D9412G/D7412G

Security Systems

EN

Troubleshooting Guide

Control Panel

BOSCH

CD-ROM

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1.0 Introduction

Use this guide to identify the cause of a D9412G or D7412G Control Panel symptom, and to determine the appropriate corrective action.

Many of the troubleshooting procedures contained in this guide vary depending on the system's point expansion technology.

Before you begin a troubleshooting procedure, ensure you know what kind of point expansion technology (if any) is connected to each Zonex bus (for example, D8125MUX, D8125INV, D8125, D8128C, D8128D). For more information on determining the configuration of a system, refer to *Section 4.1 Researching the Configuration of Points in an Existing Installation* on page 111.

Locate the symptom category in *Table 1*, then proceed to the appropriate troubleshooting table. Find the symptom you need to troubleshoot, then perform the suggested corrective action. If the corrective action is to proceed to a Troubleshooting Test Procedure (TTP), then perform that test procedure to identify the symptom's cause and corrective action. For more information on TTPs, refer to *Section 2.0 Troubleshooting Test Procedures* on page 6.

Table 1: Control Panel Symptom Categories

Category	Troubleshooting Table Location
Access Control	*Section 3.1 Access Control Symptoms* on page 7
Point	*Section 3.2 Point Symptoms* on page 23
Keypad	*Section 3.3 Keypad Symptoms* on page 65
Central Station Communications	*Section 3.4 Central Station Communications Symptoms* on page 69
Ground Fault	*Section 3.5 Ground Fault Symptoms* on page 91
General Wiring Troubleshooting	*Section 3.6 General Wiring Troubleshooting* on page 93

2.0 Troubleshooting Test Procedures

Troubleshooting Test Procedures (TTPs) are analytical procedures you follow to identify the cause of a complex symptom. TTPs are used whenever a symptom can have more than one cause.

When following a TTP:

- Initial Actions are tests that you can perform without the use of tools or test equipment. If the TTP begins with Initial Actions, perform these actions before beginning the procedure.
- Perform the tests and answer the questions in the order they are presented.
- Do not skip steps.
- If you answer "Yes" to a question, follow the ✓ line.
- If you answer "No" to a question, follow the ✗.

Following a TTP helps you quickly identify the cause of the symptom, and make the necessary repair.

3.0 Troubleshooting

3.1 Access Control Symptoms

Table 2: Access Control Symptoms

Symptom	Corrective Action
Card does not open access door.	Refer to *TTP1* on page 8.
Alarm occurs on access door after valid card read.	Refer to *TTP2* on page 13.
Alarm occurs when exiting access door.	Refer to *TTP3* on page 15.
SERVICE 9210 displays on keypad.	Refer to *TTP4* on page 17.
SDI Fail 33 to 40.	This error message is seen at the central station. The keypad displays SERVICE 9210. Refer to *TTP4* on page 17.
Control panel log displays “Access Denied” for alleged valid card.	Refer to *TTP6* on page 20.
D9210B NOT READY displayed on keypad when enrolling cards, tokens, or keyfobs.	Refer to *TTP7* on page 21.
Access door unlocks when area is disarmed.	Refer to *TTP8* on page 22.
Access door does not relock after clearing a fire alarm and resetting the control panel.	Refer to *TTP9* on page 22.

TTP1: Card Does Not Open Access Door

Initial Actions

Ensure that the access card(s) are compatible with the installed card reader. The card type should be 26-bit Wiegand. Refer to *Table 3* for a list of compatible card types.

Table 3: Card and Reader Compatibility List

Card Model	Card Description	Compatible Reader
ACD-IC2K26-50	iCLASS 2K Wiegand Card, 26-bit	R10 iCLASS Mullion Reader, R40 iCLASS Switchplate Reader, RK40 iCLASS Pin Reader
ACD-IC16K26-50	iCLASS 16K Wiegand Card, 26-bit	R10 iCLASS Mullion Reader, R40 iCLASS Switchplate Reader, RK40 iCLASS Pin Reader
ACD-IC16KP26-50	iCLASS 16K Dual Wiegand Card, 26-bit	R10 iCLASS Mullion Reader, R40 iCLASS Switchplate Reader, RK40 iCLASS Pin Reader
ACT-IC2K26-10	iCLASS 2K Wiegand Keyfob, 26-bit	R10 iCLASS Mullion Reader, R40 iCLASS Switchplate Reader, RK40 iCLASS Pin Reader
ACT-IC16K26-10	iCLASS 16K Wiegand Keyfob, 26-bit	R10 iCLASS Mullion Reader, R40 iCLASS Switchplate Reader, RK40 iCLASS Pin Reader
ACA-IC2K26-10	iCLASS 2K Wiegand Adhesive Tag, 26-bit	R10 iCLASS Mullion Reader, R40 iCLASS Switchplate Reader, RK40 iCLASS Pin Reader
ACA-IC16K26-10	iCLASS 16K Wiegand Adhesive Tag, 26-bit	R10 iCLASS Mullion Reader, R40 iCLASS Switchplate Reader, RK40 iCLASS Pin Reader
D8230-25, D8240-25	Wiegand Magstripe Card, 26-bit	D8227 Insert Card Reader, WP612 Series Weatherproof Pass-through Readers, WP644 Weatherproof Pass-through Readers
D8231-10	Wiegand Swipe Card, 26-bit	D8221 Swipe Card Reader
D8236-10	Wiegand Proximity Card, 26-bit	D8223 Prox Pro Reader, D8224 Mullion Reader, D8225 Mini Mullion Reader
D8236KF-10	Wiegand Keyfob, 26-bit	D8223 Prox Pro Reader, D8224 Mullion Reader, D8225 Mini Mullion Reader
D8236TG-10	Wiegand Proximity Adhesive Tag, 26-bit	D8223 Prox Pro Reader, D8224 Mullion Reader, D8225 Mini Mullion Reader
D8238	Wiegand Proximity Keyfob, 26-bit	D8201/W Series Low-profile Proximity Readers, D8203/W Series Mullion Proximity Readers
D8239/W	Wiegand Proximity Card, 26-bit	D8201/W Series Low-profile Proximity Readers, D8203/W Series Mullion Proximity Readers
D8338-10	KeyPAC Wiegand Proximity Keyfob, 26-bit	D8301/W Series Low-profile Proximity Readers*, D8302 Vandal-resistant Proximity Reader*, D8303/W Series Mullion Proximity Readers*, D8304/W Series Extended Range Proximity Readers*
D8339-10	KeyPAC Wiegand Proximity Card, 26-bit	D8301/W Series Low-profile Proximity Readers*, D8302 Vandal-resistant Proximity Reader*, D8303/W Series Mullion Proximity Readers*, D8304/W Series Extended Range Proximity Readers*

***Note:** Ensure that these card readers are configured for 26-bit mode.

Procedure

Go to a keypad assigned to the same area as the affected access door. Press [COMMAND][4][6]. If using the D1255 keypad, when the keypad displays CYCLE DOOR?, press [NEXT] once. Using either a D1255 or D1260 keypads, select UNLOCK DOOR?. The keypad then shows the current status for all access doors programmed into the system.

UNLOCK 1 2 U 4 - - - -

Refer to *Table 5* on page 10 for display descriptions.

☑ If you see an F, A, or D as described in *Table 5*, continue with the TTP identified in *Table 5*. Otherwise, continue with this TTP.

Using RPS software or your D5200 Programmer, go to **RADXAXS→Strike Profile**. Ensure that a value of 10 or more is entered in "Strike Time," and that "REX Shunt Only" is set to **No**. Exit programming and reset the control panel. Refer to *Table 4* on page *10* to match the D9210B DIP switch address to the assigned door number. Momentarily short D9210B Terminals 12 and 13. Refer to *Figure 1* on page 11 to locate the D9210B's REX terminals.

Did the access door open when shorting the REX terminals?

✓ ✗

Remove all wiring from D9210B Terminals 2, 3, and 4. Set your digital voltmeter (DVM) to read resistance. Place the red lead on Terminal 2 and the black lead on Terminal 3.

Does the DVM read a short?

✓ ✗

Replace D9210B.

Momentarily short D9210B Terminals 12 and 13 again.

Did the DVM change state from a short to an open?

✓ ✗

Replace D9210B.

Rewire D9210B and magnetic lock or door strike. Refer to *Figure 1* on page 11 through *Figure 4* on page 11. Momentarily short Terminals 12 and 13 again.

Did the door open?

✓ ✗

Refer to *TTP46 Open Wiring* on page 96. If this TTP does not indicate an open wire condition, refer to the magnetic lock or door strike manufacturer's documentation.

Problem corrected by rewiring D9210B and magnetic lock or door strike.

A

A

1. Using RPS software or your D5200 Programmer, go to **RADXAXS→Event Profile**.
2. Set both "Access Granted?" and "No Entry?" to **Yes**.
3. Send programming changes to the control panel.
4. Present the affected access card to the card reader.
5. At the keypad, press [9][9][ENT].
6. Select VIEW LOG?.
7. Press [ENT] when the display shows START DATE? to display the time and date for the last event in the log.
8. Press [NEXT] to view the last event.

Does the log show "Access Denied"?

✓ ✗

Does the log show "Access Granted"?

✓ ✗

Is the card reader LED off?

✓ ✗

Present access card to the reader.

Does the reader acknowledge the access card with a single beep or quick LED blink?

✓ ✗

- Refer to *Figure 5* on page 12 to verify correct wiring between the D9210B and the card reader. If the wiring is not correct, fix the wiring error.
- If the problem continues, connect the card reader directly to the D9210B. Present access card. If the card reader still does not acknowledge the access card with a single beep or quick LED blink, replace card reader.
- If card reader acknowledges the access card, replace wiring between D9210B and card reader.

Disconnect card reader wiring from the D9210B and reconnect the card reader directly to the D9210B. While monitoring the D9210B LEDs, present access card to card reader.

Do the D9210B LEDs ONLY flash twice simultaneously?

☑ If the LEDs flash twice, an event was entered into the log.

✓ ✗

B **C** **D** **E** **F**

B **C** **D** **E** **F**

- If the D9210B LEDs do not flash at all, replace card reader.
- If the D9210B LEDs flash in some pattern other than only twice simultaneously, card reader is not using 26-bit Wiegand format. If card reader is configurable, configure it for 26-bit Wiegand format. If it cannot be configured, replace this card reader with a 26-bit Wiegand card reader.

Replace wiring between the D9210B and card reader.

The card reader is not receiving power.

- Check the D9210B OPER MON LED (refer to *Figure 6* on page *12*, and *Table 6* on page 12). If it is off, refer to *TTP4 Keypad Displays SERVICE 9210* on page 17.
- If the D9210B OPER MON LED is blinking, check wiring between D9210B and card reader (refer to *Figure 5* on page 12). If wiring is OK, replace card reader.

Verify that all wiring from an access door, for example, REX, card reader, and magnetic lock or door strike, connects to the same D9210B.

Refer to *TTP6 Control Panel Log Displays "Access Denied" for Alleged Valid Card* on page 20.

Table 4: D9210B DIP Switch Addresses

	Door Controller Address		
Device	**1**	**2**	**3**
D9210B #1	**ON**	**ON**	**ON**
D9210B #2	OFF	**ON**	**ON**
D9210B #3	**ON**	OFF	**ON**
D9210B #4	OFF	OFF	**ON**
D9210B #5	**ON**	**ON**	OFF
D9210B #6	OFF	**ON**	OFF
D9210B #7	**ON**	OFF	OFF
D9210B #8	OFF	OFF	OFF

Table 5: [COMMAND][4][6] Display Descriptions

Display	Description
-	Door not programmed in system.
F	Communication failure between control panel and D9210B. Refer to *TTP4 Keypad Displays SERVICE 9210* on page 17.
A	D9210B DIP Switch 5 is in OFF position. Set to ON position. If DIP Switch 5 is OK, refer to *TTP46 Open Wiring* on page 96.
D	D9210B DIP Switch 6 is in OFF position. Set to ON position. If DIP Switch 6 is OK, refer to *TTP46 Open Wiring* on page 96.
U	Door is currently unlocked. To change state, press the keypad number key that corresponds with the door's number. The number replaces the "U" in the keypad display.
X	Door is currently secured. **D1255 Keypad:** Press [MENU/ESC]. Keypad displays UNLOCK DOOR? Press [Next] until keypad displays SECURE DOOR? Press [ENT]. To change state, press the keypad number key that corresponds with the door's number. The number replaces the "X" in the keypad display. **D1260 Keypad:** Press [Exit]. Press [SECURE DOOR?]. To change state, press the keypad number key that corresponds with the door's number, then press [ENTER]. The number replaces the "X" in the keypad display.
Number	Door is currently locked.

Figure 1: D9210B to Door Strike Wiring

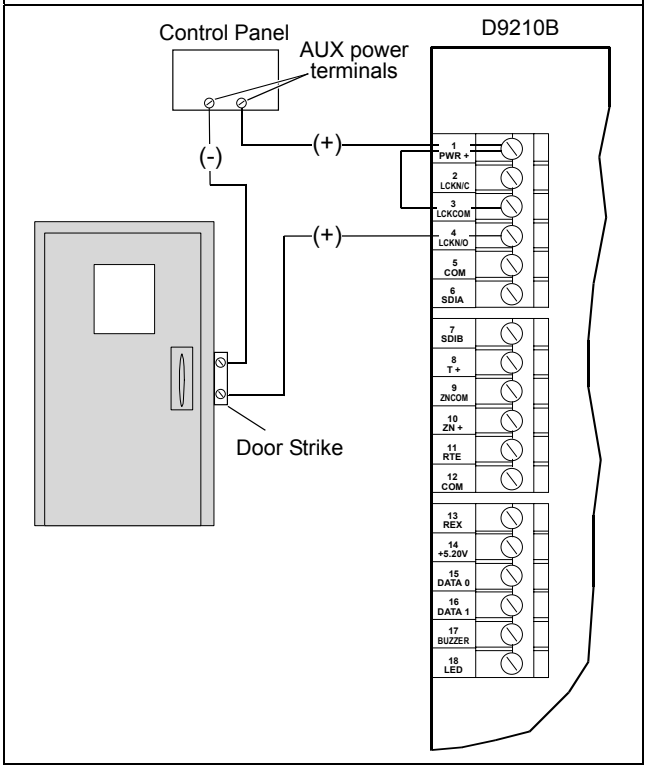


Figure 2: D9210B to Door Strike Wiring (Auxiliary Power Supply)

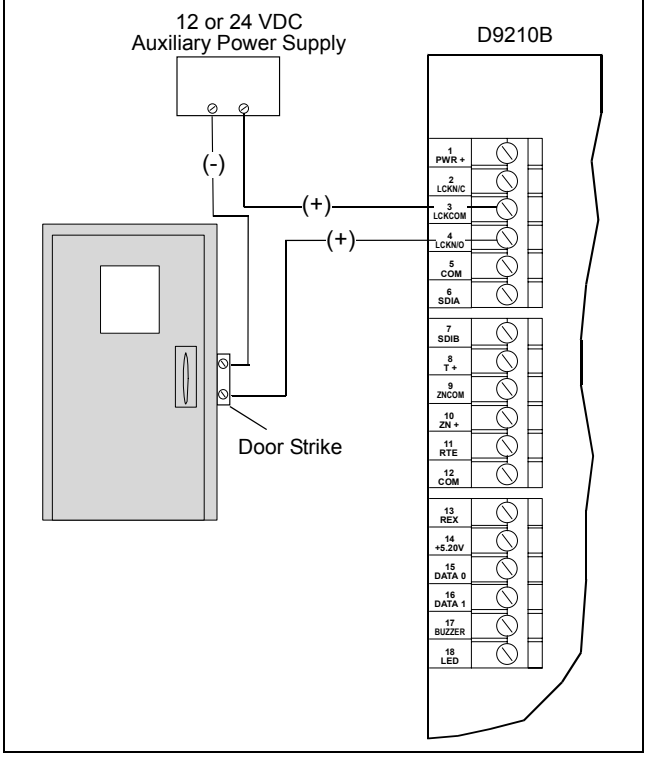


Figure 3: D9210B to Magnetic Lock Wiring

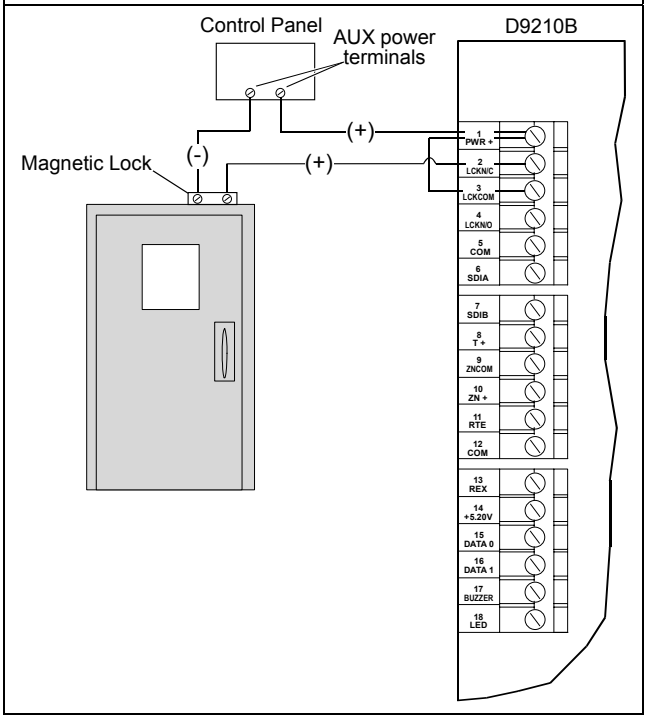


Figure 4: D9210B to Magnetic Lock Wiring (Auxiliary Power Supply)

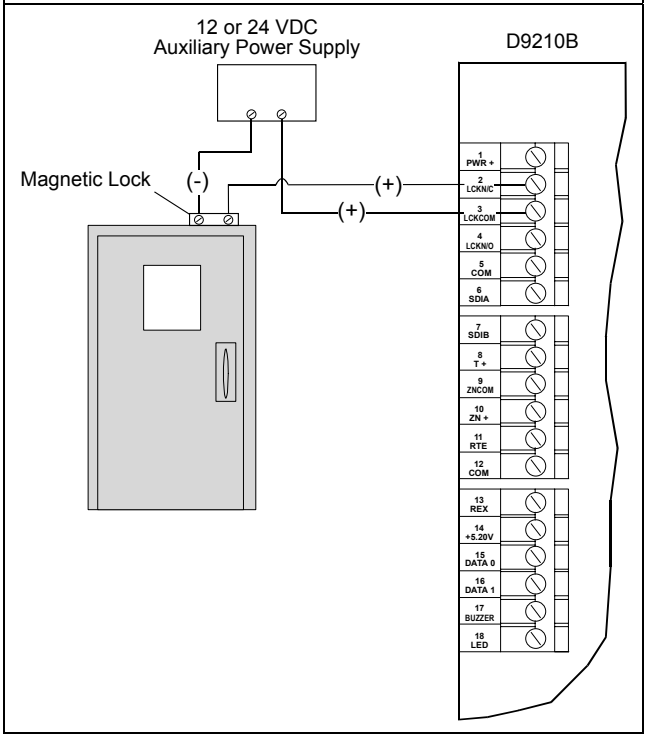
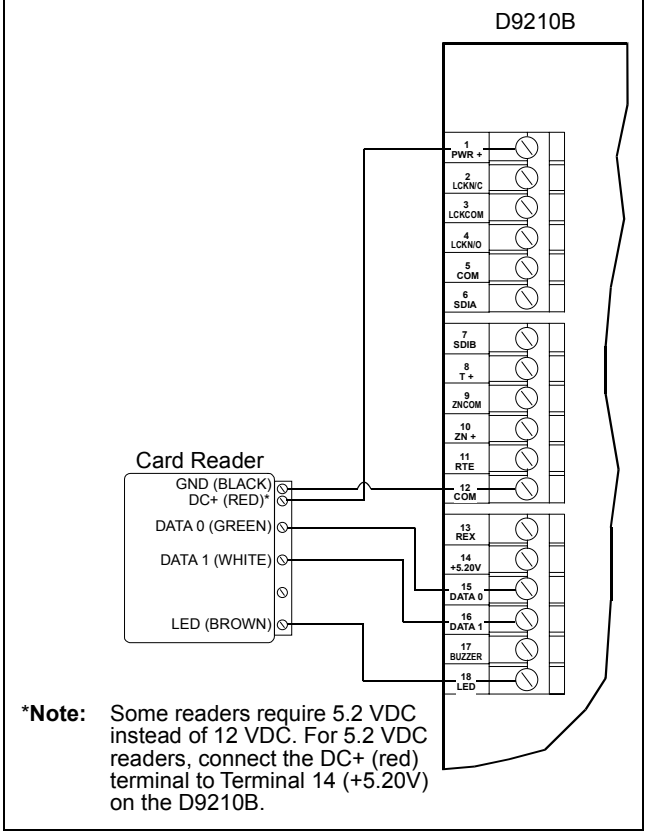


Figure 5: D9210B to Card Reader Wiring



***Note:** Some readers require 5.2 VDC instead of 12 VDC. For 5.2 VDC readers, connect the DC+ (red) terminal to Terminal 14 (+5.20V) on the D9210B.

Figure 6: D9210B LEDs

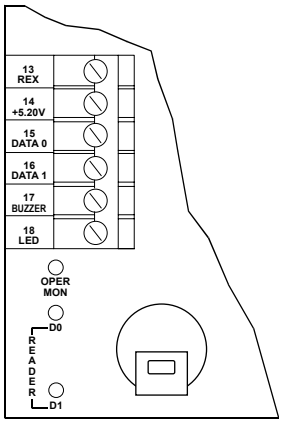


Table 6: D9210B LED Descriptions

LED Label	LED	Action	State
OPER MON	Operational Monitor (Green)	LED blinks on and off.	System is operational.
		LED is on or off.	System is off or not operational.
D0	D0 Reader (Green)	LED rapidly blinks.	Card data executing.
		LED is off.	No card data is being received.
D1	D1 Reader (Yellow)	LED rapidly blinks.	Card data executing.
		LED is off.	No card data is being received.

TTP2: Alarm Occurs On Access Door After Valid Card Read

Initial Actions

Locate D9210B Access Control Interface Module for the affected access door. Use *Table 7* to identify the D9210B by its DIP switch address.

Table 7: D9210B DIP Switch Addresses

	Door Controller Address		
Device	**1**	**2**	**3**
D9210B #1	**ON**	**ON**	**ON**
D9210B #2	OFF	**ON**	**ON**
D9210B #3	**ON**	OFF	**ON**
D9210B #4	OFF	OFF	**ON**
D9210B #5	**ON**	**ON**	OFF
D9210B #6	OFF	**ON**	OFF
D9210B #7	**ON**	OFF	OFF
D9210B #8	OFF	OFF	OFF

- Ensure that Terminals 9 and 10 on the D9210B Access Control Interface Module are connected to the door contact for the access door. Refer to *Figure 7* on page 14.
- Ensure that the card reader's tamper wire is not connected to Terminal 8 on the D9210B. Only use this terminal for the D9210B's enclosure tamper. Refer to *Figure 7* on page 14.

Procedure

Using RPS or the D5200 Programmer, scroll to **RADXAXS→Door Profile**, and obtain the following information for the affected access door:

- D# Entry Area #
- D# Door Point
- D# Shunt Time
- D# Extend Time

Shunt Time: The amount of time that a user can open the door without causing the programmed point to go into a trouble, or alarm.
Extend Time: The amount of time that strike, buzz, and shunt activation is prolonged if a door is left open and the shunt time expires. At the end of the programmed extend time, the buzzer continues to buzz until the door is closed. In addition, if programmed, the point assigned to the door indicates a trouble, or alarm condition at the keypad.

A

Present a valid card to the reader, and open the affected access door.

Does the alarm occur when the total of the shunt time and extended time expires?

✓ ✗

Using RPS or the D5200 Programmer, scroll to **RADXUSR1/RADXUSR2→Authority Level by Area**. Obtain the selected user's authority level in the area that the affected access door is assigned to. Go to **9000MAIN→User Interface→Authority Level**. Scroll to the authority level for the selected user (1 to 14). Scroll to **L## Disarm Level**.

Does L## Disarm Level show "I" as its entry?

✓ ✗

Call Technical Support at (888) 886-6189 for further assistance.

Change the setting from "I" to "D" or "blank" based on the customer's preference.

The setting made here affects all users that share the same authority level.

- **I:** Users change the Master Armed state and Perimeter Armed state to Perimeter Instant. The armed state does not change in other areas, and the armed state does not change if the area is already in the Perimeter Instant or Disarmed state.
- **D:** Users change the local area's Master Armed state and Perimeter Armed state to the Disarm state. User needs access level for Master Armed (M) or Perimeter Armed (P) state. All areas within the scope of the keypad assigned to the ***D# CC# Scope*** in the access handler, and areas to which the user has disarm rights, disarm as programmed.
- **Blank:** Users do not have disarm rights in this area.

Present a valid card to the reader, and open the affected access door.

Does the alarm now occur when the total of shunt time and extend time expires?

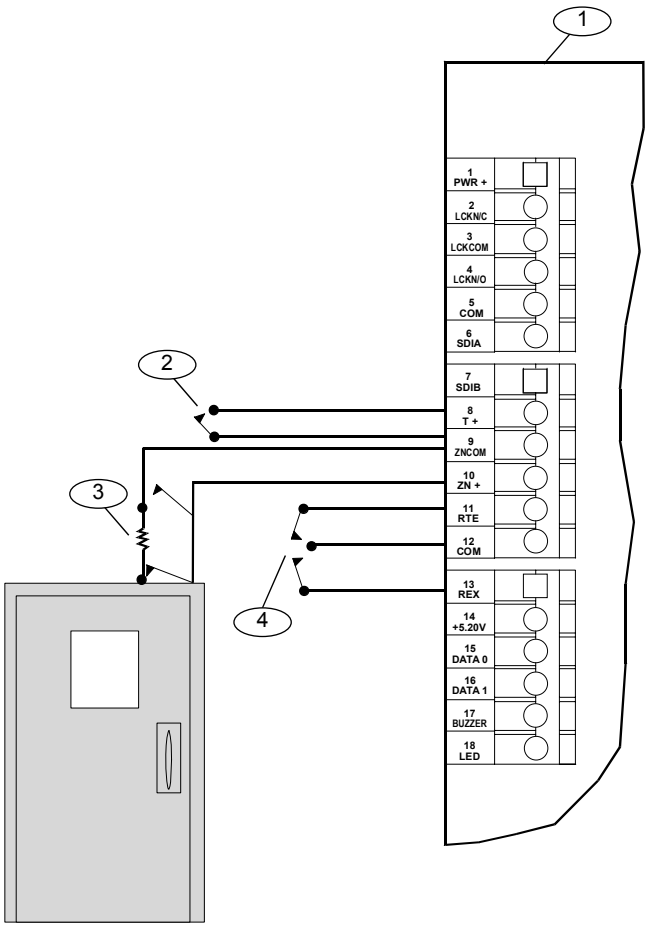
✓ ✗

Call Technical Support at (888) 886-6189 for assistance.

The system is now operating as expected. If necessary, adjust shunt and extend times to meet the customer's preferences.

Adjust the settings for shunt time and extend time to meet the customer's preferences, and retest.

Figure 7: D9210B Wiring



1 - D9210B Access Control Module
2 - Tamper switch (Normally open)
3 - Door contact (normal EOL in circuit)
4 - RTE/REX (Normally open)

TTP3: Alarm Occurs When Exiting Access Door

Initial Actions

Locate D9210B Access Control Interface Module for the affected access door. Use *Table 8* to identify the D9210B by its DIP switch address.

Table 8: D9210B DIP Switch Addresses

	Door Controller Address		
Device	**1**	**2**	**3**
D9210B #1	**ON**	**ON**	**ON**
D9210B #2	OFF	**ON**	**ON**
D9210B #3	**ON**	OFF	**ON**
D9210B #4	OFF	OFF	**ON**
D9210B #5	**ON**	**ON**	OFF
D9210B #6	OFF	**ON**	OFF
D9210B #7	**ON**	OFF	OFF
D9210B #8	OFF	OFF	OFF

- Ensure that Terminals 9 and 10 on the D9210B are connected to the door contact for the access door. Refer to *Figure 8* on page 16.
- Ensure that the card reader's tamper wire is not connected to Terminal 8 on the D9210B. Only use this terminal for the D9210B's enclosure tamper. Refer to *Figure 8* on page 16.

Procedure

Examine the affected access door for connected devices.

Is a Request-to-Exit (REX) device connected to the access door?

✓ ✗

Using RPS or the D5200 Programmer, scroll to **RADXAXS→Door Profile**, and obtain the access door's programmed point information. Scroll to **RADXPNTS→Point Assignments** for the point you are troubleshooting. Determine which point index the programmed point uses. View that point index. Use *Table 9* on page 16 to determine the point's type and point response.

Is the point programmed to respond as desired?

☑ A 24-hour point creates an alarm condition regardless of the area's armed state. When not using a REX, the point must be disarmed.

✓ ✗

Refer to *Table 9* on page 16 to fix the programming problem.

A B

A B

Examine the keypad in the same area as the affected access door.

Is the area armed?

✓ ✗

A wiring problem exists with the addressable point assigned to the affected access door. Refer to *Section 3.6 General Wiring Troubleshooting* on page 93.

Disarm the area, and open the affected access door.

Examine the D9210B's wiring. Refer to *Figure 8* on page 16.

Is the REX device wired for normally-open operation AND connected to Terminals 12 and 13?

✓ ✗

Refer to *Figure 8* on page 16 to fix the wiring problem.

Using RPS or the D5200 Programmer, scroll to **RADXAXS→Door Profile**, and obtain the following information for the affected access door:

- D# Shunt Time
- D# Extend Time.

Do the settings for D# Shunt Time and D# Extend Time meet the customer's needs?

✓ ✗

Adjust these settings as needed.

Remove the wires from the D9210B's REX terminals (Terminals 12 and 13). Short Terminals 12 and 13 together, and then open the affected access door.

Does an alarm occur when the total of shunt time and extend time expires?

✓ ✗

Replace the D9210B.

Reconnect the REX device to the D9210B's REX terminals (Terminals 12 and 13). Short together the wires from the REX device's Normally Open (NO) contact. Open the affected access door.

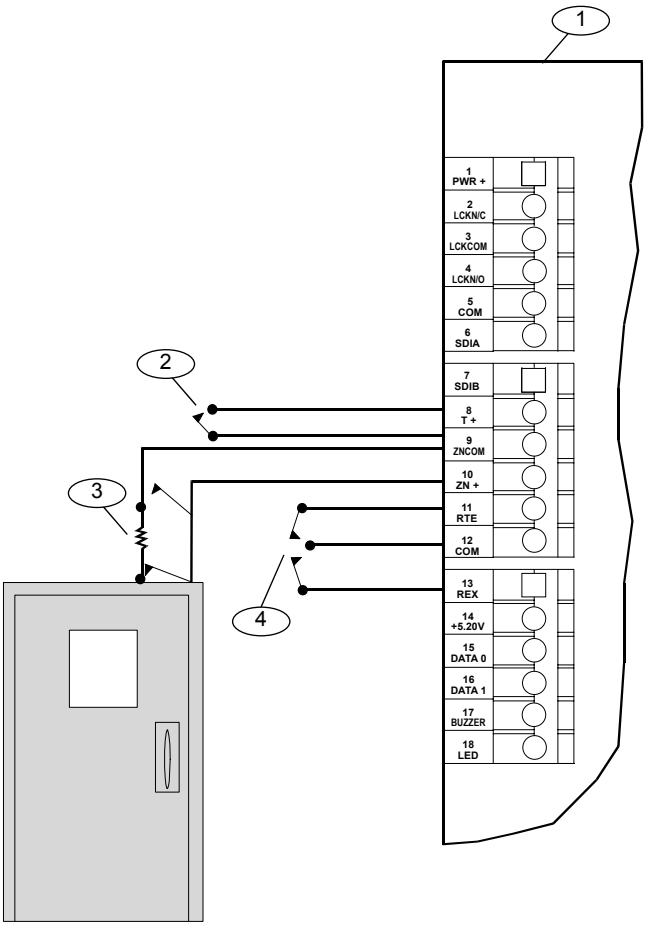
Does an alarm occur when the total of shunt time and extend time expires?

✓ ✗

An open condition exists in the REX device's wires. Refer to *TTP46 Open Wiring* on page 96.

Refer to the REX device manufacturer's troubleshooting procedures.

Figure 8: D9210B to Door Contact Wiring



1 - D9210B Access Control Module
2 - Tamper switch (Normally open)
3 - Door contact (normal EOL in circuit)
4 - RTE/REX (Normally open)

Table 9: Point Type and Point Response Selections

Point Type Selections			
0	24-Hour	6	O/C Point
1	Perimeter	7	D279 (O/C Non-Priority)
2	Interior	8	D279 (O/C Priority)
3	Interior Follower	9	Easikey
4	Keyswitch Maintained		
5	Keyswitch Momentary		

Point Response Selections[1]		0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
Armed[2]	Open	I	I	I	I	D	D	I	I	D	I	I	I	I	I	T	
	Short	I	I	I	I	I	I	D	D	D	I	I	I	I	I	I	
Disarmed[2]	Open		T		T				T		I	I	T	I		T	
	Short			T	T		T				I	T	I		I		
24-Hour[3]	Open	I	T	I	T			I	T	S	T	S		S	Not Applicable		
	Short	I	I	T	T	I	T			T	S		S	S			

[1] Selections: D = Delayed Response, I = Instant Alarm, S = Supervisory, T = Trouble, Blank = No Response

[2] For point types 1 through 3 only.

[3] For point type 0 only.

TTP4: Keypad Displays SERVICE 9210

Initial Actions

- Refer to *TTP32 Silencing Alarms or Troubles, and Clearing Keypad Memory* on page 68 to silence alarms or troubles, clear keypad memory, and view the points that are in alarm or trouble.
- Verify that the D9210B's DIP switch address corresponds with the appropriate access door. Refer to *Table 10* on page 18.
- Verify that DIP Switches 5 and 6 on the D9210B are in the ON position.
- Verify that the wiring between the control panel and the D9210B is correct. Refer to *Figure 9* and *Figure 10* on page 18.

Procedure

This procedure uses [COMMAND][4][6] to show access door status. In this example, Doors 1, 2, and 4 are all known good access doors. Door 3 is the affected access door. The keypad display shows "F" instead of "3" for Door 3.

UNLOCK: 1 2 F 4 - - - -

Refer to *Table 11* on page 19 for display descriptions.

☑ If you see an F, A, or D as described in *Table 11*, continue with the TTP identified in *Table 11*. Otherwise, continue with this TTP.

Locate the OPER MON LED on the D9210B. Refer to *Figure 11* on page 18.

Is the OPER MON LED flashing?

✓

Refer to *TTP50 Power Troubleshooting* on page 107.

✗

Are there any other programmed access doors that work as expected?

✓

Remove all device wiring from the control panel's SDI bus except for the keypad used to view door status. Connect the affected access door's D9210B directly to the control panel's SDI bus, at the control panel.

☑ Removing all device wiring from the SDI bus causes "F" to appear for all other programmed access doors.

Go to a keypad assigned to the same area as the affected access door. Press [COMMAND][4][6]. If using the D1255 keypad, when the keypad displays CYCLE DOOR?, press [NEXT] once. Using either a D1255 or D1260 keypads, select UNLOCK DOOR?. The keypad then shows the current status for all access doors programmed into the system.

Does the keypad still display "F" for the affected access door number?

✓ **A**

Refer to *TTP46 Open Wiring* on page 96 for open wire issues. If this TTP does not solve the problem, refer to *TTP47 Noise on Wire* on page 98.

✗ **B**

Replace D9210B.

✗ **C**

Go to a keypad assigned to the same area as the affected access door. Press [COMMAND][4][6]. If using the D1255 keypad, when the keypad displays CYCLE DOOR?, press [NEXT] once. Using either a D1255 or D1260 keypads, select UNLOCK DOOR?. The keypad then shows the current status for all access doors programmed into the system. Refer to *Figure 12* on page 19.

For test purposes only, swap the DIP switch address on a known good D9210B (for example, Door 2) with the affected D9210B (for example, Door 3). Refer to *Table 10* on page 18. Refer to *Figure 13* on page 19.

☑ By swapping DIP switch addresses, Door 2 becomes Door 3, and vice-versa.

Continue monitoring the affected door number on the keypad display.

Does the keypad still display "F" for the affected access door number?

✓

☑ Do not restore the DIP switch addresses to their original settings.

Disconnect the D9210B that shows "F" in the keypad display and set it aside. Disconnect the known good D9210B from its current location, and reconnect it where the affected D9210B was connected. Refer to *Figure 14* on page 20.

Does the keypad still display "F" for the affected access door number?

✓

Replace the D9210B that was originally connected to the affected access door.

✗

Refer to *TTP46 Open Wiring* on page 96.

Refer to *TTP47 Noise on Wire* on page 98.

Table 10: D9210B DIP Switch Addresses

	D9210B Address		
Door Number	**1**	**2**	**3**
1	**ON**	**ON**	**ON**
2	OFF	**ON**	**ON**
3	**ON**	OFF	**ON**
4	OFF	OFF	**ON**
5	**ON**	**ON**	OFF
6	OFF	**ON**	OFF
7	**ON**	OFF	OFF
8	OFF	OFF	OFF

Figure 9: D9210B to Control Panel Connections

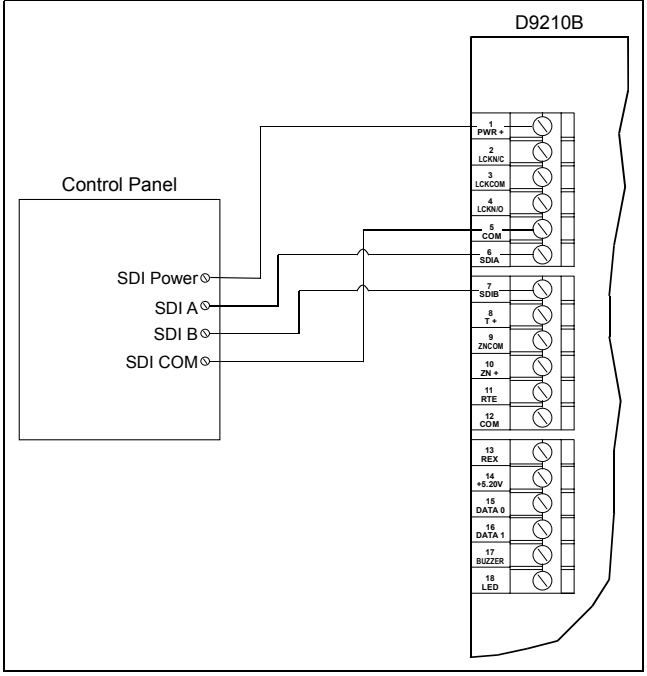


Figure 10: D9210B to Control Panel Connections (Auxiliary Power Supply)

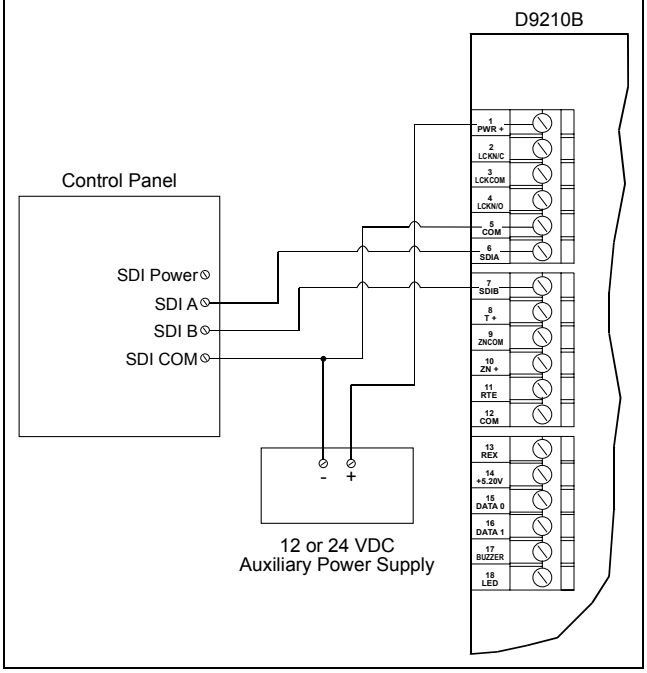


Figure 11: D9210B LEDs

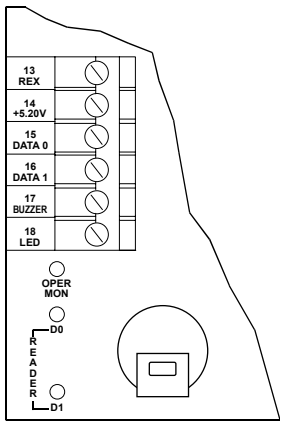
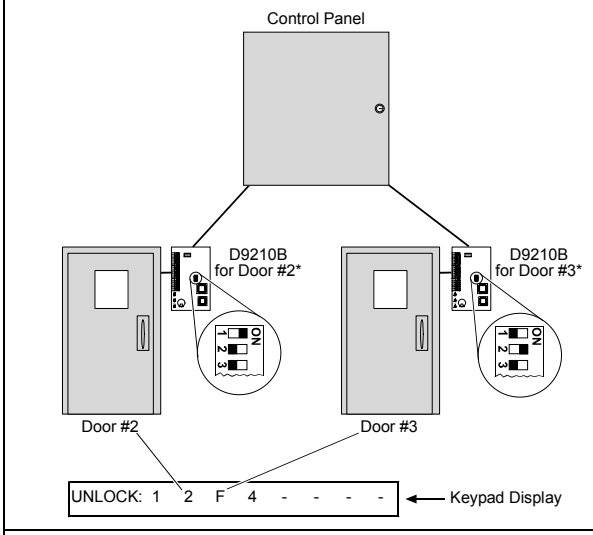


Table 11: [COMMMAND][4][6] Display Descriptions

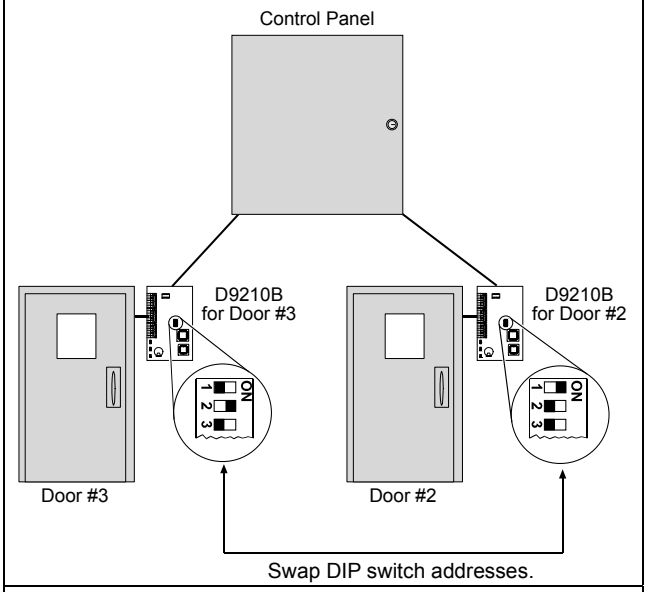
Display	Description
-	Door not programmed in system.
F	Communication failure between control panel and D9210B. Refer to *TTP4 Keypad Displays SERVICE 9210* on page 17.
A	D9210B DIP Switch 5 is in OFF position. Set to ON position. If DIP Switch 5 is OK, refer to *TTP46 Open Wiring* on page 96.
D	D9210B DIP Switch 6 is in OFF position. Set to ON position. If DIP Switch 6 is OK, refer to *TTP46 Open Wiring* on page 96.
U	Door is currently unlocked. To change state, press the keypad number key that corresponds with the door's number. The number replaces the "U" in the keypad display.
X	Door is currently secured. **D1255 Keypad:** Press [MENU/ESC]. Keypad displays UNLOCK DOOR? Press [Next] until keypad displays SECURE DOOR? Press [ENT]. To change state, press the keypad number key that corresponds with the door's number. The number replaces the "X" in the keypad display. **D1260 Keypad:** Press [Exit]. Press [SECURE DOOR?]. To change state, press the keypad number key that corresponds with the door's number, then press [ENTER]. The number replaces the "X" in the keypad display.
Number	Door is currently locked.

Figure 12: [COMMAND][4][6] Display



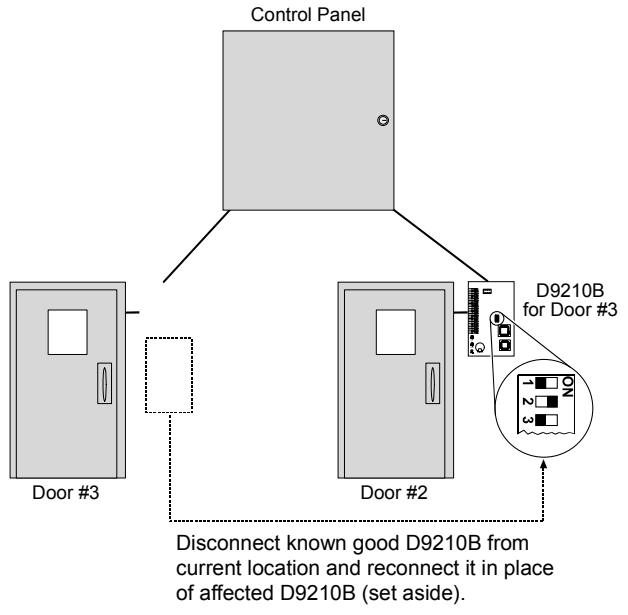
** D9210B DIP switch address = door number*

Figure 13: Swap D9210B DIP Switch Addresses



By swapping DIP switch addresses, Door #2 becomes Door #3, and vice-versa.

Figure 14: Switch D9210B Location



TTP5: SDI Fail 33 to 40

Description

The SDI Fail 33 to 40 error message appears at the central station. The keypad shows **SERVICE 9210**.

Procedure

Refer to *TTP4 Keypad Displays SERVICE 9210* on page 17.

TTP6: Control Panel Log Displays "Access Denied" for Alleged Valid Card

☑ If you just programmed the control panel, it might take approximately 15 min for all programming changes to take effect. Reset the control panel when the programming session completes. If you are using RPS, ensure that you select "Reset Panel" when you disconnect RPS from the control panel.

Initial Actions

Ensure that the access card(s) are compatible with the installed card reader. The card type should be 26-bit Wiegand. Refer to *Table 3* on page 8 for a list of compatible card types.

Procedure

At the keypad closest to the card reader, press [CMD][5][6]. Enter a valid passcode if necessary. Create a test user by selecting an unassigned user number.

D1255 Keypad: Press [NEXT] when the keypad displays ADD PASSCODE? Press [ENT] when keypad displays ADD CARD? Present a new access card to the card reader when the keypad displays PRESENT CARD.

D1260 Keypad: Press [Continue]. Press [Passcode]. Press [Card][Yes]. Present a new access card to the card reader when the keypad displays Present Card.

☑ If the keypad displays D9210B NOT READY, refer to *TTP7* on page 21.

Does the keypad display CARD IN USE?

✓ ✗

In programming, go to the Users section and locate the test user.

☑ RADXUSR 1 programs Users 000 to 124. RADXUSR 2 programs Users 125 to 249 (D9412G only).

Record the site code and card data information from the test user, and then delete the test user. Locate the user with the affected access card, and replace the site code and card data information with the test user site code and card data information. Retest the access card.

Locate the D9210B for the appropriate access door. Use *Table 8* on page 15 to match the D9210B's DIP switch address to the corresponding door number. Using RPS software or your D5200 Programmer, go to **RADXAXS→Door Profile**. Obtain the Entry Area setting for the identified door. Go to **RADXUSR1/USR2→User Number**. Locate the user number assigned to the card.

Does the affected user have an assigned authority level in the entry area for the identified access door?

✓ ✗

Do any cards work at the identified door?

✓ ✗

A **B** **C**

A B C

Using RPS software or your D5200 Programmer, go into **9000MAIN→User Interface→Authority Levels→Authority Level 1→Security Level (Access Level)**. Ensure that this prompt is set to "M." Refer to *Table 12* for more information.

☑ The authority level used is for test purposes only. See customer for preferred authority level assignment.

In RADXUSR1/RADXUSR2, locate the user number assigned to the affected card. Assign an authority level of 1 in the entry area assigned to the access door.

Obtain the user number of a card that works. Identify the authority level for the entry area assigned to the access door. Assign this authority level to the entry area assigned to the access door for the affected card.

1. Using RPS or the D5200 Programmer, go to **9000MAIN→Function List**.
2. Find a menu item with a blank function number.
3. Enter Function 37 into that menu item.
4. Enable the new menu item by changing it from "No" to "Yes" for all connected keypads.
5. Send the programming changes to the control panel.
6. Using any keypad connected to the control panel, press [MENU], then press [NEXT] until CHANGE LEVEL? displays. Press [ENT].
7. The keypad shows ACCESS LEVEL CTL. Enter the authority level assigned to the user in the entry area of the affected access door. Press [ENT].

Does the keypad show LEVEL # DISABLE?

✓ ✗

The keypad shows LEVEL # ENABLE. Press [ENT] to enable the level.

Replace D9210B.

Table 12: Authority Level Assignments

Assignment	Description
M	User with this authority level can gain access in any arming state.
P	User with this authority level can gain access only when the system is Perimeter-armed.
D	User with this authority level can gain access only when the system is disarmed.
Blank	No access is allowed regardless of system's arming state.

TTP7: D9210B NOT READY Displayed on Keypads When Enrolling Cards, Tokens, or Keyfobs

Description

The D9210B that supervises the affected access door does not have the correct door number programmed into it.

Procedure

1. Identify the keypad you are using by removing the front cover and reading the DIP switch address. Refer to *Table 13*.
2. Identify the door number you are trying to enroll cards at by locating the appropriate D9210B and reading its DIP switch address. Refer to *Table 14* on page 22.
3. In programming, select **9000MAIN→Command Center→Cmd Ctr Assignment→Assign Door**.
4. For the command center identified in Step 1, enter the door number identified in Step 2.
5. Exit programming and enroll cards, tokens, or keyfobs.

Table 13: Command Center Address Settings

	Switch					
Address	**1**	**2**	**3**	**4**	**5**	**6**
Adr #1	**ON**	**ON**	**ON**	**ON**	Encoding Tone ON/OFF	**ON**
Adr #2	OFF	**ON**	**ON**	**ON**		**ON**
Adr #3	**ON**	OFF	**ON**	**ON**		**ON**
Adr #4	OFF	OFF	**ON**	**ON**		**ON**
Adr #5	**ON**	**ON**	OFF	**ON**		**ON**
Adr #6	OFF	**ON**	OFF	**ON**		**ON**
Adr #7	**ON**	OFF	OFF	**ON**		**ON**
Adr #8	OFF	OFF	OFF	**ON**		**ON**

TTP8: Access Door Unlocks When Area Is Disarmed

Description

When the Auto Door programming prompt is set to **Yes**, the access door locks when the area is armed, and unlocks when the area is disarmed. Set this prompt to **No**.

Procedure

1. Identify the door number that unlocks when disarming by locating the appropriate D9210B and reading its DIP switch address. Refer to *Table 14*.
2. In programming, select **RADXAXS→Door Profile**. Select the door identified in Step 1.
3. Change the Auto Door prompt from **Yes** to **No**.
4. Exit programming, then test the affected access door.

Table 14: D9210B DIP Switch Addresses

	Door Controller Address		
Device	**1**	**2**	**3**
D9210B #1	**ON**	**ON**	**ON**
D9210B #2	OFF	**ON**	**ON**
D9210B #3	**ON**	OFF	**ON**
D9210B #4	OFF	OFF	**ON**
D9210B #5	**ON**	**ON**	OFF
D9210B #6	OFF	**ON**	OFF
D9210B #7	**ON**	OFF	OFF
D9210B #8	OFF	OFF	OFF

TTP9: Access Door Does Not Relock after Clearing a Fire Alarm and Resetting the Control Panel

Description

This is normal operation for the control panel. Unlocked access doors must be manually relocked.

Procedure

1. At a keypad, press [COMMAND][4][6]. Enter a valid passcode if needed.
2. If using a D1255 keypad, when CYCLE DOOR? appears on the display, press [NEXT] once.
3. Using either a D1255 or D1260 keypad, select UNLOCK DOOR.
   The display shows UNLOCK: U U U U U U U U.
   - If the door is locked, the door's number appears.
   - If the door is unlocked, "U" appears in the door number's place.
   - If a door is not active, "--" appears in the door number's place.

The D9412G supports up to eight doors; the D7412G supports up to four doors.

4. To relock an unlocked access door, enter the door number and press [Enter]. The "U" changes to the door's number.
5. Press [MENU/ESC] until the idle text appears.

3.2 Point Symptoms

Table 15: Point Symptoms

Symptom	Corrective Action
Keypad displays POINT TROUBLE.	Refer to *TTP10 Point Trouble* on page 23.
Control panel's on-board point has only an EOL resistor connected directly to it, but the keypad indicates that the point is faulted.	Refer to *TTP16 Point Trouble on One of the Eight On-board Points* on page 55.
Point 8 shows shorted even though EOL resistor is on the point.	Refer to *TTP16 Point Trouble on One of the Eight On-board Points* on page 55, paying particular attention to the Initial Actions.
Control panel's on-board point has only an EOL resistor connected to it, but the keypad indicates the point is faulted.	Refer to *TTP16 Point Trouble on One of the Eight On-board Points* on page 55.
Points 128 and 248 are missing.	Refer to *TTP19 Points 128 and 248 Are Missing* on page 56.
Point indicates a short circuit when it is open.	Refer to *TTP20 Point Indicates a Short Circuit When It* Is Open on page 57.
Extra points on the system.	Refer to *TTP21 Extra Points on the System* on page 58.
Keypad displays SERVICE ZONEX.	Refer to *TTP22 Keypad Displays SERVICE ZONEX* on page 60.
Control panel transmits PT BUS TROUBLE reports to the Central Station.	Refer to *TTP22 Keypad Displays SERVICE ZONEX* on page 60.
All points on a point expansion technology show shorted.	Refer to *TTP22 Keypad Displays SERVICE ZONEX* on page 60.
Point does not respond as programmed.	Refer to *TTP25 Point Does Not Respond as Programmed* on page 61.
Missing Points	Go to the customer site and locate a keypad that displays POINT TROUBLE. Then refer to *TTP10 Point Trouble* on page 23.
Unexpected Voltage on on-board point wiring.	Refer to *TTP49 Unexpected Voltage on On-board Point Wiring* on page 104.

TTP10: Point Trouble

Procedure

1. Refer to *Section 4.1.1 Identifying the Point Expansion Technologies Installed on the System* on page 111 to determine which point expansion technologies are installed at the site.
2. Refer to *TTP32 Silencing Alarms or Troubles, and Clearing Keypad Memory* on page 68 to silence alarms or troubles, clear keypad memory, and view the points that are in alarm or trouble.
3. From the keypad, press [MENU/ESC], then press [NEXT] until you see VIEW PT STATUS.
4. If using a D1255 Keypad, press [ENT] three times. If using a D1260 Keypad, press [VIEW PT STATUS][Next][Status].
5. Press [NEXT] to view each point's status.

If there are more than one point expansion technologies connected to the control panel, and if you don't know which points are connected to each technology, perform the procedures in *Section 4.1.2 Setting Up the Control Panel* on page 112, and *Section 4.1.3 Identifying the Points Associated with Each Point Expansion Technology* on page 113 before continuing with this procedure.

Only troubleshoot one point expansion technology at a time.

6. If the addressable point in trouble is connected to:
   - a **D8128C or D8128D OctoPOPIT Module**, refer to *TTP11* on page 24.
   - a **D8125 Zone Expansion Module**, refer to *TTP12* on page 28.
   - a **D8125MUX Multiplex Bus Interface**, refer to *TTP13* on page 35.
   - a **D8125INV Wireless Interface Module**, refer to *TTP14* on page 46.
   - a **D9210B Access Control Interface Module**, refer to *TTP15* on page 53.
   - one of the **on-board points**, refer to *TTP16* on page 55.

TTP11: Point Trouble and D8128C or D8128D OctoPOPITs Are Connected to the Control Panel

Procedure

Do any points on the OctoPOPITs display as "missing"?

✓ ✗

Do ALL points display as "shorted"?

✓ ✗

1. Select a point connected to the D8128C or D8128D that is in trouble.
2. Go into Point Assignments for the point you are troubleshooting and determine which point index the point is using.
3. View that point index to determine the type and point response (for more information, refer to *Table 16* on page 26).

Is the point programmed to respond as desired?

✓ ✗

Fix the programming problem.

For the affected point, set your digital voltmeter (DVM) to read VDC. Connect the red DVM lead to the + side of the point. Connect black DVM lead to the common side of the point.

Does the DVM read <2.0 or > 3.0 VDC?

✓ ✗

Read the voltage on all remaining zones on the OctoPOPIT.

Do all voltages read between 0 VDC and 5 VDC?

✓ ✗

- If any voltage reads >8 VDC, remove the wires that are connected to that addressable point. View point status again for the off-board point that was in trouble. If it shows anything other than NORMAL, replace the OctoPOPIT.
- If the point status shows NORMAL, refer to *TTP49 Unexpected Voltage on On-board Point Wiring* on page 104 to locate the source of the >8 VDC.

Replace the OctoPOPIT.

A B C

A B C

Remove all wires from the addressable point. Set your DVM to read resistance. Connect the red DVM lead to one conductor and the black DVM lead to the other conductor.

Does it read <900Ω or >1.1 kΩ?

✓ ✗

Connect a 1 kΩ resistor to the addressable point. Repeat the voltage check.

Does the DVM still read <2.0 VDC or > 3.0 VDC?

✓ ✗

With the affected point's wires still disconnected from the control panel, perform a VDC and VAC voltage check on the wires leading to the point.

- If the voltage = 0 VAC and 0 VDC, refer to *TTP48 Wire Shorted to Ground* on page 102.
- If the voltage is not 0 VAC and 0 VDC, refer to *TTP49 Unexpected Voltage on On-board Point Wiring* on page *104*.

Replace OctoPOPIT.

- If the resistance was <900 Ω, refer to *TTP45 Shorted Wiring* on page 94.
- If the resistance was >1.1 kΩ, refer to *TTP46 Open Wiring* on page 96.

Set your digital voltmeter (DVM) to read resistance. Disconnect the Zonex wires leading to the D8128C or D8128D. Connect the red DVM lead to one conductor and the black DVM lead to the other conductor.

- If the resistance reads as an open, refer to *TTP48 Wire Shorted to Ground* on page 102.
- If the resistance reads anything other than an open, refer to *TTP45 Shorted Wiring* on page *94*.

Do any of the OctoPOPITs with missing points also have working points?

✓ ✗

Is the OctoPOPIT addressed correctly for the desired zones and, if the OctoPOPIT is a D8128D, are the point DIP switches configured to turn the desired zones ON (refer to *Figure 15* on page 25)?

✓ ✗

Fix OctoPOPIT addressing and, if necessary, D8128D OctoPOPIT Point DIP switch settings.

D E

D E

Is there only one OctoPOPIT on the system with the termination switch in the ON position (refer to *Figure 15* on page 25)?

☑ On the D8128C, the termination switch is Address DIP Switch 4.
On the D8128D, the termination switch is Address DIP Switch 5.

✓ ✗

Ensure that only one OctoPOPIT has its termination switch in the ON position.

Is the OctoPOPIT wired correctly (refer to *Figure 17* on page 27)?

✓ ✗

Fix the faulty wiring.

Set your digital voltmeter (DVM) to VDC. Put the red lead on the D8125's AUX terminal. Put the black lead on the D8125's GND terminal.

☑ If the point expansion technology is powered from an auxiliary power supply, ensure that the auxiliary power supply shares a negative (-) common reference with the control panel. Refer to *Figure 16* on page 26.

Does the DVM read 12 VDC to 13 VDC?

✓ ✗

Refer to *TTP50 Power Troubleshooting* on page 107.

Remove all wiring from the Zonex bus. Uninstall the OctoPOPIT with the missing points and wire it directly to the control panel's Zonex bus. Connect +Aux Power from the control panel to the OctoPOPIT. View point status again.

Are points still missing?

✓ ✗

Set DVM to read resistance. Disconnect the Zonex wires leading to the D8128C or D8128D. Connect the red DVM lead to one conductor and the black DVM lead to the other conductor.

- If the resistance reads as an open circuit on the DVM, refer to *TTP46 Open Wiring* on page 96.
- Otherwise, refer to *TTP47 Noise on Wire* on page 98.

D F

D F

Disconnect the OctoPOPIT from the control panel. Configure a different OctoPOPIT with the same address and termination settings as the original OctoPOPIT, then wire the OctoPOPIT directly to the control panel's Zonex bus.

Are points still missing?

✓ ✗

Replace the original OctoPOPIT.

Replace the control panel.

- If the OctoPOPIT is a D8128D, confirm that the point DIP switches are configured to turn the desired zones ON (*Figure 15*).
- If the problem still exists, then there is noise on the wiring. Refer to *TTP47 Noise on Wire* on page 98.

Figure 15: D8128D DIP Switches

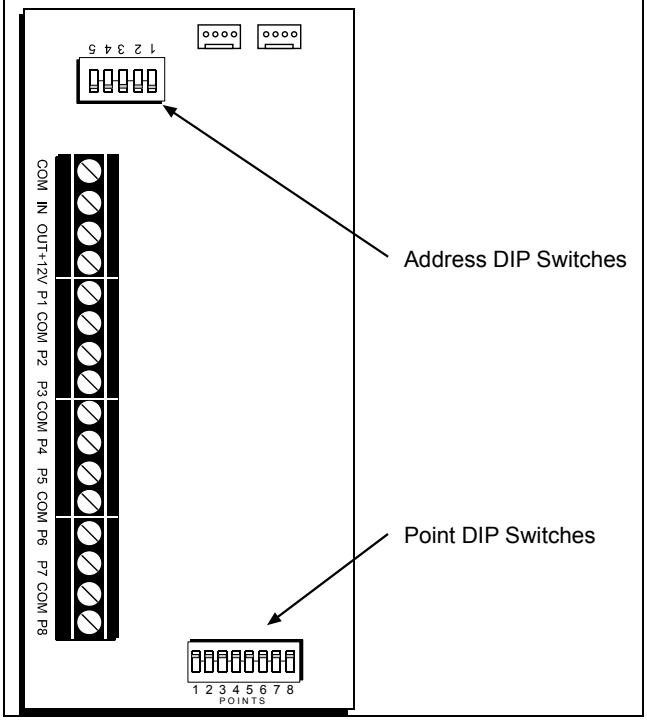


Figure 16: Point Expansion Technology Powered from Auxiliary Power Supply Wiring Diagram

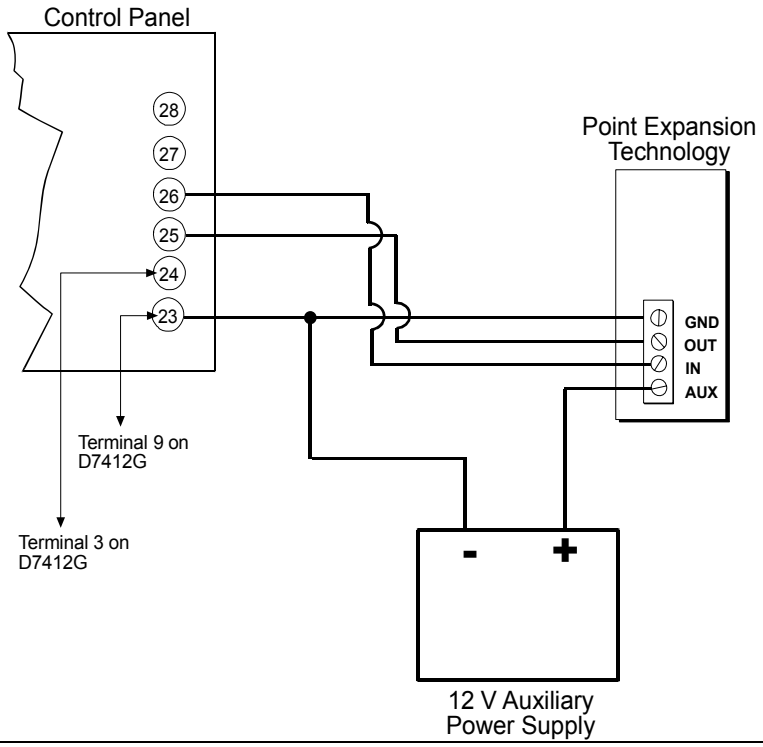


Table 16: Point Type and Point Response Selections

Point Type Selections			
0	24-Hour	6	O/C Point
1	Perimeter	7	D279 (O/C Non-Priority)
2	Interior	8	D279 (O/C Priority)
3	Interior Follower	9	Easikey
4	Keyswitch Maintained		
5	Keyswitch Momentary		

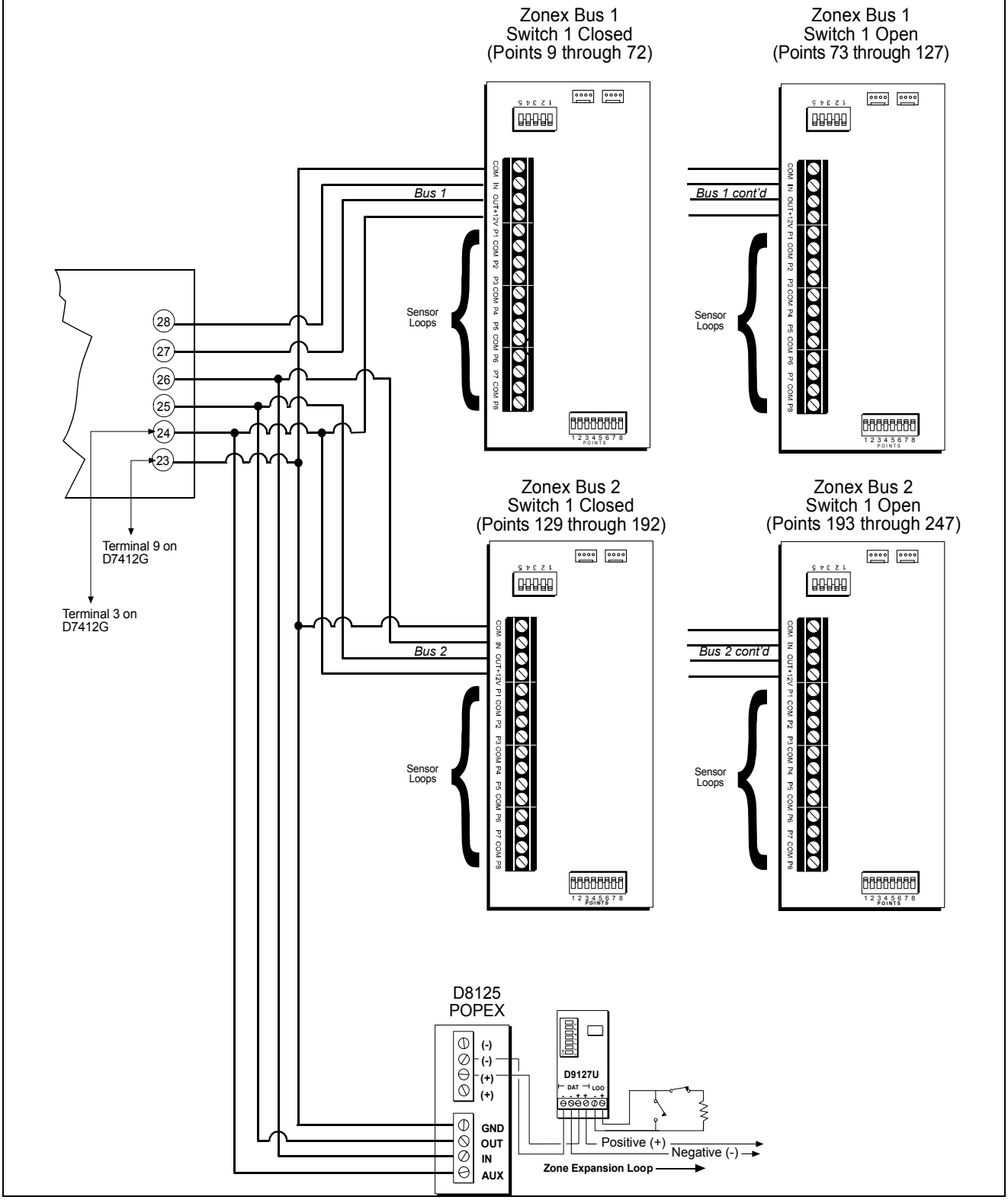
Point Response Selections[1]		0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
Armed[2]	Open	I	I	I	I	D	D	I	I	D	I	I	I	I	I	T	
	Short	I	I	I	I	I	I	D	D	D	I	I	I	I	I	I	
Disarmed[2]	Open		T		T				T		I	I	T	I		T	
	Short			T	T		T				I	T	I		I		
24-Hour[3]	Open	I	T	I	T			I	T	S	T	S		S	Not Applicable		
	Short	I	I	T	T	I	T			T	S		S	S			

[1] Selections: D = Delayed Response, I = Instant Alarm, S = Supervisory, T = Trouble, Blank = No Response

[2] For point types 1 through 3 only.

[3] For point type 0 only.

Figure 17: Control Panel to OctoPOPIT Wiring Diagram



TTP12: Point Trouble and the D8125 POPEX with D8126, D8127, or D9127 POPITs Is Connected to the Control Panel

Initial Actions

Ensure that Zones 9 to 127 are wired to ZONEX 1 and that Zones 129 to 247 are wired to ZONEX 2.

☑ If this symptom exists on both Zonex buses, perform this TTP separately for each bus.

Procedure

Are ALL points connected to the D8125 missing?

✓ ✗

Are ANY points connected to the D8125 missing?

✓ ✗

1. Select an addressable point or POPIT that is in trouble.
2. View Point Assignments for the point you are troubleshooting to determine which point index the point is using.
3. View that point index to determine the type and point response (for more information, refer to *Table 17* on page 30).

Is the point programmed to respond as desired?

✓ ✗

Fix the programming problem.

For the affected point, set your digital voltmeter (DVM) to read VDC. Connect the red DVM lead to the LOOP + side of the POPIT. Connect the black DVM lead to the LOOP - side of the POPIT.

Does DVM read <5.0 VDC or > 7.0 VDC?

✓ ✗

Remove all wires from the POPIT loop. Set the DVM to read resistance. Connect the red DVM lead to one conductor and the black DVM lead to the other conductor.

Does it read >34 kΩ or <32 kΩ?

✓ ✗

A B C D E

A B C D E

Remove the POPIT from the POPIT data bus. If this is not the last POPIT on the line, splice the wires together. View point status for the point again.

- **If the point is missing**, there is a wiring problem. Refer to *TTP47 Noise on Wire* on page 98.
- **If the point is not missing**, there is another addressable module that shares the same address with this POPIT. Refer to *TTP21 Extra Points on the System* on page 58 for additional troubleshooting steps.

There is a wiring problem. Refer to *TTP49 Unexpected Voltage on On-board Point Wiring* on page 104.

Connect a 33 kΩ resistor to the addressable point. Repeat the voltage check.

Does the DVM still read <5.0 VDC or >7.0 VDC?

✓ ✗

Replace POPIT.

- If the voltage reads <5.0 VDC, refer to *TTP45 Shorted Wiring* on page 94.
- If the voltage reads >7.0 VDC, refer to *TTP46 Open Wiring* on page 96.

Select a missing point. Refer to *Table 18* on page 30.

Is the address correct for the missing point?

✓ ✗

Fix the addressing problem.

Remove all wiring from the POPEX that is connected to the missing point. Connect the POPIT directly to that POPEX. View Point Status again.

Is the point still missing?

✓ ✗

- If the missing POPIT is between two working POPITs, refer to *TTP47 Noise on Wire* on page 98.
- If the missing POPIT is the last POPIT on the POPIT data bus, refer to *TTP46 Open Wiring* on page 96.

Replace the POPIT.

A

A

Refer to *Figure 19* on page 34.

Are the POPEX data wires connected correctly to the control panel ZONEX IN and OUT terminals?

✓ ✗

Fix the incorrect wiring.

Set the digital voltmeter (DVM) to VDC. Put the red lead on the POPEX's AUX terminal. Put the black lead on the POPEX's GND terminal.

☑ If the point expansion technology is powered from an auxiliary power supply, ensure that the auxiliary power supply shares a NEGATIVE (-) common reference with the control panel. Refer to *Figure 18* on page 29.

Does the DVM read 12 VDC to 13 VDC?

✓ ✗

Refer to *TTP50 Power Troubleshooting* on page 107.

Disconnect all POPIT data loop wiring from the POPEX. Connect one known good POPIT to the POPEX. View point status for the point again.

Is the point still missing?

✓ ✗

F **G**

F **G**

At the location on the POPIT data bus where the missing point was removed, short the bus conductors together. Set your DVM to read resistance. Put the red lead on one POPIT data bus conductor, and the black lead on the other.

- If the DVM reads a short, refer to *TTP47 Noise on Wire* on page 98.
- If the DVM reads an open, refer to *TTP46 Open Wiring* on page 96.
- If the DVM reads >60 Ω but not an open, there is excessive wire length or too many devices on the circuit for the wire gauge used. Perform voltage drop calculations to determine an acceptable combination of wire gauge and length for the current draw of the devices installed on the circuit.

Replace the POPEX with a known good POPEX. View point status again.

Is the point still missing?

✓ ✗

The POPEX was bad. Reconnect POPIT data loop.

Replace the control panel.

Figure 18: Point Expansion Technology Powered from Auxiliary Power Supply Wiring Diagram

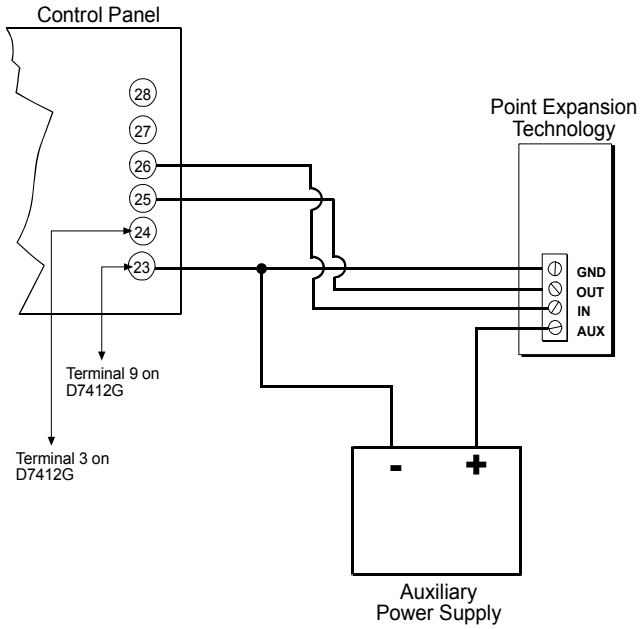


Table 17: Point Type and Point Response Selections

Point Type Selections			
0	24-Hour	6	O/C Point
1	Perimeter	7	D279 (O/C Non-Priority)
2	Interior	8	D279 (O/C Priority)
3	Interior Follower	9	Easikey
4	Keyswitch Maintained		
5	Keyswitch Momentary		

Point Response Selections[1]		0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
Armed[2]	Open	I	I	I	I	D	D	I	I	D	I	I	I	I	I	T	
	Short	I	I	I	I	I	I	D	D	D	I	I	I	I	I	I	
Disarmed[2]	Open		T		T				T		I	I	T	I		T	
	Short			T	T		T				I	T	I		I		
24-Hour[3]	Open	I	T	I	T			I	T	S	T	S		S	Not Applicable		
	Short	I	I	T	T	I	T			T	S		S	S			

[1] Selections: D = Delayed Response, I = Instant Alarm, S = Supervisory, T = Trouble, Blank = No Response

[2] For point types 1 through 3 only.

[3] For point type 0 only.

Table 18: Point Assignments

POPIT Switch Setting	Point #
Points 1 through 8 are on-board points.	001
	002
	003
	004
	005
	006
	007
	008
0 1 2 3 4 5 6	009
0 1 2 3 4 5 _	010
0 1 2 3 4 _ 6	011
1 2 3 4 _ _	012
0 1 2 3 _ 5 6	013
0 1 2 3 _ 5 _	014
0 1 2 3 _ _ 6	015
0 1 2 3 _ _ _	016
0 1 2 _ 4 5 6	017
0 1 2 _ 4 5 _	018
0 1 2 _ 4 _ 6	019
0 1 2 _ 4 _ _	020
0 1 2 _ _ 5 6	021
0 1 2 _ _ 5 _	022
0 1 2 _ _ _ 6	023
0 1 2 _ _ _ _	024
0 1 _ 3 4 5 6	025
0 1 _ 3 4 5 _	026
0 1 _ 3 4 _ 6	027

Table 18: Point Assignments (continued)

POPIT Switch Setting	Point #
0 1 _ 3 4 _ _	028
0 1 _ 3 _ 5 6	029
0 1 _ 3 _ 5 _	030
0 1 _ 3 _ _ 6	031
0 1 _ 3 _ _ _	032
0 1 _ _ 4 5 6	033
0 1 _ _ 4 5 _	034
0 1 _ _ 4 _ 6	035
0 1 _ _ 4 _ _	036
0 1 _ _ _ 5 6	037
0 1 _ _ _ 5 _	038
0 1 _ _ _ _ 6	039
0 1 _ _ _ _ _	040
0 _ 2 3 4 5 6	041
0 _ 2 3 4 5 _	042
0 _ 2 3 4 _ 6	043
0 _ 2 3 4 _ _	044
0 _ 2 3 _ 5 6	045
0 _ 2 3 _ 5 _	046
0 _ 2 3 _ _ 6	047
0 _ 2 3 _ _ _	048
0 _ 2 _ 4 5 6	049
0 _ 2 _ 4 5 _	050
0 _ 2 _ 4 _ 6	051
0 _ 2 _ 4 _ _	052
0 _ 2 _ _ 5 6	053
0 _ 2 _ _ 5 _	054

Table 18: Point Assignments (continued)

POPIT Switch Setting	Point #
0 _ 2 _ _ _ 6	055
0 _ 2 _ _ _ _	056
0 _ _ 3 4 5 6	057
0 _ _ 3 4 5 _	058
0 _ _ 3 4 _ 6	059
0 _ _ 3 4 _ _	060
0 _ _ 3 _ 5 6	061
0 _ _ 3 _ 5 _	062
0 _ _ 3 _ _ 6	063
0 _ _ 3 _ _ _	064
0 _ _ _ 4 5 6	065
0 _ _ _ 4 5 _	066
0 _ _ _ 4 _ 6	067
0 _ _ _ 4 _ _	068
0 _ _ _ _ 5 6	069
0 _ _ _ _ 5 _	070
0 _ _ _ _ _ 6	071
0 _ _ _ _ _ _	072
_ 1 2 3 4 5 6	073
_ 1 2 3 4 5 _	074
_ 1 2 3 4 _ 6	075
D7412G Maximum Points	
_ 1 2 3 4 _ _	076
_ 1 2 3 _ 5 6	077
_ 1 2 3 _ 5 _	078
_ 1 2 3 _ _ 6	079
_ 1 2 3 _ _ _	080
_ 1 2 _ 4 5 6	081
_ 1 2 _ 4 5 _	082
_ 1 2 _ 4 _ 6	083
_ 1 2 _ 4 _ _	084
_ 1 2 _ _ 5 6	085
_ 1 2 _ _ 5 _	086
_ 1 2 _ _ _ 6	087
_ 1 2 _ _ _ _	088
_ 1 _ 3 4 5 6	089
_ 1 _ 3 4 5 _	090
_ 1 _ 3 4 _ 6	091
_ 1 _ 3 4 _ _	092

Table 18: Point Assignments (continued)

POPIT Switch Setting	Point #
_ 1 _ 3 _ 5 6	093
_ 1 _ 3 _ 5 _	094
_ 1 _ 3 _ _ 6	095
_ 1 _ 3 _ _ _	096
_ 1 _ _ 4 5 6	097
_ 1 _ _ 4 5 _	098
_ 1 _ _ 4 _ 6	099
_ 1 _ _ 4 _ _	100
_ 1 _ _ _ 5 6	101
_ 1 _ _ _ 5 _	102
_ 1 _ _ _ _ 6	103
_ 1 _ _ _ _ _	104
_ _ 2 3 4 5 6	105
_ _ 2 3 4 5 _	106
_ _ 2 3 4 _ 6	107
_ _ 2 3 4 _ _	108
_ _ 2 3 _ 5 6	109
_ _ 2 3 _ 5 _	110
_ _ 2 3 _ _ 6	111
_ _ 2 3 _ _ _	112
_ _ 2 _ 4 5 6	113
_ _ 2 _ 4 5 _	114
_ _ 2 _ 4 _ 6	115
_ _ 2 _ 4 _ _	116
_ _ 2 _ _ 5 6	117
_ _ 2 _ _ 5 _	118
_ _ 2 _ _ _ 6	119
_ _ 2 _ _ _ _	120
_ _ _ 3 4 5 6	121
_ _ _ 3 4 5 _	122
_ _ _ 3 4 _ 6	123
_ _ _ 3 4 _ _	124
_ _ _ 3 _ 5 6	125
_ _ _ 3 _ 5 _	126
_ _ _ 3 _ _ 6	127
ZONEX 1 Maximum	
NOT USED	128

Table 18: Point Assignments (continued)

POPIT Switch Setting	Point #
0 1 2 3 4 5 6	129
0 1 2 3 4 5 _	130
0 1 2 3 4 _ 6	131
0 1 2 3 4 _ _	132
0 1 2 3 _ 5 6	133
0 1 2 3 _ 5 _	134
0 1 2 3 _ _ 6	135
0 1 2 3 _ _ _	136
0 1 2 _ 4 5 6	137
0 1 2 _ 4 5 _	138
0 1 2 _ 4 _ 6	139
0 1 2 _ 4 _ _	140
0 1 2 _ _ 5 6	141
0 1 2 _ _ 5 _	142
0 1 2 _ _ _ 6	143
0 1 2 _ _ _ _	144
0 1 _ 3 4 5 6	145
0 1 _ 3 4 5 _	146
0 1 _ 3 4 _ 6	147
0 1 _ 3 4 _ _	148
0 1 _ 3 _ 5 6	149
0 1 _ 3 _ 5 _	150
0 1 _ 3 _ _ 6	151
0 1 _ 3 _ _ _	152
0 1 _ _ 4 5 6	153
0 1 _ _ 4 5 _	154
0 1 _ _ 4 _ 6	155
0 1 _ _ 4 _ _	156
0 1 _ _ _ 5 6	157
0 1 _ _ _ 5 _	158
0 1 _ _ _ _ 6	159
0 1 _ _ _ _ _	160
0 _ 2 3 4 5 6	161
0 _ 2 3 4 5 _	162
0 _ 2 3 4 _ 6	163
0 _ 2 3 4 _ _	164
0 _ 2 3 _ 5 6	165
0 _ 2 3 _ 5 _	166

Table 18: Point Assignments (continued)

POPIT Switch Setting	Point #
0 _ 2 3 _ _ 6	167
0 _ 2 3 _ _ _	168
0 _ 2 _ 4 5 6	169
0 _ 2 _ 4 5 _	170
0 _ 2 _ 4 _ 6	171
0 _ 2 _ 4 _ _	172
0 _ 2 _ _ 5 6	173
0 _ 2 _ _ 5 _	174
0 _ 2 _ _ _ 6	175
0 _ 2 _ _ _ _	176
0 _ _ 3 4 5 6	177
0 _ _ 3 4 5 _	178
0 _ _ 3 4 _ 6	179
0 _ _ 3 4 _ _	180
0 _ _ 3 _ 5 6	181
0 _ _ 3 _ 5 _	182
0 _ _ 3 _ _ 6	183
0 _ _ 3 _ _ _	184
0 _ _ _ 4 5 6	185
0 _ _ _ 4 5 _	186
0 _ _ _ 4 _ 6	187
0 _ _ _ 4 _ _	188
0 _ _ _ _ 5 6	189
0 _ _ _ _ 5 _	190
0 _ _ _ _ _ 6	191
0 _ _ _ _ _ _	192
_ 1 2 3 4 5 6	193
_ 1 2 3 4 5 _	194
_ 1 2 3 4 _ 6	195
_ 1 2 3 4 _ _	196
_ 1 2 3 _ 5 6	197
_ 1 2 3 _ 5 _	198
_ 1 2 3 _ _ 6	199
_ 1 2 3 _ _ _	200
_ 1 2 _ 4 5 6	201
_ 1 2 _ 4 5 _	202
_ 1 2 _ 4 _ 6	203
_ 1 2 _ 4 _ _	204

Table 18: Point Assignments (continued)

POPIT Switch Setting	Point #
_ 1 2 _ _ 5 6	205
_ 1 2 _ _ 5 _	206
_ 1 2 _ _ _ 6	207
_ 1 2 _ _ _ _	208
_ 1 _ 3 4 5 6	209
_ 1 _ 3 4 5 _	210
_ 1 _ 3 4 _ 6	211
_ 1 _ 3 4 _ _	212
_ 1 _ 3 _ 5 6	213
_ 1 _ 3 _ 5 _	214
_ 1 _ 3 _ _ 6	215
_ 1 _ 3 _ _ _	216
_ 1 _ _ 4 5 6	217
_ 1 _ _ 4 5 _	218
_ 1 _ _ 4 _ 6	219
_ 1 _ _ 4 _ _	220
_ 1 _ _ _ 5 6	221
_ 1 _ _ _ 5 _	222
_ 1 _ _ _ _ 6	223
_ 1 _ _ _ _ _	224
_ _ 2 3 4 5 6	225
_ _ 2 3 4 5 _	226
_ _ 2 3 4 _ 6	227
_ _ 2 3 4 _ _	228
_ _ 2 3 _ 5 6	229
_ _ 2 3 _ 5 _	230
_ _ 2 3 _ _ 6	231
_ _ 2 3 _ _ _	232
_ _ 2 _ 4 5 6	233
_ _ 2 _ 4 5 _	234
_ _ 2 _ 4 _ 6	235
_ _ 2 _ 4 _ _	236
_ _ 2 _ _ 5 6	237
_ _ 2 _ _ 5 _	238
_ _ 2 _ _ _ 6	239
_ _ 2 _ _ _ _	240*
_ _ _ 3 4 5 6	241*
_ _ _ 3 4 5 _	242*

Table 18: Point Assignments (continued)

POPIT Switch Setting	Point #
_ _ _ 3 4 _ 6	243*
_ _ _ 3 4 _ _	244*
_ _ _ 3 _ 5 6	245*
_ _ _ 3 _ 5 _	246*
_ _ _ 3 _ _ 6	247*

* When using the D1260 keypad, addresses 240 through 247 are reserved for area text.

Figure 19: Control Panel to POPEX Wiring Diagram

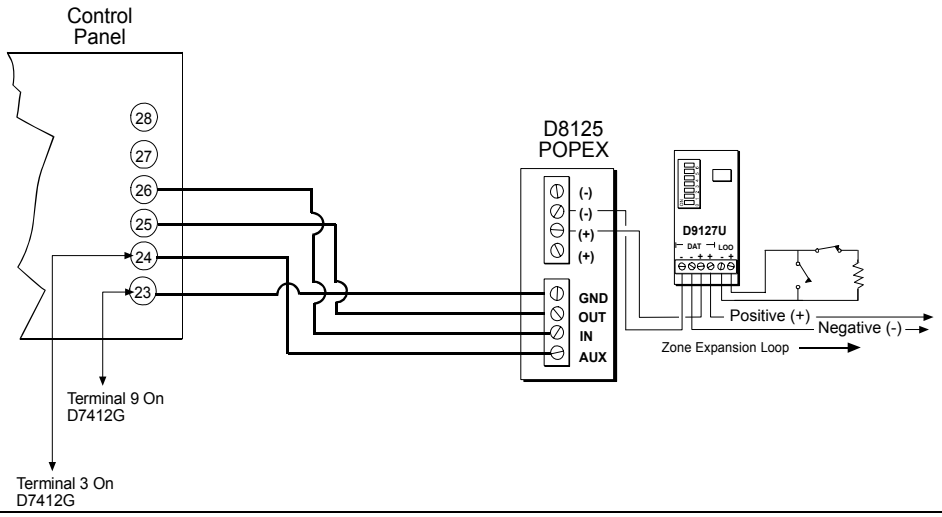
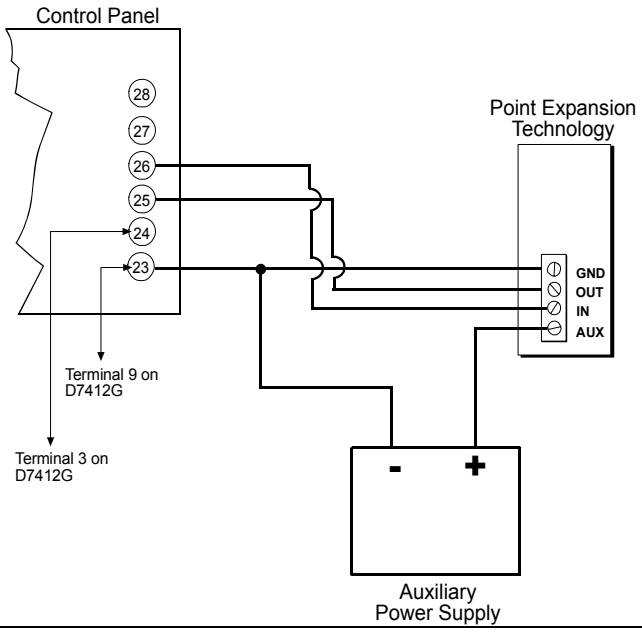


Figure 20: Point Expansion Technology Powered from Auxiliary Power Supply



TTP13: Point Trouble and D8125MUX and Detection Systems Multiplex Devices Are Connected to the Control Panel

Initial Actions

For DIP switch programmable (i-model) devices, make sure the switch is configured for the correct point number. Refer to *Table 21* on page 38 through *Table 25* on page 45.

⚠ You must power down the D8125MUX when connecting or disconnecting the MUX bus from the D8125MUX or the MUX device.

Procedure

Are ALL points "missing"?

✓ ✗

1. Select an addressable point that is in trouble.
2. View Point Assignments for the point you are troubleshooting to determine which point index the point is using.
3. View that point index to determine the type and point response (for more information, refer to *Table 24* on page 45).

Is the point programmed to respond as desired?

✓ ✗

Fix the programming problem.

1. Select a missing device and bring it to the D8125MUX.
2. Remove all devices from the D8125MUX, and connect only the device that was missing.

☑ If the device does not use DIP switch programming (is not an i-model device), connect the device to the D8125MUX without the diode.

Is the point still missing?

✓ ✗

There is an open on the data circuit. Refer to *TTP46 Open Wiring* on page 96.

☑ If the device is DIP switch programmable (is an i-model device), skip the following procedure, and answer ✓ to the question "Is the point still missing?"

1. Disconnect the device from the D8125MUX.
2. Using a D5060 Programmer, reprogram the device. Refer to *Section 3.2.1* on page 36 through *Section 3.2.5* on page 37. Also refer to *Figure 23* and *Figure 24* on page 38.
3. Reconnect the device to the D8125MUX.

Is the point still missing?

✓ ✗

A B C

A B C

The problem is corrected.

1. Connect the D5060 Programmer to the D8125MUX. Refer to *Figure 23* and *Figure 24* on page 38.
2. Delete the device from the D8125MUX programming. Refer to *Section 3.2.6 Removing a Point from the D8125MUX* on page 37.
3. Add the device back into the D8125MUX programming. Refer to *Section 3.2.2 Programming Points* on page 36.
4. Disconnect the D5060 Programmer.

Is the point still missing?

✓ ✗

The problem is corrected.

1. Reconnect the D5060 Programmer, then momentarily short the RESET pins on the D8125MUX together. The LED flashes twice rapidly followed by a single flash. Refer to *Figure 21* on page 37.
2. Reprogram the missing point. Refer to *Section 3.2.2 Programming Points* on page 36.

Is the point still missing?

✓ ✗

The problem is corrected.

Remove and replace the device.

Is the green LED on the D8125MUX flashing?

☑ If the LED is on continuously, disconnect the D5060 Programmer.

✓ ✗

Refer to *Figure 25* on page 44.

Is the D8125MUX wired correctly?

✓ ✗

Fix the faulty wiring.

Set the digital voltmeter (DVM) to VDC. Put the red lead on the POPEX's AUX terminal. Put the black lead on the POPEX's GND terminal.

☑ If the point expansion technology is powered from an auxiliary power supply, ensure that the auxiliary power supply shares a NEGATIVE (-) common reference with the control panel. Refer to *Figure 18* on page 29.

Does the DVM read 12 VDC to 13 VDC?

✓ ✗

Refer to *TTP50 Power Troubleshooting* on page 107.

Remove and replace the D8125MUX.

D

D

Refer to *Figure 25* on page 44.

Are the D8125MUX data wires connected correctly to the control panel ZONEX IN and OUT terminals?

✓ ✗

Fix the faulty wiring.

1. Set your digital voltmeter (DVM) to VDC.
2. Connect the red lead to MUX BUS A/B +.
3. Connect the black lead to MUX BUS A/B -.

Does it read 7 VDC to 10 VDC with fluctuating voltage?

✓ ✗

Does it read <7 VDC?

✓ ✗

There is an open on the system's wiring. Refer to *TTP46 Open Wiring* on page 96.

Does it read <2 VDC?

✓ ✗

There are too many devices, or excessive wire length, for the wire gauge used. Perform voltage drop calculations to determine an acceptable combination of wire gauge and length for the current draw of the devices installed on the circuit.

There is a short on the MUX bus caused by either a reversed diode (non-i devices only; refer to *Figure 22* on page 37), a defective device, or reversed or shorted wiring. Refer to *Section 3.5 Ground Fault Symptoms* on page 91 to isolate the cause.

Return to the start of this TTP, and answer ✗ to the question "Are all points missing?"

3.2.1 Powering the D5060

Refer to *Figure 23* and *Figure 24* on page 38. To turn the D5060 on, press and hold the [1] key until the unit beeps. To turn the unit off, press and hold the [#] and [*] keys simultaneously until the unit beeps.

> After 5 minutes of inactivity, the programmer powers off automatically to conserve power.

3.2.2 Programming Points

1. The D5060 displays the prompt **`Adr`** after it is powered. This indicates that it is ready to begin programming.
2. If the MUX device has no DIP switches, connect the D5060 to the point to be programmed (*Figure 23*). If the MUX device has DIP switches, program the device using its DIP switches.

> If the MUX device has no DIP switches, connect the D8125MUX and the MUX device to be programmed to the D5060 for simultaneous programming (refer to *Figure 23* on page 38). If the MUX device has DIP switches, program the device using its DIP switches, and program the D8125MUX using the D5060 (*Figure 23*).

3. Enter the point's three-digit address. The address must be between 1 and 255. Press [#]. The programmer displays **`tyP`**.
4. Enter the number corresponding to the point type you are programming (*Table 19* on page 37), then press [#]. The programmer alternately displays the address and the point type.

> When you program for a MUX smoke device by entering decimal value 4 or 5 (*Table 20*), an 18-second timer starts counting. Do not disconnect the MUX Smoke device until the timer reaches zero.

5. Press [#] to program a point connected to the D5060 and the D8125MUX (if connected), or press [1] to program the D8125MUX only. If the MUX device has DIP switches, program the device using its DIP switches.

> Press [*] at any time to return to a previous step in the procedure.

6. If the point is programmed correctly, the unit beeps once and displays **`Adr`**, indicating that it is ready to program the next point. If the point was not programmed correctly, the unit sounds a three-beep error tone and one of the following messages displays:

   `Err:` The point was not programmed correctly.

   `PnL:` Communications with the D8125MUX failed.

7. Press [*] to clear the entry, or press [#] to reprogram.

3.2.3 DS7460i Dual Input Multiplex Module

The DS7460i reserves two points on the MUX bus. When programming dual points, they must occupy first an odd point number, then an even point number. For example, DS7460i modules must be programmed to occupy Points **9** and **10**, not **10** and **11**.

> When programming the odd point number, the following even point number is automatically programmed.

3.2.4 DS7432 Eight-Input Remote Module

DS7432s occupy groups of eight points; however, when programming the DS7432 with the Multiplex Point Programmer, they must be programmed as four sets of dual points. For example, if using a DS7432 on the system for Points 9 through 16, program Points 9, 11, 13, and 15 as dual points.

3.2.5 DS7465 Input/Output Module

The relay output number assigned to this module is directly associated with the point number assigned to it. For example, if this device was programmed as Point 27, the relay number is also 27.

3.2.6 Removing a Point from the D8125MUX

1. Apply power to the D5060 and connect the programmer to the D8125MUX only.
2. Enter the address of the point you want to remove.
3. When prompted for a point type, press [0]. Refer to *Table 20*.

Figure 21: D8125MUX Multiplex Bus Interface Module

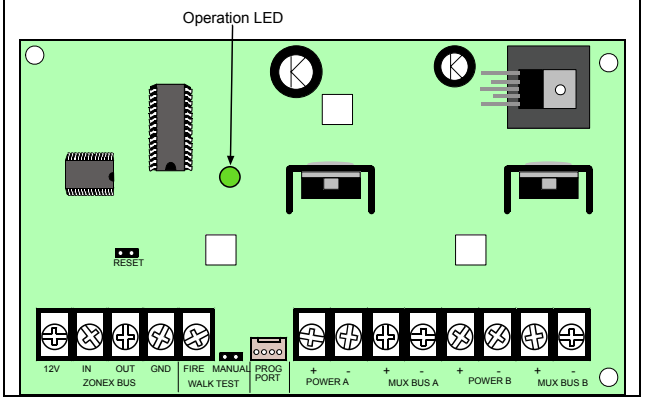


Figure 22: Connecting the Transient Noise Suppression Diode (P/N: NS001-20)

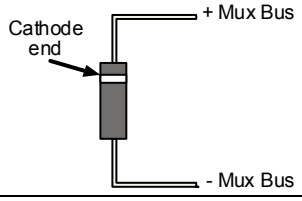


Table 19: Multiplex Devices

Product	Point Type
DS7432 Eight-Input Remote Module	6
DS7450 Flush-Mount Single Multiplex Contact Point	1
DS7452 Surface-Mount Single Multiplex Contact Point	1
DS7457 Single Multiplex Input Module	2
DS7460 Dual Zone Input Module	6
DS7465 Input/Output Module	3
MX775 (DS7470) Multiplex Passive Infrared (PIR) Intrusion Detector – 50 ft. (15 m) Mirror	2
MX934 (DS7471) Multiplex PIR Intrusion Detector – 35 ft. (11 m) Mirror	2
MX938 (DS7472) Ceiling Mount Multiplex PIR Intrusion Detector	2
MX540 (DS7473) Multiplex PIR Intrusion Detector – 40 ft. (12 m) Fresnel Lens	2
MX794 (DS7474) Multiplex Long Range PIR Intrusion Detector	2
MX950 (DS7476) Multiplex PIR/Microwave TriTech Intrusion Detector	2
MX835 (DS7477) Multiplex PIR/Microwave TriTech Intrusion Detector with Pet Immunity	2

Table 20: Point Type Entry Code

Decimal Value	Point Type
0	Remove point from D8125MUX
1	Contact
2	Sensor (or Single Point Module)
3	I/O Module
4	MUX smoke without low temperature
5	MUX smoke with low temperature
6	Dual point

Figure 23: Wiring Diagram for Installing MUX Points without DIP Switches

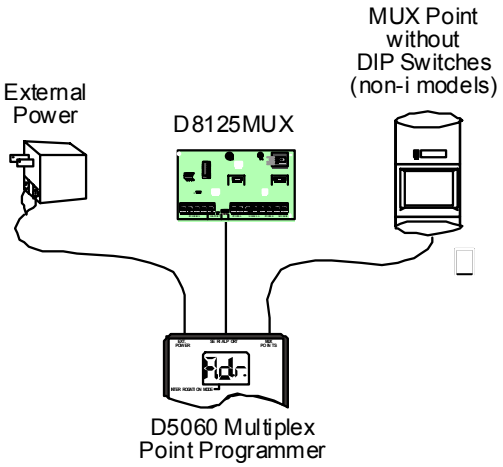


Figure 24: Cables Included with the Programmer

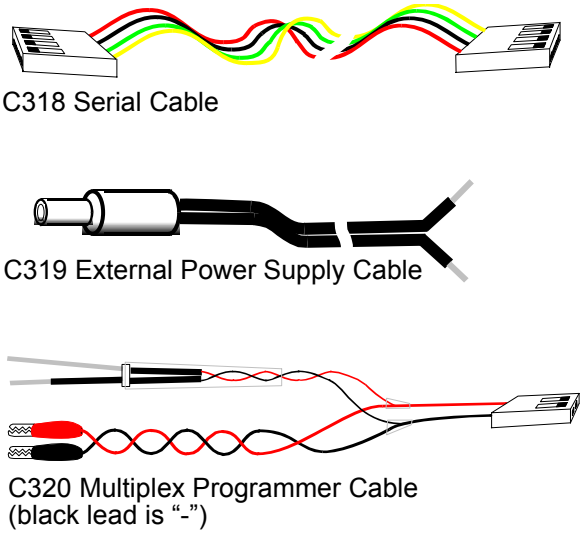


Table 21: DS7457i, DS7461i, and DS7465i Switch Settings When Using D8125MUX on ZONEX 1

Point (Relay) Address	Switch Number (• = ON)							
	1	2	3	4	5	6	7	8
009					•			•
010					•		•	
011					•		•	•
012					•	•		
013					•	•		•
014					•	•	•	
015					•	•	•	•
016				•				
017				•				•
018				•			•	
019				•			•	•
020				•		•		
021				•		•		•
022				•		•	•	
023				•		•	•	•
024				•	•			
025				•	•			•
026				•	•		•	
027				•	•		•	•
028				•	•	•		
029				•	•	•		•
030				•	•	•	•	
031				•	•	•	•	•
032			•					
033			•					•
034			•				•	
035			•				•	•
036			•			•		

Note: When using the DS7465i Input/Output Module, only Addresses 009 through 064 support the relay option (009 through 024 on the D7212G).

Table 21 (continued)

Point (Relay) Address	Switch Number (• = ON)							
	1	2	3	4	5	6	7	8
037			•			•		•
038			•			•	•	
039			•			•	•	•
040			•		•			
Maximum Number of Points (D7212G)								
041			•		•			•
042			•		•		•	
043			•		•		•	•
044			•		•	•		
045			•		•	•		•
046			•		•	•	•	
047			•		•	•	•	•
048			•	•				
049			•	•				•
050			•	•			•	
051			•	•			•	•
052			•	•		•		
053			•	•		•		•
054			•	•		•	•	
055			•	•		•	•	•
056			•	•	•			
057			•	•	•			•
058			•	•	•		•	
059			•	•	•		•	•
060			•	•	•	•		
061			•	•	•	•		•
062			•	•	•	•	•	
063			•	•	•	•	•	•
064		•						
Maximum for DS7465i								

Note: When using the DS7465i Input/Output Module, only Addresses 009 through 064 support the relay option (009 through 024 on the D7212G).

Table 21 (continued)

Point (Relay) Address	Switch Number (• = ON)							
	1	2	3	4	5	6	7	8
065		•						•
066		•					•	
067		•					•	•
068		•				•		
069		•				•		•
070		•				•	•	
071		•				•	•	•
072		•			•			
073		•			•			•
074		•			•		•	
075		•			•		•	•
Maximum for D7412G, D7412, and D7212								
076		•			•	•		
077		•			•	•		•
078		•			•	•	•	
079		•			•	•	•	•
080		•		•				
081		•		•				•
082		•		•			•	
083		•		•			•	•
084		•		•		•		
085		•		•		•		•
086		•		•		•	•	
087		•		•		•	•	•
088		•		•	•			
089		•		•	•			•
090		•		•	•		•	
091		•		•	•		•	•
092		•		•	•	•		

Note: When using the DS7465i Input/Output Module, only Addresses 009 through 064 support the relay option (009 through 024 on the D7212G).

Table 21 (continued)

Point (Relay) Address	Switch Number (• = ON)							
	1	2	3	4	5	6	7	8
093		•		•	•	•		•
094		•		•	•	•	•	
095		•		•	•	•	•	•
096		•	•					
097		•	•					•
098		•	•				•	
099		•	•				•	•
100		•	•			•		
101		•	•			•		•
102		•	•			•	•	
103		•	•			•	•	•
104		•	•		•			
105		•	•		•			•
106		•	•		•		•	
107		•	•		•		•	•
108		•	•		•	•		
109		•	•		•	•		•
110		•	•		•	•	•	
111		•	•		•	•	•	•
112		•	•	•				
113		•	•	•				•
114		•	•	•			•	
115		•	•	•			•	•
116		•	•	•		•		
117		•	•	•		•		•
118		•	•	•		•	•	
119		•	•	•		•	•	•
120		•	•	•	•			

Note: When using the DS7465i Input/Output Module, only Addresses 009 through 064 support the relay option (009 through 024 on the D7212G).

Table 21 (continued)

Point (Relay) Address	Switch Number (• = ON)							
	1	2	3	4	5	6	7	8
121		•	•	•	•			•
122		•	•	•	•		•	
123		•	•	•	•		•	•
124		•	•	•	•	•		
125		•	•	•	•	•		•
126		•	•	•	•	•	•	
127		•	•	•	•	•	•	•
128	NOT USED							

Note: When using the DS7465i Input/Output Module, only Addresses 009 through 064 support the relay option (009 through 024 on the D7212G).

Table 22: DS7457i, DS7461i, and DS7465i Switch Settings When Using D8125MUX on ZONEX 2

Point Address	Switch Number (• = ON)							
	1	2	3	4	5	6	7	8
129					•			•
130					•		•	
131					•		•	•
132					•	•		
133					•	•		•
134					•	•	•	
135					•	•	•	•
136				•				
137				•				•
138				•			•	
139				•			•	•
140				•		•		
141				•		•		•
142				•		•	•	
143				•		•	•	•
144				•	•			

Note: Refer to *Table 25* on page 45 when programming.

Table 22 (continued)

Point Address	Switch Number (• = ON)							
	1	2	3	4	5	6	7	8
145				•	•			•
146				•	•		•	
147				•	•		•	•
148				•	•	•		
149				•	•	•		•
150				•	•	•	•	
151				•	•	•	•	•
152			•					
153			•					•
154			•				•	
155			•				•	•
156			•			•		
157			•			•		•
158			•			•	•	
159			•			•	•	•
160			•		•			
161			•		•			•
162			•		•		•	
163			•		•		•	•
164			•		•	•		
165			•		•	•		•
166			•		•	•	•	
167			•		•	•	•	•
168			•	•				
169			•	•				•
170			•	•			•	
171			•	•			•	•
172			•	•		•		
173			•	•		•		•
174			•	•		•	•	
175			•	•		•	•	•
176			•	•	•			

Note: Refer to *Table 25* on page 45 when programming.

Table 22 (continued)

Point Address	Switch Number (• = ON)							
	1	2	3	4	5	6	7	8
177			•	•	•			•
178			•	•	•		•	
179			•	•	•		•	•
180			•	•	•	•		
181			•	•	•	•		•
182			•	•	•	•	•	
183			•	•	•	•	•	•
184		•						
185		•						•
186		•					•	
187		•					•	•
188		•				•		
189		•				•		•
190		•				•	•	
191		•				•	•	•
192		•			•			
197		•			•	•		•
198		•			•	•	•	
199		•			•	•	•	•
200		•		•				
201		•		•				•
202		•		•			•	
203		•		•			•	•
204		•		•		•		
205		•		•		•		•
206		•		•		•	•	
207		•		•		•	•	•
208		•		•	•			
209		•		•	•			•
210		•		•	•		•	
211		•		•	•		•	•
212		•		•	•	•		

Note: Refer to *Table 25* on page 45 when programming.

Table 22 (continued)

Point Address	Switch Number (• = ON)							
	1	2	3	4	5	6	7	8
213		•		•	•	•		•
214		•		•	•	•	•	
215		•		•	•	•	•	•
216		•	•					
217		•	•					•
218		•	•				•	
219		•	•				•	•
220		•	•			•		
221		•	•			•		•
222		•	•			•	•	
223		•	•			•	•	•
224		•	•		•			
225		•	•		•			•
226		•	•		•		•	
227		•	•		•		•	•
228		•	•		•	•		
229		•	•		•	•		•
230		•	•		•	•	•	
231		•	•		•	•	•	•
232		•	•	•				
233		•	•	•				•
234		•	•	•			•	
235		•	•	•			•	•
236		•	•	•		•		
237		•	•	•		•		•
238		•	•	•		•	•	
239		•	•	•		•	•	•
240		•	•	•	•			
241		•	•	•	•			•
242		•	•	•	•		•	
243		•	•	•	•		•	•
244		•	•	•	•	•		

Note: Refer to *Table 25* on page 45 when programming.

Table 22 (continued)

Point Address	Switch Number (• = ON)							
	1	2	3	4	5	6	7	8
245		•	•	•	•	•		•
246		•	•	•	•	•	•	
247		•	•	•	•	•	•	•
248	NOT USED							

Note: Refer to *Table 25* on page 45 when programming.

Table 23: DS7460i Switch Settings When Using D8125MUX

Address Point/Relay	Switch Number (• = ON)							
	1	2	3	4	5	6	7	8
009/010					•			•
011/012					•		•	•
013/014					•	•		•
015/016					•	•	•	•
017/018				•				•
019/020				•			•	•
021/022				•		•		•
023/024				•		•	•	•
025/026				•	•			•
027/028				•	•		•	•
029/030				•	•	•		•
031/032				•	•	•	•	•
033/034			•					•
035/036			•				•	•
037/038			•			•		•
039/040			•			•	•	•
041/042			•		•			•
043/044			•		•		•	•
045/046			•		•	•		•
047/048			•		•	•	•	•

Table 23 (continued)

Address Point/Relay	Switch Number (• = ON)							
	1	2	3	4	5	6	7	8
049/050			•	•				•
051/052			•	•			•	•
053/054			•	•		•		•
055/056			•	•		•	•	•
057/058			•	•	•			•
059/060			•	•	•		•	•
061/062			•	•	•	•		•
063/064			•	•	•	•	•	•
065/066		•						•
067/068		•					•	•
069/070		•				•		•
071/072		•				•	•	•
073/074		•			•			•
075/076		•			•		•	•
077/078		•			•	•		•
079/080		•			•	•	•	•
081/082		•		•				•
083/084		•		•			•	•
085/086		•		•		•		•
087/088		•		•		•	•	•
089/090		•		•	•			•
091/092		•		•	•		•	•
093/094		•		•	•	•		•
095/096		•		•	•	•	•	•
097/098		•	•					•
099/100		•	•				•	•
101/102		•	•			•		•
103/104		•	•			•	•	•
105/106		•	•		•			•
107/108		•	•		•		•	•
109/110		•	•		•	•		•
111/112		•	•		•	•	•	•

Table 23 (continued)

Address Point/Relay	Switch Number (• = ON)							
	1	2	3	4	5	6	7	8
113/114		•	•	•				•
115/116		•	•	•			•	•
117/118		•	•	•		•		•
119/120		•	•	•		•	•	•
121/122		•	•	•	•			•
123/124		•	•	•	•		•	•
125/126		•	•	•	•	•		•
127/128	NOT USED							
129/130					•			•
131/132					•		•	•
133/134					•	•		•
135/136					•	•	•	•
137/138				•				•
139/140				•			•	•
141/142				•		•		•
143/144				•		•	•	•
145/146				•	•			•
147/148				•	•		•	•
149/150				•	•	•		•
151/152				•	•	•	•	•
153/154			•					•
155/156			•				•	•
157/158			•			•		•
159/160			•			•	•	•
161/162			•		•			•
163/164			•		•		•	•
165/166			•		•	•		•
167/168			•		•	•	•	•
169/170			•	•				•
171/172			•	•			•	•
173/174			•	•		•		•
175/176			•	•		•	•	•

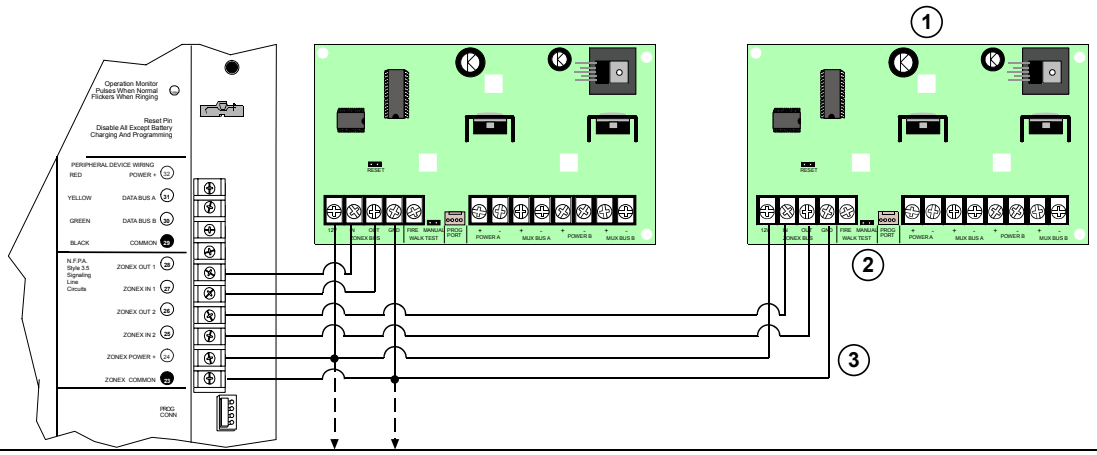
Table 23 (continued)

Address Point/Relay	Switch Number (• = ON)							
	1	2	3	4	5	6	7	8
177/178			•	•	•			•
179/180			•	•	•		•	•
181/182			•	•	•	•		•
183/184			•	•	•	•	•	•
185/186		•						•
187/188		•					•	•
189/190		•				•		•
191/192		•				•	•	•
193/194		•			•			•
195/196		•			•		•	•
197/198		•			•	•		•
199/200		•			•	•	•	•
201/202		•		•				•
203/204		•		•			•	•
205/206		•		•		•		•
207/208		•		•		•	•	•
209/210		•		•	•			•
211/212		•		•	•		•	•

Table 23 (continued)

Address Point/Relay	Switch Number (• = ON)							
	1	2	3	4	5	6	7	8
213/214		•		•	•	•		•
215/216		•		•	•	•	•	•
217/218		•	•					•
219/220		•	•				•	•
221/222		•	•			•		•
223/224		•	•			•	•	•
225/226		•	•		•			•
227/228		•	•		•		•	•
229/230		•	•		•	•		•
231/232		•	•		•	•	•	•
233/234		•	•	•				•
235/236		•	•	•			•	•
237/238		•	•	•		•		•
239/240		•	•	•		•	•	•
241/242		•	•	•	•			•
243/244		•	•	•	•		•	•
245/246		•	•	•	•	•		•
247/248	NOT USED							

Figure 25: D8125MUX Wiring Diagram



1 - D9412G only.

2 - The Fire Walk Test terminal does not operate on this model.

3 - If connecting the D8125MUX to a D7412G, use Terminals 3 and 9 in place of Terminals 24 and 23, respectively.

Table 24: Point Type and Point Response Selections

Point Type Selections			
0	24-Hour	6	O/C Point
1	Perimeter	7	D279 (O/C Non-Priority)
2	Interior	8	D279 (O/C Priority)
3	Interior Follower	9	Easikey
4	Keyswitch Maintained		
5	Keyswitch Momentary		

Point Response Selections[1]		0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
Armed[2]	Open	I	I	I	I	D	D	I	I	D	I	I	I	I	I	T	
	Short	I	I	I	I	I	I	D	D	D	I	I	I	I	I	I	
Disarmed[2]	Open		T		T				T		I	I	T	I		T	
	Short			T	T		T				I	T	I		I		
24-Hour[3]	Open	I	T	I	T			I	T	S	T	S		S	Not Applicable		
	Short	I	I	T	T	I	T			T	S		S	S			

[1] Selections: D = Delayed Response, I = Instant Alarm, S = Supervisory, T = Trouble, Blank = No Response

[2] For point types 1 through 3 only.

[3] For point type 0 only.

Table 25: Point Matrix Table

If Zonex 2 Pt # is:	Then Program as Pt #:	If Zonex 2 Pt # is:	Then Program as Pt #:	If Zonex 2 Pt # is:	Then Program as Pt #:	If Zonex 2 Pt # is:	Then Program as Pt #:	If Zonex 2 Pt # is:	Then Program as Pt #:
129	9	153	33	177	57	201	81	225	105
130	10	154	34	178	58	202	82	226	106
131	11	155	35	179	59	203	83	227	107
132	12	156	36	180	60	204	84	228	108
133	13	157	37	181	61	205	85	229	109
134	14	158	38	182	62	206	86	230	110
135	15	159	39	183	63	207	87	231	111
136	16	160	40	184	64	208	88	232	112
137	17	161	41	185	65	209	89	233	113
138	18	162	42	186	66	210	90	234	114
139	19	163	43	187	67	211	91	235	115
140	20	164	44	188	68	212	92	236	116
141	21	165	45	189	69	213	93	237	117
142	22	166	46	190	70	214	94	238	118
143	23	167	47	191	71	215	95	239	119
144	24	168	48	192	72	216	96	240	120
145	25	169	49	193	73	217	97	241	121
146	26	170	50	194	74	218	98	242	122
147	27	171	51	195	75	219	99	243	123
148	28	172	52	196	76	220	100	244	124
149	29	173	53	197	77	221	101	245	125
150	30	174	54	198	78	222	102	246	126
151	31	175	55	199	79	223	103	247	127
152	32	176	56	200	80	224	104		

Only one D8125MUX per Zonex Output is recommended.

TTP14: Point Trouble with D8125INV and Inovonics Wireless Devices Connected to the Control Panel

Procedure

Are all wireless points "missing"?

✓ ✗

Are any wireless points "missing"?

✓ ✗

☑ If the D8125INV LCD display and keypad backlight are both dark, refer to *TTP50 Power Troubleshooting* on page 107.

On the D8125INV:

1. Enter the passcode, then press [ENT].
2. Enter the number of a wireless point that is in trouble, then press [ENT].
3. View the transmitter's mode (refer to Item 1 in *Figure 26* on page 50), then refer to *Table 26* on page 49.

Is the mode correct for the desired transmitter, or if using an FA210 or FA210W Receiver, is the mode correct for the desired operation?

✓ ✗

Reprogram the transmitter as a new transmitter.

☑ Do not reconfigure the transmitter as an existing transmitter.

☑ You might need to perform this procedure on more than one transmitter.

During this service call, have you ever programmed the transmitter as an existing transmitter?

✓ ✗

A B C D

A B C D

On the D8125INV:

1. Enter the passcode, then press [ENT].
2. Press [DIAG].
3. Press [1].
4. Enter the number of a wireless point that is in trouble, then press [ENT].
5. Refer to Item 2 in *Figure 27* on page 50, and refer to *Table 27* on page 50.
6. Test the wireless transmitter.

Do the values match the conditions of the wireless transmitter?

✓ ✗

Move the transmitter to within 10 ft. of the FA400 Receiver, then retest the wireless transmitter.

- If the values still do not match the conditions of the wireless transmitter, remove the battery from the old transmitter, and install a new transmitter.
- If the values now match the conditions of the wireless transmitter, then either relocate the transmitter, relocate the receiver, or add an FA570 Repeater to the system.

☑ After reconfiguring a wireless system, always retest the system to ensure all devices operate correctly.

Using the control panel, view Point Assignments for the point you are troubleshooting. Determine which point index the point uses. View that point index. Determine the Type and Point Response (for more information, refer to *Table 28* on page 50 and *Table 29* on page 51).

Is the point programmed to respond as desired?

✓ ✗

Fix the programming problem.

View point status for the point you are troubleshooting. Refer to *Table 28* on page 50. Retest the wireless transmitter.

Does the point show the correct condition of the wireless transmitter?

✓ ✗

A B C E F

A B C E F

Move the transmitter to within 10 ft of the FA400 Receiver, then retest the wireless transmitter.

- If the values still do not match the conditions of the wireless transmitter, remove the battery from the old transmitter, and install a new transmitter.
- If the values now match the conditions of the wireless transmitter, then either relocate the transmitter, relocate the receiver, or add an FA570 Repeater to the system.

☑ After reconfiguring a wireless system, always retest the system to ensure all devices operate correctly.

There is noise on the Zonex data wiring. Refer to *TTP47 Noise on Wire* on page 98.

Reprogram the transmitter as a new transmitter.

☑ Do not reconfigure the transmitter as an existing transmitter.

☑ You might need to perform this procedure on more than one transmitter.

On the D8125INV:

1. Enter the passcode, then press [ENT].
2. Press [DIAG].
3. Press [1].
4. Enter the number of a wireless point that is in trouble, then press [ENT].
5. Refer to Items 1 and 2 in *Figure 27* on page 50, and refer to *Table 27* on page 50.

Does the D8125INV indicate "This RF Point is not programmed"?

✓ ✗

Move the transmitter to within 10 ft. of the FA400 Receiver, then retest the wireless transmitter. Refer to Item 2 in *Figure 27* on page 50, and refer to *Table 27* on page 50.

Do the values match the condition of the wireless transmitter?

✓ ✗

A G H J

A G H J

Replace the battery in the wireless transmitter, then retest the transmitter.

Do the values match the condition of the wireless transmitter?

✓ ✗

Reprogram the wireless transmitter, then retest the transmitter.

- If the values now match the condition of the transmitter, then the problem is corrected.
- If the values still do not match the condition of the transmitter, remove the battery from the transmitter and replace the transmitter.

Problem is corrected.

Either relocate the transmitter, relocate the receiver, or add an FA570 Repeater to the system.

☑ After reconfiguring a wireless system, always retest the system to ensure all devices operate correctly.

Reprogram the transmitter as a new transmitter.

☑ Do not reconfigure the transmitter as an existing transmitter.

☑ You might need to perform this procedure on more than one transmitter.

On the D8125INV:

1. Enter the passcode, then press [ENT].
2. Press [DIAG].
3. Press [1].
4. Enter the number of a wireless point that is in trouble, then press [ENT].
5. Refer to Items 1 and 2 in *Figure 27* on page 50, and refer to *Table 27* on page 50.

Does the D8125INV indicate "This RF Point is not programmed"?

✓ ✗

Does item 2 in Figure 27 indicate "Bad" or "Missing"?

✓ ✗

Refer to *Figure 28* on page 52.

Is the control panel wired to the D8125INV correctly?

✓ ✗

K L M N

K **L** **M** **N**

Fix the faulty wiring.

Remove all wires from the control panel ZONEX IN and ZONEX OUT terminals **except for** the wires connected to the D8125INV. At the D8125INV, put the red digital voltmeter (DVM) lead on the IN terminal that is connected to the control panel. Put the black DVM lead on the OUT terminal that is connected to the control panel.

Does the DVM read a voltage that fluctuates between 3 VDC and 12 VDC?

✓ ✗

Check the voltage at the control panel ZONEX IN and ZONEX OUT terminals that are connected to the D8125INV.

- If the voltage is fluctuating between 3 VDC and 12 VDC, there is a problem with the data wiring between the control panel and the D8125INV. Fix the faulty wiring. Refer to *Figure 28* on page 52.
- If the voltage is not fluctuating between 3 VDC and 12 VDC, there is a problem with the control panel. Remove and replace the control panel.

Remove and replace the control panel.

K **L**

K **L**

Remove the cover from the FA400 Receiver.

Are the DECODE and VALID DECODE LEDs both dark?

✓ ✗

Bring a programmed wireless transmitter to the FA400 Receiver. Activate the transmitter.

On the FA400, does the VALID DECODE LED flash when the transmitter is activated?

✓ ✗

Remove and replace the FA400 Receiver.

Remove and replace the D8125INV.

Fix the faulty wiring between the D8125INV and the FA400 Receiver. Refer to *Figure 28* on page 52.

Program the wireless transmitter.

Table 26: Recommended Wireless Transmitter Mode Values

Inovonics Transmit ter	Mode	External Contact			Internal Contact	Fire Point
		Normally Open	Normally Closed	End of Line Resistor (use 2.2 K .25 Watt)		
FA210 Reduced Size Universal FA210W FA250 High Power Universal	1		✓	✓		
	2		✓			
	3	✓		✓		
	4	✓				
	6	✓			✓	
	7	✓		✓	✓	
	8		✓	✓		✓
	9		✓			✓
	10	✓		✓		✓
	11	✓				✓
FA210W Reduced Size Wide-Gap Universal	5				✓	
	12				✓	✓

Inovonics Transmitter	Mode
FA113 Keyfob	4
FA202 Photoelectric Smoke Detector	9
FA203S/D Necklace Pendant	4
FA204 Pendant	4
FA205S/FA205D Belt Clip/Loop	4
FA206I/S PIR	2
FA206DS PIR	2
FA207 Glassbreak	4
FA209 Billtrap	4
FA216L/H Low Temperature/High Temperature	2
FA223S/D Single/Double Button Water Resistant Pendant	4
FA570 High Power Indoor Repeater FA575 High Power Outdoor Repeater	4

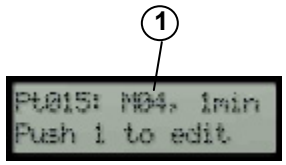
Table 27: Value Descriptions

Item	Variable	Description	
1	xxx	?	D8125INV has not received at least 30 transmissions to determine signal strength
		Bad	Transmitter must be relocated
		OK	Good signal strength
2	<value>	Normal	
		Faulted	
		Tamper	
		Missing	
		Low Bat	
		Tamper, Low Bat	
		Faulted, Low Bat	

Table 28: D8125INV Point Transition Reporting to the Control Panel

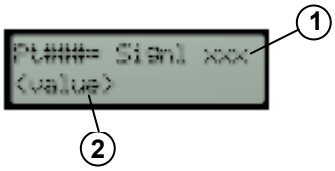
If the RF Transmitter sends a…	D8125INV sends to the control panel a…
Faulted condition	Shorted condition
Tamper condition	Open condition
Normal condition	Normal condition
Low Battery condition	Low Battery condition

Figure 26: Wireless Transmitter Mode Indicator



1 - Mode Indicator

Figure 27: Point Status Value

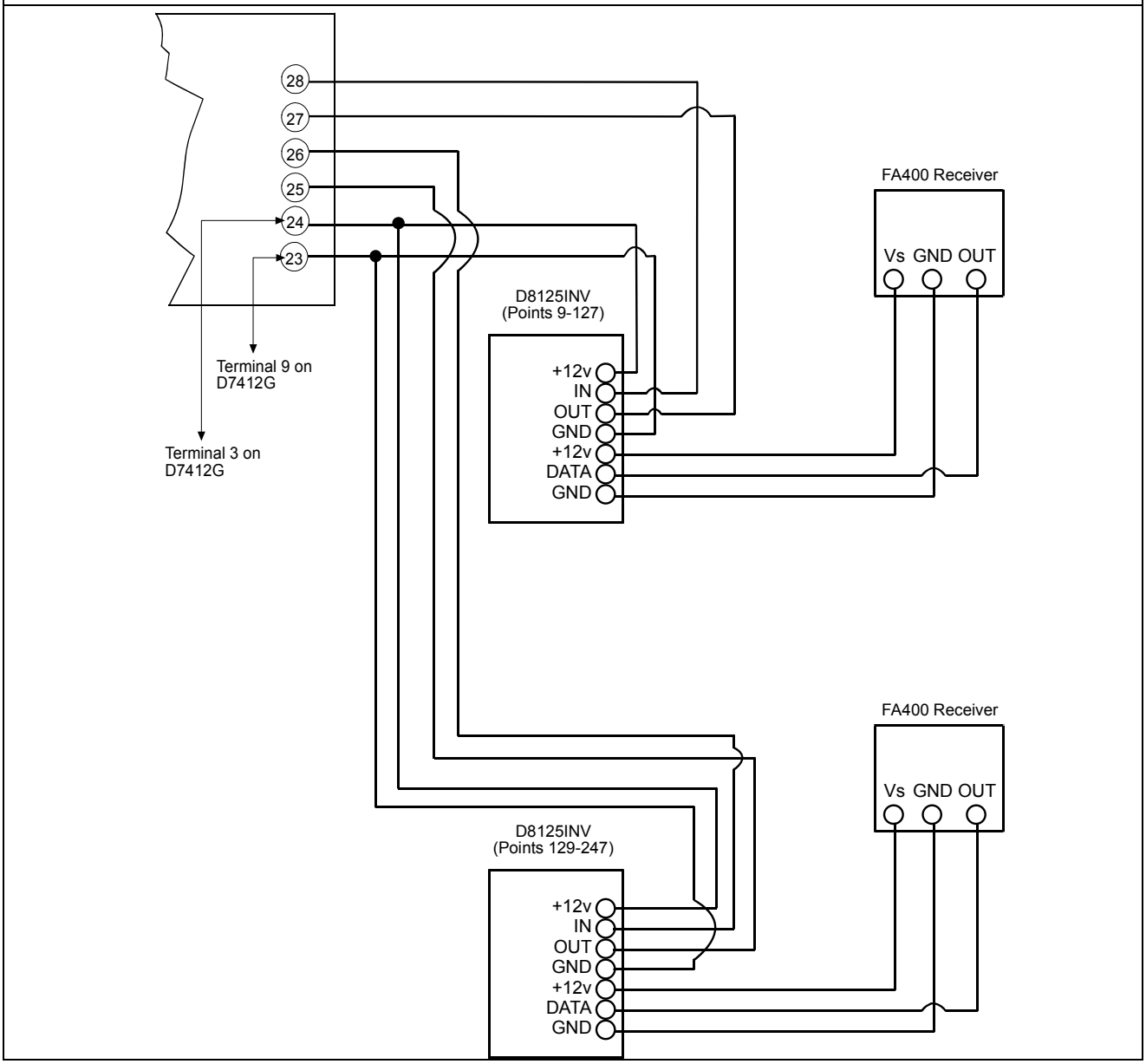


1 - Status Value Indicator
2 - Signal Strength Indicator

Table 29: Recommended Point Types/Point Responses

<table>
<tr><th rowspan="3">Inovonics Transmitter</th><th colspan="2" rowspan="2">Fire
(Fire Point = Yes)</th><th colspan="4">Burg</th></tr>
<tr><th colspan="2">24 Hour</th><th colspan="2">Controlled</th></tr>
<tr><th>Point Type</th><th>Point Response</th><th>Point Type</th><th>Point Response</th><th>Point Type</th><th>Point Response</th></tr>
<tr><td>FA113 – Pt 74 and 194 only</td><td colspan="2">n/a</td><td>4</td><td>2</td><td colspan="2">n/a</td></tr>
<tr><td>FA113 – Pt 75 and 195 only</td><td rowspan="2">0</td><td rowspan="2">1,9</td><td>0</td><td>1,9</td><td>1,2,3</td><td>0,1,6,7,E</td></tr>
<tr><td>FA202</td><td colspan="4">n/a</td></tr>
<tr><td>FA203S/D*</td><td colspan="2" rowspan="7">n/a</td><td rowspan="3">0</td><td rowspan="3">1,9</td><td rowspan="3">1,2,3</td><td rowspan="12">0,1,6,7,E</td></tr>
<tr><td>FA204*</td></tr>
<tr><td>FA205S/FA205D*</td></tr>
<tr><td>FA206I/S</td><td colspan="2" rowspan="2">n/a</td><td rowspan="2">2,3</td></tr>
<tr><td>FA206DS</td></tr>
<tr><td>FA207</td><td rowspan="8">0</td><td rowspan="8">1,9</td><td rowspan="8">1,2,3</td></tr>
<tr><td>FA209*</td></tr>
<tr><td>FA210W</td><td rowspan="3">0</td><td rowspan="3">1,9</td></tr>
<tr><td>FA210</td></tr>
<tr><td>FA216L/H</td></tr>
<tr><td>FA223S/D</td><td colspan="2">n/a</td></tr>
<tr><td>FA250</td><td>0</td><td>1,9</td></tr>
<tr><td>FA570/FA575</td><td colspan="2">n/a</td><td>3</td><td colspan="2">n/a</td></tr>
<tr><td colspan="7">* = Devices can be programmed as 24 Hour or Controlled Point depending on the application.</td></tr>
</table>

Figure 28: D9412G to D8125INV Wiring Diagram



TTP15: Point Trouble and D9210B Card Access Interface Modules Are Connected to the Control Panel

Initial Actions

Check that there is no EOL resistor connected to the on-board point of the control panel that corresponds to the point number assigned to the D9210B Card Access Interface Module. For example, if the D9210B is assigned to Point 8, ensure that there is no EOL resistor connected to the control panel's on-board Point 8.

Procedure

Is the affected point "missing"?

✓ ✗

1. Using RPS software or your D5200 Programmer, select **RADXAXS → Door Profile**.
2. Identify the door number that the affected door is assigned to by viewing the **Door Point** prompt for each access door.
3. Locate the D9210B Access Control Interface Module for the affected access door. Refer to *Table 30* to identify the D9210B by its DIP switch address.

Is the card reader's Tamper wire connected to Terminal 8 on the D9210B?

✓ ✗

1. View point assignments for the point you are troubleshooting and determine which point index the point uses.
2. View that point index.
3. Determine the Type and Point Response (for more information, refer to *Table 31* on page 54.

Is the point programmed to respond as desired?

✓ ✗

Fix the programming problem.

Set your digital voltmeter (DVM) for VDC. Connect the red lead to the D9210B's Terminal 10 ZN+. Connect the black lead to the D9210B's Terminal 9 ZNCOM. For more information, refer to *Figure 29* on page 54.

Does the DVM read <2.0 VDC or >3.0 VDC?

✓ ✗

There are duplicate points installed on the system. To troubleshoot this problem, refer to *TTP20 Point Indicates a Short Circuit When It* Is Open on page 57.

A B C

Remove all wires from the D9210B Terminals 9 and 10. Set your DVM to read resistance. Connect the red DVM lead to Terminal 10 ZN+. Connect the black lead to Terminal 9 ZNCOM.

Does it read <900 Ω or >1.1 kΩ?

✓ ✗

Connect a 1 kΩ resistor to terminals 9 and 10 on the D9210B. Repeat the voltage check.

Does the DVM still read <2.0 VDC or >3.0 VDC?

✓ ✗

There is a wire shorted to ground on the system wiring. Refer to *TTP48 Wire Shorted to Ground* on page 102.

Remove and replace the D9210B Card Access Interface Module.

There is a wiring problem:

- If the voltage check read <2.0 VDC, refer to *TTP45 Shorted Wiring* on page 94.
- If the voltage check read >3.0 VDC, refer to *TTP46 Open Wiring* on page 96.

A B C

Remove the card reader's Tamper wire from the D9210B's Terminal 8. Only use this terminal for the D9210B's enclosure tamper. For more information, refer to *Figure 29* on page 54.

Refer to *TTP4* on page 17.

Table 30: D9210B DIP Switch Addresses

	Door Controller Address		
Device	**1**	**2**	**3**
D9210B #1	**ON**	**ON**	**ON**
D9210B #2	OFF	**ON**	**ON**
D9210B #3	**ON**	OFF	**ON**
D9210B #4	OFF	OFF	**ON**
D9210B #5	**ON**	**ON**	OFF
D9210B #6	OFF	**ON**	OFF
D9210B #7	**ON**	OFF	OFF
D9210B #8	OFF	OFF	OFF

Table 31: Point Type and Point Response Selections

Point Type Selections			
0	24-Hour	6	O/C Point
1	Perimeter	7	D279 (O/C Non-Priority)
2	Interior	8	D279 (O/C Priority)
3	Interior Follower	9	Easikey
4	Keyswitch Maintained		
5	Keyswitch Momentary		

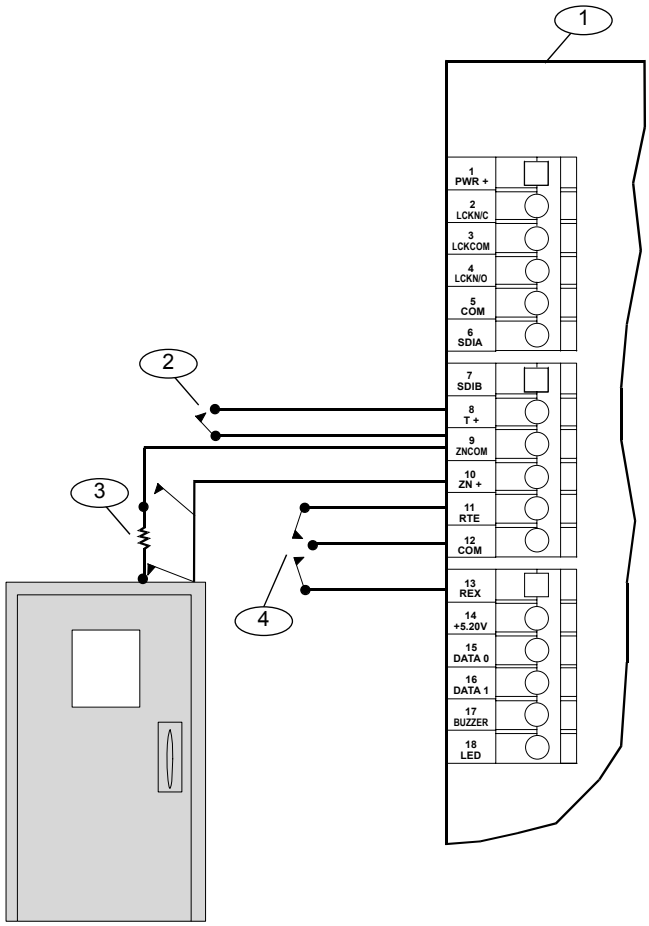
Point Response Selections[1]		0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
Armed[2]	Open	I	I	I	I	D	D	I	I	D	I	I	I	I	I	T	
	Short	I	I	I	I	I	I	D	D	D	I	I	I	I	I	I	
Disarmed[2]	Open		T		T				T		I	I	T	I		T	
	Short			T	T		T				I	T	I		I		
24-Hour[3]	Open	I	T	I	T			I	T	S	T	S		S	Not Applicable		
	Short	I	I	T	T	I	T			T	S		S	S			

[1] Selections: D = Delayed Response, I = Instant Alarm, S = Supervisory, T = Trouble, Blank = No Response

[2] For point types 1 through 3 only.

[3] For point type 0 only.

Figure 29: D9210B Wiring



1 - D9210B Access Control Module

2 - Tamper switch (normally open)

3 - Door contact (normal end-of-line [EOL] resistor in circuit)

4 - RTE/REX (normally open)

TTP16: Point Trouble on One of the Eight On-board Points

Initial Actions

- Refer to *TTP32 Silencing Alarms or Troubles, and Clearing Keypad Memory* on page 68 to silence alarms or troubles, clear keypad memory, and view the points that are in alarm or trouble.
- If using an Ademco UL Bell, ensure that the S3 switch is open, and that a 220 kΩ end-of-line (EOL) resistor is installed (Point 8 only).
- If not using an Ademco UL Bell, ensure that the S3 switch is closed, and that a 1 kΩ EOL resistor is installed (Point 8 only).

Procedure

1. Select an on-board point that is in trouble.
2. View Point Assignments for the point you are troubleshooting and determine which point index the point is using.
3. View that point index, and determine the Type and Point Response (for more information, refer to *Table 32*).

Is the point programmed to respond as desired?

✓ ✗

Fix the programming problem.

Set your digital voltmeter (DVM) to read VDC. Connect the red DVM lead to the + side of the point. For the affected point, connect the black DVM lead to the common side of the point.

Does the DVM read <2.0 VDC or > 3.0 VDC?

✓ ✗

Read the voltage on all remaining on-board zones.

Do all voltages read between 0 VDC and 5 VDC?

✓ ✗

A

B

C

A

B

C

- If any voltage reads >8 VDC, remove the wires that are connected to that point. View point status again for the on-board point that was in trouble. If it shows anything other than NORMAL, replace the control panel.
- If the point status shows NORMAL, refer to *TTP49 Unexpected Voltage on On-board Point Wiring* on page *104* to locate the source of the >8 VDC.

Replace the control panel.

Remove all wires from the point. Set your DVM to read resistance. Connect the red DVM lead to one conductor and the black DVM lead to the other conductor.

Does it read <900 Ω or >1.1 kΩ?

✓ ✗

Connect a 1 kΩ resistor to the point. Repeat the voltage check.

Does the DVM still read <2.0 VDC or > 3.0 VDC?

✓ ✗

With the affected point's wires still disconnected from the control panel, perform a VDC and VAC voltage check on the wires leading to the point.

- If the voltage = 0 VAC and 0 VDC, refer to *TTP48 Wire Shorted to Ground* on page 102.
- If the voltage is not 0 VAC and 0 VDC, refer to *TTP49 Unexpected Voltage on On-board Point Wiring* on page *104*.

Replace the control panel.

- If the resistance was <900 Ω, refer to *TTP45 Shorted Wiring* on page 94.
- If the resistance was >1.1 kΩ, refer to *TTP46 Open Wiring* on page 96.

Table 32: Point Type and Point Response Selections

Point Type Selections			
0	24-Hour	6	O/C Point
1	Perimeter	7	D279 (O/C Non-Priority)
2	Interior	8	D279 (O/C Priority)
3	Interior Follower	9	Easikey
4	Keyswitch Maintained		
5	Keyswitch Momentary		

Point Response Selections[1]		0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
Armed[2]	Open	I	I	I	I	D	D	I	I	D	I	I	I	I	I	T	
	Short	I	I	I	I	I	I	D	D	D	I	I	I	I	I	I	
Disarmed[2]	Open		T		T				T		I	I	T	I		T	
	Short			T	T		T				I	T	I		I		
24-Hour[3]	Open	I	T	I	T			I	T	S	T	S		S	Not Applicable		
	Short	I	I	T	T	I	T			T	S		S	S			

[1] Selections: D = Delayed Response, I = Instant Alarm, S = Supervisory, T = Trouble, Blank = No Response

[2] For point types 1 through 3 only.

[3] For point type 0 only.

TTP17: Point 8 Indicates a Short Even Though the Point has an EOL Resistor

Procedure

Refer to *TTP16 Point Trouble on One of the Eight On-board Points* on page 55.

> Pay particular attention to the suggested Initial Actions.

TTP18: Control Panel's On-board Point Has Only an EOL Resistor Connected, and the Keypad Indicates the Point Is Faulted

Procedure

Refer to *TTP16 Point Trouble on One of the Eight On-board Points* on page 55.

TTP19: Points 128 and 248 Are Missing

Description

Points 128 and 248 are the **COMMAND 7** and **COMMAND 9** keypad panic points, respectively. If these programmed points are enabled by assigning a point index to them in **RADXPNTS** programming, they display as **missing** in **View Point Status**.

Procedure

This is normal control panel behavior. These points display as missing because there is no hardware associated with them. No corrective action is required.

TTP20: Point Indicates a Short Circuit When It Is Open

Procedure

1. From the keypad, press [MENU/ESC], then press [NEXT] until you see VIEW PT STATUS.
2. If using a D1255 Keypad, press [ENT] three times. If using a D1260 Keypad, press [VIEW PT STATUS][Next][Status].
3. Press [NEXT] repeatedly to view the status of each point.

Does the symptom occur for any programmed points, 9 and above?

✓ ✗

Refer to *Section 4.1.1 Identifying the Point Expansion Technologies Installed on the System* on page 111.

Are any D9210B Access Control Interface Modules connected to the control panel?

✓ ✗

The on-board point is not working or is not programmed correctly. Refer to *TTP16 Point Trouble on One of the Eight On-board Points* on page 55.

1. Using RPS software or your D5200 Programmer, select **RADXAXS → Door Profile**.
2. Record the point number assigned to each D9210B that is connected to the control panel by viewing the **Door Point** prompt.

Is the affected point number assigned to a D9210B?

✓ ✗

The on-board point is not working or is not programmed correctly. Refer to *TTP16 Point Trouble on One of the Eight On-board Points* on page 55.

Is the same point number assigned to more than one D9210B?

✓ ✗

The D9210B is not working or is not programmed correctly. Refer to *TTP15 Point Trouble and D9210B Card Access Interface Modules Are Connected to the Control Panel* on page 53.

You must assign all D9210B modules a unique point number. Once you do this, you must also use RPS software or the D5200 Programmer to view RADXPNTS and complete the programming of the point.

A

A

There may be points that share a common address. Determine the configuration of the installed system as described in *Section 4.1.1 Identifying the Point Expansion Technologies Installed on the System* on page 111, *Section 4.1.2 Setting Up the Control Panel* on page 112, and *Section 4.1.3 Identifying the Points Associated with Each Point Expansion Technology* on page 113.

☑ If there is a point that displays as missing in View Point Status, this point might share an address with another point.

☑ If this symptom occurred after installing a new point, remove the device from the system.

If the point shows anything other than **missing** in View Point Status, change the new point's address to another unused address, and change the control panel programming to match.

If the point shows **missing** in View Point Status, there is noise on the data bus. Refer to *TTP47 Noise on Wire* on page 98.

Examine *Table 54 Point Configuration Matrix* on page 115.

Do any rows in *Table 54* identify a point used by more than one point expansion technology?

✓ ✗

The point expansion technology is either not working or not programmed correctly. If the affected point is connected to:

- a D8128C or D8128D OctoPOPIT Module, refer to *TTP11* on page 24.
- a D8125 Zone Expansion Module, refer to *TTP12* on page 28.
- a D8125MUX Multiplex Bus Interface, refer to *TTP13* on page 35.
- a D8125INV Wireless Interface Module, refer to *TTP14* on page 46.
- a D9210B Access Control Interface Module, refer to *TTP15* on page 53.
- one of the on-board points, refer to *TTP16* on page 55.

There are points that share a common address. You must assign each programmed point in the control panel a unique addressable point. This requires changing one of the duplicate addressable points to an unused programmed point, and changing the programming in RADXPNTS to match.

TTP21: Extra Points on the System

Initial Actions

Understand the following:

- An extra point is caused by having a hardware point installed for an address without having that address programmed into the control panel. This symptom presents itself whenever the control panel CPU resets.
- If the point expansion technology is powered from an auxiliary power supply, ensure that the auxiliary power supply shares a negative (-) common reference with the control panel. Refer to *Figure 30* on page 59.
- If you programmed a D9210B Access Control Interface Module to use an on-board point number, you must remove the end-of-line (EOL) resistor from that on-board point.

Procedure

1. Determine the expansion technologies connected to the control panel. For more information, refer to *Section 4.1.1 Identifying the Point Expansion Technologies Installed on the System* on page 111.
2. Remove all but one expansion technology from the control panel.
3. Reset the control panel using the reset pin.
4. Wait 60 seconds.
5. At the keypad, press [9][9][ENT].
6. If necessary, enter the passcode [ENT].
7. Select **View Log?**.
8. At the **Start Date?** prompt, press [ENT]. The last event displays.
9. Press [PREV] to scroll backwards through the log. Stop at the REBOOT event. Record all extra point numbers in the connected expansion technology's column in *Table 33* on page 59.
10. Disconnect the connected expansion technology from the control panel.
11. Connect another expansion technology to the control panel, then repeat steps 3 through 10 for each expansion technology installed at the site.

Are there any extra points in the D9210B column of *Table 33*?

✓ ✗

Are there any extra points in the D8125INV column of *Table 33*?

✓ ✗

A **B** **C**

A

The extra point is caused by a device that is addressed to that same point number. To locate this device, refer to *Section 4.1.4 Identifying Addressable Points on a Circuit* on page 114 and *Section 4.1.5 Locating a Particular Addressable Point* on page 114.

B

On the D8125INV:

1. Enter the passcode, then press [ENT].
2. Press [DIAG].
3. Press [1].
4. Enter the number of a wireless point that is extra, then press [ENT].
5. Refer to Item 2 in *Figure 27* on page 50, and refer to *Table 27* on page 50.

Is the point "missing"?

✓ ✗

Test each wireless transmitter until the extra point's value changes state. Remove the battery from that transmitter. At the D8125INV, press [ESC] to display the main menu. Press [1]. Enter the extra point number [ENT]. Press [2] to delete the point.

C

At the D8125INV, press [ESC] to display the main menu. Press [1]. Enter the extra point number [ENT]. Press [2] to delete the point.

Is Point 256 the extra point?

✓ ✗

The extra point is caused by having a point assigned to the D9210B Access Door without having that point programmed into RADXPNTS.

1. With your RPS software or D5200 Programmer, use RADXPNTS to create a point index. Refer to *Table 34* on page 59.
2. Assign that point index to the point by using the point assignments section of RADXPNTS. This turns the point on.

The extra point is caused by not having a point assigned to the D9210B, and not having it turned on in RADXPNTS.

☑ Even if you are not using the point, you must assign it to a point number in RADXAXS, turn the point on in RADXPNTS, and connect the EOL resistor to Terminals 9 and 10 on the control panel.

1. With your RPS software or D5200 Programmer, use **RADXAXS** → **Door Profile** to select the access door.
2. Use the **Door Point** prompt to assign a new point number.
3. Use **RADXPNTS** to create a point index. Refer to *Table 34* on page 59.
4. Assign that point index to the point by using the point assignments section of **RADXPNTS**. This turns the point on.

☑ If the problem still exists after completing this TTP, refer to *TTP47 Noise on Wire* on page 98.

Table 33: Extra Point Log

On-Board	D8128C/D	D8125/D9127	D8125MUX	D8125INV	D9210B

Table 34: Point Type and Point Response Selections

Point Type Selections			
0	24-Hour	6	O/C Point
1	Perimeter	7	D279 (O/C Non-Priority)
2	Interior	8	D279 (O/C Priority)
3	Interior Follower	9	Easikey
4	Keyswitch Maintained		
5	Keyswitch Momentary		

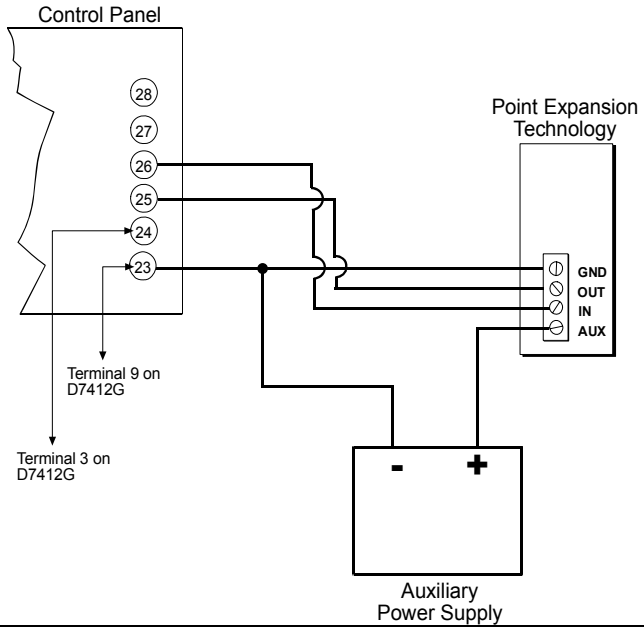
Point Response Selections[1]		0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
Armed[2]	Open	I	I	I	I	D	D	I	I	D	I	I	I	I	I	T	
	Short	I	I	I	I	I	I	D	D	D	I	I	I	I	I	I	
Disarmed[2]	Open		T		T				T		I	I	T	I		T	
	Short			T	T		T				I	T	I		I		
24-Hour[3]	Open	I	T	I	T			I	T	S	T	S		S	Not Applicable		
	Short	I	I	T	T	I	T			T	S		S	S			

[1] Selections: D = Delayed Response, I = Instant Alarm, S = Supervisory, T = Trouble, Blank = No Response

[2] For point types 1 through 3 only.

[3] For point type 0 only.

Figure 30: Point Expansion Technology Powered from Auxiliary Power Supply



TTP22: Keypad Displays SERVICE ZONEX

Description

If the data expansion bus becomes shorted, all POPITs report a shorted condition and the control panel generates a **Pt Bus Trouble** event. When the data expansion bus restores from the shorted condition, the control panel generates a **Pt Bus Restore** event. If there are POPITs connected to the expansion bus without a Point Index assigned to them, the control panel generates an **Extra Point** event.

If the negative side of the expansion bus becomes shorted to common, the control panel views all POPITs as **missing**. If the positive side of the expansion bus becomes shorted to common, the control panel views all POPITs as **shorted**. Also, the control panel generates a **Pt Bus Trouble** event.

If Terminal 28 is shorted to common, the control panel does not generate a **Pt Bus Trouble** event. However, a short between Terminal 27 and common causes the control panel to generate a **Pt Bus Trouble** event, and the keypad displays **SERVC ZONEX 1**. If Terminal 27 and Terminal 28 are shorted together, the control panel generates a **Pt Bus Trouble** event and the keypad displays **SERVC ZONEX 1**.

If Terminal 26 is shorted to common, the control panel does not generate a **Pt Bus Trouble** event. A short between Terminal 25 and common, however, causes the control panel to generate a **Pt Bus Trouble** event, and the keypad shows **SERVC ZONEX 2**. If Terminal 25 and Terminal 26 are shorted together, the control panel generates a **Pt Bus Trouble** event and the keypad displays **SERVC ZONEX 2**.

Procedure

Refer to *TTP45 Shorted Wiring* on page *94*.

TTP23: Control Panel Sends PT BUS TROUBLE Reports to the Central Station

Description

Erroneous alarm or trouble reports might follow the **PT BUS TROUBLE** report.

Procedure

For a detailed description of this symptom, refer to *TTP22 Keypad Displays SERVICE ZONEX*.

TTP24: All Points On a Point Expansion Technology Show Shorted

Procedure

For a detailed description of this symptom, refer to *TTP22 Keypad Displays SERVICE ZONEX*.

TTP25: Point Does Not Respond as Programmed

Initial Actions

- The following procedure requires knowing which point expansion technologies are installed at the site. If you are unsure, refer to *Section 4.1.1 Identifying the Point Expansion Technologies Installed on the System* on page 111.
- You must also know which addressable points are connected to each expansion technology, and which points are on-board. If you are unsure, refer to *Section 4.1.2 Setting Up the Control Panel* on page 112, and *Section 4.1.3 Identifying the Points Associated with Each Point Expansion Technology* on page 113.

Procedure

Is the affected addressable point an addressable motion detector (refer to *Table 38* on page 62)**, or a wireless point using the D8125INV Wireless Interface Module** (*Table 37* on page 62 lists the wireless points)**?**

✓ ✗

1. With your RPS software or D5200 Programmer, view Point Assignments for the point you are troubleshooting to determine which point index the point uses.
2. View that point index. Determine the Type and Point Response (for more information, refer to *Table 35*).

A **B**

A **B**

Is the point programmed to respond as desired?

✓ ✗

Fix the programming problem.

There is either a duplicate point or a hardware malfunction. To isolate the cause, refer to *TTP20 Point Indicates a Short Circuit When It* Is Open on page 57.

Is the affected point a wireless point using the D8125INV Wireless Interface Module?

✓ ✗

Addressable motion detectors are normally-open devices.

1. With your RPS software or D5200 Programmer, view Point Assignments for the point you are troubleshooting.
2. View the Point Index.
3. Change the Point Response to a normally-open configuration. Refer to *Table 35*.

Wireless points using the D8125INV Wireless Interface Module respond as shown in *Table 36*.

1. With your RPS software or D5200 Programmer, view Point Assignments for the point you are troubleshooting.
2. View the Point Index.
3. Change the Point Response as shown in *Table 37* on page 62.

Table 35: Point Type and Point Response Selections

Point Type Selections			
0	24-Hour	6	O/C Point
1	Perimeter	7	D279 (O/C Non-Priority)
2	Interior	8	D279 (O/C Priority)
3	Interior Follower	9	Easikey
4	Keyswitch Maintained		
5	Keyswitch Momentary		

Point Response Selections[1]		0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
Armed[2]	Open	I	I	I	I	D	D	I	I	D	I	I	I	I	I	T	
	Short	I	I	I	I	I	I	D	D	D	I	I	I	I	I	I	
Disarmed[2]	Open		T		T				T		I	I	T	I		T	
	Short			T	T		T				I	T	I		I		
24-Hour[3]	Open	I	T	I	T			I	T	S	T	S		S	Not Applicable		
	Short	I	I	T	T	I	T			T	S		S	S			

[1] Selections: D = Delayed Response, I = Instant Alarm, S = Supervisory, T = Trouble, Blank = No Response

[2] For point types 1 through 3 only.

[3] For point type 0 only.

Table 36: D8125INV Point Transition Reporting to the Control Panel

If the RF Transmitter sends a…	D8125INV sends to the control panel a…
Faulted condition	Shorted condition
Tamper condition	Open condition
Normal condition	Normal condition
Low Battery condition	Low Battery condition

Table 37: Recommended Point Types/Point Responses

Inovonics Transmitter	Fire (Fire Point = Yes)		Burg			
			24 Hour		Controlled	
	Point Type	Point Response	Point Type	Point Response	Point Type	Point Response
FA113 – Pt 74 and 194 only	n/a		4	2	n/a	
FA113 – Pt 75 and 195 only	0	1,9	0	1,9	1,2,3	0,1,6,7,E
FA202			n/a			
FA203S/D*	n/a		0	1,9	1,2,3	0,1,6,7,E
FA204*						
FA205S/FA205D*						
FA206I/S			n/a		2,3	
FA206DS						
FA207			0	1,9	1,2,3	
FA209*						
FA210W	0	1,9				
FA210						
FA216L/H						
FA223S/D	n/a					
FA250	0	1,9				
FA570/FA575	n/a			3	n/a	

* = Devices can be programmed as 24 Hour or Controlled Point depending on the application.

Table 38: Addressable Motion Detectors

MUX	Zonex
MX835	ZX794Z
MX950	ZX938Z
MX934/MX934i	ZX835
MX775/MX775i	ZX970
MX794/MX794i	ZX935Z
MX938/MX938i	ZX776Z

TTP26: Missing Points

Initial Actions

One or more keypads at the customer site display **Point Trouble**.

Procedure

At the customer site, locate a keypad that shows **Point Trouble**. Then refer to *TTP10 Point Trouble* on page 23.

TTP27: Unexpected Voltage on On-board Point Wiring

Procedure

Refer to *TTP49 Unexpected Voltage on On-board Point Wiring* on page 104.

3.3 Keypad Symptoms

Table 39: Keypad Symptoms

Symptom	Corrective Action
Keypad sounds trouble tone even though there are no displayed troubles.	Refer to *TTP28 Keypad Sounds Trouble Tone Even Though There Are No Displayed Troubles* on page 65.
Keypad shows CALL FOR SERVICE.	Refer to *TTP29 Keypad Shows CALL FOR SERVICE* on page 65.
Keypad shows SERVICE KEYPAD.	Refer to *TTP30 Keypad Shows SERVICE KEYPAD* on page 67.
SDI Fail 1 to 8	This error message appears at the Central Station. The keypad at the site displays SERVICE KEYPAD. Refer to *TTP30 Keypad Shows SERVICE KEYPAD* on page 67.
Silencing Alarms or Troubles, and Clearing Keypad Memory	Refer to *TTP32 Silencing Alarms or Troubles, and Clearing Keypad Memory* on page 68.
Keypad displays SERVICE ZONEX.	Refer to *TTP22 Keypad Displays SERVICE ZONEX* on page 60.

TTP28: Keypad Sounds Trouble Tone Even Though There Are No Displayed Troubles

Procedure

1. At the keypad, press [9][9][ENT].
2. If necessary, enter the passcode and press [ENT].
3. Select **View Log?**.
4. At the **Start Date?** prompt, press [ENT]. The last event appears.
5. Press [PREV] to scroll backwards through the log.

Do any extra points appear in the log?

✓ ✗

The trouble tone at the keypad is caused by a point that has BUZZ ON FAULT enabled in the point index.

1. To determine which point is causing the trouble tone, view the faulted points by pressing the [NEXT] and [PREV] keys. For more information, refer to *TTP32 Silencing Alarms or Troubles, and Clearing Keypad Memory* on page 68.
2. Using either RPS or the D5200 Programmer, select **RADXPNTS → POINT ASSIGNMENTS**.
3. For the points that were faulted, record the point indexes assigned to those points.
4. For the recorded point indexes, set BUZZ ON FAULT to 0.

Refer to *TTP21 Extra Points on the System* on page 58.

TTP29: Keypad Shows CALL FOR SERVICE

Initial Actions

The keypad generates the CALL FOR SERVICE message when it does not receive data from the control panel. This message can be caused by either a wiring or control panel programming problem.

The D1260 keypad displays the CALL FOR SERVICE message if its tamper switch is not fully closed. If you are troubleshooting this symptom on a D1260 keypad, check its tamper switch.

Procedure

Are other keypads on the system working?

☑ If a keypad displays **SERVICE KEYPAD**, it is a working keypad.

✓ ✗

Using *Table 40* on page 66, determine the keypad's address. Using either RPS or the D5200 Programmer, select **9000MAIN → COMMAND CENTERS → COMMAND CENTER ASSIGNMENTS**.

For the keypad you are using, does the *Scope* prompt show *NO KEYPAD*?

✓ ✗

A **B** **C**

A **B** **C**

Remove all wiring from the SDI bus. Connect the affected keypad directly to the SDI bus terminals on the control panel.

Does the keypad still display *CALL FOR SERVICE*?

✓ ✗

1. Install the keypad at its original location.
2. Set your digital voltmeter (DVM) to measure resistance.
3. With all SDI wiring still disconnected from the control panel, connect the red DVM lead to one of the keypad data conductors.
4. Connect the black DVM lead to the other keypad data conductor.

Does the DVM indicate a short?

✓ ✗

Connect the black DVM lead to a known good earth ground. One at a time, connect the red DVM lead to each of the keypad data conductors.

- If the DVM indicates a short on either conductor, refer to *TTP48 Wire Shorted to Ground* on page 102.
- If the DVM does not indicate a short on either conductor, refer to *TTP46 Open Wiring* on page 96.

Refer to *TTP45 Shorted Wiring* on page 94.

1. Disconnect the affected keypad from the SDI bus.
2. Connect another keypad with the same DIP switch address directly to the control panel's SDI bus terminals.

Does this keypad display *CALL FOR SERVICE*?

✓ ✗

Replace the original keypad.

Replace the control panel.

Change the keypad's **Scope** prompt to one of the options listed in *Table 41* on page 67.

☑ If there are other keypads on the system, you might also need to change the **Scope** prompt for those keypads.

A

A

1. Remove the cover from a working keypad.
2. View and record the keypad's DIP switch settings.
3. For testing purposes only, reconfigure the affected keypad's DIP switches to match those of the working keypad.

Does the affected keypad still display CALL FOR SERVICE?

✓ ✗

1. Return the keypad's DIP switches to their original settings.
2. Refer to *Table 40* to determine the keypad's address.
3. Using either RPS or the D5200 Programmer, select **9000MAIN** → **COMMAND CENTERS** → **COMMAND CENTER ASSIGNMENTS**.
4. For the keypad address you are using, change the **Scope** prompt to one of the options listed in *Table 41* on page 67.

Return the keypad's DIP switches to their original settings. Connect a working keypad from this site to the existing wires at the affected keypad's location.

☑ Do not change the DIP switch settings of the working keypad.

Does the keypad display *CALL FOR SERVICE*?

✓ ✗

Replace the original keypad.

The keypad data wiring has an open. Refer to *TTP46 Open Wiring* on page 96.

Table 40: Keypad DIP Switch Settings

Address #	Switch 1	2	3	4	5*	6
1	**ON**	**ON**	**ON**	**ON**		**ON**
2	OFF	**ON**	**ON**	**ON**		**ON**
3	**ON**	OFF	**ON**	**ON**		**ON**
4	OFF	OFF	**ON**	**ON**		**ON**
5	**ON**	**ON**	OFF	**ON**		**ON**
6	OFF	**ON**	OFF	**ON**		**ON**
7	**ON**	OFF	OFF	**ON**		**ON**
8	OFF	OFF	OFF	**ON**		**ON**

*Encoding Tone ON/OFF.

Table 41: Scope Settings

Scope Settings	Description
Panel Wide	A panel-wide keypad can view information and perform Arming and Disarming functions for all areas in the control panel. A panel-wide keypad can cross account boundaries. This setting is normally used with a master area.
Account	An Account keypad can view information and perform Arming and Disarming functions for all areas with the same ***A# Acct Number***, as configured in Area Parameters. This setting is normally used for an associate area.
Area	An Area keypad is restricted to viewing information and to Arming/Disarming functions for the area to which it is assigned.
Custom	A Custom keypad is restricted to viewing information and to Arming/Disarming functions for the areas to which it is assigned.

TTP30: Keypad Shows SERVICE KEYPAD

The control panel generates the SERVICE KEYPAD message that is shown on the system's **working** keypads. This message does not show on faulty keypads. The control panel generates this message when it cannot communicate with a supervised keypad.

Procedure

Is more than one keypad installed at the site?

✓ ✗

There is an extra keypad address programmed into the control panel with supervision enabled. There is no keypad installed at the site with this DIP switch address. Turning the extra keypad address off in control panel programming fixes this problem. Perform this procedure to turn off the extra keypad address:

1. Remove the keypad cover.
2. Determine the keypad's address by comparing the DIP switches to *Table 40* on page 66.
3. Using either RPS or the D5200 Programmer, select **9000MAIN** → **COMMAND CENTERS** → **COMMAND CENTER ASSIGNMENTS**.
4. At the **Scope** prompt for all unused keypad addresses, ensure that the prompt shows **NO KEYPAD**.

Do one or more keypads show *CALL FOR SERVICE*?

✓ ✗

The control panel's command center programming does not match the addresses of the physically installed keypads.

Record the DIP switch address of each keypad (refer to *Table 40* on page 66). Using either RPS or the D5200 Programmer, select **9000MAIN** → **COMMAND CENTERS** → **COMMAND CENTER ASSIGNMENTS**. Use the **Scope** prompt to determine which keypad addresses are enabled.

☑ A disabled keypad has its **Scope** set to **NO KEYPAD** in control panel programming.

- If there is an extra keypad programmed into the control panel with supervision enabled, you must set the extra keypad's Scope prompt to **NO KEYPAD**.
- If the keypads' physical DIP switch addresses do not match the control panel's command center programming, change the keypads' DIP switches to match the control panel's programming.

The keypads that display **CALL FOR SERVICE** are not communicating with the control panel. Refer to *TTP29 Keypad Shows CALL FOR SERVICE* on page 65.

TTP31: SDI Fail 1 to 8

This error message appears at the central station. The keypad at the site shows SERVICE KEYPAD.

Procedure

Refer to *TTP30 Keypad Shows SERVICE KEYPAD* on page 67.

TTP32: Silencing Alarms or Troubles, and Clearing Keypad Memory

D1255 Keypad Procedures

If using a D1255 keypad that is sounding an alarm:

1. Press [Passcode][ENT] to silence the alarm.
2. Press [Passcode][MENU/ESC] to clear keypad memory.
3. If the point is still in an alarm condition, it shows as faulted on the keypad. Press [NEXT] to view the point.

If using a D1255 keypad that is sounding a trouble:

1. Press [COMMAND][4] to silence the alarm.
2. Points in trouble now appear as faulted points. Press [NEXT] to view the points.

D1260 Keypad Procedures

If using a D1260 keypad that is sounding an alarm:

1. Press [Passcode][ENTER] to silence the alarm.
2. Press [Clear display][Passcode][Clear] to clear keypad memory.
3. If the point in alarm was a controlled point, it appears as faulted on the keypad. Press [NEXT] to view the point.

   If the point in alarm was a 24-hour point, press any numeric key. The keypad shows the points that are in an alarm state.

If using a D1260 keypad that is sounding a trouble:

1. Press [Silence] to silence the alarm.
2. Press any numeric key. The keypad shows the points that are in a trouble state.

3.4 Central Station Communications Symptoms

Table 42: Central Station Communications Symptoms

Symptom	Corrective Action
Control panel does not communicate with the central station by telephone.	Refer to *TTP33: Control Panel Does Not Communicate* with Central Station by Telephone on page 70.
Control panel does not communicate with the central station through the network.	Refer *to TTP38: Control Panel Does Not Communicate with the Central Station Receiver through a Network* on page 74.
Control panel does not send correct opening and closing reports.	Refer to *TTP39 Control Panel Does Not Send Opening and Closing Reports by Area* on page 88.
PHONE LINE FAIL message displays.	Refer to *TTP40 PHONE LINE FAIL Message Appears on the Keypad* on page 89.
Cannot connect RPS to control panel.	Refer to *TTP41 Cannot Connect RPS to Control Panel Using the Network* on page 90.

TTP33: Control Panel Does Not Communicate with Central Station by Telephone

Initial Actions

If your phone line uses a digital service line (DSL) connection, make sure that a DSL filter is installed on the line.

Procedure

Place a telephone buttset in the Monitor position, and connect the set to the incoming phone line tip and ring (T4 and T5 on the RJ31X). Refer to *Figure 31* on page 72.
Refer to *Table 43* and call the central station using the control panel. Watch or listen for each indicator described in *Table 43* during the two-way communication sequence.

If you see or hear the indicator listed in the center column of *Table 43*, the step was completed successfully.

If you do not hear or see the indicator listed in the center column, perform the corresponding corrective action or refer to the corresponding TTP in the right-hand column of *Table 43*.

Table 43: Phone Communication Sequence between Control Panel and Central Station

Step executed by the equipment	Indicator of a successful step	Action or reference if the expected indicator does not occur
1. The control panel receives an event to send to the central station.	Red PHONE LED located in the lower left section of the control panel lights.	1. Using RPS or your D5200 Programmer, select **9000MAIN→Panel Wide Parameters→Phone** and determine which of the four phone location numbers is the primary central station phone number. If a backup phone number is used, determine which phone is the backup number. 2. In **9000MAIN**, select **Panel Wide Parameters→Routing→Primary Device→Route 1**. 3. Enter the phone location number for the primary central station phone number. 4. If a backup phone is used, go to **Backup Device** and enter the phone location number for the backup central station phone number. 5. Send the program to the control panel and repeat the test. 6. In **9000MAIN**, select **Panel Wide Parameters→Enhanced Routing**. Ensure that all parameters are set to **No**.
2. The control panel goes “off hook.”	Dial tone heard in buttset.	Refer to *TTP34: Dial Tone Does Not Occur after Red PHONE LED Lights* on page 72.
3. The control panel detects the dial tone.	Dial tone stops after first or second digit is dialed.	Refer to *TTP35: Dial Tone Does Not Stop after the First or Second Digit is Dialed, or No Ring Sound Occurs after the Dialing Completes* on page 73.
4. The control panel dials the number programmed for the central station.	Dialing sound and ring sound is heard on buttset.	

Table 43 (continued): Phone Communication Sequence between Control Panel and Central Station

Step executed by the equipment	Indicator of a successful step	Action or Reference if the expected indicator does not occur
5. The receiver answers and issues a series of acknowledgement (ACK) tones, one of which is specific to the control panel.	Series of evenly spaced tones that occur separately. These tones are slow in comparison with the sounds that occur when the control panel sends data.	Refer to *TTP36: The Receiver Does Not Answer or Does Not Send ACK Tones* on page 73.
6. The control panel detects the programmed ACK tone and sends the event data.	Steady high-pitched tone together with rapidly changing connected or separated tones. The connected tones occur when data is sent using modem format. The separated tones occur when data is sent using BFSK format.	Refer to *TTP37: Control Panel Does Not Send Event Data after ACK Tones Occur, or Control Panel Attempts to Communicate Again for the Same Event* on page 74.
7. The receiver at the central station issues a "kiss-off" signal.	Data transmission sounds stop.	Refer to *TTP37: Control Panel Does Not Send Event Data after ACK Tones Occur, or Control Panel Attempts to Communicate Again for the Same Event* on page 74.
8. The control panel hangs up.	Control panel does not attempt to re-dial for the same event.	Refer to *TTP37: Control Panel Does Not Send Event Data after ACK Tones Occur, or Control Panel Attempts to Communicate Again for the Same Event* on page 74.
	The equipment completes all steps successfully, but the central station has no recorded signals for the assigned account number.	Verify and record the communication format and the account number. 1. Using RPS or your D5200 Programmer, select **9000MAIN→Panel Wide Parameters→Phone Parameters**. 2. At the **Modem** prompt, record the entry. **Yes** indicates Modem format, **No** indicates BFSK format. Make sure that the correct format is used for the receiver to which the signals are sent. 3. Using RPS or your D5200 Programmer, select **9000MAIN→Area Wide Parameters→Account Number** and record the account number for each area. If an account number is not correct, program the correct number and verify the communications with the central station.
	Modem format uses a four-digit account number. BFSK format uses a three-digit account number. When programming a BFSK account number using RPS, the first digit of the account number must be a 0. When programming any account number using the D5200 Programmer, program the account number into digits 7 through 10. For BFSK format, program digit 7 as 0, with the rest of the account number in digits 8 through 10.	

TTP34: Dial Tone Does Not Occur after Red PHONE LED Lights

Initial Actions

Make sure that you performed the actions in *TTP33: Control Panel Does Not Communicate with Central Station by Telephone* on page 70.

Procedure

Refer to *Figure 31* and ensure that the phone lines are wired correctly on the telco connector block and the RJ31X. Connect a telephone buttset to the incoming phone line terminals (T4 and T5 on the RJ31X). Refer to *Figure 31*. Turn the buttset on.

Do you hear a dial tone?

✓ ✗

Refer to *TTP46 Open Wiring* on page 96 to determine the phone line problem between the telco connector block and the RJ31X. If the problem still exists, refer to *TTP45 Shorted Wiring* on page 94.

Disconnect the wiring from Terminals 1 and 8 on the RJ31X.

Do you continue to hear the dial tone?

✓ ✗

The RJ31X is wired in reverse.

1. Move the wire connected to T4 and connect it to T1.
2. Move the wire connected to T5 and connect it to T8.
3. Connect the wire previously connected to T1 to T4.
4. Connect the wire previously connected to T8 to T5.
5. Repeat the test.

Replace the control panel. Repeat the test.

Does the new control panel operate properly?

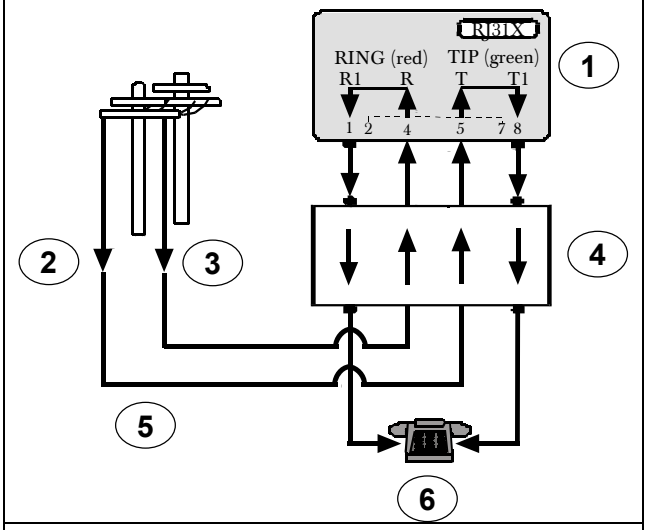
✓ ✗

The phone line connected to the control panel does not operate correctly. Refer the customer to the local phone company.

You cannot validate correct operation of the phone line by measuring voltage during the communication sequence.

The problem is solved.

Figure 31: RJ31X Wiring



1 - RJ31X Jack
2 - TIP
3 - RING
4 - Telco connector block
5 - Outside telco
6 - Premises telephone

TTP35: Dial Tone Does Not Stop after the First or Second Digit is Dialed, or No Ring Sound Occurs after the Dialing Completes

Initial Actions

Make sure that you have performed the actions in *TTP33: Control Panel Does Not Communicate with Central Station by Telephone* on page 70.

Does the dial tone continue after the entire number is dialed?

✓ ✗

Using RPS or your D5200 Programmer, select **9000MAIN→Panel Wide Parameters→Phone** and determine which of the four phone location numbers is the primary central station phone number. If a backup phone number is used, determine which phone location number is the backup number. Verify the primary and backup numbers.

Are the primary and backup numbers correct?

✓ ✗

Enter the correct number or numbers and repeat the test.

Is the control panel connected to a PBX system?

✓ ✗

Enter C before the primary and backup numbers to add a three-second pause before the dialing begins.

☑ A PBX system requires the user to enter a digit on the phone (typically "9") to access an outside line.

Enter C between the first and second digits of the primary and backup numbers to add a three-second pause between the PBX dial tone and the telco dial tone before the dialing begins.

Replace the control panel. Repeat the test.

Does the new control panel operate properly?

✓ ✗

The phone line connected to the control panel does not operate correctly. Refer the customer to the local phone company.

☑ You cannot validate correct operation of the phone line by measuring voltage during the communication sequence.

The problem is solved.

TTP36: The Receiver Does Not Answer or Does Not Send ACK Tones

Initial Actions

Make sure that you have performed the actions in *TTP33: Control Panel Does Not Communicate with Central Station by Telephone* on page 70.

Is the call answered?

✓ ✗

Using RPS or your D5200 Programmer, select **9000MAIN→Panel Wide Parameters→Phone** and determine which of the four phone location numbers is the primary central station phone number. If a backup phone number is used, determine which phone is the backup number. Verify the primary and backup numbers.

Are the primary and backup numbers correct?

✓ ✗

Enter the correct number or numbers and repeat the test.

Contact the central station for a possible receiver problem.

Do you hear information that indicates a wrong number?

✓ ✗

Contact the central station for a possible receiver problem.

Using RPS or your D5200 Programmer, select **9000MAIN→Panel Wide Parameters→Phone** and determine which of the four phone location numbers is the primary central station phone number. If a backup phone number is used, determine which phone is the backup number. Verify the primary and backup numbers.

Are the primary and backup numbers correct?

✓ ✗

Enter the correct number or numbers and repeat the test.

Replace the control panel. Repeat the test.

Does the new control panel operate properly?

✓ ✗

The phone line connected to the control panel does not operate correctly. Refer the customer to the local phone company.

☑ You cannot validate correct operation of the phone line by measuring voltage during the communication sequence.

The problem is solved.

TTP37: Control Panel Does Not Send Event Data after ACK Tones Occur, or Control Panel Attempts to Communicate Again for the Same Event

Initial Actions

Make sure that you have performed the actions in *TTP33: Control Panel Does Not Communicate with Central Station by Telephone* on page 70.

Procedure

To test the operation of the control panel and the local phone line, program the control panel to communicate with the receiver in Technical Support:

1. Using RPS or your D5200 Programmer, select **9000MAIN→Panel Wide Parameters→Phone**.
2. Record the primary central station phone number that the control panel currently uses.
3. Replace the current phone number with `1 800 289 0096 CCCC 4119`.

Programming CCCC before the last four digits of the phone number allows a 12-second pause for the automatic attendant to request the extension number.

If using the D5200 Programmer, you must use both lines to program the phone number. Use all digits in the first line before continuing on the second line.

4. Place a telephone buttset in the Monitor position, and connect the set to the incoming phone line tip and ring. Refer to *Figure 31* on page 72
5. Call the Technical Support Center using the control panel. Watch or listen for each indicator described in *Table 43* on page 70 during the two-way communication sequence.

Does the communication sequence finish successfully?

✓ ✗

Replace the control panel. Repeat the test.

Call the central station to verify that the receiver is using the correct ACK tones for the control panel.

For modem format: Modem IIIa^2 ACK tone
For BFSK format: 2300 Hz ACK tone

Is the receiver programmed with the correct ACK tones?

✓ ✗

Ask the central station to program the receiver with the correct tones.

If the central station does not provide a new primary phone number, reprogram the control panel with the original primary phone number recorded earlier in this TTP.

Ask the central station to provide a phone number for a different receiver or a different carrier.

TTP38: Control Panel Does Not Communicate with the Central Station Receiver through a Network

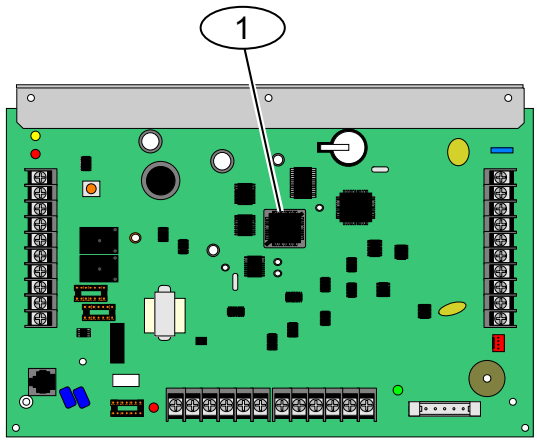
Initial Actions

- Obtain from the network administrator and record the following information for the network interface module (NIM):
  - Assigned IP address
  - Gateway IP address (for a WAN)
  - Number of host bits
  - Netmask address
- Ensure that the firmware revision number of the D9412G is 6.3 or higher. At the keypad, enter Command 59 (Display REV), or read the label on the EEPROM. Refer to *Figure 32*.

If necessary, remove the existing EEPROM and install an EEPROM with the latest firmware revision.

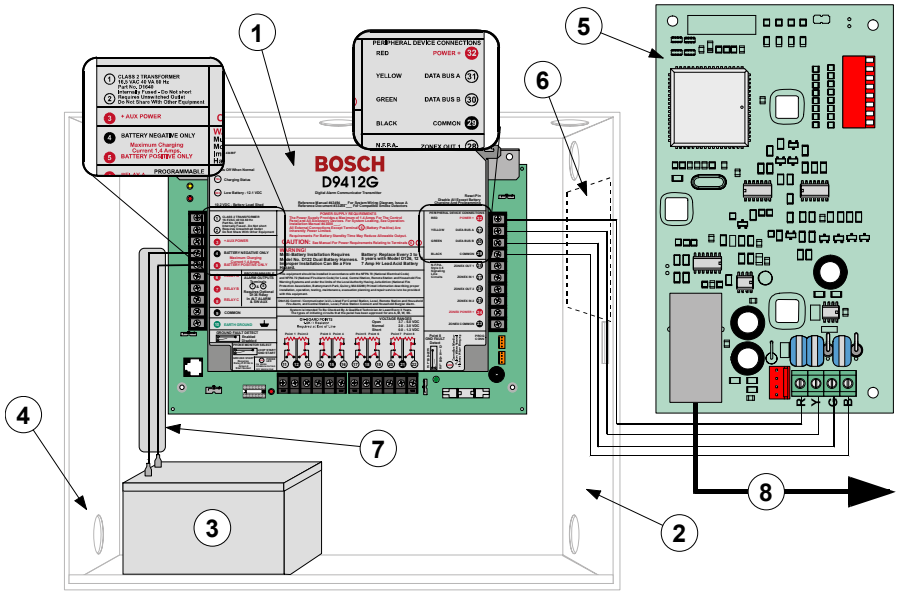
- Ensure that Jumper P2 in the network interface module (NIM) is in the enabled position. Refer to *Figure 37* on page 77 for the DX4020 and *Figure 38* on page 78 for the D9133TTL-E.
- Ensure that the power and data connections between the control panel and the network interface module (NIM) are connected correctly and securely. Data connections are shown in *Figure 33* on page 75 for the DX4020, or in *Figure 34* on page 75 for the D9133TTL-E.

Figure 32: Location of EEPROM on D9412G



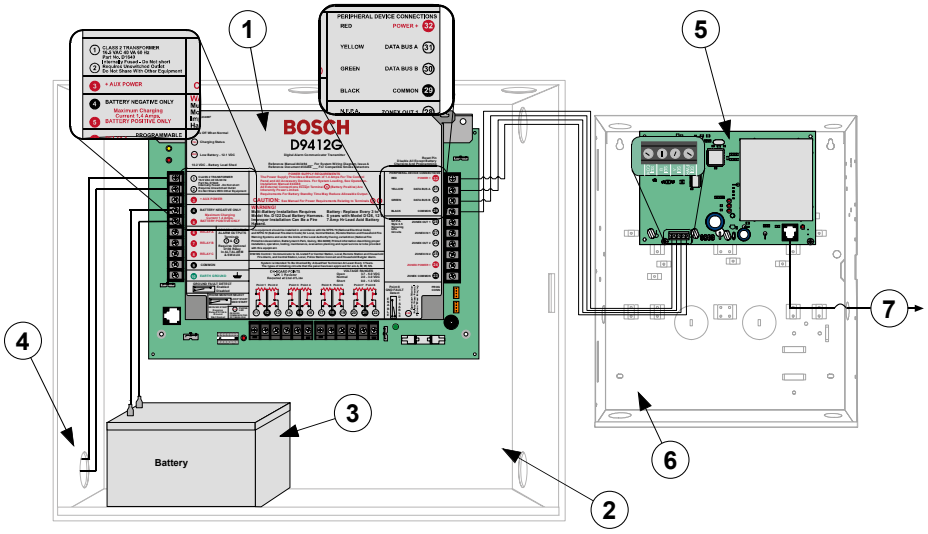
1 - EEPROM

Figure 33: Connection Diagram—NetCom System using DX4020



1 - Bosch D9412G is used as an example
2 - D8103 or D8109 Enclosure
3 - Battery
4 - To AC Transformer
5 - DX4020 Network Interface Module (not in scale with control panel
6 - Location of DX4020 in control panel enclosure
7 - Non-power limited area, all power wiring must remain out of this area
8 - To Ethernet network

Figure 34: Connection Diagram—NetCom System using D9133TTL-E



1 - Bosch D9412G is used as an example
2 - D8103 or D8109 Enclosure
3 - Battery
4 - To AC Transformer
5 - D9133TTL-E Network Interface Module
6 - AE1 Enclosure

Procedure

Observe the BUS-XMIT and BUS-RCV (DX4020) or BUS TX and BUS RX (D9133TTL-E) LEDs on the network interface module (NIM). Refer to *Figure 37* and *Table 44* on page 77 for the DX4020, or *Figure 38* and *Table 45* on page 78 for the D9133TTL-E.

Are the BUS-XMIT and BUS-RCV (DX4020) or BUS TX and BUS RX (D9133TTL-E) LEDs flashing?

✓ ✗

Check the address DIP switches on the NIM. Refer to *Figure 35* on page 77 for the DX4020 and *Figure 36* on page 77 for the D9133TTL-E.

Are the DIP switches set for address 88?

✓ ✗

Set the DIP switches for address 88.

☑ After changing the address, power the NIM off then on.

Check the operation of other devices connected to the control panel SDI bus.

Are other SDI devices working?

✓ ✗

1. Mark the wiring for all devices connected to the SDI bus with the numbers of the terminals.
2. Disconnect all devices from Terminal 29 through Terminal 32.
3. Set all DIP switches on a known good keypad to ON (address number 1).
4. Directly wire the keypad to Terminal 29 through Terminal 32.
5. Using the D5200 Programmer or RPS, go into **9000MAIN→Command Centers →Command Center Assignments**.
6. At Command Center Assignment Address "1", ensure that **Scope** is set to "Panel Wide."

☑ If using the D5200 Programmer, disconnect it from the control panel and release the reset pin.

Does the keypad operate correctly?

✓ ✗

The SDI circuitry on the control panel failed. Remove and replace the control panel.

The SDI bus wiring has a short. Refer to *TTP45 Shorted Wiring* on page 94.

A B

A B

Use a digital voltmeter (DVM) and measure the input power voltage on the NIM. Set the DVM to VDC. Connect the red lead to the positive (+) terminal on the NIM. Connect the black lead to the negative (–) terminal. Refer to *Figure 33* on page 75 for the DX4020, or in *Figure 34* on page 75 for the D9133TTL-E.

Is the voltage +12 VDC to +13.8 VDC?

✓ ✗

The power wiring between the control panel and the NIM has an open condition. Refer to *TTP46 Open Wiring* on page 96.

Use a digital voltmeter (DVM) and measure the voltage on the data circuit to the NIM. Connect the red lead to Terminal G (green). Connect the black lead to the negative (–) terminal. Refer to *Figure 33* on page 75 for the DX4020, or in *Figure 34* on page 75 for the D9133TTL-E..

☑ The voltage on these terminals is not a steady voltage.

Is the lowest voltage indicated on the DVM less than 3.5 VDC?

✓ ✗

The network communication parameters for the control panel are not correct. Use the RPS software or the D5200 Programmer and perform the programming procedure. Refer to *Using RPS (RAM IV)* on page 81 or *Using a D5200 Programmer* on page 82.

The data circuit between the control panel and the NIM has an open condition. Refer to *TTP46 Open Wiring* on page 96.

Generate a signal by latching and unlatching the reset pin on the control panel. Observe the serial transmit (SER-TX) LED and the serial receive (SER-RX) LED on the NIM. Refer to *Figure 37* and *Table 44* on page 78 for the DX4020, or *Figure 38* and *Table 45* on page 80.

Do the SER-TX and SER-RX LEDs flash?

✓ ✗

Generate another signal and observe the Xport LEDs on the DX4020 or the Ethernet Status LEDs on the D9133TTL-E. Refer to *Figure 39* and *Table 46* for the DX4020 on page 78, or *Figure 40* and *Table 47* for the D9133TTL-E on pages 79 and 80.

Do the LEDs flash or light?

✓ ✗

Check the Ethernet network RJ-45 connection and the Ethernet cable and connections.

C D

C **D**

Use a laptop PC and perform the procedure described in *Using the PING Command* on page 86.

Does the ping command generate four replies?

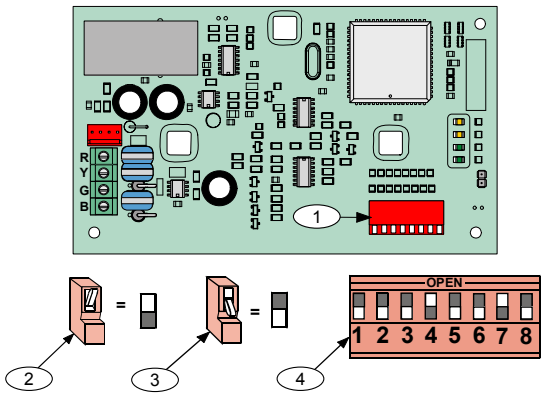
✓ ✗

Call Technical Support: (888) 886-6189. Speak with a NetCom specialist.

Reconfigure the firewall. Refer to *Configuring the Firewall in Windows XP Service Pack 2 for Compatibility with RPS* on page 88.

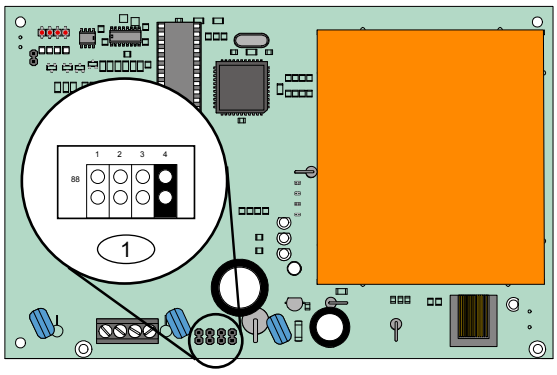
Have the D6600 administrator call Technical Support: (888) 886-6189 and speak with a NetCom specialist.

Figure 35: DX4020 – DIP Switch Settings for Address 88



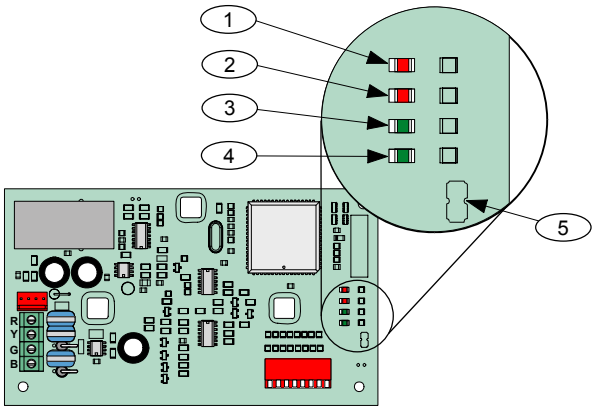
1 - DIP Switches
2 - Open position
3 - Closed position
4 - SDE Address 88 switch settings

Figure 36: D9133TTL-E – Jumper Setting for Address 88



1 - Address Jumper, set for Address 88

Figure 37: DX4020 – Bus and Serial Status LEDs and Jumper P2



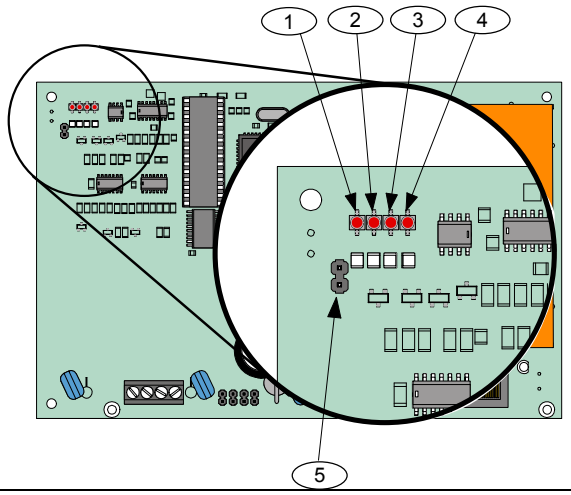
1 - BUS-XMIT LED
2 - BUS-RCV LED
3 - SER-RX LED
4 - SER-TX LED
5 - Jumper P2

* Refer to *Table 44* for descriptions of the LEDs

Table 44: DX4020 Bus and Serial Status LED Functions

LED	Name	Color	Function
1	BUS-XMIT	Red	Flashes when the DX4020 sends data to the control panel
2	BUS-RCV	Red	Flashes when the control panel talks to any SDI device (normally, this LED flashes continually when the Reset pin on the control panel is up.)
3	SER-RX	Green	Flashes when data is received by the Ethernet port on the DX4020
4	SER-TX	Green	Flashes when data is sent to the Ethernet port on the DX4020

Figure 38: D9133TTL-E – Bus and Serial Status LEDs* and Jumper P2



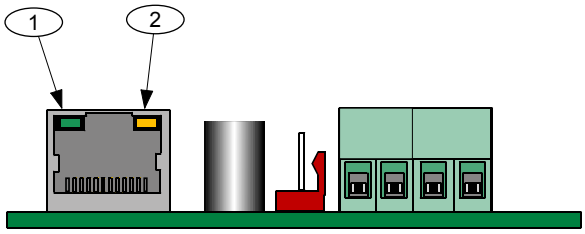
1 - BUS-TX LED
2 - BUS-RX LED
3 - SER-TX LED
4 - SER-RX LED
5 - Jumper P2

* Refer to *Table 45* for descriptions of the LEDs

Table 45: D9133TTL-E Diagnostic LED Functions

LED	Name	Color	Function
1	BUS-TX	Red	Flashes when the D9133TTL-E sends data to the control panel
2	BUS-RX	Red	Flashes when the control panel talks to any SDI device (normally, this LED flashes continually when the Reset pin on the control panel is up.)
3	SER-TX	Red	Flashes when data is sent to the Ethernet port on the D9133TTL-E
4	SER-RX	Red	Flashes when data is received by the Ethernet port on the D9133TTL-E

Figure 39: DX4020 Xport LEDs*



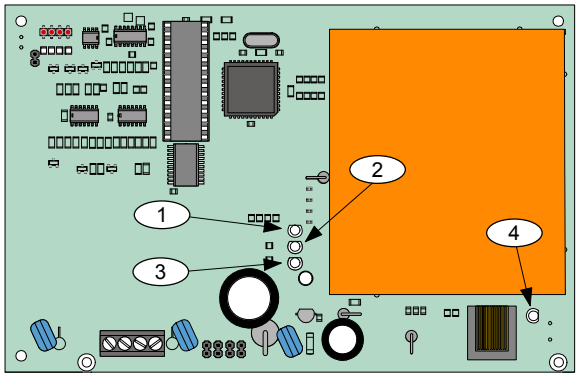
1 - Left LED
2 - Right LED

* Refer to *Table 46* for descriptions of the LEDs

Table 46: Xport LEDs

Left LED		Right LED		
State	Color	State	Color	Meaning
Off		Off		No Ethernet link
Off		Solid	Amber	100 BASE-T half duplex link
Off		Flashing	Amber	100 BASE-T half duplex; activity
Off		Solid	Green	100 BASE-T full duplex link
Off		Flashing	Green	100 BASE-T full duplex; activity
Solid	Amber	Off		10 BASE-T half duplex link
Flashing	Amber	Off		10 BASE-T half duplex; activity
Solid	Green	Off		10 BASE-T full duplex link
Flashing	Green	Off		10 BASE-T full duplex; activity

Figure 40: D9133TTL-E Ethernet Status LEDs*



1 - Serial Port (Channel) 1 Status
2 - Serial Port (Channel) 2 Status
3 - Diagnostic
4 - Network Link Status

* Refer to *Table 47* on page 80 for descriptions of the LEDs

Table 47: D9133TTL-E Ethernet Status LED Function

LED	Description	Function
1	Serial Port (Channel) 1 Status	**NIM Software Version 4.5:** On to indicate Serial Port (Channel) 1 is idle. **NIM software version 5.1b5 or 5.1b6:** Off to indicate Serial Port (Channel) 1 is idle.
2	Serial Port (Channel) 2 Status	Not used. Disregard status.
3	Diagnostic	Glows steadily or flashes red in combination with the Channel 1 LED to indicate diagnostics and error detection. LED 3 solid red, LED 1 (Channel 1) flashing red:
		1x EPROM checksum error / 4x EEPROM checksum error
		2x RAM error / 5x Duplicated IP address on the network*
		3x Network controller error / 6x Software does not match hardware
		LED 3 flashing red, LED 1 (Channel 1) flashing red:
		4x Faulted network connection* / 5x No DHCP response received*
4	Network Link Status	On to indicate the network port is connected to the network.

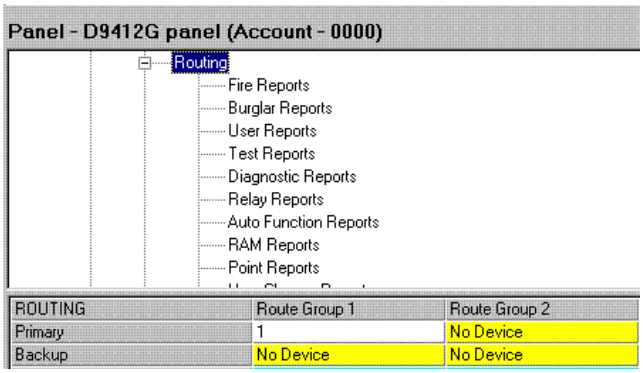
* Non-fatal error

The network interface module (NIM) software version must be version 4.5 or above. To verify the software version, initiate a Telnet session. Refer to *Using Telnet for Configuration* on page 84.

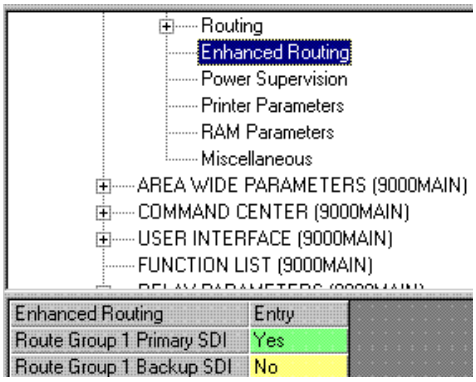
3.4.1 Programming the Control Panel for Network Communication

Using RPS (RAM IV)

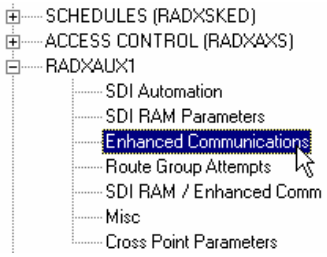
1. Using RPS, receive the control panel's programming. For more information, refer to *Section 4.2.1 Receiving Control Panel Programming Using RPS* on page 121.
2. Using RPS, go into **9000MAIN→Panel Wide Parameters→Routing**.
3. Set the **Primary on Route Group 1** prompt to **1**.



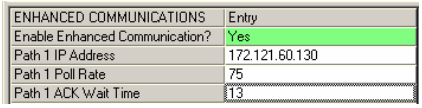
4. Using RPS, go into **9000MAIN→Panel Wide Parameters→Enhanced Routing**.
5. Set the **Route Group 1 Primary SDI** prompt to **Yes**.



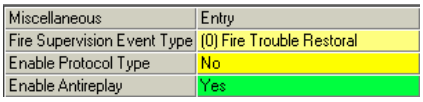
6. Exit from **9000MAIN→Panel Wide Parameters** and select **RADXAUX1**.
7. Click the small plus symbol and select **Enhanced Communications**.



8. Set the **Enable Enhanced Communication?** prompt to **Yes** and enter the IP address of the D6600 Receiver for **Path 1 IP Address**.



9. Select the **Path 1 Poll Rate** parameter. (For UL requirements, refer to the DX4020 Installation Guide [P/N: 49522]).
10. Using RPS, go into **D9412 Program Record Sheet→RADXAUX1→Misc**.
11. Under the **Misc** prompt, select **Enable Antireplay** and select **Yes** for the value.



12. Send the programming data to the control panel. For more information, refer to *Section 4.2.2 Sending Programming Changes to the Control Panel Using RPS* on page 121.
13. Reboot the control panel to synchronize the numeric keys.

Using a D5200 Programmer

For more information, refer to *D5200 Programmer's Operation and Installation Guide* (P/N: 74-06176-000).

1. Using your D5200 Programmer, receive data from the control panel. Refer to *Section 4.2.3 Receiving Control Panel Programming Using the D5200 Programmer* on page 122.
2. Select **PANEL WIDE PARAMETERS** and press [ENTER GROUP].

3. Select **Routing** and press [ENTER GROUP].

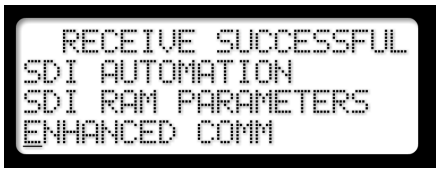
4. In Routing, select **R1 Primary Device 1** and press [1] to set the value to **1**.
   Press [ENTER] to accept the value

5. Press [EXIT GROUP] once to return to **PANEL WIDE PARAMETER**.
6. Select **Enhanced Routing** and press [ENTER GROUP].

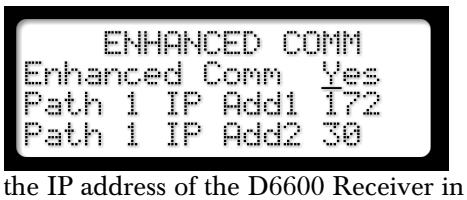
7. Set **RG1 Primary SDI** to **Yes** and press [ENTER].
8. Send the new record to the control panel. Refer to *Section 4.2.4 Sending Programming Changes to the Control Panel Using the D5200 Programmer* on page 122.

> You can press [SEND (LOAD)] on the D5200 Programmer at any time.

9. Receive a copy of RADXAUX1 from the control panel. Refer to *Section 4.2.3 Receiving Control Panel Programming Using the D5200 Programmer* on page 122.
10. Select **ENHANCED COMM** and press [ENTER GROUP].



11. Set **ENHANCED COMM** to **Yes** by pressing [Y]. Press [ENTER].



12. Enter the IP address of the D6600 Receiver in **Path 1 IP Add1** to **Path 1 IP Add 4** by pressing the number keys and [ENTER] after each octet of the IP address.
13. Select **Path 1Poll Rate** and set it to **75**, then press [ENTER].

14. Press [EXIT GROUP] to exit from ENHANCED COMM.
15. At the **NEWRECORD** menu, press [↓] repeatedly to scroll down to **MISCELLANEOUS** and press [ENTER GROUP].

16. Set **EnableAntireplay** to **Yes** by pressing the [Y] key. Press [ENTER].

17. Send the new record to the control panel. Refer to *Section 4.2.4 Sending Programming Changes to the Control Panel Using the D5200 Programmer* on page 122.

Using the ARP Command to Assign or Confirm an IP Address

1. Obtain the Internet address (IP address) from the network administrator.

> The IP address is an identifier for a computer or device on a TCP/IP network and allows the network to route messages based upon the IP address of the destination.
>
> Within an isolated network, IP addresses can be assigned at random if each address is unique. Connecting a private network to the Internet requires using registered IP addresses (Internet addresses).
>
> The format of an IP address is a 32-bit numeric string written as four numbers separated by periods. Each number can be zero to 255. For example, `172.17.10.70` could be an IP address.
>
> In the following examples, the letter "x" is used to indicate all digits. If any of the four elements in the string have fewer than three digits, no leading zeros are used.
>
> `xxx.xxx.xxx.xxx`
> `xx.xx.xx.xx`
> `x.x.x.x`
> `xxx.xx.x.xxx`

2. Identify the physical address (MAC hardware address) on the network interface module (NIM).

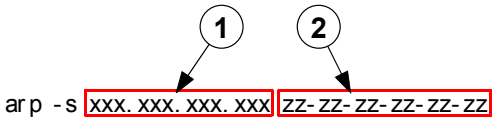
> The MAC hardware address is located on a label on the large metal box soldered to the DX4020 or D9133TTL-E Network Interface Module.
>
> The MAC address has twelve characters in pairs, separated by hyphens. In the following example, the letter "z" is used to indicate all characters.
>
> `zz-zz-zz-zz-zz-zz`

3. Open a DOS window from the Start menu by selecting **Start → Run**.
4. At the Run dialog box, type `COMMAND` and click **OK**. A DOS window appears. Refer to *Figure 41*.

Figure 41: DOS Window

5. At the DOS command line, enter the ARP command:
   a. Type: `arp -s`
   b. Press [SPACE].
   c. Type the IP address and press [SPACE].
   d. Type the MAC hardware address and press [ENTER]. Refer to *Figure 42*.

Figure 42: ARP.EXE Command Syntax



1 *xxx.xxx.xxx.xxx = the IP address assigned to the NIM by the network administrator*

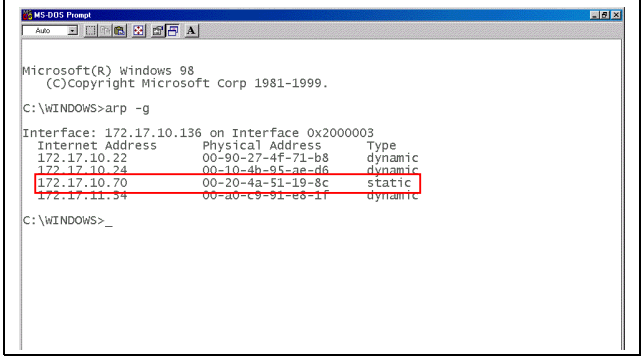
2 *zz-zz-zz-zz-zz-zz = the MAC hardware address found on the NIM*

6. Following your command, the computer responds with a DOS prompt to indicate the address was accepted.

> No indication is provided if the operation is performed correctly. The absence of an error message is your indication that the function is correct.

7. To confirm that the IP address was correctly entered into the ARP table, type:
   `arp -g` [ENTER]
   An "Interface" table appears on the screen. Refer to *Figure 43* on page 84.
8. Check the interface table for the addresses you entered. *Figure 43* on page 84 shows the IP address and the corresponding MAC hardware address. The third line of the interface table in *Figure 43* shows the sample MAC address `00-20-4a-51-19-8c` temporarily linked to IP address `172.17.10.70`.

Figure 43: arp -g



The network uses the interface table to identify devices and route signals. The number of other devices and the "types" shown in the table, such as dynamic or static, depends on the network and the number and types of devices with which the PC communicates.

The interface table allows you to identify the MAC address of an installed device and to confirm that an IP address is linked to the device.

Using Telnet for Configuration

Use this procedure with Windows 2000 or Windows XP.

For Windows 2000, you must log in with an Administrator privilege level.

This procedure uses the IP address of 172.17.10.70 and the MAC address of 00-20-4a-72-04-0e as examples only. Use the unique addresses for the device you are troubleshooting.

1. Open a DOS window from the Start menu by selecting **Start → Run**.
2. At the Run dialog box, type `COMMAND` and click **OK**.
3. A command prompt window appears.

Figure 44: Command Prompt Window

The colors are inverted here for clarity. The normal prompt window appears with white text on black.

4. At the C:\> prompt, type `telnet` and press [ENTER].

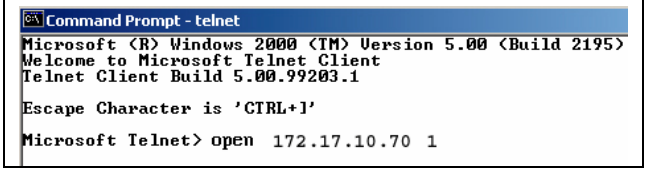
Figure 45: Telnet Command

5. At the Microsoft Telnet> prompt, type:
   a. `open`
   b. a space and the IP address
   c. another space and 1

   Example: `open 172.17.10.70 1`

   Refer to *Figure 46*.

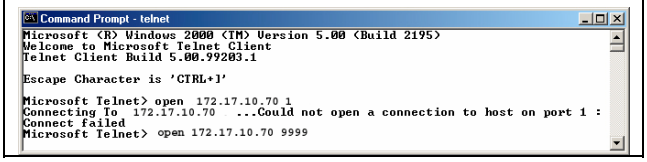
Figure 46: Open the IP Address and Port



The connection fails the first time. This is normal.

6. Press [F3] to show the last line typed.
7. Backspace over the 1 and type: `9999`
   Example: `open 172.17.10.70 9999`

Figure 47: Change Port from 1 to 9999



8. Press [ENTER] to show the setup menu.
9. Press [1] [ENTER] to enter setup Channel 1 configuration.
10. Press [ENTER] to accept the Baud Rate default of (9600). If 9600 is not the default, type 9600 and press [ENTER] to change it.
11. Press [ENTER] to accept the default I/F Mode of (4C). If 4C is not the default, type [4c] [ENTER] to change it

```
I/F Mode (4C) ?
```

12. Press [ENTER] to accept the default Flow of (00). If 00 is not the default, type [00] [ENTER] to change it.

```
Flow (00) ?
```

13. Type a unique port number for the particular local area network (LAN) to which the device is connected, and then press [ENTER].

Datagram Type 07 must be used if the unique port number is not the same one used for the D6680.

The port number shown here is an example and might not be the same.

14. Press [Enter] to accept the default Connect Mode of (CC). If CC is not the default, type [cc] [ENTER] to change it.

```
ConnectMode (CC) ?
```

15. Type [00] if the unique port number typed in above is the same that was used for the D6680. Type [07] if the unique port number typed above is different from the port number used for the D6680. Press [ENTER].

If you select 00 for the Datagram type, the remote IP and port number do not apply. Skip to *Step 18* to enable encryption.

To use Datagram Type 07, firmware version 1.5d or greater is required in the Xport module. Refer to the *DeviceInstaller Operation and Installation Guide* (P/N: 4998138688) for more information.

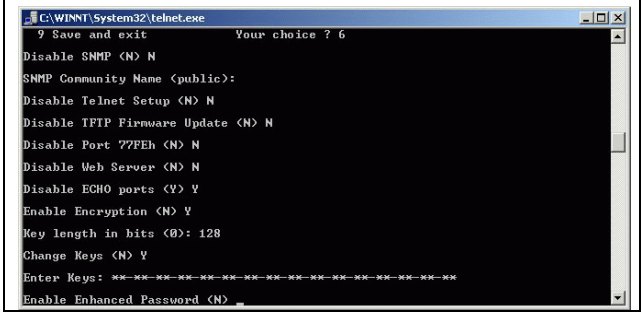
For more information on Datagram Types, refer to the *D6600 NetCom System Guide* (P/N: 4998122712).

16. If using dynamic host configuration protocol (DHCP), press [ENTER] four times to specify 0.0.0.0 for remote IP address. It might be necessary to type the actual IP address.
17. Enter the same port number that was used for the D6680 and press [ENTER].
18. If you want to enable encryption, select **6-Security** from the main menu and continue to the next step.

If encryption is enabled on the network interface module (NIM), it must be enabled at the D6680 with the same key.

The software revision of the Network Interface Module connected to the NIM must be 1.2 or greater. To check the version, execute a telnet command to the unit. Allow the version number to be displayed for five seconds before you press [Enter].

Figure 48: NIM Encryption



19. At **Disable SNMP** (**N**) **N**, press [ENTER].
20. At **SNMP Community Name** ( )**:**, press [ENTER].
21. At **Disable Telnet Setup** (**N**) **N**, press [ENTER].
22. At **Disable Port 77FEh** (**N**) **N**, press [ENTER].
23. At **Disable Web Server** (**N**) **N**, press [ENTER].
24. At **Disable ECHO ports** (**Y**) **Y**, press [ENTER].
25. At **Enable Encryption** (**N**), press [Y] [ENTER].
26. At **Key length in bits** (**0**), type `128` and press [ENTER].
27. At **Change keys** (**N**), press Y [ENTER].
28. **Enter keys:** indicates the bytes programmed in the D6680. These 16 bytes (32 characters) must match. Default value is 01-02-03-04-05-06-07-08-09-10-11-12-13-14-15-16.
29. At **Enable Enhanced Password** (**N**), press [ENTER].
30. Select **9** at the main menu to save and close the telnet session.
31. A message appears indicating that the connection was lost. Click [OK] to close the Telnet window.
32. To confirm that the IP address is configured correctly, send a ping command for the IP address and check for a response:
    a. At the C:\> prompt, type `ping <IP address>` and press [ENTER].
    b. If the NIM is communicating with the network, four replies are received and shown on the screen.

Using the PING Command

Use this procedure with Windows 2000 or Windows XP.

For Windows 2000, you must log in with an Administrator privilege level.

1. Open a DOS window from the Start menu by selecting **Start → Run**.
2. At the Run dialog box, type `COMMAND` and click **OK**.
3. A command prompt window appears.

Figure 49: Command Prompt Window

The colors are inverted here for clarity. The normal prompt window appears with white text on black.

4. At the C:\> prompt, type: `ping <IP address>` and press [ENTER].
5. If the network interface module (NIM) is communicating with the network, four replies are received and shown on the screen.

Setting or Changing the Number of Host Bits for the Netmask Address

Initial Actions

Obtain the correct gateway address, Netmask address, and number of host bits for the NIM.

Use this procedure with Windows 2000 or Windows XP.

For Windows 2000, you must log in with an Administrator privilege level.

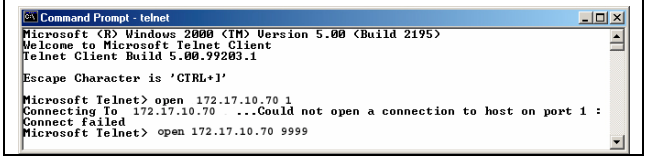
Procedure

1. Open a DOS window from the Start menu by selecting **Start → Run**.
2. At the Run dialog box, type `COMMAND` and click [OK].
3. A command prompt window appears. Refer to *Figure 49* on page 86.
4. At the C:\> prompt, type `telnet` and press [ENTER]. Refer to *Figure 45* on page 84.
5. At the Microsoft Telnet> prompt, type:
   a. `open`
   b. a space and the IP address
   c. another space and 1
   Example: open 172.17.10.70 1
   Refer to *Figure 46* on page 85.

The connection fails the first time. This is normal.

6. Press [F3] to display the last line typed.
7. Backspace over the 1 and type: `9999`
   Example: open 172.17.10.70 9999

Figure 50: Port 9999



8. Press [ENTER] to display the setup menu.
9. Press [ENTER] repeatedly until asked to set the Gateway address.
10. Type [Y] and the gateway IP address.
11. Press [ENTER].
12. The following text appears:

```
Netmask: Number of Bits for Host Part (0=default) (08)
```

13. If the number of host bits needs to change from the default, enter the number of bits that correspond to the Netmask your network is using (Refer to *Table 48*). If using DHCP, press [ENTER].
    See your network administrator for more information.
14. Press [ENTER] after entering the correct number of bits for the Netmask address.

Table 48: Netmask Addresses

Host Bits	Netmask	Host Bits	Netmask
1	255.255.255.254	17	255.254.0.0
2	255.255.255.252	18	255.252.0.0
3	255.255.255.248	19	255.248.0.0
4	255.255.255.240	20	255.240.0.0
5	255.255.255.224	21	255.224.0.0
6	255.255.255.192	22	255.192.0.0
7	255.255.255.128	23	255.128.0.0
8	255.255.255.0	24	255.0.0.0
9	255.255.254.0	25	254.0.0.0
10	255.255.252.0	26	252.0.0.0
11	255.255.248.0	27	248.0.0.0
12	255.255.240.0	28	240.0.0.0
13	255.255.224.0	29	224.0.0.0
14	255.255.192.0	30	192.0.0.0
15	255.255.128.0	31	128.0.0.0
16	255.255.0.0		

Configuring the Firewall in Windows XP Service Pack 2 for Compatibility with RPS

If your PC, with Remote Programming Software (RPS) installed, runs Windows XP Service Pack 2 and you use Windows Firewall, you must grant permission to RPS so that it can conduct network communication with control panels:

1. Select **Start→Control Panel**.
   - If the PC's Control Panel is set to Category View, select **Control Panel→Security Center**. Under "Manage security settings for:", click **Windows Firewall**. Go to *Step 2*.
   - If the PC's Control Panel is set to Classic View, select **Control Panel→Windows Firewall**. Go to *Step 2*.
2. Click the Exceptions tab.
3. Click **Add Port**…
4. In the Name field, enter the name of the port. Example: `RPS_Port`
5. In the Port Number field, enter the port number assigned to your network interface module. For example, if your network interface module uses Port 7700, enter: `7700`
6. Click **UDP**.
7. Click **OK**.
8. Click **OK** again.
9. Test the connection from within RPS.

TTP39: Control Panel Does Not Send Opening and Closing Reports by Area

Initial Actions

Ensure that opening and closing reports are enabled in **9000MAIN→Panel Wide Parameters→Routing→ User Reports**.

Procedure

Using RPS or your D5200 Programmer, select **9000MAIN→Area Wide Parameters→ Area Parameters**.

Are the areas for which opening and closing reports are needed set to On?

✓ ✗

Change the settings to **On**.

Using RPS or your D5200 Programmer, select **9000MAIN→Area Wide Parameters→Open/Close Options→Area O/C**.

Is the Area O/C parameter set to Yes?

✓ ✗

Change the Area O/C to **Yes**.

Using RPS or your D5200 Programmer, select **9000MAIN→Area Wide Parameters→Open/Close Options→Acct O/C**.

Is the Acct O/C parameter set to No?

✓ ✗

☑ If Acct O/C is set to **Yes**, no report is sent until all areas within the account are armed or disarmed. The reports are sent only by account, not by area. Refer to *Table 49* on page 89.

Change the Acct O/C parameter to **No**.

Using RPS or your D5200 Programmer, select **9000MAIN→Area Wide Parameters→Open/Close Options→Restricted O/C**.

Is the Restricted O/C parameter set to No?

✓ ✗

☑ If Restricted O/C is set to **Yes**, the opening and closing report is not sent until another specified report is sent. The preferred setting for this parameter is **No**. Refer to *Table 49* on page 89.

Change Restricted O/C to **No**.

A

A

1. Obtain the user number and passcode from a user who is not sending opening and closing reports.
2. Using RPS or your D5200 Programmer, select **RADXUSR1→Passcode Worksheet**.
3. Locate the user number and verify the passcode.
4. Record the Area Authority numbers (1 – 15) for Areas 1 through 8.
5. Using RPS or your D5200 Programmer, select **9000MAIN→User Interface→Authority Levels→ Area O/C**.
6. In Area O/C, check that each Authority Level number recorded in Step 4 has a corresponding "E" for enabled.

Is each Authority Level enabled?

✓ ✗

Enter "E" for each Authority Level the customer intends the user to have.

The output mode of the receiver does not allow showing the reports by area. Report the problem to the central station.

☑ If the D6500 or D6600 Receiver is set in the 6500 output mode, area information is not provided with opening and closing reports. The SIA output mode does provide area information with opening and closing reports.

Table 49: Settings for Opening and Closing (O/C) Reports

Parameters	Type of O/C Report	
	By Area	By Account
Area→Area ON	Y	Y
Open/Close→Acct O/C	N	Y
Open/Close→Area O/C	Y	N
Open/Close→Restricted	N	N

TTP40: PHONE LINE FAIL Message Appears on the Keypad

Procedure

Check the position of the LOOP START/GND START jumper on the control panel.

Is the jumper in the LOOP START position?

✓ ✗

Change the position of the jumper to LOOP START.

Does the system have a D928 Dual Phone Line Switcher installed?

✓ ✗

Use a magnifying glass to check the marking on the SMD resistor. Refer to *Figure 51* on page 90.

Does the resistor have a "0" or "000" marking?

✓ ✗

Send the control panel for repair.

Measure the TIP and RING voltage:

1. Place the phone in an off-hook condition.
2. Use a digital voltmeter set to DC and measure the voltage. Connect the red lead to TIP and the black lead to RING.

Is the voltage ≥3.5 VDC?

✓ ✗

The voltage in the telephone line does not meet the specifications for the control panel. Change the telephone line carrier, or ask the telephone company to increase the voltage in the telephone line.

Call Technical Support:
(888) 886-6189

Check the connection between the phone cord and the jack. The D928 Dual Phone Line Switcher requires a D161 Phone Cord.

Is the D161 Phone Cord installed?

✓ ✗

Install a D161 Phone Cord.

Using RPS or your D5200 Programmer, select **9000MAIN→Panel Wide Parameters→Phone Parameters→Two Phone Lines**.

Is the Two Phone Lines parameter set to Yes?

✓ ✗

A **B**

A **B**

Change the **Two Phone Lines** parameter to **Yes**.

Check the voltage in the phone line monitor:

1. Place the phone in an off-hook condition.
2. Use a digital voltmeter set to DC and measure the voltage. Connect the red lead to TIP and the black lead to RING.

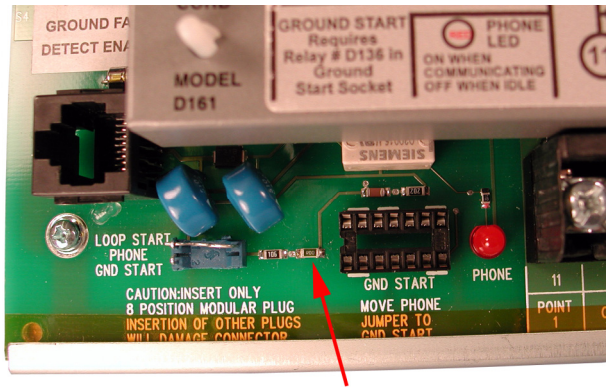
Is the voltage ≥3.0 VDC?

✓ ✗

The voltage in the telephone does not meet the specifications for the control panel. Change the telephone line carrier, or ask the telephone company to increase the voltage in the telephone line.

Call Technical Support:
(888) 886-6189

Figure 51: Location of SMD Resistor



SMD resistor

TTP41: Cannot Connect RPS to Control Panel Using the Network

Procedure

Refer to *Configuring the Firewall in Windows XP Service Pack 2 for Compatibility with RPS* on page 88.

3.5 Ground Fault Symptoms

Table 50: Ground Fault Symptoms

Symptom	Corrective Action
Ground fault on control panel	Refer to *TTP42 Ground Fault on Control Panel* on page 91.
Control panel sends "Trouble Point 256" message to central station.	Refer to *TTP42 Ground Fault on Control Panel* on page 91.
Control panel sends "BTO/BTR" message to central station.	Refer to *TTP42 Ground Fault on Control Panel* on page 91.

TTP42: Ground Fault on Control Panel

Procedure

1. Set your digital voltmeter (DVM) to measure VDC.
2. Connect the red DVM lead to control panel Terminal 9, and the black DVM lead to Terminal 10. Record the voltage shown on the DVM.
3. Remove the terminal block with Terminals 11 to 16 from the control panel, and record the voltage displayed on the DVM. If the voltage changed, this is the affected terminal block. Install the terminal block and proceed to *Step 5*.
4. If the voltage did not change, repeat *Step 3* for the terminal block with Terminals 17 to 22 and the terminal block with Terminals 23 to 32, until you identify the terminal block that causes the voltage change at the DVM. Install the terminal block.
5. Refer to *Table 51* on page 91. Determine the terminals on the affected terminal block that caused the recorded voltage reading at Terminals 9 and 10 in Step 2.
6. One terminal at a time, disconnect all conductors from a terminal identified in *Table 51* until you identify which terminal causes the voltage reading to change on the DVM. This is the affected terminal. Reconnect all conductors.
7. One at a time, disconnect a conductor from the affected terminal until you identify the conductor that causes the voltage reading to change on the DVM. This is the affected conductor.
8. To troubleshoot the affected conductor, refer to *TTP48 Wire Shorted to Ground* on page 102.

Table 51: Ground Fault Identification Voltages

Voltage at Control Panel Terminals 9 and 10	Ground Fault on Corresponding Terminal
0 VDC	4, 9, 12, 15, 18, 21, 23 *(D9412G only),* and/or 29, 6 and/or 7
approximately 1.7 VDC	6 and/or 7
approximately 2.5 VDC	11, 13, 14, 16, 17, 19, 20, and/or 22,
approximately 7.0 VDC fluctuating	30 and/or 31
approximately 7.6 VDC fluctuating	1 and/or 2
approximately 11 to12 VDC	25, 26 *(D9412G only),* 27 and/or 28 *(D9412G/D7412G)*
approximately 13.8 VDC	3, 5, 8, 24 *(D9412G only),* and/or 32

TTP43: Control Panel Sends "Trouble Point 256" Message to Central Station

Procedure

Refer to *TTP42 Ground Fault on Control Panel* on page 91.

TTP44: Control Panel Sends "BTO/BTR" Message to Central Station

Procedure

Refer to *TTP42 Ground Fault on Control Panel* on page 91.

3.6 General Wiring Troubleshooting

Table 52: General Wiring Faults

Symptom	Corrective Action
Shorted wiring	Refer to *TTP45 Shorted Wiring* on page 94.
Open wiring	Refer to *TTP46 Open Wiring* on page 96.
Noise on wire	Refer to *TTP47 Noise on Wire* on page 98.
Wire shorted to ground	Refer to *TTP48 Wire Shorted to Ground* on page 102.
Unexpected voltage on control panel wiring	Refer to *TTP49 Unexpected Voltage on On-board Point Wiring* on page 104.
Power troubleshooting	Refer to *TTP50 Power Troubleshooting* on page 107.

TTP45: Shorted Wiring

Initial Actions

You must understand the devices and wiring splices contained in the circuit you are troubleshooting. If you do not know this information, trace the wiring as required.

If you are unsure of which circuit to troubleshoot, refer to *Section* *4.1.4 Identifying Addressable Points on a Circuit* on page 114.

Procedure

1. Disconnect the wire's conductors from the control panel or module.
2. Set your digital voltmeter (DVM) to measure resistance.
3. Connect the red DVM lead to one conductor and the black DVM lead to the other conductor.

For the remainder of this TTP, leave the DVM connected to these two conductors.

Is there more than one piece of equipment connected to this conductor, or are there wire splices on the conductor?

✓

At the other end of the wire, cut and re-strip the insulation from the wire and each conductor.

Does the DVM still indicate a short?

✓

The short is corrected. Reconnect all equipment on circuit.

The problem is either that the disconnected equipment is faulty, or the conductor was not connected to the equipment correctly. If the problem returns after reconnecting the equipment, replace the equipment.

✗

Run the wire again, then reconnect all equipment on the circuit.

✗

If the devices on the circuit provide an indication of operation (for example, LEDs that light), use those indicators to determine the devices that are not operating. These indicators help determine the location of the short.

A

A

IMPORTANT: The rest of this procedure uses a half-split troubleshooting approach. By answering the following question, you divide the circuit in half to determine the half of the circuit that contains the short. This half is the "affected circuit".

By repeating the question, you divide the affected circuit in half again to determine the half of the affected circuit that contains the short. That half becomes the affected circuit.

Repeat the following question as many times as necessary until you reduce the affected circuit enough to identify the location of the short. Refer to *Figure 52* on page *95*.

During the rest of this TTP, if the TTP states ***"repeat the process and question above"***, return to this location in the TTP.

Disconnect the middle device or splice in the affected circuit.

Does the DVM read a short?

✓

Refer to *Figure 52* on page *95*. The problem is between where you disconnected the device or splice and either:

- the end of the circuit, or
- the location of the device or splice you disconnected the last time the DVM indicated a short.

Reconnect the device or splice, then ***repeat the process and question above***.

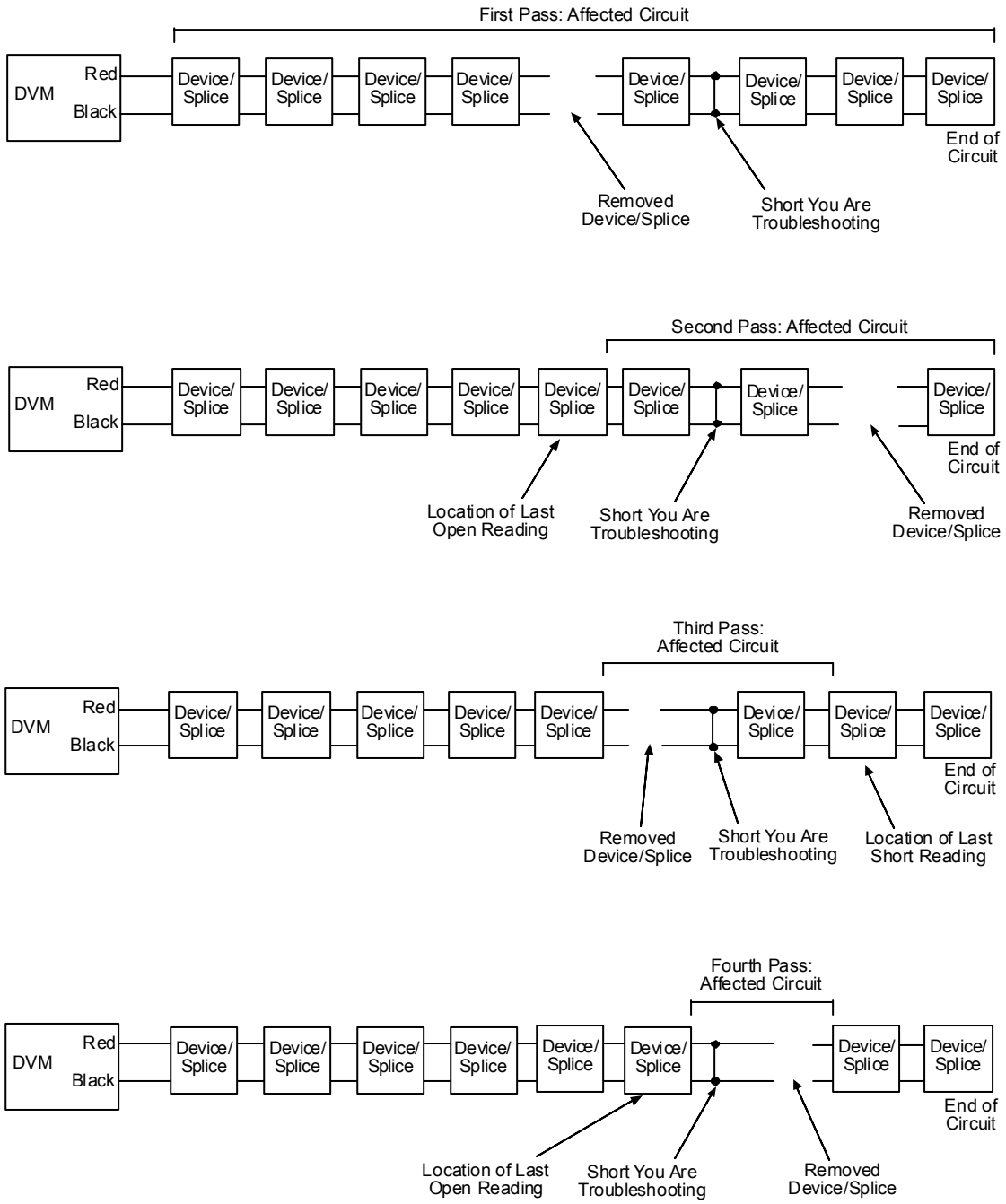
✗

Refer to *Figure 52* on page *95*. The problem is between where you disconnected the device or splice and either:

- the DVM, or
- the location of the device or splice you disconnected the last time the DVM indicated an open.

Reconnect the device or splice, then ***repeat the process and question above***.

Figure 52: Shorted Wiring Troubleshooting Example



TTP46: Open Wiring

Initial Actions

You must understand the devices and wiring splices contained in the circuit you are troubleshooting. If you do not know this information, trace the wiring as required.

If you are unsure of which circuit to troubleshoot, refer to *Section 4.1.4 Identifying Addressable Points on a Circuit* on page 114.

Procedure

Disconnect the wire's conductors from the control panel or module. Set your digital voltmeter (DVM) to measure resistance. Connect the red DVM lead to one conductor and the black DVM lead to the other conductor.

For the remainder of this TTP, leave the DVM connected to these two conductors.

Is there more than one piece of equipment connected to this conductor, or are there wire splices on the conductor?

✓

At the other end of the wire, cut and re-strip the insulation from the wire and each conductor, then short the two conductors together.

Does the DVM still indicate an open?

✓

The open in the wiring is corrected. Reconnect all equipment on circuit.

The problem is either that the disconnected equipment is faulty, or the conductor was not connected to the equipment correctly. If the problem returns after reconnecting the equipment, replace the equipment.

✗

Re-run the wire, then reconnect all equipment on the circuit.

If the devices on the circuit provide an indication of operation (for example, LEDs that light), use those indicators to determine the devices that are not operating. These indicators help determine the location of the open.

A

✗

A

IMPORTANT: The rest of this procedure uses a half-split troubleshooting approach. By answering the following question, you divide the circuit in half to determine the half of the circuit that contains the open. This half is the "affected circuit".

By repeating the question, you divide the affected circuit in half again to determine the half of the affected circuit that contains the open. That half becomes the affected circuit.

Repeat the following question as many times as necessary until you reduce the affected circuit enough to identify the location of the open. Refer to *Figure 53* on page *97*.

During the rest of this TTP, if the TTP states ***"repeat the process and question above"***, return to this location in the TTP.

Disconnect the middle device or splice in the affected circuit, then short the two conductors together.

Does the DVM indicate an open?

✓

Refer to *Figure 53* on page *97*. The problem is between where you disconnected the device or splice and either:

- the end of the circuit, or
- the location of the device or splice you disconnected the last time the DVM indicated an open.

Reconnect the device or splice, then ***repeat the process and question above***.

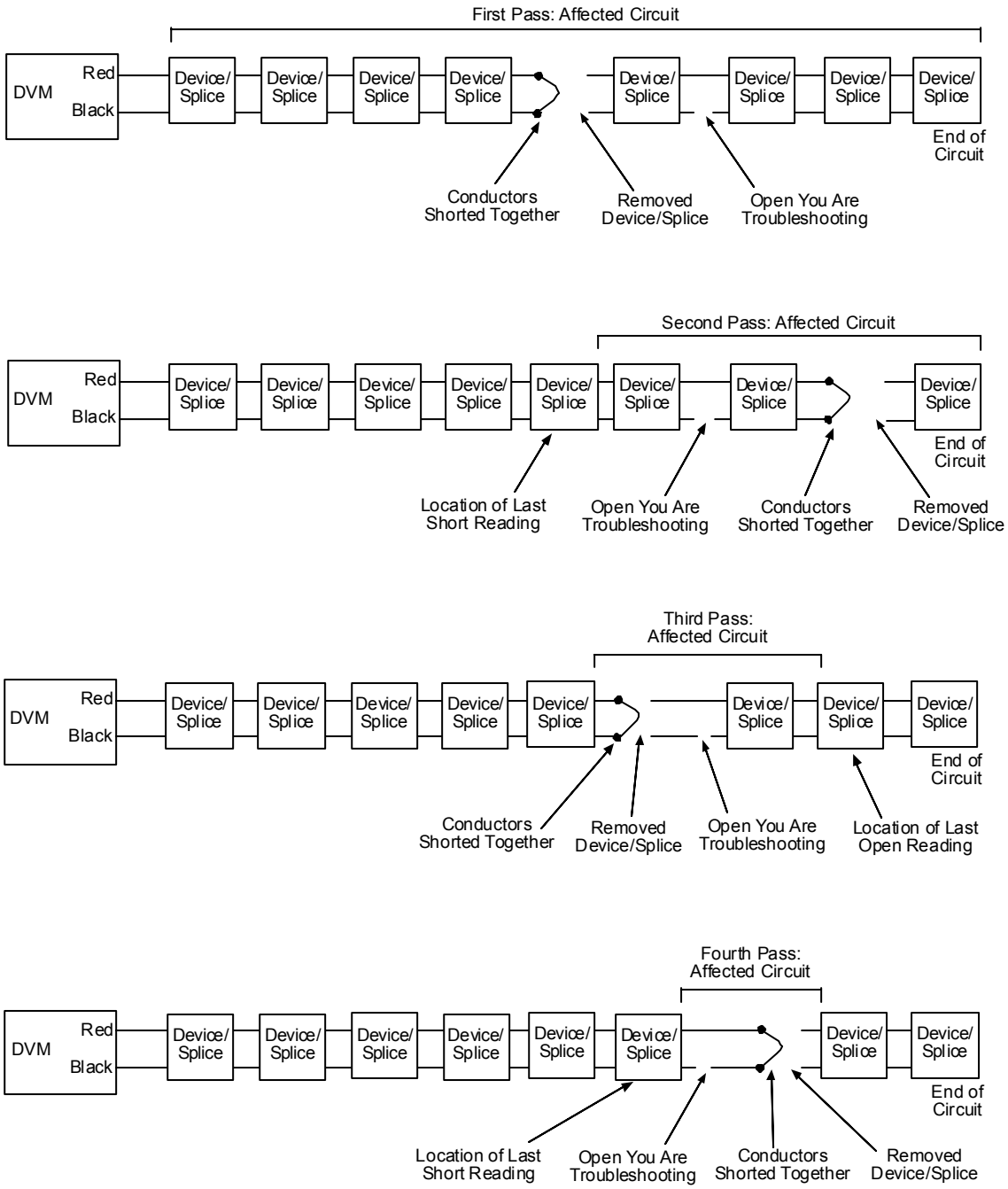
✗

Refer to *Figure 53* on page *97*. The problem is between where you disconnected the device or splice and either:

- the DVM, or
- the location of the device or splice you disconnected the last time the DVM indicated a short.

Reconnect the device or splice, then ***repeat the process and question above***.

Figure 53: Open Wiring Troubleshooting Example



TTP47: Noise on Wire

Initial Actions

You must understand the devices and wiring splices contained in the circuit you are troubleshooting. If you do not know this information, trace the wiring as required.

If you are unsure of which circuit to troubleshoot, refer to *Section 4.1.4 Identifying Addressable Points on a Circuit* on page 114.

Procedure

Disconnect both conductors of the wire from the control panel or module. Touch the probe (from your Tone and Probe Test Kit) to one conductor. Turn the probe on. Then repeat for the other conductor.

Did the probe remain silent for both conductors?

✓ ✗

Connect the red lead from your digital voltmeter (DVM) to one conductor. Connect the black lead to a known good earth ground. Set the DVM to measure VAC. Repeat with the other conductor.

Does the DVM read >1 VAC on either conductor?

✓ ✗

The problem is electrical noise, possibly caused by a data circuit that runs parallel to part of the wire you are troubleshooting.

Select the conductor that produced the most noise from your probe. Disconnect your DVM from the conductor.

For the rest of this TTP, always check for noise by touching the probe to the same wire location used at the beginning of this procedure.

Is there more than one piece of equipment connected to this conductor, or are there wire splices on the conductor?

✓ ✗

Disconnect the other end of the conductor you are troubleshooting. Touch the probe to the conductor again.

Did the probe remain silent?

✓ ✗

Re-run the wire, avoiding all data circuits. Then reconnect equipment on the circuit.

The problem is the location where the equipment was installed. Relocate the equipment.

A B C

A B C

IMPORTANT: The rest of this procedure uses a half-split troubleshooting approach. By answering the following question, you divide the circuit in half to determine the half of the circuit that is the source of noise. This half is the "affected circuit".

By repeating the question, you divide the affected circuit in half again to determine the half of the affected circuit that is the source of noise. That half becomes the affected circuit.

Repeat the following question as many times as necessary until you reduce the affected circuit enough to identify the source of noise. Refer to *Figure 54* on page *100*.

After you identify the source of noise, run the wire away from the source of noise.

During the rest of this TTP, if the TTP states ***"repeat the process and question above"***, return to this location in the TTP.

Disconnect the middle device or splice in the affected circuit. Touch the probe to the noisiest conductor identified at the beginning of this procedure.

Did the probe remain silent?

✓ ✗

Refer to *Figure 54* on page *100*. The problem is between where you disconnected the device or splice and either:

- the location of the probe, or
- the location of the device or splice you disconnected the last time the probe remained silent. Reconnect the device or splice, then ***repeat the process and question above***.

Refer to *Figure 54* on page *100*. The problem is between where you disconnected the device or splice and either:

- the end of the circuit, or
- the location of the device or splice you disconnected the last time the probe did not remain silent. Reconnect the device or splice, then ***repeat the process and question above***.

A B

A B

The problem is AC induction, possibly caused by high-voltage AC that runs parallel to part of this wire. Select the conductor that produced the highest AC voltage reading.

☑ For the rest of this TTP, leave the DVM connected to the conductor that produced the highest AC voltage reading.

Is there more than one piece of equipment connected to this conductor, or are there wire splices on the conductor?

✓ ✗

Disconnect the other end of the conductor you are troubleshooting.

Does the DVM still indicate >1 VAC?

✓ ✗

The problem is the location where the equipment is installed. Relocate the equipment.

Re-run the wire, avoiding all sources of high-voltage AC. Reconnect all equipment on the circuit.

☑ **IMPORTANT:** The rest of this procedure uses a half-split troubleshooting approach. By answering the following question, you divide the circuit in half to determine the half of the circuit that is the source of AC induction. This half is the "affected circuit".

By repeating the question, you divide the affected circuit in half again to determine the half of the affected circuit that is the source of AC induction. That half becomes the affected circuit.

Repeat the following question as many times as necessary until you reduce the affected circuit enough to identify the source of AC induction. Refer to *Figure 55* on page *101*.

After you identify the source of AC induction, run the wire away from the source of AC induction.

☑ During the rest of this TTP, if the TTP states ***"repeat the process and question above"***, return to this location in the TTP.

Disconnect the middle device or splice in the affected circuit.

Does the DVM read >1 VAC?

✓ ✗

A D E

Refer to *Figure 55* on page *101*. The problem is between where you disconnected the device or splice and either:

- the end of the circuit, or
- the location of the device or splice you disconnected the last time the DVM indicated >1 VAC. Reconnect the device or splice, then ***repeat the process and question above***.

Refer to *Figure 55* on page *101*. The problem is between where you disconnected the device or splice and either:

- the location of the DVM, or
- the location of the device or splice you disconnected the last time the DVM did not indicate >1 VAC. Reconnect the device or splice, then ***repeat the process and question above***.

Call Bosch Technical Support for assistance.

A D E

Figure 54: Noise Troubleshooting Example

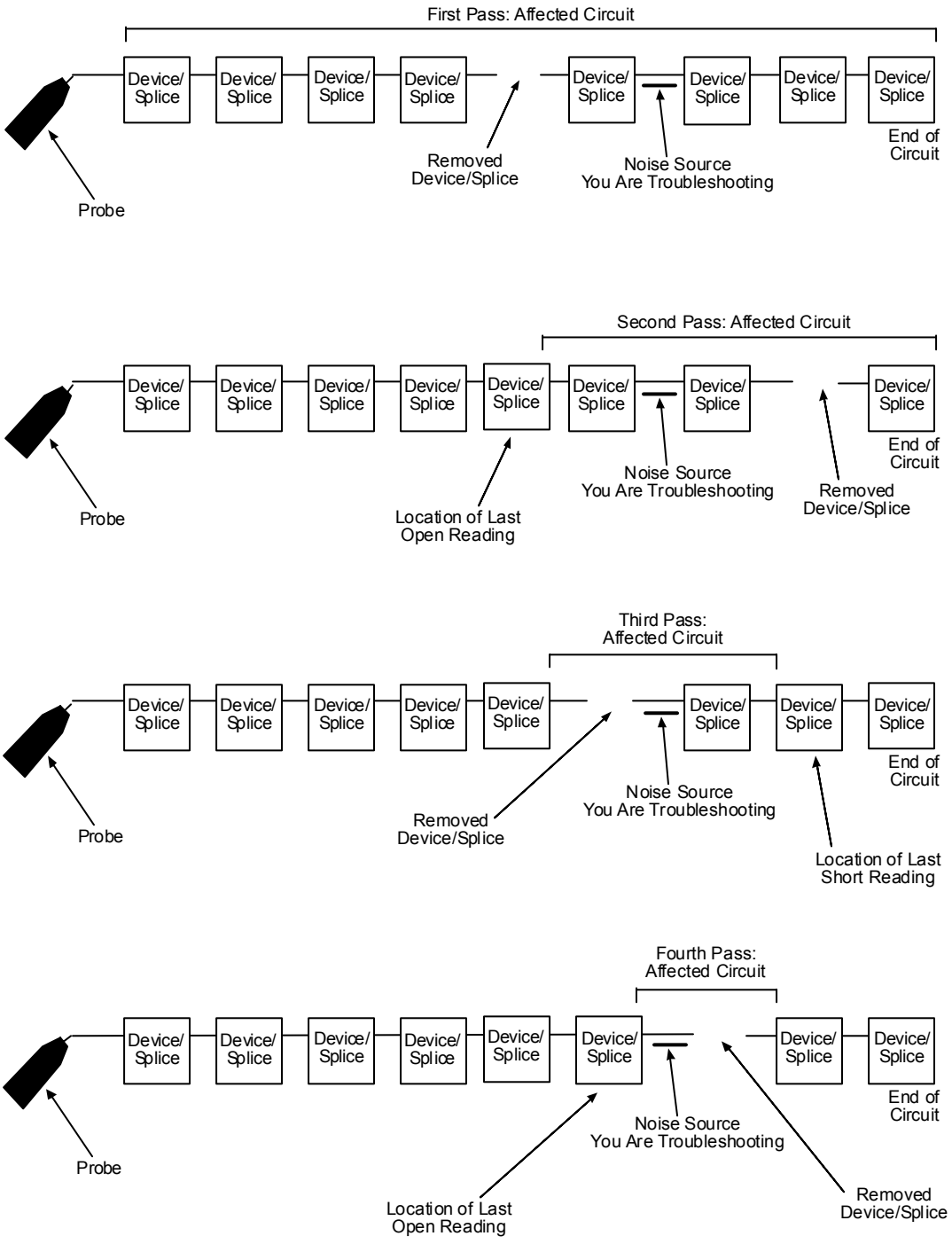
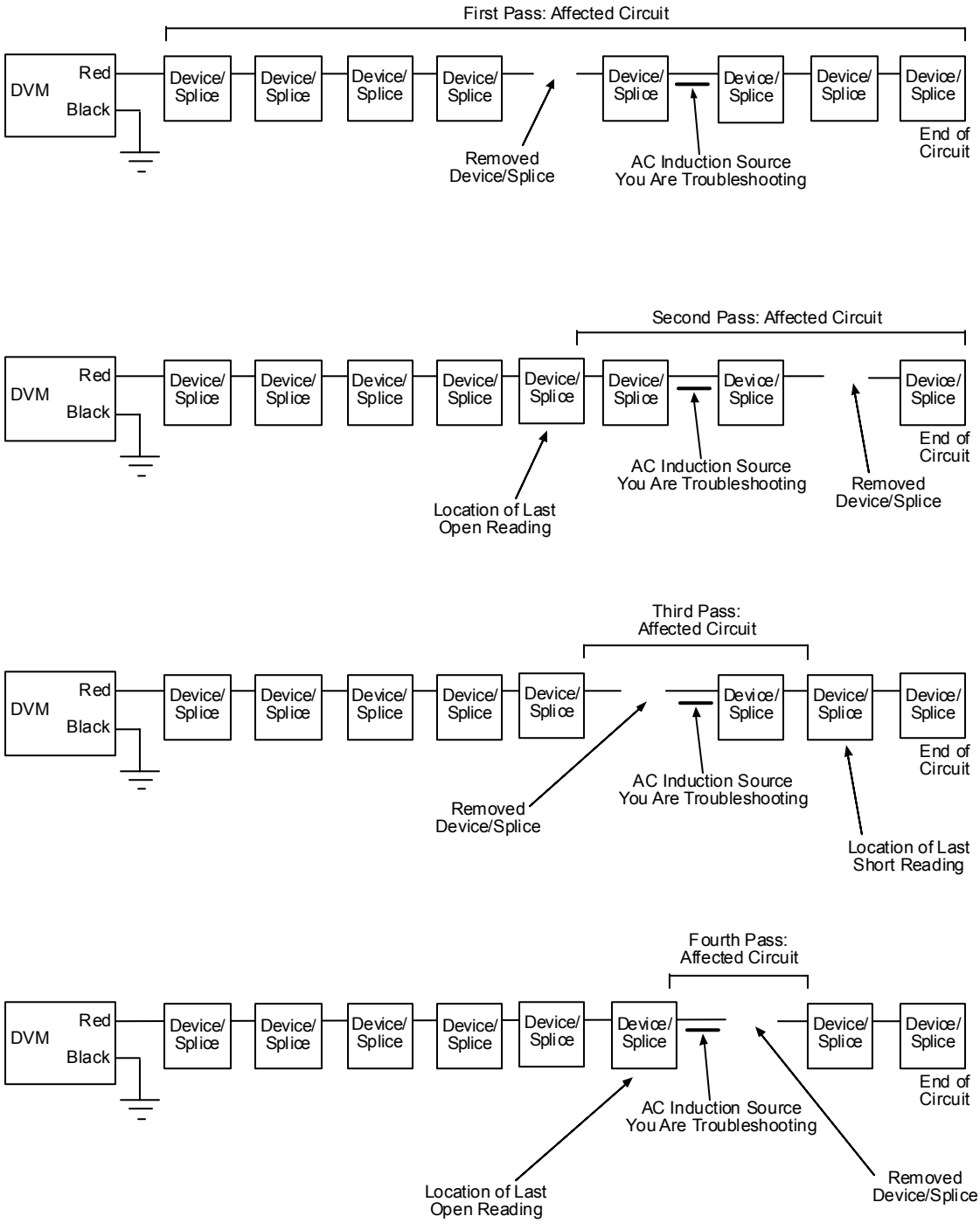


Figure 55: AC Induction Troubleshooting Example



TTP48: Wire Shorted to Ground

Initial Actions

You must understand the devices and wiring splices contained in the circuit you are troubleshooting. If you do not know this information, trace the wiring as required.

If you are unsure of which circuit to troubleshoot, refer to *Section 4.1.4 Identifying Addressable Points on a Circuit* on page 114.

If the circuit you are troubleshooting is connected to equipment or a module with its own AC power source that is not ground isolated, the equipment or module introduces a ground fault to the entire system.

Procedure

Disconnect the conductor from the control panel or module. Set your digital voltmeter (DVM) to measure resistance. Connect the red DVM lead to the conductor and the black DVM lead to a known earth ground.

If there is more than one conductor, test each conductor using the red DVM lead until you identify the conductor that is shorted to ground.

For the remainder of this TTP, leave the DVM connected to this same conductor and earth ground.

Is there more than one piece of equipment connected to this conductor, or are there wire splices on the conductor?

✓ **A**

Disconnect the other end of the conductor you are troubleshooting.

Does the DVM still indicate a short to ground?

✓ **A**

✗ **B**

The problem is either that the disconnected equipment is faulty, or the conductor is shorted to ground. If the problem returns after reconnecting the equipment, replace the equipment.

✗ **B**

Run the wire, then reconnect all equipment.

IMPORTANT: The rest of this procedure uses a half-split troubleshooting approach. By answering the following question, you divide the circuit in half to determine the half of the circuit that contains the short to ground. This half is the “affected circuit”.

By repeating the question, you divide the affected circuit in half again to determine the half of the affected circuit that contains the short to ground. That half becomes the affected circuit.

Repeat the following question as many times as necessary until you reduce the affected circuit enough to identify the location of the short to ground. Refer to *Figure 56* on page *103*.

During the rest of this TTP, if the TTP states to ***“repeat the process and question above”***, return to this location in the TTP.

Disconnect the middle device or splice in the affected circuit.

Does the DVM indicate a short to ground?

✓

Refer to *Figure 56* on page *103*. The problem is between where you disconnected the device or splice and either:

- the end of the circuit, or
- the location of the device or splice you disconnected the last time the DVM indicated a short to ground.

Reconnect the device or splice, then ***repeat the process and question above***.

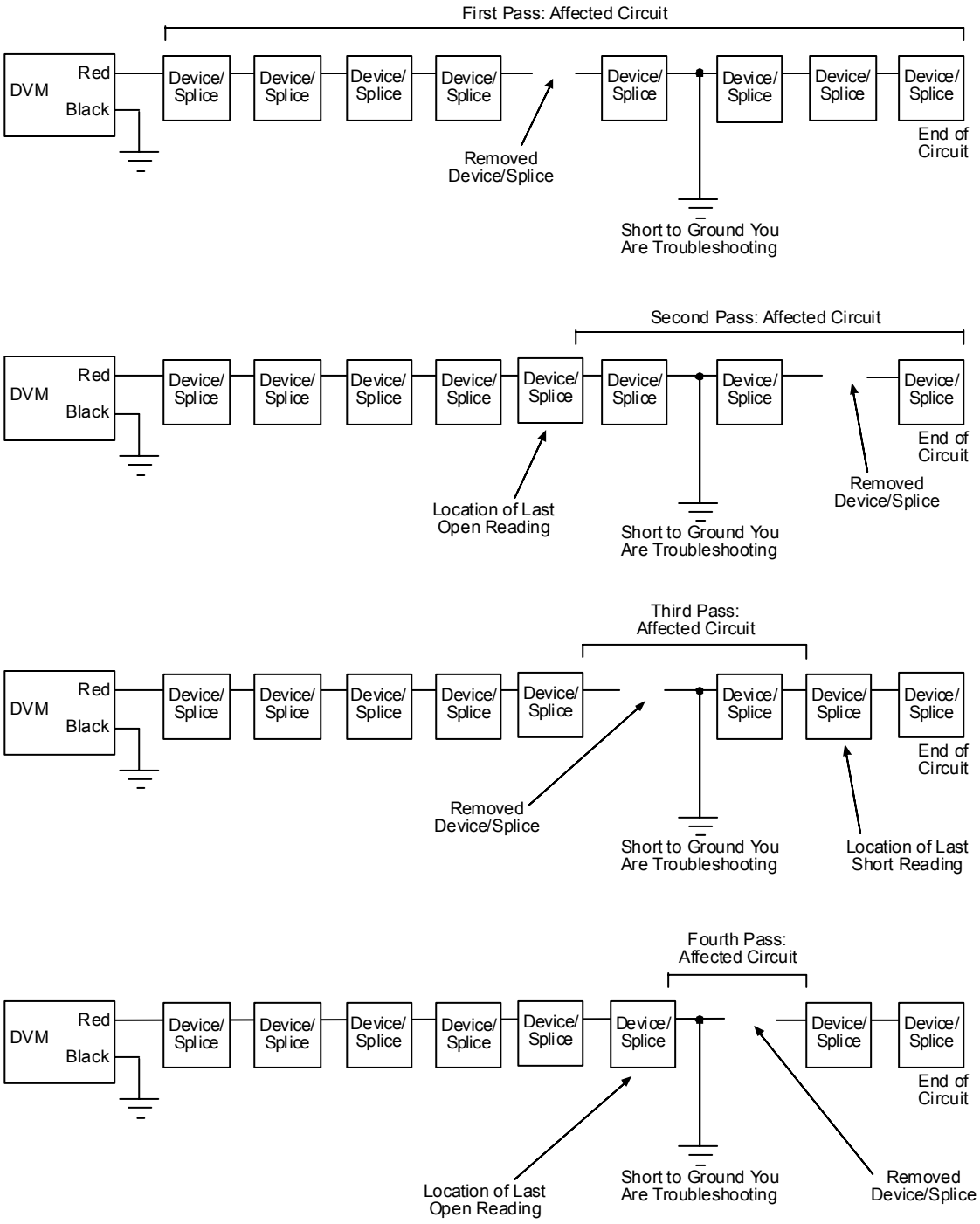
✗

Refer to *Figure 56* on page *103*. The problem is between where you disconnected the device or splice and either:

- the DVM, or
- the location of the device or splice you disconnected the last time the DVM indicated an open to ground.

Reconnect the device or splice, then ***repeat the process and question above***.

Figure 56: Short to Ground Troubleshooting Example



TTP49: Unexpected Voltage on On-board Point Wiring

Initial Actions

You must understand the devices and wiring splices contained in the circuit you are troubleshooting. If you do not know this information, trace the wiring as required.

Procedure

Is the on-board point connected to a module (for example, D192 Bell Supervision Module, D125B Dual Loop Interface Module, D113 Dual Battery Module, and so on)?

✓ ✗

Set your digital voltmeter (DVM) to VDC. Connect the red DVM lead to the POINT terminal and the black DVM lead to the COMMON terminal.

Does the DVM measure >8 VDC?

✓ ✗

Refer to *TTP16 Point Trouble on One of the Eight On-board Points* on page 55.

☑ For the remainder of this TTP, leave the DVM connected to these same terminals.

Is there more than one piece of equipment connected to this wire, or are there wire splices on the wire?

✓ ✗

At the other end of the wire, disconnect the device.

Does the DVM still measure >8 VDC?

✓ ✗

Properly reconnect the conductors to the device. If the problem returns, replace the device.

Re-run the wire, then reconnect all equipment to the circuit.

A B

A B

☑ **IMPORTANT:** The rest of this procedure uses a half-split troubleshooting approach. By answering the following question, you divide the circuit in half to determine the half of the circuit that contains the unexpected voltage. This half is the "affected circuit".

By repeating the question, you divide the affected circuit in half again to determine the half of the affected circuit that contains the unexpected voltage. That half becomes the affected circuit.

Repeat the following question as many times as necessary until you reduce the affected circuit enough to identify the location of the unexpected voltage. Refer to *Figure 57* on page 106.

☑ During the rest of this TTP, if the TTP states ***"repeat the process and question above"***, return to this location in the TTP.

Disconnect the middle device or splice in the affected circuit.

Does the DVM measure >8 VDC?

✓ ✗

Refer to *Figure 57* on page 106. The problem is between where you disconnected the device or splice and either:

- the end of the circuit, or
- the location of the device/splice you disconnected the last time the DVM measured >8 VDC.

Reconnect the device/splice, then ***repeat the process and question above***.

Refer to *Figure 57* on page 106. The problem is between where you disconnected the device or splice and either:

- the DVM, or
- the location of the device or splice you disconnected the last time the DVM did not measure >8 VDC.

Reconnect the device or splice, then ***repeat the process and question above***.

Set your digital voltmeter (DVM) to measure VDC. Connect the red DVM lead to the POINT terminal. Connect the black DVM lead to the COMMON terminal.

Does the DVM measure >8 VDC?

✓ ✗

Refer to *TTP16 Point Trouble on One of the Eight On-board Points* on page 55.

C

C

Disconnect all field wiring terminated with an end-of-line (EOL) resistor from the module.

Does the DVM still measure >8 VDC?

✓ ✗

The problem is on the field wiring that was connected to the module.

1. Set your digital voltmeter (DVM) to VDC.
2. On one wire that was connected to the module, connect the red DVM lead to one conductor and the black DVM lead to the other conductor.
3. Repeat on each wire that was connected to the module until you identify the wire that causes the DVM to measure >1 VDC.

☑ For the remainder of this TTP, leave the DVM connected to these same conductors.

Is there more than one piece of equipment connected to this wire, or are there wire splices on the wire?

✓ ✗

At the other end of the wire, disconnect the device.

Does the DVM still measure >1 VDC?

✓ ✗

Properly reconnect the conductors to the device. If the problem returns, replace the device.

Re-run the wire, then reconnect all equipment to the circuit.

☑ **IMPORTANT:** The rest of this procedure uses a half-split troubleshooting approach. By answering the following question, you divide the circuit in half to determine the half of the circuit that contains the unexpected voltage. This half is the "affected circuit".

By repeating the question, you divide the affected circuit in half again to determine the half of the affected circuit that contains the unexpected voltage. That half becomes the affected circuit.

Repeat the following question as many times as necessary until you reduce the affected circuit enough to identify the location of the unexpected voltage. Refer to Refer to *Figure 57* on page 106.

☑ During the rest of this TTP, if the TTP states ***"repeat the process and question above"***, return to this location in the TTP.

Disconnect the middle device or splice in the affected circuit.

Does the DVM measure >1 VDC?

✓ ✗

D **E** **F**

D **E** **F**

Refer to *Figure 57* on page 106. The problem is between where you disconnected the device or splice and either:

- the end of the circuit, or
- the location of the device or splice you disconnected the last time the DVM measured >1 VDC.

Reconnect the device or splice, then ***repeat the process and question above***.

Refer to *Figure 57* on page 106. The problem is between where you disconnected the device or splice and either:

- the DVM, or
- the location of the device or splice you disconnected the last time the DVM did not measure >1 VDC.

Reconnect the device or splice, then ***repeat the process and question above***.

Refer to the module's installation documentation.

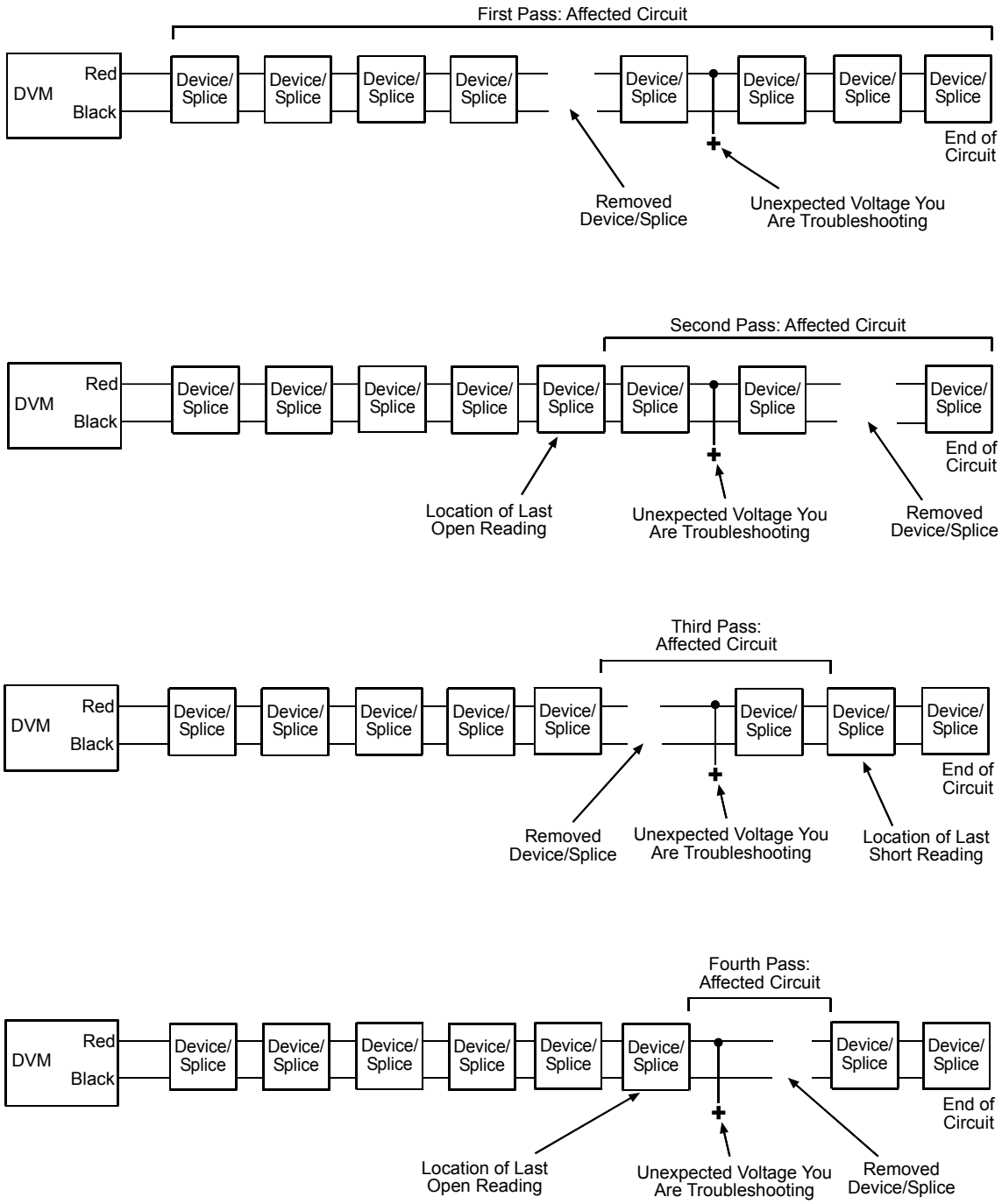
Is the module wired correctly?

✓ ✗

Fix the faulty wiring.

Replace the module.

Figure 57: Unexpected Voltage Troubleshooting Example



TTP50: Power Troubleshooting

Procedure

From the device or module that does not have power, trace its power wiring to the power source.

Is the device or module powered by an auxiliary power supply (refer to *Figure 58* on page 108)**?**

✓ ✗

1. Set your digital voltmeter (DVM) to measure VDC.
2. Connect the red DVM lead to the control panel terminal that provides positive (+) power to the device or module.
3. Connect the black DVM lead to the control panel terminal that provides COMMON (negative) power to the device or module.

Does the DVM measure 12 to 13 VDC?

✓ ✗

Remove all conductors connected to the control panel terminals you used for the voltage check in the previous step, then check the voltage again at the same power terminals.

Does the DVM measure 12 to 13 VDC?

☑ You might have to wait 5 minutes for the control panel to restore 12 to 13 VDC to those terminals.

✓ ✗

1. If the positive conductor was connected to the control panel Terminal 8 (SW AUX), ensure that the D136 relay is installed in the SW AUX relay socket (located under the control panel's metal shield). Refer to *Figure 59* on page 109.
2. Remove the control panel terminal blocks to which the positive (+) and COMMON (negative) conductors were connected. Ensure that the terminal block connector pins are not bent or broken.
3. If the problem still exists, replace the control panel.

A **B** **C**

A **B** **C**

The problem is on one of the conductors connected to the control panel's positive (+) terminal that powers the device/module.

1. Connect all COMMON (negative) conductors to the control panel's COMMON terminal.
2. Connect one positive (+) conductor to the control panel's positive (+) terminal, then repeat the voltage check.
3. Repeat until you identify the conductor that causes the DVM to measure 0 VDC.
4. Disconnect that conductor from the control panel again.
5. Set the DVM to measure resistance.
6. Connect the black DVM lead to the COMMON terminal and the red DVM lead to the affected positive conductor.

Does the DVM measure a short?

✓ ✗

Refer to *TTP48 Wire Shorted to Ground* on page 102.

Refer to *TTP45 Shorted Wiring* on page 94.

There is open wiring between the control panel and the device or module. Refer to *TTP46 Open Wiring* on page 96.

Connect the red digital voltmeter (DVM) lead on the auxiliary power supply's positive (+) terminal. Connect the black DVM lead to the power supply's negative (-) terminal. Set the DVM to measure VDC.

Does the DVM measure 12 to 13 VDC?

✓ ✗

Remove all conductors from the auxiliary power supply. Repeat the voltage check.

Does the DVM read 12 to 13 VDC?

✓ ✗

D **E** **F**

D **E** **F**

Refer to the auxiliary power supply manufacturer's troubleshooting procedures.

1. Reconnect all negative conductors to the auxiliary power supply's negative terminal.
2. Connect one positive conductor to the power supply's positive terminal, then repeat the voltage check.
3. Repeat this process with each positive conductor until you identify the conductor that causes the DVM to measure 0 VDC.
4. Disconnect that conductor from the power supply.
5. Set the DVM to measure resistance.
6. Connect the black DVM lead to the power supply's negative terminal, and connect the red DVM lead to the affected conductor.

Does the DVM indicate a short?

✓ ✗

D **G** **H**

Refer to *TTP48 Wire Shorted to Ground* on page 102.

D **G** **H**

Refer to *TTP45 Shorted Wiring* on page 94.

There is an open in the wiring between the auxiliary power supply and the device or module. Refer to *TTP46 Open Wiring* on page 96.

Figure 58: Auxiliary Power Supply Wiring Diagram

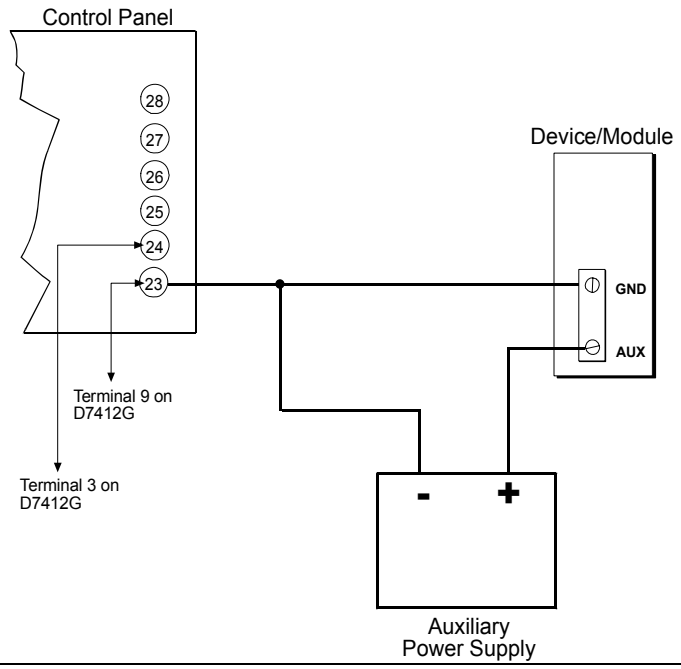
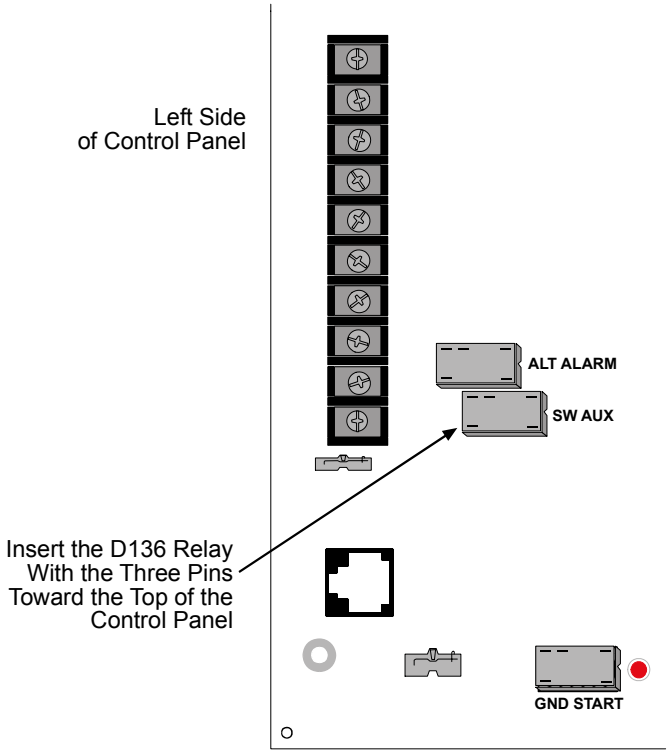


Figure 59: D136 Relay Installation Location



4.0 Appendix

4.1 Researching the Configuration of Points in an Existing Installation

When troubleshooting a system that you did not install, it is often necessary to understand the point configuration of the system. The procedures in this section will help you identify the following system details:

- Which point expansion technologies are installed
- Which points are connected to each of the point expansion technologies

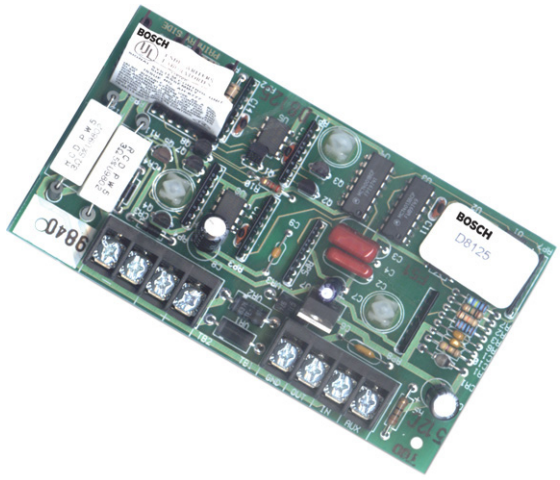
With this information and the TTPs in this guide, you can properly troubleshoot and repair the system.

4.1.1 Identifying the Point Expansion Technologies Installed on the System

Place an "X" in the **Point Expansion Technologies Used** area of *Table 54* on page 115 to identify which of the following expansion technologies are installed at the site.

D8125 Zone Expansion Module

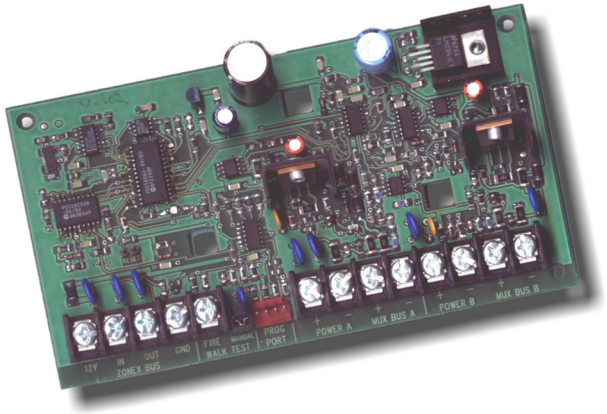
Figure 60: D8125 Zone Expansion Module



Description: The control panel can use Point of Protection Input Transponder (POPIT) Modules to provide up to 238 off-board points, for a total number of 246 points the D9412G can monitor. The D7412G provides up to 67 off-board points, for a total number of 75 points the D7412G can monitor. Each off-board point requires a POPIT Module.
Installation Location: Within 1.5 m (5 ft) of the control panel. Can be in the control panel's enclosure or in a nearby enclosure.
Control Panel Connection:
Zonex 1, Terminals 27 and 28.
Zonex 2, Terminals 25 and 26.

D8125MUX Multiplex Bus Interface

Figure 61: D8125MUX Multiplex Bus Interface



Description: Use the D8125MUX Multiplex Bus Interface Module to connect multiplex points to the Zonex Bus.
Installation Location: Within 1.5 m (5 ft) of the control panel. Can be in the control panel's enclosure or in a nearby enclosure.
Control Panel Connection:
ZONEX 1, Terminals 27 and 28.
ZONEX 2, Terminals 25 and 26.

D8125INV Wireless Interface Module

Figure 62: D8125INV Wireless Interface Module

Description: The D8125INV is an interface module that allows connecting an Inovonics FA400 Receiver and compatible transmitters.
Installation Location: Within 1.52 m (5 ft) of the control panel. Can be in the control panel's enclosure or in a nearby enclosure.
Control Panel Connection:
ZONEX 1, Terminals 27 and 28.
ZONEX 2, Terminals 25 and 26.

D8128C and D8128D OctoPOPIT Module

Figure 63: D8128C and D8128D OctoPOPIT Module

Description: The D8128C and D8128D OctoPOPIT Modules combine the functions of the D8125 POPEX module and the D8127/D9127 POPIT modules to provide eight off-board points in a single module. You can wire both the D8128C/D OctoPOPIT and D8125 POPEX modules in parallel to the Zonex bus terminals on the same control panel.
Installation Location: Up to 61 m (200 ft) away from panel, in the control panel enclosure, or in a separate enclosure.
Control Panel Connection:
Zonex 1, Terminals 27 and 28.
Zonex 2, Terminals 25 and 26.

D9210B Access Control Interface Module

Figure 64: D9210B Access Control Interface Module

Description: The D9210B is a fully-supervised, addressable serial device interface (SDI) bus device that allows the D9412G (eight doors) and D7412G (two doors) control panels to provide access control functions. Each D9210B can store up to 986 user tokens (300 tokens for D7412), each with a different access level for each door. Authority for access is controlled by the level of the user, the time of day, the state of the door, and the armed state of the area to which the D9210B is assigned.
Installation Location: Up to 457 m (1500 ft) from control panel, inside the control panel's enclosure, or in its own enclosure.
Control Panel Connection: SDI bus, Terminals 30 and 31.

4.1.2 Setting Up the Control Panel

You must have a panel-wide keypad when performing the procedure described in *Section 4.1.3 Identifying the Points Associated with Each Point Expansion Technology* on page 113.

> Use a keypad close to the control panel when performing the procedure described in *Section 4.1.3 Identifying the Points Associated with Each Point Expansion Technology* on page 113.

1. To determine if your keypad is panel wide, or to make it panel wide:
   a. Using RPS or your D5200 Programmer, select 9000MAIN → Command Centers → Command Center Assignments.

b. Scroll through the different keypads until you find a keypad address with a **Scope** prompt that indicates **Panel Wide**.

c. Locate that keypad by checking the keypad's DIP switch address. Refer to *Table 53*.

d. If there isn't a panel-wide keypad, locate the keypad you want to use in control panel programming and change its scope to **Panel Wide**.

2. Using RPS or your D5200 Programmer, select **9000MAIN → Function List**. Scroll through the menu items for **Function 10**. Ensure that the keypad address you want to use is marked **Yes**.

   If you do not have a **Function 10** menu item, scroll through the menu items until you locate an empty function. Enter **10** at the function prompt. Enable the keypad address you want to use by setting it to **Yes**.

3. Using RPS or your D5200 Programmer, select **9000MAIN → User Interface → Command Center Functions**. Scroll through the functions and locate **View Point Status**. Enter **E** at the prompt.

Table 53: Keypad DIP Switch Settings

Address #	Switch 1	2	3	4	5*	6
1	ON	ON	ON	ON		ON
2	OFF	ON	ON	ON		ON
3	ON	OFF	ON	ON		ON
4	OFF	OFF	ON	ON		ON
5	ON	ON	OFF	ON		ON
6	OFF	ON	OFF	ON		ON
7	ON	OFF	OFF	ON		ON
8	OFF	OFF	OFF	ON		ON

*Encoding Tone ON/OFF.

4.1.3 Identifying the Points Associated with Each Point Expansion Technology

1. *Table 54* on page 115 identifies which point expansion technologies are installed at the site. Disconnect all but one point expansion technology from the control panel.

If a D9210B is installed at the site, include this expansion technology when performing the procedure. Even though it is connected to the SDI bus instead of the Zonex bus, it is still a point expansion technology that you must include in this procedure.

2. At the panel-wide keypad (refer to *Section 4.1.2 Setting Up the Control Panel* on page 112 for more information), press [MENU/ESC] to view the main menu.

3. Press [NEXT] until you see VIEW PT STATUS.

4. Select VIEW PT STATUS. The keypad displays the number of points in the first area.

Points can be located in more than one area. Ensure you view points in all areas.

5. If using a D1255 Keypad, press [ENT] twice. If using a D1260 Keypad, press [Next][Status]. The keypad displays the point status of the first programmed point in the area.

6. If the programmed point's state is anything other than "missing", use *Table 54* on page 115 and put an "X" in the point number's checkbox, in the appropriate point expansion technology's column.

View Point Status displays all the on-board points in use, regardless of the point expansion technology connected to the control panel. You only need to log these points in *Table 54* one time.

7. Press [NEXT] to scroll through all programmed points. Log each point that isn't "missing" in *Table 54* on page 115.

8. Disconnect the connected point expansion technology, then connect another point expansion technology used at the site.

9. Repeat steps 2 through 8 until you have performed these steps for each point expansion technology used at the site.

4.1.4 Identifying Addressable Points on a Circuit

If there are multiple expansion technologies installed on the system, and you do not know the expansion technology the point is connected to, refer to *Section 4.1.1* on page 111 through *Section 4.1.3* on page 113 before continuing.

You must properly configure the control panel before performing this procedure. Refer to *Section 4.1.2 Setting Up the Control Panel* on page 112.

1. *Table 54* on page 115 identifies which point expansion technologies are installed at the site. Label each data circuit wire, then disconnect all but one data circuit from the affected expansion technology.
2. At the panel-wide keypad, press [MENU/ESC] to view the main menu.
3. Press [NEXT] until VIEW PT STATUS appears.
4. Select VIEW PT STATUS. The keypad displays the number of points in the first area.

Points can be located in more than one area. Ensure you view points in all areas.

5. If using a D1255 Keypad, press [ENT] twice. If using a D1260 Keypad, press [Next][Status]. The keypad displays the point status of the first programmed point in the area.
6. If the programmed point's state is anything other than "missing", put the data circuit's wire label information in the Wire Label column of *Table 54* on page 115.

When checking View Point Status, if any of the on-board points are in use, they will display regardless of the point expansion technology that is connected to the control panel. It is not necessary to log the on-board points in *Table 54*.

7. Press [NEXT] to scroll through all programmed points. Log each point that isn't "missing" in *Table 54*.
8. Disconnect the one connected data circuit, then connect another data circuit that was connected to this expansion technology.
9. Repeat steps 2 through 8 until you have performed these steps for each data circuit connected to the expansion technology.

4.1.5 Locating a Particular Addressable Point

If the addressable point you are locating is connected to a D8125MUX Multiplex Bus Interface, remove power to the D8125MUX whenever connecting or disconnecting conductors to the MUX bus.

IMPORTANT: The rest of this procedure uses a half-split troubleshooting approach. By answering the following question, you divide the circuit in half to determine the half of the circuit that contains the addressable point you are locating.

By repeating the question, you divide the circuit in half again to determine the half of the circuit that contains the addressable point.

Repeat the following question as many times as necessary until you reduce the circuit enough to identify the addressable point.

During the rest of this procedure, if the procedure states to ***"repeat the process and question above"***, return to this location in the procedure.

1. Locate the middle device on the circuit, then disconnect the wires from the device that lead toward the end of the circuit (away from the expansion technology).
2. Using a panel-wide keypad (refer to *Section 4.1.2 Setting Up the Control Panel* on page 112 for more information), press [MENU/ESC] to view the main menu.
3. Press [NEXT] until VIEW PT STATUS appears.
4. Select VIEW PT STATUS. The keypad displays the number of points in the first area.

Points can be located in more than one area. Ensure you view points in all areas.

5. If using a D1255 Keypad, press [ENT] twice. If using a D1260 Keypad, press [Next][Status]. The keypad displays the point status of the first programmed point in the area.
6. Press [NEXT] to scroll through the programmed points until you see the addressable point you are looking for.

Is the addressable point's status "missing"?

✓ ✗

The addressable point is between where you disconnected the wires and either:

- the expansion technology, or
- the location of the wiring you disconnected the last time the addressable point's status was "missing".

Reconnect the wiring, then ***repeat the process and question above***.

The addressable point is between where you disconnected the wires and either:

- the end of the circuit, or
- the location of the wires you disconnected the last time the addressable point's status was not "missing".

Reconnect the wiring, then ***repeat the process and question above***.

Table 54: Point Configuration Matrix

Point Number	Point Expansion Technologies Used:						Wire Label
	× On-Board	❒ D8128C/D	❒ D8125/ D9127	❒ D8125MUX	❒ D8125INV	❒ D9210B	
1	❒	❒	❒	❒	❒	❒	
2	❒	❒	❒	❒	❒	❒	
3	❒	❒	❒	❒	❒	❒	
4	❒	❒	❒	❒	❒	❒	
5	❒	❒	❒	❒	❒	❒	
6	❒	❒	❒	❒	❒	❒	
7	❒	❒	❒	❒	❒	❒	
8	❒	❒	❒	❒	❒	❒	
9	❒	❒	❒	❒	❒	❒	
10	❒	❒	❒	❒	❒	❒	
11	❒	❒	❒	❒	❒	❒	
12	❒	❒	❒	❒	❒	❒	
13	❒	❒	❒	❒	❒	❒	
14	❒	❒	❒	❒	❒	❒	
15	❒	❒	❒	❒	❒	❒	
16	❒	❒	❒	❒	❒	❒	
17	❒	❒	❒	❒	❒	❒	
18	❒	❒	❒	❒	❒	❒	
19	❒	❒	❒	❒	❒	❒	
20	❒	❒	❒	❒	❒	❒	
21	❒	❒	❒	❒	❒	❒	
22	❒	❒	❒	❒	❒	❒	
23	❒	❒	❒	❒	❒	❒	
24	❒	❒	❒	❒	❒	❒	
25	❒	❒	❒	❒	❒	❒	
26	❒	❒	❒	❒	❒	❒	
27	❒	❒	❒	❒	❒	❒	
28	❒	❒	❒	❒	❒	❒	
29	❒	❒	❒	❒	❒	❒	
30	❒	❒	❒	❒	❒	❒	
31	❒	❒	❒	❒	❒	❒	
32	❒	❒	❒	❒	❒	❒	
33	❒	❒	❒	❒	❒	❒	
34	❒	❒	❒	❒	❒	❒	
35	❒	❒	❒	❒	❒	❒	
36	❒	❒	❒	❒	❒	❒	
37	❒	❒	❒	❒	❒	❒	
38	❒	❒	❒	❒	❒	❒	
39	❒	❒	❒	❒	❒	❒	
40	❒	❒	❒	❒	❒	❒	
41	❒	❒	❒	❒	❒	❒	
42	❒	❒	❒	❒	❒	❒	

Table 54: Point Configuration Matrix (continued)

Point Number	Point Expansion Technologies Used: × On-Board	❒ D8128C/D	❒ D8125/ D9127	❒ D8125MUX	❒ D8125INV	❒ D9210B	Wire Label
43	❒	❒	❒	❒	❒	❒	
44	❒	❒	❒	❒	❒	❒	
45	❒	❒	❒	❒	❒	❒	
46	❒	❒	❒	❒	❒	❒	
47	❒	❒	❒	❒	❒	❒	
48	❒	❒	❒	❒	❒	❒	
49	❒	❒	❒	❒	❒	❒	
50	❒	❒	❒	❒	❒	❒	
51	❒	❒	❒	❒	❒	❒	
52	❒	❒	❒	❒	❒	❒	
53	❒	❒	❒	❒	❒	❒	
54	❒	❒	❒	❒	❒	❒	
55	❒	❒	❒	❒	❒	❒	
56	❒	❒	❒	❒	❒	❒	
57	❒	❒	❒	❒	❒	❒	
58	❒	❒	❒	❒	❒	❒	
59	❒	❒	❒	❒	❒	❒	
60	❒	❒	❒	❒	❒	❒	
61	❒	❒	❒	❒	❒	❒	
62	❒	❒	❒	❒	❒	❒	
63	❒	❒	❒	❒	❒	❒	
64	❒	❒	❒	❒	❒	❒	
65	❒	❒	❒	❒	❒	❒	
66	❒	❒	❒	❒	❒	❒	
67	❒	❒	❒	❒	❒	❒	
68	❒	❒	❒	❒	❒	❒	
69	❒	❒	❒	❒	❒	❒	
70	❒	❒	❒	❒	❒	❒	
71	❒	❒	❒	❒	❒	❒	
72	❒	❒	❒	❒	❒	❒	
73	❒	❒	❒	❒	❒	❒	
74	❒	❒	❒	❒	❒	❒	
75	❒	❒	❒	❒	❒	❒	
76	❒	❒	❒	❒	❒	❒	
77	❒	❒	❒	❒	❒	❒	
78	❒	❒	❒	❒	❒	❒	
79	❒	❒	❒	❒	❒	❒	
80	❒	❒	❒	❒	❒	❒	
81	❒	❒	❒	❒	❒	❒	
82	❒	❒	❒	❒	❒	❒	
83	❒	❒	❒	❒	❒	❒	
84	❒	❒	❒	❒	❒	❒	

Table 54: Point Configuration Matrix (continued)

Point Number	Point Expansion Technologies Used:						Wire Label
	× On-Board	❒ D8128C/D	❒ D8125/ D9127	❒ D8125MUX	❒ D8125INV	❒ D9210B	
85	❒	❒	❒	❒	❒	❒	
86	❒	❒	❒	❒	❒	❒	
87	❒	❒	❒	❒	❒	❒	
88	❒	❒	❒	❒	❒	❒	
89	❒	❒	❒	❒	❒	❒	
90	❒	❒	❒	❒	❒	❒	
91	❒	❒	❒	❒	❒	❒	
92	❒	❒	❒	❒	❒	❒	
93	❒	❒	❒	❒	❒	❒	
94	❒	❒	❒	❒	❒	❒	
95	❒	❒	❒	❒	❒	❒	
96	❒	❒	❒	❒	❒	❒	
97	❒	❒	❒	❒	❒	❒	
98	❒	❒	❒	❒	❒	❒	
99	❒	❒	❒	❒	❒	❒	
100	❒	❒	❒	❒	❒	❒	
101	❒	❒	❒	❒	❒	❒	
102	❒	❒	❒	❒	❒	❒	
103	❒	❒	❒	❒	❒	❒	
104	❒	❒	❒	❒	❒	❒	
105	❒	❒	❒	❒	❒	❒	
106	❒	❒	❒	❒	❒	❒	
107	❒	❒	❒	❒	❒	❒	
108	❒	❒	❒	❒	❒	❒	
109	❒	❒	❒	❒	❒	❒	
110	❒	❒	❒	❒	❒	❒	
111	❒	❒	❒	❒	❒	❒	
112	❒	❒	❒	❒	❒	❒	
113	❒	❒	❒	❒	❒	❒	
114	❒	❒	❒	❒	❒	❒	
115	❒	❒	❒	❒	❒	❒	
116	❒	❒	❒	❒	❒	❒	
117	❒	❒	❒	❒	❒	❒	
118	❒	❒	❒	❒	❒	❒	
119	❒	❒	❒	❒	❒	❒	
120	❒	❒	❒	❒	❒	❒	
121	❒	❒	❒	❒	❒	❒	
122	❒	❒	❒	❒	❒	❒	
123	❒	❒	❒	❒	❒	❒	
124	❒	❒	❒	❒	❒	❒	
125	❒	❒	❒	❒	❒	❒	
126	❒	❒	❒	❒	❒	❒	

Table 54: Point Configuration Matrix (continued)

Point Number	Point Expansion Technologies Used:						Wire Label
	× On-Board	❒ D8128C/D	❒ D8125/ D9127	❒ D8125MUX	❒ D8125INV	❒ D9210B	
127	❒	❒	❒	❒	❒	❒	
128	NOT USED						
129	❒	❒	❒	❒	❒	❒	
130	❒	❒	❒	❒	❒	❒	
131	❒	❒	❒	❒	❒	❒	
132	❒	❒	❒	❒	❒	❒	
133	❒	❒	❒	❒	❒	❒	
134	❒	❒	❒	❒	❒	❒	
135	❒	❒	❒	❒	❒	❒	
136	❒	❒	❒	❒	❒	❒	
137	❒	❒	❒	❒	❒	❒	
138	❒	❒	❒	❒	❒	❒	
139	❒	❒	❒	❒	❒	❒	
140	❒	❒	❒	❒	❒	❒	
141	❒	❒	❒	❒	❒	❒	
142	❒	❒	❒	❒	❒	❒	
143	❒	❒	❒	❒	❒	❒	
144	❒	❒	❒	❒	❒	❒	
145	❒	❒	❒	❒	❒	❒	
146	❒	❒	❒	❒	❒	❒	
147	❒	❒	❒	❒	❒	❒	
148	❒	❒	❒	❒	❒	❒	
149	❒	❒	❒	❒	❒	❒	
150	❒	❒	❒	❒	❒	❒	
151	❒	❒	❒	❒	❒	❒	
152	❒	❒	❒	❒	❒	❒	
153	❒	❒	❒	❒	❒	❒	
154	❒	❒	❒	❒	❒	❒	
155	❒	❒	❒	❒	❒	❒	
156	❒	❒	❒	❒	❒	❒	
157	❒	❒	❒	❒	❒	❒	
158	❒	❒	❒	❒	❒	❒	
159	❒	❒	❒	❒	❒	❒	
160	❒	❒	❒	❒	❒	❒	
161	❒	❒	❒	❒	❒	❒	
162	❒	❒	❒	❒	❒	❒	
163	❒	❒	❒	❒	❒	❒	
164	❒	❒	❒	❒	❒	❒	
165	❒	❒	❒	❒	❒	❒	
166	❒	❒	❒	❒	❒	❒	
167	❒	❒	❒	❒	❒	❒	
168	❒	❒	❒	❒	❒	❒	

Table 54: Point Configuration Matrix (continued)

Point Number	Point Expansion Technologies Used:						Wire Label
	× On-Board	❒ D8128C/D	❒ D8125/ D9127	❒ D8125MUX	❒ D8125INV	❒ D9210B	
169	❒	❒	❒	❒	❒	❒	
170	❒	❒	❒	❒	❒	❒	
171	❒	❒	❒	❒	❒	❒	
172	❒	❒	❒	❒	❒	❒	
173	❒	❒	❒	❒	❒	❒	
174	❒	❒	❒	❒	❒	❒	
175	❒	❒	❒	❒	❒	❒	
176	❒	❒	❒	❒	❒	❒	
177	❒	❒	❒	❒	❒	❒	
178	❒	❒	❒	❒	❒	❒	
179	❒	❒	❒	❒	❒	❒	
180	❒	❒	❒	❒	❒	❒	
181	❒	❒	❒	❒	❒	❒	
182	❒	❒	❒	❒	❒	❒	
183	❒	❒	❒	❒	❒	❒	
184	❒	❒	❒	❒	❒	❒	
185	❒	❒	❒	❒	❒	❒	
186	❒	❒	❒	❒	❒	❒	
187	❒	❒	❒	❒	❒	❒	
188	❒	❒	❒	❒	❒	❒	
189	❒	❒	❒	❒	❒	❒	
190	❒	❒	❒	❒	❒	❒	
191	❒	❒	❒	❒	❒	❒	
192	❒	❒	❒	❒	❒	❒	
193	❒	❒	❒	❒	❒	❒	
194	❒	❒	❒	❒	❒	❒	
195	❒	❒	❒	❒	❒	❒	
196	❒	❒	❒	❒	❒	❒	
197	❒	❒	❒	❒	❒	❒	
198	❒	❒	❒	❒	❒	❒	
199	❒	❒	❒	❒	❒	❒	
200	❒	❒	❒	❒	❒	❒	
201	❒	❒	❒	❒	❒	❒	
202	❒	❒	❒	❒	❒	❒	
203	❒	❒	❒	❒	❒	❒	
204	❒	❒	❒	❒	❒	❒	
205	❒	❒	❒	❒	❒	❒	
206	❒	❒	❒	❒	❒	❒	
207	❒	❒	❒	❒	❒	❒	
208	❒	❒	❒	❒	❒	❒	
209	❒	❒	❒	❒	❒	❒	
210	❒	❒	❒	❒	❒	❒	

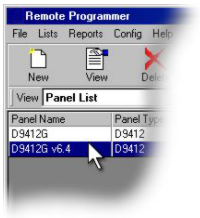
Table 54: Point Configuration Matrix (continued)

Point Number	Point Expansion Technologies Used: × On-Board	❒ D8128C/D	❒ D8125/ D9127	❒ D8125MUX	❒ D8125INV	❒ D9210B	Wire Label
211	❒	❒	❒	❒	❒	❒	
212	❒	❒	❒	❒	❒	❒	
213	❒	❒	❒	❒	❒	❒	
214	❒	❒	❒	❒	❒	❒	
215	❒	❒	❒	❒	❒	❒	
216	❒	❒	❒	❒	❒	❒	
217	❒	❒	❒	❒	❒	❒	
218	❒	❒	❒	❒	❒	❒	
219	❒	❒	❒	❒	❒	❒	
220	❒	❒	❒	❒	❒	❒	
221	❒	❒	❒	❒	❒	❒	
222	❒	❒	❒	❒	❒	❒	
223	❒	❒	❒	❒	❒	❒	
224	❒	❒	❒	❒	❒	❒	
225	❒	❒	❒	❒	❒	❒	
226	❒	❒	❒	❒	❒	❒	
227	❒	❒	❒	❒	❒	❒	
228	❒	❒	❒	❒	❒	❒	
229	❒	❒	❒	❒	❒	❒	
230	❒	❒	❒	❒	❒	❒	
231	❒	❒	❒	❒	❒	❒	
232	❒	❒	❒	❒	❒	❒	
233	❒	❒	❒	❒	❒	❒	
234	❒	❒	❒	❒	❒	❒	
235	❒	❒	❒	❒	❒	❒	
236	❒	❒	❒	❒	❒	❒	
237	❒	❒	❒	❒	❒	❒	
238	❒	❒	❒	❒	❒	❒	
239	❒	❒	❒	❒	❒	❒	
240	❒	❒	❒	❒	❒	❒	
241	❒	❒	❒	❒	❒	❒	
242	❒	❒	❒	❒	❒	❒	
243	❒	❒	❒	❒	❒	❒	
244	❒	❒	❒	❒	❒	❒	
245	❒	❒	❒	❒	❒	❒	
246	❒	❒	❒	❒	❒	❒	
247	❒	❒	❒	❒	❒	❒	
248	**NOT USED**						

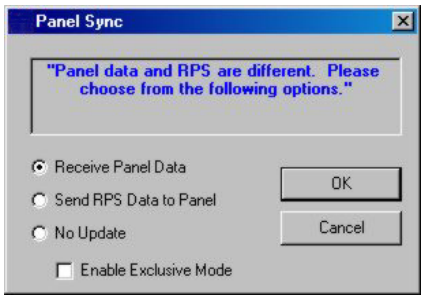
4.2 Programming the Control Panel

4.2.1 Receiving Control Panel Programming Using RPS

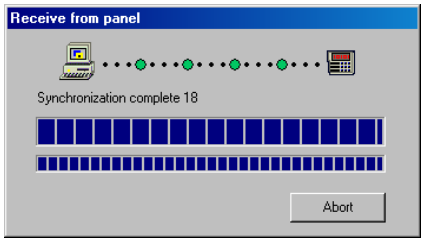
1. Start the remote programming software (RPS) and open the desired account.



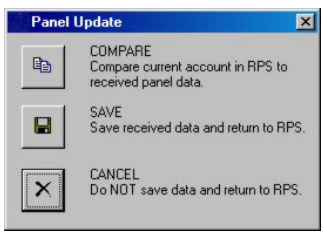
2. Connect to the control panel and select **Receive Panel Data** to import the current configuration into RPS.
   Click [OK] to start the transfer.



3. The Receive Panel Data dialog box appears with an animation of green dots moving from the panel icon to the PC icon. The updating is complete when both progress bars are full and "Synchronization complete" appears.

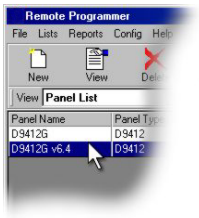


   The Panel Update dialog box appears with three options. Click the [SAVE] button to save the received data and return to RPS.



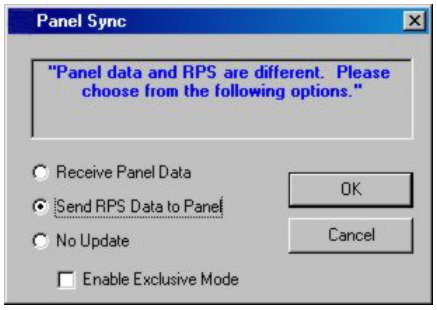
4.2.2 Sending Programming Changes to the Control Panel Using RPS

1. Start the remote programming software (RPS) and open the desired account.

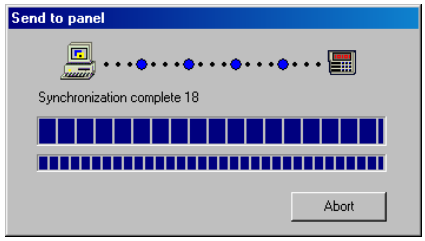


2. If additional changes are made in RPS to the account program after connecting the the control panel, click [Send/Rcv] to send the changes to the control panel.

3. The **Panel Sync** dialog box appears.
   Select **Send RPS Data to Panel** to send the data to the panel.
   Click [OK] to start the transfer.



4. The **Send to panel** dialog box appears with an animation of blue dots moving from the PC icon to the control panel icon. The updating is complete when both progress bars are full and the words "Synchronization complete" appear.



4.2.3 Receiving Control Panel Programming Using the D5200 Programmer

1. Connect the programming cord to the Communicator port on the D5200, and to the four-pin programming jack marked PROG on the control panel.
2. Press [ON] to turn on the D5200.
3. If necessary, enter the correct password and press [ENTER].
4. Highlight the handler by scrolling up [↑] or down [↓] and then press [ENTER GROUP].

In this example, the 9000MAIN handler is highlighted.

5. Select **NEWRECORD** and press the red [RECV (COPY)] key to copy the handler from the panel.

6. When D5200 receives the record, the top line changes to **RECEIVE SUCCESSFUL**.

4.2.4 Sending Programming Changes to the Control Panel Using the D5200 Programmer

1. Press the [SEND (LOAD)] button.
2. When the record is sent, the top line changes to **SEND SUCCESSFUL**.

You can press the [SEND (LOAD)] button on the D5200 Programmer at any time.

3. Reboot the control panel to synchronize the numeric keys.

4.3 Specifications

4.3.1 Control Panel Specifications

Table 55: D9412G/D7412G Specifications

Voltage Input (Power Supply)	Primary:	Terminals 1, 2	16.5 VAC 40 VA class 2 plug-in transformer (D1640)
	Secondary:	Terminals 4, 5	Sealed lead-acid rechargeable battery (12 VDC, 7 Ah or 12 VDC, 17.2 or 18 Ah). The panel supports a maximum of two 12 VDC, 7 Ah batteries using the D122 Dual Battery Harness or two D1218 (12 VDC, 17.2 or 18 Ah) batteries using a D122.
Current Requirements	Control Panel : 500 mA alarm, 200 mA idle Refer to *Current Rating Chart for Standby Battery Calculations* in *the D9412G/D7412G Approved Applications Compliance Guide* (P/N: F01U003639) for the current draw requirements of other system components.		
Power Outputs	All external connections are inherently power-limited except battery terminals.		
	Continuous Power Outputs	Terminals 3, 24, 32	1.4 A maximum at 10.2 VDC to 13.9 VDC (continuous supply) total for all devices and outputs supplied at Terminals 3, 24, and 32 and at the Accessory and Programming Connectors.
	Alarm Power Output	Terminals 6, 7	2.0 A maximum at 10.2 VDC to 13.9 VDC output. Output might be steady or one of three pulsed patterns depending on programming. Refer to *Relays* in the *D9412G/D7412G Program Entry Guide* (P/N: F01U003636).
	Switched Aux Power	Terminal 8	1.4 A maximum at 10.2 VDC to 13.9 VDC output. Continuous output is interrupted by Sensor Reset or alarm verification depending on programming. Refer to *Relays* in the *D9412G/D7412G Program Entry Guide* (P/N: F01U003636).
	Fire and Fire/Burglary Systems	To comply with UL 985 and 864 listing standards for fire alarm systems (effective March 1, 1989), the total combined continuous and alarm current draw for the system during alarm conditions must be limited to 1.4 A (1400 mA) provided by the primary power supply (rectified AC). If current draw for the system exceeds 1.4 A, remove connected devices until the current draw falls below 1.4 A. Then, connect the removed devices to a D8132 Battery Charger Module or to an external power supply.	
Minimum Operating Voltage	10.2 VDC		
SDI Bus	SDI Bus A (+): SDI Bus B (-):	9 VDC 4572 m (15000 ft) max. 9 VDC 4572 m (15000 ft) max.	
Telephone Connections	Connection: Two telco lines:	RJ31X or RJ38X jack can be connected to the control panels. Bosch Security Systems D928 Dual Phone Line Module is required for two phone line service. Supervision supplied by the control panel.	
Battery Discharge/ Recharge Schedule	Discharge Cycle	13.9 VDC 13.8 VDC 12.1 VDC 10.2 VDC	Charging float level. Charging status LED on. Low Battery and AC Fail Reports if programmed. Low Battery LED on. Battery load shed (processing functions continue if AC is present).
	Recharge Cycle	AC ON 13.7 VDC 13.9 VDC	Load shed relay resets, battery charging begins, Battery Trouble and AC Restoral Reports sent. Battery Restoral Report sent, Low Battery LED off. Charging status LED off, battery float charged.
Environmental	Temperature: Relative Humidity:	0°C to +50°C (+32°F to +122°F) 5% to 85% at +30°C (+86°F) non-condensing	
Arming Stations	D720 Command Center, D1255 Command Center, D1256 Fire Command Center; D1257 Fire Alarm Annunciator; D1260 Alpha V Command Center; Keyswitch		
Point Thresholds	On-board Points 1 to 8		

	Voltage	Resistance
Normal	2.3	1 kΩ
Short	1.85	0.657 kΩ
Open	2.93	1.6 kΩ

Compatible Enclosures	D8103 Universal Enclosure, D8109 Fire Enclosure, D8108A Attack Resistant Enclosure

4.3.2 Zonex Specifications

OctoPOPIT

Table 56: D8128D OctoPOPIT Specifications

Power Requirements		
	Voltage (Operating):	10.2 VDC to 13.8 VDC, supplied by the control panel
	Current (Maximum):	51 mA per OctoPOPIT module (all points shorted @ 13.8 VDC)
Environmental Considerations		
	Relative Humidity:	5% to 85% at +30°C (+86°F), non-condensing
	Temperature (Operating):	0°C to +49°C (+32°F to +120°F)
Loop		
	Resistance:	1 kΩ (+/-100 Ω)
	Response Time:	Approximately 1 second. OctoPOPIT sensor loops are supervised with a 1 kΩ end-of-line resistor: Bosch's D105BL or D105FL (for fire supervisory applications)
Cabling		*Burglary applications:* D8128D OctoPOPITs can be installed up to 61 m (200 ft) from the control panel using standard four-conductor 0.8 mm (22 AWG) wire. Shielded cable is recommended when the D8128D is located outside the control panel enclosure. *Fire applications:* UL Listed fire-rated cable approved by the authority having jurisdiction (AHJ) must be used when connecting fire-initiating or fire-supervisory devices to the D8128D. D8128D OctoPOPITS can be located up to 61 m (200 ft) from the control panel and must be mounted in a D8109 or D8108A enclosure. If a D125B Dual Powered Loop Interface Module or D129 Dual Class A Module is required, they must also be mounted in the same enclosure as the D8128D OctoPOPIT. Each OctoPOPIT uses 51 mA (worst case). This affects the number of units that can be connected on a single wire run.

POPITS

Table 57: POPIT Specifications

Operating Voltage	D8125	10.2 VDC to 14 VDC supplied by AUX POWER
	D8126/D8127	7 VDC to 15 VDC supplied by the POPEX Module
Current	D8125	50 mA per POPEX Module + POPIT current
	D8126/D8127	2.5 mA per POPIT Module
	D9127	0.5 mA per POPIT Module
Operating Temperature	0˚C to +50˚C (+32˚F to +122˚F), @ 86% Relative Humidity	
Resistance	Maximum increase of resistance on the POPIT Loop is 1000 Ω. Maximum resistance between the POPEX Module and any POPIT is 90 Ω.	
Sensor Loop Response Time	Approximately 1 second. POPIT sensor loops are supervised with a 33 kΩ End-Of-Line resistor: Bosch Security Systems D106F	
Low Condition Voltages	Open:	12 VDC
	Normal:	6 VDC
	Shorted:	0 VDC
	Control panel responds to a grounded loop as an open condition.	

Table 57: POPIT Specifications (continued)

Dimensions (H x W x D)	D8125 module: D8126 enclosure: D8127/D9127 enclosure:	19 mm x 73 mm x 12.7 cm (0.75 in. x 2.88 in. x 5.0 in.) 24 mm x 73 mm x 11.1 cm (0.94 in. x 2.88 in. x 4.38 in.) 24 mm x 38 mm x 81 mm (0.94 in. x 1.5 in. x 3.2 in.)
UL Applications	The control panel enclosure and POPIT modules required for specific UL or NFPA Zonex system applications are listed below. The D8108A Attack-Resistant Enclosure meets or surpasses the requirements for all of these applications. Any mercantile combination fire and burglar system must use the model D8126T/D8127T POPIT Module. Refer to UL 681 "Installation and Classification of Mercantile and Bank Burglar Alarm Systems" for more details on installation requirements.	

Application Control D8126/D8127	Enclosure	Model
Residential		
UL Household Fire/NFPA 74	D8103	U or T
UL Household Burglar	D8103	U or T
Commercial		
UL Local Burglar/Police Connected Burglar	D8108A	T*
UL Central Station Burglar Grade C	D8103	T*
UL Central Station Burglar Grades B & A	D8108A	T*
UL Local Fire/NFPA 72	D8109	U or T
UL Central Station Fire/NFPA 71	D8109	U or T
UL Remote Station Fire/NFPA 72	D8109	U or T
UL Electrically Activated Transmitter	D8109	U or T
* A model "U" POPIT mounted within a tampered enclosure can be used in place of a model "T" POPIT.		

The following describe the classification of the Bosch Security Systems modules. Please refer to the 1996 NFPA 72 pages 33 to 36 for the specific details of IDC, SLC, NAC conditions.

Module	Class	Style	1996 NFPA Table
D125B (Powered Loop Interface)	B	A	3-5
D129 (Dual Class A Initiation Module)	A	D	3-5
D192C (Bell Supervision Module)	B	W	3-7.1
D8125 (Zone Expansion Module)	B	3.5	3-6
D9127 (Point of Protection Module)	B	A	3-5

Information provided by the UL test report and the 1996 NFPA Code book.

MUX Devices

Table 58: D8125MUX Specifications

Description	Value
Operating Voltage	Nominal 12 VDC
Current Requirements	D8125MUX only: 128 mA
Maximum current draw using both MUX Bus outputs and both power outputs	678 mA
Operating Temperature Range	0°C to +50°C (+32°F to +122°F), 86% relative humidity
Dimensions (H x W x D)	25 mm x 8.3 cm x 14.0 cm (1.0 in. x 3.25 in. x 5.5 in.)

Wireless Devices

Table 59: D8125INV Specifications

User Interface:	LCD Display	2 lines by 16 characters, Backlit
	Keypad	0 to 9 numbers ESC, ENT, PREV, NEXT and DIAG keys
Operating Voltage:	10.2 to 14 VDC supplied by Aux Power from Control Panel or an External Auxiliary Power Supply.	
Current:	30 mA typical, 45 mA maximum plus ≈ 40 mA for each FA400 receiver	
Operating Temperature:	0°C to +65°C (+32°F to +149°F), 93% Relative Humidity	
Wiring:	18 AWG or 22 AWG Solid or Stranded. Maximum distance from control panel cannot exceed 1.5 m (5 ft).	
Dimensions (HxWxD):	10 cm x 16.6 cm x 3 cm (3.94 in. x 6.5 in. x 1.2 in.)	
Weight:	243 g (8.6 oz)	

Table 60: FA400 Specifications

Operating Voltage:	10.2 VDC to 14 VDC
Current:	40 mA max.
Wiring:	18 AWG or 22 AWG Solid or Stranded. Maximum distance from D8125INV to FA400 cannot exceed 61 m (200 ft) or 305 m (1000 ft) with power supply.

4.3.3 SDI Bus Specifications

Keypads

Table 61: D1255/D1255B Keypad Specifications

Power	Nominal 12 VDC supplied by the control panel	
Current Required	Idle:	104 mA, armed or disarmed.
	Maximum:	206 mA, with keypad lighted and warning tone ON.
Wiring	Four-wire expansion cable supplies Data In, Data Out, +12 VDC, and Common. Maximum resistance on the conductors connected to SDI BUS A and SDI BUS B is 25 Ω.	
Dimensions H x W x D	11.6 cm x 20.7 cm x 20.7 cm (4.6 in. x 8.1 in. x 0.8 in.)	
Color	D1255	PMS Warm Gray
	D1255B	White and PMS 429 Gray
Display	16-character vacuum fluorescent display. Each character is a 14-segment unit. Soft blue color.	
Operating Temperature	0°C to +50°C (+32°F to +122°F)	
Relative Humidity	5% to 85% @ +30°C (+86°F)	

Table 62: D1260 Keypad Specifications

Power Requirements	Voltage	Nominal	12 VDC
	Standby Current	Idle	135 mA
		Maximum*	208 mA
		* with speaker and display backlight at maximum	
Enclosure	Dimensions	(H x W x D)	
	D1260	10.9 cm x 20 cm x 2.6 cm (4.6 in. x 8.2 in. x 0.8 in.)	
	D1260B	12.6 cm x 21 cm x 3.2 cm (5.0 in. x 8.2 in. x 1.3 in.)	
	Weight	439 g (15.5 oz.)	
	Color	D1260	Off white
		D1260B	Off white and dark gray
		D1260BLK	Black
		D1260R	Red
		D1260W	White
	Material		
	D1260	GE CYCOLOY® CH10 UL94-HB Fire Rated	
	D1260B	CHI MEI POLYLAC® PA-747 with UV Stabilizer UL94-HB Fire Rated	
	Environmental	Intended for indoor use	
Temperature	Operating	0°C to +49°C (+32°F to +120°F)	
	Relative Humidity	95% + 2% @ +49°C (+120°F)	
Display	Type	Backlit LCD	

D9210B Card Access Interface Module

Table 63: D9210B Specifications

Description	Value
Alarm Inputs	
Door Contact Status	1 normally closed
Request to Enter (RTE) and Request to Exit (REX)	1 normally open V in < 1.8 V on > 3.2 V off
SDI A, SDI B	RS-485 @ 9600 baud
Tamper Input	1 normally open V in < 1.8 on > 3.2 V off
Alarm Outputs	
+5 VDC Reader Output	V out 5 V ± .25 V for 20 to 140 mA load, 150 mA maximum continuous
Buzzer Output	1 rated @ 5 A at 30 VDC Sink up to 35 mA from 5 to 14 VDC source
Dry Contact SPDT Relay	Supports: 12 VDC @ 2 A 24 VDC @ 2.5 A 12/24 VAC @ 40 A
Board	
Dimensions (HxWxD)	25.4 mm x 76.2 mm x 127 mm (1 in. x 3 in. x 5 in.)
Weight	93.31 g (3.29 ounces)

Table 63: D9210B Specifications (continued)

Description	Value
Communications	
Bus Compatibility	SDI bus
Port 1	RS-485
Connections	
Inputs	1 door contact
Environmental	
Relative Humidity	5% to 85% at 30°C (86°F), noncondensing
Operating Temperature	0°C to +49°C (+32°F to +120°F)
Number of	
Access Levels	14
Card Readers (Doors)	8 (D9412G) 2 (D7412G)
Tokens	996 (D9412G) 396 (D7412G)
Power Requirements	
Input	12 VDC

D9131A Printer Interface Module

Table 64: D9131A Specifications

Operating Voltage	7.3 VDC to 13.9 VDC
Current Draw	Idle: 21 mA Transmitting: 23 mA
Operating Temperature	0°C to +50°C (+32°F to +125°F)
Wire Distance	Maximum of 305 m (1000 ft) using 0.8 mm (22 AWG) solid copper wire
Parallel Data Output	Data is sent to the D9131A at a rate of 9600 baud on the SDI Bus. The actual print time depends on the printer used.
LED Indicators	The Green LED on the back of the D9131A indicates the D9131A is being addressed by the control panel and the D9131A has successfully decoded the information.

D9133

Table 65: D9133 Specifications

Operating Voltage	8.5 V to 14 VDC
Current Draw	39 mA (min), 45 mA (max)
Dimensions (Enclosure)	14 cm x 8.3 cm x 4.5 cm (5.5 in. x 3.25 in. x 1.75 in.)

D9133DC

Table 66: D9133DC Specifications

Dimensions (Enclosure) H x W x D	14 cm x 8.3 cm x 4.5 cm (5.5 in. x 3.25 in. x 1.75 in.)
Current Draw	50 mA (55 mA with diagnostic LEDs enabled)

DX4010i

Table 67: DX4010i Specifications

Operating Voltage	12 VDC
Current Draw	50 mA nominal, 55 mA with diagnostic LEDs enabled
Communication Configuration	Programmable through the control panel. Refer to the appropriate control panel programming instructions.
Operating Temperature	0°C to +50°C (+32°F to +122°F)
Relative Humidity	5 to 85% @ +30°C (+86°F) non-condensing
Control Panel Compatibility	Detection Systems Option Bus DS7240, DS7220 and DS7400Xi; Bosch Security Systems D6412, D4412 or Bosch Security Systems SDI Bus D9412G, D7412G, D7212G, D9412, D9124, D9112, D7412 and D7212.

DX4020

Table 68: DX4020 Specifications

Dimensions	7.6 cm x 12.7 cm (3 in. x 5 in.)	
Current Draw	84 mA maximum, 80 mA nominal 10 Base-T 110 mA maximum, 100 mA nominal 100 Base-T	
Operation Voltage	12 VDC Nominal	
Connectors	Control Panel	SDI Bus Terminal block
	LAN/WAN	RJ-45 Modular Jack (Ethernet)
Ethernet Cable	Category 3 or better unshielded twisted pair	
	Max Length	100 m (328 ft)
Interface	IEEE 802.3	
Compatibility	Bosch Control Panels - Version 6.3 or later	
Default IP Address	0.0.0.0 (DHCP mode)	

D9133TTL-E

Table 69: D9133TTL-E Specifications

Dimensions (Enclosure)	17.8 cm x 11.4 cm (7 in. x 4.5 in)
Current Draw	140 mA maximum
Operation Voltage	12 VDC Nominal
Connectors	Control Panel: SDI Bus terminal block LAN/WAN: RJ-45 modular jack (Ethernet)
Ethernet Cable	Category 3 or better unshielded twisted pair Maximum Length: 100 m (328 ft)
Interface	IEEE 802.3
Default IP Address	192.168.000.002

PC9133TTL-E

Table 70: PC9133TTL-E Specifications

Dimensions (Enclosure)	17.8 cm x 11.4 cm (7 in. x 4.5 in)
Current Draw	140 mA maximum
Operation Voltage	12 VDC Nominal
Connectors	Control Panel: SDI Bus Terminal block LAN/WAN: RJ-45 modular jack (Ethernet)
Ethernet Cable	Category 5 or better unshielded twisted pair Maximum Length: 100 m (328 ft)
Interface	IEEE 802.3
Compatibility	9000 Series Panels (D9412, D9112, D7412, D7212, D9412G and D7412G): Version 6.0 or later
Default IP Address	192.168.000.002

4.4 Glossary

addressable point: The physical hardware that is programmed, using either DIP switches or a programmer, to a specific point number or numbers. This point number must also exist in the control panel's programming as a **programmed point**.

device: A physical piece of hardware that detects an event and provides an open or short to the Addressable or on-board point.

on-board point: The device connection terminals that are part of the control panel.

point expansion technology: A module that connects to the control panel's Zonex bus, and that directly (D8128) or indirectly (all modules other than D8128) connects Addressable Points to the control panel.

programmed point: The point number that is programmed in the control panel using the **RADXPNTS** handler in either the D5200 Programmer or RPS (Remote Programming Software).

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