

R A D I O N I C S

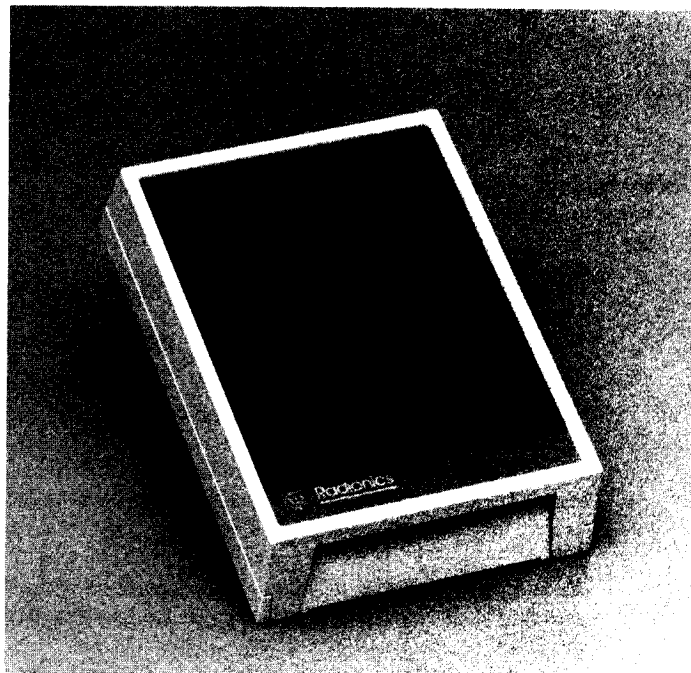
Omegalarm D8220 Insert Reader Operation and Installation Manual

Features

- Ω Easy Installation
- Ω Reads encrypted high-energy cards and EMPI encoded cards
- Ω Buzzer to indicate entry granted and/or door blocked open
- Ω Reader status LED
- Ω Up to four doors per D8112A
- Ω Rated for indoor and outdoor use
- Ω Bottom entry insertion
- Ω Billions of unique card numbers

Description

The Omegalarm D8220 Insert Reader is an accessory for the Omegalarm D8112A Control/Communicator. The D8220 reader is designed for use with Radionics pre-encoded magnetic stripe cards.* The data on these cards is encrypted using a sophisticated algorithm and is very difficult to erase. Unique card numbers are assigned from a pool of billions; duplicate numbers will not be issued.



* The D8220 is also compatible with EMPI encoded cards. Specifications for these types of cards are provided by the card manufacturer.

The D8220 is weather resistant and is rated for indoor and outdoor use. It will read warped, wet, and dirty cards, at varying speeds of insertion.

Operation

An LED is provided to indicate reader status. When the reader's LED is off, the reader is ready to accept a card. When the card is inserted and withdrawn, the LED goes on while the data from the card is tested for accuracy and passed to the D8112A. If the card is valid, the D8112A activates the D8220's internal buzzer and two relays on the D8129 OctoRelay Module. One of the relays on the OctoRelay Module is connected to the doorstrike, and the other can be used for an optional buzzer, light, or other annunciator.

Programming

The D8112A is programmed for operation with the D8220 using the 8112:ACCESS, 8112:ASSIGN, and 8112:CARDS Product Handler Programs (see the *8112:Access*, *8112:Assign*, and *8112:Cards Program Entry Guide*, part number 74-04926-000). The basic operating parameters for the D8112A are programmed in the 8112:MAIN Product Handler Program, and supplemental programming is available in the 8112:AUX, and 8112:Skeds Product Handler Programs. (See the respective *Program Entry Guides* for details.)

Installation

One D8112A Control/Communicator equipped with a D8114 Quad Serial Output Module supports up to eight D8220 readers. (Typically one to four are connected.) The total number of serial devices and length of wire is limited by the guidelines specified in the *D8114 Quad Serial Output Module Operation and Installation Instructions* (part number 74-04984-000).

The D8114 Quad Serial Output Module provides isolation between devices connected to the D8112's terminal 31, to eliminate possible interference which might be caused by tampering with the wiring of an Access Control Card Reader, or other serial device.

Included with each D8220:

- One (1) wiring harness with connector (four-wire, 22 AWG, color-coded)
- One (1) 10" black rubber weather seal (required for outdoor installations)
- Two (2) #6 machine screws
- One (1) reader cover release tool.

Wiring Connection to the D8112A: Connect the D8114 Quad Serial Output Module to the D8112A as described in the *D8114 Quad Serial Output Module Operation and Installation Instructions* (part number 74-04984-000). Four wires are used to connect the D8220 to the D8114. The D8220 can be installed up to 500 feet (maximum) from the D8114. (When calculating total wire length, include all D8220 Insert Readers which are connected to the *same* D8114 terminal 31.) Run a four-wire, 22 AWG cable from the D8114 to the D8220 mounting location. Splice the wiring harness (provided with the D8220) to the end of the cable at the mounting location according to the table below.

NOTE: The door strike wiring can share the same conduit with the D8220 wiring, however transient problems can occur. If sharing the conduit, protect the D8220 serial data wires from AC lines by using shielded cable.

<u>WIRE COLOR</u>	<u>D8114 TERMINAL</u>	<u>FUNCTION</u>
RED _____	3 * _____	+12 VDC
YELLOW _____	31 † _____	DATA OUT TO D8220
GREEN _____	28 (Zone Expander 1) _____	DATA FROM D8220
BLACK _____	29 _____	COMMON

* For U.L. certificated applications, a 1 Amp in-line fuse (part number D201) is required on the power supply line. Splices for card reader connection must be made on the device side of the fuse. DO NOT make splices on the terminal side of the fuse. A fuse is required for each separate wiring connection to terminal 3 for card readers.

† Do not connect serial devices other than card readers to the same D8114 terminal 31. (Other serial devices include: Command Centers, D8129 OctoRelays, D8128 OctoPOPITS, and D8125 POPEX.)

Opening the Reader: (See Figure 1.)

IMPORTANT: Before opening the reader, touch a grounded surface to discharge static electricity from your body.

- 1) Hold the reader in your left hand by its cover with the base facing upward and with the card insertion slot on the top, facing away from you.
- 2) Push the two cover retaining tabs one at a time with your right hand until the cover pops free.

NOTE: Be careful not to bend or deform the read head assembly. (Bending or misalignment may cause the reader to malfunction. Do not attempt to tighten the read head assembly.)

The read head assembly is *designed to be loose* so that the head can align to the card as it is inserted.

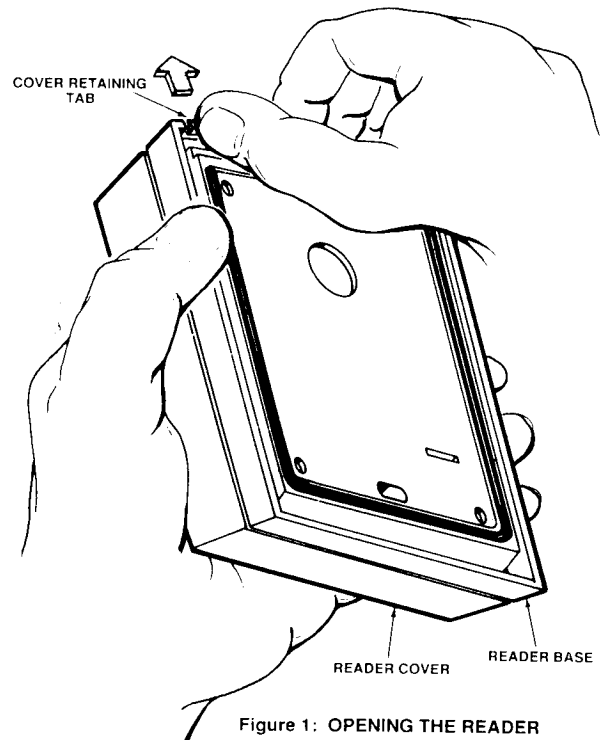


Figure 1: OPENING THE READER

Door Address Jumper: (See Figure 2.) The door address determines which relays on the D8129 will be activated by valid cards read by the D8220. The Door relay is used to control the doorstrike. The Buzzer relay operation follows the D8220's internal buzzer operation. The Buzzer relay can be used to operate a light, an additional buzzer, or other annunciator. The timing of both relays is individually controlled by program entries in the 8112:ACCESS product handler program (see the *8112:Access, 8112:Assign, and 8112:Cards Program Entry Guide*, section 6).

To set the reader's door address, a jumper cap is placed in one of four pin positions inside the reader. The cap is factory installed at position "A". If the cap is not installed, the card reader will not operate. It will sound a steady buzz until power is disconnected.

To change the Door Address:

- 1) Make sure power is disconnected from the D8220.
- 2) Move the cap to another position by grasping the top of the cap and lifting it upward until it is free of the pins.
- 3) Position the cap over the desired pins and push it into place.
- 4) Connect power to the D8220. (If power is not reset after changing the Door Address, the change will not be recognized by the D8220.)

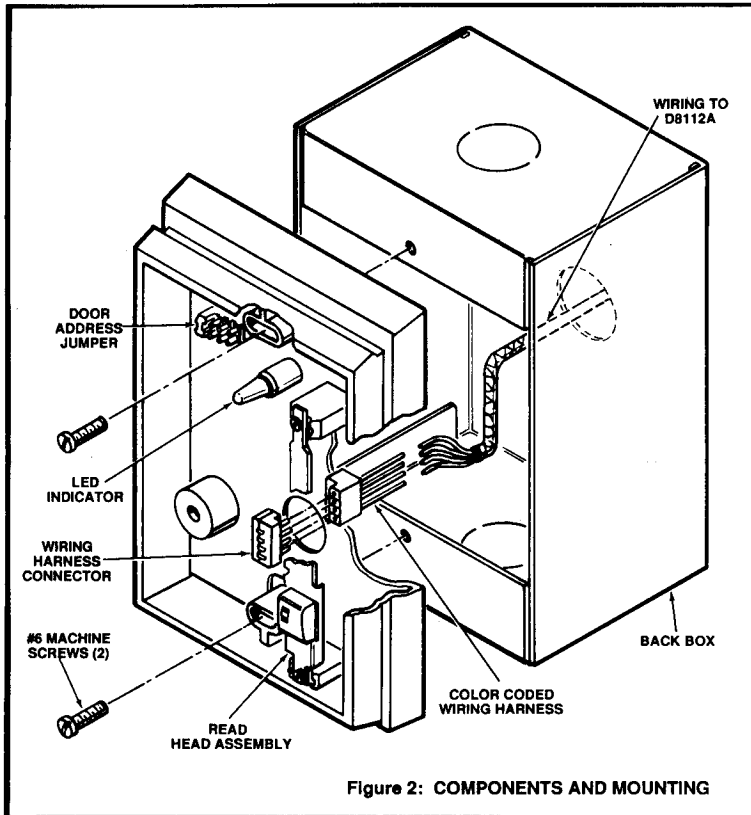


Figure 2: COMPONENTS AND MOUNTING

<u>POSITION</u>	<u>DOOR</u>	<u>BUZZER</u>
A	RELAY 1	RELAY 2
B	RELAY 3	RELAY 4
C	RELAY 5	RELAY 6
D	RELAY 7	RELAY 8

Mounting: Mount the D8220 on a smooth, firm surface approximately five feet from the ground or floor level for user convenience. A Radionics D57 Surface Mount backbox may be used to mount the D8220 indoors. For flushmount applications, a single-gang handy box can be used. For outdoor applications, use a weatherproof backbox and the weatherseal.

- 1) Install the weather seal on the reader by pushing it securely and evenly into the "U" shaped recess on the reader's base. (See Figure 3.) The weather seal is optional for indoor installations.
- 2) Connect the wiring assembly to the D8220. Carefully insert the cable connector into the entry hole in the base of the reader's enclosure. (See Figure 3.) Gently push the cable connector onto the pin connector. (See Figure 2.)
- 3) Attach the base of the of the D8220 to the backbox using the two #6 mounting screws provided. (See Figure 2.)
- 4) Replace the cover of the D8220. Be sure that the cover retaining tabs snap securely into place.

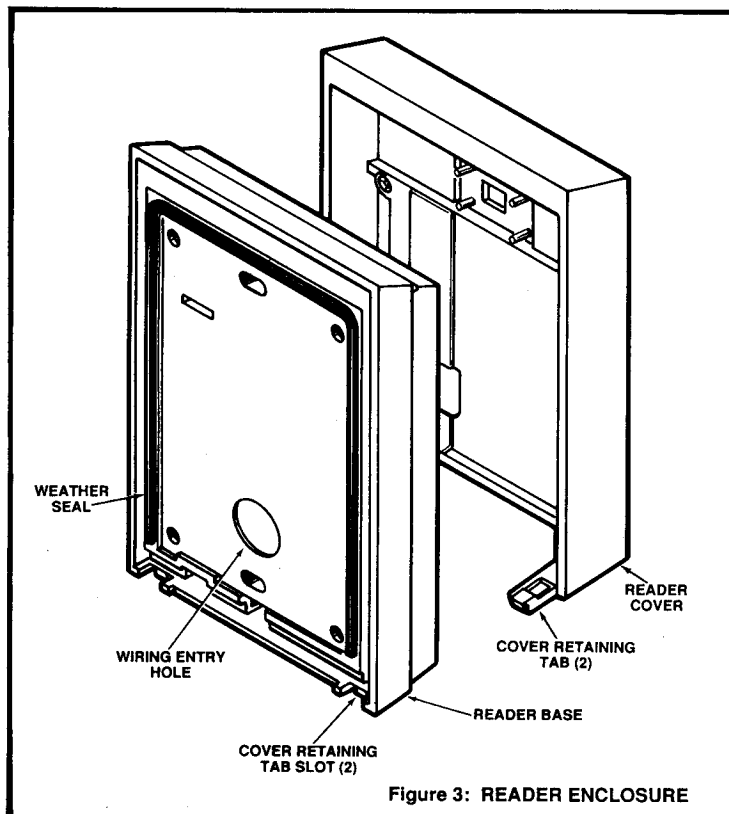


Figure 3: READER ENCLOSURE

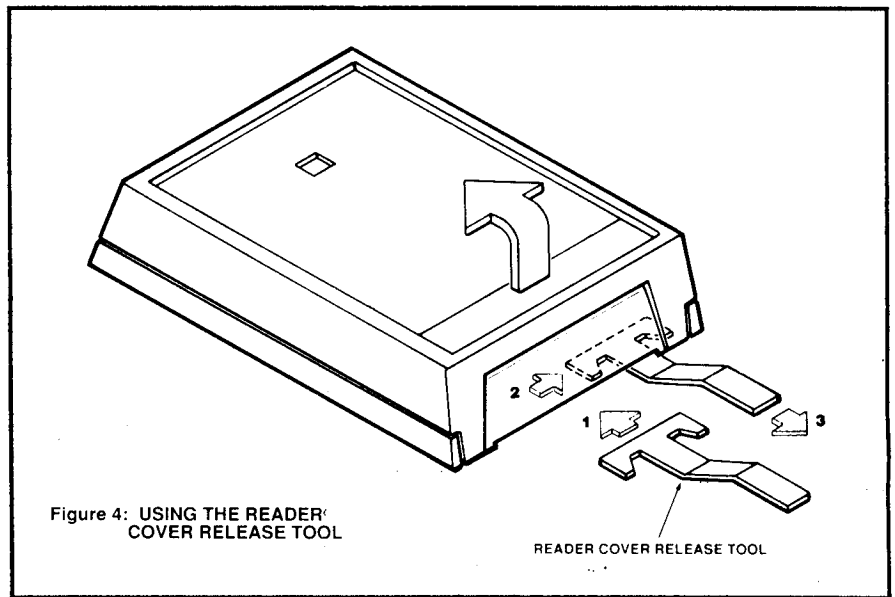
Testing the D8220 Insert Reader: When power is first applied to the D8220, the reader performs the start-up routine as described below. (In order to perform this routine correctly, the Door Address Jumper must be in place in one of the four positions as described on page 3 of this manual.)

1. The LED on the D8220 blinks four times.
2. The D8220's internal buzzer sounds four times, alternating with the LED blinks.
3. Card Type 1, Card Code 1 will then be transmitted to the D8112A.
4. The D8220 is now ready for normal operation.

Once the reader has completed its start-up routine, proper operation is confirmed by using any card whose number has been entered into the D8112A. (See the *8112:Access, 8112:Assign, and 8112:Cards Program Entry Guide*, section 11.)

Using the Reader Cover Release Tool: To discourage vandals and tampering, the D8220's cover was designed to be difficult to remove unless using the tool furnished with the D8220.

- 1) Insert the cover release tool at the lower end of the reader in the thin opening between the wall and the reader's base. (See Figure 4.)
- 2) When the tool is inserted as far as it will go (about 1/4"), move it to the far right side of the slot.
- 3) Pull the cover release tool firmly downward until the retaining tab releases slightly. Grasp the lower end of the reader cover. Apply gentle pressure, holding the cover away from the base.
- 4) Re-insert the tool as far as it will go into the reader. Move it to the left side of the slot. Pull downward until that tab releases. As the second tab releases, the cover should pop loose at the lower end of the base.



Specifications

Operating Voltage

Nominal 12 VDC (supplied by D8112A auxiliary power)

Current Requirement

26 mA idle (nominal)
47 mA, maximum (buzzer energized)

Wiring

22 AWG 4-conductor (data in, data out,+12VDC, Common)

Maximum wire length from D8112A: 500 feet (combined total of all readers connected to the same D8114 terminal 31 (see the installation instructions provided with the D8114 for wire length specifications).

Dimensions

Height: 4.55" Width: 3.16" Depth: 1.2"

Color

Housing: Light Warm Gray
Faceplate: Seal Gray

Environment

Operating Temp: -35° C (-31°F) to +66° C (150°F)
Storage Temp: -35° C (-31°F) to +70° C (158°F)
Humidity: 95% at 60° C (140°F) maximum

Read Speed (speed of card withdrawal)

5 to 30 inches per second

Compatible Cards

Radionics model D8230-25 Magnetic Stripe Cards (Package of 25)
Radionics model D8240-25 Magnetic Stripe Photo I.D. Cards (Package of 25)
EMPI encoded cards

FCC NOTICE: This equipment generates and uses radio frequency energy. It has been type tested and found to comply with the limits for a Class B computing device in accordance with the specifications in Subpart J of Part 15 of FCC Rules which are designed to provide reasonable protection against such interference in a residential installation, however there is no guarantee that interference will not occur. If interference occurs, the user may find the following booklet helpful: "How to Identify and Resolve Radio-TV Interference Problems". This booklet is available from the U.S. Government Printing Office, Washington, D.C. 20402, Stock No. 004-000-00345-4

