Operation and Installation Manual

1.0 Introduction

The D8129 Octo-Relay Module is a relay switching accessory for the D8112 Control/Communicator. This module has eight dry contact relay outputs. Each relay provides Form C switching (rated at one amp) to control various user-selected functions. The Octo-Relay Module uses information taken from the D8112 serial data-out to selectively activate the relay outputs.

The Operation Mode determines how the Octo-Relay Module responds to serial data. The Operation Mode selects the data needed to switch a specific relay, or set of relays, ON or OFF. Programming within the control/communicator will affect Octo-Relay responses to certain system conditions. Keep in mind that anytime more than one D8129 Module is installed in a system, each module will respond in the same manner to Serial Data-Out unless each module is programmed for a different Operation Mode (see Section 2, Configuring the Operating Mode).

The D8129 may operate erratically when the control/communicator is connected to AC power only. Therefore, Radionics recommends that the battery remain connected to the D8112 at all times. In addition to providing backup power, the battery also filters the AC power supply. The amount of ripple that appears on the control/communicator outputs is dependent on the condition of the battery.

2.0 Configuring the Operation Mode

A slide switch with multiple switch settings on the Octo-Relay circuit board allows you to configure the D8129 Octo-Relay Module for a specific mode of operation. The different modes of operation and associated switch settings are shown in Table 1.

Disconnect* all *external devices from the Octo-Relay Module BEFORE settings the Operation Mode Switches and BEFORE programming the control/communicator. The external devices may be unintentionally activated if they remain connected during configuration of switch settings and/or programming. Also remove power when changing switch settings.

Note: *When the CPU in the control/communicator is busy processing other tasks, relay responses may be delayed. If a pulsed relay output is in progress when the CPU begins processing data, the relay may lock momentarily causing an irregular pulsed output.*

The characteristics of each Operation Mode listed in Table 1 are described in the sections that follow. Many of the relay response characteristics of an Operation Mode are subject to control/communicator programming. See the applicable control/communicator program entry guide for programming options.

All switches *except* Switch 5 are used in configuring the Operation Mode. The position of Switch 5 (ON or OFF) has no effect on the configuration of the Operation Mode.

Operation Modes	Switch Settings				
	1	2	3	4	5
Zone Status	ON	ON	ON	OFF	---
Alarm Memory	ON	OFF	ON	ON	---
Buzzer/Bell Output	OFF	OFF	ON	ON	---
System Status-12	ON	ON	OFF	ON	---
System Status-9	OFF	OFF	OFF	ON	---
Shunt Status	OFF	ON	ON	ON	---
Remote Control	OFF	ON	OFF	ON	---

Table 1: Operation Mode Switch Settings

Zone Status Mode (Switch Settings: 1 = ON, 2 = ON, 3 = ON, 4 = OFF)

The Zone Status Mode provides a relay output each time a protective zone is faulted, in alarm, shunted or force-armed. Each relay output has the same identifying number as its corresponding zone.

Zone Condition	Relay Response
Faulted	Relay activated by a faulted zone provides a steady output until fault is cleared.
Alarm	Relay activated by an alarm condition provides a rapid pulsing output and remains active until Command 4 is entered or until the arm/disarm passcode is re-entered.
Shunted or Force Armed	A relay activated by a zone that has been shunted provides a slow pulsing output.

Note: *D8112:MAIN, Program Item 103 SHOW must be programmed YES in order for the Zone Status Mode to operate properly. Also notice that the Response/Condition for each relay output is the same in the Zone Status Mode as shown below.*

Relay #	Response/Condition
1-8	Steady output for Zone fault, or rapid pulsing output for Zone Alarm, or slow pulsing output while Zone is shunted or force-armed.

Alarm Memory Mode (Switch Settings: 1 = ON, 2 = OFF, 3 = ON, 4 = ON)

The Alarm Memory Mode provides a steady relay output when an alarm is triggered from a protective zone. The relay remains energized until Command 4 is entered or until the Arm/Disarm passcode is re-entered. Each relay output has the same identifying number as its corresponding protective zone.

Buzzer/Bell Output Mode (Switch Settings: 1 = OFF, 2 = OFF, 3 = ON, 4 = ON)

The Buzzer/Bell Output Mode activates relays which correspond to specific system buzzer and bell responses. This mode also provides relay outputs in response to certain command center conditions. Specific relay responses enabled by this mode are shown below.

Note: *In this mode, the relay outputs do* not *correspond to protective zones.*

Relay #	Response/Condition
1	Steady output while any system keypad is lit.
2	Steady output while pulsed (Fire) bell is active.
3	Momentary closure each time a keystroke is acknowledged at a Command Center.
4	Steady output during buzzer activation from a command center or control/communicator.
5	Steady or momentary output depending on bell output from Terminal 6 of D8112.
6	Momentary closure when a perimeter zone is faulted during Watch Mode.
7	Steady output during silent alarm output (8112:MAIN, Program Item 94 Cmd 47 must be programmed NO) or when Command 47 is activated.
8	Do not connect any device to this output.

System Status-12 Mode (Switch Settings: 1 = ON, 2 = ON, 3 = OFF, 4 = ON)

System Status-12 Mode offers a set of relay responses which are activated by specific system events (see *System Status-9 Mode* for more system event responses).

Note: *In this mode, the relay outputs do* not *correspond to protective zones.*

Relay #	Response/Condition
1	Do not connect any device to this output.
2	Steady output begins when system is armed and remains energized until closing report is successfully received.
3	Steady output after an alarm has occurred. • If the system is armed, relay remains energized until the system is disarmed. • If the system is disarmed, relay remains energized until Command 4 or Arm/Disarm passcode is entered.
4	Steady output upon failure to communicate a report to a receiver after ten dialing attempts. • Relay remains energized until Command 4 or Arm/Disarm passcode is entered, or until a subsequent report is successfully received.
5	Steady output when any zone has been force-armed. • When programmed for local, relay remains energized until system is disarmed. • When programmed as a reporting system, relay remains energized until a report is successfully received.

6	Steady output during AC power failure.
7	Steady output while low battery condition is displayed.
8	Steady output while listen-in is in progress. Relay remains energized until the programmed listen-in time expires.

System Status-9 Mode (Switch Settings: 1 = OFF, 2 = OFF, 3 = OFF, 4 = ON)

System Status-9 Mode offers a set of relay responses which are activated by specific system events (see *System Status-12 Mode* for more system event responses).

Note: *In this mode, the relay outputs do* not *correspond to protective zones.*

Relay #	Response/Condition
1	Steady output while system is perimeter armed with Cmd 2 only (Perimeter Instant).
2	Steady output when the Command key is pressed. Relay remains energized until user exits Command Mode or until Command Mode times out.
3	Steady output while battery is discharging faster than it can be recharged. Relay remains energized until battery charging returns to normal.
4	Steady output while listen-in is in progress. Relay remains energized until listen-in expires.
5	Pulsing output during Exit Delay; steady when armed. ***Note:*** *Relay continues to pulse until Closing Report is acknowledged by the central station receiver, then becomes a steady output and remains energized until the system is disarmed. If a COMFAIL occurs, the relay will pulse until the system arming state is changed (from armed to disarmed or vice versa) with the arm/disarm passcode, or, when disarmed, use Command 4.*
6	Steady output while system is perimeter armed with Cmd 2, 3 or 8.
7	Steady output while AC power is supplied to the system; pulsed output during AC fail.
8	Do not connect any device to this output.

Shunt Status Mode (Switch Settings: 1 = OFF, 2 = ON, 3 = ON, 4 = ON)

The Shunt Status Mode allows individual relay responses when a zone is shunted or force armed. The specific relay response depends on zone code programming for the corresponding zone. When the control/communicator is appropriately programmed, the relay provides a steady output when activated.

Each relay output has the same identifying number as its corresponding protective zone. Some of the relay responses for systems using ZONEX are different from responses of non-ZONEX systems (see notes below).

Note 1: *When a zone programmed for* ***no*** *Swinger Shunt is force armed, the relay is energized until the system is disarmed.*

Note 2: *When a zone programmed for Swinger Shunt is force armed, the relay is* ***not*** *energized.*

Note 3: *When Swinger Shunt zones are manually shunted from the keypad or when the zone is shunted due to a swinger shunt condition, the relay is energized.*

Systems Using ZONEX (Radionics Zone Expansion System)

1. Force arming a zone programmed for **no** Swinger Shunt causes the relay output to be energized during the Exit Delay only.
2. When a zone programmed for Swinger Shunt is force armed, the relay is **not** energized.
3. When zones programmed for Swinger Shunt are manually shunted from the keypad, the relay is energized. When a Swinger Shunt zone is shunted by the system, the relay is **not** energized.

Remote Control Mode (Switch Settings: 1 = OFF, 2 = ON, 3 = OFF, 4 = ON)

The Remote Control Mode allows the relay outputs to be manipulated by any one of the following means:

- Commands entered by the central station operator using a Radionics Remote Account Manager (RAM)
- Command 54 entered by the user from an Alpha II Command Center
- Systems with the Access Control feature
- Systems with the Skeds feature

3.0 Installation

The Octo-Relay Module is designed for mounting as follows:

- As a local installation, inside the control/communicator enclosure.
- As a remote installation, in a separate security enclosure.

When mounting the D8129 inside any D8112 enclosure, align the module with any of the four (4) mounting locations and secure the module in place with three (3) mounting screws, or use a D137 Mounting Bracket.

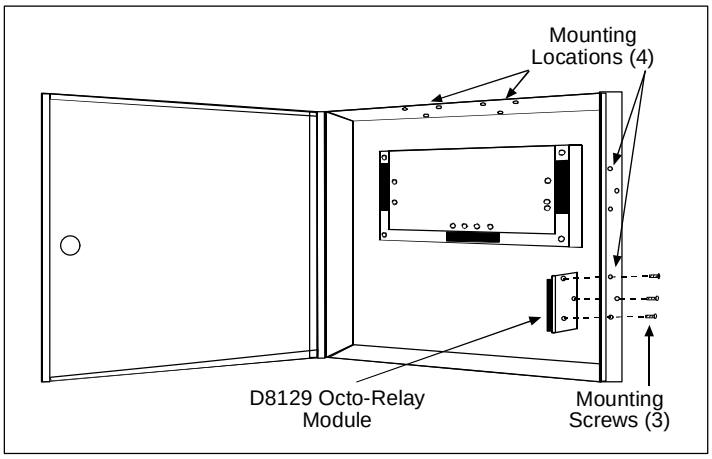

Figure 1: Mounting the D8129

4.0 Wiring

The Octo-Relay is linked to the control/communicator by three wire connections: =12 VDC, Common and Serial Data-Out (see Figure 1). These wires are connected to a three-wire terminal block on the D8129 module.

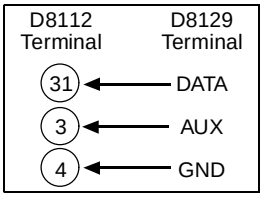

Figure 2: D8129 Wire Connections

5.0 Relay Outputs

Each relay output provides a normally open and a normally closed output. Three terminals are available in each relay output position: (1) Normally Open, (2) Common [pole], and (3) Normally Closed. The silkscreen on the edge of the D8129 circuit board clearly identifies the function of each terminal and the relay output number.

The middle terminal of each output position is the pole of the relay and is labeled COMM. When the relay is in an inactive state, the normally closed terminal (labeled NC) has continuity with the COMM terminal. When the relay is in an active (energized) state, the normally open terminal (NO) has continuity with the COMM terminal.

6.0 D8129 Specifications

Power	Nominal 12 VDC supplied by the control/communicator
Current Required	Idle = 20 milliamps Maximum = 320 milliamps (all relays energized)
Wire Requirement	16 to 22 AWG (1.5 to 0.8 mm) from control/communicator to D8129 (up to 200 ft. [61 m])
Relay Output	Form “C” dry contact (1.0 Amp at 12 VDC). During pulsed output, relay maintains closure for minimum of 1 second