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Radionics, Inc.  
c/o Technical Writing Department  
1800 Abbott Street  
Salinas, California 93901

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If necessary, the installer should consult an experienced radio/television technician for additional suggestions, or send for the *Interference Handbook* prepared by the Federal Communications Commission. This booklet is available from the U.S. Government Printing Office, Washington D.C. 20402, stock no. 004-000-00450-7.

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# ZONEX System Description

## Introduction

### Module Description

The D8128B OctoPOPIT Module is an accessory for the Radionics D8112"G" series control/communicator Zone Expansion (ZONEX) concept. The OctoPOPIT module combines the features of the POPEX and POPIT modules, which can provide assignment of up to eight ZONEX points to a single D8112G Control/Communicator master zone. (All points on a single OctoPOPIT must be assigned to the same master zone.) Sixteen OctoPOPITs can be connected to the D8112G (eight to each Zone Expander terminal), providing as many as 126 additional points of protection to the security system. An unlimited number of detection devices can be connected to each OctoPOPIT sensor loop; however, point annunciation is available only for the *sensor loop*.

The D8128B OctoPOPIT Module can be used in conjunction with the D8125 POPEX and POPIT Modules. Refer to the Technogram *Combining OctoPOPIT and POPEX/POPIT Modules* (73-04836-000).

### Programming

OctoPOPIT application programs are developed using the Radionics Remote Account Manager (RAM/RAM II), the D5100 Bar Code Programmer, or the D5200 Programmer. The control/communicator used for the ZONEX system must be of the D8112"G" series. *The OctoPOPIT only functions with D8112"G" series control/communicators.* The D8112G series control/communicators contain the ZONEX firmware, and expanded memory for custom ZONEX text displays on the Radionics D1252A Command Center. (Custom alphanumeric text for each expansion point can be programmed with the 8112 PTEXT program.) Each D8128B OctoPOPIT module is supplied with an *8112 ZONEX System Program/Account Record Sheet*, used to record both the ZONEX subhandler program file and the physical location of each OctoPOPIT module.

### Listing

The OctoPOPIT module is U.L. listed for Local or Police Connect Burglary Alarm, Central Station Burglary Alarm, and Household Burglary Alarm applications. The D8128B is also suitable for fire supervisory applications, such as D192C Bell Module trouble supervision, sprinkler supervision, and valve tamper protection. (The OctoPOPIT module is not suitable for fire initiation applications, such as waterflow, smoke, and heat detector loops.) Several enclosures are available to house the OctoPOPIT: the D8103, the D8108A, and the D8109. See the *U.L. Applications* in the *Specifications* section of this manual to determine the appropriate enclosure for the application.

### Other References

It is recommended that you become familiar with the following manuals and have them available for reference when installing the ZONEX system.

Manual Name	Part Number
<i>D1252A Security System User's Guide</i>	71-04415-000
<i>Combining OctoPOPIT and POPEX/POPIT Modules</i>	73-04836-000
<i>8112:AUX Program Entry Guide</i>	74-04248-002
<i>8112:MAIN Program Entry Guide</i>	74-03762-000
<i>8112:PTEXT Program Entry Guide</i>	74-04249-000
<i>D6500 Report Directory</i>	74-04651-001

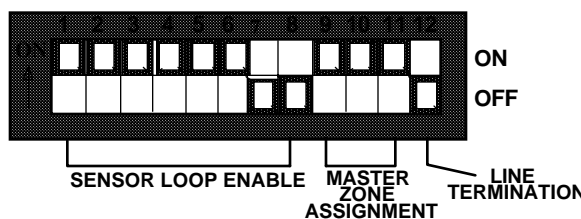
# Operation

Each OctoPOPIT module is assigned to report to a D8112G Control/Communicator master zone. The OctoPOPIT can transmit three conditions to the D8112G: sensor loop open, shorted, and normal. The D8112G receives the condition signals and interprets them as: sensor loop alarm, trouble, or normal, missing, or extra. The D8112G master zone loop code in the *8112 MAIN* program determines the system response to each of these OctoPOPIT sensor loop conditions. When an event occurs on an OctoPOPIT, the D1252A sequences through displays which indicate the type of event.

HORIZONTAL MODE - OCTOPOPIT MODULES									
	D8112 MASTER ZONE 1	D8112 MASTER ZONE 2	D8112 MASTER ZONE 3	D8112 MASTER ZONE 4	D8112 MASTER ZONE 5	D8112 MASTER ZONE 6	D8112 MASTER ZONE 7	D8112 MASTER ZONE 8	
<b>Master Zone Assignment</b>	9 10 11	9 10 -	9 - 11	9 - -	- 10 11	- 10 -	- - 11	- - -	
<b>Zone Expander 1 (D8112G Term. 28)</b>	ZN 101	ZN 201	ZN 301	ZN 401	ZN 501	ZN 601	ZN 701	ZN 801	1
	ZN 102	ZN 202	ZN 302	ZN 402	ZN 502	ZN 602	ZN 702	ZN 802	2
	ZN 103	ZN 203	ZN 303	ZN 403	ZN 503	ZN 603	ZN 703	ZN 803	3
	ZN 104	ZN 204	ZN 304	ZN 404	ZN 504	ZN 604	ZN 704	ZN 804	4
	ZN 105	ZN 205	ZN 305	ZN 405	ZN 505	ZN 605	ZN 705	ZN 805	5
	ZN 106	ZN 206	ZN 306	ZN 406	ZN 506	ZN 606	ZN 706	ZN 806	6
	ZN 107	ZN 207	ZN 307	ZN 407	ZN 507	ZN 607	ZN 707	ZN 807	7
	ZN 108	ZN 208	ZN 308	ZN 408	ZN 508	ZN 608	ZN 708	DO NOT ENABLE	8
<b>Zone Expander 2 (D8112G Term. 27)</b>	ZN 109	ZN 209	ZN 309	ZN 409	ZN 509	ZN 609	ZN 709	ZN 809	1
	ZN 110	ZN 210	ZN 310	ZN 410	ZN 510	ZN 610	ZN 710	ZN 810	2
	ZN 111	ZN 211	ZN 311	ZN 411	ZN 511	ZN 611	ZN 711	ZN 811	3
	ZN 112	ZN 212	ZN 312	ZN 412	ZN 512	ZN 612	ZN 712	ZN 812	4
	ZN 113	ZN 213	ZN 313	ZN 413	ZN 513	ZN 613	ZN 713	ZN 813	5
	ZN 114	ZN 214	ZN 314	ZN 414	ZN 514	ZN 614	ZN 714	ZN 814	6
	ZN 115	ZN 215	ZN 315	ZN 415	ZN 515	ZN 615	ZN 715	ZN 815	7
	ZN 116	ZN 216	ZN 316	ZN 416	ZN 516	ZN 616	ZN 716	DO NOT ENABLE	8

**NOTE:** Numbers in shaded areas indicate OctoPOPIT switches that are ON.

**Figure 1: Horizontal Mode - OctoPOPIT Module**



**NOTE:** Only *one* OctoPOPIT connected to each D8112G Zone Expander terminal should have switch 12 ON.

If a POPEX is also connected to the same Zone Expander, switch 12 should be turned OFF.

**Figure 2: OctoPOPIT Switch Block**



# Installation

## Mounting and Wiring the OctoPOPIT

The D8128B OctoPOPIT Module can be installed in the D8112G enclosure, or located up to 200 feet from the control/communicator with the use of a D8114 Quad Serial Output Module. (**Note:** For U.L. certificated systems, the OctoPOPIT module must be mounted inside a tampered enclosure.) The D8128B OctoPOPIT Module can be used in conjunction with the D8125 POPEX and POPIT Modules. Refer to the Technogram *Combining OctoPOPIT and POPEX/POPIT Modules* (73-04836-000).

For proper OctoPOPIT module installation, follow the steps below:

1. Align the D8128B module with any of the four mounting locations (see Figure 4). Fasten the module in place with the three mounting screws provided.
2. Remove AC and DC power from the D8112G Control/Communicator.
3. Connect D8112G terminal **4** to the OctoPOPIT terminal **4** (see Figure 5).
4. Connect D8112G terminal **3** to the OctoPOPIT terminal **3**.
5. Connect D8112G terminal **31** to the OctoPOPIT terminal **31**.
6. Connect OctoPOPIT terminal **ZX** to D8112G terminal **27** or **28** (up to eight OctoPOPIT modules can be connected to each D8112 Zone Expander terminal).
7. Reconnect AC and DC power to the D8112.
8. Program the D8112G accordingly.

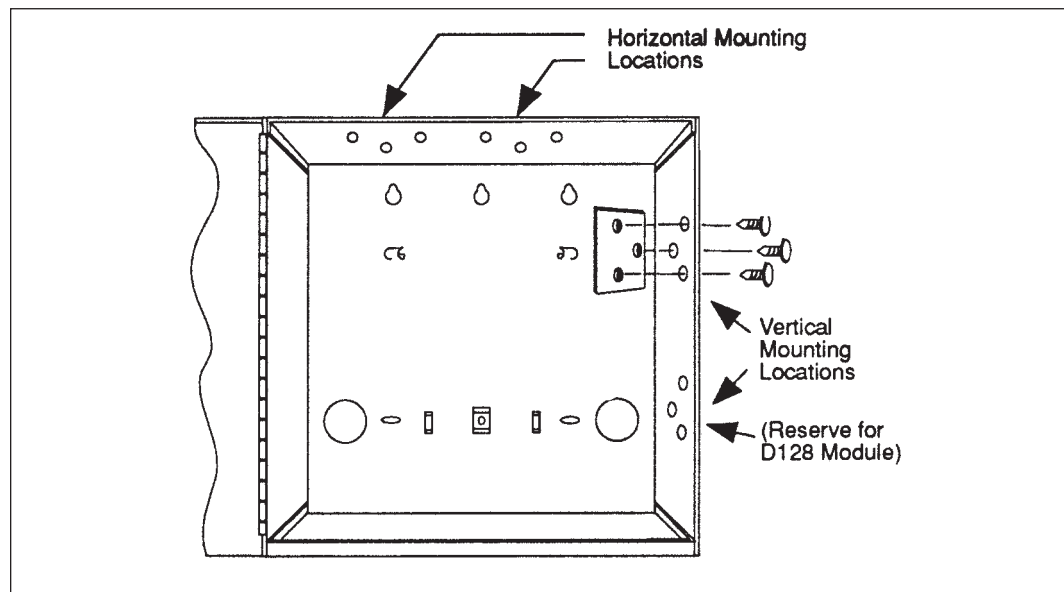


Figure 4: OctoPOPIT Installation in a Radionics Enclosure

## Line Termination

If no POPEX modules are wired to the D8112G Zone Expander terminal, switch 12 on one OctoPOPIT must be switched ON for line termination (see Figure 2). **Only one OctoPOPIT connected to each D8112G Zone Expander terminal should have switch 12 ON.** If the OctoPOPIT is mounted outside of the D8112G or adjacent enclosure, the cable connecting the OctoPOPIT and the D8112G must be shielded against AC induction (refer to the *Troubleshooting Guide* (step 5) in the back of the book for more information on AC induction).

Keep all phone and AC wires away from the OctoPOPIT wires.

## Master Zone Assignments

OctoPOPIT switches 9, 10, and 11 (see Figure 2) are used to select a D8112G master zone, as shown in Figures 1 (horizontal mode) and 3 (vertical mode). Numbers indicate the switches which must be placed in the ON position. Switches indicated with a dash (-) must be placed in the OFF position. Each module connected to a ZONEX terminal must have a unique master zone switch setting.

## Sensor Loops

Switches 1 to 8 are used to activate each of the eight OctoPOPIT sensor loops (see the right-hand column of Figures 1 and 3). Setting a switch ON enables status reports for that sensor loop, and setting a switch OFF disables the sensor loop. If a point is turned ON in the 8112:AUX program, and the corresponding DIP switch is set to OFF, the D8112G interprets it as a missing condition.

Switch 1 corresponds to sensor loop 1, switch 2 corresponds to sensor loop 2, etc. Figure 2 displays the switch settings for an OctoPOPIT module in the horizontal mode assigned to master zone 1, with sensor loops 1 through 6 enabled.

Each sensor loop assigned to an OctoPOPIT module must be enabled sequentially. Unused sensor loops within an enabled block must still be programmed and terminated with a 1K $\Omega$  end-of-line resistor. Switch 8 must be OFF for those locations marked DO NOT ENABLE in Figures 1 and 3.

**D5100 Programming Note:** If all 126 points of protection are used in the horizontal mode, *2.12 Z8POINTS* in the ZONEX subhandler program file should be programmed with a 15, since the highest numbered point of protection is *ZN815*.

The OctoPOPIT can supervise an unlimited number of detection devices on each 2-wire sensor loop, including normally-open devices wired in parallel, normally-closed devices wired in series, or a combination of devices wired in parallel and series. Open, closed, and normal circuit conditions can be detected and transmitted to the D8112G.

A system cannot be normally armed if any of the sensor loops are faulted. (A system with loop faults can be force-armed, however.)

Each OctoPOPIT sensor loop shares a common terminal with one other sensor loop on the module, and must be terminated with a 1K $\Omega$  end-of-line resistor: Radionics Model #D105BL, or #D105FL (for fire supervisory applications).

**Important:** Radionics recommends the use of twisted-pair wire for the sensor loops in all OctoPOPIT installations. Shielded cable is recommended if a noisy or unstable environment is suspected, or when using long sensor loop wire runs. See step 5 of *Additional Troubleshooting* for information on shielded cable.

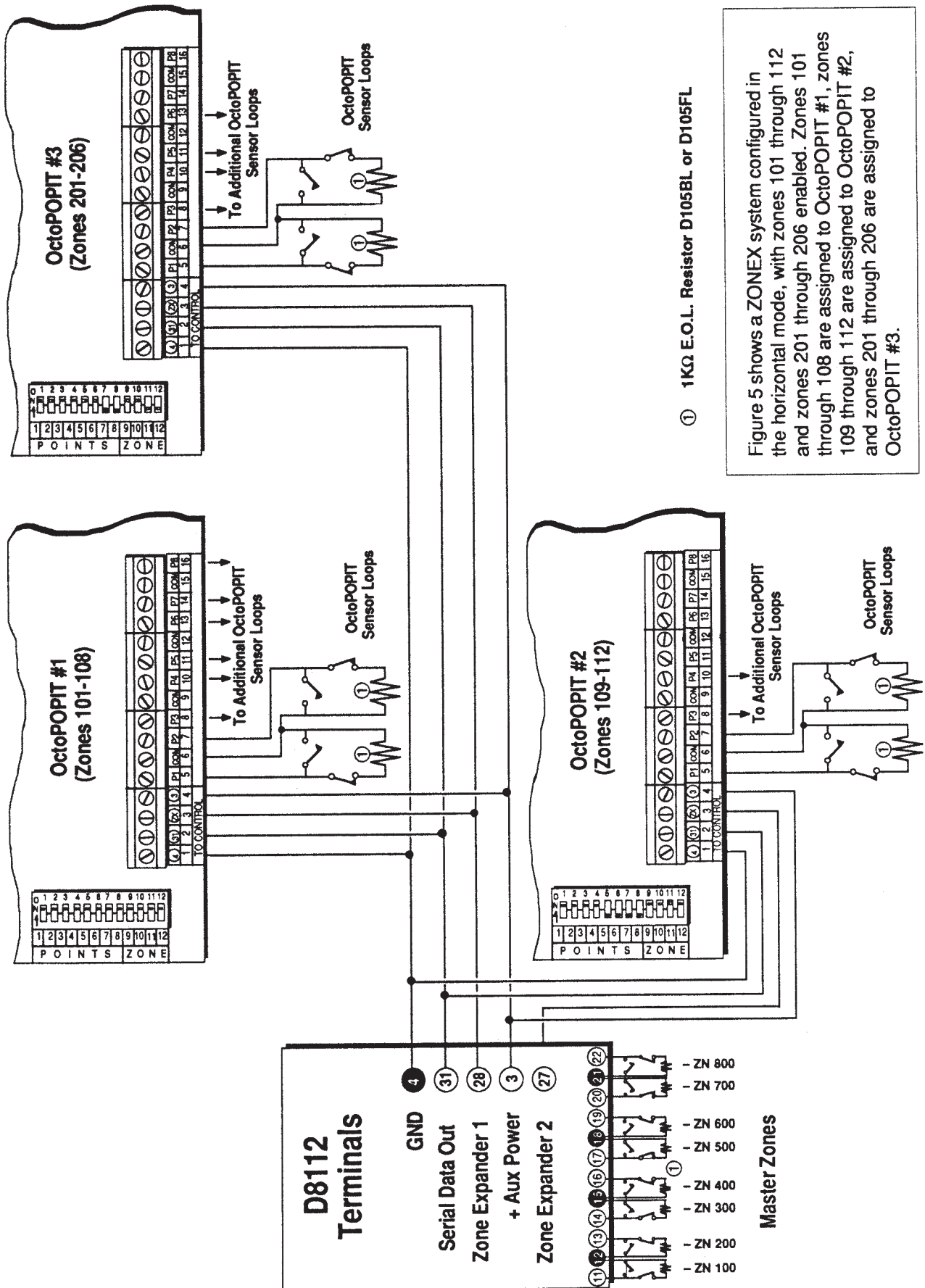


Figure 5 shows a ZONEX system configured in the horizontal mode, with zones 101 through 112 and zones 201 through 206 enabled. Zones 101 through 108 are assigned to OctoPOPIT #1, zones 109 through 112 are assigned to OctoPOPIT #2, and zones 201 through 206 are assigned to OctoPOPIT #3.

Figure 5: Horizontal Mode Installation Example

## Standard ZONEX Point Displays

The current status of each OctoPOPIT module is transmitted to the D8112G Control/Communicator. The status is recorded and held in the D8112G memory buffer until the system is armed and the exit delay time has expired. The D1252A Command Center displays both the current status and the event memory with a special code called a *ZONEX Point Display*. For a complete list of D1252A displays, refer to the *D1252A Security System User's Guide* (71-04415-000).

Here is an example of a standard ZONEX point display:

**ZN101S2**

**Memory of Previous Events:** The D1252A displays a memory code to annunciate events which have taken place since the system was last armed.

- 1 = Alarm memory.
- 2 = Trouble memory.
- 3 = Alarm and trouble memory.
- 4 = Missing memory.
- 5 = Alarm memory and missing.
- 6 = Trouble memory and missing.
- 7 = Alarm & trouble memory and missing.

**Current State of Sensor Loop:**

- O = Sensor loop electrically open.
- S = Sensor loop electrically shorted or grounded.
- (blank) = Sensor loop electrically normal.
- M = Missing OctoPOPIT point (the point is programmed to be in the system, but is not responding to polling. Check the DIP switches).
- X = Extra POPIT point (the point is responding to polling, but is not programmed to be in the system. Check the DIP switches).

**Zone Expansion Point:** This is the identification number of the module transmitting the event.

**Master Zone Number:** The D8112G master zone number assigned to the OctoPOPIT.

**Zone:** This identifies the display as a zone status display.

When an event occurs, the OctoPOPIT sends a signal to the control/communicator. The D8112G decodes the event signal and initiates the appropriate system response. The D1252A Command Center displays two types of information: programmable and standard. Instructions for programming D1252A Command Center displays are found in the *8112:MAIN Program Entry Guide* (Program Items 105 through 120) and the *8112:PTEXT Program Entry Guide*.



### Alarm Condition Displays

When an event occurs in the system (an open or shorted loop) that the D8112G interprets as an alarm, the system initiates an alarm response, and the D1252A sequences through the following displays:

ALARM WATERFLO

- \_\_\_\_\_ **Programmed display\*** (8112:MAIN).
- \_\_\_\_\_ **Standard D8112G alarm display.**

ZN102S1 RISER#2

- \_\_\_\_\_ **Programmed display** (8112:PTEXT).
- \_\_\_\_\_ **Standard ZONEX status code for point of protection #102.**

\*\*\*\*\* (Row of stars.)

### Fault Condition Displays

When a loop fault occurs, the following displays can appear on the D1252A by pressing any key (rows of stars separate displays pertaining to individual points of protection):

FAULTED DOORS

- \_\_\_\_\_ **Programmed display\*** (8112:MAIN).
- \_\_\_\_\_ **Standard display indicating a faulted condition exists on this zone.**

ZN204O FRONT

- \_\_\_\_\_ **Programmed display** (8112:PTEXT).
- \_\_\_\_\_ **Standard ZONEX status code for point of protection #204.**

\*\*\*\*\* (Row of stars.)

### Trouble Condition Displays

When a loop trouble occurs, the following displays can appear on the D1252A (rows of stars separate displays pertaining to individual points of protection):

SERVICE WINDOWS

- \_\_\_\_\_ **Programmed display\*** (8112:MAIN).
- \_\_\_\_\_ **Standard display indicating a faulted zone.**

ZN301S2 KITCHEN

- \_\_\_\_\_ **Programmed display** (8112:PTEXT).
- \_\_\_\_\_ **Standard ZONEX status code for point of protection #301.**

\*\*\*\*\* (Row of stars.)

**NOT READY TO ARM** **Standard display indicating an abnormal loop condition.**

\* This programmed display appears for all points assigned to this master zone.

# Central Station Reports

## Pulse and BFSK Reporting

When an OctoPOPIT initiates an alarm or trouble report, the D8112G transmits the message indicating the D8112 master zone tripped (if Program Item 25 *ExT/R* is **Yes** in the 8112: MAIN program). In addition to alarm, trouble, and restoral reports, the ZONEX system can also generate and send the following messages:

TRouble ZONE D indicates a "missing" point condition.

RESTORAL ZONE D indicates that a "missing" point condition has been resolved.

These reports are preceded by a TRouble ZONE # or RESTORAL ZONE # report<sup>§</sup>, which indicates the master zone assignment of the missing point.

## Modem II Reporting

Only D8112G2 supports *expanded* ZONEX reports (such as OctoPOPIT alarm messages) using Modem II format reporting.

### Missing/Trouble Reports

#### Multiple Trouble Reports

When ZONEX is used on a controlled master zone and a missing condition occurs on the OctoPOPIT during a disarmed state, a TRouble\* message is sent to the central station for each point assigned to that OctoPOPIT. The message sequence is followed by a TRouble ZN D message as shown below<sup>§</sup>:

ACCT 1234 TRouble\* ZN 101

ACCT 1234 TRouble\* ZN 102

ACCT 1234 TRouble\* ZN 103

etc...

ACCT 1234 TRouble ZN D

#### Single Trouble Report

A TRouble\* message, followed by a TRouble ZN D for a single point will only be sent for the following conditions:

1. When the only point assigned to an OctoPOPIT module is missing.
2. When a point, turned ON in the 8112 MAIN or AUX program, is disabled by a DIP switch setting (one of the first 8 DIP switches on the OctoPOPIT module is in the OFF position).
3. When the OctoPOPIT is faulty (see the *Troubleshooting* section prior to replacement).

### Restoral Reports

When all points are restored from the missing condition, a RESTORAL ZN D message is sent to the central station. When all points assigned to the troubled master zone are returned to normal, a restoral report for each previously troubled point is sent to the central station receiver, even if points are returned to normal at a later time or date<sup>§</sup>:

ACCT 1234 RESTORAL ZN 101

etc...

ACCT 1234 RESTORAL ZN D

\* Indicates that this point is "Missing" when it is followed by a TRouble ZN D message.

§ Messages printed out on the D6500 Security Receiver will appear in reverse order.

## Modem II Reporting (cont.)

### 24 Hour Zone Reports and Armed Controlled Zone Points

If the point is a 24 hour point, a missing report is sent to the D6500 receiver as follows<sup>§</sup>:

```
ACCT 1234 TROUBLE* ZN 101
ACCT 1234 TROUBLE ZN D
```

If the D8112G2 is armed and a controlled point goes missing, a missing report is sent to the D6500 receiver as follows<sup>§</sup>:

```
ACCT 1234 ALARM* ZN 101
ACCT 1234 TROUBLE ZN D
```

**When multiple points assigned to the same OctoPOPIT go into any trouble OR alarm condition, all** of the points must be restored before individual restoral reports are sent to the D6500 receiver. ARESTORAL ZN D is, however, sent when the backbone itself has restored.

A complete list of reports received by the D6500 receiver can be found in the *D6500 Report Directory* (74-04651-001).

\* Indicates that this point is missing when it is followed by a TROUBLE ZN D message.

§ Messages printed out on the D6500 Security Receiver will appear in reverse order.

## Local Status Test

### Operation

While disarmed, the security system status can be checked by entering COMMAND 44 at the D1252A Command Center. This command also initiates a system walk test (described in the *D1252A Security System User's Guide*) as part of the status test. Each point of protection is polled as the D8112G interrogates its eight master zones. The D1252A Command Center displays two small "bird feet" that "hop" across the screen to indicate that a master zone is under interrogation.

If the D8112G contains an event (either a current event or an event in memory), the "bird feet" display is replaced by the event held in memory (see *OctoPOPIT Displays* in the *Installation* section). Events begin to accumulate each time the system is armed. System events can be cleared from the D8112G memory by disarming then rearming the system and allowing the exit time to expire or performing a disable/restart on the D8112G.

If a programmed point of protection does not respond to the polling interrogation, a missing OctoPOPIT condition is displayed (see *OctoPOPIT Displays* in the *Installation* section). An "extra" OctoPOPIT display indicates that points turned ON by the D8128B DIP switches are not turned on in the 8112 MAIN or AUX program. Press any key on the D1252A Command Center to end the test.

## Missing and Extra OctoPOPIT Modules

Missing and extra OctoPOPIT conditions are typically caused by installation or programming errors. In a properly functioning system, all OctoPOPIT modules which are installed are assigned to the appropriate master zone in the ZONEX subhandler program file. Figure 6 illustrates a system with eight OctoPOPITs assigned to each of the first five master zones.

PROGRAMMED		INSTALLED	
2.5	Z1POINTS 8	MASTER ZONE 1:	8
2.6	Z2POINTS 8	MASTER ZONE 2:	8
2.7	Z3POINTS 8	MASTER ZONE 3:	8
2.8	Z4POINTS 8	MASTER ZONE 4:	8
2.9	Z5POINTS 8	MASTER ZONE 5:	8
2.10	Z6POINTS 00		
2.11	Z7POINTS 00		
2.12	Z8POINTS 00		

Figure 6: Operative ZONEX System

Figure 7 illustrates a system with OctoPOPITs assigned in programming to each of five master zones in the ZONEX program file, and only *four* OctoPOPITs installed. A missing ZONEX point condition is displayed for each point assigned to that OctoPOPIT when COMMAND 44 is entered in the D1252A. If the OctoPOPIT is assigned to a D8112G protective zone programmed for *controlled zone* response (burglary) and the D8112G is armed, the missing OctoPOPIT condition causes a system alarm. If the D8112G is disarmed, the system goes into a trouble condition. If the OctoPOPIT is assigned to a D8112G protective zone programmed for *24 hourzone* response (fire, panic, hold-up, etc.) the “missing” POPIT indicates a trouble condition.

PROGRAMMED		INSTALLED	
2.5	Z1POINTS 8	MASTER ZONE 1:	8
2.6	Z2POINTS 8	MASTER ZONE 2:	8
2.7	Z3POINTS 8	MASTER ZONE 3:	8
2.8	Z4POINTS 8	MASTER ZONE 4:	8
2.9	Z5POINTS 8		
2.10	Z6POINTS 00		
2.11	Z7POINTS 00		
2.12	Z8POINTS 00		

← MISSING OCTOPOPIT

Figure 7: Missing OctoPOPIT

Figure 8 illustrates a system with OctoPOPITs assigned in programming to each of four master zones, and *five* OctoPOPITs installed. An “extra” ZONEX point condition is displayed for each point assigned to that OctoPOPIT when COMMAND 44 is entered at the D1252A. The “extra” ZONEX point condition is annunciated only through the D1252A Command Center, and does not initiate a report to the central station.

PROGRAMMED		INSTALLED	
2.5	Z1POINTS 8	MASTER ZONE 1:	8
2.6	Z2POINTS 8	MASTER ZONE 2:	8
2.7	Z3POINTS 8	MASTER ZONE 3:	8
2.8	Z4POINTS 8	MASTER ZONE 4:	8
2.9	Z5POINTS 00	MASTER ZONE 5:	8
2.10	Z6POINTS 00		
2.11	Z7POINTS 00		
2.12	Z8POINTS 00		

← EXTRA OCTOPOPIT

Figure 8: Extra OctoPOPIT

## Missing and Extra OctoPOPIT Modules (cont.)

If OctoPOPITs are assigned in programming to each of five master zones, and five OctoPOPIT modules are installed, but one has erroneous switch settings (Figure 9), both “missing” and “extra” ZONEX point conditions for each point assigned to that OctoPOPIT are displayed on the D1252A (COMMAND 44).

PROGRAMMED	INSTALLED	
2.5 Z1POINTS 8	MASTER ZONE 1: 8	
2.6 Z2POINTS 8	MASTER ZONE 2: 8	
2.7 Z3POINTS 8	MASTER ZONE 3: 8	
2.8 Z4POINTS 8	MASTER ZONE 4: 8	
2.9 Z5POINTS 8	MASTER ZONE 5: 8	← MISSING OCTOPOPIT
2.10 Z6POINTS 00		
2.11 Z7POINTS 00	MASTER ZONE 7: 8	← EXTRA OCTOPOPIT
2.12 Z8POINTS 00		

Figure 9: Erroneous Switch Settings

If switch settings on two OctoPOPITs connected to the same ZONEX terminals erroneously assign both modules to the same master zone (Figure 10), a “missing” ZONEX point condition for each point assigned to that OctoPOPIT is displayed (in this case for the missing OctoPOPIT that should be assigned to the master zone 5) on the D1252A after entering a Command 44.

PROGRAMMED	INSTALLED	
2.5 Z1POINTS 8	MASTER ZONE 1: 8	
2.6 Z2POINTS 8	MASTER ZONE 2: 8	
2.7 Z3POINTS 8	MASTER ZONE 3: 8	
2.8 Z4POINTS 8	MASTER ZONE 4: 8	
2.9 Z5POINTS 8		← MISSING OCTOPOPIT
2.10 Z6POINTS 8	MASTER ZONE 6: 1	← TWO OCTOPOPITS
2.11 Z7POINTS 00		
2.12 Z8POINTS 00		

Figure 10: Identical Switch Settings

If two OctoPOPITs are installed with the same switch settings, and there are no “missing” modules (see Figure 11), the “extra” ZONEX point messages are **not** displayed when COMMAND 44 is entered, and the system will indicate that it is *READY TO ARM*. If both OctoPOPITs are normal, however, a normal condition will be correctly reported.

PROGRAMMED	INSTALLED	
2.5 Z1POINTS 8	MASTER ZONE 1: 8	
2.6 Z2POINTS 8	MASTER ZONE 2: 8	
2.7 Z3POINTS 8	MASTER ZONE 3: 8	
2.8 Z4POINTS 8	MASTER ZONE 4: 8	
2.9 Z5POINTS 8	MASTER ZONE 5: 8	
2.10 Z6POINTS 8	MASTER ZONE 6:	← TWO OCTOPOPITS
2.11 Z7POINTS 00		
2.12 Z8POINTS 00		

Figure 11: Extra OctoPOPIT Installed

Caution: OctoPOPITs that have duplicate settings may not operate properly upon an alarm condition (Figure 10 and 11).

# Troubleshooting Guide

## Introduction

This guide is provided to aid in correcting problems with installed OctoPOPIT modules. To prevent problems from occurring, read all of the pertinent documentation (relevant *Program Entry Guides* and the previous sections of this manual). If you program the D8112G with the D5100 Bar Code Programmer, verify that the product handlers are at the following revision levels (or higher): 8112:MAIN **A7**, 8112:AUX **B1**, 8112:PTEXT **A5**.

## D1252A OctoPOPIT Activity

If the D1252A Command Center *does not* display OctoPOPIT activity and the **D5100** is used to program the panel:

1. Verify 8112:MAIN product handler program items *122 ExRAM* and *123 16ChDisp* are both programmed **Yes**.
2. Verify 8112:AUX product handler program items *2.1 ZONEX* and *2.3 Ptext* are programmed **Yes**.
3. Verify that the revision level of the 8112:AUX product handler is **B1** or higher. If you are not sure what revision level of the 8112:AUX product handler was loaded into the panel:
  - Verify that your D5100 Programmer contains the 8112:AUX.B1 or higher product handler.
  - Copy the 8112:AUX file out of the D8112.
  - Re-Load the same 8112:AUX file into the D8112.
  - Be sure to perform a disable/restart on the D8112 (momentarily connect terminal 32 to terminal 29).
4. Verify the assignments of OctoPOPIT modules to master zones in the 8112:AUX product handler program items *2.5 Z1Points* through *2.12 Z8Points*.

## Missing OctoPOPIT Points

If the D1252A Command Center displays a “missing” OctoPOPIT point status code (Example: ZN101M6):

1. Check the programming of horizontal or vertical mode *2.2 Hrzntl (Yes/No)* in the 8112 MAIN or AUX product handler.
2. Verify that the appropriate vertical or horizontal switch setting chart was used (see Figures 1 and 3), and that both the OctoPOPIT master zone switches 9, 10, and 11 and individual switch settings are correct (refer to **OctoPOPIT Module Installation**). If a switch is OFF and the D8112G is programmed for an *active* point of protection on that sensor loop, that loop is reported as “missing”.
3. Verify that each OctoPOPIT connected to the same D8112 Zone Expansion terminal has a *unique* master zone switch setting (switches 9, 10, and 11).
4. Verify the assignments of OctoPOPIT modules to master zones in the 8112 MAIN or AUX program items *2.5 Z1Points* through *2.12 Z8Points*.

**NOTE:** If all 126 points of protection are used in the horizontal mode, *2.12 Z8Points* must be programmed with a **15**.

5. Verify that OctoPOPIT switch 12 is ON for only *one* module connected to each Zone Expansion terminal. If a D8125 POPEX module is connected to the same Zone Expansion terminal, *none* of the OctoPOPITs attached to the same Zone Expansion

terminals should have switch 12 ON.

## Missing OctoPOPIT Points (cont.)

6. Check the wiring of the OctoPOPIT module to the D8112 Control/Communicator (refer to **OctoPOPIT Module Installation**, see Figure 5).
7. If *all* points in the ZONEX system are missing, verify that the points of protection labeled *DO NOT ENABLE* in Figures 1 and 3 are *OFF*.
8. If further difficulties are encountered, in a “missing” OctoPOPIT condition, see *Additional Troubleshooting Tips*.

## Extra OctoPOPIT Points

If the D1252A Command Center displays an “extra” OctoPOPIT point status code (Example: ZN101X6):

1. Check the programming of horizontal or vertical mode in the 8112 MAIN or AUX program item *2.2 Hrzntl (Yes/No)*
2. Verify that the appropriate vertical or horizontal switch setting chart was used (see Figures 1 and 3), and that both the OctoPOPIT master zone switches 9, 10, and 11 and individual switch settings are correct (refer to **OctoPOPIT Module Installation**). If a switch is OFF and the D8112G is programmed for an *active* point of protection on that sensor loop, that loop is reported as “missing”
3. Verify that each OctoPOPIT connected to the same D8112 Zone Expansion terminal has a *unique* master zone switch setting (switches 9, 10, and 11).
4. Verify the assignments of OctoPOPIT modules to master zones in the 8112 MAIN or AUX program items *2.5 Z1Points* through *2.12 Z8Points*.

**NOTE:** If all 126 points of protection are used in the horizontal mode, *2.12 Z8Points* must be programmed with a **15**.

5. If a POPEX is used and connected to the same expansion terminal as an OctoPOPIT module, make sure the POPITs and points on the OctoPOPITs are assigned different point numbers.

## Additional Troubleshooting Tips

If none of the previous steps have corrected the missing or extra OctoPOPIT points, the following additional tips may be helpful in determining and preventing problems with your ZONEX system:

### Make sure the correct OctoPOPIT module is installed

The D8128 and D8128B OctoPOPIT Modules are designed specifically for D8112G series panels. Using a D8128A OctoPOPIT in a D8112 system can increase the probability of erroneously reporting trouble or missing conditions.

Panel	Compatible OctoPOPIT
D8112G, G1, G2	D8128 or D8128B
D7112, D7212, D9112	D8128A

- 1) If problems are encountered while loading a file into the control/communicator, disconnect the wiring from D8112G **Serial Data In** and **Serial Data Out** terminals (30 and 31), and reload the file.
- 2) ZONEX systems can be influenced by very strong R.F. sources, such as radio stations and HAM radio operations with transmitting antennas located within one mile of the system. Use shielded twisted pair wire for best protection against R.F. induced noise. See item 5 for proper wiring practices.

## Additional Troubleshooting Tips (cont.)

- 3) Keep all zone and zone expansion loops away from all AC current sources (fluorescent lights, high-voltage transformers, motors, etc.).

AC induction or R.F. interference may occur when a ZONEX system is installed in or near the following:

- Radio station transmitter site or other broadcast station.
  - Ham radio transmitter site.
  - Computer network system.
  - Heavy machinery and motors.
  - PBX telephone system.
  - Welding shop.
  - High voltage electrical equipment or transformers.
  - Public service (police, fire department, etc.) using radio communications.
  - When wires must be run close to electrical lines, fluorescent fixtures or telephone cabling.
- 4) If the system intermittently displays a trouble condition, and transmits TROUBLE ZONE D and RESTORAL ZONE D reports with master zone number to the central station, meter the zone loop wire and zone expansion loop wire from the D8112G to the OctoPOPITs for high level AC inductance or spikes. Inspect the wiring for intermittent grounds and shorts, and determine if there is a strong AC source located nearby. AC induction on the data or loop line must be less than 0.1 VAC.
- 5) If shielded cable is used, verify that the drainwire is connected only to terminal 4 on the D8112. Verify that each splice on the shielded backbone has the drainwires soldered together and isolated from ground.
1. Disconnect the drain wire from terminal 4.
  2. Meter for continuity between the shield and terminal 4.
  3. If continuity is found, the drain wire is grounded in another location. Find the foreign ground and remove the drain from that foreign ground.
  4. Reconnect the drain wire to terminal 4.
- 6) If the OctoPOPIT is being powered from an external power supply, make sure to connect the power supply negative to the D8112 terminal 4.
- 7) If the D1252A displays non-programmed information when a master zone is faulted, copy the 8112:PTEXT file for the non-expanded zone displaying the information, delete the information, and reload the file. Refer to step 1.
- 8) Certain revision 17.07 D8112G Control/Communicators may not detect OctoPOPIT faults even when all programming and wiring has been properly completed. Radionics has developed three solutions to this problem:
1. Restore all OctoPOPITs to a normal condition (close all doors and windows), and then disable and restart the system.
  2. Fault an OctoPOPIT into a trouble condition (as determined by the master zone code). The D1252A Command Center will display the faulted condition and the system will respond to the OctoPOPITs.
  3. If unable to resolve the problem, contact Radionics Customer Service.



# Specifications

## Operating Voltage

10.5 to 14 VDC supplied by the D8112G Control/Communicator

## Current

50 mA per OctoPOPIT module

## Sensor Loop Response Time

Approximately 1 second.

OctoPOPIT sensor loops are supervised with a 1K  $\Omega$  end-of-line resistor: Radionics model# D105BL or #105FL (for fire supervisory applications).

## Dimensions

5 "L x 3"W x 1 $\frac{1}{2}$ "H

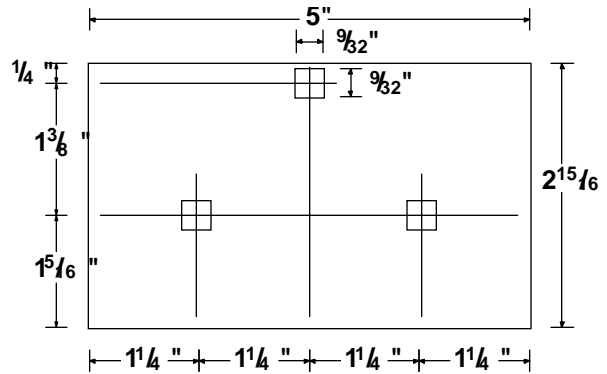
## Resistance

Maximum loop resistance: 1K $\Omega$ ,  $\pm 200\Omega$  (with 1K  $\Omega$  resistor installed).

## Environmental

Temperature: 32° - 122°F (0° - 50° C)

Non-condensing Relative Humidity: 5 to 85% @ 86°F (30°C)



## U.L. Applications

The enclosures required for specific U.L. or NFPA ZONEX system applications are listed below. The D8108A Attack-Resistant Enclosure meets or surpasses the requirements for all of these applications. Some applications (marked with an \*) require the OctoPOPIT enclosure to be tampered. Refer to U.L. 681 *Installation and Classification of Mercantile and Bank Burglar Alarm Systems* for further details on installation requirements.

Application	Control Enclosure
§ Household Fire	D8103
U.L. Household Burglar	D8103
U.L. Local Burglar/Police Connected Burglar	D8108A*
U.L. Central Station Burglar Grade C	D8103*
U.L. Central Station Burglar Grades B & A	D8108A*
§ Local Fire	D8109
§ Central Station Fire	D8109
§ Electrically Activated Transmitter	D8109

§ The D8128B is suitable for fire *supervisory* applications, such as D192C Bell Module trouble supervision, sprinkler supervision, and valve tamper protection. (The OctoPOPIT is *not* suitable for fire *initiation* applications, such as waterflow, smoke, and heat detector loops.)

