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Section 1.

Introduction

The Model 5207 is an 8-zone fire alarm control panel (expandable up to 16 zones) with a digital communicator that meets NFPA 72 requirements. The 5207 comes with a field selectable 12 or 24 VDC power supply. The 5207 cabinet can be surface mounted or semi-flush mounted.

1.1 How to Use This Manual

The *Model 5207 Fire Control/Communicator Installation Manual (P/N 150865)* is intended for those persons involved with the installation and maintenance of the 5207 panel. It covers installation details including wiring, connection to compatible products, normal operation, troubleshooting, and central station reporting.

The Model 5207 documentation now includes a separate programming manual. Refer to the *Model 5207 Fire Control/Communicator Programming Manual (P/N 150866)* for programming information.

The installation and programming manuals are comprehensive guides. They provide detailed instructions and can be used for reference. The installation manual is organized chronologically by the tasks that need to be performed to get the panel operating according to your needs. You can skip sections that do not apply to your installation.

This manual is intended to be used with printed circuit board (PCB), Revision M. If you are using a different board, please contact Silent Knight Security Systems (see contact information in Section 3) for the appropriate instructions.

In this manual, the following conventions are used:



A clear rectangle represents a key that you press on a touchpad.



Shaded displays represent messages that you see on a liquid crystal display (LCD) or the seven-segment (built-in touchpad) display.



1.2 Optional Accessories

The following Silent Knight modules used with the Model 5207 panel.

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

Model	What it Does
4180 Status Display/Relay Module	For remote annunciation of alarm and trouble status information for each zone.
5210 Zone Expander	Adds 8 zones to the 5207; for a total expansion of the system to 16 zones.
5220 Direct Connect Module	For direct alarming and trouble transmission from the 5207 to a supervising station.
5230 Remote Annunciator	This touchpad (keystation) is used for annunciation, operation, and on-site programming.
Quick connect program cable, part number 130294	For temporarily connecting the 5230 to the 5207 for programming.
5260 Printer Interface	For printing system activity or walk test reports.
5295 Signal Power Expander	Notification circuit power for additional notification devices. Provides additional 6 A of 24 VDC, supervised.
5521 Desktop Programmer	For programming the 5207.
5541 Downloading Software	For remote programming of the 5207.
5530 Modem	Modem for downloading; required if the 5541 software is used.
7181 Zone Converter	Converts a zone from class B (style B) to class A (style D) or from class A to class B. One 7181 per zone to be converted.

Section 2.

Specifications and System Planning

2.1 Electrical Specifications

	12-Volt Selection	24-Volt Selection
Primary AC	120 Vrms at 60 Hz, 2A	120 Vrms at 60 Hz, 2A
Total DC Load	6A	5A
Accessory Power	9.2 V to 13.8 V max., 1A	9.2 V to 13.8 V max., 1A
Smoke Power	9.2 V to 13.8 V max.	18.4 V. to 27.6 V. max.
Battery Charging Voltage	13.65	27.3
Battery Charging Current	2.62 A max.	2.62 A max.
Class A (style D) Circuit Current	60 mA max.	60 mA max.
Telephone Minimum Input Sensitivity	45 dB	45 dB
Good Phone Line Voltage	3 V	3 V
Maximum Low Battery Detect	10.2	20.4
Minimum Low AC Detect	98	98
Maximum Watchdog Response Time	4 sec.	4 sec.

2.2 Environmental Specifications

It is important to protect the 5207 control panel from water. To prevent water damage, the following conditions should be AVOIDED when mounting the units:

- Do not mount directly on exterior walls, especially masonry walls (condensation)
- Do not mount directly on exterior walls below grade (condensation)
- Protect from plumbing leaks
- Protect from splash caused by sprinkler system inspection ports
- Do not mount in areas with humidity-generating equipment (such as dryers, production machinery)

When selecting a location to mount the 5207 control panel, the unit should be mounted where it will NOT be exposed to temperatures outside the range of 0°C-49°C (32°F-120°F) or humidity outside the range of 10%-85% at 30°C (86°F) noncondensing.

See also the mounting recommendations in Section 5.2 for additional environmental specifications.

2.3 Wiring Specifications

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

1/4" spacing must be maintained between each of these circuit types, as well as between power limited and non-power limited circuits.

Input/Output Type	Wiring
High current:	AC power, speaker, and notification devices
Low current:	Annunciator and zone loop wiring
Audio:	Telephone wiring

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

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

High frequency noise, such as that produced by the inductive reactance of a speaker or bell, can also be reduced by running the wire through ferrite shield beads or by wrapping it around a ferrite toroid. See Figure 2-1.



Figure 2-1. Wiring Identification

Section 3.

Agency Listings, Approvals, and Requirements

3.1 Federal Communications Commission (FCC)

1. If requested by the telephone company, the following information must be provided before the 5207 can be connected to the phone lines:

- | | |
|--|--------------------------------|
| A. Manufacturer: | Silent Knight Security Systems |
| B. Model Number: | 5207 |
| C. FCC registration number | AC6USA-65475-AL-E |
| Ringer equivalence: | 0.9B |
| D. Type of jack (to be installed by the telephone company) | RJ31X |

2. This device may not be directly connected to coin telephone or party line services.
3. This device cannot be adjusted or repaired in the field. In case of trouble with the device, notify the installing company or return to:

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

4. If the 5207 causes harm to the telephone network, the telephone company will notify the user in advance that temporary discontinuance of service may be required. When advance notice is not practical, the telephone company will notify the user as soon as possible. Users have the right to file complaints, if necessary, with the Federal Communications Commission.
5. The telephone company may make changes in its facilities, equipment, operations, or procedures that could affect the operation of the equipment. If this happens, the telephone company will provide advance notice to allow you to make the necessary modifications to maintain uninterrupted service.

Warning:

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

3.2 Underwriters Laboratories (UL)

The 5207 is UL Listed as a control unit for use in Central Station Fire-Protective Signaling systems. If the 5207 and its accessories are to be used as part of a UL installation, carefully read the UL requirements in this section. The following applicable NFPA 72 standards can be found in more detail in the *NFPA 72 National Fire Alarm Code, 1993 Edition*:

- Chapter 3
 - Local Protected Fire Alarm Systems
- Chapter 4
 - Central Station Fire Alarm Systems
 - Auxiliary Protected Fire Alarm Systems for Fire Alarm Service (City Box)
 - Remote Station Protected Fire Alarm Systems (Polarity Reversal)
 - Proprietary Fire Alarm Systems

3.2.1 Requirements for All Installations

General requirements are described below. When installing an individual device, refer to the specific section of the manual for additional requirements. See also the subsection below that describes special requirements for the type of installation (for example, Central Station Fire Alarm systems, Local Protected Fire Alarm systems, and so on).

1. All field wiring must be 18-gauge or larger (for example, 16, 14, and so on).
2. Use UL listed smoke detectors compatible with the 5207. Refer to Sections 6.2 and 6.3.
3. Use UL listed compatible notification devices. Refer to Section 6.5.
4. All notification devices must be UL listed.

3.2.2 Requirements for Central Station Fire Alarm Systems

Refer to the 5207 programming manual, Sections 2 and 3 for more details on using the Model 5521 and Model 5230 to select options.

Select Options:	Model 5521 (Menus)	Step Programming (Steps)
1. The Ground Fault Detection option must be selected.	System Options	Step 5
2. The Phone Line #2 Enable option must be selected.	Dialer Options	Step 9
3. The Phone Line Monitor Enable option must be selected.	Dialer Options	Step 9
4. The Total Attempts must be set for at least five attempts, but no more than 10.	Dialer Options	Step 10
5. Do NOT select the Ground Start option.	Dialer Options	Step 9
6. You must select a phone number for the Report Test To Phone Number 1-4 option, so that the 5207 transmits an automatic daily test.	Dialer Options	Step 14.4

7. On class A (style D) zones, the number of waterflow devices is limited to five. See Section 6.1.1.
8. Auxiliary relays may not be programmed to activate for Pre-Alarm. See Section 6.6.

3.2.3 Requirements for Auxiliary Protected Fire Alarm Systems for Fire Alarm Service

1. Follow the current load restriction shown in Section 4.2.2.
2. The Model 5220 Direct Connect module must be installed (see Section 6.4.3 for wiring).

3.2.4 Requirements for Remote Station Protected Fire Alarm Systems - Polarity Reversal

1. Follow the current load restrictions shown in Section 4.2.2.
2. The Model 5220 Direct Connect module must be installed (see Section 6.4.3 for wiring).

3.3 California Fire Marshal (CFM)

The CFM approval number for the 5207 is 7165-0559:111.

3.4 Factory Mutual (FM)

The Model 5207 is FM approved under project # OQ1A3.AY when used in conjunction with the Silent Knight Model 9000 Receiver.

3.5 Materials and Equipment Board of Acceptance Division (MEA)

The 5207 is now approved under MEA. As approval was previously given from the City of New York Board of Standards and Appeals (BSA), the 5207 is still approved under BSA Calendar Number 703-88-SA.

Section 4. Installation Overview

4.1 Model 5207 Wiring Diagram

Figure 4-1 is a wiring diagram for wiring the Model 5207 panel.

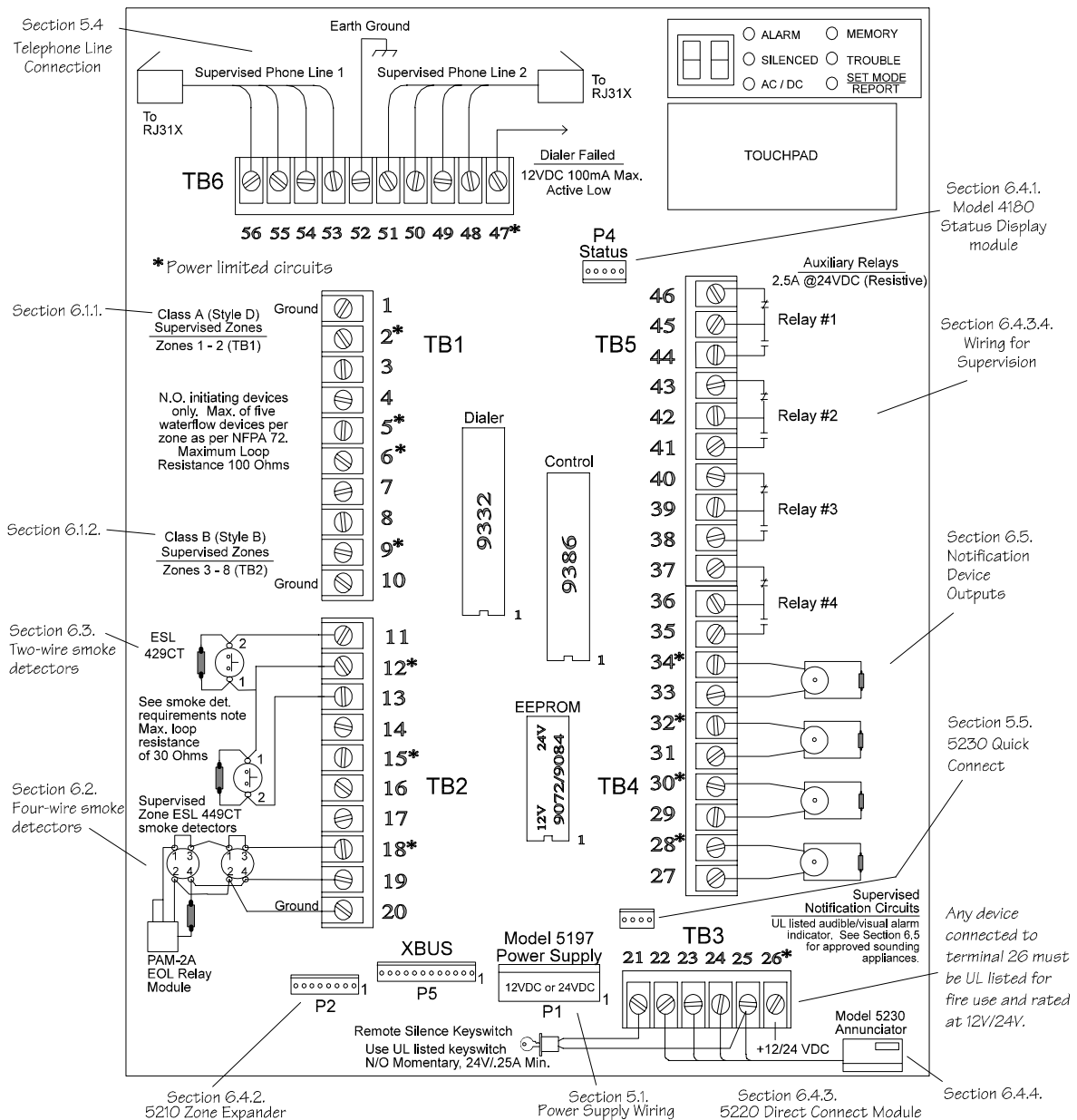


Figure 4-1. Model 5207 Wiring Reference

4.2 Current Draw Worksheet

Device	Number of Devices	Current per Device	Standby Current	Alarm Current
<i>For each device, use this formula: This column X This column = Current per number of devices</i>				
5207 Fire Control /Communicator	1	Standby: 120 mA	mA	
		Alarm: mA		mA
5210 Zone Expander	1	Standby: 40 mA	mA	
		Alarm: 40 mA		mA
5220 Direct Connect module	1	Standby: 50 mA	mA	
		Alarm: 50 mA		mA
5230 Remote Annunciator	(7 max.)	Standby: 60 mA	mA	
		Alarm: 120 mA		mA
4180 Status Display module	(2 max.)	Standby: 20 mA	mA	
		Alarm: 140 mA		mA
5260 Printer Interface	1	Standby: 25 mA	mA	
		Alarm: 25 mA		mA
A	Current Subtotals:		mA	mA
Smoke Detectors	<i>Refer to device manual for current ratings. See Tables 6-2 and 6-3 for max. # per loop.</i>			
		Standby: mA	mA	
		Alarm: mA		mA
		Standby: mA	mA	
		Alarm: mA		mA
		Standby: mA	mA	
		Alarm: mA		mA
B	Current Subtotals:		mA	mA
Notification Devices	(4 max.)	<i>Refer to device manual for current ratings.</i>		
		Alarm: mA		mA
		Alarm: mA		mA
		Alarm: mA		mA
		Alarm: mA		mA
C	Current Subtotal:			mA
Additional Devices				
		Standby: mA	mA	
		Alarm: mA		mA
		Standby: mA	mA	
		Alarm: mA		mA
		Standby: mA	mA	
		Alarm: mA		mA
D	Current Subtotals:		mA	mA
Total current ratings of all devices in system (add A-D)*:			mA	mA
Total current ratings converted to amperes (x .001):			A	A

* This information must be used with Table 4-1 and Table 4-2 to complete battery calculations.

4.2.1 Worksheet Example

The Current Draw worksheet is included to help you calculate the amount of current the system draws on standby and in an alarm condition. Refer to Table 4-2 for the different battery sizes available and the maximum standby current load each can support.

Figure 4-2 illustrates how to complete the worksheet. The recommended order for filling out the form is indicated by the circled numbers (for example, ①).

① Cross out entire row of any devices not used.

② In the blank spaces, write in any devices not printed on the worksheet (smoke detectors, notification devices, etc.).

③ List the number of devices being used. The maximum number is shown in parentheses. The number "1" printed in this column indicates that only one device can be used.

④ Fill in missing current ratings for the devices used. Note that some devices have different ratings for standby and alarm conditions.

⑤ For devices with different standby and alarm currents, be sure to do the calculation for each rating.

Note: Do not write in shaded areas.

Device	Number of Devices	Current per Device	Standby Current	Alarm Current
<i>For each device, use this formula: This column X This column = Current per number of devices</i>				
5207 Fire Control /Communicator	1	Standby: 120 mA Alarm: mA	120 mA	700 mA
5210 Zone Expander	1	Standby: 40 mA Alarm: 40 mA	40 mA	40 mA
5220 Direct Connect module	1	Standby: 50 mA Alarm: 50 mA	mA	mA
5230 Remote Annunciator	3 (7 max.)	Standby: 60 mA Alarm: 120 mA	180 mA	360 mA
4180 Status Display module	1 (2 max.)	Standby: 20 mA Alarm: 140 mA	mA	mA
5260 Printer Interface	1	Standby: 25 mA Alarm: 25 mA	25 mA	25 mA
Current Subtotals:			365 mA	1125 mA
Smoke Detectors <i>Refer to device manual for current ratings. See Tables 6-2 and 6-3 for max. # per loop</i>				
Model XYZ	16	Standby: 150 mA Alarm: 62.5 mA	24 mA	1000 mA
		Standby: mA Alarm: mA	mA	mA
		Standby: mA Alarm: mA	mA	mA
Current Subtotals:			24 mA	1000 mA
Notification Devices (4 max.) <i>Refer to device manual for current ratings.</i>				
Brand X <small>24V mode 4 per output</small>	16	Alarm: 179.7 mA		2875 mA
Total current ratings of all devices in system (add A-D)*:			389 mA	4875 mA
Total current ratings converted to amperes (x .001):			0.389 A	4.875 A

A

B

E

⑥ For row E, add the subtotals from rows A-D and multiply by .001.

Figure 4-2. Current Draw Worksheet Example

4.2.2 Worksheet Requirements

The following steps must be taken when determining Model 5207 current ratings:

1. You must measure the alarm current. If only one current rating is listed, the draw for that device is the same whether the system is in alarm or standby condition. The exception is for notification devices, which are rated at alarm current only. Standby current for notification devices is 0 mA.
2. To detect the actual maximum alarm current, measure the current draw (with no devices connected to the panel) by connecting a DC amp meter in series with one of the batteries. Disconnect the AC power source. Put the panel in alarm. The meter will indicate the alarm current, which will be in the range of 120-700 mA. Fill in the system alarm current in the Current per Device column of the Current Draw worksheet. You can estimate without measuring the alarm current by filling in the maximum total alarm current of 700 mA.

Note: In a 12-volt system, measure the current from both batteries (disconnect both grounds).

3. For smoke detectors, notification devices, and devices not mentioned in the manual, refer to the device manual for the current ratings. The worksheet example shown on the previous page provides rough estimates for a “worst case” installation.
4. Use Table 4-1 to calculate the correct battery AH rating needed for your installation. See also the example (Figure 4-3) that follows. Note that the calculated rating in Row H cannot exceed the ratings shown in Table 4-2.

Table 4-1. Battery Calculations

		Total Standby Current	Total Alarm Current
A	Total supervisory current from the Current Draw worksheet (row E).	A	
B	Number of standby hours (24 and 60 for NFPA 72, Chapter 1, 1-5.2.5.).	H	
C	Multiply Lines A and B.	AH	
D	Total alarm current from the Current Draw worksheet (row E).		A
E	Alarm sounding period in hours. (For example, 5 minutes = .084 hours.)		H
F	Multiply lines D and E.		AH
G	Add lines C and F.	AH	
H	Multiply line G by 1.2. (Total ampere/hours required*)	AH	

* Use next size battery with capacity greater than required.

This calculation is based on the Current Draw worksheet example data.
 From this table, the installer would use a 17 AH battery

		Total Standby Current	Total Alarm Current
A	Total supervisory current from the Current Draw worksheet (row E).	0.389 A	
B	Number of standby hours (24 and 60 for NFPA 72, Chapter 1, 1-5.2.5.).	24 H	
C	Multiply lines A and B.	9.34 AH	
D	Total alarm current from the Current Draw worksheet (row E).		4.875 A
E	Alarm sounding period in hours. (For example, 5 minutes = .084 hours.)		.084 H
F	Multiply lines D and E.		.41 AH
G	Add lines C and F.	9.75 AH	
H	Multiply line G by 1.2. (Total ampere/hours required*)	11.7 AH	

Figure 4-3. Battery Calculation Example

Warning

Silent Knight does not support the use of batteries smaller than those listed in Table 4-2. If you use a battery too small for your installation, the system can overload and you may have less than the required 24 hours standby power. Use Table 4-1 to calculate the correct battery amperes/hour rating needed for your installation.

- Refer to Table 4-2 to verify the battery size you need to provide at least the total standby current you have calculated. If the installation must meet requirements for NFPA 72 (Auxiliary Protected Fire Alarm Systems for Fire Alarm Service or Remote Station Protected Fire Alarm Systems - Polarity Reversal), the total standby current cannot exceed the amount shown in the last column of the following table:

Table 4-2. Maximum Battery Standby Load

Rechargeable Battery Size	Max. Load for 24 hrs. Standby, 5 mins. Alarm	*Max. Load for 60 hrs. Standby, 5 mins. Alarm
17 AH	435 mA	175 mA
34 AH (if wired in parallel)	873 mA	350 mA

** Required for NFPA 72 Auxiliary Protected Fire Alarm Systems for Fire Service (City Box) and Remote Station Protected Fire Alarm Systems (Polarity Reversal).*

- Ensure that the total current of all items attached to the 5207, including the 5207 itself, does not exceed 6 A for a 12-volt system and 5 A for a 24-volt system when the panel is in alarm (see Section 2.1).

Section 5.

Control Panel Installation

This section describes in detail how to install the major components of the Model 5207 PC board. Refer the wiring diagram in Section 4 for general board layout. Figure 5-1 shows the power supply wiring.

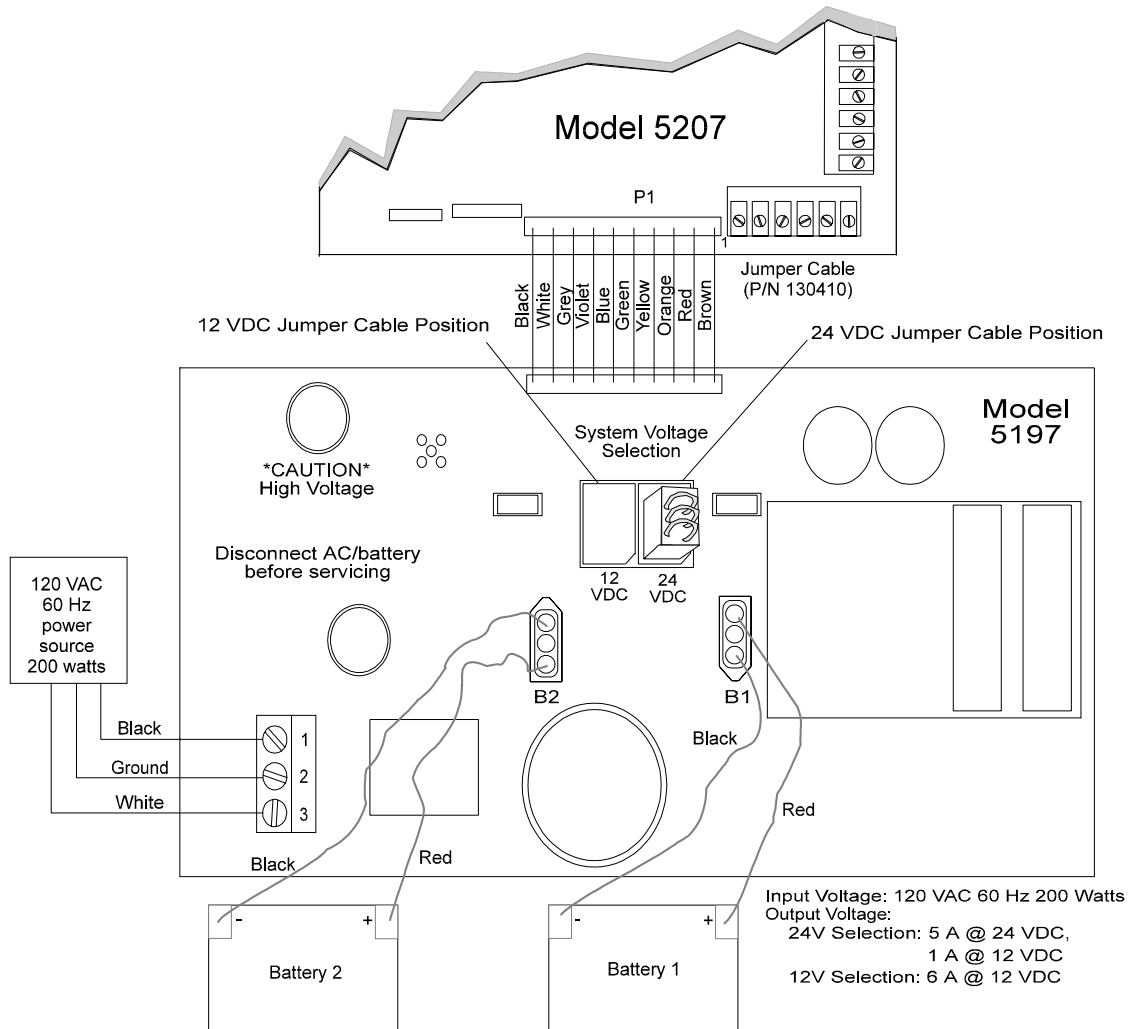


Figure 5-1. Power Supply Wiring

5.1 Power Supply Wiring

The Model 5197 power supply delivers 24 VDC at 5 A or 12 VDC at 6 A for loop power, smoke detector power, notification device power, and accessory power. The Model 6914 is a 12-Volt, 17-AH battery.

Warning

To reduce the risk of electrical shock, make sure that all power has been turned off or disconnected before attempting to connect the Model 5197 power supply. Do NOT apply power to this panel until all accessories are properly connected.

Note: All conduit and wiring connected to the 5207 must meet the applicable National Electric Code, NFPA Standards, state, and local building code requirements. In all cases, the authority having jurisdiction takes precedence.

5.1.1 Connecting the 5197 to AC Power

The Model 5197 is mounted behind the power shield.

- Connect the **black** wire from the 120 VAC 60 Hz source to terminal 1 on the 5197.
- Connect the **white** (neutral) wire from the 120 VAC 60 Hz AC source to terminal 3 on the 5197.
- Connect the **ground** wire from the 120 VAC 60 Hz source to terminal 2 on the 5197.

5.1.2 Selecting the Power Supply Output Voltage

If you need to change the output voltage from 24 to 12 (or vice versa), follow steps 1-4 below. Figure 5-1 shows the locations of the output selection jumper cables.

1. Verify that you are using the correct voltage (per the instructions for the device you wish to use).
2. Remove 120 VAC power.
3. Disconnect batteries.
4. Pull the jumper cable up from its current position and insert it into the correct one.

5.1.3 Connecting the 5197 to Batteries

The tables in Section 4 will help you decide what size battery to use.

Caution

Apply AC power before connecting the batteries to the power supply to prevent arcing on battery terminals.

Note: When using two batteries, it is recommended that they be of the same ampere hour (AH) rating.

Model 5197 Programmed for 12 VDC Power Supply

The Model 5197 provides two sets of battery leads for connection of one or two 12 VDC batteries. When connecting a single battery, connect one of the red leads to the positive side of the battery. Connect a black lead to the negative side of the battery.

If a second battery is used, connect the remaining red lead to the positive side of the second battery. Connect remaining black lead to the negative side of the second battery.

Note: The total current draw on loop power, accessory power, and notification device outputs must not exceed 6 A.

Model 5197 Programmed for 24 VDC Power Supply

The Model 5197 provides two sets of battery leads to connect two 12 VDC batteries connected in series.

1. Connect the first **red** battery lead to the **positive** side of battery #1.
2. Connect the first **black** battery lead to the **negative** side of battery #1.
3. Connect the second **red** battery lead to the **positive** side of battery #2.
4. Connect the second **black** battery lead to the **negative** side of battery #2.

Note: The total current draw on loop power, accessory power, and notification device outputs must not exceed 6 A (see output voltage in Figure 5-1).

5.2 Mounting the 5207

Read the environmental specifications in Section 2.2 before mounting the 5207 panel.

The panel should be accessible to “Main Drop” wiring runs. The 5207 panel should be located within a secured area, but should be accessible for testing and service. End-users responsible for maintaining the panel should be able to hear alarms and troubles. When selecting a location, keep in mind that the panel itself is the main source of alarm and trouble annunciation.

When mounting on interior walls, use appropriate screw anchors in plaster. When mounting on concrete, especially when moisture is expected, attach a piece of 3/4 inch plywood to the concrete surface and then attach the 5207 to the plywood. Also mount any other desired components (such as an external printer) to the plywood.

DO NOT flush-mount the 5207 cabinet in a wall designated as a fire break.

5.3 Terminal Strip Description

The terminal strips on the PC board are nonremovable. Table 5-1 below lists the function and electrical rating of each terminal. See Section 4.1 for the wiring diagram.

Table 5-1. Terminal Strip Descriptions

Terminal	Terminal Description	Electrical Ratings
TB1		
1	Circuit Ground	
2	Zone 1 input (class A (style D) Loop A Out	
3	Zone 1 input (class A (style D) Loop B Out	
4	Zone 1 input (class A (style D) Loop B In	
5	Zone 1 input (class A (style D) Loop A In	
6	Zone 2 input (class A (style D) Loop A Out	
7	Zone 2 input (class A (style D) Loop B Out	
8	Zone 2 input (class A (style D) Loop B In	
9	Zone 2 Input (class A (style D) Loop A In	
10	Circuit Ground	
TB2		
11	Zone 3 Input (style B/class B)	
12	Loop Power Output	12 VDC or 24 VDC
13	Zone 4 Input (style B/class B)	
14	Zone 5 Input (style B/class B)	
15	Loop Power Output	12 VDC or 24 VDC

Table 5-1 continued on next page.

Table 5-1 continued.

Terminal	Terminal Description	Electrical Ratings
16	Zone 6 Input (style B/class B)	12 VDC or 24 VDC
17	Zone 7 Input (style B/class B)	
18	Loop Power Output	
19	Zone 8 Input (style B/class B)	
20	Circuit Ground	
TB3		
21	Remote Silence	
22	Annunciator Output	
23	Annunciator Input	
24	Annunciator Power Output	+12 VDC nominal
25	Annunciator Ground	
26	Accessory Power	+12/24 VDC
TB4		
<i>Note: Outputs can also be used as polarity reversing outputs (polarity shown active)</i>		
27	Notification device output #4 Negative	1 amp max.
28	Notification device output #4 Positive	1 amp max.
29	Notification device output #3 Negative	1 amp max.
30	Notification device output #3 Positive	1 amp max.
31	Notification device output #2 Negative	1 amp max.
32	Notification device output #2 Positive	1 amp max.
33	Notification device output #1 Negative	1 amp max.
34	Notification device output #1 Positive	1 amp max.
35	Auxiliary Relay #4 Normally Open Contact	2.5 amp max.
36	Auxiliary Relay #4 Common	
TB5		
37	Auxiliary Relay #4 Normally Closed Contact	2.5 amp max.
38	Auxiliary Relay #3 Normally Open Contact	2.5 amp max.
39	Auxiliary Relay #3 Common	
40	Auxiliary Relay #3 Normally Closed Contact	2.5 amp max.
41	Auxiliary Relay #2 Normally Open Contact	2.5 amp max.
42	Auxiliary Relay #2 Common	
43	Auxiliary Relay #2 Normally Closed Contact	2.5 amp max.
44	Auxiliary Relay #1 Normally Open Contact	2.5 amp max.
45	Auxiliary Relay #1 Common	
46	Auxiliary Relay #1 Normally Closed Contact	2.5 amp max.

Table 5-1 continued on next page.

Table 5-1 continued.

Terminal	Terminal Description	Electrical Ratings
TB6		
47	Dialer Failed Output (Active Low)	100 mA, 12 VDC max.
48	House Phone 2 Tip	
49	House Phone 2 Ring	
50	Telco 2 Tip	
51	Telco 2 Ring	
52	Earth Ground	
53	House Phone 1 Tip	
54	House Phone 1 Ring	
55	Telco 1 Tip	
56	Telco 1 Ring	

5.4 Telephone Line Connection

The 5207 connects to two separate telephone lines to report data to the central station. A RJ31X jack should be installed by the telephone company for each line. Figure 5-2 shows how to wire the telephone line interconnect cords (not provided) to the 5207.

Note: To reduce the possibility of false alarms and transient damage, DO NOT bundle telephone wires together with notification device wires.

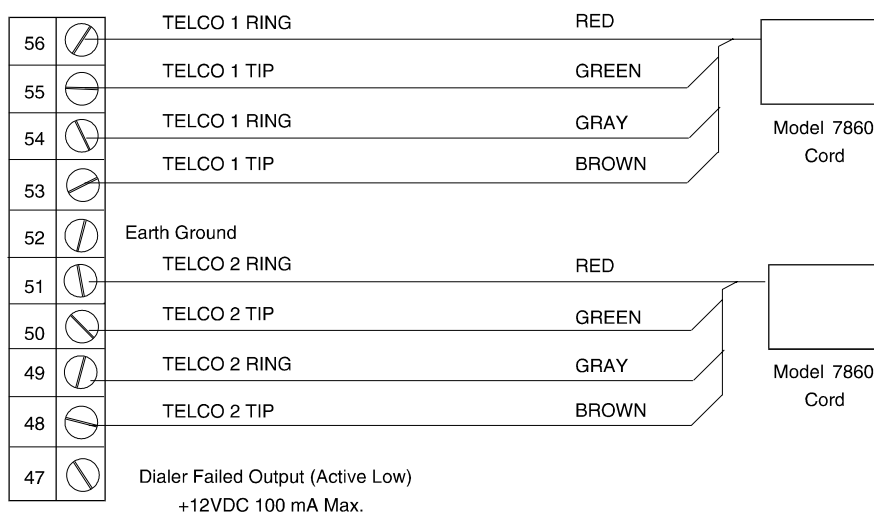


Figure 5-2. Telephone Line Connection

The 5207 has built-in dual phone line monitors. These circuits will detect any fault in the phone lines by monitoring the DC voltage present on the lines. They feature a delay of approximately 40 seconds before a line fault is reported as a trouble. When a fault is

detected, the audible trouble signal will sound and the trouble will be reported to the central station over the remaining phone line.

A situation could occur where both phone lines appear to be good, but the dialer cannot get through to the central station on the first line. In this case, the 5207 will switch phone lines and attempt the call again using the second line.

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

5.5 Cable Connectors

Power Supply Connector (P1)

Connects the 5207 control panel to the 5197 power supply.

Model 5210 (P2)

Connects the 5210 zone expander to the 5207.

Status (P4)

Connects the 4180 display model to the 5207.

***Note:** A quick connect program cable, part number 130294, can be ordered separately. With this cable, you can temporarily connect the 5230 Remote Annunciator to the panel for programming (see Figure 4-1 for connection).*

5.6 XBUS Connector

The XBUS (P5) is a 12-pin connector used to connect such items as the 5521 programmer or the 5260 printer interface. When using an XBUS, maintain a physical separation of one-half inch or more between field wires and connection points to prevent damage from transients.

Section 6.

Compatible Product Installation

6.1 Zone Wiring

This manual refers to fire zone types using the latest NFPA standard designations. If you have questions about the class or style, refer to the *NFPA 72 National Fire Alarm Code, 1993 Edition*.

Note: For purposes of this manual, a normally open device is one whose contacts conduct when in the alarm condition and do not conduct in the non-alarm condition.

6.1.1 Class A (Style D) Zones

Zones 1 and 2 are class A (style D) zones. Each class A zone is a four-wire circuit that allows an alarm to be detected even after a single open or ground fault occurs. When a single open or ground fault occurs, the audible trouble signal will sound and the 5207 will report the trouble to the central station (if programmed to report troubles).

Figure 6-1 shows how to wire a class A (style D) loop. No end-of-line (EOL) resistors are needed for these zones. These zones must be wired using normally open contacts.

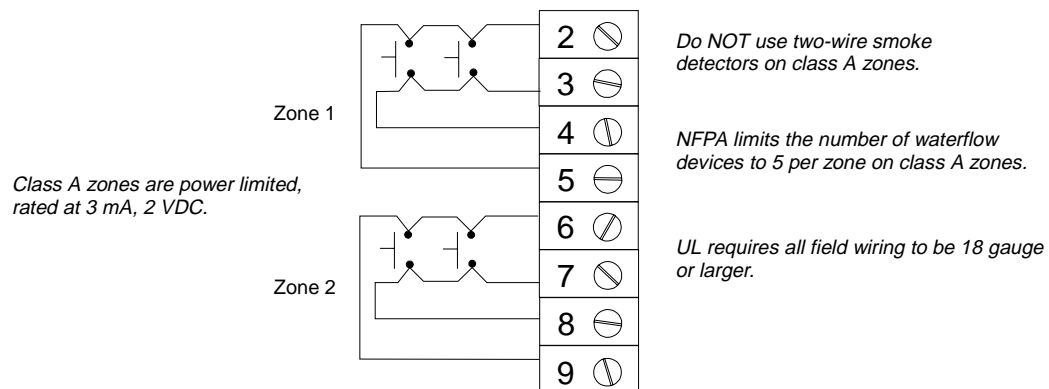


Figure 6-1. Class A (style D) Supervised Fire Loop (Normally Open Sensors Only)

6.1.2 Class B (Style B) Zones

Zones 3 through 8 are class B (style B) fire zones. Each class B zone consists of a two-wire circuit that will detect the occurrence of an open in the loop, but may not be able to detect an alarm after such an occurrence. The detection of an open will cause the audible trouble signal to sound and the 5207 will report the trouble to the central station (if programmed to do so).

Figure 6-2 shows how to wire a class B (style B) loop. One side of each class B loop connects to a zone input terminal and the other side of each loop connects to loop power. Each class B loop must employ a Model 7628 4.7K-ohm EOL resistor wired in parallel with the normally open contact farthest from the panel.

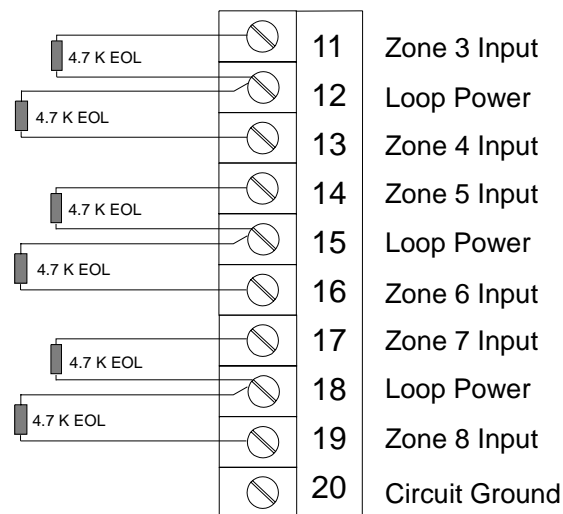


Figure 6-2. Model 5207 Class B (style B) Loops

Maximum Loop Resistance - 30 Ohms

Maximum Total alarm current for all class B (style B) zones - 1 A

Maximum Standby Current per Zone:

12V system - 1.5 mA

24V system - 2.0 mA

Note: UL requires all wiring to be at least 18 gauge.

6.2 Four-Wire Smoke Detector Connection

Figure 6-3 illustrates how the Model 7620 UL listed four-wire smoke detectors must be connected to class B (style B) zones.

When wiring a four-wire smoke detector to the class B (style B) zones, you **MUST** use a Power Supervision Unit. The recommended device is an ESL 204 for both 12- and 24-VDC applications.

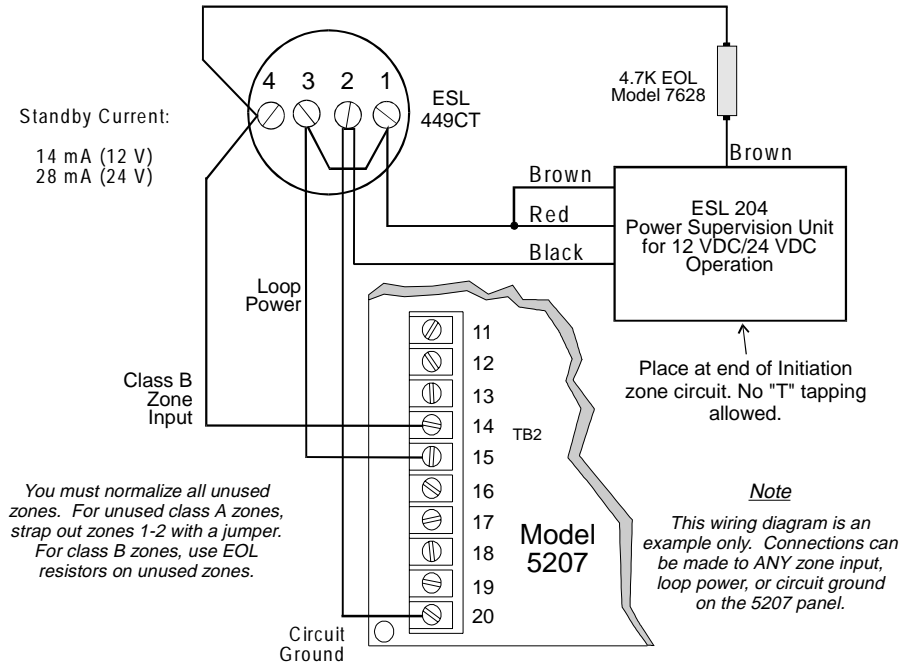


Figure 6-3. Four-Wire Smoke Detector Wiring

Table 6-1 shows other four-wire smoke detectors that may be used with the 5207:

Table 6-1. Compatible Four-Wire Smoke Detectors

Manuf.	Model Name/#	Manuf.	Model Name/#
GENTEX	624 824 2040-12 Power Supervision Unit 2040-24 Power Supervision Unit	ESL	445 Series 449 Series
Pyrotector	3040RC-24 Phoenix 3224A Phoenix 7224A 2040-24 Power Supervision Unit	Detection Systems	DS200/DS200HD
System Sensor	1851B 2851/2851BTH DH400ACDC <i>(Runs off AC power. Interface is through contacts on detector.)</i>		

6.3 Two-Wire Smoke Detector Connection

Figure 6-4 shows how to connect two-wire smoke detectors to class B (style B) zones.

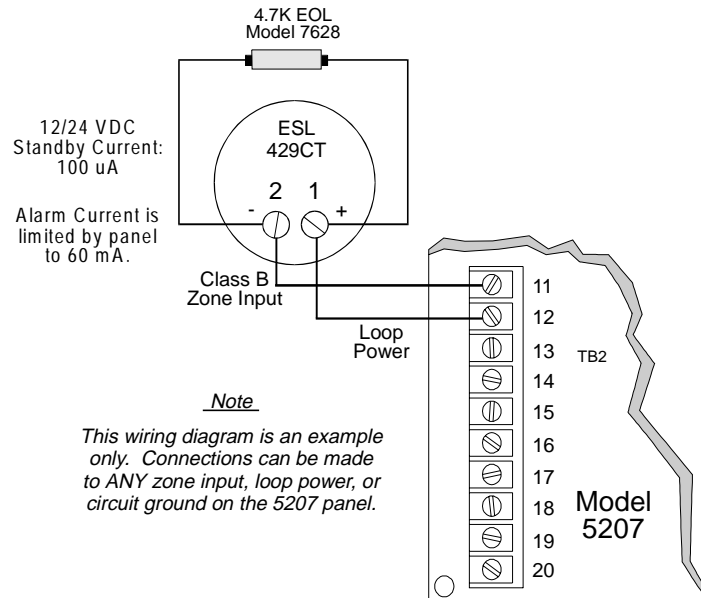


Figure 6-4. Two-Wire Smoke Detector Wiring

The tables in this section show the two-wire smoke detectors that are approved for use with the 5207 panel.

Notes for Both Tables

1. If a separate base is used with a detector, the model number is shown in parentheses in the Model column.
2. In the Type column, I = Ionization, P = Photoelectric, D = Duct
3. ID = Identifier
4. The maximum number of smoke detectors is different for the 5210 loop and 5207 loop.
5. The maximum number of smoke detectors per zone is determined by both the current draw and the impedance of the smoke detector. If too many smoke detectors are used on any zone, false alarms could occur.
6. If different models of detectors are mixed on any zone, false alarms could occur.
7. Control unit Smoke Reset Time must be programmed for a number greater than or equal to the maximum reset time of the smoke detector (last column of chart).
8. FOS detectors are manufactured by System Sensor.

Contact Silent Knight if you have any questions about compatible smoke detectors.

Table 6-2. Compatible 12-Volt Smoke Detectors

Manuf.	Model	Type	*ID	(Max. per Loop)		Smoke Det. Reset Time
				5207	5210	
5207 - Voltage range: 9.34 VDC - 13.1 VDC; Identifier: 12D						
5210 - Voltage range: 8.5 VDC - 11.8 VDC; Identifier: 12A						
Detection Systems	DS200 (MB200-2W)	P	D	18	12	1
	DS200HD (MB200-2W)	P	D	18	12	1
	DS250 (MB2W or MB2WL)	P	B (A)	12	8	1
	DS250TH (MB2W or MB2WL)	P	B (A)	12	8	1
	DS250HD(MB2W or MB2WL)	P	B (A)	12	8	1
ESL	425C	P	S10	17	8	1
	425CT	P	S10	17	8	1
	425CR	P	S10	17	8	1
	425CRT	P	S10	17	8	1
	429C (S10A)*	P	S10A (S10A)	17	8	1
	429CT (S10A)*	P	S10A (S10A)	17	8	1
	429CRT (S11A)*	P	S11A (S11A)	17	8	1
	429CST (S11A)*	P	S11A (S11A)	17	8	1
	611U (601U)	P	S10 (S00)	30	20	1
	611UD (601U)	P	S10 (S00)	30	20	1
	611UT (601U)	P	S10 (S00)	30	20	1
	612U (601U)	I	S10 (S00)	30	20	1
	612UD (601U)	I	S10 (S00)	30	20	1
	611U (602U)	P	S10 (S03)	30	20	1
	611UD (602U)	P	S10 (S03)	30	20	1
	611UT (602U)	P	S10 (S03)	30	20	1
	612U (602U)	I	S10 (S03)	30	20	1
	612UD (602U)	I	S10 (S03)	30	20	1
	711U (701E or 701U)	P	S10A	20	15	1
	712U (701E or 701U)	I	S10A	20	15	1
Falcon	525	P	FDT 1	14	8	1
	525T	P	FDT 1	14	8	1
FOS	9374	I	A	12	8	6
	9375	P	A	12	8	6
	9376	P	A	12	8	6
System Sensor	1400	I	A	12	8	6
	1451 (B401B)	I	A	12	8	6
	1800	I	A	15	10	0.9
	1851B (B101B)	ID	A	12	8	2
	1851DH (DH1851DC)	ID	A	12	8	2
	2300T	P	A	12	8	6
	2400	P	A	12	8	6
	2400 (DH400)	P	A	12	8	1
	2400TH	P	A	12	8	1
	2451TH (B401B)	P	A	12	8	6
	2800	P	A	12	8	6
	2800TH	P	A	12	8	6
	2851B (B101B)	PD	A	12	8	2
	2851TH (B101B)	PD	A	12	8	2
	2851DH (DH2851DC)	PD	A	12	8	2

* See note in Section 7.2.2.

Table 6-3. Compatible 24-Volt Smoke Detectors

5207 - Voltage range: 19.4 VDC - 26.9 VDC; Identifier: 24D

5210 - Voltage range: 17.8 VDC - 27.4 VDC; Identifier: 24A

Manuf.	Model	Type	*ID	(Max. per Loop)		Smoke Det. Reset Time
				5207	5210	
Apollo	55000-250 (45681-200)	I	55000-250 (45681-200)	24	8	1 sec.
	55000-350 (45681-200)	P	55000-350 (45681-200)	24	8	1 sec.
System Sensor	1151 (B110RLP)	I	A	15	8	.3 sec.
	1400	I	A	16	8	6 sec.
	1451 (B401B)	I	A	16	8	6 sec.
	1800	I	A	20	10	0.9 sec.
	1851B (B101B)	ID	A	16	8	2 sec.
	1851DH (DH1851DC)	ID	A	16	8	2 sec.
	2151 (B110RLP)	P	A	15	8	.3 sec.
	2300T	P	A	16	8	6 sec.
	2400 (DH 400)	P	A(A)	16	8	6 sec.
	2400AT	P	A	16	8	6 sec.
	2400AIT	P	A	16	8	6 sec.
	2400TH	P	A	16	8	6 sec.
	2451 (B401B)	P	A	16	8	6 sec.
	2451 (DH 400)	P	A	16	8	6 sec.
	2451TH (B401B)	P	A	16	8	6 sec.
	2800	P	A	16	8	6 sec.
	2800TH	P	A	16	8	2 sec.
	2851B (B101B)	P	A	16	8	2 sec.
	2851BTH (B101B)	PD	A	16	8	2 sec.
	2851DH (DH2851DC)	PD	A	16	8	2 sec.
Detection Systems	DS200 (MB200-2W)	P	D	24	12	1 sec.
	DS200HD (MB200-2W)	P	D	24	12	1 sec.
	DS250 (MB2W or MB2WL)	P	B (A)	18	8	1 sec.
	DS250TH (MB2W or MB2WL)	P	B (A)	18	8	1 sec.
	DS250HD (MB2W or MB2WL)	P	B (A)	18	8	1 sec.
ESL	425	P	S10	40	20	1 sec.
	425C	P	S10A	25	8	1 sec.
	425CT	P	S10	25	8	1 sec.
	425CR	P	S10	25	8	1 sec.
	425CRT	P	S10	25	8	1 sec.
	429C (S10A)*	P	S10A (S10A)	25	8	1 sec.
	429CT (S10A)*	P	S10A (S10A)	25	8	1 sec.
	429CRT (S11A)*	P	S10A (S11A)	25	8	1 sec.
	429CST (S11A)*	P	S10A (S11A)	25	8	1 sec.
	611U, 611UD, 611UT (601U)	P	S10 (S00)	40	20	1 sec.
	612U (601U)	I	S10 (S00)	40	20	1 sec.
	612UD (601U)	I	S10 (S00)	40	20	1 sec.
	611U, 611UD, 611UT (602U)	P	S10 (S03)	40	20	1 sec.
	612U (602U)	I	S10 (S03)	40	20	1 sec.
	612UD (602U)	I	S10 (S03)	40	20	1 sec.
	711U (701E or 701U)	P	S10A	25	15	1 sec.
712U (701E or 701U)	I	S10A	25	15	1 sec.	
Falcon	525	P	FDT 1	17	8	1 sec.
	525T	P	FDT 1	17	8	1 sec.
FOS	9374	I	A	12	8	6 sec.
	9375	P	A	12	8	6 sec.
	9376	P	A	12	8	6 sec.
Gentex	224	P	-25-1	16	8	6 sec.
Hochiki	SLK-24F (HS-224D)	P	HD-3 (HB-5)	14	10	0.1 sec.
	SLK-24FH (HS-224D)	P	HD-3 (HB-5)	14	10	0.1 sec.
	(HS224L) heat detector base		HB-18	30	20	

* See note in Section 7.2.2.

6.4 Connections to Compatible Silent Knight Products

This section describes the connections of the following products:

- Model 4180 Status Display Module (6.4.1)
- Model 5210 Zone Expander Wiring (6.4.2)
- Model 5220 Direct Connect Module (6.4.3)
- Model 5230 Remote Annunciator (6.4.5)
- Model 5260 Printer Interface (6.4.6)
- Model 5295 Signal Power Expander (6.4.7)
- Model 7181 Zone Converter (6.4.8)

6.4.1 Model 4180 Status Display Module

The Model 4180 Status Display module provides remote annunciation of alarm and trouble status information for each zone.

The 4180 has 2 connectors, each of which has 8 outputs available for annunciation. These outputs are active high at +12 VDC. Each output can provide up to 100 mA of current, with a total limitation of 700 mA. The module has 4 normally open relays that are nondedicated, and therefore can be wired to be active with any of the outputs. The 4180 is not supervised.

When using a 4180, maintain a physical separation of one-half inch or more between field wires and connection points to prevent damage from transients.

Note: SILENCE does not affect 4180 outputs. To reset a 4180 output, the alarm or trouble condition must be restored and event memory cleared.

The 4180 can be used to interface to long-range RF systems.

Refer to Figure 6-5 for connections.

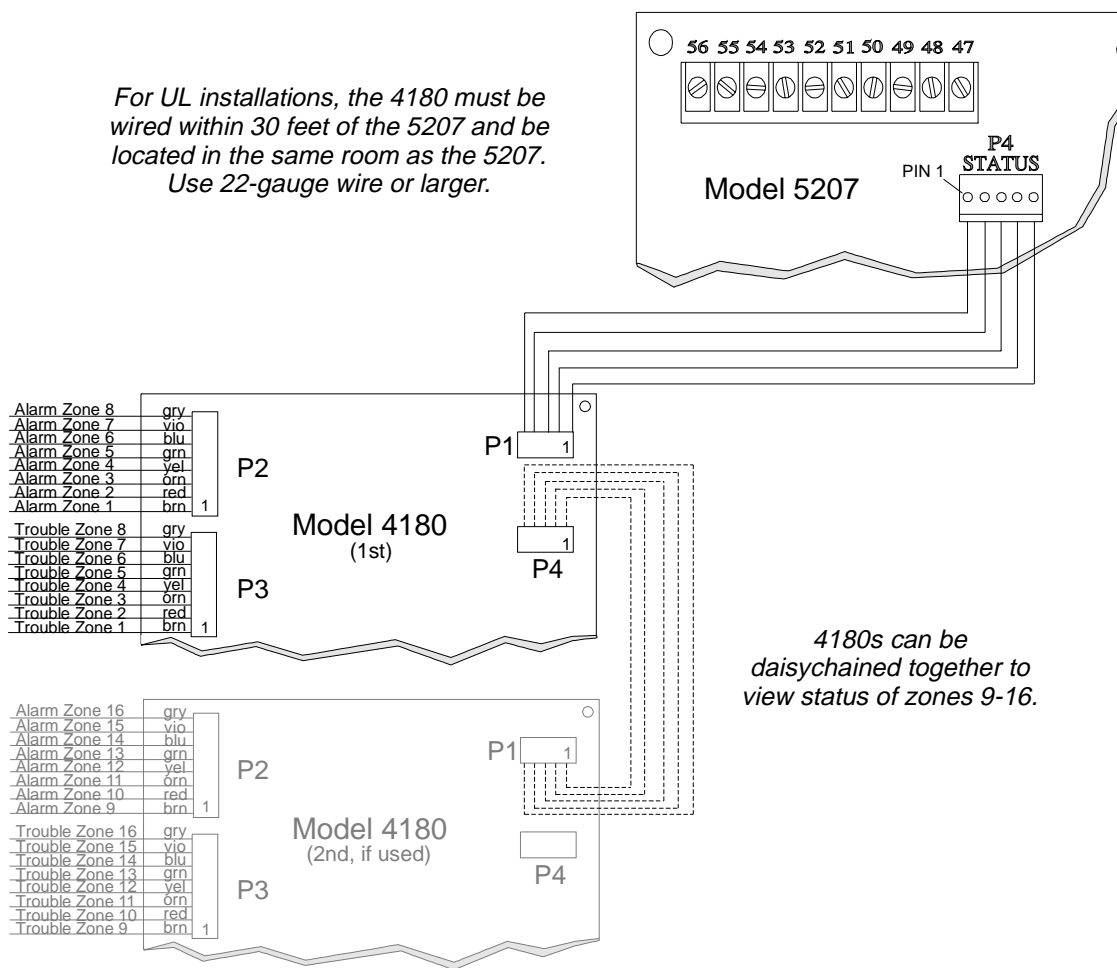


Figure 6-5. Model 4180 Connection

6.4.2 Model 5210 Zone Expander Wiring

The Model 5210 provides the 5207 with eight additional class B (style B) zones. Figure 6-6 shows how to wire the 5210. Each class B loop must employ a Model 7628 4.7KΩ end-of-line resistor wired in parallel with the normally open contact farthest from the panel. See Sections 6.2 and 6.3 for lists of the smoke detectors that can be used with the Model 5207.

Maximum Loop Resistance - 30Ω

Maximum Total Alarm current (powered from loop power) for all class B (style B) zones - 1 A

Maximum Standby Current Per Zone - 1 mA

Voltage ranges:

- When used with the 5207 - 12 VDC (Model 5210 Identifier 12A): 8.5 VDC - 11.8 VDC
- When used with the 5207 - 24 VDC (Model 5210 Identifier 24A): 17.8 VDC - 27.4 VDC

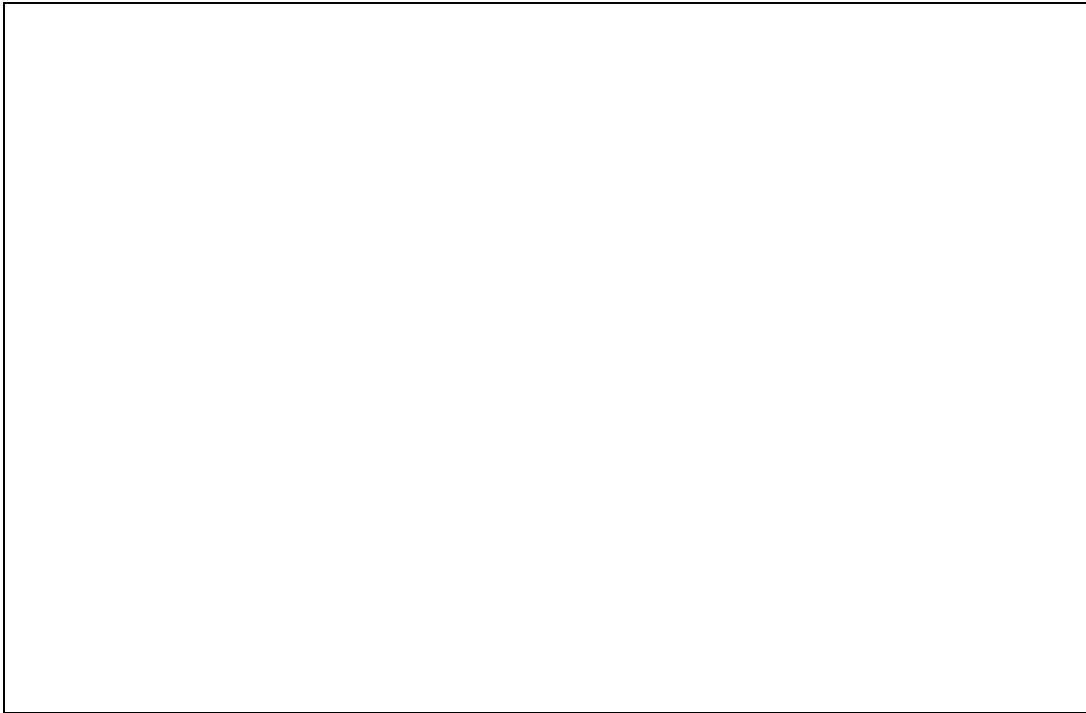


Figure 6-6. Model 5210 Style A Loops

Installation Instructions

The 5210 is equipped with a metal bracket. To install, fit the bracket over the 5197 power supply unit in the 5207 cabinet. Use the cable provided to connect the 5210 to its connector (P2) on the 5207. Screw in screws provided. Insert the four plastic stand-offs into the bracket and snap onto the PC board. Then plug the 8-pin cable from the PC board into the P2 connector on the 5207.

6.4.3 Model 5220 Direct Connect Module

The 5220 Direct Connect module can be used with the 5207 to meet NFPA 72 standards (See Section 3.2). The 5220 requires four connections to the 5207 and provides outputs for direct connect (city box) and polarity reversal.

To meet the 60-hour standby power requirements for NFPA 72 systems, normal standby currents are de-rated. See Section 4.2 for these current values.

6.4.3.1 Installation

A knockout is provided on the right side of the 5207 cabinet to connect the 5220 using a short piece of conduit.

A four-wire pigtail is provided to wire the 5220 to the 5207. Figure 6-7 shows how to wire the 5220. The wiring chart uses notification device #4 as the notification loop. Program notification device #4 to be active for the events to be reported.

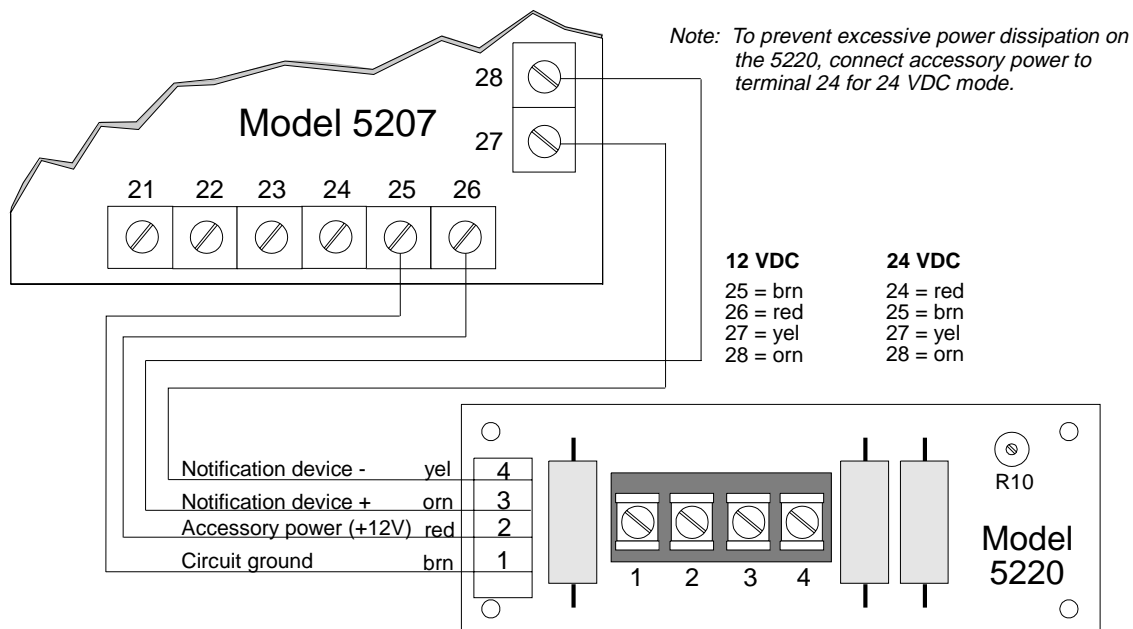


Figure 6-7. Model 5220 Wiring Diagram

6.4.3.2 City Box Connect (24 VDC Systems Only)

(For NFPA 72 Auxiliary Protected Fire Alarm systems for fire alarm service - see Section 3.2)

The 5220 allows the 5207 to be connected directly to a municipal fire alarm box, which is also known as a series type master (city) box. The city box is an enclosure that contains a

manually operated transmitter used to send an alarm to the municipal communication center where the central operating part of the fire alarm system is housed.

Wire the 5220 to the 5207 as described in Section 6.4.3.1. Wire the city box coil to terminals 3 and 4 in the 5220. Maximum coil and wire resistance (combined) is 30 ohms.

Select notification device #4 to be supervised, but do not install an EOL resistor in the notification device terminals. Do not select pulsing fire bells.

6.4.3.3 NFPA 72 Polarity Reversal (12 or 24 VDC Systems)

The 5220 provides a supervisory current that reverses polarity during an alarm or trouble condition.

Wire the 5220 to the 5207 as described in Section 6.4.3.1. For wiring the 5207 to the remote indicator, see Figure 6-8.

Loop current can be adjusted with potentiometer R10 (Figure 6-7). Normal loop current is 4-to-8 mA with a 1k ohm remote station receiving unit. Maximum loop resistance is 3k ohm.

Select notification device #4 to be non-supervised and do not install an EOL resistor on the notification device terminals. Do not select pulsing fire bells.

6.4.3.4 Polarity Reversal Wiring

Follow the instructions below to enable the 5220 to report alarm and trouble events to the remote site. If wired and programmed properly, alarms will override trouble conditions and it will not be possible to reset the remote indication until the condition is cleared and the 5207 panel is reset. Figure 6-8 shows how to wire the 5220 for supervision.

Note: The 5220 is not intended for sprinkler supervisory applications.

If wired for 24 VDC mode and a supervised touchpad goes into trouble, terminal 24 will toggle power off in an attempt to restore the touchpad (this also occurs on the dialer and alarm reset). This will cause the output of the remote status to momentarily change to trouble (resets in two seconds). Even if the trouble is silenced, the remote site will still see a trouble condition until the trouble is removed and the panel is reset.

If an alarm condition occurs, the alarm relay will close, overriding the trouble condition.

The Model 9366 software has been replaced with the Model 9386, Revision A software. Due to hardware changes, the 9386 is only compatible with 5207 printed circuit boards (PCB) Revisions M or later.

Program the trouble relay (Relay 3) as shown below. Relay 1 and zone 3 are not needed with this revision.

- Program Relay 3 to activate for all trouble conditions and no silence. See Section 3.7. of the 5207 programming manual if using the 5521 Desktop Programmer. If using Step Programming with the 5230 Remote Annunciator (touchpad), select the following relays to program for an installation wired as shown in Figure 6-8:

<u>Step</u>	<u>Option</u>	<u>Select</u>
23.4	Fire Alarm	Relay 2
23.5	Trouble	Relay 3
23.6	No Silence	Relay 3

- Program notification device 4 for the appropriate alarm condition. DO NOT select pulsing bells.

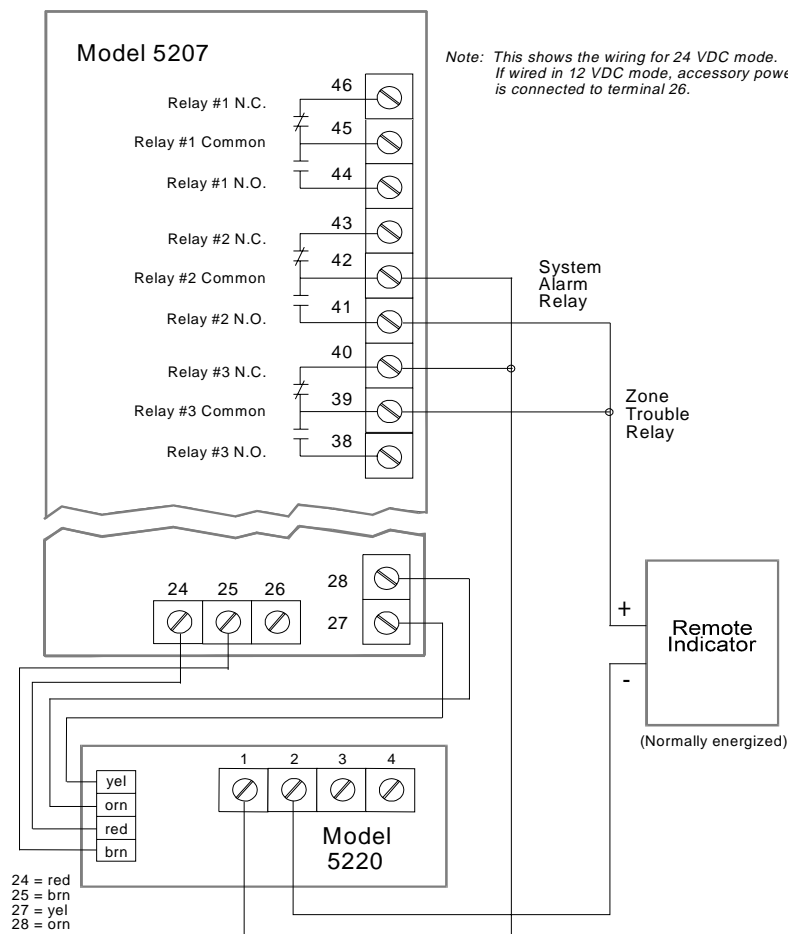


Figure 6-8. Wiring the Model 5220 For Supervision

6.4.4 Keltron 95M3158 Tones Transmitter Module

This section of the manual shows the specific connections you will make when wiring the 5207 to the Keltron 95M3158 Tones Transmitter Module (3158). Refer to the installation sheet shipped with the 95M3158 for complete information.

1. Wire the 3158 to the 5207 as shown in the figure below.
2. Program Relay 3 to activate for all trouble conditions and no silence. The chart below shows how to make these selections using Step Programming with the 5230 annunciator.

<u>Step</u>	<u>Option</u>	<u>Select</u>
23.4	Fire Alarm	Relay 2
23.5	Trouble	Relay 3
23.6	No Silence	Relay 3

4. Program Bell 3 as “Special”.
 5. Program Bell 4 for the appropriate alarm condition. DO NOT select pulsing bells.
- The 5207 must be used in 24V mode with the 3158.

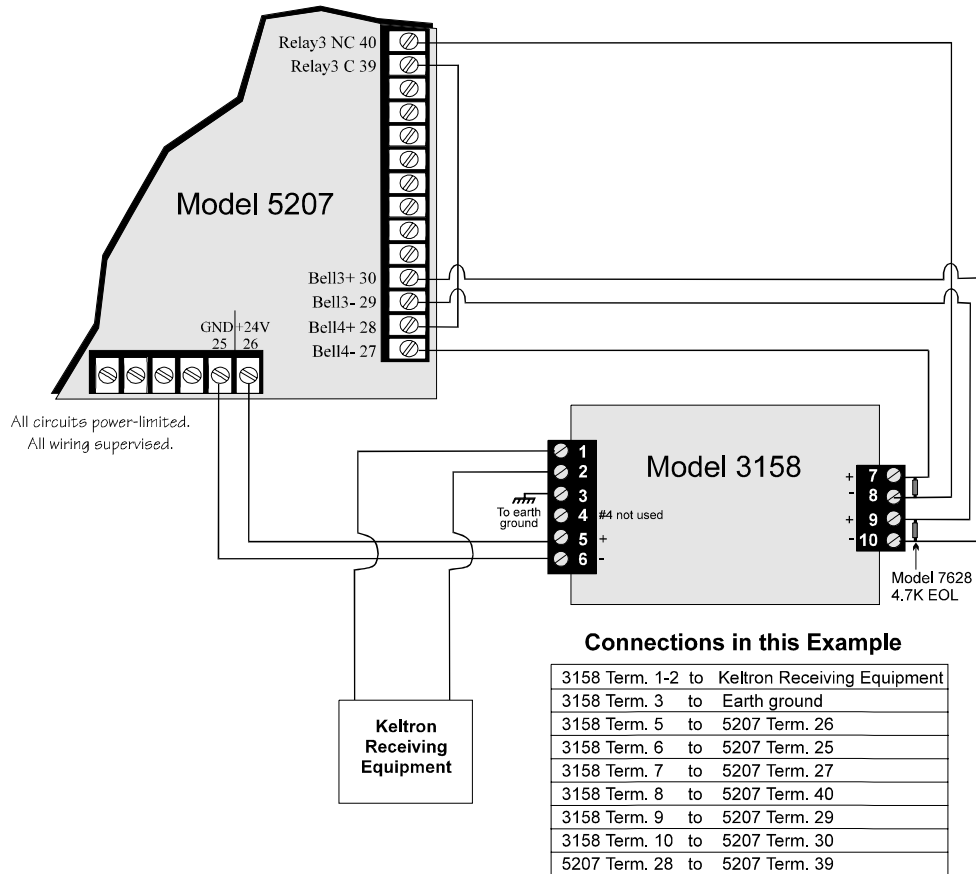


Figure 6-9. Wiring the Keltron 95M3158 to the 5207

6.4.5 Model 5230 Remote Annunciator

The Model 5230 Remote Annunciator is a touchpad (keystation) that can be used for English-language programming. The 5230 also provides trouble and alarm information.

6.4.5.1 Setting ID Codes

Before permanently installing the Model 5230 Remote Annunciator, you must first set its identification codes. Each annunciator to be supervised must be given its own identification codes. The ID numbers must start at 1 and progress sequentially to 7 (7 annunciators max.). Upon initial power up, the address of each annunciator is displayed. (Annunciators with address 0 will not be supervised.)

On the back of each annunciator is a small 4-position dip switch used to set the ID code. Table 6-4 below shows a representation of the dip switch and a chart showing the positions (up or down) of the various switches for specific ID codes.

Table 6-4. Model 5230 Dip Switch Settings

ID Number	Switches			
	1	2	3	4
0 *	Up	Up	Up	Up
1	Down	Up	Up	Up
2	Up	Down	Up	Up
3	Down	Down	Up	Up
4	Up	Up	Down	Up
5	Down	Up	Down	Up
6	Up	Down	Down	Up
7	Down	Down	Down	Up

Up = On
Down = Off

* *Not supervised*

6.4.5.2 Wiring the 5230 Remote Annunciator

A 4-position terminal block is provided with the Model 5230 annunciators to connect them to the 5207. Figure 6-10 shows the description of each terminal that it should be connected to on the 5207.

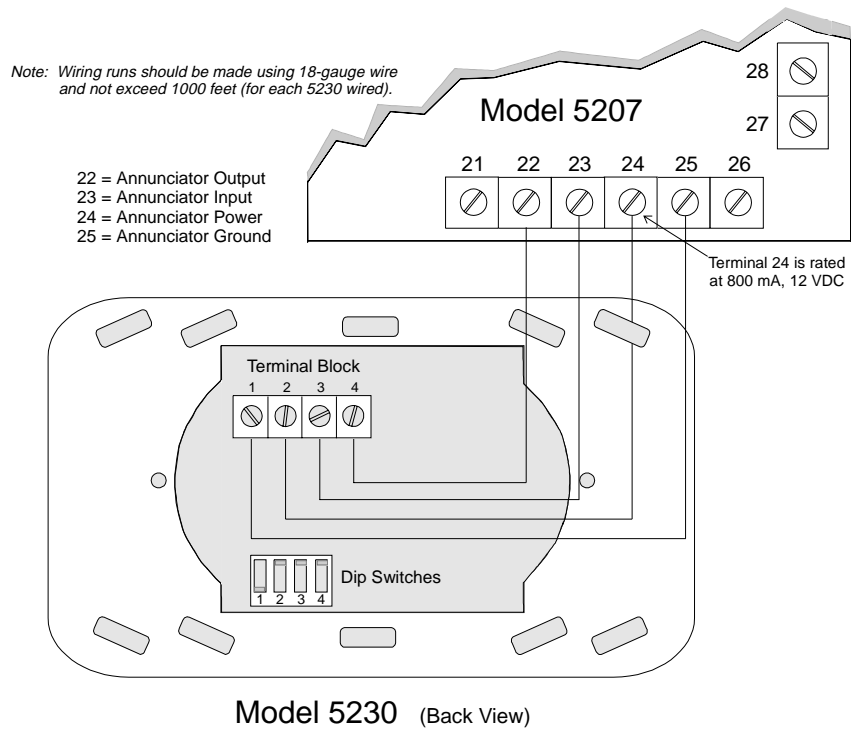


Figure 6-10. Model 5230 Connection

6.4.5.3 Mounting the 5230 Remote Annunciator

For UL installations, the 5230 Remote Annunciators must be mounted on a dual gang electrical box and all wiring runs must be made using 18-gauge wire or larger.

To mount the annunciator, you must first remove the rear mounting plate.

To do this, insert a #4 flat blade screwdriver into the slots located on the bottom edge of the annunciator. Gently turn the screwdriver until the mounting plate pulls away from the frame. Once the mounting plate has been removed, you can secure it to the wall using #6 or #8 screws. The mounting plate should be oriented so that the word TOP is toward the top of the plate and facing you. A square hole is provided in the mounting plate to run the wiring to the annunciator.

When all of the wires have been connected to the annunciator, set the top of the annunciator over the tabs on the top of the mounting plate. Make sure the wires do not get pinched between the frame and the mounting plate. Press each corner of the bottom side onto the annunciator mounting plate until you hear it click into place.

Note: You may have to gently squeeze the annunciator (top to bottom) to align it while snapping the bottom edge into place.

6.4.6 Model 5260 Printer Interface

The Model 5260 printer interface is used to connect a standard parallel or serial printer to the 5207 control panel, for printing activity reports. It can also be used to send information to a serial computer port.

For installation information, refer to the *Model 5260 Installation Manual (P/N 150591)*.

Note: The Model 5260 printer interface cannot be used in UL installations.

6.4.7 Model 5295 Signal Power Expander

Figure 6-11 shows you how to connect the Model 5295 to the Model 5207 panel.

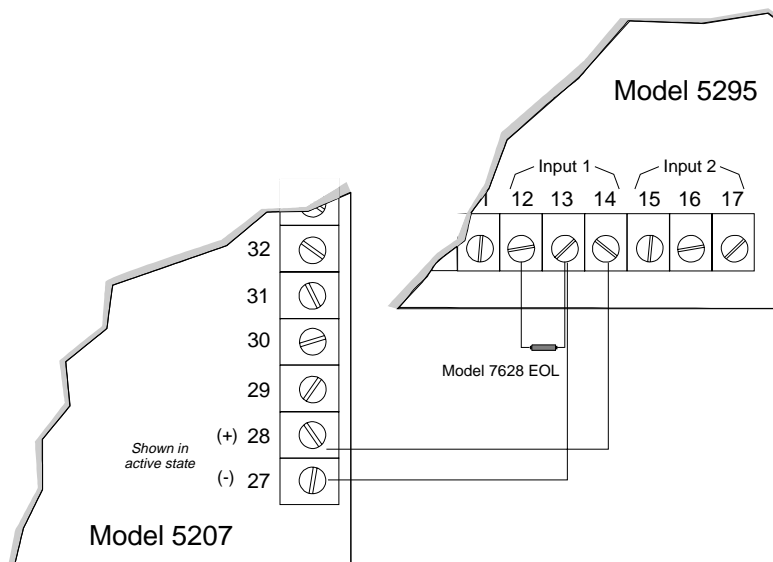


Figure 6-11. Model 5295 Connection

6.4.8 Model 7181 Zone Converter

The Model 7181 Zone Converter lets you interchange zone types on the 5207. Figure 6-12 and Figure 6-13 show you how to convert class B (style B) zones to class A (style D) zones. Refer to *the Model 7181 Installation Manual (P/N 150632)* for further information.

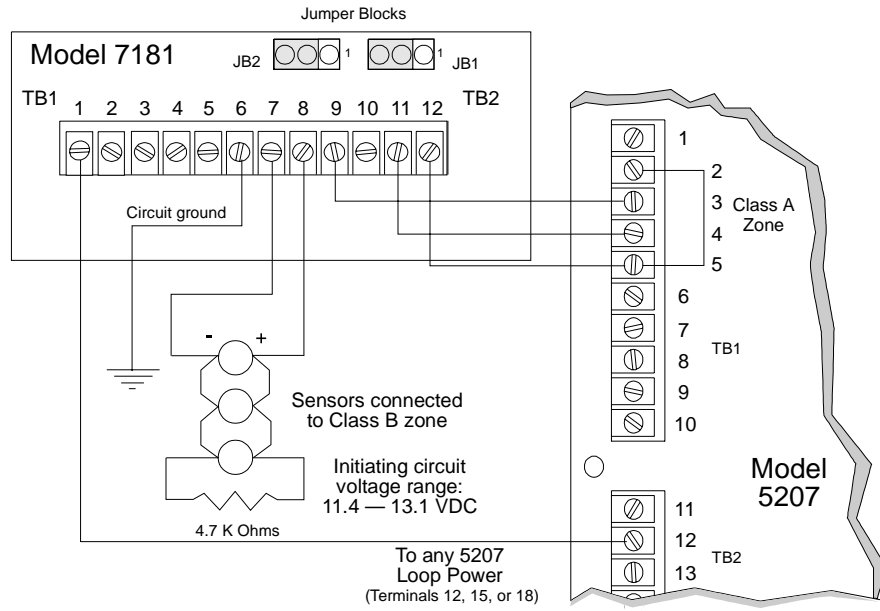


Figure 6-12. Connecting Class B (Style B) Sensor to Class A (Style D) Panel (12 V)

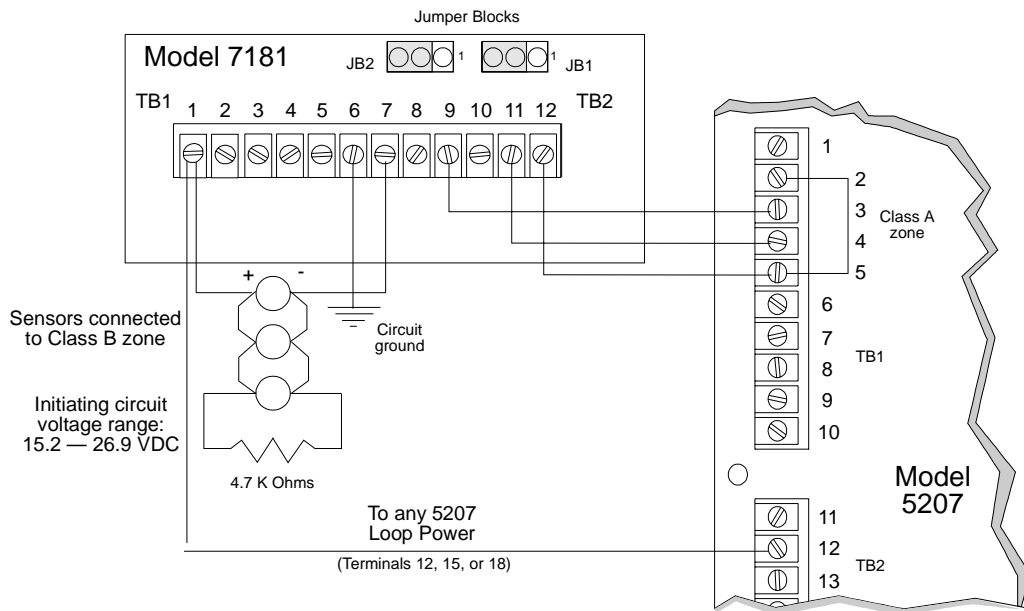


Figure 6-13. Connecting Class B (Style B) Sensor to Class A (Style D) Panel (24 V)

6.5 Supervised Notification Device Outputs

Note: To reduce the possibility of false alarms and transient damage, DO NOT bundle telephone wires together with notification device wires.

The 5207 provides four supervised notification device outputs to annunciate alarm conditions. For proper operation, you must use polarized sounding devices with a model 7628 4.7k ohm end-of-line resistor on each loop. Figure 6-14 shows how to connect the notification devices to the 5207.

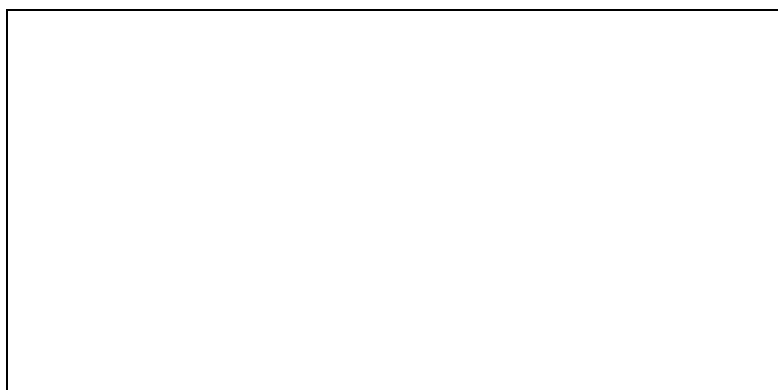


Figure 6-14. Model 5207 Notification Device Connections

The following tables list the UL sounding appliances that can be used with the 5207. Contact Silent Knight if you have any questions about compatible notification devices.

Table 6-5. Compatible 12-Volt Notification Devices

Manufacturer	Model Number	Device Type
Gentex	HG124	Horn
Gentex	SHG12L	Horn Strobe
Gentex	SHG12H	Horn Strobe
Federal Signal	VALS	Strobe
Federal Signal	450-D	Horn
Wheelock	34T-12-R	Alarm Horn
Wheelock	46T-G10-12-R	Bell
Wheelock	7001T-12-R	Mini-Horn
Wheelock	7001T-12-W	Mini-Horn
Wheelock	7001T-12W-FR	Strobe Horn
Wheelock	7002T-12-W-FR	Strobe Horn
Wheelock	MB-G6-12-R	Motor Bell
Wheelock	MB-G10-12-R	Motor Bell
Wheelock	MBS-G6-12-W-HF-R	Motor Bell with Strobe
Wheelock	MBS-G10-12-W-HF-R	Motor Bell with Strobe
Wheelock	MIZ-12-R	Mini-Horn
Wheelock	MIZ-12-W	Mini-Horn
Wheelock	MIZ-12-WS-VF-R	Mini-Horn/Strobe

Table 6-5 continued on next page.

Table 6-5 continued.

Manufacturer	Model Number	Device Type
Wheelock	MT-12/24-R	Strobe Horn
Wheelock	V7001T-W-FR	Strobe Horn
Wheelock	WST-12-FR	Strobe
Wheelock	WS1T-12-FR	Strobe
Wheelock	WS3T-12-FR	Strobe

Table 6-6. Compatible 24-Volt Notification Devices

Manufacturer	Model Number	Device Type
Faraday	6126B-U-14-24VDC	Horn/Strobe
Federal Signal	VALS	Horn/Strobe
Federal Signal	450-D	Horn
Gentex	HG124	Horn
Gentex	SHG24L	Horn Strobe
Gentex	SHG24H	Horn Strobe
System Sensor	MA/SS/24I	Horn/Strobe
System Sensor	MASS2415ADA	Horn/Strobe
System Sensor	MASS2475ADA	Horn/Strobe
System Sensor	MASS24110ADA	Horn/Strobe
System Sensor	SS2415ADA	Strobe
System Sensor	SS2475ADA	Strobe
System Sensor	SS24110ADA	Strobe
Wheelock	34T-24-R	Alarm Horn
Wheelock	46T-G10-24-R	Bell
Wheelock	7001T-24-W-FR	Strobe Horn
Wheelock	7002T-24-W-FR	Strobe Horn
Wheelock	E-7025-WH-24-VF-R	Strobe Speaker
Wheelock	E-7025-WH-24-VF-W	Strobe Speaker
Wheelock	E-7070-WH-24-VF-R	Strobe Speaker
Wheelock	E-7070-WH-24-VF-W	Strobe Speaker
Wheelock	E-9025-WH-24-CF-W	Strobe Speaker
Wheelock	E-9070-WH-24-CF-W	Strobe Speaker
Wheelock	E-7025-WM-24-VF-R	Strobe Speaker
Wheelock	E-7025-WM-24-VF-W	Strobe Speaker
Wheelock	E-7070-WM-24-VF-R	Strobe Speaker
Wheelock	E-7070-WM-24-VF-W	Strobe Speaker
Wheelock	E-7025-WS-24-VF-R	Strobe Speaker
Wheelock	E-7025-WS-24-VF-W	Strobe Speaker
Wheelock	E-7070-WS-24-VF-R	Strobe Speaker
Wheelock	E-7070-WS-24-VF-W	Strobe Speaker
Wheelock	E-9025-WS-24-CF-W	Strobe Speaker
Wheelock	E-9070-WS-24-CF-W	Strobe Speaker
Wheelock	ET-1010-WS-24-HF-R	Strobe Speaker
Wheelock	ET-1070-WS-24-VF-R	Strobe Speaker
Wheelock	ET-1080-WS-24-VF-R	Strobe Speaker
Wheelock	ET-1090-WS-24-CF-W	Strobe Speaker
Wheelock	ET-1070-WM-24-VF-R	Strobe Speaker
Wheelock	ET-1070-WM-24-VF-W	Strobe Speaker

Table 6-6 continued on next page.

Table 6-6 continued.

Manufacturer	Model Number	Device Type
Wheelock	ET-1080-WM-24-VF-R	Strobe Speaker
Wheelock	ET-1080-WM-24-VF-W	Strobe Speaker
Wheelock	EW-EH1-R	Slow Whoop Horn
Wheelock	MB-G6-24-R	Motor Bell
Wheelock	MB-G10-24-R	Motor Bell
Wheelock	MBS-G6-24-W-HF-R	Motor Bell with Strobe
Wheelock	MBS-G10-24-W-HF-R	Motor Bell with Strobe
Wheelock	MIZ-24-R	Mini-Horn
Wheelock	MIZ-24-W	Mini-Horn
Wheelock	MIZ-24-WS-VF-R	Mini-Horn
Wheelock	MIZ-24-WS-VF-W	Mini-Horn/Strobe
Wheelock	MIZ-24-WS-VF-R	Mini-Horn/Strobe
Wheelock	MT-12/24-R	Strobe Horn
Wheelock	MT-24-WM	Strobe Horn
Wheelock	MT-24-WM-VF-R	Strobe Horn
Wheelock	Series HS	Strobes
Wheelock	Series LS	Strobes
Wheelock	V7001T-24-W-FR	Strobe Horn
Wheelock	WST-24-FR	Strobe
Wheelock	WS1T-24-FR	Strobe
Wheelock	WS3T-24-FR	Strobe

6.6 Auxiliary Relays

The 5207 provides four programmable auxiliary relay outputs. Relays can be programmed to activate for the following conditions, either for all zones or by individual zone: pre-alarm (entry delay) (not acceptable for NFPA 72 Central Station), fire alarm, auxiliary alarm, alarm by zone, and system or loop troubles (loss of AC, low battery, failed to communicate, phone line troubles, and notification device troubles).

Refer to the 5207 programming manual for more information. Figure 6-15 shows the relay contact connections; with one wired for a doorstrike as an example.

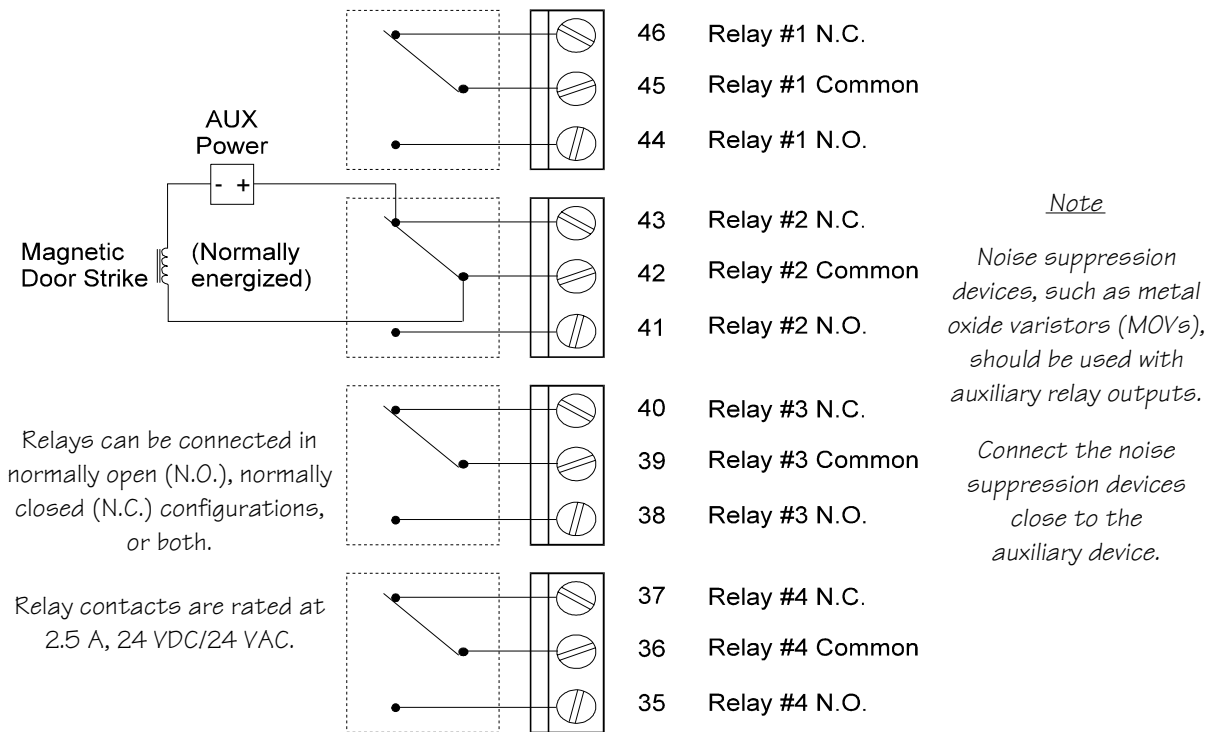


Figure 6-15. Auxiliary Relays

Section 7.

Normal Operation

To operate and program the 5207, you can use either the built-in touchpad (Figure 7-1) or the Model 5230 Remote Annunciator (Figure 7-2).

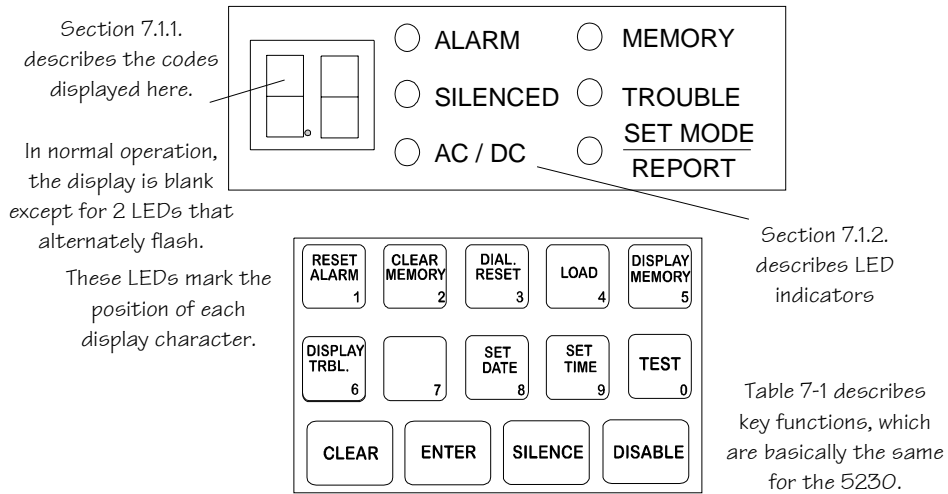


Figure 7-1. Built-in Touchpad (Seven-Segment Display)

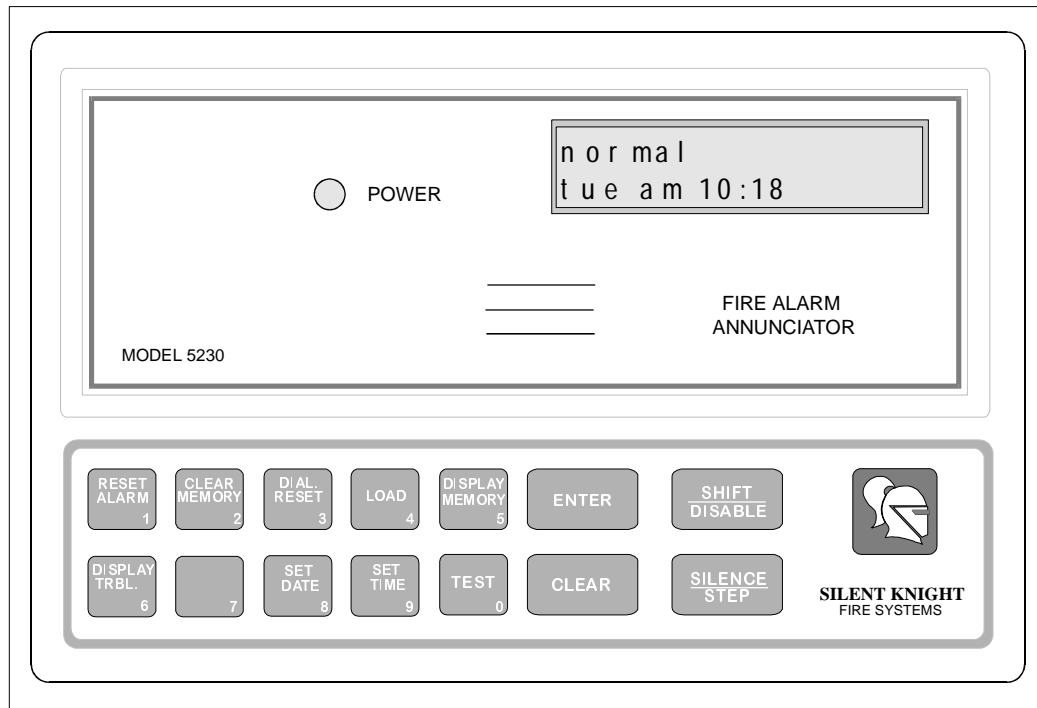


Figure 7-2. Model 5230 Remote Annunciator

7.1 Built-in Touchpad and Model 5230 Operation

The 5230 annunciator functions the same as the internal touchpad with the exception of the **STEP** key. This key is used only by the installer to step through programming options.

Refer to Section 2.2 in the *Model 5207 Fire Control/Communicator Programming Manual (P/N 150866)*.

Basic operating functions are described in Table 7-1. Note that if no keys are pressed for 15 minutes while in program mode, the system will time out and resume normal operation.

Note: A valid operating code is required for most functions when using the 5230. In Table 7-1, code = any valid operating code, code 0 = installer's code, and code 1 = main user's code.

Table 7-1. Model 5230 Basic Functions

To:	Press:		Additional Information
	5230 Annunciator	Built-in Touchpad	
*Test the system	0 ENTER + code	0 ENTER	The system will perform a display lamp test, a bell test, and a communicator test.
*Reset alarms (or smoke detectors)	1 ENTER + code	1 ENTER	If there is no alarm, this procedure resets the smoke detectors.
<i>When a trouble condition occurs and you reset the alarm, the trouble condition is stored in memory until you clear the alarm memory. If the alarm memory is not cleared, the trouble condition is displayed the next time a trouble condition occurs, implying incorrectly that more than one trouble condition exists.</i>			
*Clear alarm memory	2 ENTER + code	2 ENTER	Clears alarm memory and resets the 4180. (This function removes all memory of alarms.)
Reset the dialer	3 ENTER + code 0 or 1	3 ENTER + code 0 or 1	Resets the dialer (aborts a call).
Initiate download	4 ENTER + code 0 or 1	4 ENTER + code 0 or 1	Starts the downloading process. Exit the Downloading mode by pressing CLEAR CLEAR .
Display alarm memory	5 ENTER	5 ENTER	Displays the current alarm memory. (It is recommended that you clear alarm memory after displaying it.)
Display troubles	6 ENTER	6 ENTER	Displays trouble conditions.
*Silence troubles or alarms	7 ENTER + code, or SILENCE + code	7 ENTER + code, or SILENCE + code	If silencing audible signals, you may need to enter a code.
<i>* If using the built-in touchpad, these functions do not require you to enter a valid operating code unless the NEED CODE AT PANEL option is selected during programming (Step 3, option 1). See the Model 5207 Programming Manual (P/N 150866).</i>			

Table 7-1 continued on next page.

Table 7-1 continued.

To:	Press:		Additional Information
	5230 Annunciator	Built-in Touchpad	
*Set date	[8] [ENTER] + code	[8] [ENTER]	<i>See explanation below.</i>
<p>The SET MODE LED will turn on and the built-in touchpad display will flash [-8] indicating that you are in the SET DATE mode. The date must be entered using a string of six digits. Upon pressing the last digit, the date will be entered and the SET TIME LED will turn off. To set the date of 01/13/95, press the following digits after entering the SET DATE mode: [0][1][1][3][9][5].</p> <p>To exit SET DATE mode, press [CLEAR] [CLEAR].</p>			
*Set time	[9] [ENTER] + code	[9] [ENTER]	<i>See explanation below.</i>
<p>The SET MODE LED will turn on and the built-in touchpad display will flash [-9] indicating that you are in the SET TIME mode. The time must be entered using a string of six digits. The first digit is the day of the week ([0] = Sunday, [1] = Monday, etc.). The second digit indicates time of day ([0] = AM, [1] = PM). The last four digits are the actual time. Upon entering the sixth digit, the SET TIME LED will turn off indicating that you have set the time. To enter the time of Wed., 4:30 PM, you would enter the following digits: [3][1][0][4][3][0].</p> <p>The 5207 powers up in the SET TIME mode, with [-9] showing on the display. To set the time at this point, it is not necessary to press [9]. Just enter the six digits for the time. To exit SET TIME mode, press [CLEAR] [CLEAR].</p>			
Disable/Enable (shunt/unshunt)	Zone # + [DISABLE] + code	Zone # + [DISABLE] + code	Disables or enables a zone. When a zone is disabled, there will be an alert tone that cannot be silenced until the zone is enabled.
Fire drill	[2][0] [ENTER] + code 0 or 1	[2][0] [ENTER] + code 0 or 1	Refer to Section 7.2.1 for more information.
<i>The following functions are generally for installers only.</i>			
Walk test	[2][2] [ENTER] + code	[2][2] [ENTER] + code	Refer to Section 7.2.2 for more information.
Zone Troubleshooting mode	[2][5] [ENTER] + code	[2][5] [ENTER] + code	Refer to Section 8.2.2 for more information.
Step Programming mode	[2][7] [ENTER] + code 0	[2][7] [ENTER] + code 0	Refer to Section 2 in the 5207 programming for more details.
<p><i>* If using the built-in touchpad, these functions do not require you to enter a valid operating code unless the NEED CODE AT PANEL option is selected during programming (Step 3, option 1). See the Model 5207 Programming Manual (P/N 150866).</i></p>			

7.1.1 Built-in Touchpad Display Codes

The following table describes the codes that are displayed on the built-in touchpad display:

Display	Explanation
0	Fire drill (with ALARM, ALARM MEMORY, or TROUBLE LED).
1 through 16	Zone numbers (with ALARM, ALARM MEMORY, or TROUBLE LED).
E0 E7	Indicates trouble with the dialer. Indicates trouble with the EEPROM memory.
F0 F1 through F7	Model 5230 annunciator power trouble. Indicates trouble with a particular annunciator.
A1 through A4	Indicates trouble with a particular bell output.
P1	Indicates trouble with the smoke detector power.
P2	Indicates trouble with the accessory power (terminal 26).
P3	P3 indicates an Earth Ground Fault to Circuit Ground. To determine the location of the short, remove field wiring circuits until the control returns to normal operation. When the circuit that caused the trouble is found, use an ohmmeter to measure the resistance between each wire in the circuit and earth ground terminal #52. The resistance must be higher than 100k ohms.
P4	P3 indicates an Earth Ground Fault to Power. To determine the location of the short, remove field wiring circuits until the control returns to normal operation. When the circuit that caused the trouble is found, use an ohmmeter to measure the resistance between each wire in the circuit and earth ground terminal #52. The resistance must be higher than 500k ohms.
P0	Indicates that the printer is out of paper.
dL dC dF	Data lost during attempt to transmit data to the central station. Low battery condition. Low AC condition.
L1 L2	Phone Line 1 Fault Phone Line 2 Fault
-0 -2 -4 -5 -6 -7 -8 -9	Fire drill Walk test Downloading Zone test HEX PROGRAMMING mode STEP PROGRAMMING mode SET DATE mode SET TIME mode
2-, 3-, 4-, 5-, 6-, 7-, 8-, 9-	User must enter a code to perform the desired function with these prompts.

7.1.2 LED Indicators

Six light emitting diodes (LED) appear in the 5207 cabinet window.

LED	Status	Condition
ALARM (red)	OFF	Normal condition.
	ON	Supervisory condition.
	FLASHING	Fire alarm.
SILENCED (yellow)	OFF	Normal condition.
	ON	An alarm or trouble condition has been silenced, but the condition still exists.
AC / DC (green)	ON	Panel is running on AC (normal condition); standby battery fully charged.
	OFF	Panel has lost all power.
	FLASHING	Panel is running on battery power only or AC power only.
MEMORY (yellow)	OFF	Normal condition.
	ON	An alarm condition has been reset. Alarm memory contains data.
TROUBLE (yellow)	OFF	Normal condition.
	ON	A trouble condition exists.
<u>SET MODE</u> (yellow) REPORT	OFF	Normal condition.
	ON	System is in a SET (TEST or PROGRAM) mode
	FLASHING	System is reporting

7.2 System Testing

System testing is accomplished with fire drills, zone testing, and 24-hour automatic tests.

7.2.1 Fire Drills

Fire drills can be run from either the built-in touchpad or the Model 5230 touchpad. To initiate a fire drill, press **2|0|ENTER** + Code 0 or 1. The system will sound an alarm and report a fire test. To end the fire drill, press the **SILENCE** key followed by code 0 or 1.

7.2.2 Walk Test (Mode 22)

The Walk Test is designed to be used for onsite testing only.

To enter the Walk Test mode, press **2****2****ENTER** + Code 0 (the factory-programmed value is 123456). The LCD will indicate that you are in the Walk Test mode. When a zone is tripped, the 5207 will activate the bell outputs for approximately one second and cycle smoke power off and on for the programmed time interval. (Pre-alarm zones will not be delayed, but smoke verification zones will go through the verification delay.) When smoke power is restored, there is a 2-second power up time delay before the zone will respond to additional test inputs.

The system will time out and resume normal operation in 15 minutes if no keys are pressed or no zones are tripped during the Walk Test.

To exit the Walk Test mode, press **SILENCE****SILENCE****CLEAR****CLEAR**.

Note: The Sentrol ESL 429 series smoke detectors are NOT compatible when operating the 5207 panel in Walk Test mode. In Walk test mode, the built-in Self Test on the ESL 429 series smoke detectors may be unreliable.

If the built-in Self Test is required, it should be done in the normal operating mode with the zone speed set to 3 seconds or higher.

Note that these smoke detectors are only incompatible for Walk tests, not for any other normal 5207 system operation.

7.2.3 Automatic Self Test

The Model 5207 lets you select the time of day that the 24-hour automatic test signal will be sent to the central station.

The Auto Test (Dialer Test sent automatically at specified times) also sends all unrestored events, as now required by UL. It is not possible to distinguish between old and new events during an auto test. It is the responsibility of the central station to distinguish between old and new events. Treat all alarms, troubles, and supervisories that come in during an auto test as if they were new events.

7.3 Watchdog Circuit

During normal operation, the control microprocessor of the 5207 is constantly running programs to check inputs and carry out other routine functions. If the program stops running for some reason, the watchdog circuit will automatically detect this and attempt to resume normal operation by resetting the microprocessors. Each time the watchdog circuit initiates a reset signal, it will also sound the audible trouble signal for about 4 seconds.

Section 8.

Troubleshooting

8.1 Problems With the Model 5197 Power Supply

If you experience problems with the power supply, use the techniques described below for troubleshooting. Note that there are separate procedures for 12-volt and 24-volt power supplies.

8.1.1 Model 5197 Programmed for 12 V Power Supply

Remove the power supply connector (P1) from the 5207 PC board. Disconnect the battery from the power supply. Make all power supply measurements with 120 VAC applied to the power supply.

Place a 4.7k resistor between pins 1 (brown) and 3 (orange). Use a DC voltmeter set to the 20V range to measure the voltage across the resistor. The voltage reading should be between 13.5 and 14 volts.

8.1.2 Model 5197 Programmed for 24 V Power Supply

Remove the power supply connector (P1) from the 5207 PC board. Disconnect the battery from the power supply. Make all power supply measurements with 120 VAC applied to the power supply.

Place a 4.7k resistor between pins 1 (brown) and 3 (orange). Use a DC voltmeter set to the 50V range to measure the voltage across the resistor. The voltage reading should be between 26 and 28 volts.

8.1.3 Battery Charging Voltage

Measure the battery charging voltage at the battery connectors. The voltage should be between 13.5 and 14.0 volts. If no voltage is present on the battery terminals, but the voltage on pins 1 and 3 is correct, the battery leads may be open, or may be incorrectly plugged into the power supply.

8.2 P3 and P4 Earth Ground Faults

A P3 trouble indicates that the control has detected a short between circuit ground and earth ground. A P4 trouble indicates a short between one of the control power terminals and earth ground.

To determine the location of the short, remove field wiring circuits until the control returns to normal operation. When the circuit that caused the trouble is found, use an ohmmeter to measure the resistance between each wire in the circuit and earth ground terminal #52. The resistance should be higher than 100k ohms for P3, and 500k ohms for P4.

8.3 Accu-Zone[®] Troubleshooting (Mode 25)

Accu-Zone Troubleshooting allows you to determine the voltage on any zone input and most system supervisory inputs without using a voltmeter. Since some troubleshooting features are not available with the built-in touchpad, use the Model 5230 Remote Annunciator for Accu-Zone troubleshooting.

Note: All alarms and troubles are disabled while you are using mode 25 so that you can trip sensors, adjust wiring, and so on.

8.3.1 Entering/Exiting Mode 25

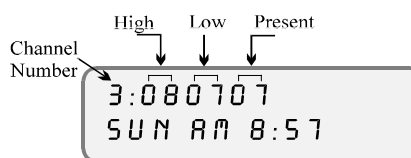
To enter Accu-Zone Troubleshooting:

1. Press **[2][5][ENTER]** + code 0. The display will show the default channel number (3).
2. Press **[ENTER]** to display voltage measurement values for Channel 3, or enter another channel number + **[ENTER]**. (Channel numbers for corresponding zones are shown in Table 8-1).

To exit Accu-Zone Troubleshooting, press **[CLEAR][CLEAR]**.

8.3.2 Reading the Accu-Zone Display

The first line of the display will show the channel (input) number followed by six digits known as “step numbers”. Although the step numbers are not actual voltage readings, they can identify any voltage fluctuations that may have occurred.



When you momentarily put a zone into alarm, the touchpad will display the Present (current) value along with the High (spikes) and Low (voltage drop) values. This is also useful in locating intermittent connections.

Step numbers range from 0 to 16. Using the 12-volt and 24-volt columns in Table 8-1, you can determine if the step numbers are within the acceptable range for each input.

When using the built-in touchpad display, only the Present value is displayed.

Table 8-1. Mode 25 Voltage Calculations

			Step Numbers						Volts/Step
			12-Volt Panel			24-Volt Panel			
Input	Terminal Number	Channel Number	Min. Value	Avg	Max. Value	Min. Value	Avg	Max. Value	
Zone 1 Class A (style D)	3	17		11			11		.3
	4	18		11			11		.3
	2	19	N/A	6	N/A	N/A	6	N/A	.3
	5	20		6			6		.3
Zone 2 Class A (style D)	7	21		11			11		.3
	8	22		11			11		.3
	6	23	N/A	6	N/A	N/A	6	N/A	.3
	9	24		6			6		.3
Zones 3-8 Class B (style B)	11-19	3-8	6	8-9	10	6	8-9	10	.022
Zones 9-16 Class B (style B)	(5210)	9-16	6	8-9	10	6	8-9	10	.15
Supervision of:									
Not. Circuits 1-4	27-34	25-28	4	6	6	8	10-11	12	.15
Smoke Power	12, 15, 18	29	4	6-7	8	8	11-12	12	2.30
Accessory Power	26	30	4	6-7	8	4	6-7	8	2.30
Earth ground	52	31	0	1-9	14	0	1-9	14	.6

8.3.3 Actual Voltage Calculations

Accu-Zone troubleshooting does not display actual voltage readings. You can calculate the voltage for each terminal as shown here:

In this example, the reading is for zone 3. The Volts/Step value is from the last column (Zones 3-8 row) in Table 8-1.

8.4 Troubleshooting and System Messages

Table 8-2 shows the messages that may appear on the Model 5230 Touchpad display and the codes that may appear on the 5207 built-in touchpad display.

For troubleshooting, you can connect a 5230 temporarily if it is not part of the installation (see Section 5.5).

Table 8-2. System Messages and Codes

5230 Message	Description or Action	Touchpad Display or LEDs
(Cycling system messages)	Alarm reset. Alarm reset code is being entered via the LCD annunciator.	1-
(Cycling system messages)	The alarm memory has just been cleared.	2-
(Cycling system messages)	Dialer is being reset.	3-
(Cycling Messages) 0 - ENTER	A fire drill or system test is in progress. Enter 0 ENTER to do a manual test (see Table 7-1).	0- SET MODE LED on
(Cycling Messages) CALLING COMPUTER	Data is being uploaded to or downloaded from the central station computer.	4-
(Cycling Messages) DATA LOST	Data lost. Communicator has lost data it was trying to transmit to the central station.	DL
(Cycling Messages) FAILED	Dialer failed. The communicator has failed to report.	DF
(Cycling Messages) REPORTING	An event is being reported to the central station.	SET TIME LED flashes
(Individual option names)	The 5207 is in the Step Programming mode.	7- SET MODE LED on
(Channel data)	A zone test is being conducted.	-5 SET MODE LED on

Table 8-2 continued on next page.

Table 8-2 continued.

5230 Message	Description or Action	Touchpad Display or LEDs
XXXX ALARM YY	The alarm memory is being displayed. XXXX = Alarm type YY = Zone number	- n n = The zone number
ALARM ZONE 1-16	A trouble condition exists in the indicated zone.	1 - 16 ALARM LED flashing = fire LED on = supervisory
BAD EEPROM 5230 buzzer goes on and off.	Problem with the EEPROM. Contact Silent Knight Technical Support for assistance (800-328-0103).	E 7 LEDs and panel buzzer go on and off
DISABLED: ZONE # ZONE DESCRIPTION	Disabled (shunted or bypassed) zone. (The zone descriptions appear only if selected as a programming option.)	1 - 16
NORMAL	No trouble, alarm, or other condition exists.	--
y XX SEC TO ALARM Y = Pre-alarm zone number XX = countdown (sec.)	An alarm condition exists in the indicated zone, but will not sound and report alarm until pre-alarm time has elapsed. During pre-alarm time, pressing RESET ALARM ENTER + Code will prevent sounding and reporting.	
SILENCED	A trouble condition exists and the annunciator has been turned off.	SILENCE LED on
SMOKE ZONE #	Smoke verification time, zone 1-16.	1 - 16
SPRINKLER ALARM X	Sprinkler supervisory alarm. X = Zone number	1 - 16
TIME?	The 5207 is in the Set Time mode.	- 9 SET MODE LED on





Table 8-2 continued on next page.

Table 8-2 continued.

5230 Message	Description or Action	Touchpad Display or LEDs
TROUBLE: X	Sprinkler supervisory trouble. X = Zone number	1 - 16
TROUBLE: KEYSTATION n	One or more of the Model 5230 annunciators is in trouble. n = Keystation number	FD TROUBLE LED on
TROUBLE: AC	AC power has been lost. Check connection to AC power source.	AC TROUBLE LED flashes
TROUBLE: BATTERY	Battery power has been lost, or polarity has been reversed. Measure the battery voltage and replace the battery or reverse polarity if necessary.	DC TROUBLE LED on
TROUBLE: BELL X	A trouble condition exists on the indicated notification device. X = Bell number	A1 - A4 TROUBLE LED on
TROUBLE: POWER 3	<ol style="list-style-type: none"> 1. An earth to circuit ground fault condition exists. Use mode 25 to locate and correct the condition. 2. Earth ground shorted to power. Use mode 25 to locate and correct the problem. 	P3 TROUBLE LED on P4 TROUBLE LED on
TROUBLE: LINE 1	A trouble condition exists on phone line 1.	L1 TROUBLE LED on
TROUBLE: LINE 2	A trouble condition exists on phone line 2.	L2 TROUBLE LED on
TROUBLE ZONE X	A trouble condition exists in the indicated zone. Refer to Section 8.3 to find and correct the trouble condition. X = Zone number	1 - 16 TROUBLE LED on

Table 8-2 continued on next page.

Table 8-2 continued.

5230 Message	Description or Action	Touchpad Display or LEDs
	A keystroke error has been made. Press  and enter the correct keystrokes.	---
	A walk test is being conducted. The top line of the 5230 display may also show the zone number in the trouble condition.	 SET MODE LED on

When the 5230 touchpad is powered up, it will show its ID number (1 -7) followed by the cycle of messages describing conditions that are currently in effect.

While the 5207 is communicating with the central station, the LCD will show either of the following messages:

(Cycling Messages)
 REPORTING

(Cycling Messages)
 CALLING COMPUTER

If two or more zones are in alarm, the top line will cycle through the status messages for these zones.

When the transmission is completed, the 5230 annunciator memory is reset (cleared) and the annunciator ID number is displayed.

Section 9.

Central Station Reporting

The following trouble conditions may generate a report to the central station:

- Low AC
- Low battery
- Loss of smoke detector power
- Loss of accessory power
- Supervised notification device trouble
- Earth ground fault
- Dialer trouble (Device 0)
- Printer trouble
- Annunciator trouble

9.1 Special Considerations

The 5207 can report to the formats described in the following sections. The following special considerations affect all format types:

1. The 5207 can hold up to 30 events in its memory. If more events occur, the first event will be replaced with the message `DATA LOST 01`. Any older events will be replaced by newer events.
2. When reporting to a 9000 receiver in FSK1 or 4+2 formats, zone 9 will report as `HOLDUP` and zone 10 as `PANIC`. To correct this, the 9000 must be programmed for format 6. The 9000 will report the codes only, not the English messages.
3. Momentary alarms will restore immediately if manually silenced by Alarm Reset.
4. Failure of the annunciator bus is not reported or printed, but an audible trouble tone will sound and the display will indicate the problem. The code `F0` appears on the built-in touchpad display and LCD reads `BUS TROUBLE`.
5. When a fire drill is reset, it will not report an Open Reset.
6. Only the SIA format will report events on the expansion zones

9.2 Reporting Formats

The following formats can be used to report to Silent Knight receivers and are explained further in this section:

- SIA
- FSK & SK 4+2
- Radionics BFSK
- 16 Zone 4+2

9.2.1 SIA Format Printed Messages

The Security Industry Association (SIA) format can be used with a Silent Knight Model 9000 receiver. Each message is displayed in English followed by the zone number. Due to limited space on the 9000 display, some messages may be in abbreviated form.

Table 9-1 shows the information that is printed at the Silent Knight 9000 receiver when the SIA format is used for data transmission.

Table 9-1. SIA Messages

9000 Printer	Status of 5207
LOW BATTERY 0	System battery is low
BATTERY RESTORE 0	Battery voltage is back to normal
TROUBLE 0	AC power is off or low
AC RESTORE 0	AC power has come back on
PHONE LINE TROUBLE 1	Phone line 1 is not working
PHONE LINE TROUBLE 2	Phone line 2 is not working
PHONE LINE RESTORE 1	Phone line 1 is back to normal
PHONE LINE RESTORE 2	Phone line 2 is back to normal
EXPANSION TROUBLE 0	Dialer trouble
EXPANSION TROUBLE 1	Printer trouble
EXPANSION TROUBLE 7	EE memory trouble
EXPANSION TROUBLE 8	Xbus trouble
EXPANSION TROUBLE 17-23	Annunciator 1-7 trouble

Table 9-1 continued on next page.

Section 9. Central Station Reporting

Table 9-1 continued.

9000 Printer	Status of 5207
EXPANSION TROUBLE 32	Notification device #1 trouble
EXPANSION TROUBLE 33	Notification device #2 trouble
EXPANSION TROUBLE 34	Notification device #3 trouble
EXPANSION TROUBLE 35	Notification device #4 trouble
EXPANSION TROUBLE 36	Smoke power trouble
EXPANSION TROUBLE 37	Accessory power trouble
EXPANSION TROUBLE 38	Earth ground fault to circuit ground
EXPANSION TROUBLE 39	Earth ground fault to power
EXPANSION RESTORE 0	Dialer back to normal
EXPANSION RESTORE 1	Printer back to normal
EXPANSION RESTORE 7	EE memory back to normal
EXPANSION RESTORE 17-23	Annunciator 1-7 back to normal
EXPANSION RESTORE 32	Notification device #1 back to normal
EXPANSION RESTORE 33	Notification device #2 back to normal
EXPANSION RESTORE 34	Notification device #3 back to normal
EXPANSION RESTORE 35	Notification device #4 back to normal
EXPANSION RESTORE 36	Smoke power back to normal
EXPANSION RESTORE 37	Accessory power back to normal
EXPANSION RESTORE 38	Circuit ground earth fault removed
EXPANSION RESTORE 39	Power earth ground fault removed
OPEN RESET ALARM ID 0	Confirms that an alarm was reset by access code 0
OPEN RESET ALARM ID 1	Confirms that an alarm was reset by access code 1
OPEN RESET ALARM ID (2-99)	Confirms alarm reset by access code (2-99)
AUTO TEST 0	Automatic dialer test
MANUAL TEST 0	System tested by access code 0
MANUAL TEST 1	System tested by access code 1
MANUAL TEST (2-99)	System tested by access code (2-99)
DATA LOST 0	Previous event could not be reported and the information was lost

Table 9-1 continued on next page.

Table 9-1 continued.

9000 Printer	Status of 5207
<i>“FIRE“ is used as an example below. Possible zone types are FIRE, SPRINKLER, TAMPER, HEAT, and WATER.</i>	
FIRE ALARM 1	Fire zone 1
FIRE ALARM (2-16)	Fire zone (2-16)
FIRE RESTORE 1	Fire zone 1 back to normal
FIRE RESTORE (2-16)	Fire zone (2-16) back to normal
FIRE SUPERVISORY 1	Fire zone 1 sprinkler supervisory condition
FIRE SUPERVISORY (2-16)	Fire zone (2-16) sprinkler supervisory condition
FIRE TROUBLE 1	Fire zone 1 loop trouble
FIRE TROUBLE (2-16)	Fire zone (2-16) loop trouble

9.2.2 FSK & SK 4+2 Format

You must use either the FSK or SK 4+2 format when reporting to the Silent Knight Model 8520 Receiver. Since the 8520 has only two digits for alarm codes, event type and zone numbers are combined into one message. The first digit of the code is the type of report, the second digit is the last number of the zone.

Example

Any two-digit code beginning with the digit 0 is a fire alarm.

Code 01 = Fire alarm in zone 1 or 11

Code 05 = Fire alarm in zone 5 or 15

If you selected the 16-zone report option at Step 14.5 of Step Programming (Section 2 of the 5207 programming manual), the above information does not apply to you. Zone numbers will report as 1 - 16. See Table 9-4 for more information.

The 4+2 format repeats after 10.

Table 9-2. FSK & SK 4+2 Codes/Zones

FSK & 4+2	Description
Fire Codes	
0Z	Alarm
2Z	Disable Restore (<i>Fire type zones report as 20</i>)
5Z	Disable Zone (<i>Fire type zones report as 50</i>)
6Z	Supervisory or Trouble

Table 9-2 continued on next page.

Table 9-2 continued.

FSK & 4+2	Description
7Z	Alarm Restore, Supervisory Restore, and Trouble Restore
Other Zones	
30	Dialer Test, Walk Test, Fire Drill
31	Phone Line 1 Trouble
32	Phone Line 2 Trouble
33	Expansion Trouble*
35	Phone Line 1 Restore
36	Phone Line 2 Restore
37	Expansion Restore
39	Data Lost
60	AC Lost
69	Low Battery
70	AC Restore
79	Battery Restore
9Y	Reset Alarm by Code #

*Note: Expansion refers to all the expansion troubles and restores listed in the SIA format (Section 9.2.1).

Y = Last digit of the user ID number.

Z = last number of the zone.

9.2.3 Radionics BFSK Format

Model 5207 can transmit using the Radionics BFSK format with 1400 Hz or 2300 Hz acknowledge. The messages that will be printed are listed with the codes for FSK1 and SK 4+2.

Radionics BFSK format can only report eight zone codes. Zones 9 through 16 report as zones 1 through 8; zones 17 through 24 report as zones 1 through 8, and so on. Because of this limitation, programming the 5207 to report in both the Radionics BFSK and either the FSK or SK 4+2 formats is NOT advised. Use only if required by the receiver.

The Radionics BFSK format repeats after 8.

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

If you assign the zones in this manner, the letter X in Table 9-3 will be a digit that represents every 8th zone number, as shown below:

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

Table 9-3. Radionics BFSK 4+2 Format

BFSK	Description
Fire Codes	
0X	Alarm on zone X (see chart above for actual zone number)
E0	Shunt or disable restore Zone 0
F0	Trouble Zone 0 - zone shunted
FX	Zone Trouble X (see chart above for actual zone number)
EX	Alarm or trouble restore Zone X (see chart for actual zone #)
Other Zones	
E9	Test/restore Zone 9
FB	Trouble Zone B (Phone line fault)
FB	Trouble Zone B
FC	Trouble Zone C
EB	Restore Zone B (Phone line 1 restore)
EB	Restore Zone B (Phone line 2 trouble restore)
EC	Restore Zone C
E9	Test/Restore Zone 9
F0	Trouble Zone 0
F9	Trouble Zone 9 - low battery
E0	Restore Zone 0 - AC restore
E9	Restore Zone 9 - battery restore
BY	Open Zone (Code #) - reset by user code

9.2.4 16-Zone 4+2 Format

When selected, the FSK1 and SK 4+2 formats will send alarms on zones 1 through 16 as 01-16. All 16 zones have unique alarm codes. However, there are some limitations. Zone troubles and restores cannot be completely distinguished from alarms. Zones 9 and 10 share some codes with battery and AC supervision. Table 9-4 shows what codes will be reported when the 16-zone 4+2 format is used. (The codes that will be reported if this option is not selected appear in Table 9-2.)

Table 9-4. 16-Zone 4+2 Format

Zone	Code	Description
Alarm Zone 1	01	ALARM 1
...		...
Alarm Zone 8	08	ALARM 8
Alarm Zone 9	09	ALARM 9
Alarm Zone 10	10	ALARM 10
Alarm Zone 11	11	ALARM 11
...		...
Alarm Zone 16	16	ALARM 16
Trouble Zone 1	61	TROUBLE 1
...		...
Trouble Zone 8	68	TROUBLE 8
Trouble Zone 9	69	BATTERY TROUBLE
Trouble Zone 10	60	AC TROUBLE
Trouble Zone 11	61	TROUBLE 1
...		...
Trouble Zone 16	66	TROUBLE 6
Restore Zone 1	71	RESTORE 1
...		...
Restore Zone 8	78	RESTORE 8
Restore Zone 9	79	BATTERY RESTORE
Restore Zone 10	20	ALARM RESTORE 10
Restore Zone 11	21	ALARM RESTORE 11
...		...
Restore Zone 16	26	ALARM RESTORE 16

Section 10.

Manual Revision History

Since the 2/95 revision of this manual, the changes detailed below have been made.

1/96 Revision

- Added UL- required notes about power-limited circuits and wire routing (Section 2.3).
- Added System Sensor Model 2400 to compatible device table (Section 6.3).
- Corrected terminal numbers in the Model 5210 wiring diagram (Section 6.4.2).
- Indicated 12 and 24 VDC system wiring (Section 6.4.3).
- Corrected a built-in touchpad display code (Section 7.1.1).
- Added notes about smoke detectors incompatible with the Walk test (Section 7.2.2).
- Clarified explanation of Accu-Zone Troubleshooting (Section 8.3).
- Provided additional explanation/minor corrections to reporting codes (Section 9.2).