

TECHNICAL INFORMATION MANUAL

Revision 0 – 23 January 2018

Hex R1290I

Multipurpose RAIN RFID Reader with POE



PRELIMINARY



Visit [Hex R1290I web page](#), you will find the latest revision of data sheets, manuals, certifications, technical drawings, software and firmware.
All you need to start using your tag in a few clicks!

Scope of Manual

The goal of this manual is to provide the basic information to work with the Hex R1290I Multipurpose RAIN RFID Reader with POE .

Change Document Record

Date	Revision	Changes	Pages
23 Jan 2018	00	Preliminary Release	-

Reference Document

[RD1] EPCglobal: EPC Radio-Frequency Identity Protocols Class-1 Generation-2 UHF RFID Protocol for Communications at 860 MHz – 960 MHz, Version 2.0.1 (April, 2015).

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Preliminary Product Information

This document contains information for a new product. CAEN RFID reserves the right to modify this product without notice.

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Federal Communications Commission (FCC) Notice (Preliminary)

This device was tested and found to comply with the limits set forth in Part 15 of the FCC Rules. Operation is subject to the following conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received including interference that may cause undesired operation. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment.

This device generates, uses, and can radiate radio frequency energy. If not installed and used in accordance with the instruction manual, the product may cause harmful interference to radio communications. Operation of this product in a residential area is likely to cause harmful interference, in which case, the user is required to correct the interference at their own expense. The authority to operate this product is conditioned by the requirements that no modifications be made to the equipment unless the changes or modifications are expressly approved by CAEN RFID.

Disposal of the product

Do not dispose the product in municipal or household waste. Please check your local regulations for disposal/recycle of electronic products.



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1 INTRODUCTION

Product Description

The Hex (Model R1290IE, R1290IU), multipurpose reader of the easy2read© family, is a RAIN RFID reader with integrated circular polarized antenna for short to medium range applications.

Thanks to its versatile form factor, the Hex is well suited for both desktop/counter top applications and for fixed reading point installations. It offers the Ethernet (POE) and USB communication interface in order to simplify the installation both on large and single installations. The Power Over Ethernet capability permits to provide power and to communicate with the reader with a single cable when the POE infrastructure is available.

In addition to the internal circular polarized antenna, the Hex provides a connector for an external antenna in order to extend the reading area of the reader and a set of GPIO lines that permits to control external devices like lights or alarms or to get triggers via external sensors (buttons, light barriers).

The USB host port, combined with the internal computing architecture, permits to connect USB peripherals like barcode scanners, keyboards, printers and many others transforming the Hex reader in a powerful and versatile identification platform.

The reader has an easy to use display and keypad interface for local configuration; the behaviour of the keypad and display can be customized under customer specifications.

The Hex is available both for European and US regions allowing installations in various countries worldwide as needed by retailers, forwarders, warehouses and other global organizations.



Fig. 1.1: Hex reader (Model R1290I)

Ordering Options

	Code	Description
Reader	WR1290IEXAAA	R1290IE - Hex - POE multipurpose UHF RFID Reader (ETSI)
	WR1290IUXXXX	R1290IU - Hex - POE multipurpose UHF RFID Reader (FCC)

2 TECHNICAL SPECIFICATIONS

Technical Specification

Frequency Range	865.600÷867.600 MHz (ETSI EN 302 208 v3.1.1) (Mod: R1290IE) 902÷928 MHz (FCC part 15.247) (Mod: R1290IU)
RF Power (Integrated Antenna)	Programmable in 18 levels (1dB step) from 8 dBm ERP to 25 dBm ERP (Mod: R1290IE) Programmable in 18 levels (1dB step) from 8,5 dBm ERP to 25,5 dBm ERP (Mod: R1290IU)
RF Power (External Antenna Port)	Programmable in 18 levels (1dB step) from 10 dBm to 27 dBm
Number of Channels	4 channels (compliant to ETSI EN 302 208 v3.1.1) (Mod: R1290IE) 50 hopping channels (compliant to FCC part 15.247) (Mod: R1290IU)
Internal Antenna Gain	0,2dBi typ. (Mod: R1290IE) 0,7dBi typ. (Mod: R1290IU)
Internal Antenna Polarization	Circular
External antenna port connector	SMA jack
Standard Compliance	EPC C1G2/ISO 18000-6C
Read Range	Up to 100cm (typical)
CPU	ARM9 @ 400Mhz on Atmel AT91SAM9G25
User Device Interface	USB 2.0 Hi-Speed (480 Mbit/s) device port Virtual COM port parameters: – Baudrate: up to 115200 kbps – Databits: 8 – Stopbits: 1 – Parity: none – Flow control: none
Ethernet Interface	Ethernet 10/100/1000BASE-T (RJ45) POE standard IEEE 802.3af
User Interface	Button V : OK / Trigger or other functions controlled by firmware Arrow up : scroll up or other functions controlled by firmware Arrow down : scroll down or other functions controlled by firmware Led #1: power indication (green : ON) Led#2: RF activity (yellow blinking: RF) Led#3: Tag-Identification (red blinking : TAG-ID) Led#Antenna: Tag-Identification (white blinking : TAG-ID) Buzzer: bitonal for events signalling Proximity sensor : trigger OLED display 2.42" monochromatic (white)
USB Host Interface	USB 2.0 High Speed Host Port max 500mA
I/O interface	Push-in PCB terminals 1 digital Input 1 solid state photorelay output (500mA max)
Electrical Power	5V ± 5% – DC power supply (10W) POE standard IEEE 802.3af (12,95W)
IP Rating	IP30
Operating Temperature	-10 °C to +55 °C
Dimensions	(W)220 x (L)170 x (H)25mm ³ (8.66 x 6.69 x 0.98 inch ³)

Weight	485g
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Tab. 2.1: Hex R1290I Technical Specifications



Warning: *The RF settings must match the country/region of operating to comply with local laws and regulations.
The usage of the reader in different countries/regions from the one in which the device has been sold is not allowed.*

3 REGULATORY COMPLIANCE

FCC Compliance

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation.

This equipment generates uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one of the following measures:

- a. Reorient or relocate the receiving antenna.
- b. Increase the separation between the equipment and receiver.
- c. Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- d. Consult the dealer or an experienced radio/TV technician for help.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Any changes or modification not approved by CAEN RFID could void the user's authority to operate the equipment.

The device shall be used such that a minimum separation distance of 20cm is maintained between the reader and user's/nearby people's body.

RoHS EU Directive

The Hex R1290I RFID reader is compliant with the EU Directive 2011/65/CE on the Restriction of the Use of certain Hazardous Substances in Electrical and Electronic Equipment (RoHS2).