input (Terminal 10), which may be used to Arm or Disarm the system without using the touch switches on the 7240 keystation.



MECH KEY STATION WITH STATUS DISPLAY

Figure 3.6

Fig. 3.6 shows the wiring of a simple keystation which could be made by modifying a Model 7230. It uses a minimum of components and wires to give READY, ARMED, and ALARM status, and mechanical key Arming and Disarming, but lacks many of the features of the Model 7240. This mini-Key Station may not be used in a UL certificated installation.

9220 POWER TRANSFORMER INSTALLATION

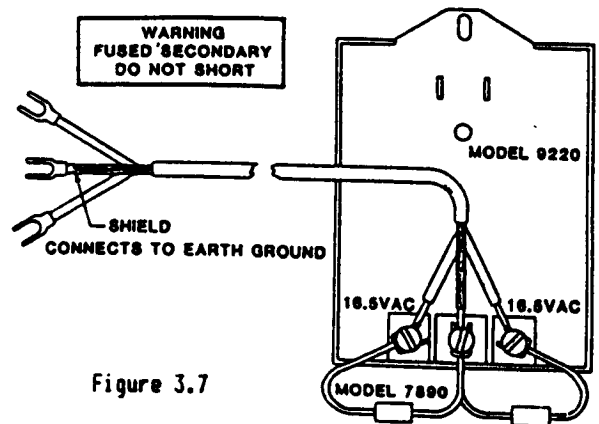


Figure 3.7

Fig. 3.7 shows the connection of shielded 2-conductor cable and the Model 7890 Transient-Surge Protector to the Model 9220 UL Listed Class II Power Transformer (16.5VAC 35VA). The transformer should be plugged into a 120VAC 60Hz continuous duty (unswitched) grounded outlet. To comply with UL864/NFPA71 the installed transformer must be covered by a UL Listed electrical box and the cable to the 5241 cabinet must be in electrical conduit.

NOTE: Shielded cable is not necessary if the wiring is in conduit.

WARNING: The Model 9220 contains an internally fused secondary winding - DO NOT SHORT the secondary terminals together when power is applied or the internal fuse will blow. Be sure the shield conductor can not come in contact with the AC output screws.

The Model 7890 Protector will clamp the AC output of the transformer, reducing transient voltages caused by lightning and other sources. The AC power lines are the most common source of transient/lightning damage in alarm systems.

The Model 7890 consists of two bi-polar transient suppressors with lugs at its connecting points.

CAUTION: Before connecting, verify that the center mounting screw in the AC wall plate, to which the transformer is to be connected, is grounded to earth ground. This can be checked by measuring the AC voltage between the mounting screw and each side of the outlet.

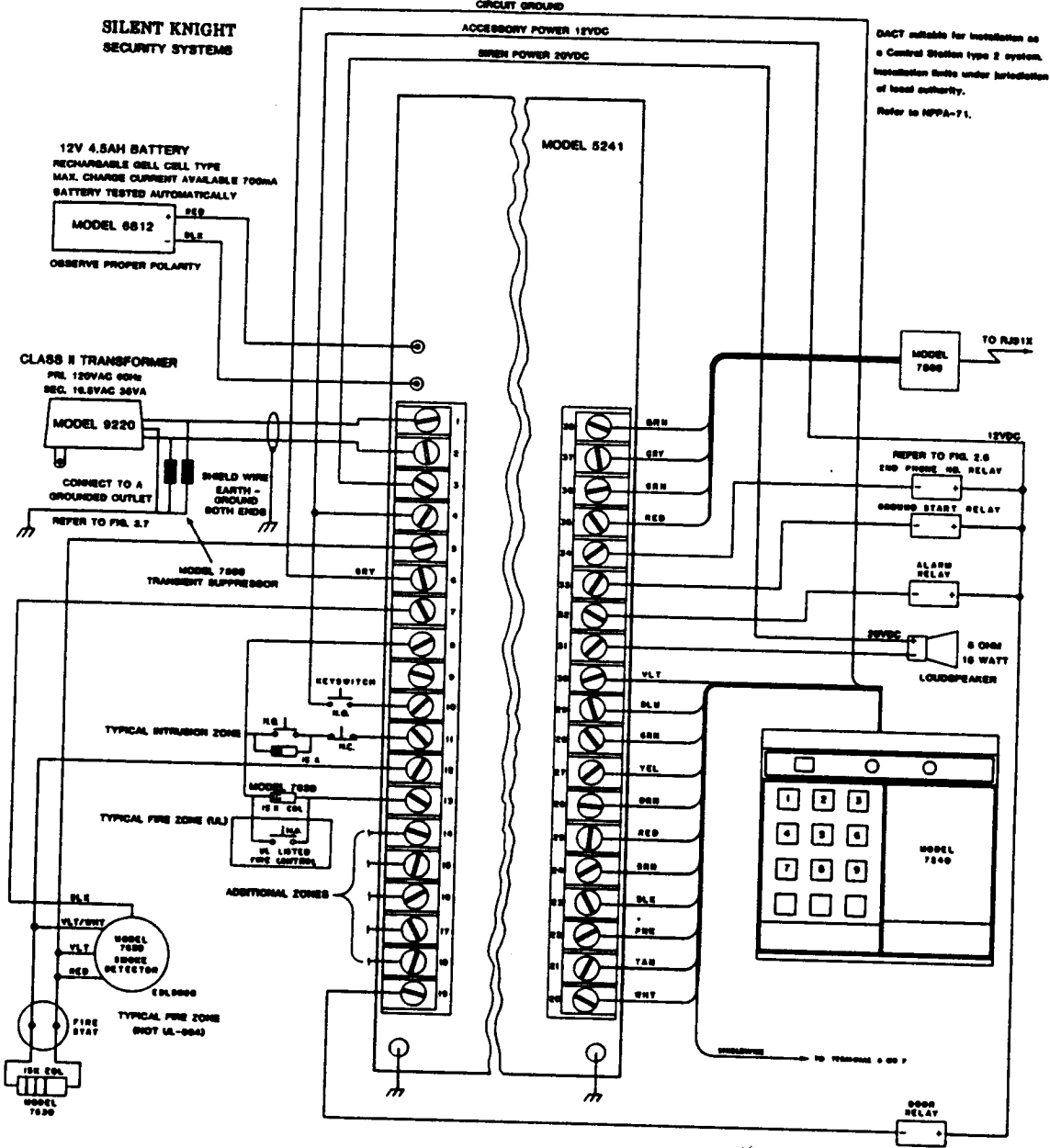
There must be approximately 117 VAC between the mounting screw and one side of the outlet, and 0 VAC between the mounting screw and the other side of the outlet.

If these voltages are not identical the outlet does not have an earth ground and must be grounded by running a #18 gauge wire from the outlet to a good ground; for example, a cold water pipe.

CAUTION: To reduce risk of fire or electrical shock, connect directly to a grounding (3 prong) receptacle.

IMPORTANT: Do not use the 7870 Telephone Line Transient Suppressor in place of the 7890 (or visa versa) - A Short Circuit Will Result.

**SILENT KNIGHT
SECURITY SYSTEMS**



MODEL 5241 WIRING DIAGRAM

FIGURE 4.1

TERMINAL STRIP DESCRIPTION

- Terminal 1 - 16.5 VAC 60Hz (30VA minimum)
- Terminal 2 - 16.5 VAC 60Hz
- Terminal 3 - External Speaker Power +20VDC 2A max (Fused at 2.5A)
- Terminal 4 - Accessory Power + 12VDC 1.2A max (Fused at 1.5A)
- Terminal 5 - Smoke Detector Power + 12VDC 0.4A max (Fused at 0.5A)
- Terminal 6 - Common negative (ground)
- Terminal 7 - Common negative (ground)
- Terminal 8 - Loop Power +12VDC 50mA max (current limited)
- Terminal 9 - Loop Power +12VDC 50mA max (current limited)
- Terminal 10 - Mechanical Key input
- Terminal 11 - Zone 1 input
- Terminal 12 - Zone 2 input
- Terminal 13 - Zone 3 input
- Terminal 14 - Zone 4 input
- Terminal 15 - Zone 5 input
- Terminal 16 - Zone 6 input
- Terminal 17 - Zone 7 input
- Terminal 18 - Zone 8 input
- Terminal 19 - Door Strike output 0VDC active 100mA max
- Terminal 20 - Digital Key input 0
- Terminal 21 - Digital Key input 1
- Terminal 22 - Digital Key input 2
- Terminal 23 - Ready and Armed LED enable output
- Terminal 24 - Armed LED output
- Terminal 25 - Ready LED output
- Terminal 26 - BCD 0 for 7 segment display on 7240
- Terminal 27 - BCD 1 for 7 segment display on 7240
- Terminal 28 - BCD 2 for 7 segment display on 7240
- Terminal 29 - BCD 3 for 7 segment display on 7240
- Terminal 30 - Internal Speaker output 1A max
- Terminal 31 - External Speaker/Bell output 2A max (1A max if UL Fire installation)
- Terminal 32 - Alarm output 0VDC active 100mA max
- Terminal 33 - Ground Start output 0VDC active 100 mA max
- Terminal 34 - Second Telephone Line output 0VDC active 100mA max
- Terminal 35 - TELCO RING
- Terminal 36 - TELCO TIP
- Terminal 37 - House Phones Ring
- Terminal 38 - House Phones Tip

*NOTE: Sum of keystations with speakers (50mA each) and all 12 volt accessories connected to terminal 4 must not exceed 1.2A

Handwritten notes:
1.5 113
ck 1! Bad

Handwritten notes:
7240 7 (low)

PHONE LINE TRANSIENT PROTECTION

The incoming phone lines are protected from lightning induced transients at the phone block installed by the phone company where the phone lines enter the building. Additional protection is provided by the Model 7140 or Model 7190 when those units are used.

If only one phone line is used (no 7140s or 7190) then additional protection in the form of the Model 7870 Phone Line Transient Suppressor is recommended. The 7870 consists of two MOVs (Metal Oxide Varistors) with spade lugs for mounting at the phone block in parallel with the existing protection. The 7870 will respond faster than the gas discharge devices normally installed by the phone company; however, the gas discharge devices can absorb larger transients.

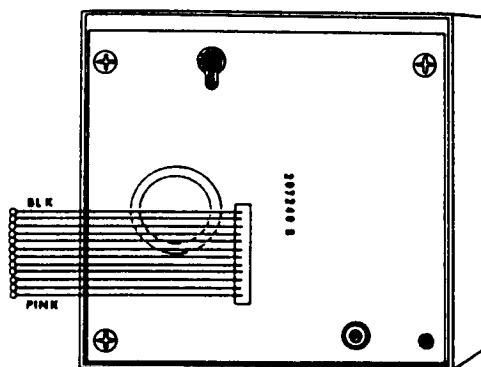


Figure 5.1

7240 DIGITAL KEY MODULE INSTALLATION

Installation of the 7240 requires a 12 conductor cable from each 7240 to the 5241. Connect the cable as follows:

Wire Color	-	5241 Terminal #
GRAY	-	6
WHITE	-	20
TAN	-	21
PINK	-	22
BLACK	-	23
BROWN	-	24
RED	-	25
ORANGE	-	26
YELLOW	-	27
GREEN	-	28
BLUE	-	29
VIOLET	-	30

The 7240 comes with a short pig-tail cable (Part #130061) which may be unplugged to simplify installation or replacement of the 7240. When reinstalling the cable you must orient the plug so that the wires cover the back of the speaker as shown in figure 5.1.

Up to 10 7240s may be used with the 5241; however, only 3 internal speakers should be used. If more than 3 7240s are installed, the violet wire should be cut at all but 3 of the 7240s.

Cable runs to 7240s of over 100 feet may cause a noticeable hum at the 7240 speaker. To reduce this hum, do not daisy-chain multiple 7240s. Run the violet and gray wires through a separate cable or use a shielded cable (Silent Knight Model #9112--connect the shield to Terminal 6 or 7 at the 5241).

The Model 7240 can be mounted either directly to a double gang switch box or to a flat wall surface.

If you are using a switch box the upper right and lower left mounting holes of the box are used. Turn in the upper right mounting screw until approximately 3/8 inch protrudes beyond the wall. Slide the head of the screw into the key hole opening of the 7240 P.C. board and move the 7240 up until the bottom left mounting hole of the 7240 lines up with the mounting hole of the switch box.

If you are mounting the 7240 without a switch box, use the template provided with the 7240 to mark the mounting locations and proceed as above.

NOTE: The upper mounting screw may have to be adjusted in or out to obtain a snug fit.

MODEL 5241 UL INSTALLATION ADDENDUM

The Model 5241 has been UL Listed for use as a Grade C Central Station Burglar Alarm Control/Transmitter, under UL Standard 611. A copy of this standard can be obtained from:

Underwriters Laboratories, Inc.
333 Pfingsten Road
Northbrook, IL 60062

The Model 5241 has also been UL Listed for use as a Fire Alarm Transmitter under UL Standard 864 and NFPA Standard 71. Copies of these standards can be obtained from:

Underwriters Laboratories, Inc.
333 Pfingsten Road
Northbrook, IL 60062

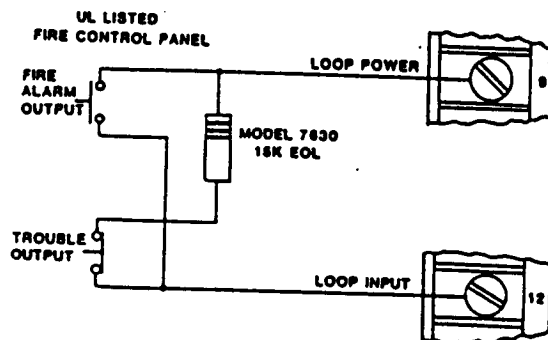
National Fire Protection Association
Battery March Park
Quincy, MA 02269

Note: The Model 5241 is listed as a Fire Alarm Transmitter only, and must be used in conjunction with a UL Listed Fire Alarm Control Unit.

In any installation which is to be submitted for certification you must use UL Listed equipment, properly installed by professionals in compliance with the above standard(s) and the National Electrical Code (NFPA 70).

The installation must also meet requirements of local authorities. The 5241 must report to a certificated Central Station and the Central Station company or installing company must provide routine testing and maintenance of the system to insure continued operation in compliance with the requirements.

Figure 2.5 in the installation manual shows the connection of the 5241 to a Fire Control Panel with normally open contact outputs. If normally closed contacts are available for the Trouble output then Alarm and Trouble detection can be combined on one zone as shown below. Programming is the same as any Fire zone (don't forget to cut the zone jumper).



PROGRAMMING RESTRICTIONS

When programming for a UL installation, certain restrictions apply to the selections possible in the Control and Dialer PROMs which are as follows:

Control PROM Restrictions

Step 15 - \textcircled{Y} N Self-Test
Self-Test must be used.

Dialer PROM Restrictions

Step 1 - ___ Total attempts to reach receiver
Select 5-10 attempts (not 1-16).

Step 3 - ___ Attempts at 1st phone number
Select 1-5 attempts (not 1-15).

Step 4 - ___ Attempts at 2nd phone number
Select 1-5 attempts (not 0-15).

Steps 20-33
Do NOT alter (leave in standard format).