CATALOG 2021

Gateways to digital

CAENRFID

ISO9001:2015
Certified Company

We are proud of the high quality of our products.

ISO 9001

ISO 9001:2015 approved quality system ensures all our internal processes.

From R&D to the registration of the incoming purchase orders, through:

- Resource Planning
- Scheduling
- Production

Our quality system is responsible for the proper functioning of all our internal processes and is subject to regularly unannounced audits,carried out by the National Standards Authority.

From the initial product design and its development stages, to the delivery of the production batches, we follow documented procedures that cover every aspect of our business. The auditing of our procedures by an independent third party guarantees that our business runs smoothly and efficiently.

The quality of CAEN RFID srl products is constantly monitored by the application of the UNI EN ISO 9001:2015 standard. CAEN RFID srl is ISO 9001 certified since 2012.

Company Profile

***CAEN RFID** is a leading company in Automatic Identification (AutoID) and it has focused its activities in the **RAIN RFID** technology (passive UHF RFID conforming to GS1 EPC Class1 Gen2 or ISO 18000-63 standards).*

***RAIN RFID** is a wireless technology that connects billions of everyday items to the internet, enabling businesses and consumers to identify, locate, authenticate, and engage each item. Read/write operations on tagged items can occur without line-of-sight, at longer distance and faster speed compared to other passive technologies, thus allowing a cheaper and more efficient process automation.*

***CAEN RFID** has developed its products according to the **RAIN RFID** standards. Our team of engineers designs state-of-the-art devices and provides continuous support and feedback to customers. This provides our customers with a better understanding of **RAIN RFID** technology and our products, enabling their use in a more efficient and performing way.*

The quality of our products, the consultancy service at the time of purchase and the after-sales support are among our top priority objectives.

*The most promising fields in which RFID can provide a quick Return on Investment (ROI) span from Retail, to Pharma and Food, Waste Management, Security and Access Control, Industrial Manufacturing and Logistics. **CAEN RFID** provide the technology and the technical support to enable the development of best in class **RAIN RFID** solutions.*

Our History

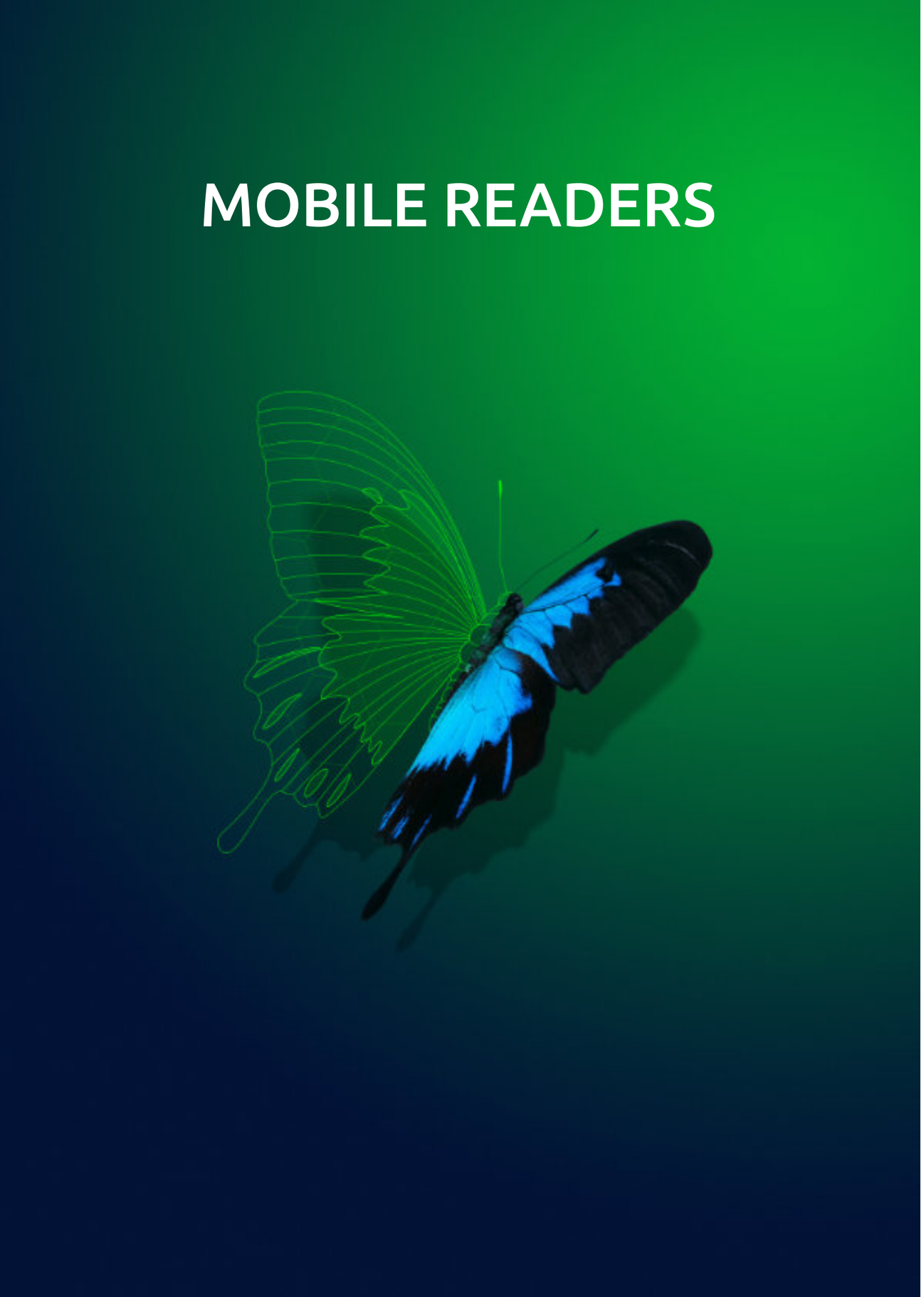
***CAEN RFID** was founded in 2006 as a private-owned Italian company, but its activities started in 2003 as the RFID division of **CAEN SpA**. It has been the first European company to design, produce and market an UHF RFID reader. It is a partner of the most important associations, including EPCglobal and ETSI, participating to the definition of the standards.*

*The Management, Technical and Commercial teams are young, dynamic and greatly experienced with everyday RFID applications. All our staff has been previously involved in the experience within **CAEN SpA**, world leader in electronic instrumentation for Nuclear and Particle Physics. **CAEN SpA** electronics is always at the forefront of technology and has become a "de facto" standard in the most important Physics labs around the world.*

*In 2012 **CAEN RFID** obtained the ISO9001:2008 Quality Certification. This award has driven the company to supply products and services of great quality to our customers, who we consider our greatest asset.*

*In 2015 **DATALOGIC** became a shareholder of **CAEN RFID** through the acquisition of the 20% of the company with the purpose of company development and growth.*

MOBILE READERS



Mobile Readers

Reading RAIN RFID labels and tags in mobility is a need for a number of markets: retail, transport and logistics, healthcare, maintenance, manufacturing, event management just to mention a few.

Mobile workers normally use devices like tablets and smartphones and prefer to use them in their everyday activities.

CAEN RFID mobile readers connect easily to smartphones, tablets and PCs using the Bluetooth technology, providing mobile RAIN RFID technology to everyone.

R1280I

skID

Mini Sled RAIN RFID Reader

IMPINJ CONNECTED

BENEFITS	High Performance reading	Pocket size	Flexibility	USB Type C	HID	Bluetooth

Features

- *RAIN RFID (UHF EPC Class1 Gen2, ISO 18000-63) compliant*
- *ETSI and FCC versions available*
- *Bluetooth communication*
- *Integrated circular polarized antenna*
- *Ergonomic form factor*
- *Battery powered*
- *iPhone/iPad compatibility*
- *3 mounting options: magnetic, 3M Dual Lock™ or SP-Connect™*

Applications

- *RAIN RFID add-on to smartphones, tablets and mobile terminals*
- *Shop inventory and cycle counting*
- *Mobile point of sale*
- *Field sales mobility*
- *Mobile workers*

Overview

The **skID** (Model R1280IE, R1280IU) is a portable RAIN RFID reader of the easy2read© product line with integrated antenna for medium range applications.

The reader hosts an internal rechargeable battery and can operate both in wired mode, using a USB cable, or in wireless mode through the Bluetooth® interface.

Thanks to the Bluetooth® communication interface, the **skID** is a perfect add-on for any Bluetooth® enabled host such as a PC, a smartphone, a PDA or a tablet for RAIN RFID readings. The reader is compatible with Windows 8/10, Windows CE/Mobile, Android and iOS operating systems. The device supports both Bluetooth Low Energy (BLE) and Bluetooth classic communication to provide the maximum usage flexibility, including the HID profile for keyboard emulation.

The **skID** can be easily fixed to the smartphone using 3 different methods: magnets, 3M Dual Lock or SP-Connect.

Designed for mobile operators, the **skID** is ideal for inventory management, mobile workers, service and maintenance applications.

Technical Specification Table

Frequency Range	• 865.600÷867.600 MHz (ETSI EN 302 208 v. 3.1.1) (Mod. R1280IE) • 902÷928 MHz (FCC part 15.247) (Mod. R1280IU)
RF Power	• Configurable from 8 dBm ERP to 22 dBm ERP (Mod. R1280IE) • Configurable from 8.5 dBm ERP to 24 dBm EIRP (Mod. R1280IU)
Number of Channels	• 4 channels (compliant to ETSI EN 302 208 v. 3.1.1) (Mod. R1280IE) • 50 hopping channels (compliant to FCC part 15.247) (Mod. R1280IU)
Standard Compliance	EPC Class 1 Gen 2 - ISO18000-63
Antenna Gain	0.0 dBic (typical)
Antenna Polarization	Integrated Circular Polarized Antenna
Read Range	Up to 2.0 m (Typical)
USB Interface	USB 2.0 Full Speed (12 Mbit/s) via USB Type-C connector
Bluetooth Interface	• Bluetooth 4.1 Smart Ready compliant • 12 dBm EIRP output power BR/EDR • 8 dBm EIRP output power BLE • HID and Serial over GATT (BLE) • HID and SPP profiles (Bluetooth classic)
User Interface	• Power and Trigger buttons • Power and battery status LED • Communication and operation result LED • Bi-tonal buzzer and vibration element for event signalling
Battery Type	Li-Ion 3.7 V, 1,200 mAh
Battery Life	• Operating: > 12 h (with 40,000 tag readings) • Standby: > 15 days (powered off, no LED blinking)
Battery Charging Time	• 3 hours connected to a PC USB port • 2 hours 15 min. with 1 A AC/DC power supply
IP Rating	IP65
Dimensions	• 112 x 62 x 10/16 mm^3 • 4.4 x 2.4 x 0.39/0.63 $inches^3$
Operating Temperature	-10 °C to +55 °C
Weight	110 g
USB Cable Length	1.5 m

Ordering Options

WR1280IXEUAA	skID - RAIN RFID mini sled reader - ETSI		
WR1280IXUSAA	skID - RAIN RFID mini sled reader - FCC		

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R1170I

qIDmini

Keyfob Bluetooth RAIN RFID Reader

BENEFITS	Display	Small, lightweight and ergonomic form factor	Fully customizabe	USB	HID	Bluetooth

Features

- *RAIN RFID (UHF EPC Class1 Gen2, ISO 18000-63) compliant*
- *USB and Bluetooth communication*
- *SPP and HID Bluetooth profiles*
- *Integrated linear polarized antenna*
- *Small, lightweight and ergonomic form factor*
- *Battery powered*
- *LCD Display*
- *Vibration feedback*
- *iPhone/iPad compatibility*
- *Also available with Near Field antenna, optimized for Murata MAGICSTRAP® and HITACHI USPT miniaturized*

Applications

- *UHF add-on to Bluetooth devices*
- *Point of Sales*
- *Field Sales Mobility*
- *People Access Control*
- *Inventory Management*
- *Service and Maintenance*

Overview

The **qIDmini** (Model R1170I) is a RAIN RFID handheld reader of the easy2read© product line, compliant with ISO 18000-63/EPC C1G2 standards.

The **qIDmini** has an integrated antenna suited for short to medium range applications and, thanks to the Bluetooth® communication interface, it is a perfect RAIN RFID add-on for any Bluetooth® enabled host such as a PC, a smartphone, a PDA or a tablet. The reader is compatible with Windows 8/10, Windows CE/ Mobile, Android, iPhone and iPad.

The HID version supports native keyboard emulation allowing to interact directly with legacy applications, office automation SW or any other generic solution requiring manual input.

The **qIDminiNF** version is specifically designed to optimize the reading performances with near field miniaturized tags like the Murata Magicstrap and Hitachi USPT. The near field antenna of the **qIDminiNF** reader permits to read those small tags even when embedded in small parts like watches, jewels or mechanic parts. For this reason, the combination of the miniaturized near field tags and the **qIDminiNF** reader is a great tool to retrieve the serial numbers in small objects and check the originality of parts.

The reader can also operate in “Batch Mode”, allowing to store EPC codes into the internal memory when the communication links (USB or Bluetooth®) are not available.

When paired to a smartphone or a tablet, the qIDmini is a cost effective alternative to more expensive handheld devices.

Technical Specification Table

Frequency Range	• 865.600÷867.600 MHz (ETSI EN 302 208 v. 3.1.1) - Mod. R1170IEHIDP, R1170IEAPLP and R1170IENFHD • 902÷928 MHz (FCC part 15.247) - Mod. R1170IUHIDP, R1170IUAPLP and R1170IUNFHD • 920.625÷924.375 MHz (SRRC RFID national standards) - Mod. R1170IUNFHD with WPE1170NFACN • 920.4÷923.4 MHz (ARIB T107 RFID national standards) - Mod. R1170IJHIDP and R1170IJAPLP
RF Power	• 18 levels: 5 dBm ERP (3 mW ERP) to 22 dBm ERP (150 mW ERP) - Mod. R1170IEHIDP and R1170IEAPLP • 13 levels: 5 dBm ERP (3 mW ERP) to 18 dBm ERP (60 mW ERP) - Mod. R1170IUHIDP and R1170IUAPLP • 18 levels: -8 dBm ERP (0.16 mW ERP) to 9 dBm ERP (8 mW ERP) - Mod. R1170IENFHD and R1170IUNFHD • 14 levels: 5 dBm ERP (3 mW ERP) to 19 dBm ERP (80 mW ERP) - Mod. R1170IJHIDP and R1170IJAPLP
Antenna	• Integrated linear (horizontal) (Mod. R1170IEHIDP, R1170IEAPLP, R1170IUHIDP, R1170IUAPLP, R1170IJHIDP and R1170IJAPLP) • Integrated UHF Near Field Antenna (Mod. R1170IENFHD and R1170IUNFHD)
Number of Channels	• 4 channels (ETSI EN 302 208 v. 3.1.1) - Mod. R1170IEHIDP, R1170IEAPLP and R1170IENFHD • 50 hopping channels (FCC part 15.247) - Mod. R1170IUHIDP, R1170IUAPLP and R1170IUNFHD • 16 hopping channels (SRRC RFID national standards) - Mod. R1170IUNFHD with WPE1170NFACN • 16 hopping channels, LBT (ARIB T107 RFID national standards) - Mod. R1170IJHIDP and R1170IJAPLP
Standard Compliance	EPC Class 1 Gen 2 - ISO18000-63
Read Range	Up to 90 cm (Typical) - Mod. R1170IEHIDP, R1170IEAPLP, R1170IUHIDP,R1170IUAPLP, R1170IJHIDP and R1170IJAPLP
Connectivity	• USB Interface: USB 2.0 Full Speed (12 Mbit/s) device port • Bluetooth: Interface: Class 2 with output power 4 dBm EIRP • Virtual COM port parameters: Baudrate up to 230.400 kbit/s, 8 Databits, 1 Stopbit, no parity, no flow control • HID profile versions: Mod. R1170IEHIDP, R1170IUHIDP, R1170IJHIDP • Apple iOS iAP protocol versions: Mod. R1170IEAPLP, R1170IUAPLP, R1170IJAPLP
User Interface	• Power and Trigger buttons • Power and Battery Level LED (Green: High, Red: Low) • Communication Activity LED (Blue: Bluetooth, Orange: USB) • Bi-tonal buzzer and Vibration element for events signaling • Alphanumeric LCD Display (8 columns x 2 lines)
Internal Buffer Size	48 kBytes (enough to store 4096 EPC codes@96bit)
Battery Type	Li-Ion 3.7 V, 570 mAh
Battery Life	Operating: > 12 hours with 40,000 tag readings - Standby: > 15 days
Battery Charging Time	2 hours typical
IP Rating	• IP32 (Mod. R1170IEHIDP, R1170IEAPLP, R1170IUHIDP, R1170IUAPLP, R1170IJHIDP and R1170IJAPLP) • IP30 (Mod. R1170IENFHD and R1170IUNFHD)
Dimensions	(W)99 x (L)54 x (H)20 mm³ max. (3.9 x 2.1 x 0.8 inches³)
USB Cable Length	1.5 m
Operating Temperature	-10 °C to +55 °C
Weight	• 57 g (Mod. R1170IEHIDP, R1170IEAPLP, R1170IUHIDP, R1170IUAPLP, R1170IJHIDP and R1170IJAPLP) • 58 g (Mod. R1170IENFHD and R1170IUNFHD)

Ordering Options

WR1170IEAPLP	qIDmini - ETSI with Apple profile	**WR1170IUNFHP**	qIDmini - FCC NF with HD profile
WR1170IEHIDP	qIDmini - ETSI with HID profile	**WPE1170NFACN**	R1170IUNHHP - China customization
WR1170IUAPLP	qIDmini - FCC with Apple profile	**WR1170IJHIDP**	qIDmini - ARIB with HID profile
WR1170IUHIDP	qIDmini - FCC with HID profile	**WR1170IJAPLP**	qIDmini - ARIB with Apple profile
WR1170IENFHP	qIDmini - ETSI NF with HID profile		

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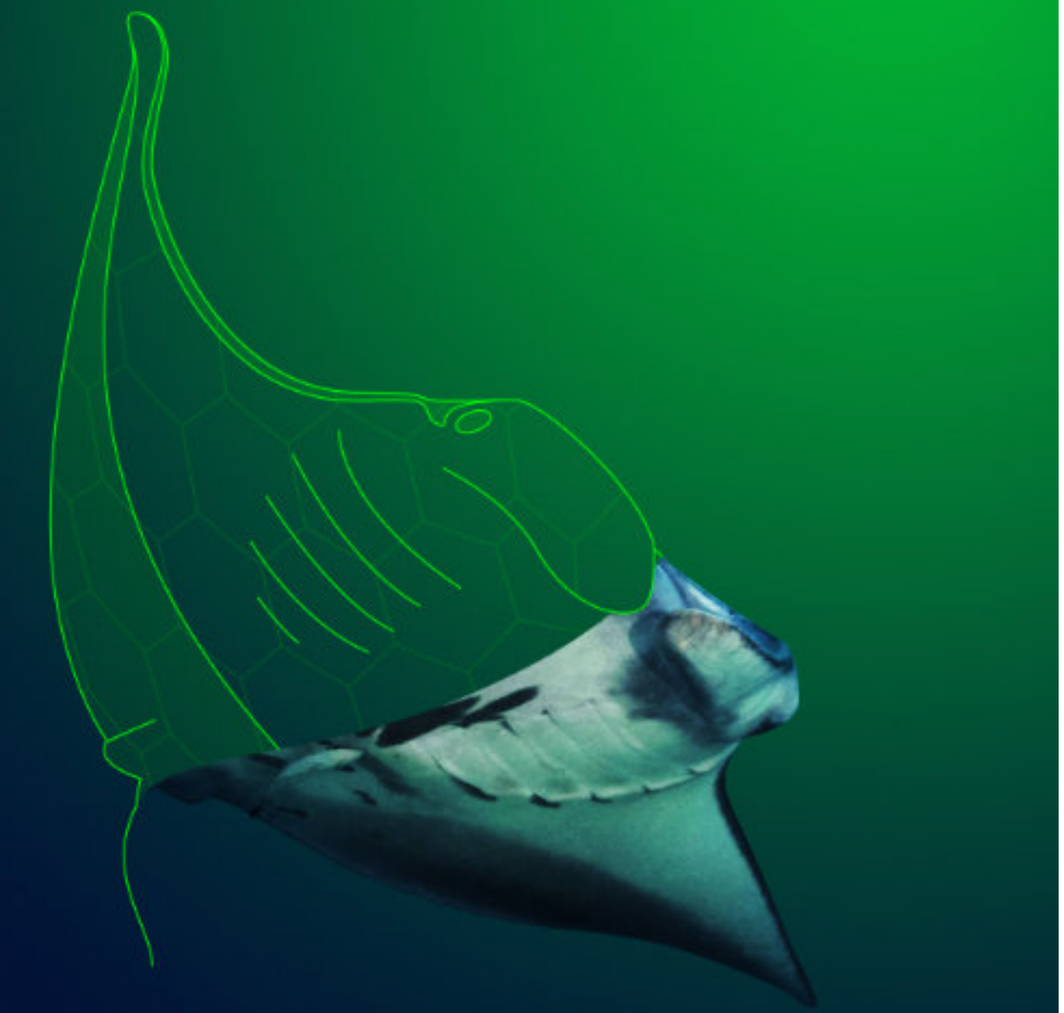
INTEGRATED READERS



Integrated Readers

Integrated readers are RAIN RFID readers with an integrated antenna so they are ready-to-use and do not require so much effort for the installation.

They are typically used for simple reading points, points of sales, encoding stations, document tracking and many other applications where you do not need very long reading distances.

CAEN RFID offering of integrated readers includes very simple USB readers as well as advanced integrated readers with multiple communication interfaces and scripting capabilities.

R1290I

Hex

Multipurpose
RAIN RFID Reader with PoE

BENEFITS	Display & Keypad	Customizable with Javacode	Web Config. Interface	PoE	HID	USB Host & Device

Features

- *RAIN RFID (UHF EPC Class1 Gen2, ISO 18000-63) compliant*
- *USB and Ethernet communication*
- *HID profile on USB available*
- *Integrated circular polarized antenna and external antenna connector*
- *Versatile form factor*
- *PoE or external power supply*
- *USB host port*
- *OLED display and keypad*
- *Internal scripting engine*

Applications

- *Points of sale*
- *Encoding stations*
- *Access control*
- *Document tracking*
- *Inventory Management*

Overview

The **Hex** (Model R1290IE, R1290IU), multipurpose reader of the easy2read© product line, 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 PoE 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 other devices 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 ETSI and FCC regions allowing installations in various countries worldwide as needed by retailers, forwarders, warehouses and other global organizations.

Technical Specification Table

Frequency Range	• 865.600÷867.600 MHz (ETSI EN 302 208 v. 3.1.1) (Mod. R1290IE) • 902÷928 MHz (FCC part 15.247) (Mod. R1290IU)
RF Power	• Configurable in 18 levels from 8 dBm ERP to 25 dBm ERP (Mod. R1290IE) • Configurable in 18 levels from 8.5 dBm ERP to 25.5 dBm ERP (Mod. R1290IU)
Number of Channels	• 4 channels (compliant to ETSI EN 302 208 v. 3.1.1) (Mod. R1290IE) • 50 hopping channels (compliant to FCC part 15.247) (Mod. R1290IU)
Standard Compliance	EPC Class 1 Gen 2 - ISO18000-63
Internal Antenna Gain	• 0.2 dBi (typical) (Mod. R1290IE) • 0.7 dBi (typical) (Mod. R1290IU)
Antenna Polarization	Integrated Circular Polarized Antenna

USB device Interface	• USB 2.0 Hi-Speed (480 Mbit/s) device port
	• Virtual COM Port parameters:
	  • Baudrate up to 921.600 kbit/s
	  • Databits: 8
	  • Stopbit: 1
	  • Parity: none
	  • Flow control: none

USB Host Interface	• USB 2.0 High Speed Host Port • Max. 500 mA output current
Ethernet Interface	• Ethernet 10/100/1000 Base-T (RJ45) • PoE standard IEEE 802.3af
User Interface	• Button √: Confirm/Trigger or other functions controlled by firmware • Up arrow: scroll up or other functions controlled by firmware • Down arrow: scroll down or other functions controlled by firmware • Power indication LED • Radiofrequency activity LED • Tag identification LED • Tag identification lights • Bitonal buzzer for event signalling • Proximity sensor trigger • OLED display 2.42” monochromatic (white on black)

I/O interface	• Push in PCB terminals
	  • 1 digital input
	  • 1 solid state photorelay output (500 mA max)

Power Supply	• 5 V ± 5% - DC power supply (10 W) • PoE standard IEEE 802.3af (12.95 W)
IP Rating	IP30
Dimensions	• (W)220 x (L)170 x (H)25 mm³ • 8.66 x 6.69 x 0.98 inches³
Operating Temp.	-10 °C to +55 °C
Weight	475 g

Ordering Options

WR1290IEXAAA	Hex - ETSI version
WR1290IUXAAA	Hex - FCC version

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R1250I

Tile

Compact Desktop RAIN RFID Reader

BENEFITS | Compact size | Cost effective | USB | HID

Features

- *RAIN RFID (UHF EPC Class1 Gen2, ISO 18000-63) compliant*
- *USB power and communication*
- *HID profile on USB available*
- *Integrated circular polarized antenna*
- *Compact form factor*

Applications

- *Points of sale*
- *Access control*
- *Tag Programming Stations*
- *Document tracking*
- *Inventory Management*

Overview

The **Tile** (model R1250I), desktop reader of the easy2read© product line, is a RAIN RFID reader with integrated antenna for short to medium range applications.

The reader is powered and controlled directly by an USB cable, thus allowing to read RAIN RFID tags in an easy desktop environment.

Thanks to its compact size, the **Tile** reader is the perfect choice for various applications such as points-of-sale, document tracking, tag programming stations, access control and so on. It can also be used as a building block for smart shelves and smart displays.

The **Tile** reader supports the HID profile (native keyboard emulation) allowing to interact directly with legacy applications, office automation SW or any other generic solution requiring manual input.

Being compliant with both European and US regulatory environments, the Tile reader allows installations in various countries worldwide as needed by retailers, forwarders, warehouses and other global organizations.

The core components of the Tile reader are the CAEN RFID **QuarkUp** module, a top performing ultra-compact RAIN RFID module, and the **Quad**, a compact circular polarized antenna designed by CAEN RFID.

Technical Specification Table

Frequency Range	• 865.600÷867.600 MHz (ETSI EN 302 208 v. 3.1.1) (Mod. R1250IE, R1251IENF) • 902÷928 MHz (FCC part 15.247) (Mod. R1250IU, R1251IUNF)
Frequency Tolerance	±10 ppm over the entire temperature range
RF Power	• Configurable in 18 levels from 8 dBm ERP to 25 dBm ERP (Mod. R1250IE) • Configurable in 18 levels from 8.5 dBm ERP to 25.5 dBm ERP (Mod. R1250IU) • Configurable in 18 levels from 0 dBm ERP to 17 dBm ERP (Mod. R1250IENF, R1251IUNF)
Output Power Accuracy	± 1 dB
Number of Channels	• 4 channels (compliant to ETSI EN 302 208 v. 3.1.1) (Mod. R1250IE) • 50 hopping channels (compliant to FCC part 15.247) (Mod. R1250IU)
Standard Compliance	EPC Class 1 Gen 2 - ISO18000-63
Internal Antenna Gain	• 0.2 dBi (typical) (Mod. R1250IE) • 0.7 dBi (typical) (Mod. R1250IU)
Antenna	• Integrated Circular Polarized Antenna (Mod. R1250IE, R1250IU) • Integrated UHF Near Field Antenna (Mod. R1251IENF, R1251IUNF)

Connectivity	• Mini USB type B plug connector
	• USB 2.0 Full Speed (12 Mbit/s) device port
	• Must be connected to two High-Power USB Type A ports (500 mA @ VBUS)
	• HID profile available
	• Virtual COM Port parameters:
	  • Baudrate up to 115.200 kbit/s
	  • Databits: 8
	  • Stopbit: 1
	  • Parity: none
	  • Flow control: none

User Interface	• Red LED: Power • Blinking Green LED: Tag Detection
USB Cable Length	• 1 m (Mod. R1250IE, R1250IU) • 1.8 m (Mod. R1251IENF, R1251IUNF)
Power Supply	• 5 V ± 5% - DC bus powered (USB) • Max. 650 mA
Dimensions	• (W)125 x (L)125 x (H)25 mm^3 • 4.92 x 4.92 x 0.98 $inches^3$
Operating Temperature	-10 °C to +55 °C
Weight	• 220 g max. (Mod. R1250IE, R1250IU) • 200 g max. (Mod. R1251IENF, R1251IUNF)

Ordering Options

WR1250IEXBAA	Tile - ETSI version - Black	**WR1251IENFBA**	Tile - ETSI version - Black - Near Field
WR1250IEXBFL	Tile - ETSI version - Grey - Flanged	**WR1251IUNFBA**	Tile - FCC version - Black - Near Field
WR1250IUXBAA	Tile - FCC version - Black		
WR1250IUXBFL	Tile - FCC version - Grey - Flanged		

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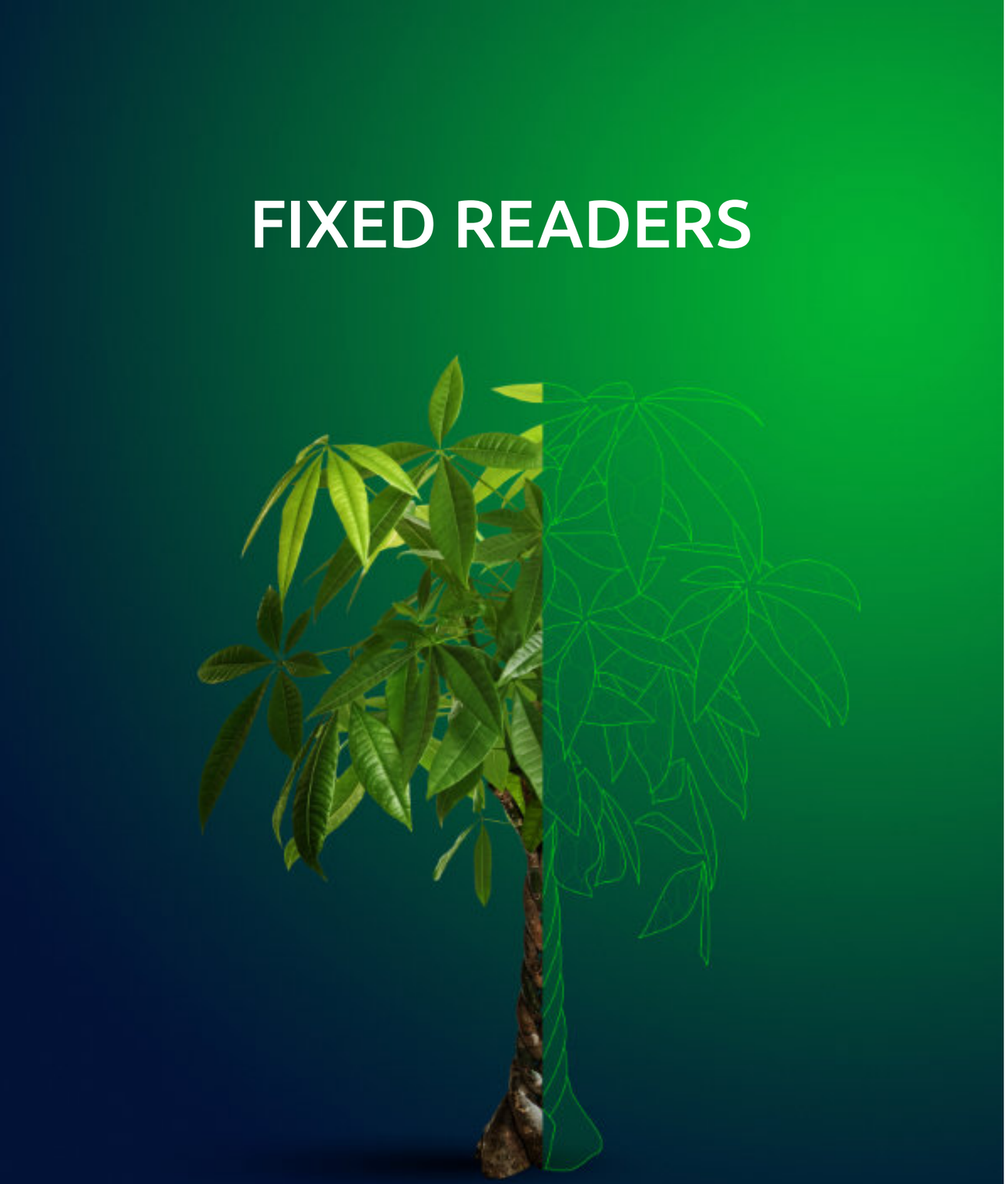
FIXED READERS



Fixed Readers

The typical and most frequent installation of RAIN RFID technology is the so-called portal or gate. It consists of a fixed reader (interrogator) placed around an area of entrance/exit from a distribution center or a manufacturing plant. Sometimes fixed readers are used outdoors for vehicles or for people identification, at the entrance of parking lots or any other entry point in buildings and boundaries of enterprise premises.

RAIN RFID technology is also used during sport events, especially on check points to verify timings and performances in amateur and professional races. Other applications include RFID tunnels used for the identification of tags inside boxes in manufacturing processes and on-vehicle installation (forklifts, trucks) for asset management and inventory.

R4320P

Proton

Industrial 4-port RAIN RFID Long Range Reader

IMPINJ CONNECTED

BENEFITS	Industrial IP65	M12 connectors	High Sensitivity	Customizable with Javacode	PoE	Web Config. Interface

Features

- *RAIN RFID (UHF EPC Class1 Gen2, ISO 18000-63) compliant*
- *Multiregional support*
- *Four 50 Ohm TNC-RP antenna connectors*
- *Power over Ethernet interface*
- *Up to 31.5 dBm (1.4 W) output power*
- *Internal scripting engine*
- *IP65 in compact form factor*
- *PoE or external power supply*
- *M12 industrial connectors*
- *Development Kit available*

Applications

- *RAIN RFID portals for logistc*
- *Industrial automation reading points*
- *RAIN RFID tunnels*
- *Access control reading points*

Overview

The **Proton** (Model R4320P) is a rugged long range RAIN RFID reader of the easy2read© product line, well suited for industrial environment installations.

The **Proton** reader has 4 antenna ports capable of a 31.5 dBm maximum power enabling to build RAIN RFID portals for logistic. Its compact form factor makes it easy to install and the IP65 protection permits outdoor or harsh environment installations. Featuring Power Over Ethernet, RS232 and GPIOs via industry standard M12 connectors the **Proton** is an ideal choice for industrial automation and Industry 4.0 solutions.

The **Proton** is based upon an embedded Linux platform and it's easily configurable using an internal web interface. System integrators can customize the behavior of the reader installing Java code that, having access to all the RFID features and interfaces, permits a full customization.

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

Technical Specification Table

Frequency Range	• 865.600÷867.600 MHz (ETSI EN 302 208 v. 3.1.1) • 902÷928 MHz (FCC part 15.247)
RF Power	• Up to 31.5 dBm (1.4 W) conducted (ETSI) • Up to 30 dBm (1 W) conducted (FCC)
RX Sensitivity	-84 dBm – 10%PER, assuming 20 dB antenna RL @ 31.5 dBm output
Number of Channels	• 4 channels (compliant to ETSI EN 302 208 v. 3.1.1) • 50 hopping channels (compliant to FCC part 15.247)
Standard Compliance	EPC Class 1 Gen 2 - ISO18000-63
CPU	ARM9 @ 400 MHz on Atmel AT91SAM9G25
Operating System	Linux
Receiving Capability	• Gen 2 Dense Reader Mode Management • Data rate up to 400 kbit/s

Connectivity	• RS232 Serial Communication (M12 connector)
	  • Baudrate up to 115.200 kbit/s
	  • Databits: 8
	  • Stopbit: 1
	  • Parity: none
	  • Flow control: none
	• Ethernet 10/100/1000Base-T (M12 connector)
	• PoE standard IEEE 802.3af

I/O Interface	• M12 connector • 2 digital inputs optically isolated • 2 solid state photorelay outputs optically isolated (500mA max)
Antenna Connectors	4 TNC Reverse Polarity
Power Supply	• 9÷36 V DC power supply (12 W) • PoE standard IEEE 802.3af (12.95 W)
Status Indicators	Multicolour LEDs: Power, Activity, Status and Applications
IP Rating	IP65
Dimensions	• (W)131 x (L)106 x (H)50 mm³ • 5.15 x 4.17 x 1.96 inches³
Operating Temperature	-10 °C to +55 °C
Weight	530 g

Ordering Options

WR4320PXAAAA	Proton - Industrial Long Range Reader
WR4320PXDKEU	Proton - ETSI Dev. Kit
WR4320PXDKUS	Proton - FCC Dev. Kit
WALIM0000006	Proton power supply - EU
WALIM0000007	Proton power supply - US

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R4321P

Quattro

Smart 4-port RAIN RFID Long Range Reader

IMPINJ CONNECTED

BENEFITS	High Sensitivity	Customizable with Javacode	Customizable with Javacode	GP I/O	PoE	USB Host & Device

Features

- *RAIN RFID (UHF EPC Class1 Gen2, ISO 18000-63) compliant*
- *Multiregional support*
- *Four 50 Ohm TNC-RP antenna connectors*
- *Power over Ethernet interface*
- *Up to 31.5 dBm (1.4 W) output power*
- *Internal scripting engine*
- *USB host port*
- *PoE or external power supply*

Applications

- *RAIN RFID portals for logistc*
- *Industrial automation reading points*
- *RAIN RFID tunnels*
- *Access control reading points*
- *Smart shelves and smart displays*

Overview

The **Quattro** (Model R4321P) is a compact long range RAIN RFID reader of the easy2read© product line, well suited for retail and warehousing installations.

The **Quattro** reader has 4 antenna ports capable of a 31.5 dBm maximum power enabling to build RAIN RFID portals for long range reading. Its slim form factor makes it easy to install even when limited space is available. It offers the Ethernet (PoE) and USB communication interface in order to simplify the installation both on large and single read point solutions. The Power over Ethernet capability permits to provide power and to communicate with the reader with a single cable.

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 **Quattro** reader in a powerful and versatile identification platform.

The **Quattro** is based upon an embedded Linux platform and it's easily configurable using an internal web interface. System integrators can customize the behavior of the reader installing Java code that, having access to all the RFID features and interfaces, permits a full customization.

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

Technical Specification Table

Frequency Range	• 865.600÷867.600 MHz (ETSI EN 302 208 v. 3.1.1) • 902÷928 MHz (FCC part 15.247)
RF Power	• Up to 31.5 dBm (1.4 W) conducted (ETSI) • Up to 30 dBm (1 W) conducted (FCC)
RX Sensitivity	-84 dBm – 10%PER, assuming 20 dB antenna RL @ 31.5 dBm output
Number of Channels	• 4 channels (compliant to ETSI EN 302 208 v. 3.1.1) • 50 hopping channels (compliant to FCC part 15.247)
Standard Compliance	EPC Class 1 Gen 2 - ISO18000-63
CPU	ARM9 @ 400 MHz on Atmel AT91SAM9G25
Operating System	Linux
Receiving Capability	• Gen 2 Dense Reader Mode Management • Data rate up to 400 kbit/s

Connectivity	• USB Interface: USB 2.0 High Speed (480 Mbit/s) device port (USB mini connector)
	• Virtual COM port parameters:
	  • Baudrate up to 115.200 kbit/s
	  • Databits: 8
	  • Stopbit: 1
	  • Parity: none
	  • Flow control: none
	• Ethernet 10/100/1000Base-T (RJ45)
	• PoE standard IEEE 802.3af

I/O Interface	• 10 Poles Terminal Block with screw connector • 2 digital inputs optically isolated • 2 solid state photorelay outputs optically isolated (500mA max)
Antenna Connectors	4 TNC Reverse Polarity
Power Supply	• 5 V DC power supply (12 W) • PoE standard IEEE 802.3af (12.95 W)
Status Indicators	Multicolour LEDs: Power, Activity, Status and Applications
IP Rating	IP30
Dimensions	• (W)210 x (L)140 x (H)27 mm^3 • 8.27 x 5.51 x 1.06 $inches^3$
Operating Temperature	-10 °C to +55 °C
Weight	740 g

Ordering Options

WR4321PXAAAA	Quattro - Smart Long Range Reader
WR4321PXDKEU	Quattro - ETSI Dev. Kit
WR4321PXDKUS	Quattro - FCC Dev. Kit
WALIM0000005	Quattro power supply

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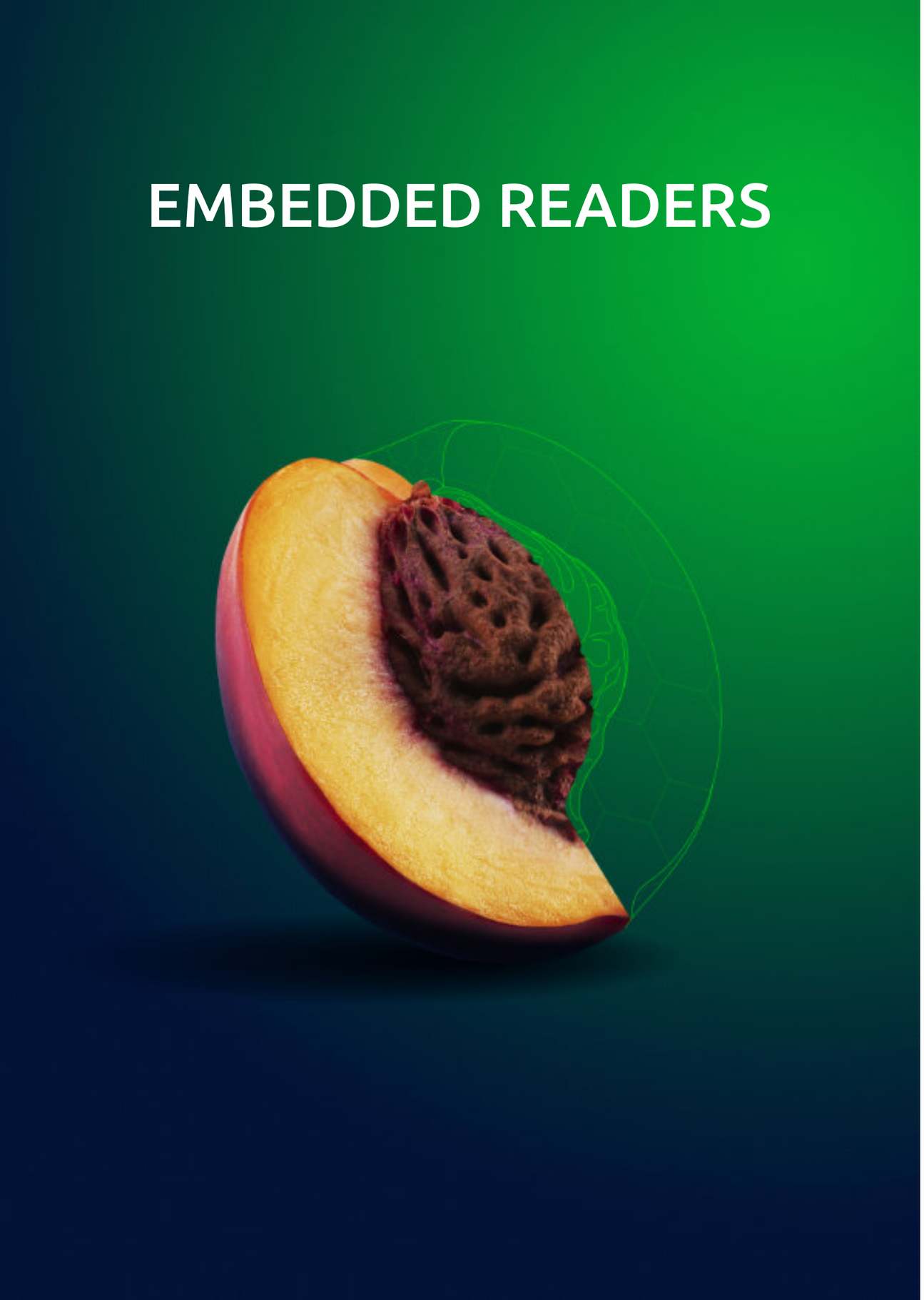
EMBEDDED READERS



Embedded Readers

AIN RFID technology is widely used in devices like mobile computers, PDAs, handhelds, label printers and applicators, desktop readers, informative kiosks, industrial readers and smart shelves.

CAEN RFID embedded readers are the best choice for those companies wishing to integrate the RAIN RFID technology in their existing or new products.

Our embedded readers product line includes modules in different size, power consumption and read distance.

R4320C

Hadron

High Performance 4-port Embedded Reader

BENEFITS	High sensitivity	4-antenna ports	Long range readings	USB	GP I/O	Serial interface

Features

- *RAIN RFID (UHF EPC Class1 Gen2, ISO 18000-63) compliant*
- *Multiregional support*
- *Four 50 Ohm MMCX antenna connectors*
- *Up to 31.5 dBm (1.4 W) output power*
- *USB Full Speed interface*
- *Serial interface (TTL Levels)*

Applications

- *High performance handheld and sleds*
- *Points of sale readers*
- *Self-service kiosk*
- *Industrial automation readers*
- *Full portal readers*
- *Long range reading points*

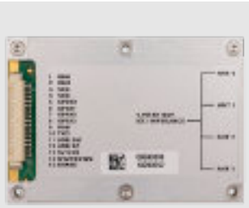
Overview

The **Hadron** (Model R4320C), embedded module of the easy2read© product line, is a RAIN RFID multiregional compact reader for high performance applications. With programmable output power from 10 dBm to 31.5 dBm, the reader reaches top reading performances being able to detect RAIN tags from a distance of 9 m (30 feet) depending on the antenna and the tag used.

The radio frequency core of the module allows to achieve fast reading/writing operations and to work in dense reader and dense tag environments for top-class rated performances.

Due to its compact form factor, the **Hadron** module is specifically designed to be easily embedded in battery powered devices such as high performance handhelds and sleds. Thanks to the 4-antenna ports and the high power capability, the **Hadron** module is the perfect RAIN RFID core component to design full size readers for portals, industrial automation readers or any RFID device requiring long reading distances.

The **Hadron** reader 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.



Technical Specification Table

Frequency Range	• 865.600÷867.600 MHz (ETSI EN 302 208 v. 3.1.1) • 902÷928 MHz (FCC part 15.247)
RF Power	• Up to 31.5 dBm (1.4 W) conducted (ETSI) • Up to 30 dBm (1 W) conducted (FCC)
RX Sensitivity	-84 dBm – 10%PER, assuming 20 dB antenna RL @ 31.5 dBm output
Output Power Accuracy	± 1 dB
Antenna VSWR Requir.	< 2:1 for optimal performance
Antenna Connectors	4 MMCX jacks
Frequency Tolerance	± 10 ppm over the entire temperature range
Number of Channels	• 4 channels (compliant to ETSI EN 302 208 v. 3.1.1) • 50 hopping channels (compliant to FCC part 15.247)
Standard Compliance	EPC Class 1 Gen 2 - ISO18000-63
Receiving Capability	• Gen 2 Dense Reader Mode Management • Data rate up to 400 kbit/s
Forward Link Charact.	• PR-ASK 40 kbit/s • DSB-ASK 160 kbit/s (FCC only)
Return Link Charact.	• Miller encoding: M=4 - LF=250 kHz • Miller encoding: M=4 - LF=300 kHz • FM0 400 kbit/s (FCC only)

Connectivity	• USB Interface: USB 2.0 Full Speed (12 Mbit/s) device port
	• UART Serial Port:
	  • Baudrate up to 115.200 kbit/s
	  • 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 out @ 3 mA • 5 V tolerant
Power Supply	• 5 V DC ÷ 5.5 V DC • 8.5 W peak power consumption (TX/RX active)
Dimensions	• (W)60 x (L)42 x (H)7.5 mm^3 • 2.36 x 1.65 x 0.29 $inches^3$
Operating Temperature	-20 °C to +60 °C
Weight	35 g

Ordering Options

WR4320CXAAAA	Hadron - Hi-Perf. Embedded Reader
WR4320CXDKEU	Hadron - ETSI Dev. Kit
WR4320CXDKUS	Hadron - FCC Dev. Kit

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R7100C

Lepton[7]

30dBm 1-Port
RAIN RFID Reader Module

BENEFITS	Ultra compact size	High Sensitivity	Surface mount device (SMD)	Serial interface		

Features

- *RAIN RFID (UHF EPC Class1 Gen2, ISO 18000-63) compliant*
- *Multiregional support*
- *Ultra compact size*
- *Up to 30 dBm (1 W) 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[7]** (Model R7100C), 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).

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 E710** 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[7]** inside the new small form factor industrial handhelds, smartphone accessories and other compact form factor devices.

The **Lepton[7]** 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[7]** 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. 3.1.1) • 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	• -85 dBm - 10%PER, assuming 20 dB antenna RL @ 30 dBm output • -81 dBm - 1%PER, assuming 10 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. 3.1.1) • 50 hopping channels (compliant to FCC part 15.247)
Standard Compliance	EPC Class 1 Gen 2 - ISO18000-63
Connectivity	• UART Serial Port: • Baudrate from 9.600 to 921.600 kbit/s, default 115.200 kbit/s • 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	5 V DC ± 5%
Power Consumption	• 1.4 A @ 5 V - RF out = 30 dBm (TBC) • 10 mA in idle mode - Ready to receive commands
Dimensions	• (W)29 x (L)32 x (H)3.8 mm^3 • 1.14 x 1.26 x 0.15 $inches^3$
Package Type	32 pin surface mount module (SMT compatible)
Operating Temperature	-20 °C to +70 °C
Weight	4.6 g

Ordering Options

WR7100CXAAAA	Lepton7 - 30dBm Reader Module		
WRHML37XEVBX	R1271, R3100, R7100 eval. board		

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R1271C

Hadron$_{mini}$

High Performance 1-port Embedded Reader

BENEFITS	Ultra compact size	High Sensitivity	Surface mount device (SMD)	Serial interface		

Features

- *RAIN RFID (UHF EPC Class1 Gen2, ISO 18000-63) compliant*
- *ETSI and FCC versions available*
- *Ultra compact size*
- *Up to 27 dBm (500 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 **Hadron$_{mini}$** (Model R1271C), 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 27 dBm, the reader can detect tags at more than 3 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 R2000** chipset 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 **Hadron$_{mini}$** inside the new small form factor industrial handhelds, smartphone accessories and other compact form factor devices.

The **Hadron$_{mini}$** is available in versions for both European and US regulatory environments and so it's ideal for the integration in devices requiring compliance to different geographical regions.

The **Hadron$_{mini}$** is pin-to-pin and SW compatible with the **Impinj RS1000** and **RS500** module making it a perfect replacement for these devices.

Technical Specification Table

Frequency Range	• 865.600÷867.600 MHz (ETSI EN 302 208 v. 3.1.1) • 902÷928 MHz (FCC part 15.247)
RF Power	Configurable from 10 dBm to 27 dBm (from 10 mW to 500 mW) conducted power
RX Sensitivity	• -75 dBm - 1%PER, assuming 15 dB antenna RL @ 27 dBm output • -80 dBm - 1%PER, assuming 20 dB antenna RL @ 27 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. 3.1.1) • 50 hopping channels (compliant to FCC part 15.247)
Standard Compliance	EPC Class 1 Gen 2 - ISO18000-63
Connectivity	• UART Serial Port: • Baudrate from 9.600 to 921.600 kbit/s, default 115.200 kbit/s • 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	3.6 to 5.25 V DC
Power Consumption	• 700 mA @ 5 V - RF out = 27 dBm • 1000 mA @ 3.6 V - RF out = 27 dBm • 55 mA in idle mode - Ready to receive IRI packets - Lower latency to return to Active mode. • 10 mA in idle mode - Ready to receive IRI packets • 0.45 mA - GPIO activity or WKUP rising edge required to wakep part. • 0.08 mA - WKUP rising edge required to wakep part.
Dimensions	• (W)29 x (L)32 x (H)3.8 mm^3 • 1.14 x 1.26 x 0.15 inches^3
Package Type	32 pin surface mount module (SMT compatible)
Operating Temperature	-20 °C to +70 °C
Weight	4.6 g

Ordering Options

WR1271CXEAAA	HadronMini - Hi-Perf Emb. Reader EU
WR1271CXUAAA	HadronMini - Hi-Perf Emb. Reader US

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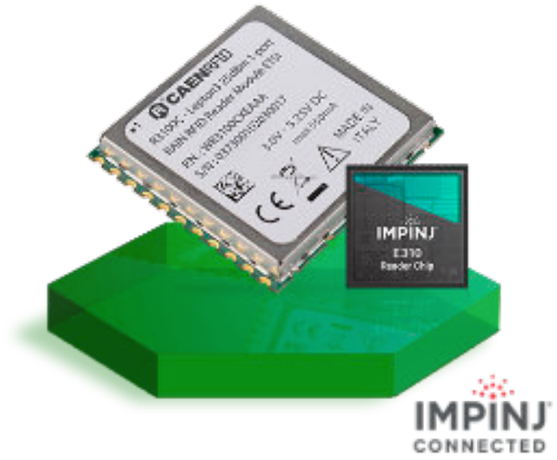
R3100C

Lepton³

25dBm 1-Port
RAIN RFID Reader Module



BENEFITS	Ultra compact size	High Sensitivity	Surface mount device (SMD)	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 **Lepton³** (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 **Lepton³** inside the new small form factor industrial handhelds, smartphone accessories and other compact form factor devices.

The **Lepton³** 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 **Lepton³** 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. 3.1.1) • 902÷928 MHz (FCC part 15.247)
RF Power	Configurable from 10 dBm to 25 dBm (from 10 mW to 316 mW) conducted power
RX Sensitivity	• -72 dBm - 10%PER, assuming 20 dB antenna RL @ 25 dBm output • -68 dBm - 1%PER, assuming 10 dB antenna RL @ 25 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. 3.1.1) • 50 hopping channels (compliant to FCC part 15.247)
Standard Compliance	EPC Class 1 Gen 2 - ISO18000-63

Connectivity	• UART Serial Port:
	  • Baudrate from 9.600 to 921.600 kbit/s, default 115.200 kbit/s
	  • 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	5 V DC ± 5%
Power Consumption	• 600 mA @ 5 V - RF out = 25 dBm (TBC) • 10 mA in idle mode - Ready to receive commands
Dimensions	• (W)29 x (L)32 x (H)3.8 mm³ • 1.14 x 1.26 x 0.15 inches³
Package Type	32 pin surface mount module (SMT compatible)
Operating Temperature	-20 °C to +70 °C
Weight	4.6 g

Ordering Options

WR3100CXAAAA	Lepton3 - 30dBm Reader Module		
WRHML37XEVBX	R1271, R3100, R7100 eval. board		

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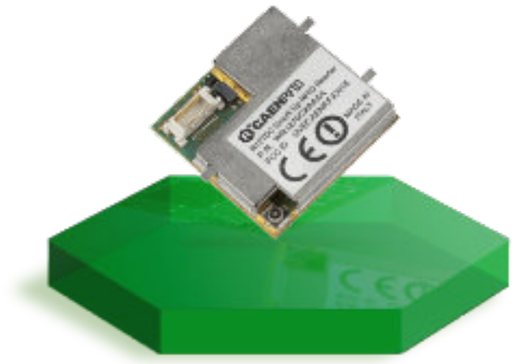
R1270C

Quark^up

500mW RAIN RFID Ultra Compact Module



BENEFITS	Compact size	Low power consumption	Multi-regional support	USB	Serial interface

Features

- *RAIN RFID (UHF EPC Class1 Gen2, ISO 18000-63) compliant*
- *Multiregional support*
- *Ultra compact size*
- *Up to 27 dBm (500 mW) output power*
- *USB Full Speed interface*
- *Serial interface (TTL Levels)*
- *Low power consumption*

Applications

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

Overview

The **Quark-Up** (Model R1270C), an embedded reader of the easy2read© product line, is a multiregional ultra compact reader for low power, high performance RAIN RFID applications.

With programmable output power in 18 steps from 10 dBm to 27 dBm, the reader can detect tags at more than 3 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 permits to achieve fast reading and to be used in dense reader and dense tag environments for top-class rated performances.

The compactness of the device and the board-to-board connector allow to embed the **QuarkUp** inside the new small form factor industrial handhelds, smartphone accessories and other compact form factor devices.

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

Technical Specification Table

Frequency Range	• 865.600÷867.600 MHz (ETSI EN 302 208 v. 3.1.1) • 902÷928 MHz (FCC part 15.247)
RF Power	Configurable in 18 levels from 10 dBm to 27 dBm (from 10 mW to 500 mW) conducted power
Output Power Accuracy	± 1 dB
Antenna VSWR Requir.	< 2:1 for optimal performance
Antenna Connectors	1 U.FL type
Frequency Tolerance	± 10 ppm over the entire temperature range
Number of Channels	• 4 channels (compliant to ETSI EN 302 208 v. 3.1.1) • 50 hopping channels (compliant to FCC part 15.247)
Standard Compliance	EPC Class 1 Gen 2 - ISO18000-63

Connectivity	• USB Interface: USB 2.0 Full Speed (12 Mbit/s) device port
	• UART Serial Port:
	  • Baudrate up to 115.200 kbit/s
	  • 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 = 3 mA max.
Power Supply	5 V DC ± 5%
Power Consumption	• 2.7 W @ RF out = 27 dBm • 1.6 W @ RF out = 23 dBm • 0.15 W in idle mode
Dimensions	• (W)25 x (L)25 x (H)6 mm^3 • 1.0 x 1.0 x 0.20 $inches^3$
Operating Temperature	-10 °C to +55 °C
Weight	5 g

Ordering Options

WR1270CXAAAA	QuarkUp - Compact Embedded Reader		
WR1270CXDKEU	QuarkUp - ETSI Dev. Kit		
WR1270CXDKUS	QuarkUp - FCC Dev. Kit		

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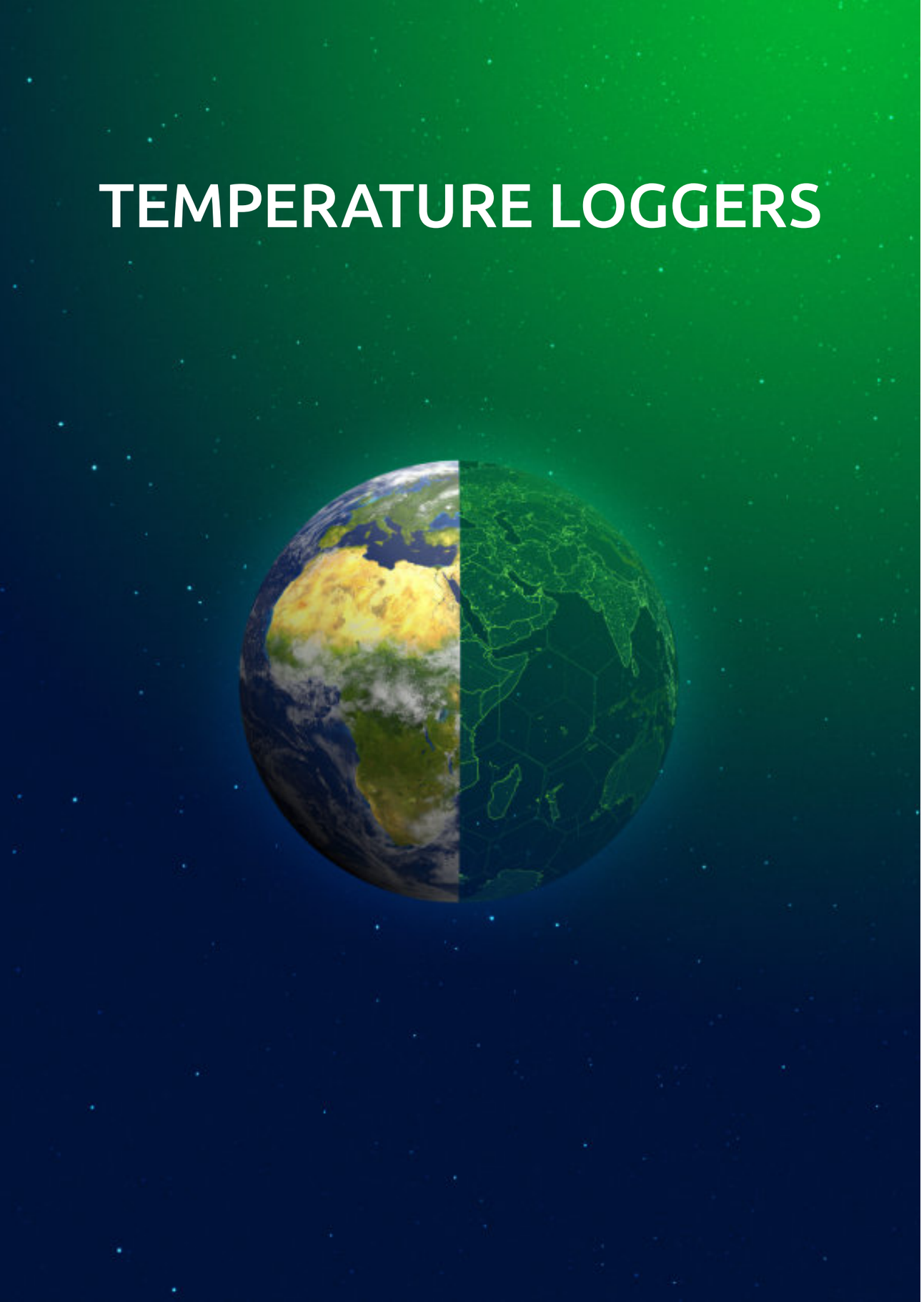
TEMPERATURE LOGGERS



Temperature Loggers

Vaccines, drugs and clinical trial products need to be shipped within a prescribed temperature range to maintain their efficacy as well as food to maintain freshness.

The benefits of applying RFID and sensors to perishable goods include improved food and drugs safety, longer vaccines and drugs efficacy, more efficient product recalls, reduced costs due to less spoilage, lower inventories, more efficient logistics, and improved customer service.

easy2log© products allow to have a complete history of the temperature exposure of your perishable goods thus allowing a complete control of the Cold Chain and to predict the remaining shelf life.

RT0012

qLog
TEMPERATURE

Dual Frequency RAIN/NFC Data Logger Tag

NFC

BENEFITS	Dual frequency RAIN/NFC	High temperature and time accuracy	Rugged and slim			

Features

- *RAIN RFID (UHF EPC Class1 Gen2, ISO 18000-63) interface*
- *NFC ISO 14443 Type A interface*
- *High temperature and time accuracy*
- *Fast samples download*
- *Configurable alarms*
- *Configurable sampling interval*
- *Long monitoring time span*

Applications

- *Fresh food*
- *Seafood*
- *Meat and poultry*
- *Milk based products*
- *Frozen food*
- *Pharmaceuticals*
- *Special chemical products*
- *Clinical trials*

Overview

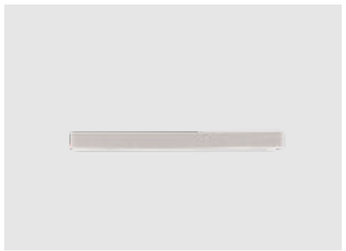
CAEN RFID **qLog**$_{\text{TEMPERATURE}}$ (RT0012) is a low cost, semi-passive NFC/RAIN RFID temperature logger that allows to monitor temperature sensitive products like perishable foods and pharmaceuticals during transportation and storage. The combination of the high resolution sensor, the large memory size and the standard NFC/RAIN RFID interfaces permit to realize effective track and trace solutions for the cold-chain.

The RAIN RFID interface is ideal for reading temperature data or alarms from distance allowing automated check-points on conveyors or through dock doors. The NFC interface permits a very easy interaction with any NFC enabled smartphone allowing the consumer to check the good condition at home.

The **qLog**$_{\text{TEMPERATURE}}$ can be configured to store temperature samples in intervals from 5 second to 18 hours in the internal memory that can contain up to 4,096 samples. The user can define up to 16 temperature ranges with independent threshold alarms for a very accurate control of the temperature excursions.

The rugged enclosure and the compact size permit to use the logger in various applications and the passive radiofrequency behaviour does not prevent air shipments.

The **qLog**$_{\text{TEMPERATURE}}$ RFID logger can be used for multiple shipments thanks to the long battery life and the reset function allowing to reduce the total cost of a single monitored shipment and anticipate the ROI of the solution.



Technical Specification Table

Frequency Range	• NFC/HF: 13.56 MHz • RAIN/UHF: 860÷930 MHz
RFID Protocols	• NFC/RFID ISO 14443 Type A Interface • RAIN : EPC Class 1 Gen 2 - ISO18000-63
Tag Type	Semipassive
Data Points	Up to 4,096 samples
Temperature Operating Range	-30 °C to +70 °C
Temperature Accuracy	± 0.5 °C
Monitoring Time Span	Up to 5 years
Time Accuracy	< 0.02% error (typical)
Read Range	• NFC/HF: up to 5 cm • RAIN/UHF: up to 5 m in free air @ 2 W ERP
Available Memory	Up to 160 bits in EPC memory bank and up to 448 bits available for user
Monitoring Delay Option	Up to 18 hours
Features	• Multiple configurable sampling interval • Temperature histogram function • Configuration and start accessible both from NFC and RAIN interface • Samples download accessible both from NFC and RAIN interface • User accessible memory shared between NFC and RAIN
Alarms	• Multiple configurable high and low temperature thresholds • Estimated Time of Arrival • Battery Level
Battery Life	1 year typical (depending on usage and operating temperature)
Battery Type	Li/MnO2 Model Renata CR2430SN
IP rating	IP68
Enclosure Material	ABS
Dimensions	• (W)92 x (L)63 x (H)6.5 mm^3 max. • 3.62 x 2.48 x 0.25 inches^3
Weight	35 g

Ordering Options

WRT0012XAAAA	qLog - Temperature version		

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RT0013

qLog
HUMIDITY

Dual Frequency RAIN/NFC Data Logger Tag

NFC

BENEFITS	Dual frequency RAIN/NFC	High temperature and time accuracy	Rugged and slim			

Features

- *RAIN RFID (UHF EPC Class1 Gen2, ISO 18000-63) interface*
- *NFC ISO 14443 Type A interface*
- *High temperature and time accuracy*
- *Fast samples download*
- *Configurable alarms*
- *Configurable sampling interval*
- *Long monitoring time span*

Applications

- *Fresh food*
- *Seafood*
- *Meat and poultry*
- *Milk based products*
- *Frozen food*
- *Pharmaceuticals*
- *Special chemical products*
- *Clinical trials*

Overview

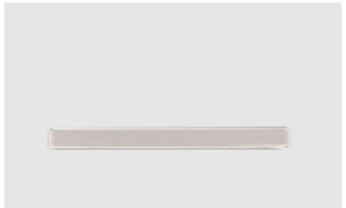
CAEN RFID **qLog**$_{\text{HUMIDITY}}$ (RT0013) is a low cost, semi-passive NFC/RAIN RFID temperature and humidity logger that allows to monitor temperature and humidity sensitive products. The combination of the high resolution sensor, the large memory size and the standard NFC/RAIN RFID interfaces permit to realize effective track and trace solutions for the cold-chain.

The RAIN RFID interface is ideal for reading temperature data or alarms from distance allowing automated check-points on conveyors or through dock doors. The NFC interface permits a very easy interaction with any NFC enabled smartphone allowing the consumer to check the good condition at home.

The **qLog**$_{\text{HUMIDITY}}$ can be configured to store temperature and humidity samples in intervals from 5 second to 18 hours in the internal memory that can contain up to 4,096 samples. The user can define up to 16 temperature and humidity ranges with independent threshold alarms for a very accurate control of the temperature and humidity excursions.

The rugged enclosure and the compact size permit to use the logger in various applications and the passive radiofrequency behaviour does not prevent air shipments.

The **qLog**$_{\text{HUMIDITY}}$ RFID logger can be used for multiple shipments thanks to the long battery life and the reset function allowing to reduce the total cost of a single monitored shipment and anticipate the ROI of the solution.



Technical Specification Table

Frequency Range	• NFC/HF: 13.56 MHz • RAIN/UHF: 860÷930 MHz
RFID Protocols	• NFC/RFID ISO 14443 Type A Interface • RAIN : EPC Class 1 Gen 2 - ISO18000-63
Tag Type	Semipassive
Data Points	Up to 4,096 samples
Temperature Range	-30 °C to +70 °C
Temperature Accuracy	±0.5 °C
Humidity Range	0 to 100% relative humidity range
Humidity Accuracy	± 3.5% rH, 20 to +80% rH
Monitoring Time Span	Up to 5 years
Time Accuracy	< 0.02% error (typical)
Read Range	• NFC/HF: up to 5 cm • RAIN/UHF: up to 5 m in free air @ 2W ERP
Available Memory	Up to 160 bits in EPC memory bank and up to 448 bits available for user
Monitoring Delay Option	Up to 18 hours
Features	• Multiple configurable sampling interval • Humidity and temperature histogram function • Configuration and start accessible both from NFC and RAIN interface • Samples download accessible both from NFC and RAIN interface • User accessible memory shared between NFC and RAIN
Alarms	• Multiple configurable high and low temperature/humidity thresholds • Estimated Time of Arrival • Battery Level
Battery Life	1 year typical (depending on usage and operating temperature)
Battery Type	Li/MnO2 Model Renata CR2430SN
IP rating	IP68
Enclosure Material	ABS
Dimensions	• (W)92 x (L)63 x (H)6.5 mm³ max. • 3.62 x 2.48 x 0.25 inches³
Weight	35 g

Ordering Options

WRT0013XAAAA	qLog - Humidity version

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RT0005

RT0005

RAIN RFID Temperature Logger Tag

BENEFITS	High temperature and time accuracy	Button and LED	Thin form factor	Configurable alarms		

Features

- *RAIN RFID (UHF EPC Class1 Gen2, ISO 18000-63) interface*
- *High temperature and time accuracy*
- *Fast samples download*
- *Button and LED for fast inspection*
- *Configurable alarms*
- *Configurable sampling interval*
- *Long monitoring time span*

Applications

- *Fresh food*
- *Seafood*
- *Meat and poultry*
- *Milk based products*
- *Frozen food*
- *Pharmaceuticals*
- *Special chemical products*
- *Clinical trials*

Overview

CAEN RFID easy2log© **RT0005** is a low cost, semi-passive UHF Logger tag that allows to monitor temperature sensitive products like perishable foods and pharmaceuticals, during transportation and storage. The combination of the high resolution sensor, the large memory size and the standard RFID interface permits to realize effective track and trace solutions for the cold-chain.

The **RT0005** can be used with standard RAIN RFID readers available on the market without requiring any additional equipment thanks to its compatibility with the EPCGlobal C1G2 and ISO18000-63 standards.

The tag can be configured to store temperature samples in intervals from 1 second to 18 hours in the internal memory that can contain up to 3,958 samples. The user can define up to 16 temperature ranges with independent threshold alarms for a very accurate control of the temperature excursions. The tag can be started either using a button or via standard RFID commands.

The tag is also able to calculate the Mean Kinetic Temperature and user configurable remaining shelf life time as well as generate alarms in case these parameters exceeded user defined thresholds.

The **RT0005** RFID logger can be used for multiple shipments thanks to the long battery life and the reset function thus allowing to reduce the total cost of the solution and anticipate the ROI.

Technical Specification Table

Frequency Range	860÷928 MHz
Tag Type	Semipassive
RFID Interface	EPC Class 1 Gen 2 - ISO18000-63
Data Points	Up to 3,958 samples
Temperature Operating Range	-20 °C to +70 °C
Temperature Accuracy	±0.5 °C typical
Monitoring Time Span	Up to 5 years
Time Accuracy	< 0.01% error
Read Range	Up to 10 m in free air @ 2W ERP
Available Memory	• Up to 512 bits in EPC memory bank • Up to 512 bits in User Memory bank
Monitoring Delay Option	Up to 18 hours
Features	• Multiple configurable sampling interval • Temperature histogram function • Mean Kinetic Temperature calculation • Shelf Life prediction (Arrhenius kinetic model with custiomer designation of time-temperature dependency) • Shelf Life monitoring (Remaining Shelf Life information available ate check points or manual interface)
Alarms	• Multiple configurable high and low temperature thresholds • Estimated Time of Arrival • Battery level • Mean Kinectic Temperature • Shelf life
Battery Life	1 year typical (depenfing on usage and operting temperature)
Battery Type	Li/MnO2 Model Renata CR2450N
IP rating	IP67
Enclosure Material	PVC Tecnovil code: 21TV306TRS00000
Dimensions	• (W)107 x (L)107 x (H)8.7 mm³ max. • 4.21 x 4.21 x 3.42 inches³
Weight	31 g

Ordering Options

WRT0005XAAAA	RT0005 - Temperature Logger Tag		

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RT0005ET

RT0005ET

RAIN RFID Temperature Logger Tag with External Probe

BENEFITS	External probe	High temperature and time accuracy	Button and LED	Thin form factor	Configurable alarms

Features

- *RAIN RFID (UHF EPC Class1 Gen2, ISO 18000-63) interface*
- *High temperature and time accuracy*
- *Fast samples download*
- *Button and LED for fast inspection*
- *Configurable alarms*
- *Configurable sampling interval*
- *Long monitoring time span*

Applications

- *Fresh food*
- *Seafood*
- *Meat and poultry*
- *Milk based products*
- *Frozen food*
- *Pharmaceuticals*
- *Special chemical products*
- *Clinical trials*

Overview

CAEN RFID easy2log© **RT0005ET** is a low cost, semi-passive UHF Logger tag that allows to monitor temperature sensitive products like perishable foods and pharmaceuticals, during transportation and storage. The combination of the high resolution sensor, the large memory size and the standard RFID interface permits to realize effective track and trace solutions for the cold-chain.

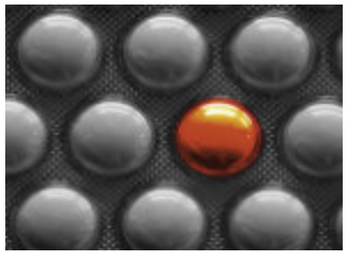
The **RT0005ET** can be used with standard RAIN RFID readers available on the market without requiring any additional equipment thanks to its compatibility with the EPCGlobal C1G2 and ISO18000-63 standards.

The tag can be configured to store temperature samples in intervals from 1 second to 18 hours in the internal memory that can contain up to 3,958 samples. The user can define up to 16 temperature ranges with independent threshold alarms for a very accurate control of the temperature excursions. The tag can be started either using a button or via standard RFID commands.

The tag is also able to calculate the Mean Kinetic Temperature and user configurable remaining shelf life time as well as generate alarms in case these parameters exceeded user defined thresholds.

In the **RT0005ET** the sensor is placed on an external probe so it is possible to measure temperature even inside a shielded box where the RFID field cannot get through.

The **RT0005ET** RFID logger can be used for multiple shipments thanks to the long battery life and the reset function thus allowing to reduce the total cost of the solution and anticipate the ROI.



Technical Specification Table

Frequency Range	860÷928 MHz
Tag Type	Semipassive
RFID Interface	EPC Class 1 Gen 2 - ISO18000-63
Data Points	Up to 3,958 samples
Temperature Operating Range	-20 °C to +70 °C
Temperature Accuracy	±0.5 °C typical
Monitoring Time Span	Up to 5 years
Time Accuracy	< 0.01% error
Read Range	Up to 8 m in free air @ 2W ERP
Available Memory	• Up to 512 bits in EPC memory bank • Up to 512 bits in User Memory bank
Monitoring Delay Option	Up to 18 hours
Features	• Multiple configurable sampling interval • Temperature histogram function • Mean Kinetic Temperature calculation • Shelf Life prediction (Arrhenius kinetic model with custiomer designation of time-temperature dependency) • Shelf Life monitoring (Remaining Shelf Life information available ate check points or manual interface)
Alarms	• Multiple configurable high and low temperature thresholds • Estimated Time of Arrival • Battery level • Mean Kinectic Temperature • Shelf life
Battery Life	1 year typical (depenfing on usage and operting temperature)
Battery Type	Li/MnO2 Model Renata CR2450N
IP rating	IP67
Enclosure Material	PVC Tecnovil code: 21TV306TRS00000
Dimensions	• (W)107 x (L)107 x (H)8.7 mm³ max. • 4.21 x 4.21 x 3.42 inches³
Probe Dimensions	• Length: 50.8 mm (2.00 inches) • Diameter: 6.35 mm (0.25 inches)
Weight	85 g

Ordering Options

WRT0005ETAAA	RT0005 - Temperature Logger Tag		

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A927Z

A927Z

Rugged RAIN RFID Temperature Logger Tag

BENEFITS	Rugged	High temperature and time accuracy				

Features

- *RAIN RFID (UHF EPC Class1 Gen2, ISO 18000-63) interface*
- *High temperature and time accuracy*
- *Fast samples download*
- *Configurable alarms*
- *Configurable sampling interval*
- *Long monitoring time span*

Applications

- *Fresh food*
- *Seafood*
- *Meat and poultry*
- *Milk based products*
- *Frozen food*
- *Pharmaceuticals*
- *Special chemical products*
- *Clinical trials*

Overview

CAEN RFID easy2log© **A927Z** is a low cost, ruggedized, semipassive RAIN RFID logger tag that allows to monitor temperature sensitive products like perishable foods and pharmaceuticals, during transportation and storage. The combination of the high resolution sensor, the large memory size and the standard RFID interface permits to realize effective track and trace solutions for the cold-chain.

The **A927Z** can be used with standard RAIN RFID readers available on the market without requiring any additional equipment thanks to its compatibility with the EPCGlobal C1G2 and ISO18000-63 standards.

The tag can be configured to store temperature samples in intervals from 8 seconds to 18 hours in the internal memory that can contain up to 8,000 samples. The user can define alarms for high and low temperature thresholds for an accurate control of the temperature excursions.

The rugged enclosure of this logger make it the perfect choice for the cold-chain monitoring in harsh environment or in presence of strong vibration.

The **A927Z** RFID logger can be used for multiple shipments thanks to the long battery life and the reset function thus allowing to reduce the total cost of the solution and anticipate the ROI.

Technical Specification Table

Frequency Range	860÷928 MHz
Tag Type	Semipassive
RFID Interface	EPC Class 1 Gen 2 - ISO18000-63
Data Points	Up to 8,000 samples
Temperature Operating Range	-20 °C to +70 °C
Temperature Accuracy	±0.5 °C typical
Monitoring Time Span	Up to 5 years
Time Accuracy	< 0.01% error
Read Range	• Up to 10 m in free air @ 2W ERP • Up to 2.5 m on metal @ 2W ERP
Available Memory	• 512 bits in EPC memory bank • 17,484 bytes in User memory bank • 208 bits in TID memory bank • 512 bits in Reserved memory bank
Alarms	Multiple configurable high and low temperature thresholds
Operating Temperature	-30 °C to +70 °C
Storage Temperature	-40 °C to +85 °C
Absolute Temperature Range	-40 °C to +70 °C
Temperature Resolution	±0.1 °C
Battery Life	3 year typical (depenfing on usage and operting temperature)
Battery Type	Li/MnO2 Model Renata CR2450N
IP rating	IP67
Dimensions	• (W)130.4 x (L)23.4 x (H)12.7 mm^3 max. • 51.33 x 9.21 x 5.00 $inches^3$
Weight	35 g

Ordering Options

WA927ZAAAAAA	A927Z - Rugged Temp. Logger Tag		

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A927ZET

A927ZET

Rugged RAIN RFID Temperature Logger Tag with External Probe

BENEFITS	External probe	Rugged	High temperature and time accuracy			

Features

- *RAIN RFID (UHF EPC Class1 Gen2, ISO 18000-63) interface*
- *High temperature and time accuracy*
- *Fast samples download*
- *Configurable alarms*
- *Configurable sampling interval*
- *Long monitoring time span*

Applications

- *Fresh food*
- *Seafood*
- *Meat and poultry*
- *Milk based products*
- *Frozen food*
- *Pharmaceuticals*
- *Special chemical products*
- *Clinical trials*

Overview

CAEN RFID easy2log© **A927ZET** is a low cost, ruggedized, semipassive RAIN RFID logger tag that allows to monitor temperature sensitive products like perishable foods and pharmaceuticals, during transportation and storage. The combination of the high resolution sensor, the large memory size and the standard RFID interface permits to realize effective track and trace solutions for the cold-chain.

The **A927ZET** can be used with standard RAIN RFID readers available on the market without requiring any additional equipment thanks to its compatibility with the EPCGlobal C1G2 and ISO18000-63 standards.

The tag can be configured to store temperature samples in intervals from 8 seconds to 18 hours in the internal memory that can contain up to 4,096 samples per sensor. For each sensor the user can define alarms for high and low temperature thresholds for an accurate control of the temperature excursions.

The rugged enclosure of this logger make it the perfect choice for the cold-chain monitoring in harsh environment or in presence of strong vibration while the external sensor probe allows to monitor the internal and the external temperature of a box.

The **A927ZET** RFID logger can be used for multiple shipments thanks to the long battery life and the reset function thus allowing to reduce the total cost of the solution and anticipate the ROI.

Technical Specification Table

Frequency Range	860÷928 MHz
Tag Type	Semipassive
RFID Interface	EPC Class 1 Gen 2 - ISO18000-63
Data Points	Up to 4,096 samples per sensor
Temperature Operating Range	-20 °C to +70 °C
Temperature Accuracy	±0.5 °C typical
Monitoring Time Span	Up to 5 years
Time Accuracy	< 0.01% error
Read Range	• Up to 10 m in free air @ 2W ERP • Up to 2.5 m on metal @ 2W ERP
Available Memory	• 512 bits in EPC memory bank • 17,484 bytes in User memory bank • 208 bits in TID memory bank • 512 bits in Reserved memory bank
Alarms	Multiple configurable high and low temperature thresholds
Operating Temperature	• -30 °C to +70 °C (internal sensor) • -20 °C to +70 °C (external sensor)
Storage Temperature	• -40 °C to +85 °C (internal sensor) • -40 °C to +85 °C (external sensor)
Absolute Temperature Range	• -40 °C to +70 °C (internal sensor) • -20 °C to +70 °C (external sensor)
Temperature Resolution	± 0.1 °C
Battery Life	3 year typical (depenfing on usage and operting temperature)
Battery Type	Li/MnO2 Model Renata CR2450N
IP rating	IP67
Dimensions (external probe excluded)	• (W)130.4 x (L)23.4 x (H)12.7 mm^3 max. • 51.33 x 9.21 x 5.00 $inches^3$
Weight	48 g

Ordering Options

WA927ZETAAAA	A927ZET - with External Probe		

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READER ACCESSORIES

Reader Accessories

CAEN RFID offers a set off accessories to enrich the features and performance of RAIN RFID readers.

Available accessories include RFID antennas, I/O interfaces, antenna multiplexer, development boards, antenna cables and power supplies.

WANTENNAX019

WANTENNAX019

Circular Polarized Antenna
8.5dBc - ETSI

Overview

This antenna is designed for RAIN RFID long range application like portals, vehicles identification, access control or waste management.

Thanks to the circular polarization, the tag read range is independent from the relative tag – antenna orientation.

The enclosure is IP65 rated for outdoor installation.

Features

- *Designed for RAIN RFID long range applications*
- *Frequency Range 865÷868 MHz*
- *Gain 8.5 dBc*
- *Right Hand Circularly Polarized (RHCP)*

Technical Specification Table

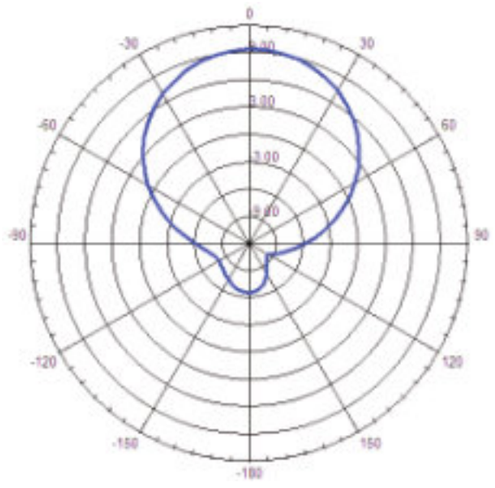
Frequency Range	865÷868 MHz (ETSI EN 302 208 v. 3.1.1)
Polarization	Right Hand Circularly Polarized (RHCP)
Gain	8.5 dBc
Half-Power Beamwidth (3dB)	65° Elevation - 65° Azimuth (3dB)
Front-to-Back Ratio	17 dB
Axial Ratio at Boresight	2 dB
VSWR	1.1:1
Nominal Impedance	50 Ohm
Power	2 W ERP (ETSI EN 302 208 v3.1.1) - Max. 5 W
Lightning Protection	Capacitor feed system
Dimensions	• (L) 270 x (W) 270 x (D) 75 mm³ • 10.63 x 10.63 x 2.95 inches³
Weight	1.2 kg
Connector	N-m with 30 cm RG58 cable
Radome	Polystyrene plastic (UV rating)
Mounting Kit	Aluminium (for pole)
IP Rating	IP65
Operating Temperature	-30 °C to +60 °C
Storage Temperature	-30 °C to +60 °C
Wind Surface	0.066 m²

Ordering Options

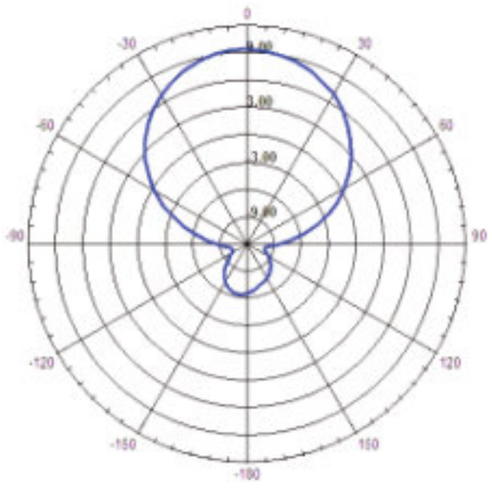
WANTENNAX019	ETSI Circular Polarized Antenna 8.5 dBc

Details

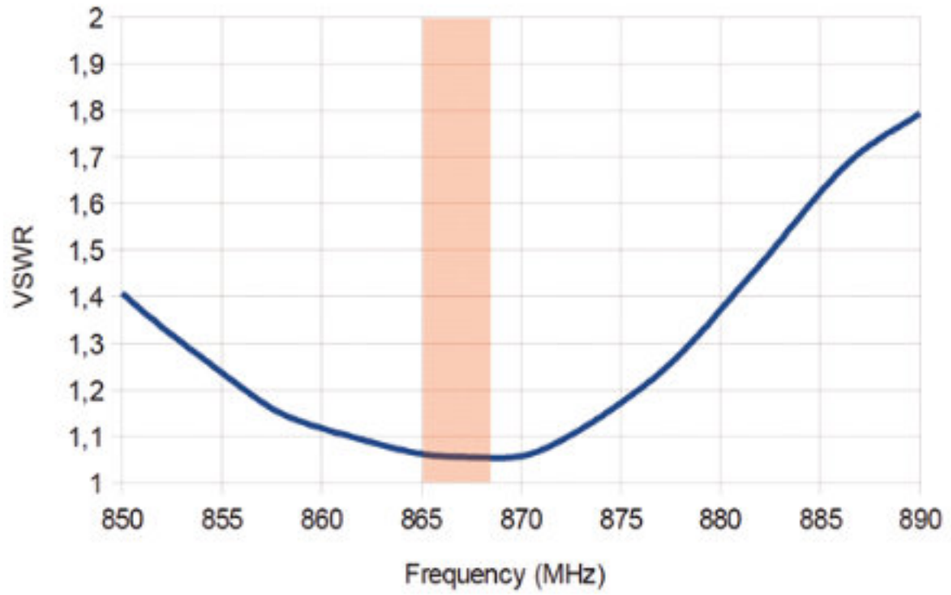
Total Gain - Azimuth



Total Gain - Elevation



VSWR vs Frequency



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WANTENNAX020

WANTENNAX020

Circular Polarized Antenna 8.5dBc - FCC

Overview

This antenna is designed for RAIN RFID long range application like portals, vehicles identification, access control or waste management.

Thanks to the circular polarization, the tag read range is independent from the relative tag – antenna orientation.

The enclosure is IP65 rated for outdoor installation.

Features

- *Designed for RAIN RFID long range applications*
- *Frequency Range 902÷928 MHz*
- *Gain 8.5 dBc*
- *Right Hand Circularly Polarized (RHCP)*

Technical Specification Table

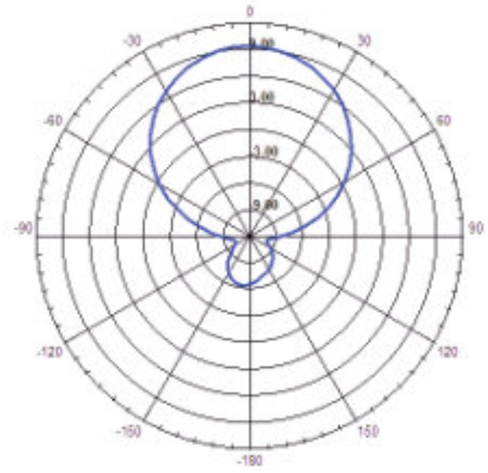
Frequency Range	902÷928 MHz (FCC part 15.247)
Polarization	Right Hand Circularly Polarized (RHCP)
Gain	8.5 dBc
Half-Power Beamwidth (3dB)	65° Elevation - 65° Azimuth (3dB)
Front-to-Back Ratio	15 dB
Axial Ratio at Boresight	2.5 dB
VSWR	1.3:1
Nominal Impedance	50 Ohm
Power	2 W EIRP (FCC part 15.247) - Max. 5 W
Lightning Protection	Capacitor feed system
Dimensions	• (L) 270 x (W) 270 x (D) 75 mm³ • 10.63 x 10.63 x 2.95 inches³
Weight	1.2 kg
Connector	N-m with 30 cm RG58 cable
Radome	Polystyrene plastic (UV rating)
Mounting Kit	Aluminium (for pole)
IP Rating	IP65
Operating Temperature	-30 °C to +60 °C
Storage Temperature	-30 °C to +60 °C
Wind Surface	0.066 m²

Ordering Options

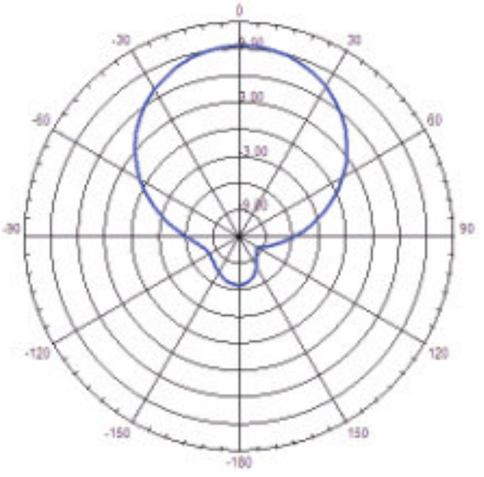
WANTENNAX020	FCC Circular Polarized Antenna 8.5 dBc

Details

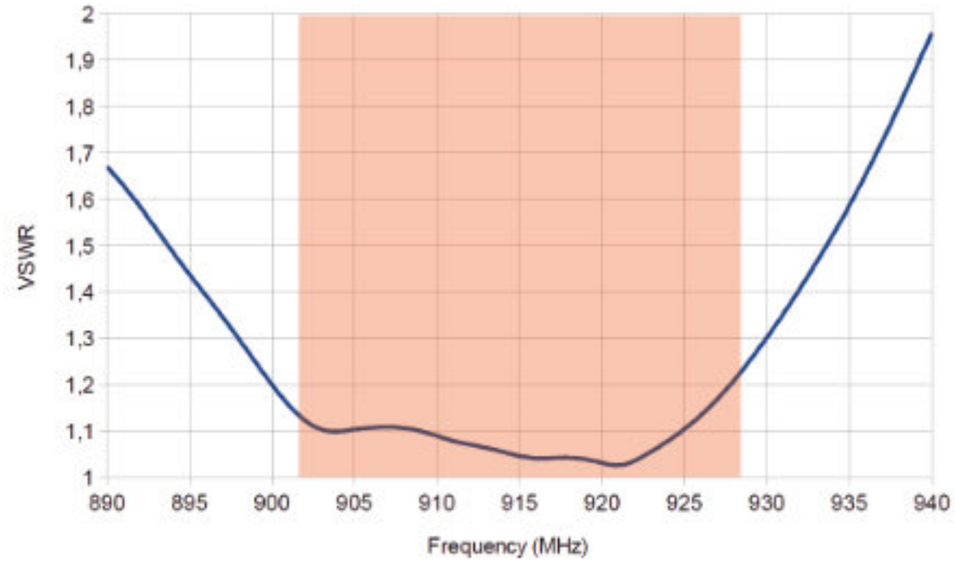
Total Gain - Azimuth



Total Gain - Elevation



VSWR vs Frequency



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WANT020IP

Quad^{IP}

Circular Polarized Compact Antenna (ETSI)

Overview

The **Quad^{IP}** is a medium-short range RAIN RFID antenna in a compact and robust form factor.

The **Quad^{IP}** antenna is well suited for building small RFID gates, read point for access control or to be installed on conveyors in industrial environments.

The high IP rating (IP67) permits to install the **Quad^{IP}** antenna for outdoor solution or in harsh environments.

Thanks to the circular polarization, the reading range is not affected by the tag orientation.

Features

- *Designed for RAIN RFID short/medium range applications*
- *Frequency Range 865.6÷867.6 MHz*
- *Gain 0.2 dBi*
- *Circular Polarization*

Technical Specification Table

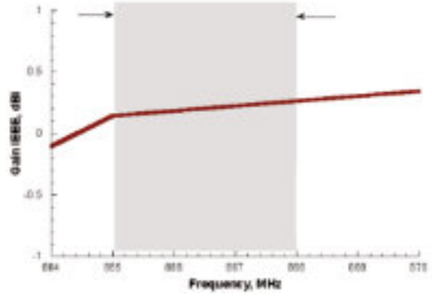
Frequency Range	865.6÷867.6 MHz (ETSI EN 302 208 v. 3.1.1)
Polarization	Right Hand Circularly Polarized (RHCP)
Gain	0.2 dBi typical
Axial Ratio	1 dB typical
VSWR	<1.5:1
Nominal Impedance	50 Ohm
Dimensions	• (L) 100 x (W) 100 x (D) 25 mm^3 • 3.94 x 3.94 x 0.98 inches^3
RF Connector	SMA jack female, straight
Radome	Flame-resistant ABS UL94V-0
Color	Charcoal gray
Weight	140 g
Operating Temperature	-25 °C to +70 °C -13 °F to +158 °F
IP Rating	IP67
Material Substance Compliance	RoHS compliant

Ordering Options

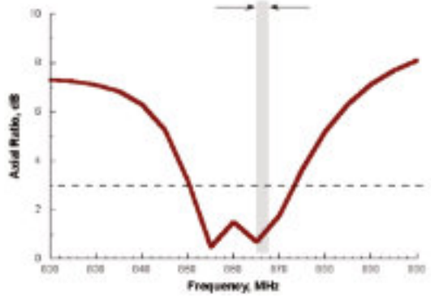
WANT020IPXXA	QuadIP - ETSI

Details

Antenna Gain

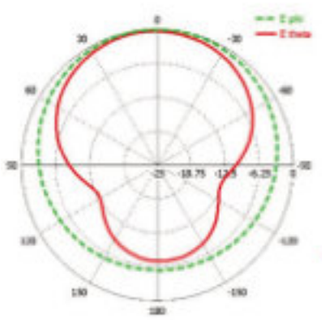


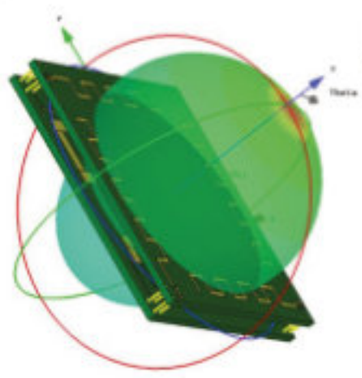
Axial Ratio



Radiation Patterns

phi = 0





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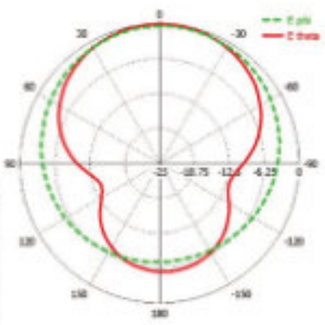

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WANT021IP

Quad^{IP}

Circular Polarized Compact Antenna (FCC)

Overview

The **Quad^{IP}** is a medium-short range RAIN RFID antenna in a compact and robust form factor.

The **Quad^{IP}** antenna is well suited for building small RFID gates, read point for access control or to be installed on conveyors in industrial environments.

The high IP rating (IP67) permits to install the **Quad^{IP}** antenna for outdoor solution or in harsh environments.

Thanks to the circular polarization, the reading range is not affected by the tag orientation.

Features

- *Designed for RAIN RFID short/medium range applications*
- *Frequency Range 902÷928 MHz*
- *Gain 0.7 dBi*
- *Circular Polarization*

Technical Specification Table

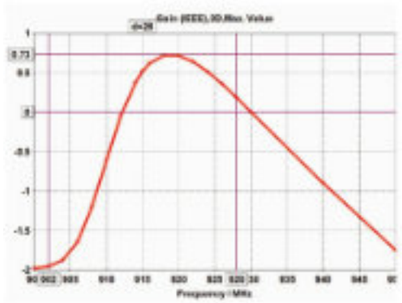
Frequency Range	902÷928 MHz (FCC part 15.247)
Polarization	Right Hand Circularly Polarized (RHCP)
Gain	0.7 dBi typical
Axial Ratio	1 dB typical
VSWR	<1.5:1
Nominal Impedance	50 Ohm
Dimensions	• (L) 100 x (W) 100 x (D) 25 mm^3 • 3.94 x 3.94 x 0.98 inches^3
RF Connector	SMA jack female, straight
Radome	Flame-resistant ABS UL94V-0
Color	Charcoal gray
Weight	140 g
Operating Temperature	-25 °C to +70 °C -13 °F to +158 °F
IP Rating	IP67
Material Substance Compliance	RoHS compliant

Ordering Options

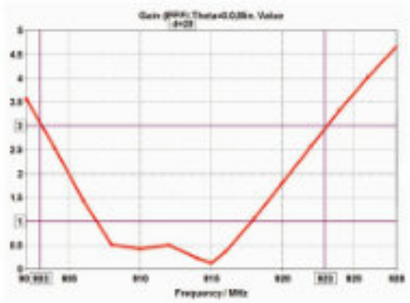
WANT021IPXXA	QuadIP - FCC

Details

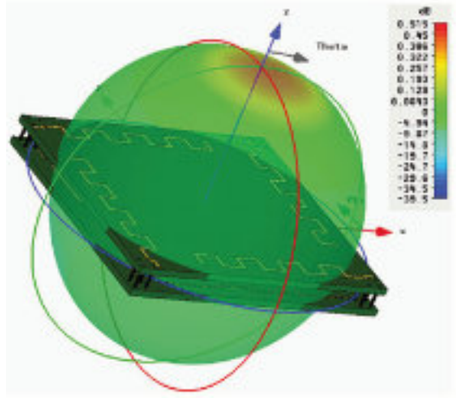
Antenna Gain

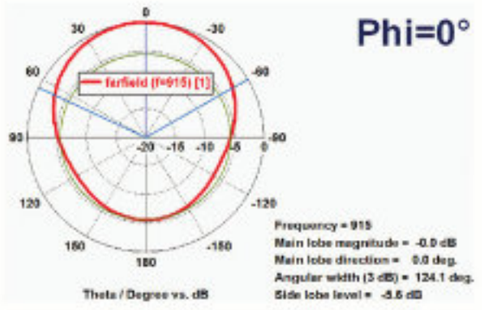


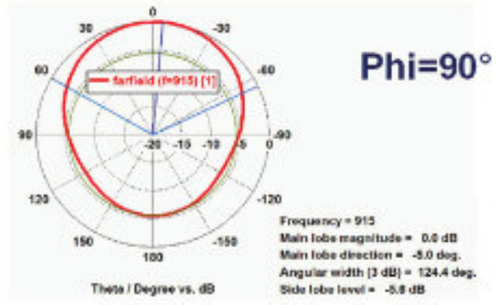
Axial Ratio



Radiation Patterns







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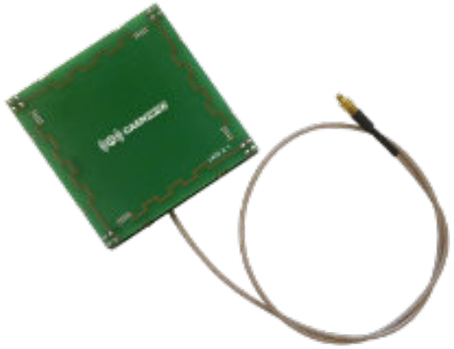
WANT020

Quad

Circular Polarized Quadrifilar Antenna (ETSI)



Overview

High performing quadrifilar, circular polarized RAIN RFID antenna in compact size. The **Quad** antenna is well suited to be integrated in long reading range portable devices.

The **Quad** antenna can be also used to implement compact fixed reading point with medium reading range capability.

Thanks to the circular polarization, the reading range is not affected by the tag orientation.

Features

- *Designed for RAIN RFID portable and short/medium range applications*
- *Frequency Range 865.6÷867.6 MHz*
- *Gain 0.2 dBi*
- *Circular Polarization*

Technical Specification Table

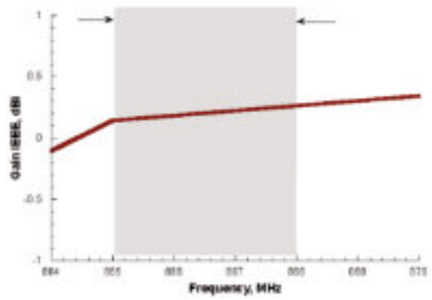
Frequency Range	865.6÷867.6 MHz (ETSI EN 302 208 v. 3.1.1)
Polarization	Right Hand Circularly Polarized (RHCP)
Gain	0.2 dBi typical
Axial Ratio	1 dB typical
VSWR	<1.5:1
Nominal Impedance	50 Ohm
Dimensions	(L) 60 x (W) 60 x (D) 9 mm³ 2.36 x 2.36 x 0.35 inches³
RF Connector	• SMA plug male, straight (Mod. WANT020XASMA) • MMCX plug male, straight (Mod. WANT020XMMCX) • U.FL plug male, socket (Mod. WANT020XAUFL) • RP-TNC plug male, straight (Mod. WANT020XTNCR)
RF Cable	• Diameter: 2.6 mm; Length: 50 cm (Mod. WANT020XASMA) • Diameter: 1.8 mm; Length: 40 cm (Mod. WANT020XMMCX) • Diameter: 1.4 mm; Length: 20 cm (Mod. WANT020XAUFL) • Diameter: 2.5 mm; Length: 100 cm (Mod. WANT020XTNCR)

Ordering Options

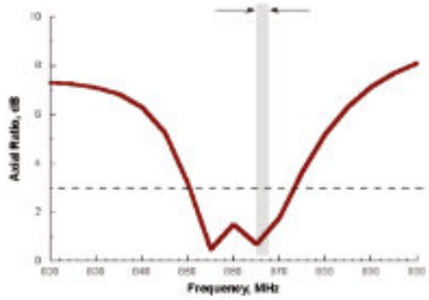
WANT020XASMA	Quad - SMA Connector - ETSI	**WANT020XAUFL**	Quad - U.FL Connector - ETSI
WANT020XMMCX	Quad - MMCX Connector - ETSI	**WANT020XTNCRP**	Quad - RP-TNC Connector - ETSI

Details

Antenna Gain

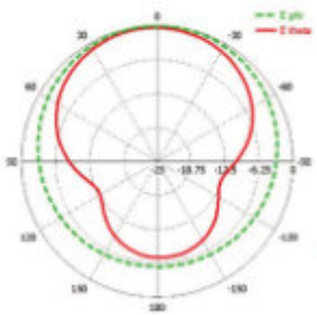


Axial Ratio

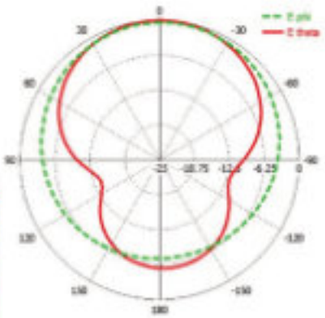


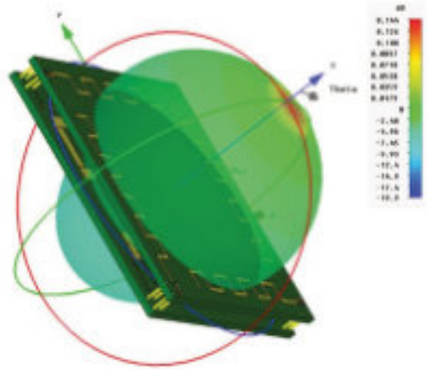
Radiation Patterns

phi = 0

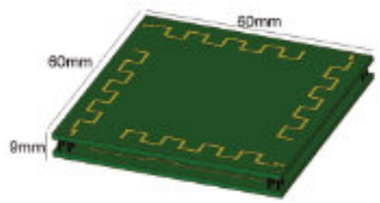


phi = 90





Mechanical Dimensions



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WANT021

Quad

Circular Polarized Quadrifilar Antenna (FCC)

Overview

High performing quadrifilar, circular polarized RAIN RFID antenna in compact size. The **Quad** antenna is well suited to be integrated in long reading range portable devices.

The **Quad** antenna can be also used to implement compact fixed reading point with medium reading range capability.

Thanks to the circular polarization, the reading range is not affected by the tag orientation.

Features

- *Designed for RAIN RFID long range applications*
- *Frequency Range 902÷928 MHz*
- *Gain 0.7 dBi*
- *Right Hand Circularly Polarized (RHCP)*

Technical Specification Table

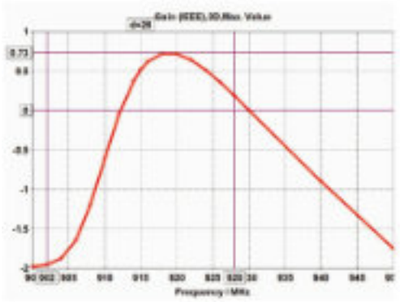
Frequency Range	902÷928 MHz (FCC part 15.247)
Polarization	Right Hand Circularly Polarized (RHCP)
Gain	0.7 dBi typical
Axial Ratio	1 dB typical
VSWR	<1.5:1
Nominal Impedance	50 Ohm
Dimensions	• (L) 60 x (W) 60 x (D) 9 mm³ • 2.36 x2.36 x 0.35 inches³
RF Connector	• SMA plug male, straight (Mod. WANT021XASMA) • MMCX plug male, straight (Mod. WANT021XMMCX) • U.FL plug male, socket (Mod. WANT021XAUFL) • RP-TNC plug male, straight (Mod. WANT021XTNCR)
RF Cable	• Diameter: 2.6 mm; Length: 50 cm (Mod. WANT021XASMA) • Diameter: 1.8 mm; Length: 40 cm (Mod. WANT021XMMCX) • Diameter: 1.4 mm; Length: 20 cm (Mod. WANT021XAUFL) • Diameter: 2.5 mm; Length:100 cm (Mod. WANT021XTNCR)

Ordering Options

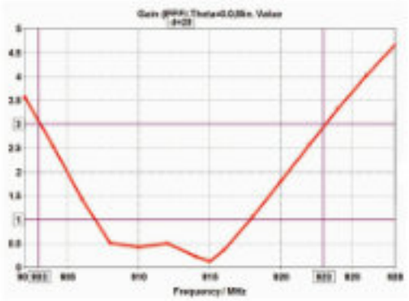
WANT021XASMA	Quad - SMA Connector - FCC	**WANT021XAUFL**	Quad - U.FL Connector - FCC
WANT021XMMCX	Quad - MMCX Connector - FCC	**WANT021XTNCRP**	Quad - RP-TNC Connector - FCC

Details

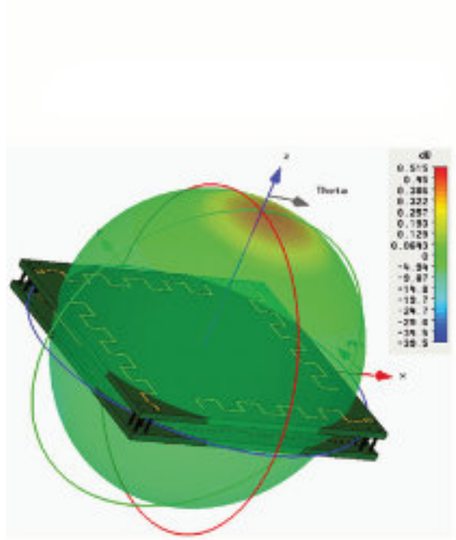
Antenna Gain

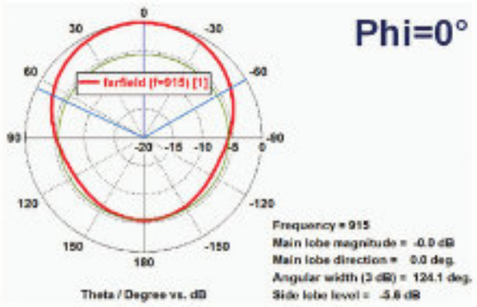


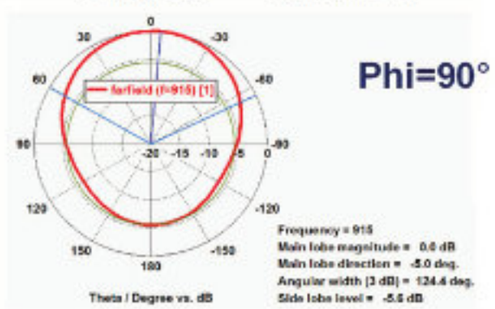
Axial Ratio



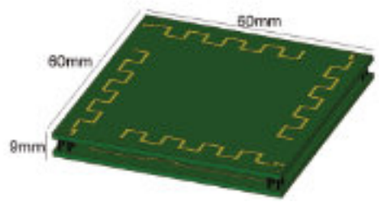
Radiation Patterns







Mechanical Dimensions



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RA0003

RA0003

Antenna Multiplexer

Overview

The **RA0003** module is a 1 to 4 UHF antenna multiplexer that allows to increase the number of antenna ports of CAEN RFID readers. On single atenna readers (i.e. Quark or QuarkUp) it permits to implement low/medium range portals or other applcations requiring up to 4 antennas. On 4 port readers it permits to implement smart shelves or other application requiring up to 16 antennas.

RA0003 has SMA RF connectors, is able to manage up to 2 W RF power and can be used in the whole range of UHF RFID worldwide band.

The module has anextended supply voltage range (9 V DC ÷ 36 V DC) and TTL level address signals.

Five LEDs provide the user with information about module operation.

Features

- *1 to 4 antenna multiplexer*
- *Covers the 860÷960 Mhz freq. range*
- *9V DC to 36 V DC supply voltage range*
- *SMA RF connectors*
- *TTL level address signals*

Technical Specification Table

Frequency Range	860÷960 MHz
RF Port Impedance	50 Ohm
RF Power	Up to 2 W
Insertion Loss	1.5 dB typical
Return Loss	22 dB typical
Isolation	27 dB Typical
RF Connectors Type	SMA jack
Power Supply	• 9 V DC ÷ 36 V DC • 350 mW max.
Control Voltage Range	9 V DC ÷ 36 V DC
User Interface	• Green LED: power • Yellow LEDs: selected antenna information
Operating Temperature	-20 °C to +70 °C
IP Rating	IP30
Dimensions	• (L) 65 x (W) 93 x (D) 35 mm³ • 2.6 x 3.7 x 1.4 inches³
Weight	155 g

Ordering Options

WRA0003XAAAA	RA0003 - UHF Antenna Multiplexer

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RA0005

qDock

qIDmini Docking Station

Overview

The **qDock** (RA0005) is a charging docking station for the R1170I – qIDmini reader that can host up to three (3) readers and charge them simultaneously.

The **qDock** is recommended as a charging station when more than one reader is used in the same premise to reduce the number of micro USB charging cables around. Its ergonomic form factor is designed to make the plug/unplug operation easy and safe.

The docking station is provided together with its external power supply to be connected to a power socket.

A USB device port permits to connect the docking station to a PC to upgrade the firmware of the readers when needed.

The docking station can be also wall mounted using the provided hooks.

Features

- *USB 2.0 Full Speed*
- *Up to 3 readers charged simultaneously*
- *Allow firmware upgrade of the readers*
- *Allow data download from the readers*

Technical Specification Table

USB Interface	USB 2.0 Full Speed (12 Mbit/s) device port
USB Connector to Readers	Micro type B
USB Connector to PC - Cable	Type B
User Interface	• Green LED: External power supply active • Orange LEDs: USB communication active
Power Supply	• 5 V DC ± 5% • 2 A max.
Power Supply Connector	Power jack - Negative central pin
Battery Charging Time	2 h typical
Operating Temperature	-10 °C to +55 °C
IP Rating	IP40
Dimensions	• (L) 288 x (W) 140 x (D) 34 mm³ • 11.3 x 5.5 x 1.3 inches³
Weight	300 g

Ordering Options

WRA0005XAAAA	qDock - qIDmini docking stat. - White
WRA0005XGAAA	qDock - qIDmini docking stat. - Grey

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