

**LRS455-CE**

# LRS455 Serial Data 435-470 MHz Radio

## Licensed Spectrum

**LRS455-C  
LRS455-T**

The FreeWave board level and enclosed LRS455 radios provide outstanding performance and versatility. The LRS455 offers a cost effective solution that allows customers to incorporate wireless communications into a wide variety of applications.

The small footprint of the board level version is ideal for internally mounted applications. The LRS455 is also offered in a surface mount design, and no additional RF shielding.

All radios are designed, manufactured, and tested in Boulder, CO.

### Key Features

**User-Selectable:** Across the 435 to 470 MHz spectrum

**Reliable:** 100% tested for RF performance from -30°C to +60°C

**Flexible:** Support for RS232, RS485, and RS422

**Long Range:** Up to 113 km (70 miles) with clear line of sight and with the ability to extend even further through the use of a Repeater

**Versatile:** A single radio can operate simultaneously as an Endpoint or Repeater

**High Speed:** Up to 18 kbps throughput on a single 12.5 kHz RF channel

**Error Free Communications:** 32-bit CRC with automatic retransmission

**Input Voltage Range:** From +6 to +27 VDC, receive mode requires less than 110 mA @12 VDC

**Noise Immunity:** Superior performance in noise congested environments

## Transmitter

Frequency Range	435 to 470 MHz
Output Power	Up to 2 W
Data Link Range	113 km (70 miles) with clear line of sight
Modulation	2 and 4 level GFSK
Occupied Bandwidth	12.5 kHz
Frequency Channels	5,600 channels @ 6.25 kHz

## Receiver

Sensitivity	-112 dBm, standard speed, $1 \times 10^{-4}$
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## Data Transmission

Error Detection	32-bit CRC, retransmit on error
Data Throughput	18 kbps, at high speed RF data rate 9 kbps, at standard speed RF data rate
Data Interface	Serial, 1200 bps to 230.4 kbps
Protocol	<b>Board Level:</b> RS232/RS485/ RS422 (-C) TTL (-T) <b>Ruggedized Enclosure:</b> RS232/RS422/RS485
Data Connector	<b>Board Level:</b> 10-pin header with locking ramp, 0.1 inch spacing, power/data connector <b>Ruggedized Enclosure:</b> DB9 female, DCE

## Diagnostics

Connector	<b>Board Level:</b> 20-pin PCB header <b>Ruggedized Enclosure:</b> 3-pin header
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## Power Requirements

Operating Voltage	+6 VDC to +27 VDC			
Current Consumption	<b>Voltage</b>	<b>Transmit</b>	<b>Receive</b>	<b>Idle</b>
	+6 VDC	1.5 A	200 mA	50 mA
	+12 VDC	750 mA	100 mA	25 mA
	+27 VDC	340 mA	145 mA	12 mA

## General Information

Operating Temperature	-30°C to +60°C (-22°F to +140°F)
Humidity	0 to 95% non-condensing
Dimensions	<b>Board Level:</b> 128 L x 61.8 W x 19.7 H (mm)
	<b>Ruggedized Enclosure:</b> 173 L x 105 W x 35 H (mm)
Weight	<b>Board Level:</b> 74.4 g
	<b>Ruggedized Enclosure:</b> 605 g
Antenna Connector	<b>Board Level:</b> SMA female
	<b>Ruggedized Enclosure:</b> TNC female

## Certifications

FCC	Part 90, UL Class I, Division 2
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## Information to Order

Model Number	Options
LRS455-C	Board Level
LRS455-T	Board Level
LRS455-CE	Ruggedized Enclosure