



R9101C

Lepton⁹x1

30dBm 1-Port
RAIN RFID Reader Module



BENEFITS	Compact size	High Sensitivity (-90dBm)	Molex data connector	IOIO Serial interface	MMCX antenna connector	Wide voltage range
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Features

- RAIN RFID (UHF EPC Class1 Gen2, ISO 18000-63) compliant
- Up to 30 dBm (1 W) output power
- -90dBm sensitivity
- Multiregional support
- Compact size
- Serial interface (TTL Levels)
- Low power consumption

Applications

- Handheld devices
- Autonomous vehicle mounted readers for inventory
- Long range reading points
- Overhead readers for industrial warehouses

Overview

The **Lepton⁹x1** (Model R9101C), an embedded reader of the easy2read[®] product line, is an ultra compact reader for low power, high performance RAIN RFID applications.

With programmable output power from 10 dBm to 30 dBm, the reader can detect tags at more than 5 m of distance (depending on antenna and tag dimensions).

The radio frequency core of the module is based on the **Impinj E910** IC that permits to achieve fast reading speed and to be used in dense reader and dense tag environments for top-class rated performances.

Due to its high sensitivity, the module is well suited to design industry-leading, dense tag environment RAIN RFID readers.

The compactness of the device allows to embed the **Lepton⁹x1** inside industrial handhelds, smartphone accessories and other compact form factor devices.

The **Lepton⁹x1** complies with and can operate in both European and US regulatory environments and, thanks to its multiregional capabilities, it's ideal for integration in devices requiring compliance to different geographical regions.

The **Lepton⁹x1** is designed on the basis of the **Lepton⁹** with the aim to facilitate the integration for those who prefer to use connectors instead of automatic manufacturing required by the SMD form factor. The **Lepton⁹x1** has also a wider power supply voltage range to permit to connect it directly to battery packs.



Technical Specification Table

Frequency Range	<ul style="list-style-type: none"> • 865.600÷867.600 MHz (ETSI EN 302 208 v. 3.3.1) • 902÷928 MHz (FCC part 15.247)
RF Power	Configurable from 10 dBm to 30 dBm (from 10 mW to 1 W) conducted power
RX Sensitivity	• -90 dBm - 10%PER, assuming 20 dB antenna RL @ 30 dBm output
Antenna VSWR Requir.	< 2:1 for optimal performance
Antenna Connectors	MMCX jack
Frequency Tolerance	± 10 ppm over the entire temperature range
Number of Channels	<ul style="list-style-type: none"> • 4 channels (compliant to ETSI EN 302 208 v. 3.3.1) • 50 hopping channels (compliant to FCC part 15.247)
Standard Compliance	EPC Class 1 Gen 2 - ISO18000-63
Connectivity	<ul style="list-style-type: none"> • UART Serial Port: <ul style="list-style-type: none"> • Baudrate from 9.6 to 921.6 kbps, default 921.6 kbps • Databits: 8 • Stopbit: 1 • Parity: none • Flow control: none • 3.3 V I/O voltage level
I/O Interface	<ul style="list-style-type: none"> • 4 I/O lines 3.3 V level • Iout = 8 mA max.
Power Supply	3.2 ÷ 5.25 V DC
Power Consumption	<ul style="list-style-type: none"> • 8W max @ RF out = 30 dBm • 80 mW in idle mode - Ready to receive commands
Dimensions	<ul style="list-style-type: none"> • (L)51 x (W)42 x (H)8.1 mm³ • 2.01 x 1.65 x 0.32 inches³
Operating Temperature	-20 °C to +70 °C
Weight	30 g

Ordering Options

WR9101CXAAAA	Lepton9x1 - 30dBm Reader Module		
WR4320CXDKU	Hadron, Rx101, Rx104 - ETSI Dev. Kit		
WR4320CXDKUS	Hadron, Rx101, Rx104 - FCC Dev. Kit		
WR4320CXEBX	Hadron, Rx101, Rx104 Eval. Board		

