

TECHNICAL INFORMATION MANUAL

Revision 0.1 – 05 July 2016

qID mini^{NF} R1170INF

Keyfob Bluetooth UHF NF RFID Reader



easy2read[®]



Visit [qIDmini R1170I](#) web page, you will find the latest revision of data sheets, manuals, certifications, technical drawings, software and firmware. All you need to start using your reader in a few clicks!

Scope of Manual

The goal of this manual is to provide the basic information to work with the qIDminiNF R1170INF Keyfob Bluetooth UHF NF RFID Reader.

Change Document Record

Date	Revision	Changes	Pages
29 Apr 2016	00	Preliminary release	-
05 Jul 2016	0.1	Updated radiated power values	48
		Updated FCC Compliance statement	50

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

© CAEN RFID srl – 2016

Disclaimer

No part of this manual may be reproduced in any form or by any means, electronic, mechanical, recording, or otherwise, without the prior written permission of CAEN RFID.

The information contained herein has been carefully checked and is believed to be accurate; however, no responsibility is assumed for inaccuracies. CAEN RFID reserves the right to modify its products specifications without giving any notice; for up to date information please visit www.caenrfid.com.

Preliminary Product Information

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

“Preliminary” product information describes products that are ready for production, but for which full characterization data is not yet available. CAEN RFID believes that the information contained in this document is accurate and reliable. However, the information is subject to change without notice and is provided “AS IS” without warranty of any kind (Express or implied). You are advised to obtain the latest version of relevant information to verify, before placing orders, that information being relied on is current and complete. All products are sold subject to the terms and conditions of sale supplied at the time of order acknowledgement, including those pertaining to warranty, patent infringement, and limitation of liability. No responsibility is assumed by CAEN RFID for the use of this information, including use of this information as the basis for manufacture or sale of any items, or for infringement of patents or other rights of third parties.

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

	Scope of Manual.....	2
	Change Document Record.....	2
	Reference Document.....	2
Index 4		
	List of Figures.....	5
	List of Tables.....	5
1	INTRODUCTION	6
	Product Description.....	6
	Front panel.....	7
	Charging.....	8
	USB connector.....	8
	Accessories.....	9
	Ordering Options.....	10
2	GETTING STARTED	11
	Introduction.....	11
	Bluetooth Communication Setup using the Easy Controller for Android.....	11
3	qIDminiNF EASY2RD PROFILE.....	16
	Introduction.....	16
	EASY2READ profile options.....	16
	DISPLAY.....	16
	Android devices.....	17
	Bluetooth Communication Setup using the Easy Controller for Android.....	17
	Windows PCs.....	22
	Bluetooth Communication Setup.....	22
	USB Communication Setup.....	24
	Connecting the qIDminiNF using the Easy Controller for Windows.....	26
4	qIDminiNF HID PROFILE.....	28
	Introduction.....	28
	HID profile options.....	28
	FORMAT.....	28
	DISPLAY.....	28
	APPLEKB.....	28
	Android devices.....	29
	Bluetooth Communication Setup.....	29
	Windows PCs.....	31
	Bluetooth Communication Setup.....	31
	USB Communication Setup.....	34
	iOS devices.....	36
	Bluetooth Communication Setup.....	36
5	qIDminiNF OFFLINE PROFILE	38
	Introduction.....	38
	OFFLINE profile options.....	38
	DWNLOAD.....	38
	ERASE.....	38
	VIEWTAG.....	39
	BTSCAN.....	39
	LOGOPT.....	39
	DISPLAY.....	39
6	RESET THE qIDminiNF READER	40
7	qIDminiNF CONFIGURATION MENU	41
	Introduction.....	41
	PROFILE.....	43
	BEEP.....	44
	VIBRATE.....	44
	POWER.....	45
	CLOCK.....	45
8	qIDminiNF FIRMWARE UPGRADE	46
	Firmware Upgrade.....	46
9	qIDminiNF TECHNICAL SPECIFICATIONS	48
	Technical Specifications Table.....	48
	Reader – Tag Link Profiles.....	49

10	qIDminiNF REGULATORY COMPLIANCE.....	50
	FCC Compliance.....	50
	RoHS EU Directive.....	50

List of Figures

Fig. 1.1:	qIDminiNF R1170INF Keyfob Bluetooth UHF NF RFID Reader.....	6
Fig. 1.2:	qIDminiNF R1170INF Front Panel.....	7
Fig. 1.3:	qIDminiNF R1170INF Accessories.....	9

List of Tables

Tab. 1.1:	qIDminiNF R1170INF Front Panel LEDs and Buttons.....	7
Tab. 1.2:	qIDminiNF R1170INF Power LED Status Table.....	7
Tab. 1.3:	qIDminiNF R1170INF Bluetooth LED status table.....	7
Tab. 7.1:	qIDminiNF R1170INF Configuration Menu.....	42
Tab. 9.1:	qIDminiNF R1170INF Technical Specifications Table.....	48
Tab. 9.2:	qIDminiNF R1170INF Reader to tag link profiles.....	49

1 INTRODUCTION

Product Description

The qIDmini (Model R1170I) is a handheld reader of the easy2read[®] product family, compliant with UHF RFID ISO 18000-6C/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 UHF 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 XP/7, Windows CE/Mobile, Android, iPhone and iPad.

The HID version supports native keyboard emulation allowing to interact directly with legacy application, 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 "Offline 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.

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



Fig. 1.1: qIDminiNF R1170INF Keyfob Bluetooth UHF NF RFID Reader

The reader is available in **ETSI**, **FCC** or **SRRC** version (see § *Ordering Options* page 10):

- 865.600÷867.600 MHz (ETSI EN 302 208 v. 1.4.1) (Mod. R1170IENFHP)
- 902÷928 MHz (FCC part 15.247) (Mod. R1170IUNFHP)
- 920.625÷924.375 MHz (SRRC RFID national standards) (Mod. R1170IUNFHP – OPT. WPE1170NFACN)

Front panel

The qIDminiNF R1170INF front panel houses the following LEDs and buttons (see figure below):

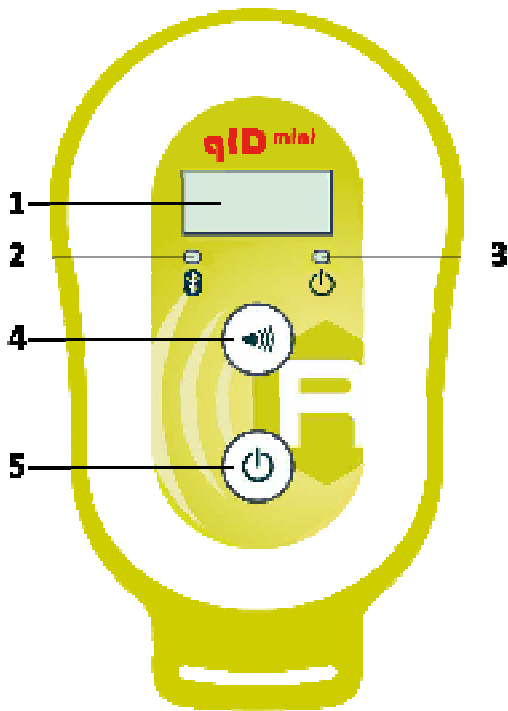


Fig. 1.2: qIDminiNF R1170INF Front Panel

No.	Name	Description
1	Display	LCD Alphanumeric (8 chars x 2 lines)
2	Link LED	Indicates the Bluetooth and USB/charger connection (see § Tab. 1.3: qIDminiNF R1170INF Bluetooth LED status table)
3	Power LED	Indicates the reader status and battery level (see § Tab. 1.2: qIDminiNF R1170INF Power LED Status Table)
4	Trigger button	Inventory mode: press to perform an inventory cycle (hold down the button to repeat inventory cycles) Menu mode: quick press to scroll, hold down for a few seconds to activate an option
5	Power button	Press the button to switch on the reader, press for at least 2 seconds to switch it off Menu mode: press to return to the main menu

Tab. 1.1: qIDminiNF R1170INF Front Panel LEDs and Buttons

Status	Description
Green	Reader is active and the battery charge is in the range 35÷100%
Orange	Reader is active and the battery charge is in the range 15÷35%
Red ¹	Reader is active and the battery charge is in the range 0÷15%

Tab. 1.2: qIDminiNF R1170INF Power LED Status Table

Status	Description
OFF	No connection established
Orange	USB cable connected (both to a PC or to the AC power adapter)
Blue	Bluetooth connected

Tab. 1.3: qIDminiNF R1170INF Bluetooth LED status table

¹ Blinking red LED at power on indicates that the battery is empty and a recharge shall be performed

Charging

The qIDminiNF R1170INF is supplied with an USB cable and a power supply for charging (see § *Accessories* page 9).

When you put the reader in charge, the display lights up and shows the blinking charge indicator. The fixed indication "charge 100%" informs you that the charging is complete.



Warning: EMPTY BATTERY CONDITION

In case that the battery is fully discharged, the display may not turn on when the charger is connected. In this case you have to leave the reader connected to the charger for at least 5 minutes, then disconnect the USB cable, perform the reset procedure (see § *RESET THE qIDminiNF READER* page 40), switch off the reader by pressing the power button and then connect the USB cable again.

USB connector

A micro USB Type B socket connector is located in the bottom side of qIDminiNF R1170INF and can be used to connect the reader to an USB host port or to an AC/DC battery charger.

Accessories

Check for the supplied accessories below:



Fig. 1.3: qIDminiNF R1170INF Accessories

Ordering Options

	Code	Description
Reader	WR1170IENFHP	R1170IENFHP – qIDmini - Keyfob Bluetooth UHF NF RFID Reader (ETSI) with HID profile
	WR1170IUNFHP	R1170IUNFHP – qIDmini - Keyfob Bluetooth UHF NF RFID Reader (FCC) with HID profile
Customization	WPE1170NFACN	R1170IUNFHP - China - Customization

2 GETTING STARTED

Introduction

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

The qIDminiNF R1170INF has two communication interfaces: USB and Bluetooth. The last one is the preferred communication interface 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.

In the § *QIDMININF CONFIGURATION MENU* page 41 you can choose between three different profile options:

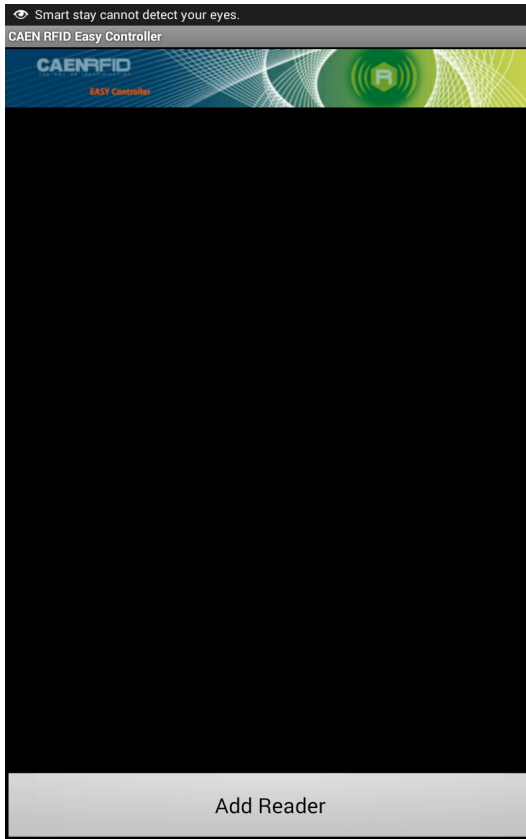
- **EASY2RD** (factory default): choosing this option you select the CAEN RFID easy2read communication protocol. Select this option in order to control the reader using the [CAEN RFID Easy Controller Application](#) or the [SDK \(Software Development Kits\)](#) library. For details on the use with the EASY2RD profile please refer to § *QIDMININF EASY2RD PROFILE* chapter page 16.
- **HID**: choosing this option you select the keyboard emulation protocol. For details on the use on the HID profile please refer to § *QIDMININF HID PROFILE* chapter page 28.
- **OFFLINE**: choosing this option you select the *stand-alone mode*

The reader is sold with the factory profile set to EASY2RD. This guide helps you to getting started with your reader using the EASY2RD profile.

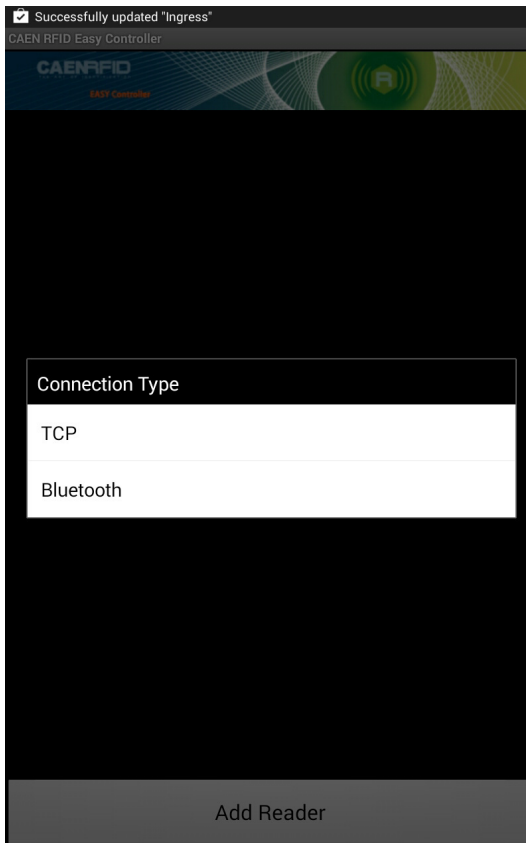
Bluetooth Communication Setup using the Easy Controller for Android

1. Download the *CAEN RFID Easy Controller for Android App* from the [qIDmini R1170I web page](#), by clicking on the Android APP on Google Play icon.
2. Launch the *CAEN RFID Easy Controller for Android App*.

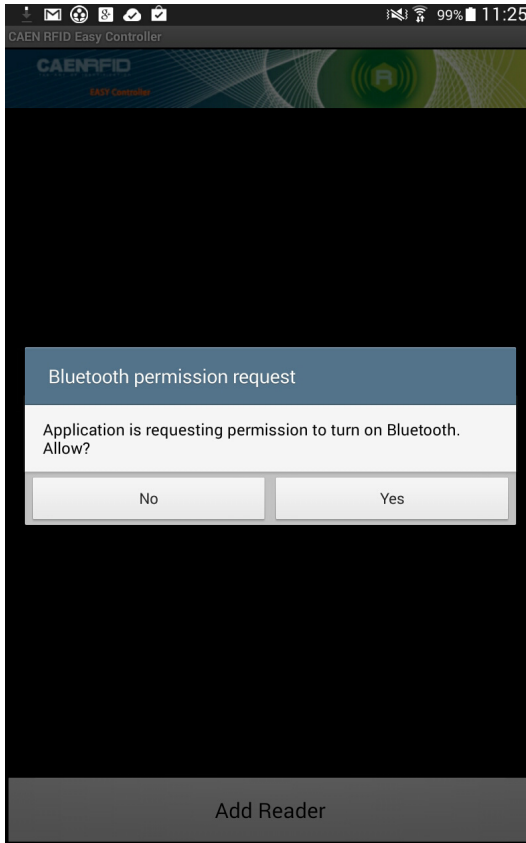
3. Click on *“Add reader”*:



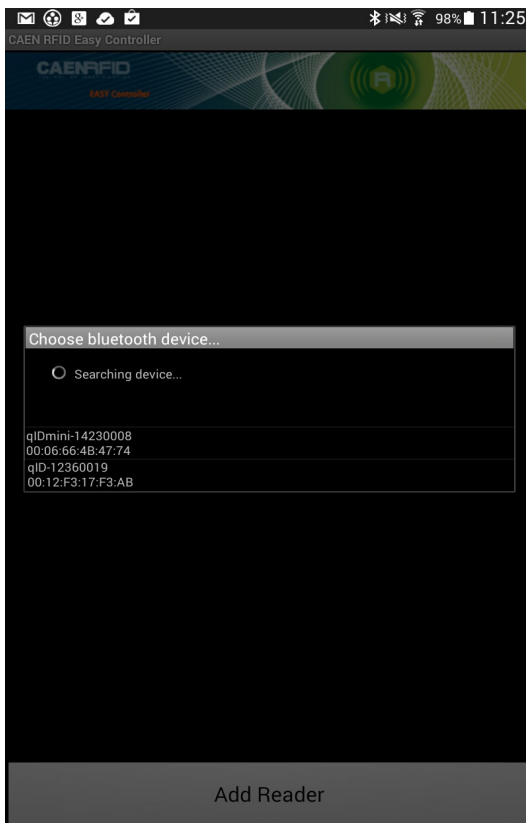
4. Click on *“Bluetooth”* in the *“Connection Type”* window:



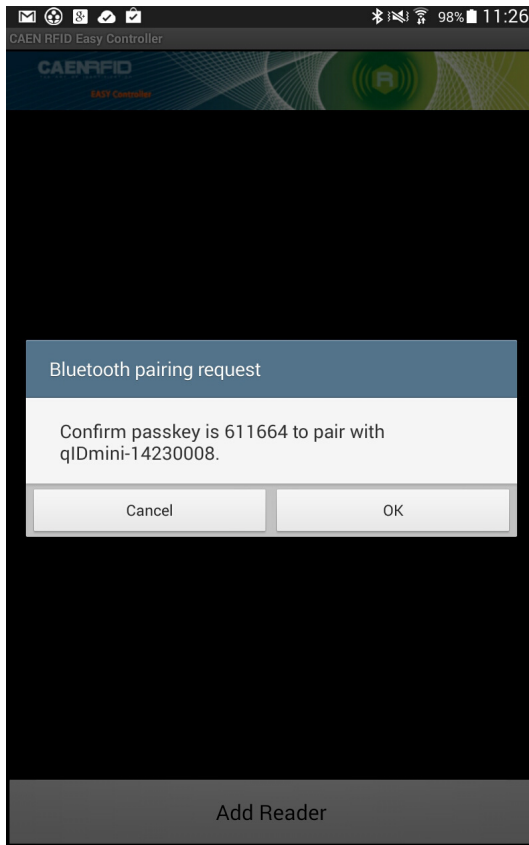
5. Click on “yes” to confirm the *Bluetooth permission request*:



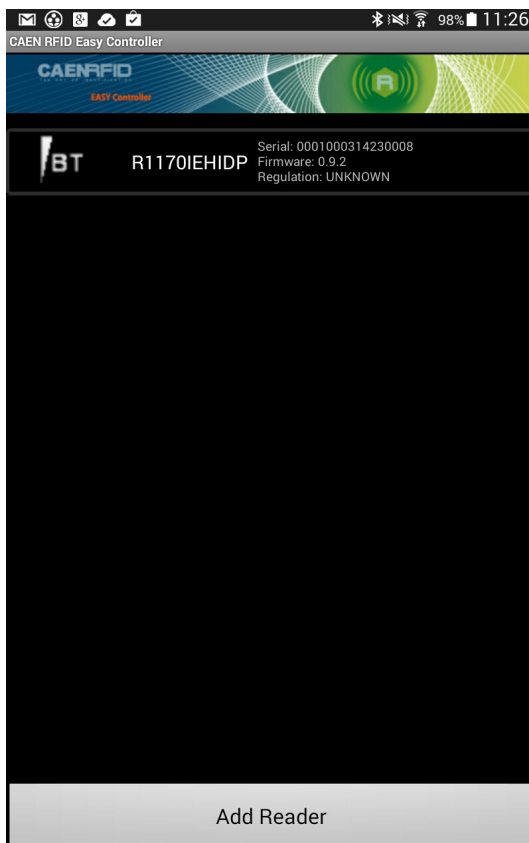
6. Select the qIDminiNF R1170INF reader from the list of Bluetooth devices:



7. Confirm the passkey:



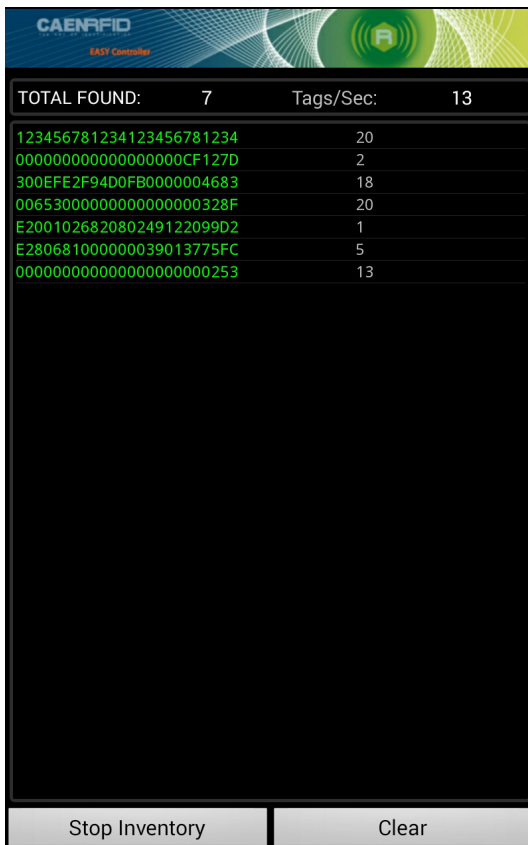
8. Once the connection is established the Bluetooth blue light turns on.
9. To start using your qIDminiNF R1170INF, click on the reader line:



10. Click on "Start Inventory":



11. A list of the read tags is shown:



3 qIDminiNF EASY2RD PROFILE

Introduction

Choosing the **EASY2RD** profile option you select the CAEN RFID easy2read communication protocol. Select this option in order to control the reader using the [CAEN RFID Easy Controller Application](#) or the [SDK \(Software Development Kits\)](#) library.

For details on the available profiles and on the activation method please refer to § *PROFILE* paragraph page 43.

Note that the reader can be connected through the EASY2RD profile to all devices except the iOS ones.

EASY2READ profile options

To enter the EASY2READ profile options, turn on the reader; the display shows information on the currently active profile (EASY2READ) and then the message "ready" informs you that the reader is operating. Press quickly the *power* button to enter the EASY2READ profile options:

- DISPLAY

DISPLAY

Hold down the trigger button to enter the *Display* Option:

- CONTROL. Hold down the trigger button to enter the CONTROL options:
 - LOCAL: the qIDminiNF display shows the EPC of the read tags and the date and time if enabled in the clock menu.
 - REMOTE: the display is controlled by a PC, a smartphone etc.. using the function *PrintScreen* . So with this option you can customize the information displayed by the reader about the read tags (e.g., instead of the EPC you can display messages such as "correct tag"...).

Use the function *PrintScreen* (for more information, visit the [CAEN RFID SDK Software Development Kit](#) web page and download the *CAEN RFID API Reference Manual*) to customize the information displayed by the reader:

C#representation:

```
public void PrintScreen (
    string Text,
    string TerminalType
)
```

Parameters:

Name	Description
Text	An arbitrary ASCII string.
TerminalType	RFU parameter, default is 0 (VT100).

The currently active CONTROL is marked with an asterisk. By default the LOCAL CONTROL is enabled.

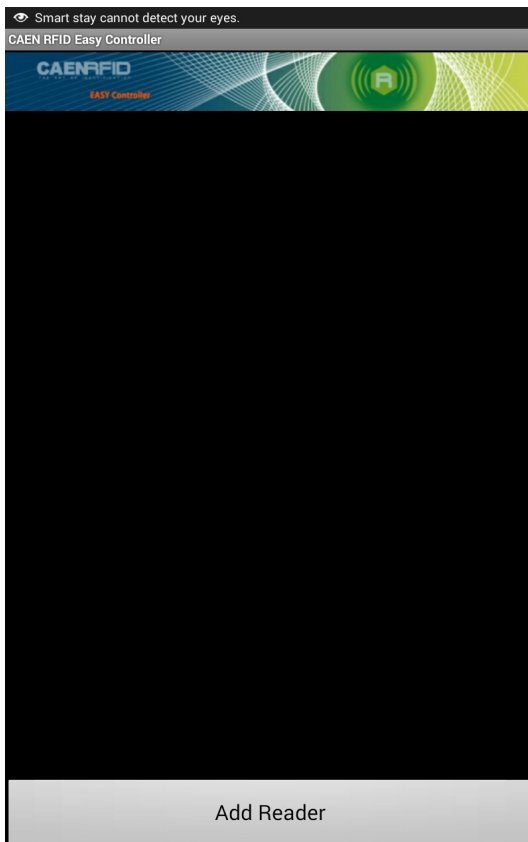
To activate a different CONTROL, scroll through the CONTROL options by pressing quickly the trigger button until LOCAL or REMOTE is displayed. Hold down the trigger button for a few seconds: the name of the chosen option will begin to flash. Once activated, the device returns to the main menu.

The currently active state is marked with an asterisk. By default the CONTROL is set to LOCAL.

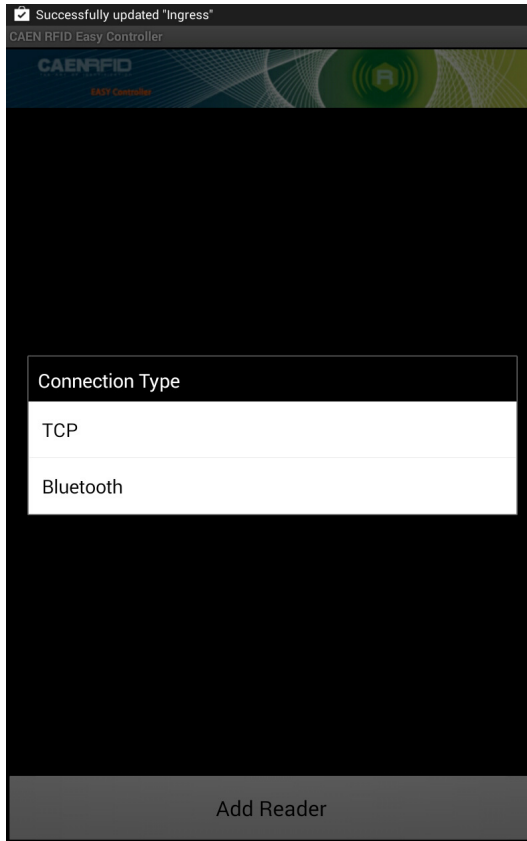
Android devices

Bluetooth Communication Setup using the Easy Controller for Android

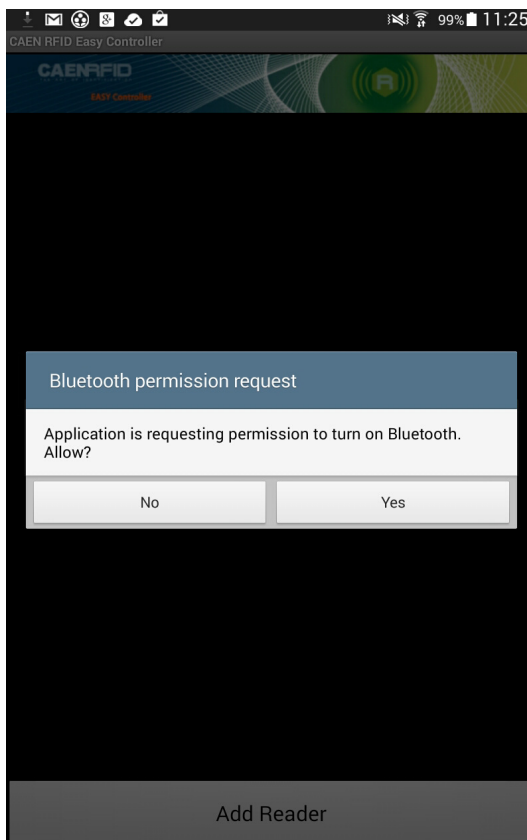
1. Download the *CAEN RFID Easy Controller for Android App* from the [qIDmini R11701 web page](#), by clicking on the Android App on Google Play icon.
2. Launch the *CAEN RFID Easy Controller for Android App*.
3. Click on “Add reader”:



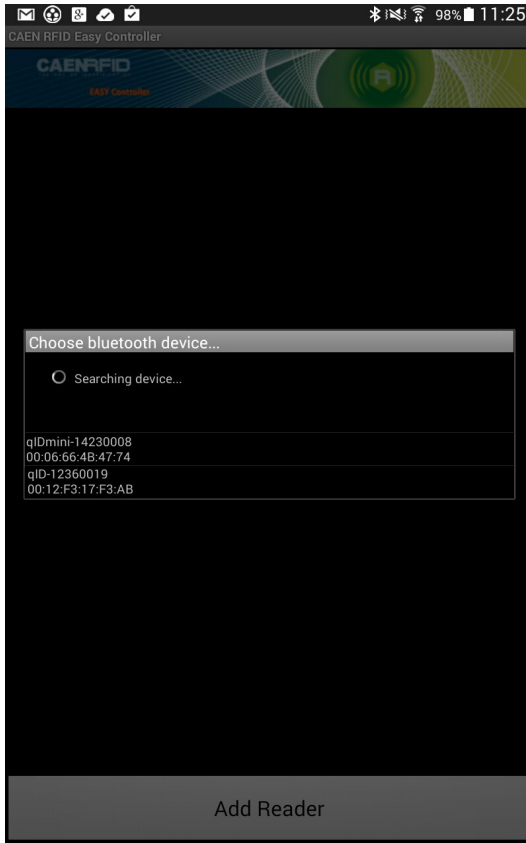
4. Click on *“Bluetooth”* in the *“Connection Type”* window:



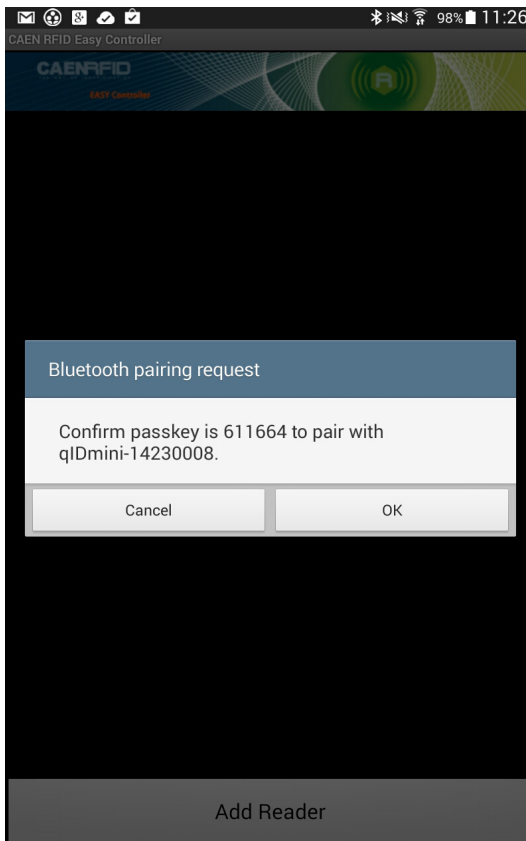
5. Click on *“yes”* to confirm the *Bluetooth permission request*:



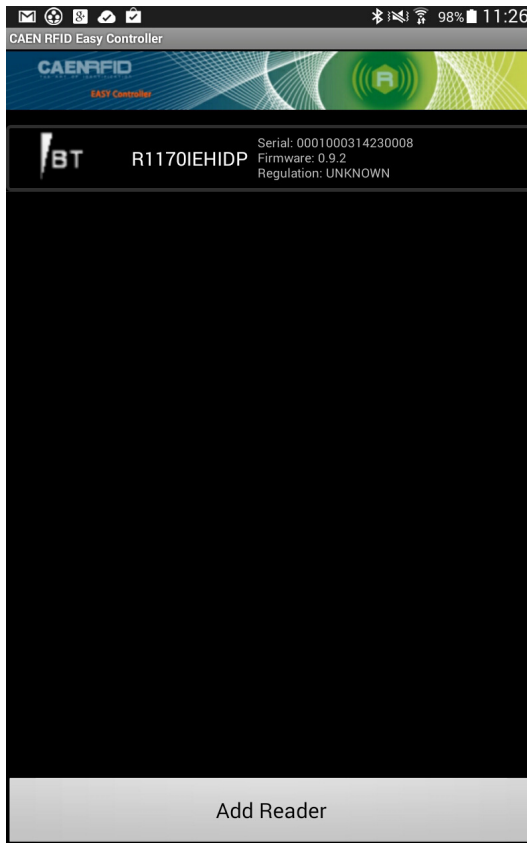
6. Select the qIDminiNF R1170INF reader from the list of Bluetooth devices:



7. Confirm the passkey:



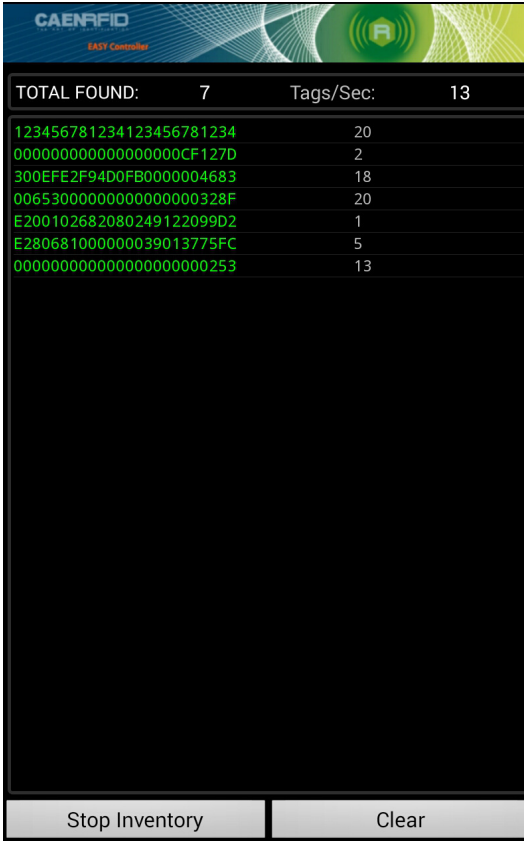
- Once the connection is established the Bluetooth blue light turns on.
- To start using your qIDminiNF R1170INF, click on the reader line:



- Click on "Start Inventory":



11. A list of the read tags is shown:



The screenshot shows the CAENRFID EASY Controller interface. At the top, it displays 'CAENRFID THE ART OF IDENTIFICATION' and 'EASY Controller'. Below this, a summary row shows 'TOTAL FOUND: 7' and 'Tags/Sec: 13'. A list of seven tags is displayed, each with its corresponding count. At the bottom, there are two buttons: 'Stop Inventory' and 'Clear'.

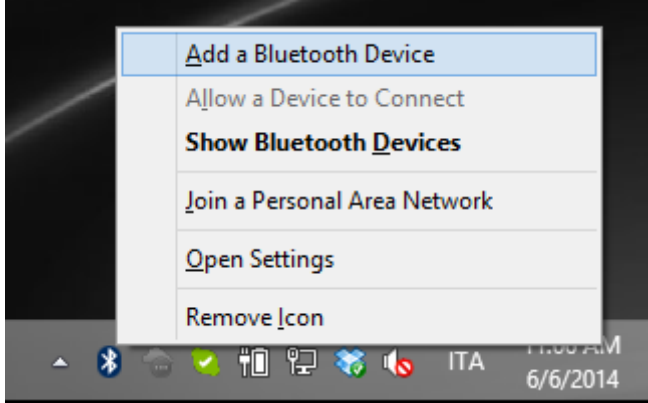
Tag ID	Count
123456781234123456781234	20
000000000000000000CF127D	2
300EFE2F94D0FB0000004683	18
00653000000000000000328F	20
E200102682080249122099D2	1
E280681000000039013775FC	5
000000000000000000000253	13

Windows PCs

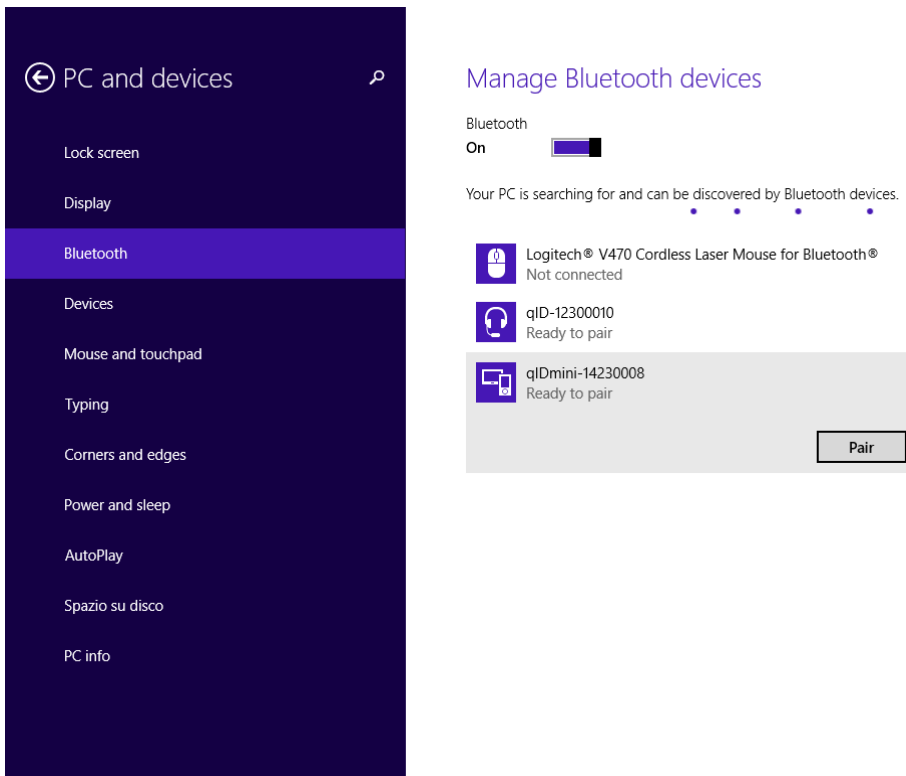
Bluetooth Communication Setup

1. In case of Windows 8 Operating System:

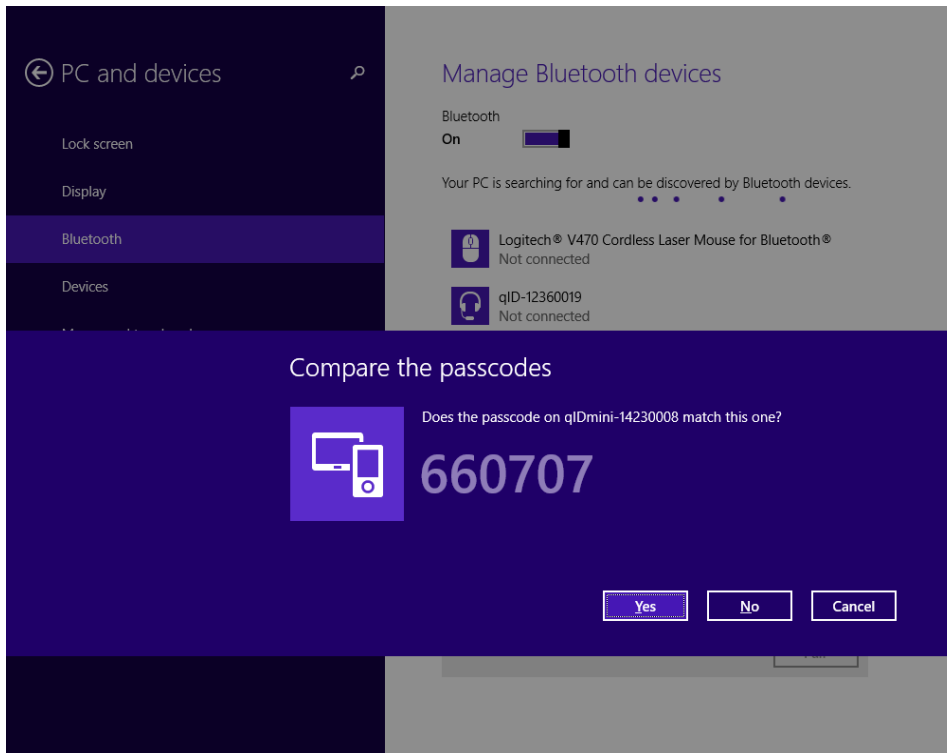
Right click on the *Bluetooth* icon in the taskbar -> *Add a Bluetooth Device*:



Select the qID mini R1170INF reader and click on "Pair":



Click on “yes” to confirm the passcode:



In case of Windows XP Operating System, when discovered by the host, the qIDminiNF reader can be identified by its Bluetooth device name and paired using the pass-key; both parameters are provided below:

- Bluetooth device name: “qIDmini” + device serial number
 - Pass-key: 1234
2. Once the connection is established the Bluetooth blue light turns on.

Now you can use the [CAEN RFID Easy Controller](#) Application to control the reader. For details refer to § *Connecting the qIDminiNF using the Easy Controller for Windows* page 26.

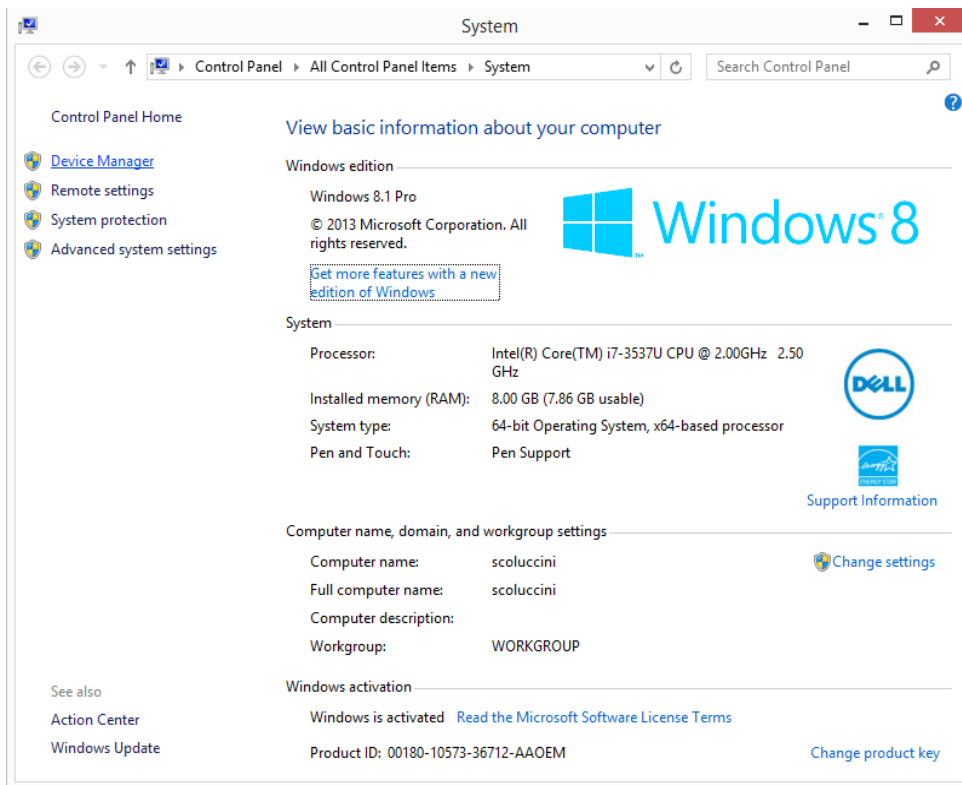


Warning: Note that in the EASY2RD profile holding down the *trigger* button activates the tag inventory only if the continuous mode is active (see the function *EventInventoryTag Method* in the *CAEN RFID API Reference Manual* that can be download from [qIDmini R11701 web page](#), *Documents* section).

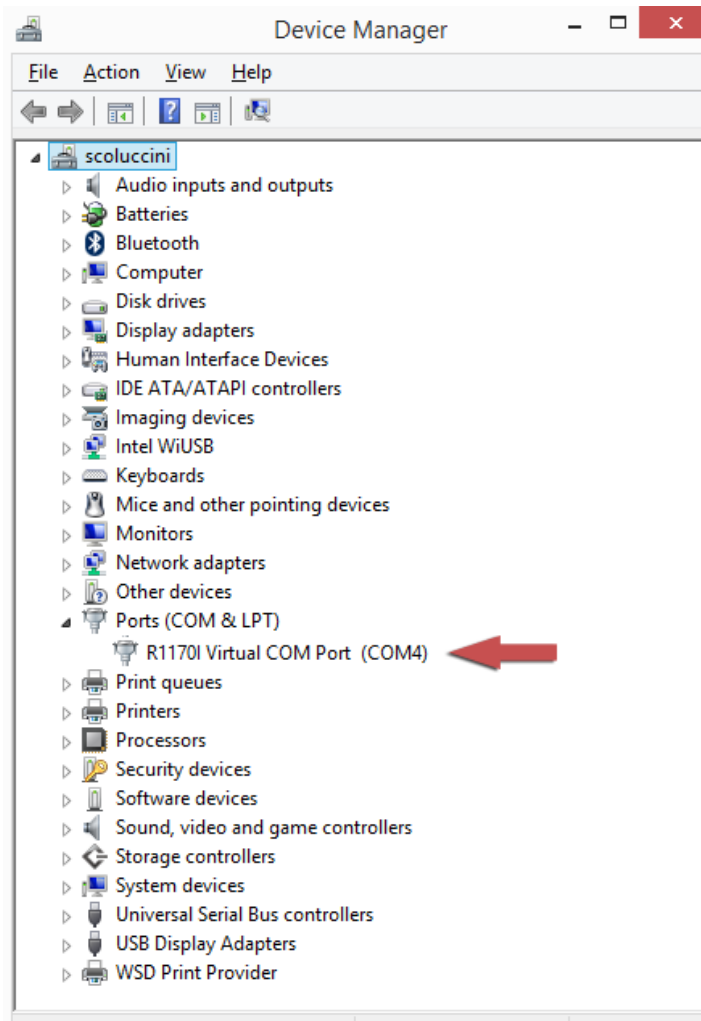
USB Communication Setup

The qIDminiNF reader can be connected to a PC using the provided USB cable and it is detected by the PC as an emulated serial port. In order to correctly operate with the reader you need to install a driver.

1. Power OFF the reader, plug the USB cable into the qIDminiNF USB port and then power ON the reader again.
2. In order to connect the qIDminiNF reader to the PC you need to install the VCP (Virtual Com Port) drivers for your operating system. You can download VCP drivers for Windows based systems from the CAEN RFID Web Site from the [qIDmini R1170I web page](#), SW/FW section or from the [Software and Firmware download area](#).
3. Open the System properties: go to *Control Panel* → *All Control Panel Items* → *System* and click on *Device Manager*.



4. After having installed the driver, the reader is detected by the PC as an emulated serial port (VCP):



Now you can use the [CAEN RFID Easy Controller](#) Application to control the reader. For details refer to § *Connecting the qIDminiNF using the Easy Controller for Windows* page 26.

Y

Warning: Note that in the EASY2RD profile holding down the *trigger* button activates the tag inventory only if the continuous mode is active (see the function *EventInventoryTag Method* in the *CAEN RFID API Reference Manual* that can be download from [qIDmini R1170I web page](#), *Documents* section).

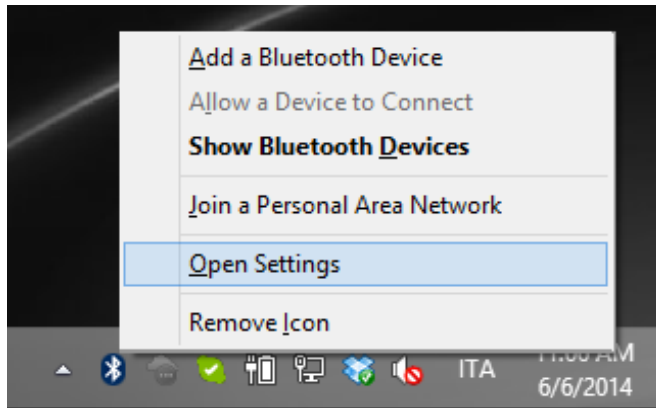
Connecting the qIDminiNF using the Easy Controller for Windows

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.

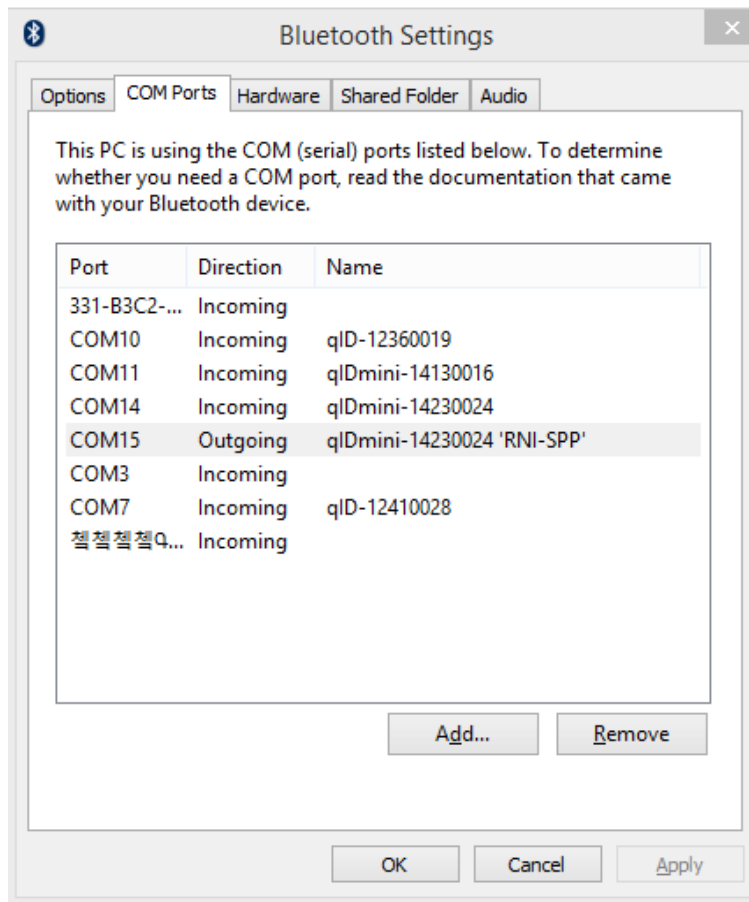
The activation of the EASY2RD profile is required to connect the qIDminiNF using the Easy Controller application for Windows.

Follow the steps below to connect the qIDminiNF reader using the Easy Controller for Windows via Bluetooth:

1. Download from the CAEN RFID web site the latest version of the CAEN RFID [Easy Controller for Windows](#) software and install it.
2. Connect the qIDminiNF reader to your PC using either the USB or the Bluetooth connection.
3. Right click on the *Bluetooth* icon in the taskbar -> *Open Settings*:



- Look for the emulated serial port in the “Bluetooth Settings”:



- Launch the CAEN RFID Easy Controller application.
- On the main application window click on *File* → *Connect*; the connection dialog box will appear.
- Select *RS232* from the *Connection Type* combo box and the right COM port number from the *RS232 Port* combo box.
- Click on *Connect*.
- 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 [qIDmini R1170I web page, Documents Section](#), from the CAEN RFID [Easy Controller for Windows](#) web page 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 the CAEN RFID [Easy Controller for Android](#) web page.

4 qIDminiNF HID PROFILE

Introduction

Choosing the **HID** profile option you select the keyboard emulation protocol.

For details on the available profiles and on the activation method please refer to § *PROFILE* paragraph page 43.

Note that the reader can be connected through the *HID profile* to all the devices, including the iOS ones.

HID profile options

To enter the HID profile options, turn on the reader, the display shows information on the currently active profile (HID) and then the message "ready" informs you that the reader is operating. Press quickly the *power* button to enter the HID profile options:

- FORMAT
- DISPLAY
- APPLEKB

FORMAT

In the HID profile you can set different EPC format, while using the EASY2READ profile it is not possible to change the HEXADECIMAL EPC format.

- **HEX:** The RFID EPC string is represented by 24 characters
- **ASCII:** The RFID EPC string (96 bits long) is represented by 12 characters

The currently active format is marked with an asterisk. By default the EPC HID format is set to "HEX".

To activate a different format, scroll through the FORMAT options by pressing quickly the *trigger* button until HEX or ASCII is displayed. Hold down the *trigger* button for a few seconds, the chosen option will begin to flash. Once activated, the device returns to the main menu.

DISPLAY

Hold down the trigger button to enter the Display Option:

1. **SCROLL:** Flowing text on display. To enable/disable the display scroll, hold down the *trigger* button for a few seconds. The chosen option will begin to flash. Once activated, the device returns to the main menu.

The currently active state is marked with an asterisk. By default the display scroll is enabled and the flowing text on the display shows the whole EPC of the tag.

If the display scroll is disabled, the display shows the last 8 characters of the tag EPC.

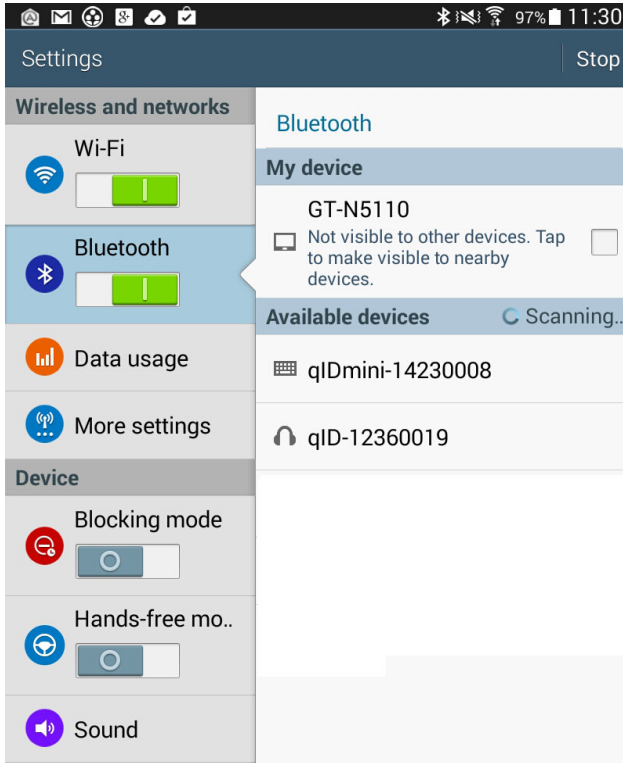
APPLEKB

Hold down the trigger button to send a request to iOS devices in the read range of the qIDminiNF reader to open the virtual keyboard on the iOS device.

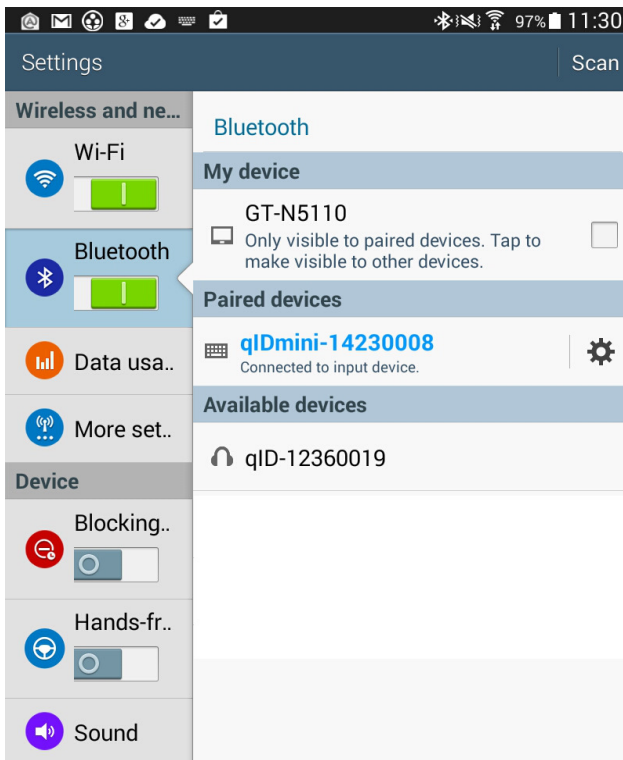
Android devices

Bluetooth Communication Setup

1. On your Android device, go to *Setting* and enable the Bluetooth. A list of the Bluetooth available devices is shown:

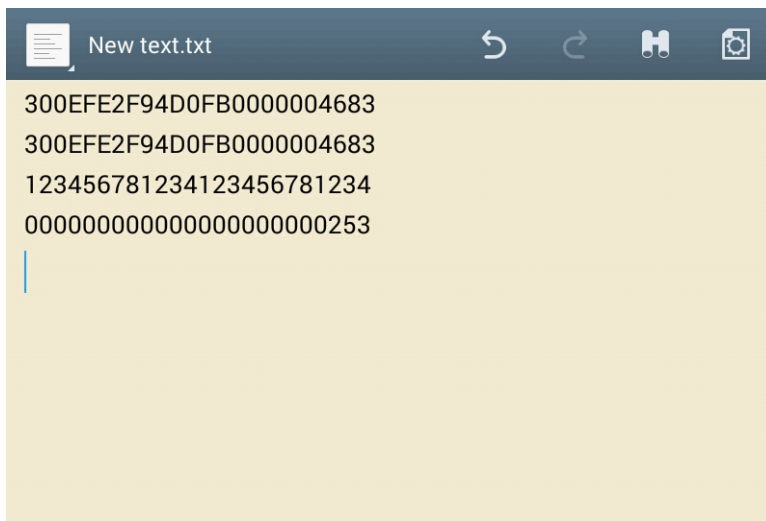


2. Click on the qIDminiNF R1170INF reader and wait while the pairing is completed:



3. Once the connection is established the Bluetooth blue light turns on.
4. Launch a text editing App (or any other App accepting keyboard input).
5. Start an inventory cycle by pressing the *trigger* button.

6. On the text editing App window you will see the EPCs of the tags:



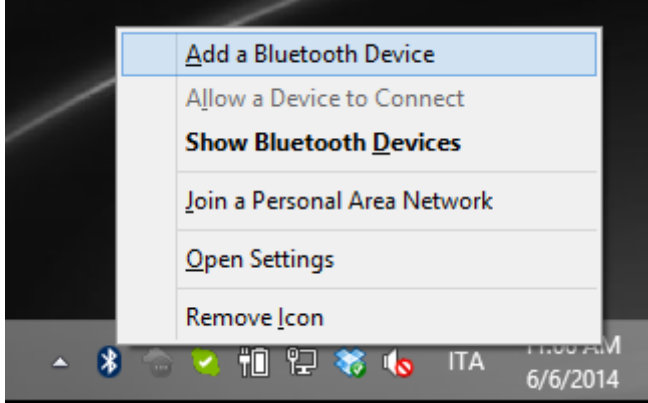
Note that, when configured in HID profile and paired to a device, the qIDminiNF will automatically reconnect to the same device every time the Bluetooth link is active (qIDminiNF switched ON and Bluetooth activated on the host). You can verify this behaviour looking at the blue LED that, in this case, turns ON automatically as soon as you switch on the qIDminiNF.

Windows PCs

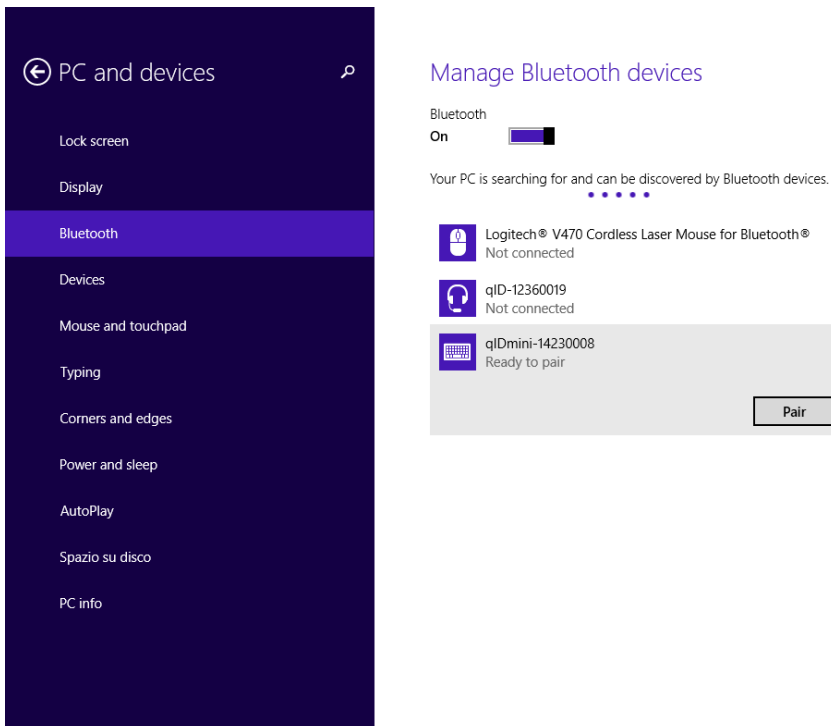
Bluetooth Communication Setup

1. In case of Windows 8 Operating System:

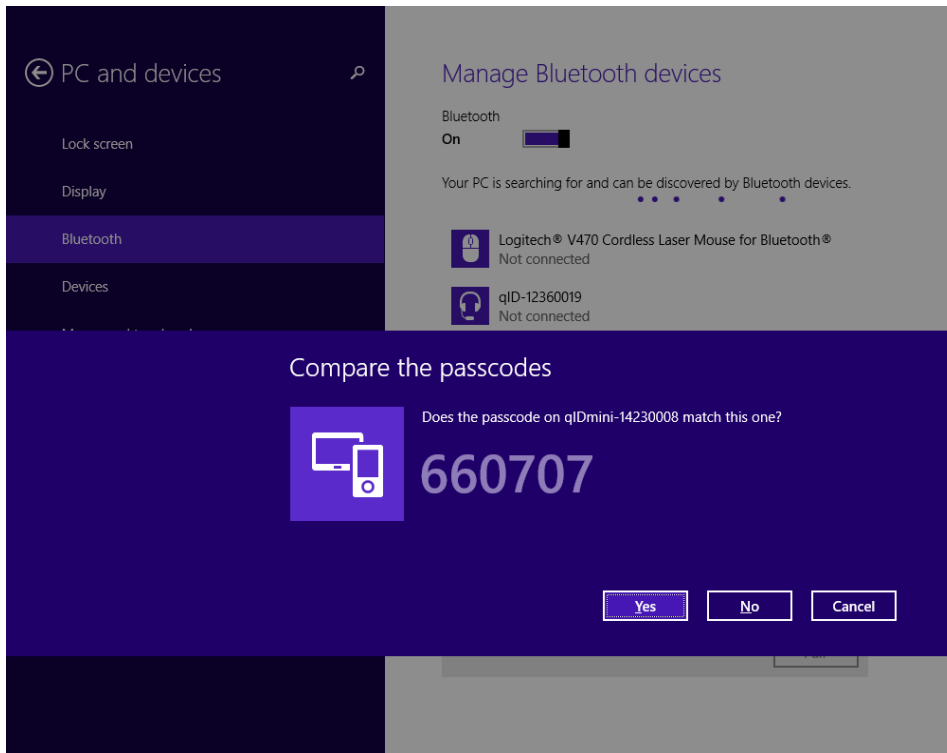
Right click on the Bluetooth icon in the taskbar -> *Add a Bluetooth Device*:



Select the qID mini R1170INF reader and click on "Pair":



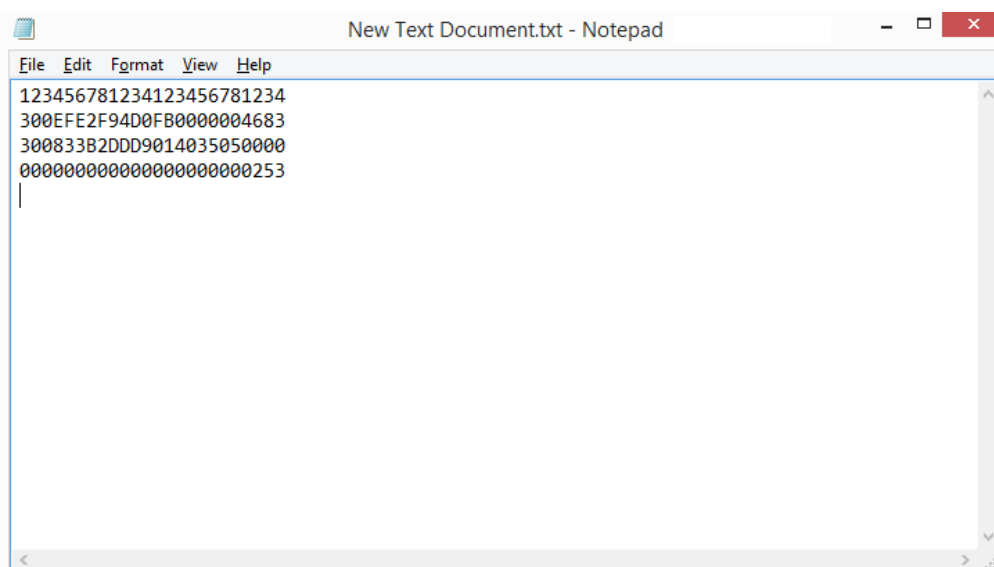
Click on “yes” to confirm the passcode:



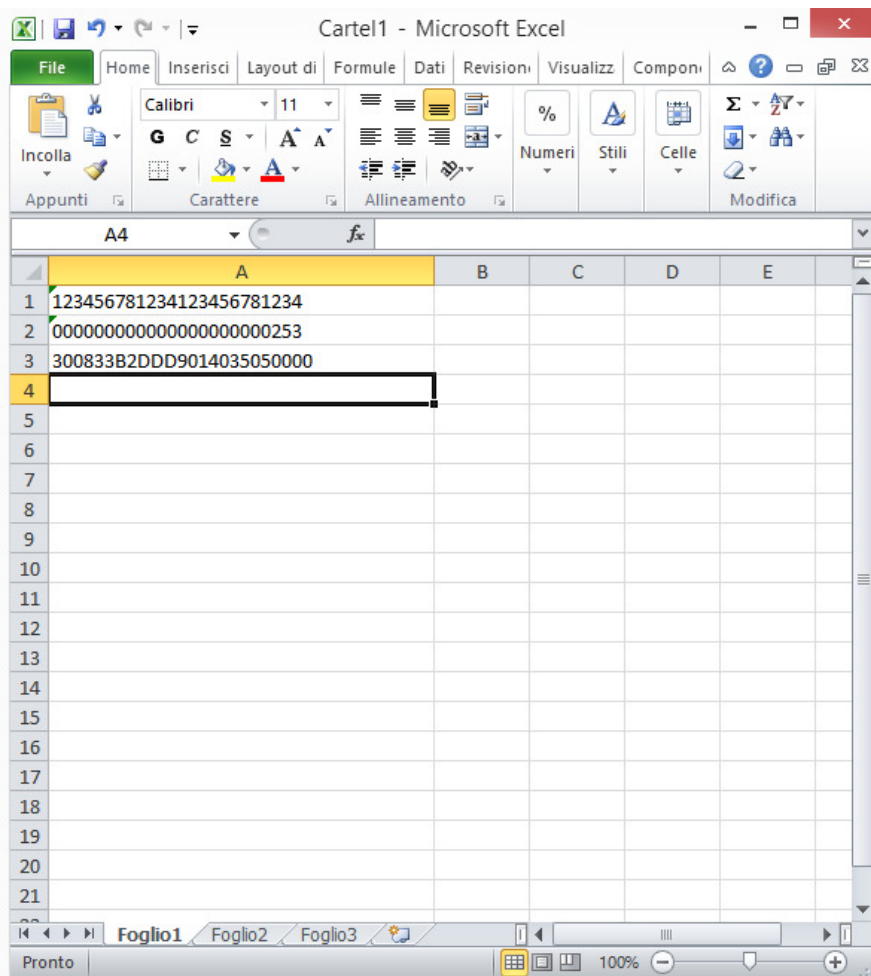
In case of Windows XP Operating System, when discovered by the host, the qIDminiNF reader can be identified by its Bluetooth device name and paired using the pass-key; both parameters are provided below:

- Bluetooth device name: “qIDmini” + device serial number
 - Pass-key: 1234
2. Once the connection is established the Bluetooth blue light turns on.
 3. Launch a text editing App (or any other App accepting keyboard input).
 4. Start an inventory cycle by pressing the *trigger* button.
 5. On the text editing window you will see the EPCs of the tags:

Example with a .txt file:



Example with Microsoft Excel:

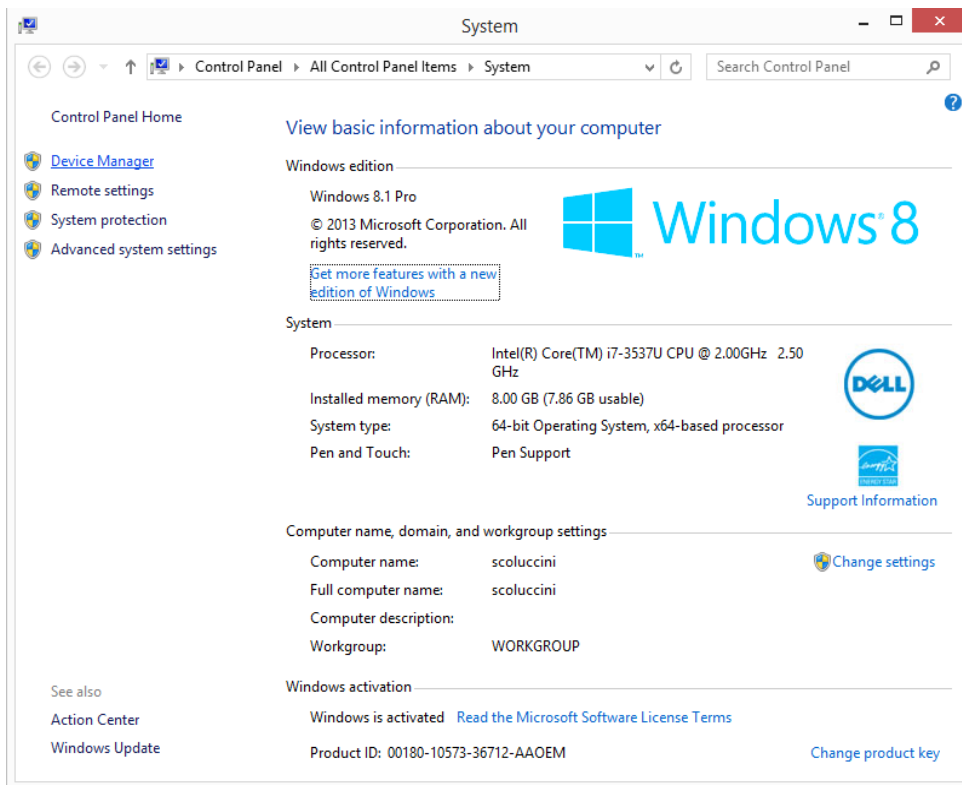


Note that, when configured in HID profile and paired to a device, the qIDminiNF will automatically reconnect to the same device every time the Bluetooth link is active (qIDminiNF switched ON and Bluetooth activated on the host). You can verify this behavior looking at the blue LED that, in this case, turns ON automatically as soon as you switch on the qIDminiNF.

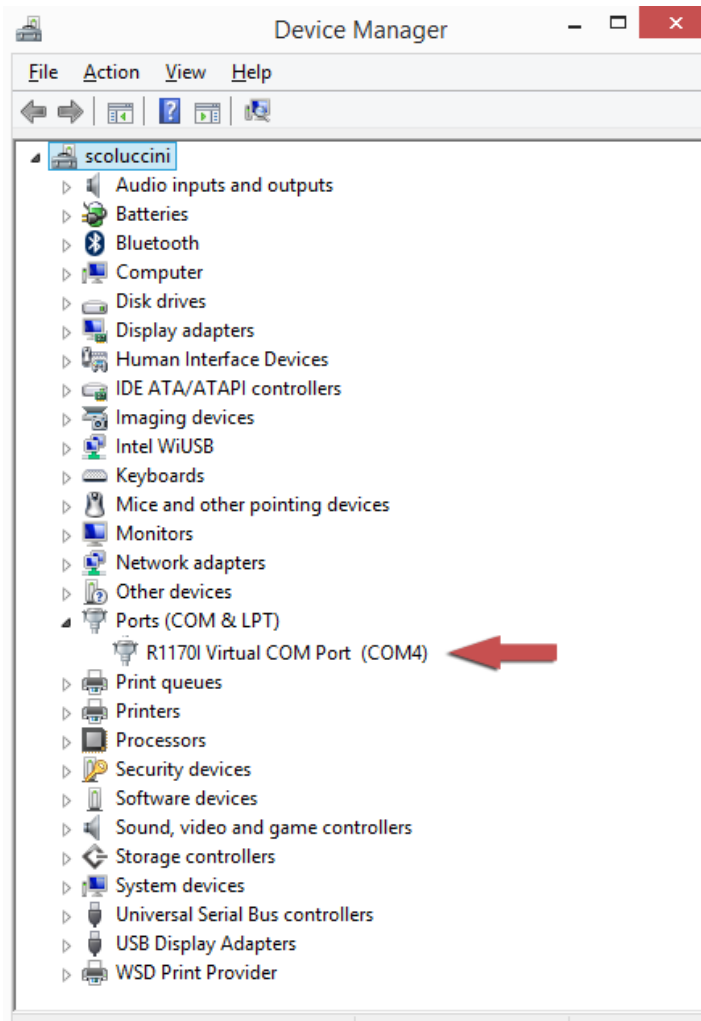
USB Communication Setup

The qIDminiNF reader can be connected to a PC using the provided USB cable and it is detected by the PC as an emulated serial port. In order to correctly operate with the reader you need to install a driver.

1. Power OFF the reader, plug the USB cable into the qIDminiNF USB port and then power ON the reader again.
2. In order to connect the qIDminiNF reader to the PC you need to install the VCP (Virtual Com Port) drivers for your operating system. You can download VCP drivers for Windows based systems from the CAEN RFID Web Site from the [qIDmini R1170I web page](#), SW/FW section or from the [Software and Firmware download area](#).
3. Open the System properties (right click on *My computer* icon) → *All Control Panel Items* → *System* and click on *Device Manager*.



4. After having installed the driver, the reader is detected by the PC as an emulated serial port (VCP):



Y

Warning: Note that, when configured in the HID profile, the qIDminiNF reader cannot be controlled using the *CAEN RFID Easy Controller Application*.

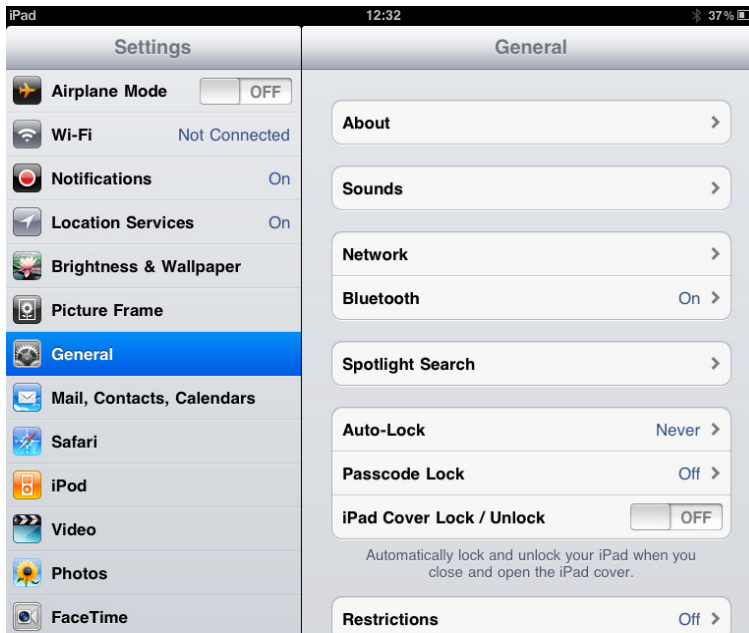
The qIDminiNF reader, when configured in the HID profile and connected via USB to a PC, sends the EPCs of the detected tags on the serial port as ASCII characters. So, in order to operate with the reader in this configuration, follow these steps:

1. Launch a terminal emulator application (e.g. Hyperterminal)
2. Connect the terminal emulator application to the virtual COM port assigned to the qIDminiNF reader
3. Press the *trigger* button to perform an inventory cycle (hold down the button to repeat inventory cycles)
4. The EPCs are displayed on the terminal emulator window

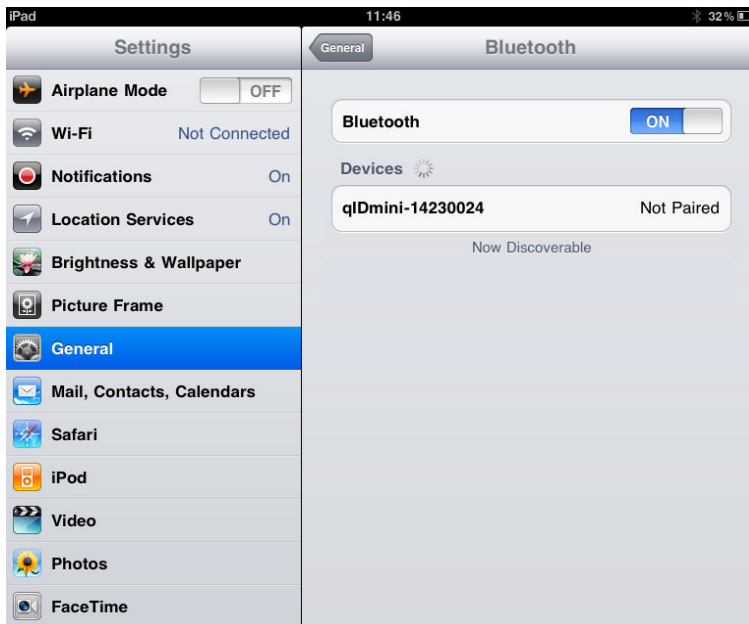
iOS devices

Bluetooth Communication Setup

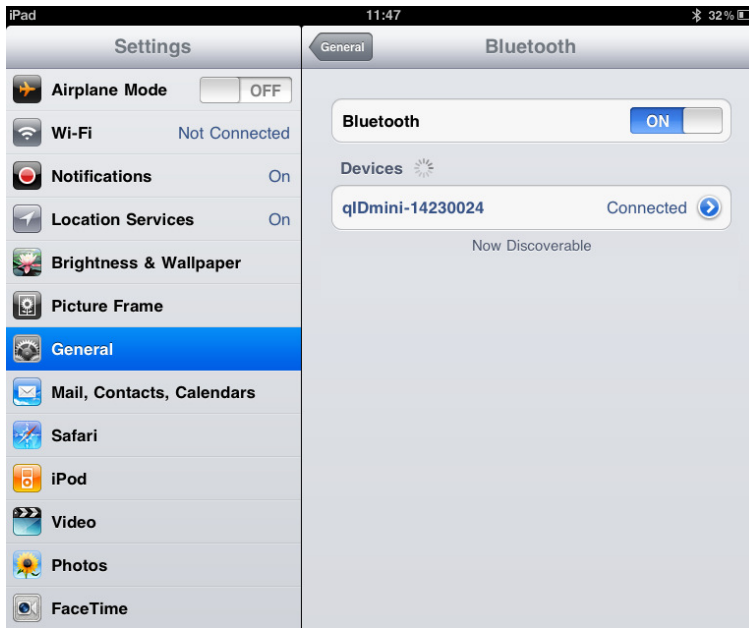
1. On your iOS device, go to *Setting* and enable the Bluetooth:



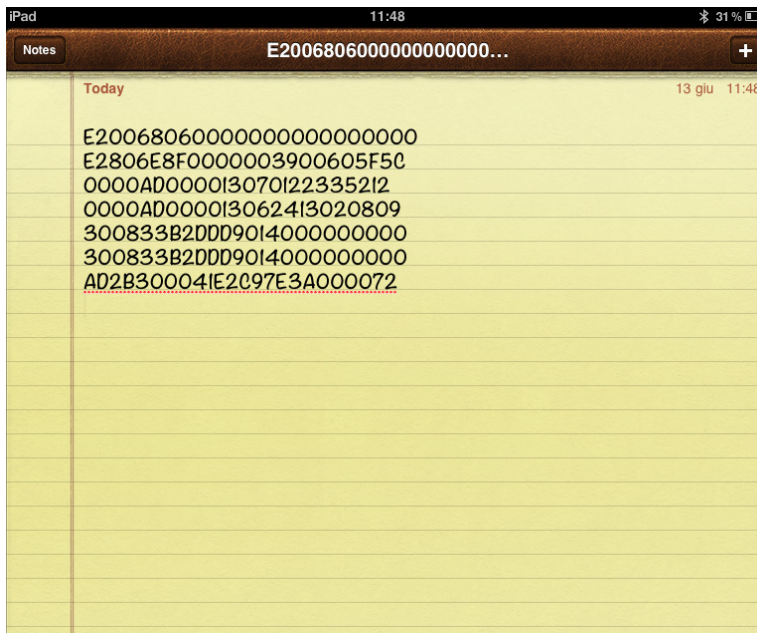
2. A list of the Bluetooth available devices is shown:



- Click on the qIDminiNF R1170INF reader and wait while the pairing is completed:



- Once the connection is established the Bluetooth blue light turns on.
- Launch a text editing App (or any other App accepting keyboard input).
- Start an inventory cycle by pressing the trigger button.
- On the text editing App window you will see the EPCs of the tags:



5 qIDminiNF OFFLINE PROFILE

Introduction

In the OFFLINE mode the reader stores EPC codes into the internal memory when the communication links (USB or Bluetooth®) are not available. The operator goes around collecting codes and then connects the reader to the cable or, better, to the docking station in order to download the data.

For details on the available profiles and on the activation method please refer to § *PROFILE* paragraph page 43.

To perform the tag inventory just hold down the *trigger* button for the desired time.

If the reader reads only a tag, the display shows the EPC code of the tag (if the display scroll is enabled, the flowing text on the display shows the whole EPC of the tag, while if the display scroll is disabled, the display shows the last 8 characters of the tag EPC. See § *DISPLAY* paragraph pag. 39). If the reader reads more than one tag, the display shows the number of read tags.

OFFLINE profile options

In the OFFLINE profile the reader works in stand-alone mode. You can download data or see the stored tags list by entering the OFFLINE profile options:

1. Turn on the reader, the display shows information on the currently active profile (OFFLINE) and then the message "ready" informs you that the reader is operating.
2. Press quickly the *power* button to enter the OFFLINE profile options, that are:
 - DWNLOAD
 - ERASE
 - VIEWTAG
 - BTSCAN
 - LOGOPT
 - DISPLAY

DWNLOAD

Hold down the trigger button to enter this option and to download data. Then press quickly the trigger button, a message "send?" will appear. Launch a terminal emulator (e.g. Hyperteminal), connect the reader via Bluetooth (the Bluetooth device is the one identify through the BTSCAN menu option) or USB and then press again quickly the trigger button to start the download.



Warning: Note that the data stored in the reader using the OFFLINE mode cannot be downloaded if you activate a different profile (EASY2RD or HID). However data are maintained in memory and, returning to the OFFLINE profile, you can download information.

ERASE

Hold down the trigger button to enter this option and delete stored data. The text "Erase" on the display starts blinking. Once data is deleted, the device returns to the main menu.

VIEWTAG

This option shows the list of the read tags during the last scan. Hold down the trigger button to enter this option. Then press quickly the trigger button to scroll the EPC code of the read tags.

BTSCAN

The BTSCAN option is used to identify the Bluetooth device for the download of stored data.

The BTSCAN searches for the active Bluetooth devices within the read range of the reader.

To activate the discovery of active Bluetooth devices, hold down the trigger button. After about 5 seconds, the reader shows the list of active Bluetooth devices.

To scroll through the active Bluetooth devices list, press quickly (1 time) the trigger button.

To return to the main menu, quickly press the power button.

The currently Bluetooth device is marked with an asterisk.

You can activate only one Bluetooth device at a time.

To activate a different Bluetooth device, scroll through the list by pressing quickly the trigger button until the desired Bluetooth device and then hold down the trigger button for a few seconds: the name of the Bluetooth device will begin to flash. Once activated, the device returns to the main menu.

LOGOPT

Hold down the trigger button to enter the Log Option:

1. **TIMESTP**: Time Stamp permits to associate date and time to the EPC of the read tags. To enable/disable the TimeStp, hold down the trigger button for a few seconds. The enable (or disable) option will begin to flash. Once activated, the device returns to the main menu.

The currently active state is marked with an asterisk. By default the TimeStp option is disabled.

DISPLAY

Hold down the trigger button to enter the Display Option:

1. **SCROLL**: Flowing text on display. To enable/disable the display scroll, hold down the trigger button for a few seconds. The chosen option will begin to flash. Once activated, the device returns to the main menu. The currently active state is marked with an asterisk. By default the display scroll is enabled and the flowing text on the display shows the whole EPC of the tag.

If the display scroll is disabled, the display shows the last 8 characters of the tag EPC.

6 RESET THE qIDminiNF READER

To reset the reader, press the *power* and the *trigger* buttons (see § Fig. 1.2: qIDminiNF R1170INF Front Panel page 7) simultaneously for about six seconds and then release the buttons. The reader restarts by itself.



Warning: Note that the reader SHALL NOT be connected to the USB port or to the battery charger during the reset, otherwise the reader enters in the firmware upgrade state. If, by mistake, you entered in the firmware upgrade state, in order to restore the normal reader operation, disconnect the USB cable and repeat the reset procedure.

7 qIDminiNF CONFIGURATION MENU

Introduction

To access the main menu, turn on the device and hold down the *trigger* button within two second.

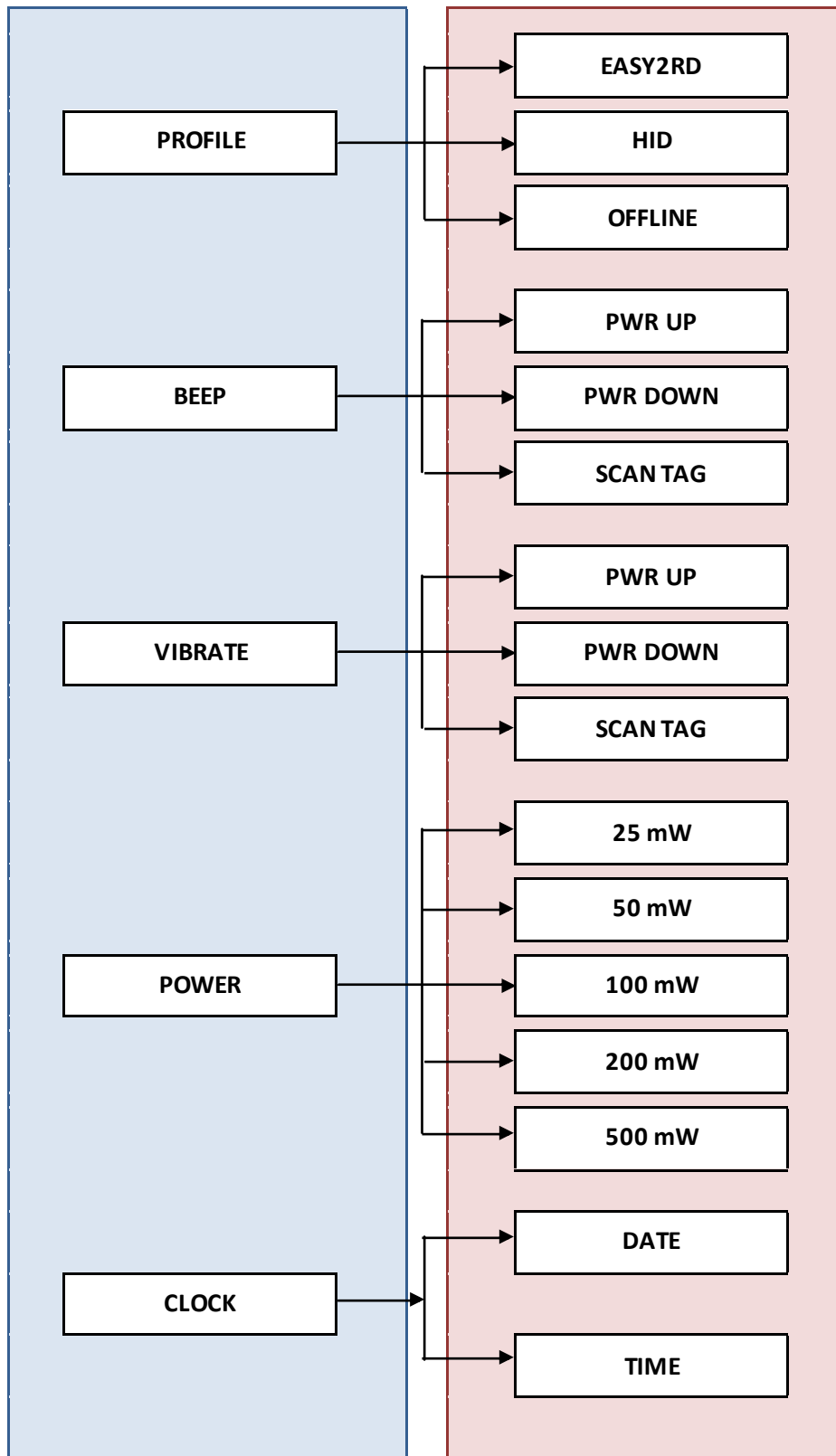
To scroll through the main menu, press quickly the *trigger* button.

The qIDminiNF R1170INF menu options are the following:

- **PROFILE**
- **BEEP**
- **VIBRATE**
- **POWER**
- **CLOCK**

To select a menu option, hold down the *trigger* button.

The complete structure of the qIDminiNF R1170INF menu is the following:



Tab. 7.1: qIDminiNF R1170INF Configuration Menu

PROFILE

Access the configuration menu as explained in the *Introduction* paragraph page 41.

The PROFILE menu is the first option of the main menu. To select it, hold down the *trigger* button.

To scroll through the PROFILE options, press quickly the *trigger* button. The currently active profile is marked with an asterisk.

The PROFILE submenu options are the following:

- **EASY2RD** (factory default): choosing this option you select the CAEN RFID easy2read communication protocol. Select this option in order to control the reader using the [CAEN RFID Easy Controller Application](#) or the [SDK \(Software Development Kits\)](#) library. For details on the use with the EASY2RD profile please refer to § *qIDminiNF EASY2RD PROFILE* chapter page 16.
- **HID**: choosing this option you select the keyboard emulation protocol. For details on the use on the HID profile please refer to § *qIDminiNF HID PROFILE* chapter page 28.
- **OFFLINE**: choosing this option you select the *stand-alone mode* and the reader stores EPC codes into the internal memory when the communication links (USB or Bluetooth®) are not available.

The *EASY2RD* and *HID* profiles require the presence of a nearby host that controls the reader (pc, tablet...), while in the *OFFLINE* profile the reader works in stand-alone mode.

To return to the main menu, quickly press the *power* button.

You can activate only one profile at a time.

To activate a different profile, scroll through the PROFILE options by pressing quickly the *trigger* button until the desired profile is displayed. Hold down the *trigger* button for a few seconds: the name of the profile will begin to flash. Once activated, the device returns to the main menu.

When you turn on the reader, the display shows the currently active profile and then the message "ready" to inform you that the reader is ready to operate.



Warning: Note that if the reader is in the HID profile you must disconnect it from any connected device before to select another profile.

BEEP

Access the configuration menu as explained in the *Introduction* paragraph page 41.

To scroll through the menu options, press quickly the *trigger* button.

The BEEP menu is the second option of the menu. To select it, hold down the *trigger* button.

The BEEP submenu options are the following:

- **PWRUP:** beep at the power on of the reader
- **PWRDOWN:** beep at the power off of the reader
- **SCANTAG:** beep at the identification of a tag

To enable/disable the submenu options, scroll through the BEEP options menu by pressing quickly the *trigger* button until the desired BEEP option and then hold down the *trigger* button for a few seconds.

Scroll through *enable* and *disable* options by pressing quickly the *trigger* button and hold down the *trigger* button for a few seconds to activate one of them. The *enable* (or *disable*) option will begin to flash. Once activated, the device returns to the main menu.

The currently active state is marked with an asterisk. By default, all the BEEP options are disabled.

Note that you can *enable* or *disable* the beeper for any option independently so that the beeper can be active on more than one option simultaneously.

To return to the main menu, quickly press the *power* button.

VIBRATE

Access the configuration menu as explained in the *Introduction* paragraph page 41.

To scroll through the menu options, press quickly the *trigger* button.

The VIBRATE menu is the third option of the menu. To select it, hold down the *trigger* button.

The VIBRATE submenu options are the following:

- **PWRUP:** vibration at the power on of the reader
- **PWRDOWN:** vibration at the power off of the reader
- **SCANTAG:** vibration at the identification of a tag

To enable/disable the submenu options, scroll through the VIBRATE options menu by pressing quickly the *trigger* button until the desired VIBRATE option and then hold down the *trigger* button for a few seconds.

Scroll through *enable* and *disable* options by pressing quickly the *trigger* button and hold down the *trigger* button for a few seconds for the activation of one of them. The *enable* (or *disable*) option will begin to flash. Once activated, the device returns to the main menu.

The currently active state is marked with an asterisk. By default, all the VIBRATE options are disabled.

Note that you can *enable* or *disable* the vibration for any option independently so that the vibration can be active on more than one option simultaneously.

To return to the main menu, quickly press the *power* button.

POWER

Through the POWER menu you can set the power level emitted by the reader.

Note that, when the reader is configured in the EASY2RD profile, to set the power you can also use the [CAEN RFID Easy Controller Application](#) or the *SetPower* function of the [SDK \(Software Development Kits\)](#) library.

Access the configuration menu as explained in the *Introduction* paragraph page 41.

To scroll through the menu options, press quickly the *trigger* button.

The POWER menu is the fourth option of the menu. To select it, hold down the *trigger* button.

The POWER submenu options are the following:

- **25 mW**
- **50 mW**
- **100 mW**
- **200 mW**
- **500 mW**

To scroll through the POWER options, press quickly the *trigger* button.

To return to the main menu, quickly press the *power* button.

The currently active power is marked with an asterisk. By default, the 200 mW power level is active.

You can activate only one power level at a time.

To activate a different power level, scroll through the POWER options by pressing quickly the *trigger* button until the desired power level is displayed. Hold down the *trigger* button for a few seconds: the power level option will begin to flash. Once activated, the device returns to the main menu.

CLOCK

The reader does not consider date and time until the first setting by the user.

To access the CLOCK option, turn off the device and then turn on it again and during the boot process hold down the *trigger* button (see § *Front panel* page 7) for a few seconds.

To scroll through the menu options, press quickly (1 time) the *trigger* button.

The CLOCK menu is the last option of the menu. To select it, hold down the *trigger* button: in this way you will enter its sub-menu.

The CLOCK submenu options are the following:

- **Date:** the date is the first option of the clock submenu. To set the date hold down the *trigger* button for a few seconds. The date is shown in the format **dd mmm yy** (e.g. 28 Oct 15). Press quickly the *trigger* button to change the *day* value. Then hold down the *trigger* button to save the *day* and pass to the *month* value. Press quickly the *trigger* button to change the *month* value. Then hold down the *trigger* button to save the *month* and pass to the *year* value. Press quickly the *trigger* button to change the *year* value. Then hold down the *trigger* button to save the *year* and hold down again to save the complete date. The date begins to flash and the reader returns to the main menu.
- **Time:** is displayed in the 24-hour format **hh:mm** (e.g. 12:51) the time is the second option of the clock submenu. Scroll through the CLOCK options menu by pressing quickly the *trigger* button until the *Time* option is displayed and then hold down the *trigger* button for a few seconds to set the time. The time is shown in the 24-hour format **hh:mm** (e.g. 12:51). Press quickly the *trigger* button to change the *hh* value. Then hold down the *trigger* button to save the *hour value* and pass to the *minutes* value. Press quickly the *trigger* button to change the “*mm*” value. Then hold down the *trigger* button to save the *minutes value* and hold down again to save the complete time. The time begins to flash and the reader returns to the main menu.

To return to the main menu, quickly press the *power* button.

In the OFFLINE profile, if you are interested in showing the date and time information of the read tags, you need to set the *clock* and enable the *Time Stamp* (see § *LOGOPT* pag. 39).

8 qIDminiNF FIRMWARE UPGRADE

Firmware Upgrade

The qIDminiNF R1170INF firmware upgrade can be managed via USB by using the SW upgrade program. The qIDminiNF Upgrade Tool is available for free at the [qIDmini R1170I web page](#) of the CAEN RFID Web Site, SW/FW section.

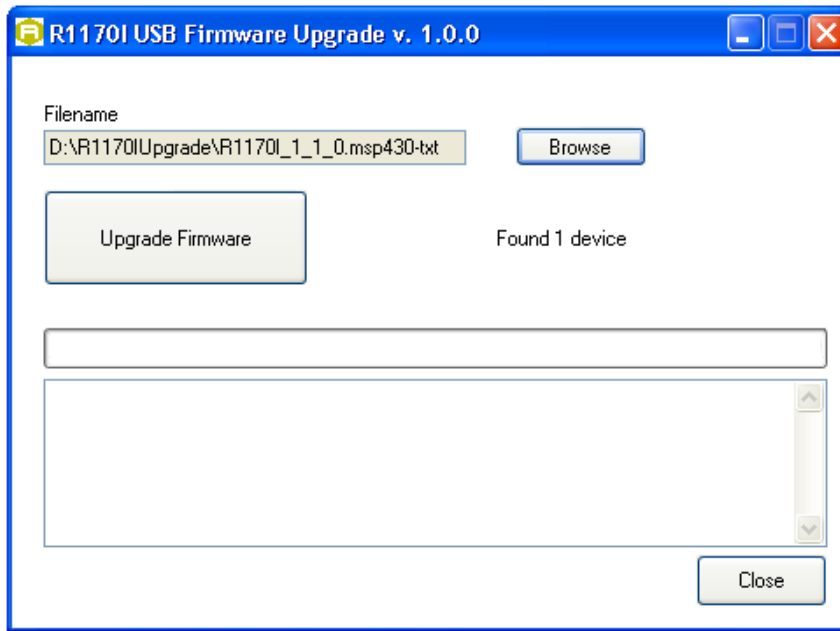
In order to upgrade the firmware follow the steps described below:

1. Connect the qIDminiNF reader to the USB port of the PC.
2. Press simultaneously the *trigger* and the *power* button for about six seconds.
3. Open the FW upgrade program.
4. Click on *Next* button:

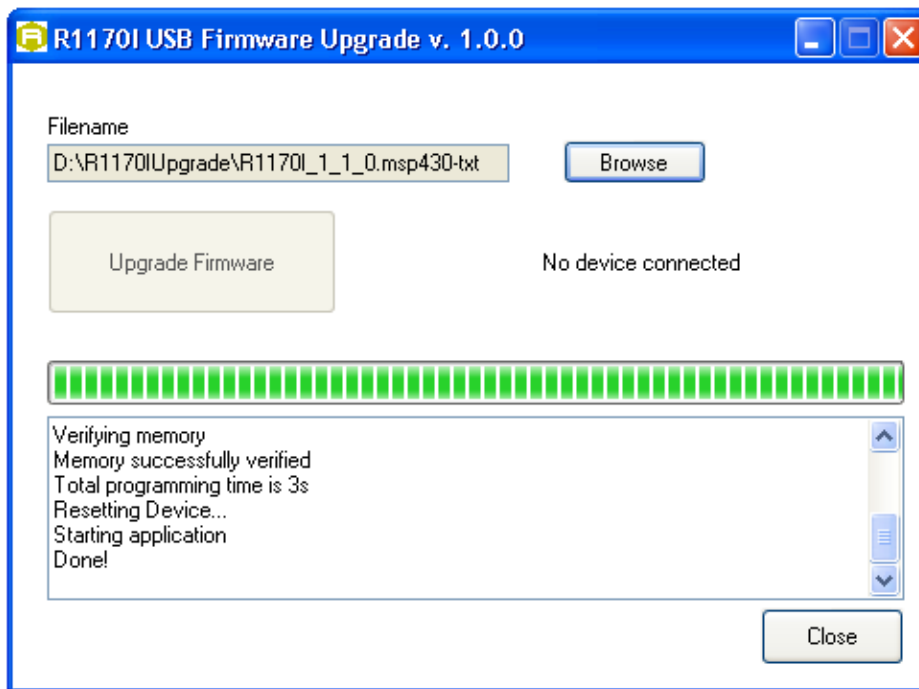


5. In the window you will see the message "Found 1 device" (if the message is "No device connected" repeat the points 2,3, 4 and 5).

6. Select the FW image file by clicking on the "Browse" button:



7. Click on the "Upgrade Firmware" button and wait for the upgrade process to be completed.
8. At the end of procedure, if the upgrade has been successfully performed, you will see the messages reported in the image below and the module is ready for normal operation.



9 qIDminiNF TECHNICAL SPECIFICATIONS

Technical Specifications Table

Frequency Band	865.600÷867.600 MHz (ETSI EN 302 208 v. 1.4.1) (Mod. R1170IENFHP) 902÷928 MHz (FCC part 15.247) (Mod. R1170IUNFHP) 920.625÷924.375 MHz (SRRC RFID national standards) (Mod. R1170IUNFHP – OPT. WPE1170NFACN)
RF Power	Programmable in 18 levels from 0dBm e.r.p. (1mW e.r.p.) to 17dBm e.r.p. (50mW e.r.p.)
Antenna	Integrated UHF Near Field Antenna
Number of Channels	4 channels (compliant to ETSI EN 302 208 v. 1.4.1.)(Mod. R1170IENFHP) 50 hopping channels (compliant to FCC part 15.247)(Mod. R1170IUNFHP) 16 hopping channels (compliant to SRRC RFID national standards) (Mod. R1170IUNFHP – OPT. WPE1170NFACN).
Standard Compliance	ISO 18000-6C/EPC C1G2
Connectivity	USB Interface: USB 2.0 Full Speed (12 Mbit/s) device port Bluetooth Interface: Class 2 with output power 4dBm e.i.r.p. Virtual COM port parameters: - Baudrate: up to 230.400kbps - 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) Buzzer: bitonal for events signalling Vibration: for events signalling Display: LCD Alphanumeric (8 chars x 2 lines)
Internal Buffer Size	48kByte (equivalent to 4096 EPC codes@96bit) (TBC)
Battery Type	Li-Ion 3.7V, 570mAh
Battery Life	Operating: > 12h with 40.000 tag readings Standby: > 15 days
Battery Charging Time	2h (typical)
IP Rating	IP 30
Dimensions	(W)99 x (L)54 x (H)20 mm ³ max. (3.9 x 2.1 x 0.8 in ³)
Length of USB cable	1.5 m
Operating Temperature	-10 °C to +55 °C
Weight	58 g

Tab. 9.1: qIDminiNF R1170INF 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

The qIDminiNF R1170INF reader supports different modulations and return link profiles according to EPC Class1 Gen2 protocol [RD1].

All profiles that have been tested for the compliance with ETSI and FCC regulations are reported in the following table:

Link profile #	Regulation	Modulation	Return Link
0	ETSI - FCC	PR-ASK; f=40kHz	FMO; f = 40kHz
1	ETSI - FCC	PR-ASK; f=40kHz	Miller (M=4); f = 256kHz ²
2	ETSI - FCC	PR-ASK; f=40kHz	Miller (M=4); f = 320kHz

Tab. 9.2: qIDminiNF R1170INF Reader to tag link profiles

² Default value.

10 qIDminiNF REGULATORY COMPLIANCE

FCC Compliance

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

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

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

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

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

RoHS EU Directive

qIDminiNF R1170INF Reader is compliant with the EU Directive 2011/65/CE on the Restriction of the Use of certain Hazardous Substances in Electrical and Electronic Equipment (RoHS).