CAEN RFID

R9100C

Lepton^9

30dBm 1-Port
RAIN RFID Reader Module

IMPINJ CONNECTED

BENEFITS	Ultra compact size	High Sensitivity (-90dBm)	Surface mount device (SMD)	IOIOI Serial interface	

Features

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

Applications

- *Handheld devices*
- *Autonomous vehicle mounted readers for inventory*
- *Fixed mount readers for scan tunnels and logistic portals*
- *Overhead readers for industrial warehouses*

Overview

The **Lepton^9** (Model R9100C), 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 and the surface mount technology allow to embed the **Lepton^9** inside the new small form factor industrial handhelds, smartphone accessories and other compact form factor devices.

The **Lepton^9** 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 **Lepton^9** is pin-to-pin compatible with the **Impinj RS1000** and **RS500** modules making it a perfect replacement for these devices.

Technical Specification Table

Frequency Range	• 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	50 Ohm mono-static RF port on a single pin
Frequency Tolerance	± 10 ppm over the entire temperature range
Number of Channels	• 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	• UART Serial Port:
	  • 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	• 4 I/O lines 3.3 V level • Iout = 8 mA max.
Power Supply	4.75 ÷ 5.25 V DC
Power Consumption	• 1.4 A @ 5 V - RF out = 30 dBm • 5 mA in idle mode - Ready to receive commands
Dimensions	• (L)32 x (W)29 x (H)4.1 mm^3 • 1.26 x 1.14 x 0.16 inches^3
Package Type	32 pin surface mount module (SMT compatible)
Operating Temperature	-20 °C to +70 °C
Weight	5.4 g

Ordering Options

WR9100CXAAAA	Lepton9 - 30dBm Reader Module
WRHML37XEVBX	R1271, Rx100 evaluation board
WRHML37XDKEU	R1271, Rx100 dev. kit - ETSI
WRHML37XDKUS	R1271, Rx100 dev. Kit - FCC