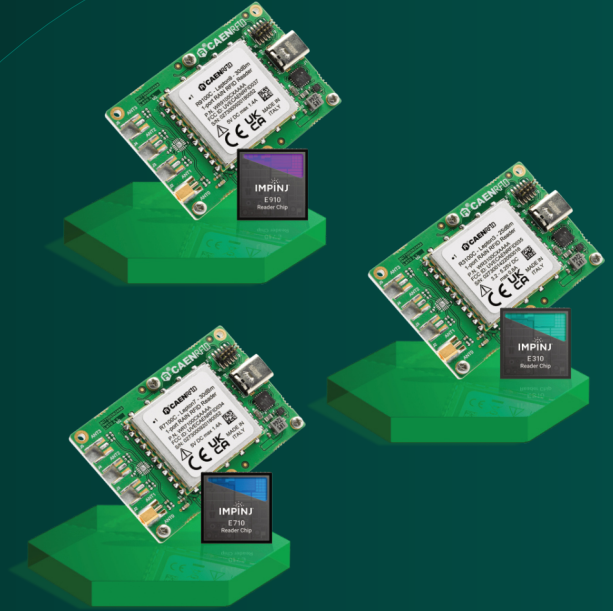


UHF | RAIN - Reader Module CAEN - Lepton^{3,7,9}x1-USB

- RAIN RFID (UHF EPC Class1 Gen2, ISO 18000-63) compliant
- Up to 30 dBm (1 W) output power
- Ultra compact size
- USB Type-C interface (VCP)
- Low power consumption



UHF | RAIN - RFID Module USB Reader Module

CAEN RFID's Lepton x1-USB reader modules are embedded readers of the easy2read© product line. With their ultra-compact form factor and USB Type-C interface, these reader modules are perfect for anyone looking for a fast integration into their own electronics. With a programmable output power of up to 30 dBm, the readers can detect tags at a distance of more than 10 m (depending on the reader IC, antenna, tag dimensions and environment).

Due to their low power consumption, the reader modules are specifically designed to be easily integrated into battery-powered and remotely located equipment. The radio frequency core of the modules is based on Impinj's RAIN RFID reader chips (E310, E710 or E910), enabling fast reading speeds and high performance in dense reader and tag environments. The device's compact size allows the Lepton x1-USB reader modules to be embedded in industrial handhelds, smartphone accessories and other compact form factor devices.

The Lepton x1-USB reader module is compliant and can operate in both European and US regulatory environments, and its multi-regional capabilities make it ideal for integration into devices requiring compliance in different geographical regions.

Common Applications

- Defence Industry
- Healthcare
- Point of Care
- Industrial Automation
- Quality Control



TECHNICAL SPECIFICATIONS

Contactless Interface

Operating Frequency	865.600÷867.600 MHz (ETSI EN 302 208 v. 3.3.1) 902÷928 MHz (FCC part 15.247)
Supported Standards	EPC Class 1 Gen 2 - ISO18000-63
RF Power	Lepton ³ x1-USB: 0 - 25 dBm (1 - 316 mW) Lepton ⁷ x1-USB: 0 - 30 dBm (1 - 1000 mW) Lepton ⁹ x1-USB: 0 - 30 dBm (1 - 1000 mW)
vRX Sensitivity	Lepton ³ x1-USB: -72 dBm - 10%PER (@ 20 db antenna & 25 dBm output) Lepton ⁷ x1-USB: -85 dBm - 10%PER (@ 20 db antenna & 30 dBm output) Lepton ⁹ x1-USB: -90 dBm - 10%PER (@ 20 db antenna & 30 dBm output)
Antenna VSWR Requirement	< 2:1 for optimal performance
Antenna Connectors	MMCX jack
Sensitivity	± 10 ppm over the entire temperature range
Number of Channels	4 channels (ETSI EN 302 208 V. 3.3.1) 50 hopping channels (FCC part 15.247)
Operation Modes	N/A

Host Interface

Interface	USB Type-C Virtual COM Port
Protocol	Serial Protocol
Interface Settings:	Baudrate: 9.6 to 921.6 kbps Databits: 8 Stopbit: 1 Parity: none Flow control: none
I/O Level	3.3 V

Physical Characteristics

Dimension	61.0 x 42.0 x 9.1 mm
Weight	30 g
Connector Type	USB Type-C
IP Protection	N/A
Temperature	-20 °C to +70 °C
Humidity	N/A

Electrical Characteristics

Voltage	4.75 ÷ 5.25 V DC
Consumption	Lepton ³ x1-USB: 800 mA @ 5 V - RF out = 25 dBm 5 mA in idle mode - Ready to receive commands Lepton ⁷ x1-USB & Lepton ⁹ x1-USB: 8W max @ RF out = 30 dBm 80mW in idle mode- Ready to receive commands
I/O Interface	4 I/O lines 3.3V level @ 8 mA max.
LED	N/A

Certifications & Compliances

Certifications	CE, UKCA, FCC, REACH & RoHS
Compliances	RAIN ALLIANCE (ISO18000-63)

Drivers & Support

Supported OS	Works with any OS & µC
Supported Libraries	Visual C, .NET Standard 2.0, Swift, Java & Light C
Tools	Software Development Kit

Part No. / Model

25-RRM-C01-0007-01	Lepton ³ x1-USB - Impinj E310
25-RRM-C01-0008-01	Lepton ⁷ x1-USB - Impinj E710
25-RRM-C01-0009-01	Lepton ⁹ x1-USB - Impinj E910