

# INDOOR/OUTDOOR LF EXCITER

P/N 5-RLF00001-3



**Elpas**  
Local Positioning Systems  
Installation Guide

## INTRODUCTION

The high powered LF RDR is a waterproof device installed in exit locations of a building or in certain zones of a building, to provide larger LF area coverage for tag detection. The LF RDR transmits Low Frequency IRFID™ signals, to Low Frequency IRFID™ badges/tags.

Signals emitted from the ceiling-mounted LF RDR device, are detected by the badge/tag containing the Low Frequency receiver, within a range of 0-15ft / 0-5 meters of the badge/tag.

This unique Low Frequency transmission pinpoints the badge/tag's precise location and triggers a transmission of an RF Data Message indicating the ID number of the received Low Frequency RDR, which has triggered the transmission.

LF RDR on board transmissions are according to 8E protocol. This high powered RDR is used for outdoor installation and is packed in a rectangular waterproof box which is attached using a wall mounted bracket.

## SPECIFICATIONS

	5-RLF00001-3																											
Configuration	Stand alone																											
Power Adjustment Capability	OFF, LOW MED, HIGH																											
Power LED	Red LED – Flashes 5 times on Power ON and then lights For invalid RDR address, LED flashes and buzzer activated																											
4 On Board LEDs	Yellow LEDs indicating detection range as set by trimmer (Low, Med1, Med2, High)																											
Connections	AWG26 cable RJ11-6 regular RDR connection to standard LONWORK network (nearby EJB).																											
Badge / Tag Detection Range	0-15ft / 0-5m Detection range is set using trimmer (anti-clockwise to LOW and clockwise to HIGH)																											
Power Source	Limited Power Source 10-36V																											
Power Consumption	2.5W – 5W (00-7E Hex) Power consumption is a function of RDR address (dipswitch) where FF=max and 00=min																											
Downlink Low Frequency	125 KHz																											
Downlink Low Frequency Format	3 bytes /(Preamble LF RDR and CRC)																											
Bit Rate	2000 bits per second																											
Low Frequency Power Transmission	Less than 60 db $\mu$ v at 30 meter																											
Water Resistance	Water resistant (IP65)																											
Settings	<div>8 Position dipswitch set to RDR address<table><tr><td>No</td><td>Invalid Exit RDR ID (Hex)</td><td>Invalid Exit RDR ID (Bin)</td></tr><tr><td>1</td><td>13</td><td>00010011</td></tr><tr><td>2</td><td>35</td><td>00110101</td></tr><tr><td>3</td><td>4B</td><td>01001011</td></tr><tr><td>4</td><td>4D</td><td>01001101</td></tr><tr><td>5</td><td>5C</td><td>01011100</td></tr><tr><td>6</td><td>B8</td><td>10111000</td></tr><tr><td>7</td><td>D5</td><td>11010101</td></tr><tr><td>8</td><td>DC</td><td>11011100</td></tr></table></div>	No	Invalid Exit RDR ID (Hex)	Invalid Exit RDR ID (Bin)	1	13	00010011	2	35	00110101	3	4B	01001011	4	4D	01001101	5	5C	01011100	6	B8	10111000	7	D5	11010101	8	DC	11011100
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7	D5	11010101																										
8	DC	11011100																										
Operating Temperature Range	-10° to 50°																											
Water Resistance	Water resistant (IP65)																											
Standard Compliance	FCC Part 15 CE/RTTE Directive 1999/5/CE EN 300 220-3, EN 300489-3, EN 60950, UL																											
Dimensions	Internal RDR dimensions $\varnothing$ 17*4 cm; water proof box with RDR enclosed has dimensions 19 x 13.5 x 4.5 cm																											
Installation Self-test	<b>Correct Installation:</b> LF RDR Beeps once. LED indicator lights up and remains lit during correct usage. <b>Incorrect Installation:</b> LF RDR beeps continuously. LED flashes.																											

## PLANNING THE INSTALLATION

For correct installation, lay out the system on a general plan drawing of the site and assign approximate locations for readers in each area to be monitored. LF readers can monitor an area up to 15 feet / 5m downward to provide a precise location for equipment and personnel. Figure 3-1 shows the LF RDR layout.

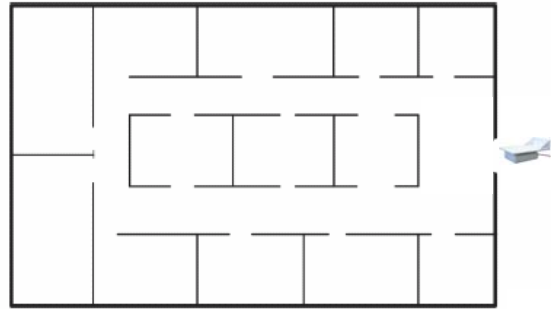


Figure 3-1— LF Reader Layout

## ADJUSTING THE LF RANGE

The LF detection range is set using the trimmer (see Figure 6-3). The range is set to 0-15ft / 0-5 m, where turning the trimmer anti-clockwise sets it the lower detection range and turning it clockwise sets it to a higher detection range.

The set range is indicated by one of four corresponding yellow LEDs (Low, Med1, Med2, High) situated around the trimmer.

## LF RDR PLACEMENT AND ENVIRONMENTAL CONCERNS

LF reader ID codes are set by the each unit DIP switch, there are 8 positions (setting an ID that is not valid will cause the reader to beep). When initializing, the LF reader will beep after the self test (1-2 sec).

The LF RDR badge / tag detection range is up to 15ft / 5m (see Figure 5-1).

- **Maximum Exciter Power:** Both front and back.
- Install two LF RDRs for better detection capability or direction determination.
- **Metal Barriers (signs/pillars/beams):** For optimum performance Exciters must be installed at least 12 inches away from any metal in any direction.
- **Background RF Noise:** Exciters must be mounted as far away as possible from any RF emitters (e.g. ,wireless telephone system repeaters, transmitters ,microwave ovens, large electrical motors, electronic ballasts, A/C units, etc.)

LF RDR Coverage



Figure 5-1 LF F

## Measuring the RF Background Noise

Use the client with a portable reader to measure the noise level.

- The noise level at the reader location should not exceed 80 units.
- Make a survey of the operating frequencies +1 MHz to identify possible interference sources before installation.

## WIRING AND CONNECTORS

All Readers are DC powered by a standard 24 Volt power supply with a current limit of 2.2 Amps.

The LF RDR is connected to the EIRIS™ system via an Electronic Junction Box using 3 twisted pairs of 26 AWG solid non-shielded conductors used for data and power (see Figure 6-1).

The cable wires should be crimped using the RJ-11 (6P6C) connector. When crimping, unwrap the casing of the cable leaving the wires and their internal plastic jacket intact. Make sure that the correct order of the wires is maintained.

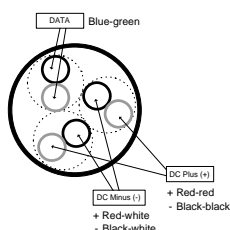


Figure 6-1 EIRIS™ 26 AWG Cable Cross-section

Figure 6-2 shows the RDR LONTALK RJ11 Connector. Figure 6-3 shows how the RDR receives power from the Power Supply via the EJB.

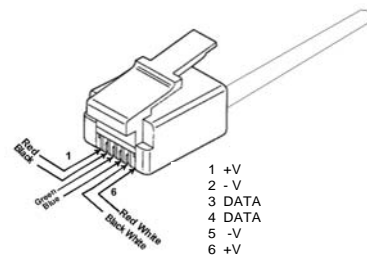


Figure 6-2 Reader LONTALK RJ11 Connector

Figure 6-4 shows the high powered LF RDR internal circuitry, indicating the trimmer, dipswitch and connector locations. Connector RJ11 is for DC and Connector RJ45 is used for Slave connections (the connection cable is supplied with the the Slave)

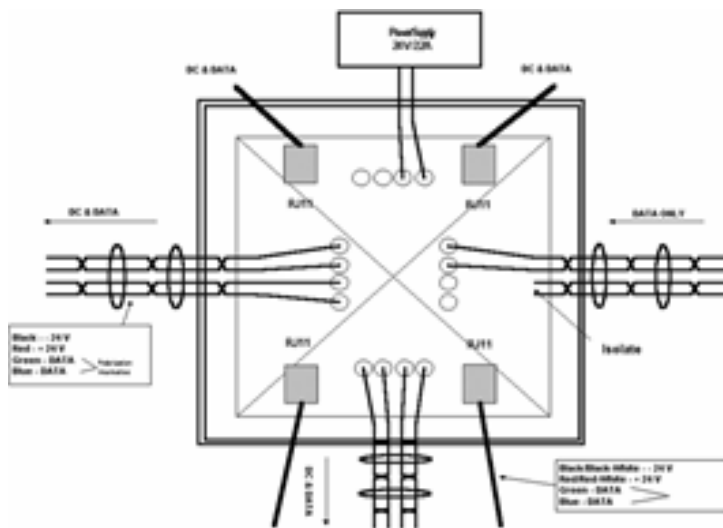


Figure 6-3 Powering Network through EJB

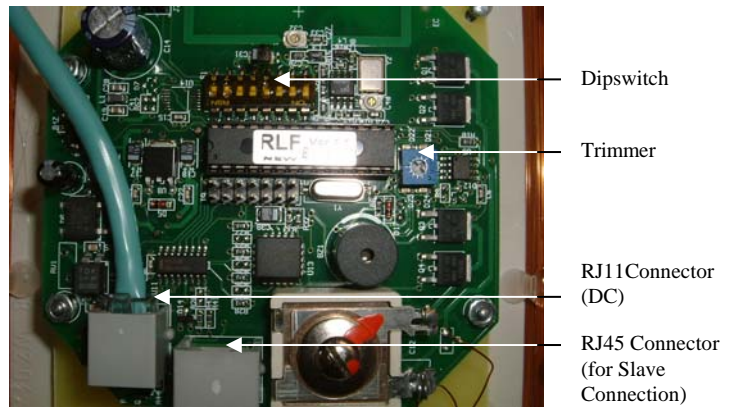


Figure 6-4 High Power LF RDR Internal Circuitry

## ATTACHING READER TO CEILING

1. Unscrew 4 screws from RDR box and open cover as shown in Figures 7-1 and Figure 7-2.

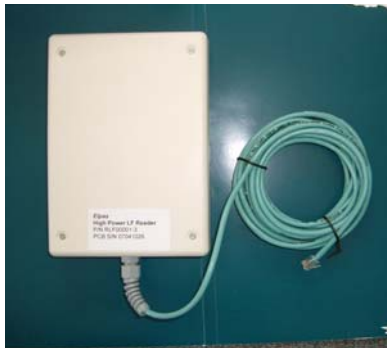


Figure 7-1. RF RDR with Cover Closed



Figure 7-2. RF RDR With Cover Open

2. Set the Dipswitch and Trimmer as required (see Figure 6-4) and close box cover. If ready to mount, do not screw the 4 screws on the cover.
3. Place screws into threaded spacers (Figure 7-3) and then replace these on box (Figure 7-4). Tighten all 4 to close cover securely.
4. Place washers on bolts (Figure 7-3) and put through Bracket hole as shown in Figure 7-4.

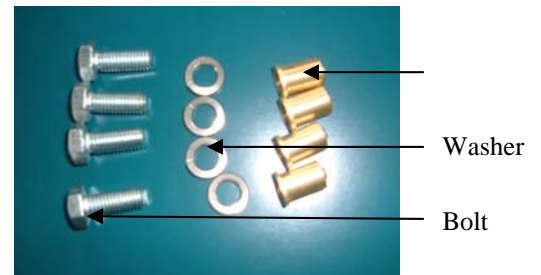


Figure 7-3. Threaded Spacer, Washer and Bolt

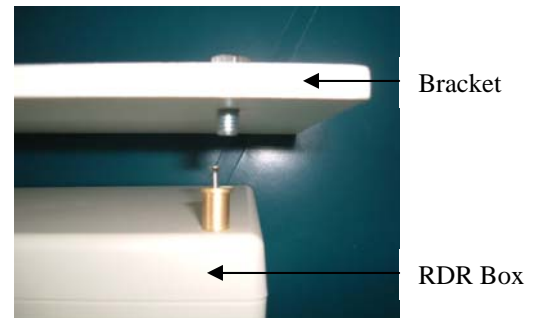


Figure 6-4. Attaching RDR to Bracket

5. Tighten bolts into threaded spacers on RDR box as shown in Figure 7-5 to attach the RDR to the bracket.

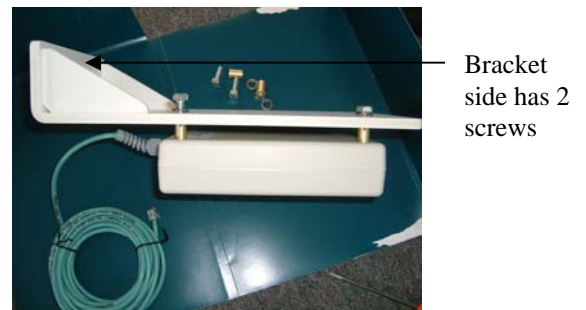


Figure 7-5. Bracket with RDR attached

6. Tighten 2 screws on Bracket side to mount Bracket to ceiling/wall.

## WARRANTY

Visonic Technologies, and its affiliates, (hereinafter collectively referred to as "the Manufacturer") warrants its products (hereinafter referred to as "the Product") to be free of defects in materials and workmanship under normal operating conditions and use for a period of one year from the date of shipment by the Manufacturer. The Manufacturer's obligations shall be limited within the warranty period, at its option, to repair or to replace the defective Product or any defective component or part thereof. To exercise this warranty, the product must be returned to the manufacturer freight prepaid and insured.

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8/96

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