



LRS455C-CE

# LRS455 Serial Data

435-470 MHz Radios



LRS455C-C

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

**Industrial Grade:** Operating temperature 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 16.875 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

## Information to Order

Model Number	Description
LRS455C-C	Board Level
LRS455C-CE	Enclosed

**Transmitter**

<b>Frequency Range</b>	435 to 470 MHz
<b>Output Power</b>	Up to 2 W, user selectable
<b>Range</b>	113 km (70 miles) with clear line of sight
<b>Channel Spacing</b>	12.5 kHz
<b>RF Data Rate</b>	9,600 bps standard speed 19,200 bps, high speed

**Receiver**

<b>Sensitivity</b>	145 dB @ 9,600 bps 133 dB @ 19,200 bps
<b>System Gain</b>	2 level GFSK: -112 dBm, standard speed, $1 \times 10^{-4}$ 4 level GFSK: -100 dBm, high speed, $1 \times 10^{-4}$

**Data Transmission**

<b>Modulation</b>	2 and 4 level GFSK
<b>Link Throughput</b>	8.3125 kbps, standard speed 16.875 kbps, high speed
<b>Error Detection</b>	32-bit CRC, retransmit on error
<b>Hopping Channels</b>	5.601 channels @ 6.25 MHz
<b>Protocol</b>	Board Level Unit: RS232 / RS485 / RS422 (-C) TTL (-T) Enclosed Unit: RS232 / RS422 / RS485

**Power Requirements**

<b>Operating Voltage</b>	+6 VDC to +27 VDC			
<b>Current Consumption</b>	<b>Voltage</b>	<b>Transmit</b>	<b>Receive</b>	<b>Idle</b>
	+6 VDC	1.5 A	200 mA	76 mA
	+12 VDC	750 mA	100 mA	44 mA
	+27 VDC	340 mA	53 mA	24 mA

**Interfaces**

<b>Data Interface</b>	Serial 1200 bps to 230.4 kbps
<b>Data Connectors</b>	Board Level Unit: 10-pin header with locking ramp, 0.1 inch spacing, power/data connector Enclosed Unit: DB9 female, DCE
<b>Diagnostics Interface</b>	Serial, RS232, or TTL
<b>RF Connector</b>	Board Level Unit: SMA Female Enclosed Unit: TNC Female

**General Information**

<b>Operating Temperature</b>	-30°C to +60°C (-22°F to +140°F)
<b>Humidity</b>	0 to 95% non-condensing
<b>Dimensions</b>	<b>Board Level Unit:</b> 137.29 L x 61.85 W x 21.49 H (mm) 5.40 L x 2.44 W x 0.85 H (in)
	<b>Enclosed Unit:</b> 172.71 L x 111.43 W x 34.19 H (mm) 6.8 L x 4.39 W x 1.35 H (in)
<b>Weight</b>	<b>Board Level Unit:</b> 74.4 g (0.16 lbs) <b>Enclosed Unit:</b> 605 g (1.33 lbs)



5395 Pearl Parkway  
Boulder, CO 80301

TF: 1.866.923.6168  
Tel: 303.381.9200

[www.freewave.com](http://www.freewave.com)