



R3100C

# Lepton<sup>3</sup>

25dBm 1-Port  
RAIN RFID Reader Module



**IMPINJ**  
CONNECTED

## BENEFITS

Ultra compact  
size

High Sensitivity

Surface mount  
device (SMD)

IOIOI  
Serial interface

## Features

- RAIN RFID (UHF EPC Class1 Gen2, ISO 18000-63) compliant
- Multiregional support
- Ultra compact size
- Up to 25 dBm (316 mW) output power
- Serial interface (TTL Levels)
- Low power consumption

## Applications

- Handheld devices
- Multiregional label printers and applicators
- Points of sale readers
- Voice operated gloves

## Overview

The **Lepton<sup>3</sup>** (Model R3100C), 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 25 dBm, the reader can detect tags at more than 2 m of distance (depending on antenna and tag dimensions).

Due to its low power consumption, the module is specifically designed to be easily integrated in battery powered devices.

The radio frequency core of the module is based on the **Impinj E310** IC that permits to achieve fast reading speed and to be used in dense reader and dense tag environments for top-class rated performances.

The compactness of the device and the surface mount technology allow to embed the **Lepton<sup>3</sup>** inside the new small form factor industrial handhelds, smartphone accessories and other compact form factor devices.

The **Lepton<sup>3</sup>** 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<sup>3</sup>** is pin-to-pin compatible with the **Impinj RS1000** and **RS500** modules making it a perfect replacement for these devices.



## Technical Specification Table

<b>Frequency Range</b>	<ul style="list-style-type: none"> <li>• 865.600÷867.600 MHz (ETSI EN 302 208 v. 3.1.1)</li> <li>• 902÷928 MHz (FCC part 15.247)</li> </ul>
<b>RF Power</b>	Configurable from 10 dBm to 25 dBm (from 10 mW to 316 mW) conducted power
<b>RX Sensitivity</b>	<ul style="list-style-type: none"> <li>• -72 dBm - 10%PER, assuming 20 dB antenna RL @ 25 dBm output</li> <li>• -68 dBm - 1%PER, assuming 10 dB antenna RL @ 25 dBm output</li> </ul>
<b>Antenna VSWR Requir.</b>	< 2:1 for optimal performance
<b>Antenna Connectors</b>	50 Ohm mono-static RF port on a single pin
<b>Frequency Tolerance</b>	± 10 ppm over the entire temperature range
<b>Number of Channels</b>	<ul style="list-style-type: none"> <li>• 4 channels (compliant to ETSI EN 302 208 v. 3.1.1)</li> <li>• 50 hopping channels (compliant to FCC part 15.247)</li> </ul>
<b>Standard Compliance</b>	EPC Class 1 Gen 2 - ISO18000-63
<b>Connectivity</b>	<ul style="list-style-type: none"> <li>• UART Serial Port: <ul style="list-style-type: none"> <li>• Baudrate from 9.600 to 921.600 kbit/s, default 115.200 kbit/s</li> <li>• Databits: 8</li> <li>• Stopbit: 1</li> <li>• Parity: none</li> <li>• Flow control: none</li> </ul> </li> <li>• 3.3 V I/O voltage level</li> </ul>
<b>I/O Interface</b>	<ul style="list-style-type: none"> <li>• 4 I/O lines 3.3 V level</li> <li>• Iout = 8 mA max.</li> </ul>
<b>Power Supply</b>	5 V DC ± 5%
<b>Power Consumption</b>	<ul style="list-style-type: none"> <li>• 600 mA @ 5 V - RF out = 25 dBm (TBC)</li> <li>• 10 mA in idle mode - Ready to receive commands</li> </ul>
<b>Dimensions</b>	<ul style="list-style-type: none"> <li>• (W)29 x (L)32 x (H)3.8 mm<sup>3</sup></li> <li>• 1.14 x 1.26 x 0.15 inches<sup>3</sup></li> </ul>
<b>Package Type</b>	32 pin surface mount module (SMT compatible)
<b>Operating Temperature</b>	-20 °C to +70 °C
<b>Weight</b>	4.6 g

## Ordering Options

<b>WR3100CXAAAA</b>	Lepton3 - 30dBm Reader Module		
<b>WRHML37XEVBX</b>	R1271, R3100, R7100 eval. board		



Copyright © CAEN RFID srl. All right reserved. Information in this publication supersedes all earlier versions. Specifications subject to change without notice.



**CAEN RFID srl**

via Vetraia, 11 - 55049 Viareggio (LU) - Italy  
Phone +39 0584 388398 - Fax +39 0584 388959  
www.caenrfid.com - info@caenrfid.com