TECHNICAL INFORMATION MANUAL

Revision 0 – 05 April 2018

qID R1240IE/IU

Wearable Bluetooth UHF RFID/BARCODE Reader

Scope of Manual

The goal of this manual is to provide the basic information to work with the qID R1240IE/U Wearable Bluetooth UHF RFID/BARCODE Reader.

Change Document Record

Date	Revision	Changes	Pages
5 Apr 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).

CAEN RFID srl

Via Vetraia, 11 55049 Viareggio (LU) - ITALY
Tel. +39.0584.388.398 Fax +39.0584.388.959
info@caenrfid.com
www.caenrfid.com

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.

Index

List of Figures

List of Tables

1   INTRODUCTION

Product Description

The qID (Model R1240IE, R1240IU), mobile reader of the easy2read© Family, is an UHF multiregional RFID reader with integrated antenna for short to medium range applications. It is compliant with ISO 18000-6C/EPC C1G2 standards.

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 qID is a perfect add-on for any Bluetooth® enabled host such as a PC, a smartphone, a PDA or a tablet for UHF RFID readings. The reader is compatible with Windows XP/7/8/10, Windows CE/Mobile, Android, iPhone and iPad.

The reader can also operate in "Batch Mode", allowing to store up to 500.000 EPC codes into the internal memory when the communication links (USB or Bluetooth®) are not available.

An optional 1D/2D barcode imager enables the qID to read most of the barcode standards. This enables the qID to be the perfect identification device in mixed barcode/RFID labels environment.

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

Designed for mobile operators in indoor or outdoor areas, the qID is ideal for inventory management, field sales mobility, service and maintenance applications.

Fig. 1.1: qID R1240IE/IU UHF RFID USB/Bluetooth Reader

Fig. 1.2: qID R1240IE/IU UHF RFID USB/Bluetooth Reader with silicone cover

Front panel

The qID R1240IE/IU front panel houses the following LEDs and buttons (see figure below):
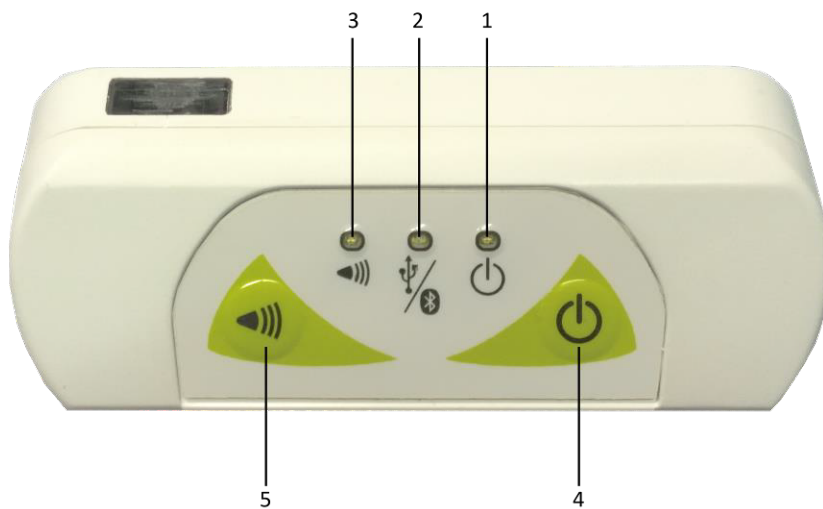
Fig. 1.3: qID R1240IE/IU Front Panel

No.	Name	Description
1	Power LED	Indicates the reader status and battery level (see § *Tab. 1.2: qID R1240IE/IU Power LED Status* Table)
2	Link LED	Indicates the USB/Bluetooth communication status (see § *Tab. 1.3: qID R1240IE/IU USB/Bluetooth LED status* table*)*
3	Trigger LED	A green blink indicates a successfully executed operation, a red blink a failure
4	Power button	Press the button to switch on the reader, press for at least 2 seconds to switch it off
5	Trigger button	A single press of the trigger button executes an inventory cycle, pressing for more than 1 second starts a continuous inventory process

Tab. 1.1: qID R1240IE/IU Front Panel LEDs and Buttons

Status	Description
Steady green	Reader is active and battery if fully charged
Blinking green	Reader is in std-by and battery is fully charged
Steady orange	Reader is active and battery is discharging
Blinking orange	Reader is in std-by and battery is discharging
Steady red	Reader is active and battery is almost empty
Blinking red	Reader is in std-by and battery is almost empty

Tab. 1.2: qID R1240IE/IU Power LED Status Table

For more information about qID battery life, please refer to § *POWER CONSUMPTION AND BATTERY LIFE* page 24.

Status	Description
OFF	No connection established
Steady orange	USB cable connected (both to a PC or to the AC power adapter)
Blinking orange	USB communication on going
Steady blue	Bluetooth connected
Blinking blue	Bluetooth communication on going

Tab. 1.3: qID R1240IE/IU USB/Bluetooth LED status table

USB connector

A micro USB Type B socket connector is located in the bottom side of qID R1240IE/IU and can be used to connect the reader to an USB host port or to an AC/DC battery charger.

In case the reader is connected to a standard USB port the battery charge is performed at 500mA max. (slow charge mode), in case it is connected to the AC/DC adapter charge current is 1A max. (fast charge mode).

Please consider that when the reader is attached to a PC via USB cable, the battery recharge is active only with device in stand-by mode (power LED blinking orange).

Accessories

Check for the supplied accessories below:

No. 1 USB cable

No. 1 Power supply

No. 1 strap

Fig. 1.4: qID R1240IE/IU Accessories

Installation Notice

To insert the qID strap, please follow the instructions shown in the following figures:
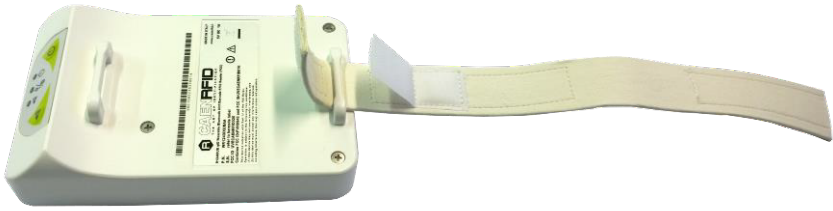
Step 1	
Step 2	
Step 3	
Step 4	
Step 5	

Fig. 1.5: qID R1240IE/IU Inserting the strap

Ordering Options

	Code	Description
Reader	WR1240IXEAAA	R1240IE - qID Wearable Bluetooth UHF RFID Reader (ETSI)
	WR1240IXEBAA	R1240IEB - qID Wearable Bluetooth UHF RFID/BARCODE Reader (ETSI)
	WR1240IXUAAA	R1240IU - qID Wearable Bluetooth UHF RFID Reader (FCC)
	WR1240IXUBAA	R1240IUB - qID Wearable Bluetooth UHF RFID/BARCODE Reader (FCC)
Accessories	EACCESCDRF06	R1240I Silicone Cover

2   GETTING STARTED

Introduction

This quickstart guide will help you to get started with your qID reader.

For more detailed information on reader configuration, connections and setup options please refer to the next chapters.

Installing the USB Virtual COM port driver

The qID reader can be connected to a PC using the provided USB cable and it is detected by the PC as a composite USB, that is as an emulated serial port (VCP) and as an USB MSC.

Power ON the reader and plug the USB cable into the qID USB port.

After a while, from one side, a new storage device should appear under the computer directory and, from the other side, a dialog window appears informing you that the device is not recognized and you should be prompted for inserting the reader's USB VCP driver (download the driver at *qID R1240IE/IU web page*, *SW/FW* section) in order to correctly operate with the reader.

After installing the driver, the reader is detected by the PC as an emulated serial port (VCP) and as an USB MSC:
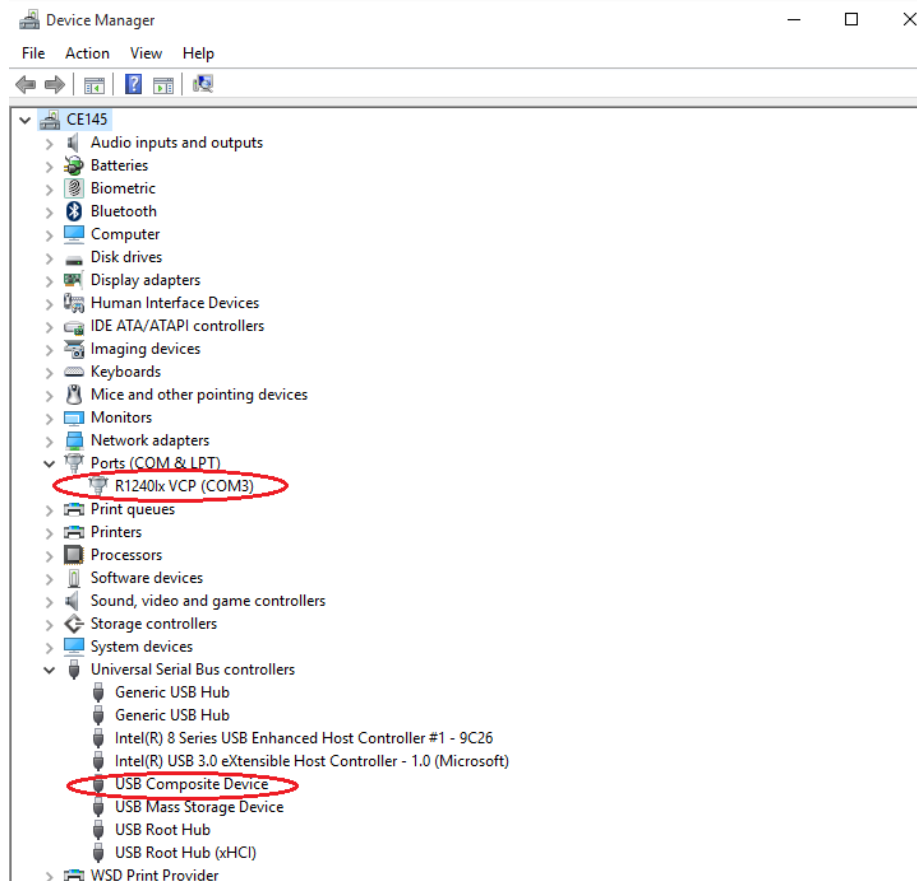
Note: When you plug the qID in the USB port of your PC, Windows might automatically detect a wrong driver. In this case you have to update the driver following the procedure described above.

This is the qID directory structure that appears in your PC:
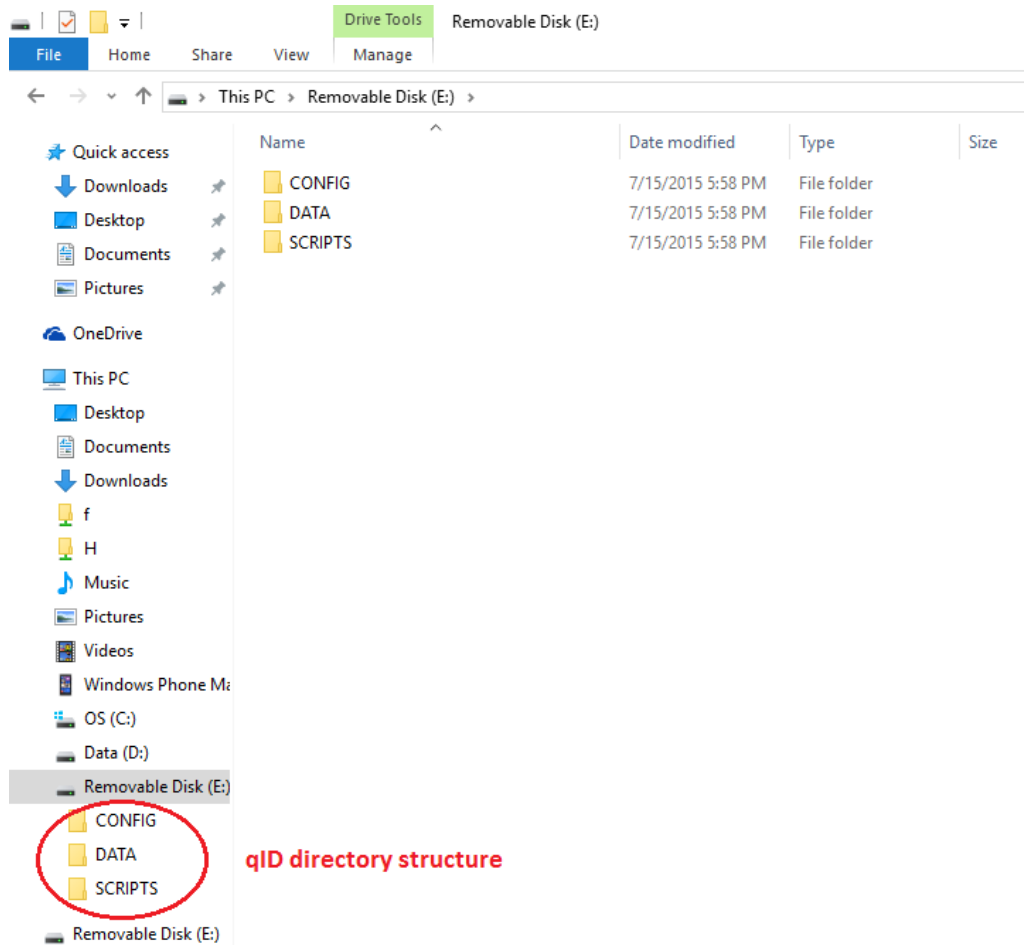
Fig. 2.1: qID R1240IE/IU directory structure

- **CONFIG**: this folder contains the *qID configuration* file. For more information, please refer to § Configuration file page 15.

- **DATA:** this folder contains information about read tag and codes.

- **SCRIPTS**: this folder contains the CAEN RFID available scripts. You can create your own script in *.tcl* language and save it in the SCRIPT directory.

If you want to use the qID reader via USB connection, go to § *Connecting the qID Reader* page 12.

If you want to use the qID reader via Bluetooth connection, go to the next paragraph.

Bluetooth Communication Setup

The preferred communication interface of the qID reader is the Bluetooth link using the SPP profile (Serial Port Profile).

After powering on the reader, the Bluetooth interface is available to accept incoming connection requests (discoverable) from Bluetooth enabled hosts like PCs, PDAs, Tablets, Smartphones and so on.

When discovered by the host, the qID reader can be identified by its Bluetooth device name and paired using the pass-key; both parameters are provided below:

- Bluetooth device name: "qID-" + device serial number

- Pass-key: 0000

Note: select the qID Output COM port and not the input one!

By default, if the reader is power on and Bluetooth connected, after 5 minutes of inactivity, it enters in standby mode, starts blinking and loses the Bluetooth connection. To allow the reader to remain power on and Bluetooth connected, disable the *autoshutdown* function in the configuration file (please refer to § *Configuration file* page 15).

Connecting the qID Reader

Both USB and Bluetooth interface creates virtual COM ports on the host PC that can be used to connect to the reader with the *CAEN RFID Easy Controller* application.

Connecting the qID using the Easy Controller for Windows

1. Download from the R1240IE/IU qID web page, *Download section* the latest version of the CAEN RFID *Easy Controller for Windows* software and install it.

2. Connect the qID reader to your pc using the either the USB or Bluetooth connection.

3. Open the System properties (right click on *My computer* icon) → *Properties* → *Device Manager* and look for the emulated serial port in the "Ports (COM & LPT)": it can be "USB serial port (COM X)" or "BT Port (COMX)" depending on the interface used.
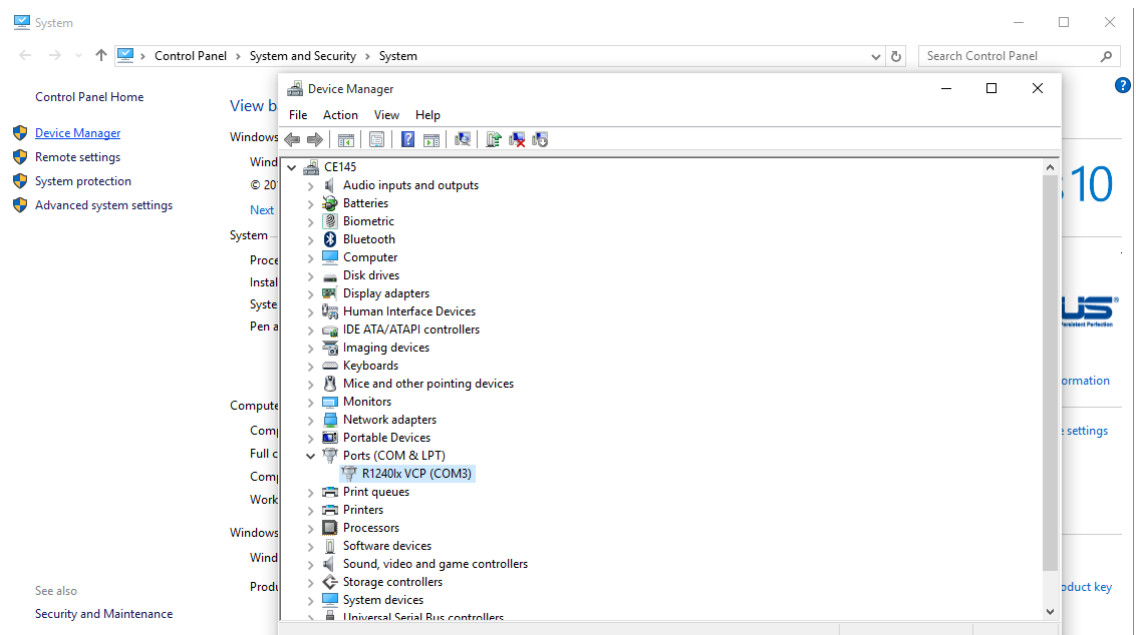
4. Launch the CAEN RFID Easy Controller application.
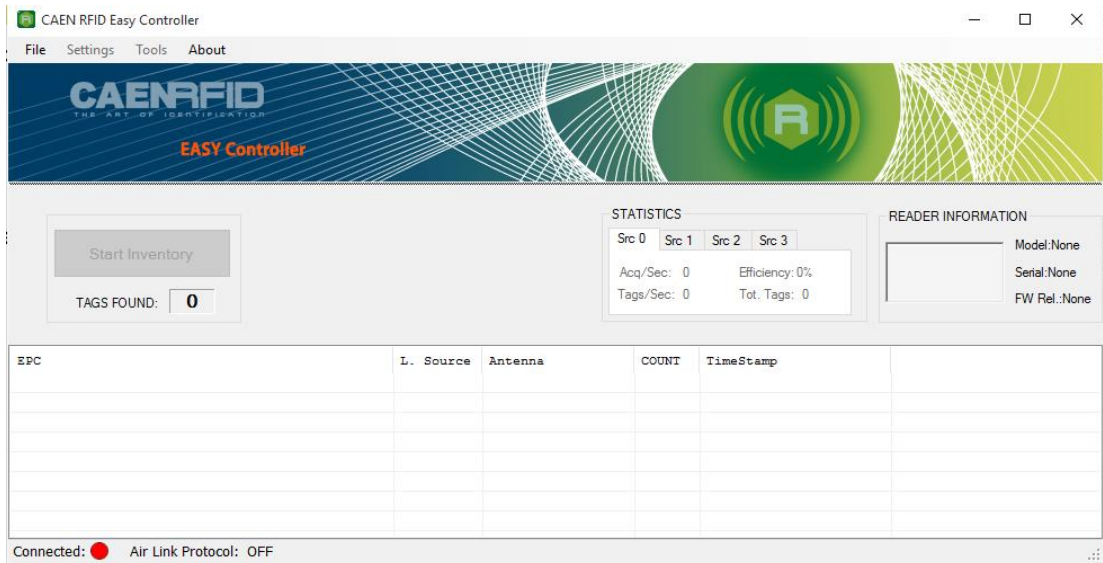
5. On the main application window click on *File → Connect:*
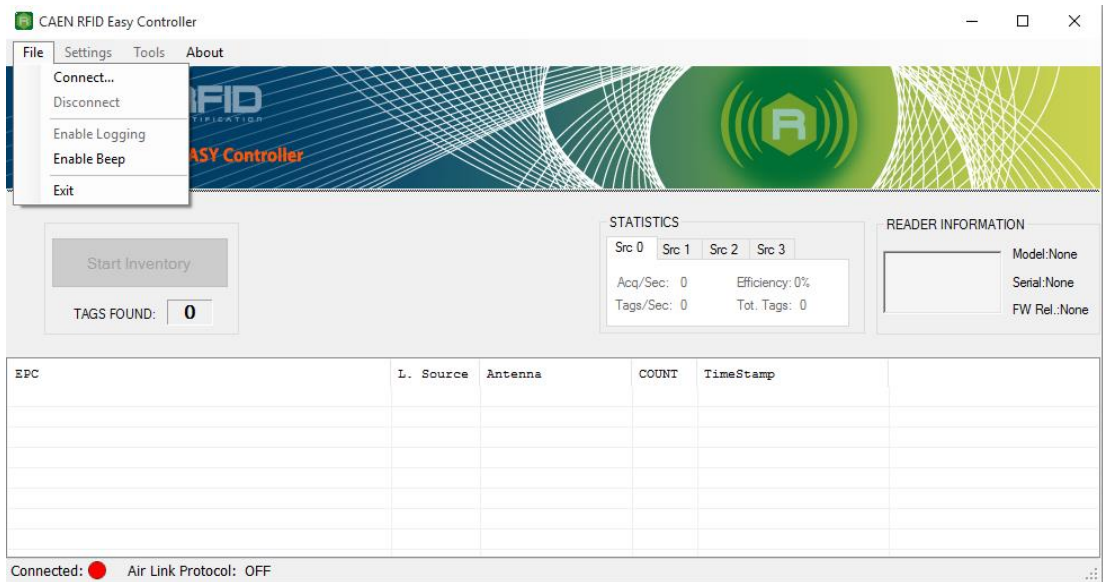
6. Select *RS232* from the *Connection Type* combo box and the right COM port number from the *RS232 Port* combo box:
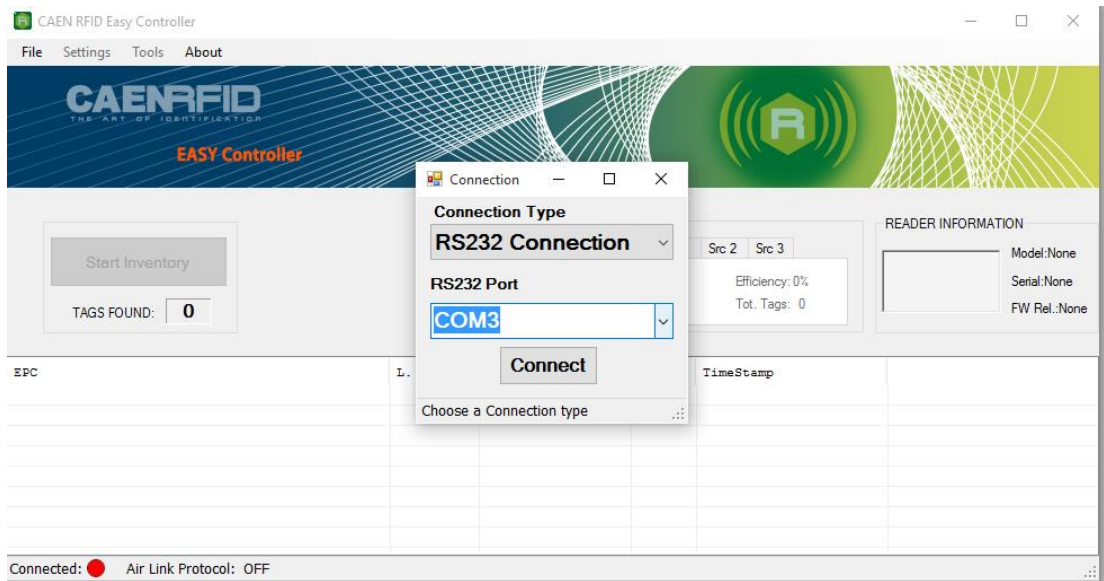
7. Click on *Connect* and, when the connection is established, information about your qID reader appear in the *READER INFORMATION* Box:
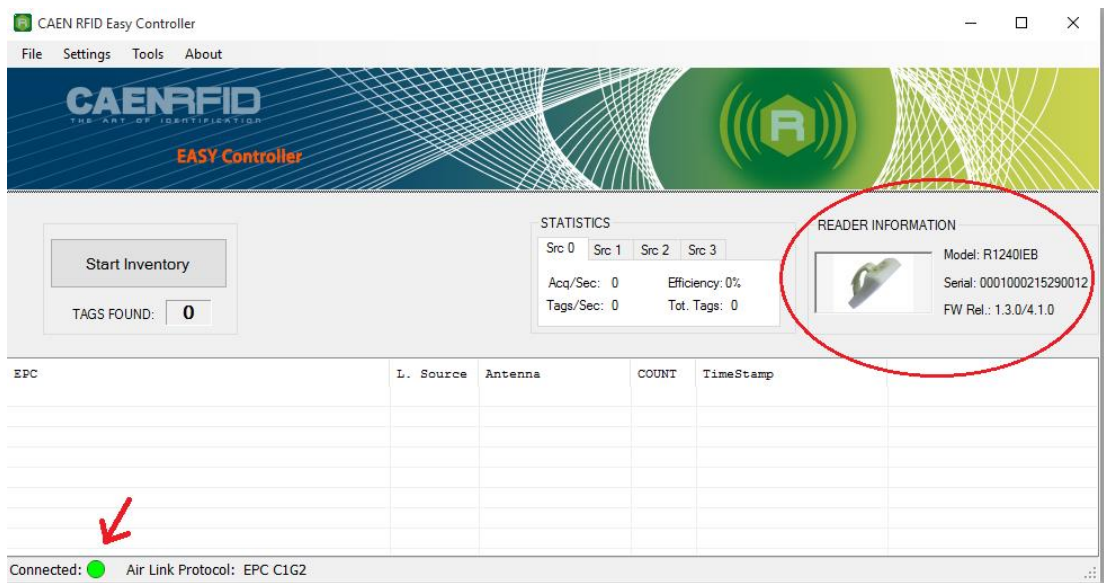
8. Place a tag in front of the reader and click on *Start Inventory* to see the tag information displayed on the main window.

For more information on the CAEN RFID *Easy Controller for Windows* application usage, please refer to the relevant user manual: you can download it from the from the R1240IE/IU qID web page, *Download section* or in the *Manual and Documents* web area.

A CAEN RFID *Easy Controller for Android* application is also available. For more information please refer to R1240IE/IU qID web page, *Download section* or in the *Support* web area.

3   CONFIGURATION

Configuration file

The *qID.cfg* file (in the CONFIG directory) is the reader's main configuration file.

Using this file you can configure the following reader options:

- **Auto shutdown**: Enable or disable the reader's automatic shutdown. By default the *auto shutdown* is ON and if the reader is power on, after 5 minutes of inactivity, it enters in standby mode, starts blinking and loses the connection. To allow the reader to remain power on and Bluetooth/USB connected, disable the *auto shutdown* function in the configuration file.

- **Power down time**: Set the number of seconds(from 1 to 86400) of inactivity required before starting the automatic shutdown procedure. By default, the *power down time* is set to 300 seconds.

- **Power LED Blink**: Enable or disable *power LED blinking* during stand-by. By default the *power LED blink* is ON, so when the reader enters in standby mode, it starts blinking and gives information about the battery level.

Status	Description
Steady green	Reader is active and battery if fully charged
Blinking green	**Reader is in stand-by and battery is fully charged**
Steady orange	Reader is active and battery is discharging
Blinking orange	**Reader is in stand-by and battery is discharging**
Steady red	Reader is active and battery is almost empty
Blinking red	**Reader is in stand-by and battery is almost empty**

Tab. 3.1: qID R1240IE/IU Power LED Status Table

- **Successful beep time**: Set the number of milliseconds (from 1 to 60000) the reader beeps upon successful inventory. By default, the s*uccessful beep time* is set to 400 milliseconds.

- **Unsuccessful beep time**: Set the number of milliseconds (from 1 to 60000) the reader beeps upon unsuccessful inventory. By default, the *unsuccessful beep time* is set to 400 milliseconds.

- **Proximity Sensor**: Enable or disable the proximity sensor. The proximity sensor is the equivalent of the button and has its own features. It is useful in applications where the use of the button is difficult. By default, the *proximity sensor* is set to OFF.

- **Vibration**: Enable or disable the reader's vibration (only for use with button or proximity sensor). The vibration informs you that the read operation is successfully completed. By default, the *vibration* is set to OFF.

- **TCL script**: Select the TCL script to be executed among those stored in the SCRIPTS directory when the SCAN button is pressed (in the last line, the value assigned to *tcl_script* variable represents the script to be executed, by default the *c1g2inv.tcl*). For more information, please refer to § *Scripting capability* page 17.

Open the qID.cfg file using a text editor, modify the reader's options and then save the file:

```
# Auto shutdown
# Enable or disable the reader's automatic shutdown
# Allowed values : ON, OFF
# Default : ON
auto_shutdown = ON
# Power down time
# Set the number of seconds of inactivity required before
# starting the automatic shutdown procedure.
# Allowed values : [1..86400]
# Default value : 300
powerdown_time = 300
# Power Led Blink
# Enable or disable power led blinking during stand-by
# Allowed values : ON, OFF
# Default value : OFF
power_led_blink = ON
# Successful beep time
# Set the number of milliseconds the reader beeps
# upon successful inventory.
# Allowed values : [1..60000]
# Default value : 400
successful_beep_time = 400
# Unsuccessful beep time
# Set the number of milliseconds the reader beeps
# upon unsuccessful inventory.
# Allowed values : [1..60000]
# Default value : 400
unsuccessful_beep_time = 400
# Proximity Sensor
# Enable or disable the proximity sensor
# Allowed values : ON, OFF
# Default value : OFF
proximity_sensor = OFF
# Vibration
# Enable or disable the reader's vibration
# Allowed values : ON, OFF
# Default value : OFF
vibration = OFF
# TCL script
# Select the TCL script to be executed among those stored in
# the SCRIPTS directory
# Default value : default.tcl
tcl_script = c1g2inv.tcl
```

Note: If you need to restore the original *qID.cfg* file, go to the [qID R1240IE/IU](#) web page, *download section* and download the *R1240IE/IU qID MSC directories* that contents the CONFIG.zip and the SCRIPT.zip files.

Scripting capability

All available scripts provided by CAEN RFID are located in the SCRIPTS directory:

- **bcdinv.tcl**

  DESCRIPTION
  A very simple script to read BARCODE labels.
  This code makes the qID device read a barcode label and save the barcode data into the barcode.txt file located in the /DATA directory.
  RETURN VALUES
  The inventory BARCODE procedure returns the BARCODE read. Each ASCII character is converted in its ASCII hex representation (for example the '0' (0x30) ASCII character is converted into the two ASCII characters '3''0').

- **bcdtoepc.tcl**

  DESCRIPTION
  A very simple script to copy a BARCODE into a tag's EPC memory. After the scan button is pressed, this script starts scanning for a barcode label. Upon successful scan operation the reader waits again for another scan button press and finally copies the acquired barcode id into the tag's EPC memory .

  RETURN VALUES
  The programIdEPCC1G2 procedure returns 0 if successful or 1 otherwise

- **c1g2inv.tcl**

  DESCRIPTION
  A very simple script to inventory epc c1g2 tags. This code executes one inventory cycle each time the scan button is pressed and save the epc code read into the c1g2epc.txt file located in the /DATA directory.
  RETURN VALUES
  The inventoryEPCC1G2 procedure returns the epc code (in ASCII format) of all the epc c1g2 tags read.

- **hid_emu.tcl**

  DESCRIPTION
  A very simple script to show how to emulate an HID device with Bluetooth or USB connection. When the scan button is pressed, an Inventory cycle is performed by the reader and the tags read are transmitted via Bluetooth or USB depending on which communication channel is currently active.

  RETURN VALUES
  None.

By default the *c1g2inv.tcl* script is active. If you want to test a different CAEN RFID script, simply assign its name to the *tcl_script* variable defined in the *qID.cfg* file (see *Configuration file* page 15). To refresh the new script, unplug the cable, power off the reader and power it on again: the new *qID.cfg* file is active.

To execute the script, press the scan button (see § *Fig. 1.3: qID R1240IE/IU Front* Panel pag. 6) and for example, if the *tcl_script = c1g2inv.tcl* in the *qID.cfg* file, the reader will first perform an inventory cycle and then will save all the tags read into the *c1g2epc.txt* file located in the DATA directory.

You can create your own script in .tcl language, save it in the SCRIPT directory and simply assign its name to the *tcl_script* variable defined in the *qID.cfg* file. To refresh the new script, unplug the cable, power off the reader and power it on again: the new *qID.cfg* file is active.

*Note:* If you need to restore the original SCRIPTS directory, go to the *qID R1240IE/IU* web page, *download section* and download the *R1240IE/IU qID MSC directories* that contents the CONFIG.zip and the SCRIPT.zip files.

4 RESET THE READER

To reset the reader, attach the power supply to the reader, then press simultaneously the *power* and the *trigger* buttons for about twenty seconds until the reader LEDs turn off. Release the buttons and two beeps inform you that the reset is successfully completed.
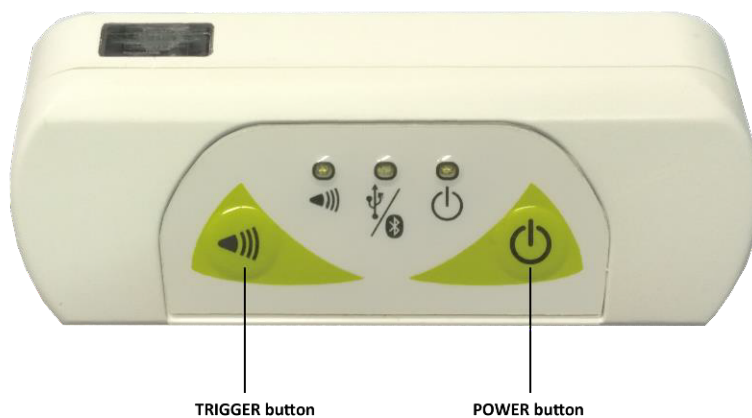
Fig. 4.1: qID R1240IE/IU Front Panel

Alternatively, it is possible to reset the reader following these steps:

a. Power ON the qID R1240IE/IU reader. Establish a Bluetooth connection between the PC and the reader (enter 0000 as passkey).

b. Check on the control panel the address of the COM port associated.

c. Launch the *R1240IE/IU qid Suite Upgrade Tool* (download it from the <u>qID_R1240IE/IU</u> web page, *download* section) and select the relative COM port.

d. Click on "Reset Micro".

e. Wait for about ten seconds, if the operation is successfully completed the reader will beep twice.

Then check the connection with the *Easy Controller Software*.

5   FIRMWARE UPGRADE

The qID R1240IE/IU firmware upgrade can be managed via Bluetooth.

In order to upgrade the firmware, follow the steps below:

1. Download the *R1240I Suite* zip file from the qID R1240IE/IU web page or in the Software and Firmware Area of the CAEN RFID Web Site and unzip it. The zip file contents: the *Flash Loader Demonstrator and the R1240I_Upgrade* tool.

2. Download the R1240IE/IU firmware (the zip folder contents the .bin images) from the qID R1240IE/IU web page or in the Software and Firmware Area of the CAEN RFID Web Site

3. Install the *Flash Loader Demonstrator.*

4. Run the program R1240I_Upgrade, select the reader port to be updated (COM Bluetooth) and press Upgrade *Micro*. Wait a few seconds for the appearance of the dialog box as in Figure STM32Fupdate. Please pay attention to the fact that *OK* at this stage must not be pressed (it is pressed only at the end of the entire procedure in step 8).
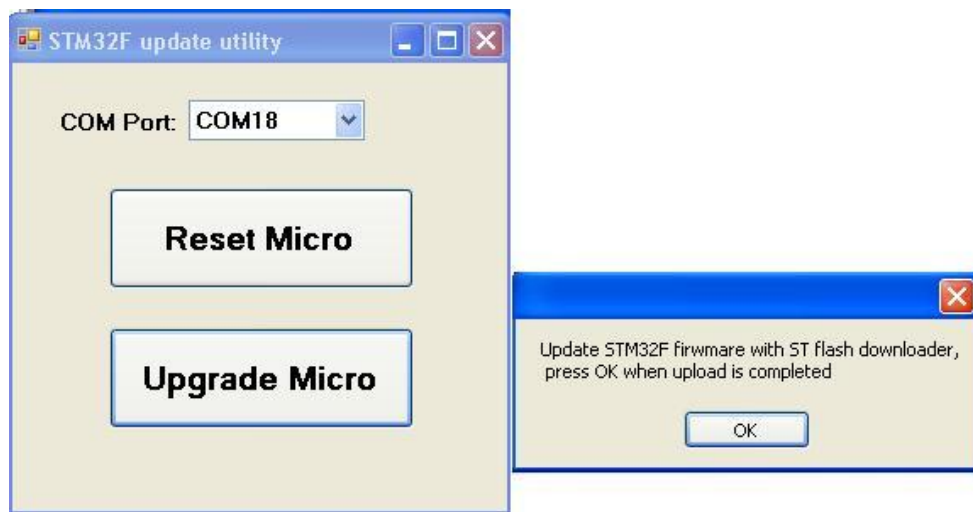
5. Launch the program *Flash Loader Demonstrator*; select once again the reader port to be updated, and press the *Next* button:
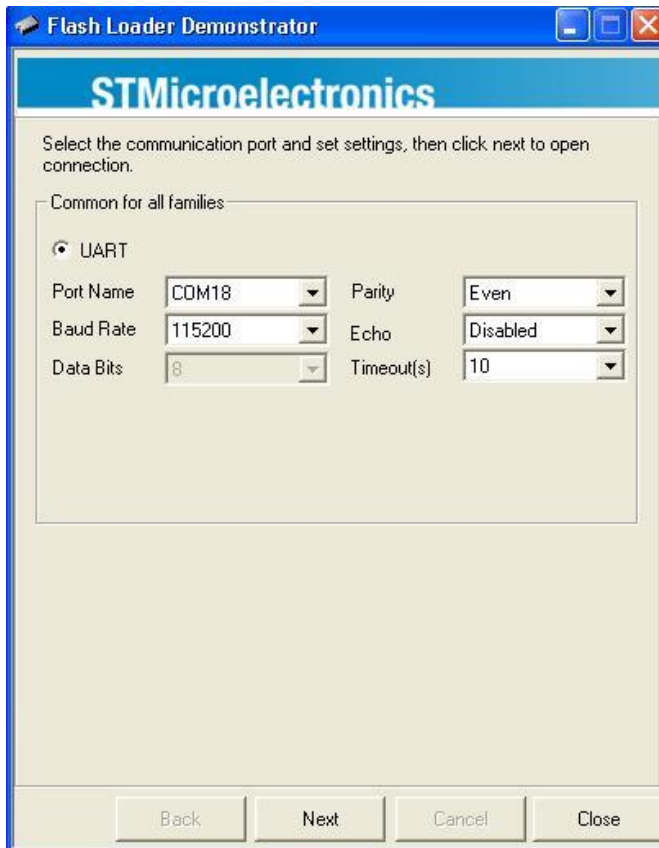
6. At the next screen, press on the *Next* button again.

7. Select as target the STM32F2_256K item and press the *Next* button:
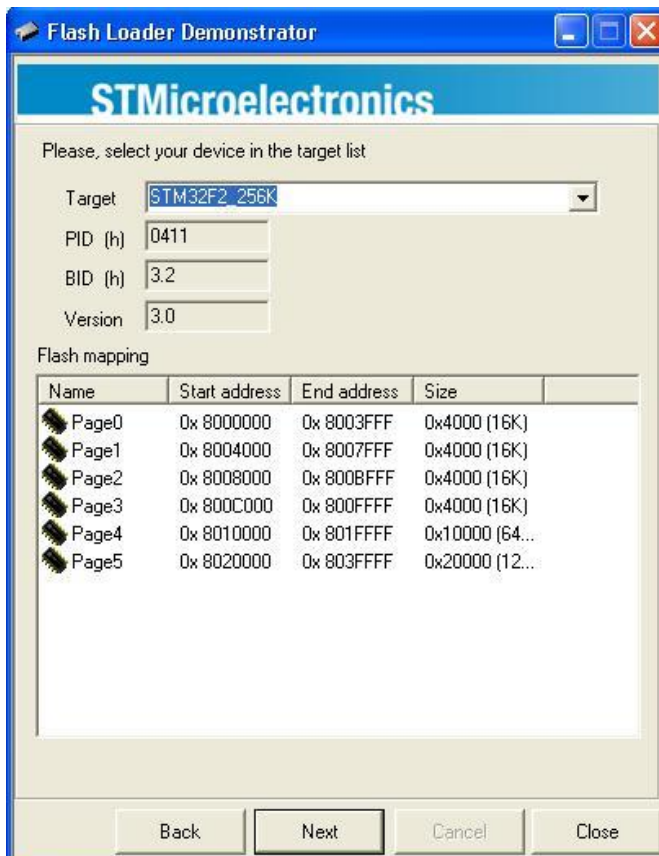
8. Select the firmware upgrade image of your model reader from the *R1240IE/IU qID Firmware* folder (R1240IE, R1240IEB, R1240IU, R1240IUB) and press on the Next button:
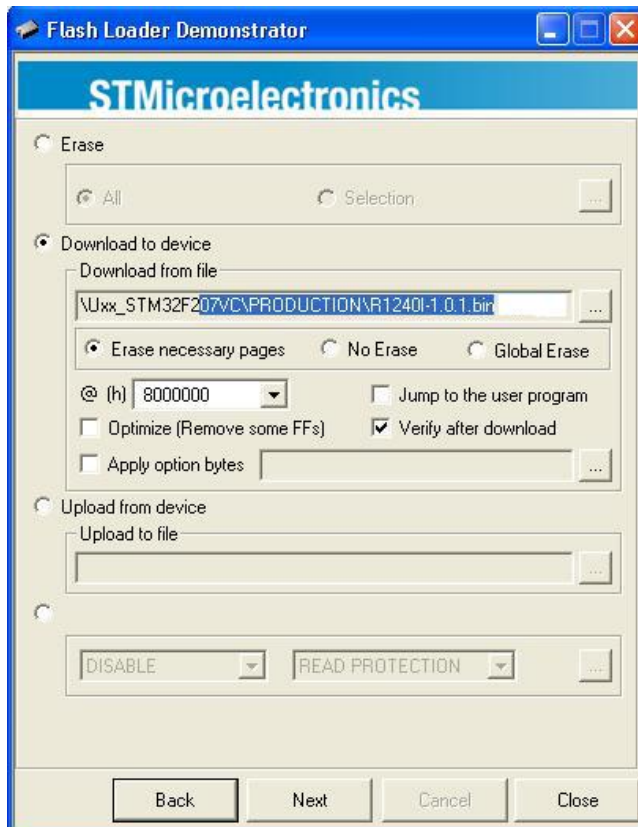
Wait until the programming and verification phases are complete.

9. Press the *Close* button.

10. Return to the R1240I Upgrade program and press the *OK* button.

11. Wait a few tens of seconds. A beep emitted by the reader notifies the reset of the device as a result that the upgrade process is successfully complete.

6   BARCODE

Barcode Reader

In the qID (Mod. WR1240IXEBAA and WR1240IXUBAA) device the barcode reader and the UHF antenna are seen, from the logical and programming point of view, in the same way.

All of them are considered as readpoint (antennas in the CAEN RFID terminology) which, associated to a Logical Source, provide the basic source of information generated by the reader.

In particular, the barcode reader is mapped to Ant2, while Ant0 is dedicated to the UHF antenna.

It is possible to add or remove readpoint to/from a logical source by the use of the *AddReadPoint* and *RemoveReadPoint* methods.

By default, the association between readpoint and sources in the qID reader is as follows:

Source 0 -> Ant0

Source 1 -> Ant2

Source 2 -> Ant0

Source 3 ->   -

For getting information from a logical source containing the barcode reader you can use, again, the standard *InventoryTag* function.

To use the Barcode Reader with the *CAEN RFID Easy Controller Software*, please refer to § *Connecting the qID Reader* page 12.

Otherwise if you want to use the Barcode reader with scripts, please refer to § *CONFIGURATION* page 15.

Readable Barcodes

The following table shows the supported symbologies (only in Mod. WR1240IXEBAA and WR1240IXUBAA):

	Symbologies
1D Codes	UPC
	UPC Add-on 2
	UPC Add-on 5
	EAN
	EAN Add-on 2
	EAN Add-on 5
	EAN-13
	EAN-13 Add-on 2
	EAN-13 Add-on 5
	EAN-8
	EAN-8 Add-on 2
	EAN-8 Add-on 5
	Code 39
	Tri-Optic
	Codabar
	Industrial 2 of 5
	Interleaved 2 of 5
	S-Code
	IATA
	MSI/Plessey
	Telepen
	UK/Plessey
	Code 128
	Code 93
	GS1 DataBar Omnidirectional
	GS1 DataBar Truncated
	GS1 DataBar Stacked
	GS1 DataBar Stacked Omnidirectional
	GS1 DataBar Limited
	GS1 DataBar Expanded
	GS1 DataBar Expanded Stacked
2D Codes	Data Matrix (ECC 200)
	Aztec Code
	QR Code
	Micro QR
	Maxi Code
	PDF417
	Micro PDF417

For other symbologies, please contact our support team at the support section of the CAEN RFID web site.

7 POWER CONSUMPTION AND BATTERY LIFE

Battery Life

The following tables show the values of the battery life of the qID reader in two operating states:

Mod. WR1240IXEAAA - WR1240IXUAAA:

	Status	Property	Battery Life
1	Standby blinking	Not discoverable by Bluetooth	5 DAYS
		Indication status battery	
2	Power on * no scanning	Discoverable by Bluetooth	>18h
		Indication status battery	

* to allow the reader to remain in the *Power on* mode, disable the *autoshutdown* function in the configuration file (please refer to § *Configuration file* page 15).

Mod. WR1240IXEBAA - WR1240IXUBAA:

	Status	Property	Battery Life
1	Standby blinking	Not discoverable by Bluetooth	5 DAYS
		Indication status battery	
2	Power on * no scanning	Discoverable by Bluetooth	>12h
		Indication status battery	

* to allow the reader to remain in the *Power on* mode, disable the *autoshutdown* function in the configuration file (please refer to § *Configuration file* page 15).

When the reader is fully discharged (not blinking), it is recommended to fully charge the reader (until the display shows the battery level to 100%). If you do not make a complete charge, the battery percentage shown in the reader display may not be accurate.

When the battery charge level drops below 20%, (reader blinking red), the reader turns off and it has to be put in charge for at least 15 minutes or until the battery level exceeds 20%.

By default, if the reader is power on, after 5 minutes of inactivity, it enters in standby mode and starts blinking. To allow the reader to remain in the *Power on* mode (discoverable or Bluetooth connected), disable the *autoshutdown* function in the configuration file (please refer to § *Configuration file* page 15).

For more information about the default configuration of the reader, please refer to § *Configuration file* page 15.

Inventory RFID by Bluetooth

The following tables show the values of the battery life during inventory activity with Bluetooth connection and an estimation of read tag.

The tables refer to tests carried out with Bluetooth connection, using the *CAEN RFID EasyController Software* and setting a power of 300 mW ERP.

Mod. WR1240IXEAAA - WR1240IXUAAA:

With an inventory every 60 seconds in a multitag environment (50 tags), the reader's battery will last for 17 hours.

Inventory Mode	Environment	Battery Life	Approx. read tags
Button / Proximity sensor press 1@60sec	50 tag	17h	50000

Mod. WR1240IXEBAA - WR1240IXUBAA:

With an inventory every 60 seconds in a multitag environment (50 tags), the reader's battery will last for 11 hours and 30 minutes.

Inventory Mode	Environment	Battery Life	Approx. read tags
Button / Proximity sensor press 1@60sec	50 tag	11h 30min	36000

More the frequency of scans per minute is low and longer will be the battery life.

Inventory on button press allows you to perform the inventory just by pressing the button and can be enabled using the *CAEN RFID Easy Controller Software for Windows* by selecting the *RCM* (Real Continuous Mode) and *Inventory on button press* options in the *Continuous Inventory Options* window (for more info please refer to § *Easy Controller Technical Information Manual*, *Easy Controller Options* Chapter, downloadable at the [qID R1240IE/IU](qID_R1240IE/IU) web page, *download* section).
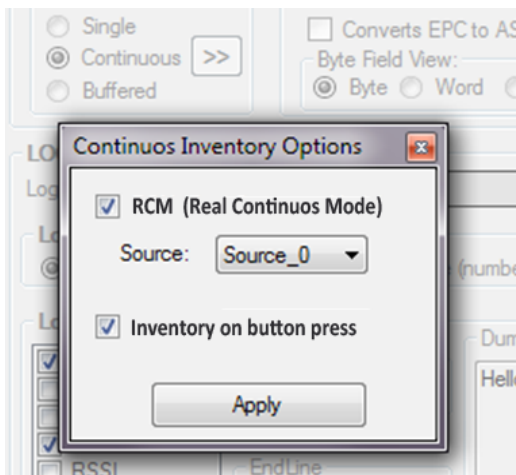

Fig. 7.1: Easy Controller Software: Continuos Inventory Options window

Inventory RFID by Script Mode

The following tables show the values of the battery life during inventory activity and an estimation of read tag.

The tables refer to tests carried out without any connection, using the *c1g2inv.tcl* script (for more info on scripts, refer to *§ Scripting capability* page 17) and setting a power of 300 mW ERP.

Mod. WR1240IXEAAA - WR1240IXUAAA:

With an inventory every 60 seconds in a multitag environment (50 tags), the reader's battery will last for 10 hours.

Inventory Mode	Environment	Battery Life	Approx. read tags
Button / Proximity sensor press 1@60sec	50 tag	10h	30000

Mod. WR1240IXEBAA - WR1240IXUBAA:

With an inventory every 60 seconds in a multitag environment (50 tags), the reader's battery will last for 8 hours and 30 minutes.

Inventory Mode	Environment	Battery Life	Approx. read tags
Button / Proximity sensor press 1@60sec	50 tag	8h 30min	25000

Scan Barcode by Bluetooth

The following table shows the values of the battery life during scan barcode activity and an estimation of read codes.

The table refers to tests carried out with Bluetooth connection and using the CAEN RFID EasyController Software (downloadable at the *qID R1240IE/IU* web page, *download* section).

Mod. WR1240IXEBAA - WR1240IXUBAA:

With a scan barcode every 60 seconds, the reader's battery will last for 11 hours and 45 minutes.

Scan Mode	Environment	Battery Life	Approx. read codes
Button / Proximity sensor press 1@60sec	1 code	11h 45min	700

Scan Barcode by Script Mode

The following tables show the values of the battery life during scan barcode activity and an estimation of read codes.

The tables refer to tests carried out without any connection and using the *bcdinv.tcl* script (for more info on scripts, refer to *§ Scripting capability* page 17).

Mod. WR1240IXEBAA - WR1240IXUBAA:

With a scan barcode every 60 seconds, the reader's battery will last for 9 hours.

Scan Mode	Environment	Battery Life	Approx. read codes
Button / Proximity sensor press 1@60sec	1 code	9h	540

Technical Specifications Table

Frequency Band	865.600÷867.600 MHz (ETSI EN 302 208 v. 1.4.1.) (Mod. R1240IE - R1240IEB) 902÷928 MHz (FCC part 15.247) (Mod. R1240IU - R1240IUB)
Number of Channels	4 channels (compliant to ETSI EN 302 208 v. 1.4.1.) (Mod. R1240IE - R1240IEB) 50 hopping channels (compliant to FCC part 15.247) (Mod. R1240IU - R1240IUB)
RF Power	Programmable in 18 levels from 8 dBm ERP to 25dBm ERP (Mod. R1240IE - R1240IEB) Programmable in 18 levels from 8,5 dBm ERP to 25,5dBm ERP (Mod. R1240IU - R1240IUB)
Antenna Gain	0,2 dBi (typical) (Mod. R1240IE - R1240IEB) 0,7 dBi (typical) (Mod. R1240IU - R1240IUB)
Antenna Polarization	Integrated Circular Polarized Antenna
Standard Compliance	ISO 18000-6C/EPC C1G2
Read Range	up to 1.5m. (typical, depending on tag, tag in free air)
USB Interface	USB 2.0 Full Speed (12 Mbit/s) device port
Bluetooth Interface	Class 1 with output power 5dBm e.i.r.p. Virtual COM port parameters: - Baudrate: up to 921'600kbps - Databits: 8 - Stopbits: 1 - Parity: none - Flow control: none
User Interface	Button #1:ON/OFF Button #2: Trigger Led #1: power indication and battery status (green: high; red: low) Led #2: communication activity (blue: Bluetooth; orange: USB) Led #3: operation result (green: OK; red: not OK) Buzzer: bitonal for events signalling
Internal Buffer Size	5MByte (equivalent to 400000 EPC codes@96bit)
Barcode Reader	1D and 2D imager (only in Mod. R1240IEB - R1240IUB) For more details, please refer to § 15.Readable Barcodes page 22.
Battery Type	Li-Ion 3.7V, 2100mAh
Battery Life	Operating: > 8h (2'000 acquisitions of a single tag, triggered mode) Standby: > 7 days (powered off; no led blinking) For more info about Battery Life, please refer to § POWER CONSUMPTION AND BATTERY LIFE page 24.
Battery Charging Time	7h from USB port 3h with AC/DC adapter
Operating Temperature	-10 °C to +55 °C
IP Rating	IP30
Dimensions	140 x 90 x 35 mm^3 max. (5.5 x 3.6 x 1.4 in^3)
Weight	230g max (Mod. R1240IE – R1240IU) 250g max. (Mod. R1240IEB – R1240IUB)
Length of USB cable	1,5 m

Tab. 8.1: qID R1240IE/IU Technical Specifications Table

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.

Reader – Tag Link Profiles

qID reader supports different modulations and return link profiles according to EPC Class1 Gen2 protocol [RD1].

In the following table are reported all profiles that have been tested for the compliance with ETSI and FCC regulations.

Link profile #	Regulation	Modulation	Return Link
0	ETSI - FCC	DSB–ASK; f=40kHz	FM0; f = 40kHz
1	ETSI - FCC	PR–ASK; f=40kHz	Miller (M=4); f = 250kHz
2	ETSI	PR–ASK; f=40kHz	Miller (M=4); f = 300kHz
3	FCC	DSB–ASK; f=160kHz	FM0; f = 400kHz
4	FCC	PR–ASK; f=40kHz	Miller (M=2); f = 250kHz

Tab. 8.2: qID R1240IE/IU Reader to tag link profiles

Radiation Patterns

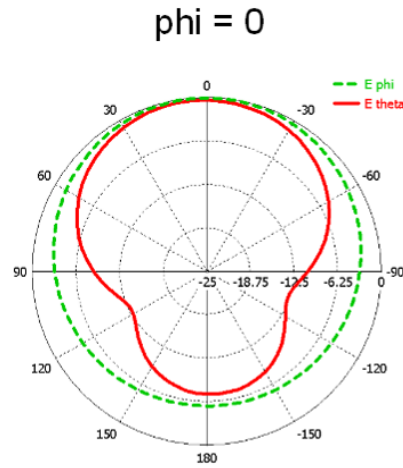The radiation patterns of qID Mod. R1240IE/IEB are shown in the following figures.

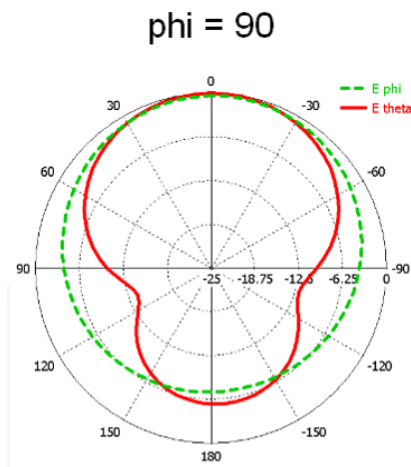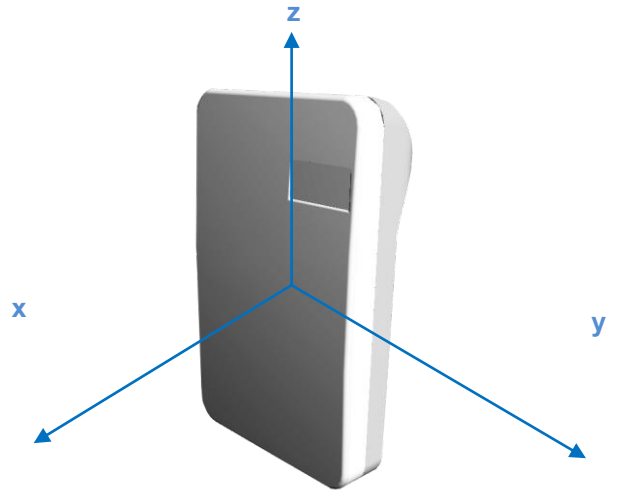**Fig. 8.1: qID R1240IE/EB Radiation pattern H plane**

Fig. 8.2: qID R1240IE/EB Radiation pattern V plane

The radiation patterns of qID Mod. R1240IU/IUB are shown in the following figures.
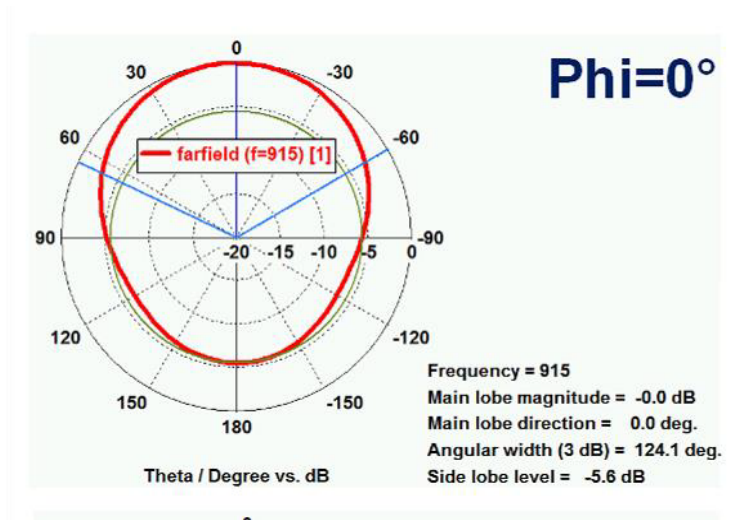

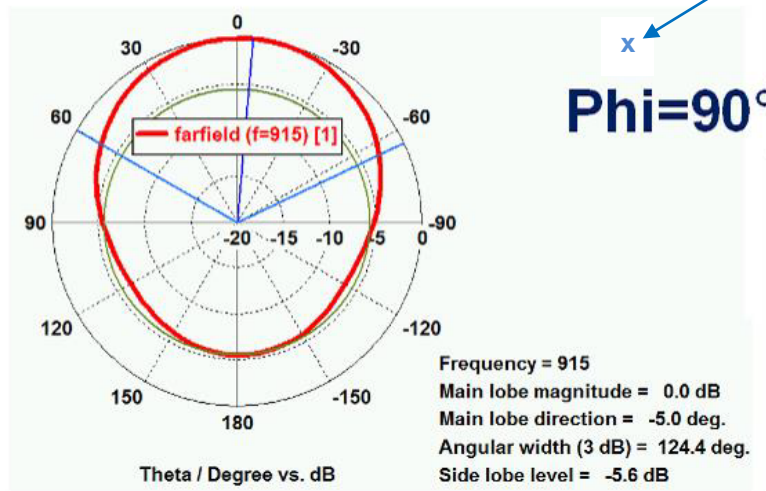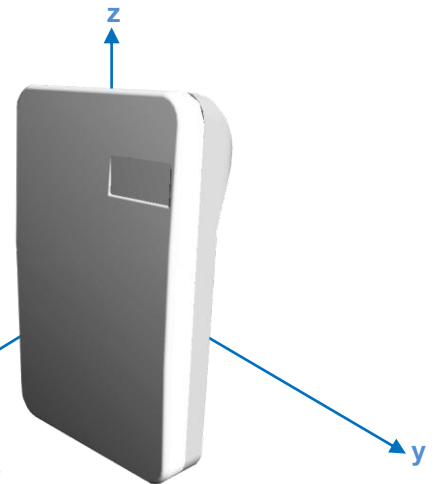Fig. 8.3: qID R1240IU/UB Radiation pattern H plane

Fig. 8.4: qID R1240IU/UB Radiation pattern V plane

RoHS EU Directive

The qID (Model R1240IE, R1240IU) is compliant with the EU Directive 2011/65/EU on the Restriction of the Use of certain Hazardous Substances in Electrical and Electronic Equipment (RoHS2).