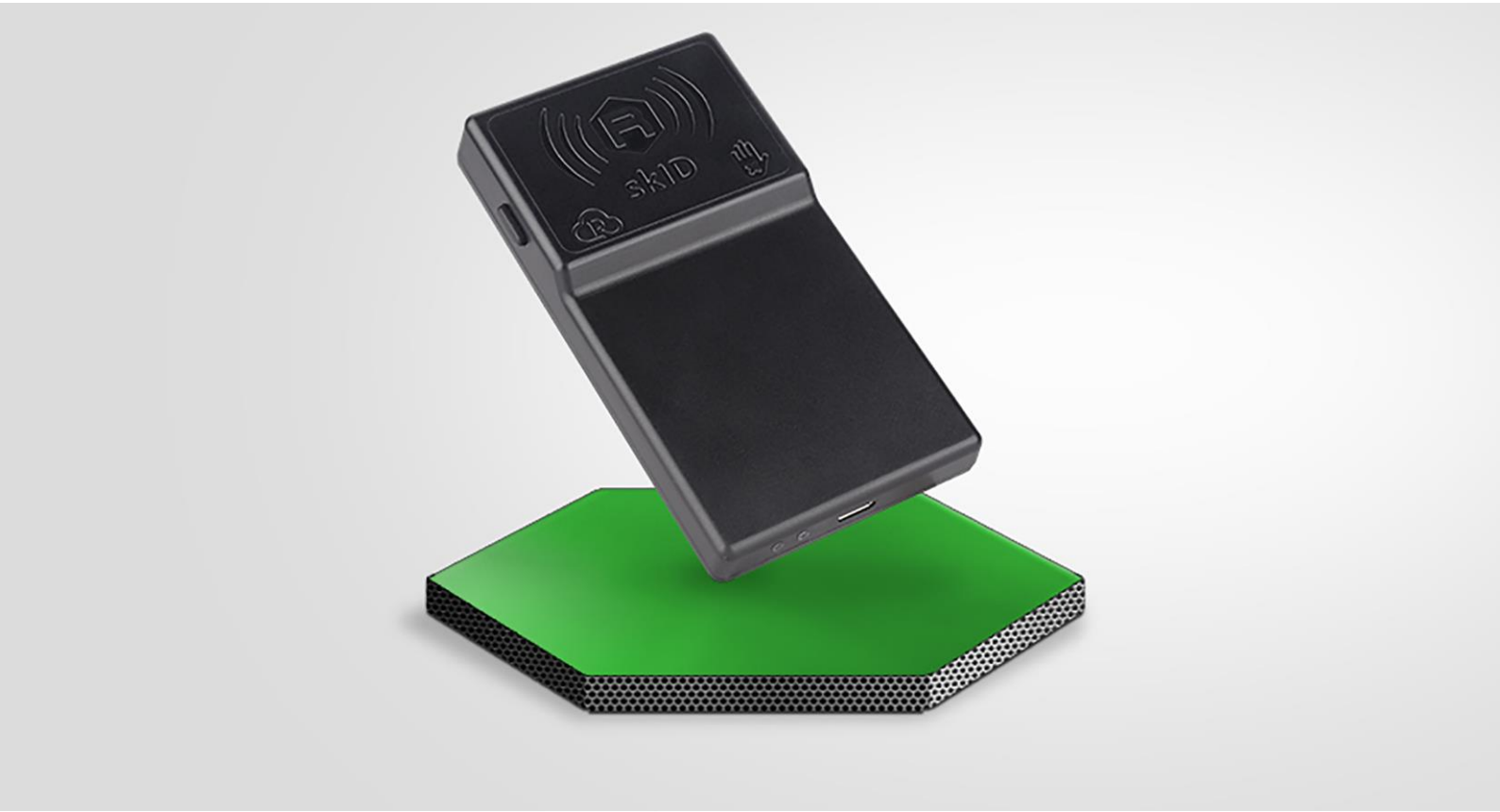
TECHNICAL INFORMATION MANUAL

Revision 4 – 07 February 2022

R1280I

skID

Mini Sled RAIN RFID Reader



Made for iPhone iPad

Visit the skID R1280I 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 skID R1280I Mini Sled RAIN RFID Reader.

This manual refers to:

- **skID R1280I firmware revision ≥ 1.5.0**
- **SDK (Software Development Kit) revision ≥ 4.7.0**

Change Document Record

Date	Revision	Changes	Pages
1 Feb 2021	01	First release	-
28 Apr 2021	02	Modified *Introduction* paragraph in the *Configuration Menu* chapter	34
01 Jul 2021	03	Graphic Restyling	all pages
		Modified *Technical Specifications Table*	96
		Added *FCC Compliance* and skID R1280I FCC GRANT Part B and C	104, 107, 108
		Modified *RoHS EU Directive*	105
07 Feb 2022	04	Modified some internal links	-

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

Federal Communications Commission (FCC) Notice

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

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

Disposal of the product

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

Index

List of Figures

List of Tables

1 INTRODUCTION

Description

Fig. 1.1: skID R1280I Reader

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

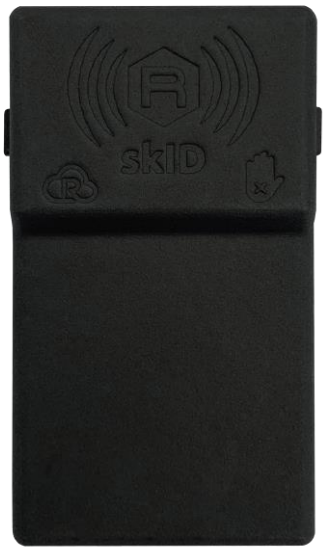
The reader hosts an internal rechargeable battery and can operate both in wired mode, using a USB cable, or in wireless mode through the Bluetooth® interface.

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.

Fig. 1.2: skID R1280I Reader



Front panel

The skID R1280I front panel houses the following buttons and icon (see figure below):

Fig. 1.3: Front Panel

No.	Name	Description
1	Trigger button	Inventory mode: press to perform an inventory cycle (hold down the button to repeat inventory cycles)
2	Power button	Press the button to switch on the reader, press for at least 2 seconds to switch it off
3	Antenna	Antenna Position, do not cover with your hand!

Tab. 1.1: Front Panel Buttons

When the reader is in your hand, the trigger button is pressed with the thumb while the power button is pressed with the index finger (see § *Fig. 1.4: skID R1280I Reader* page 9).

Fig. 1.4: skID R1280I Reader - Grip

Bottom panel

Fig. 1.5: Bottom Panel

No.	Name	Description
1	USB	USB port type C (see § *USB connector* page 11)
2	Power LED	Indicates the reader status and battery level (see § *Tab. 1.3: Power LED Status Table* page 10)
3	Link LED	Indicates the Bluetooth and USB/charger connection (see § *Tab. 1.4: Bluetooth and USB/charger LED status table* page 10)

Tab. 1.2: Front Panel LEDs and Connection

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	Reader is active and the battery charge is in the range 0÷15%

Tab. 1.3: 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
Green	Configuration mode

Tab. 1.4: Bluetooth and USB/charger LED status table

Back panel

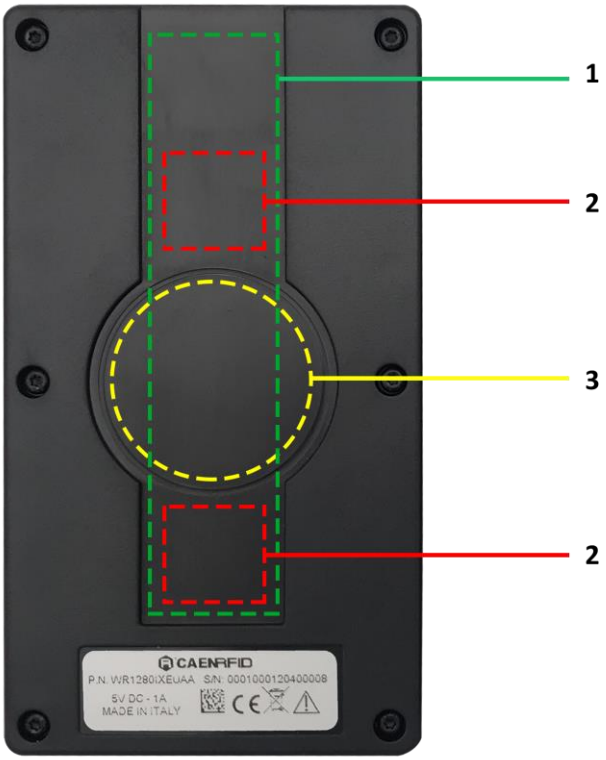


Fig. 1.6: Back Panel

No.	Description
1	Area where to apply the 3M Dual Lock ™ (see § *3M Dual LockTM* page 15)
2	Position of the internal magnets that couple with those supplied for direct application on the phone cover (see § *Magnets* page 13)
3	Area where to apply the SP Connect™ (see § *SP ConnectTM* page 13)

Tab. 1.5: Back Panel

Charging

The skID R1280I is supplied with an USB cable while the power supply for charging is an optional accessory (see *§ Accessories* page 11).

When you charge the reader, the link LED (see § *Tab. 1.2: Front Panel LEDs and Connection* page 10) lights up orange.

When the reader is on, the power LED (see § *Tab. 1.2: Front Panel LEDs and Connection* page 10) indicates the battery level according to table *Tab. 1.3: Power LED Status Table* page 10.

Warning: EMPTY BATTERY CONDITION: When the reader is completely discharged, it is recommended to fully charge it.

USB connector

A USB Type C socket connector is located in the bottom side of the skid R1280I (see § *Fig. 1.5: Bottom Panel* page 10) and can be used to connect the reader to an USB host port or to an AC/DC battery charger.

Accessories

The following accessories are supplied with the skID R1280I reader:

	
No. 1 USB cable USB Type C	No. 1 3M Dual Lock™
	
No. 1 SP Connect™	No. 2 magnets

Fig. 1.7: Supplied Accessories

The following is a list of the optional accessories you can purchase (see § *Ordering Options* page 19):

	various models available in different colors
Power Supply	Cover

Fig. 1.8: Optional Accessories

Installation Notice

There are 3 different methods of fixing the reader to your smartphone: using magnets, 3M Dual Lock™ or SP Connect™.

Magnets

Two magnets are already placed inside the reader. These internal magnets pair with the ones supplied (see § *Accessories* page 12) for direct application on the phone cover.

Fixing the reader to the smartphone using the magnets is recommended only for indoor environments, because for prolonged outdoor uses the magnets can oxidize.

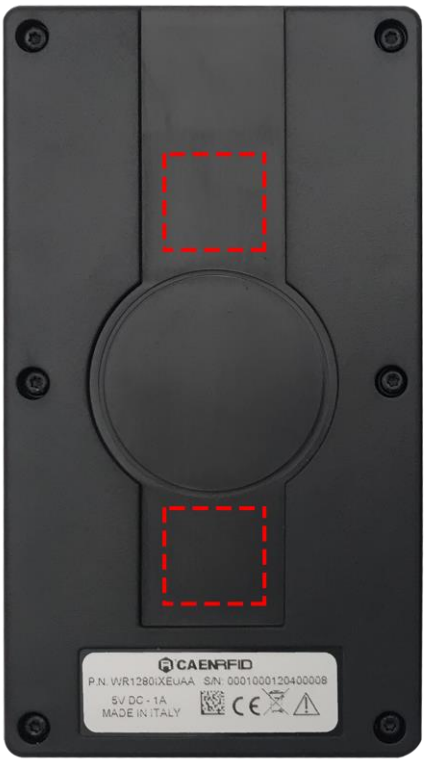


Fig. 1.9: Magnets Position

Parameter	Value
Material	NdFeB
Size	20x20x1 mm^3
Adhesive	Force of attraction:1kg Material: 3M 467MP

Tab. 1.6: Magnets Specifications

Follow the steps below for fixing the reader to your phone cover using the magnets:

1	
2	
3	

Fig. 1.10: Installation Notice - Magnets

Warning: To detach the phone from the reader, slide the skID parallel to the phone and not perpendicularly

3M Dual Lock™

The 3M Dual Lock™ is supplied with the reader (see § *Accessories* page 11).

Fixing the reader to the smartphone using the 3M Dual Lock™ is allowed for both indoor and outdoor environments.

Fig. 1.11: 3M Dual Lock™ Position

Parameter	Value
Thickness	5.8mm (coupled tape)
Opening and closing cycles before losing 50% of the attractive force	1000

Tab. 1.7: 3M Dual Lock™ Specifications

Follow the steps below for fixing the reader to your phone cover using the 3M Dual Lock™:

1	
2	
3	
4	

Fig. 1.12: Installation Notice - 3M Dual Lock™

SP Connect™

The SP Connect™ is supplied with the reader (see § *Accessories* page 11).

Fixing the reader to the smartphone using the SP Connect™ is recommended especially for outdoor environments.

Fig. 1.13: SP Connect™ Position

Follow the steps below for fixing the reader to your phone cover using the SP Connect™:

1	

2	
3	
4	
5	

Fig. 1.14: Installation Notice - SP Connect™

Ordering Options

The reader is available in **ETSI or FCC** version:

	Code	Description
Reader	WR1280IXUSAA	R1280I - skID - RAIN RFID Mini Sled Reader FCC
	WR1280IXEUAA	R1280I - skID - RAIN RFID Mini Sled Reader ETSI
Accessories	WALIM0000004	AC-DC power supply 5V 1A
	COVER	For information ask at info@caenrfid.com

2 GETTING STARTED

Introduction

This quickstart guide will help you to get started with your skID (Model R1280I) reader using an Android or iOS device.

The reader can be configured in two different profiles:

- **EASY2READ** (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.

  HID: choosing this option you select the keyboard emulation protocol. For details on the use of the HID profile please refer to *§ HID Profile* chapter page 76.

The reader is sold with the factory profile set to *EASY2READ* and the BLE is activated.

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

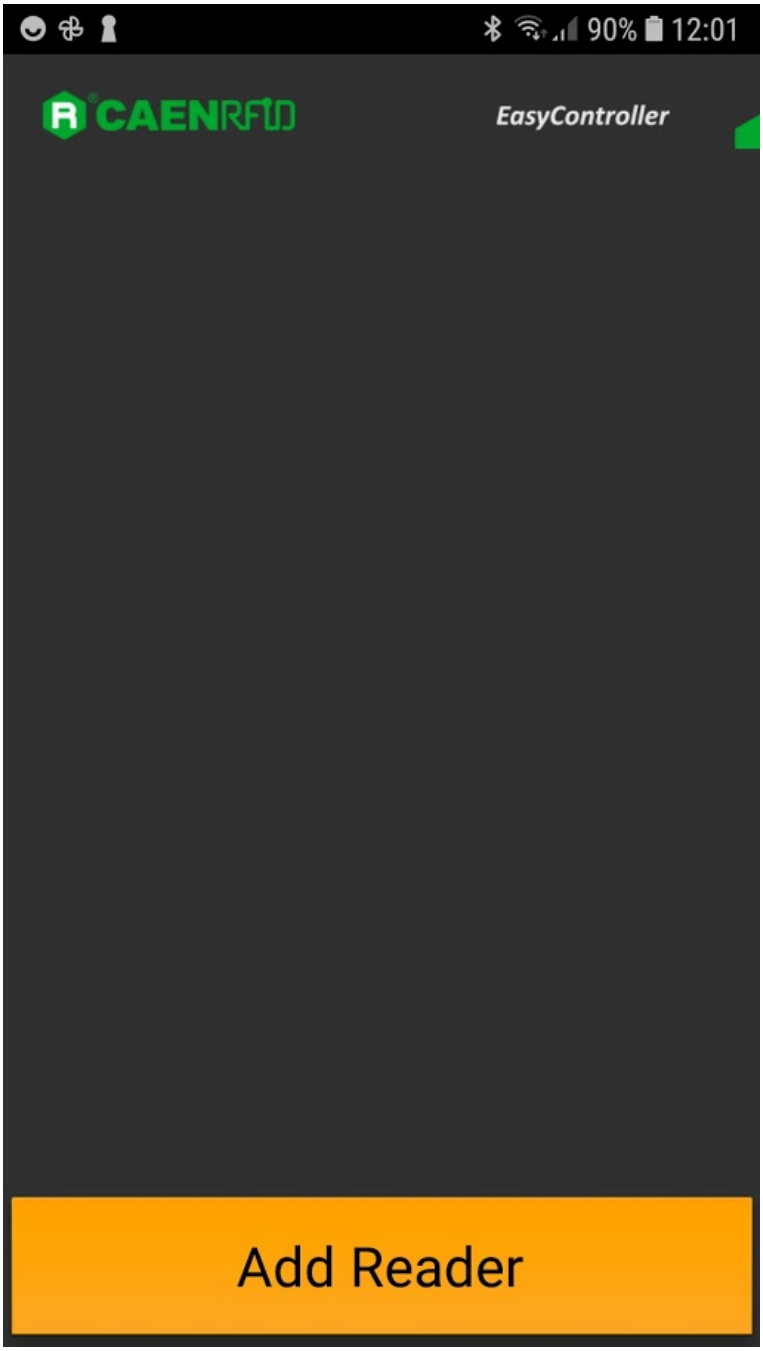
Android devices

BLE Communication Setup and the Easy Controller for Android

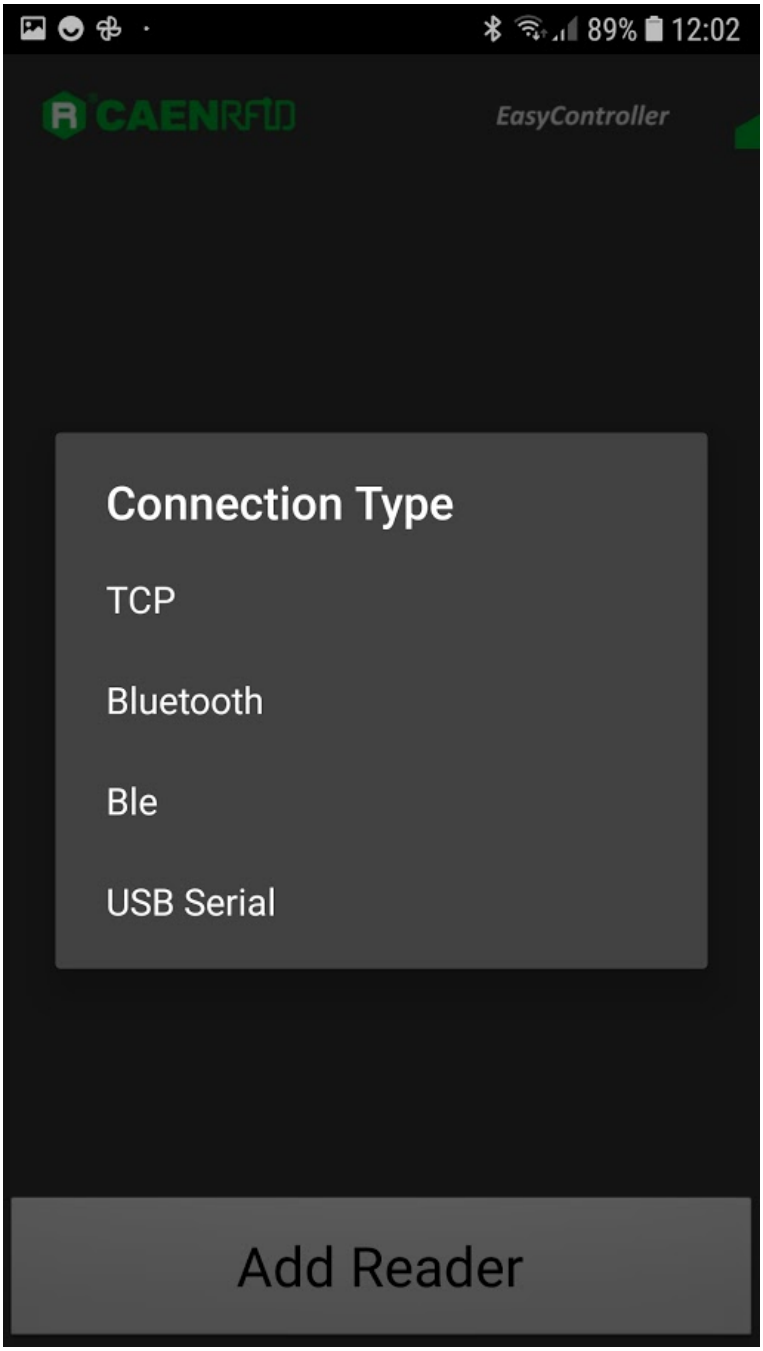
Follow the steps below to connect your Android device to the skID reader using the BLE connection and the Easy Controller App. All the images below were generated using a Samsung S7 model device.

1. Download on your Android device the *CAEN RFID Easy Controller for Android App* (available link at the skID R1280I 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 "*BLE*" in the *"Connection Type"* window:

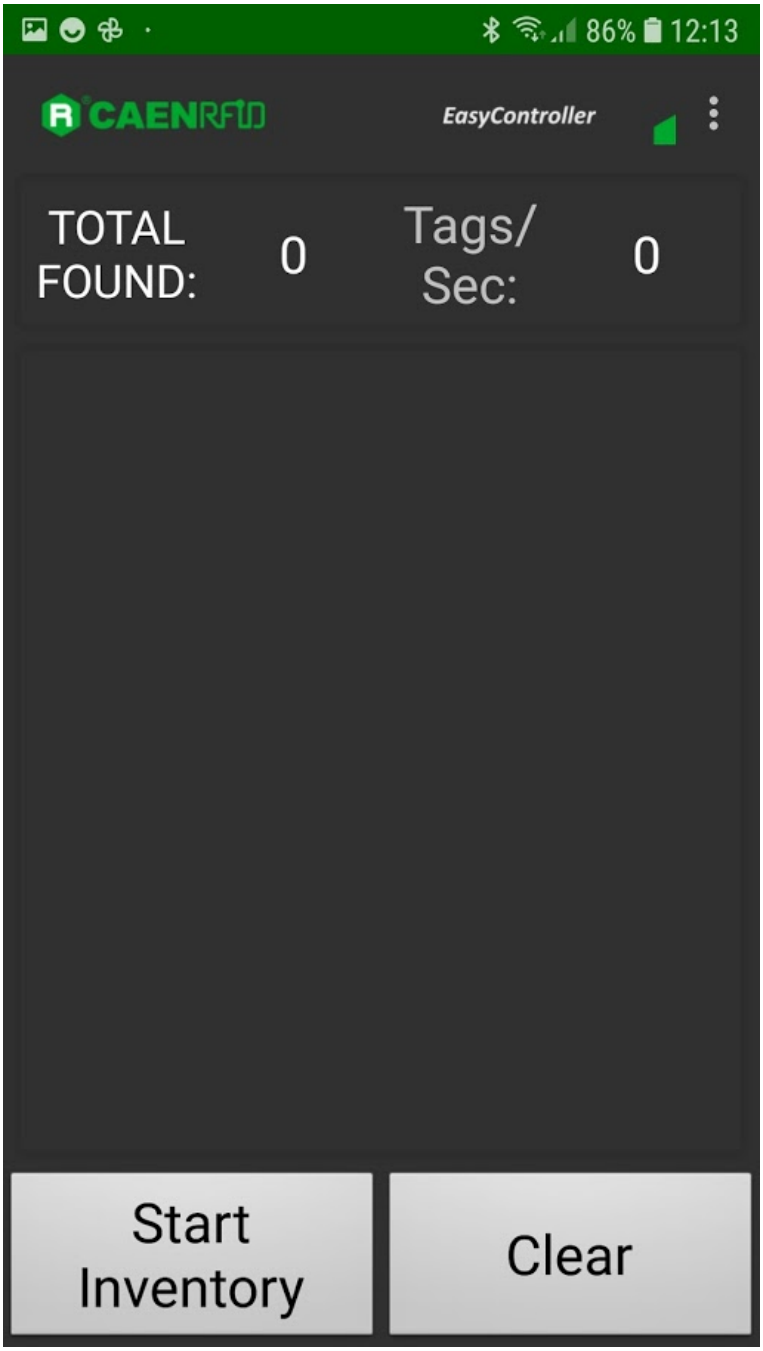


5. Select the skID R1280I reader from the list of Bluetooth devices available (in this example the skID with serial number 20400008):

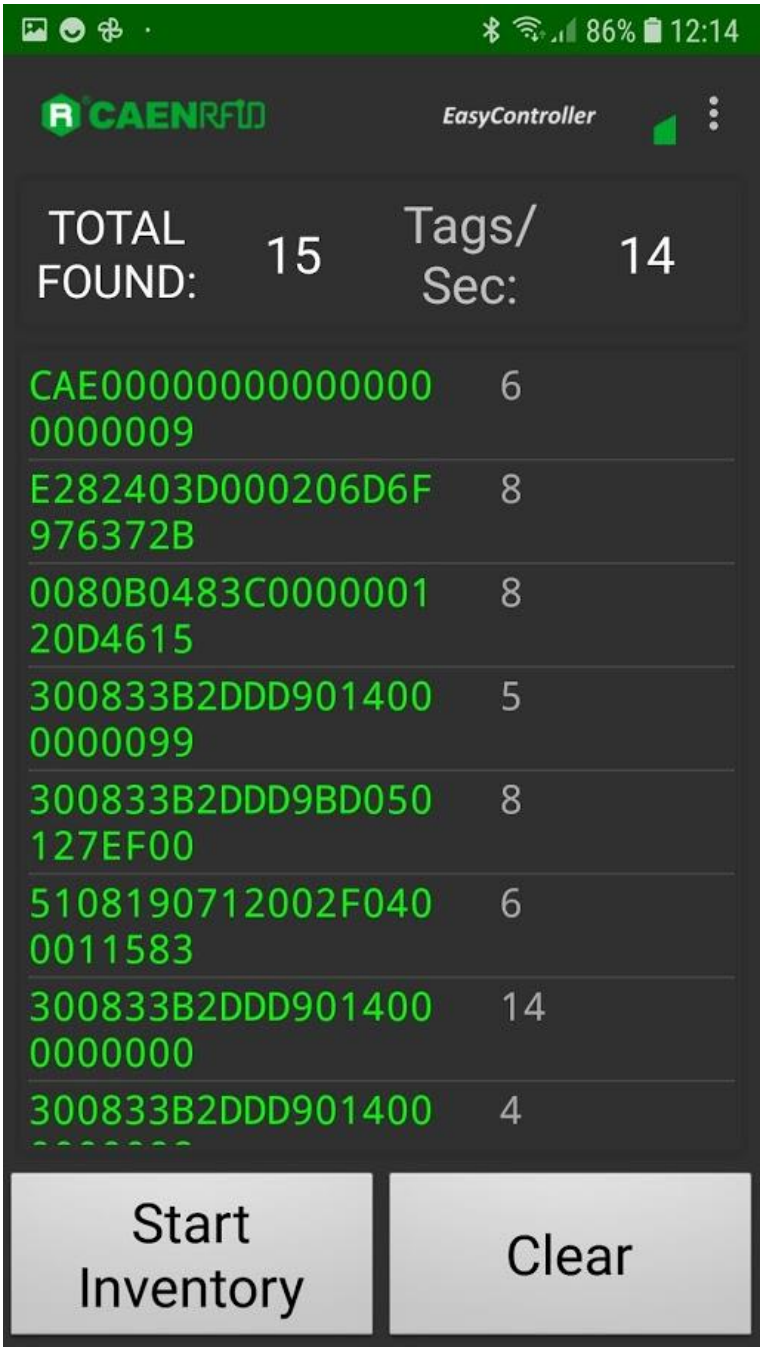
6. Once the connection is established the Bluetooth blue LED of the reader turns on (see § *Tab. 1.4: Bluetooth and USB/charger LED status table* page 10).

7. To start using your skID R1280I, click on the reader line:

8. Click on "*Start Inventory*":



9. A list of the read tags is shown:



iOS devices

BLE Communication Setup and the Easy Controller for iOS

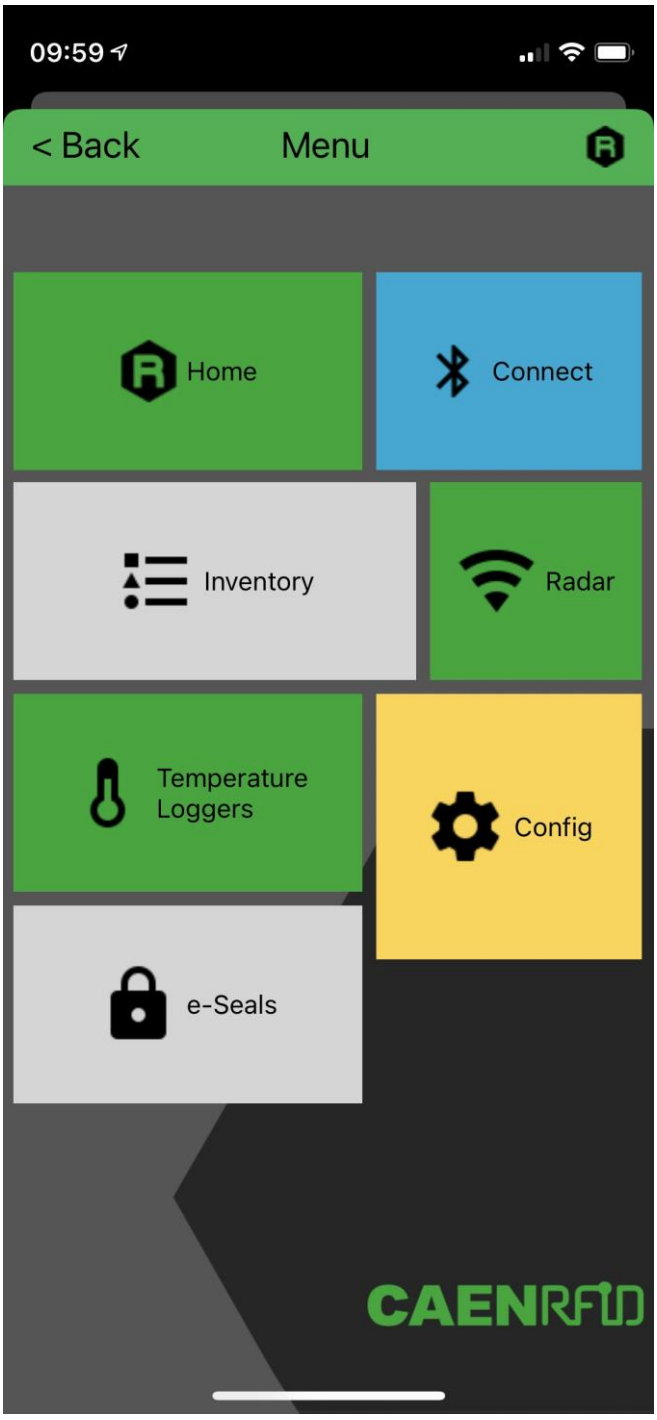
Follow the steps below to connect your iOS device to the skID reader using the BLE connection and the Easy Controller App. All the images below were generated using an Apple iphone XR model.

1. Download on your iOS device the *CAEN RFID Easy Controller for iOS App* (available link at the skID R1280I web page, by clicking on the App Store icon).

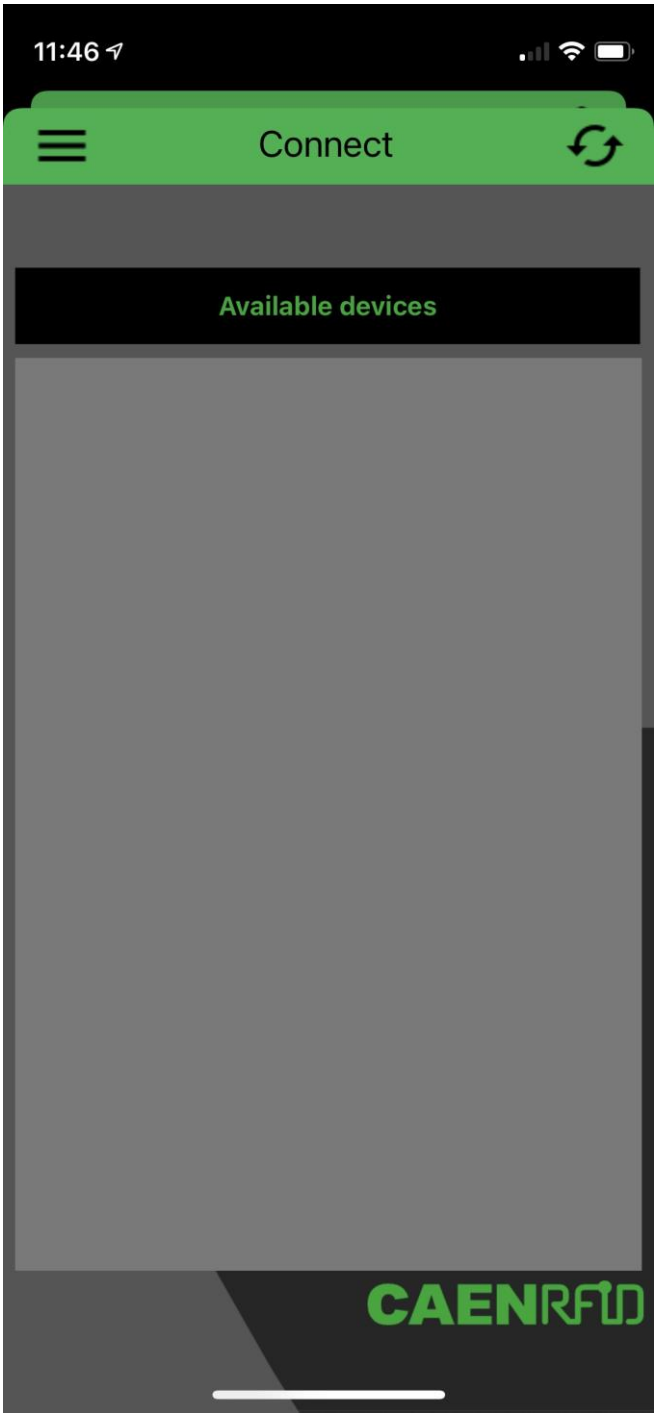
> **Warning:** Note that in the EASY2READ profile, the BLE connection between your iOS device and the skID reader is managed directly through the Easy Controller app.

2. Launch the *CAEN RFID Easy Controller for iOS App*:

3. Click on *Menu: →Connect.*

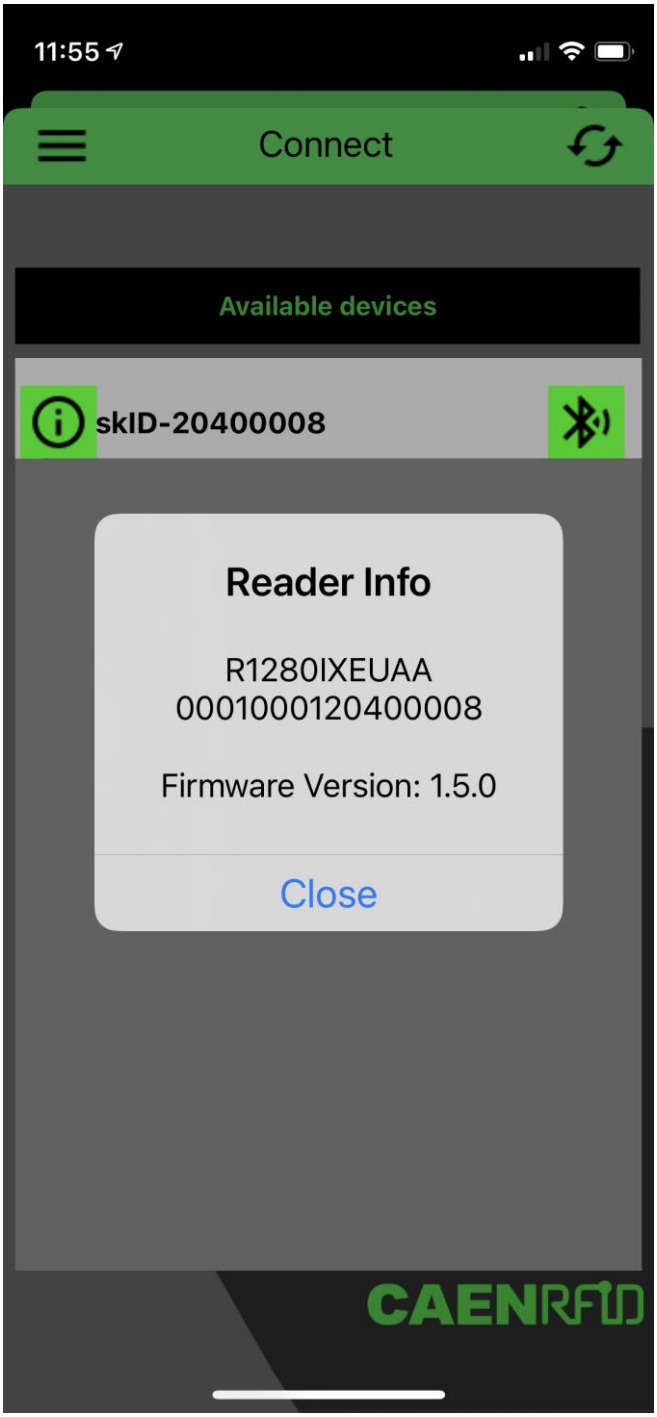


4. Click on icon:

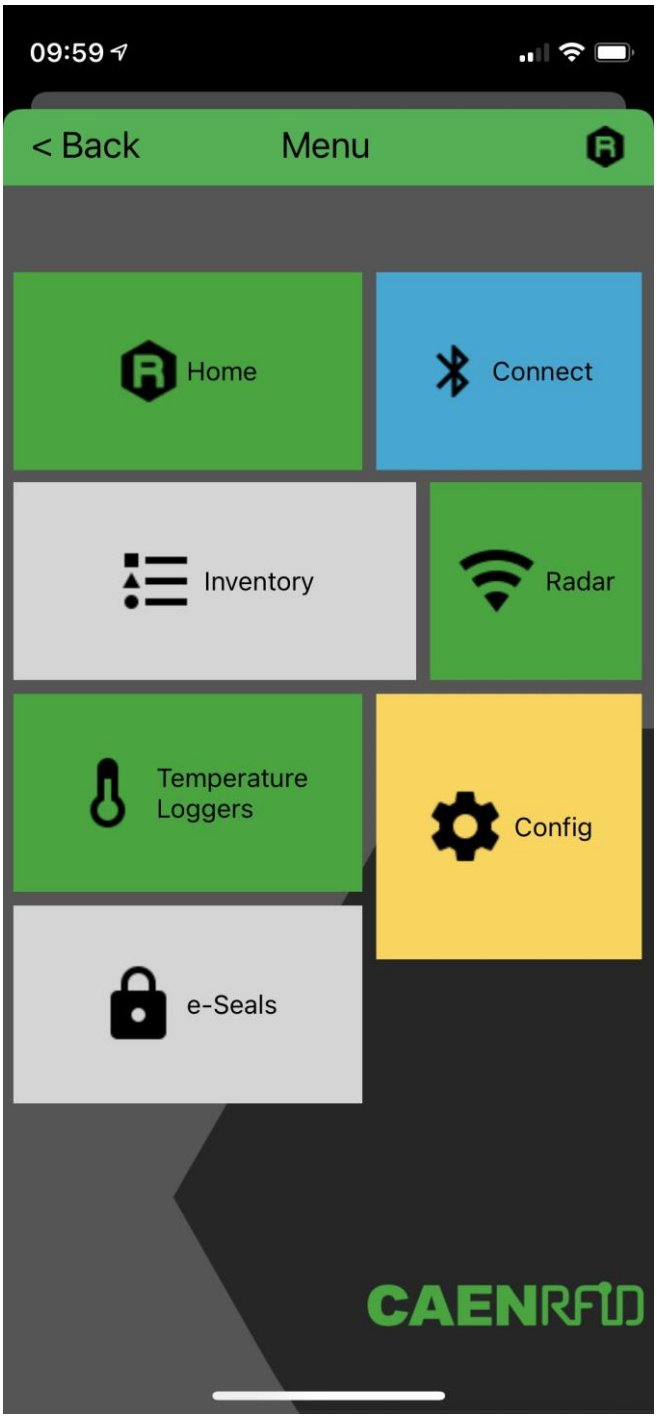


5. The available devices are shown, click on the icon in the skID R1280I reader line (in this example skID s.n. 20400008):

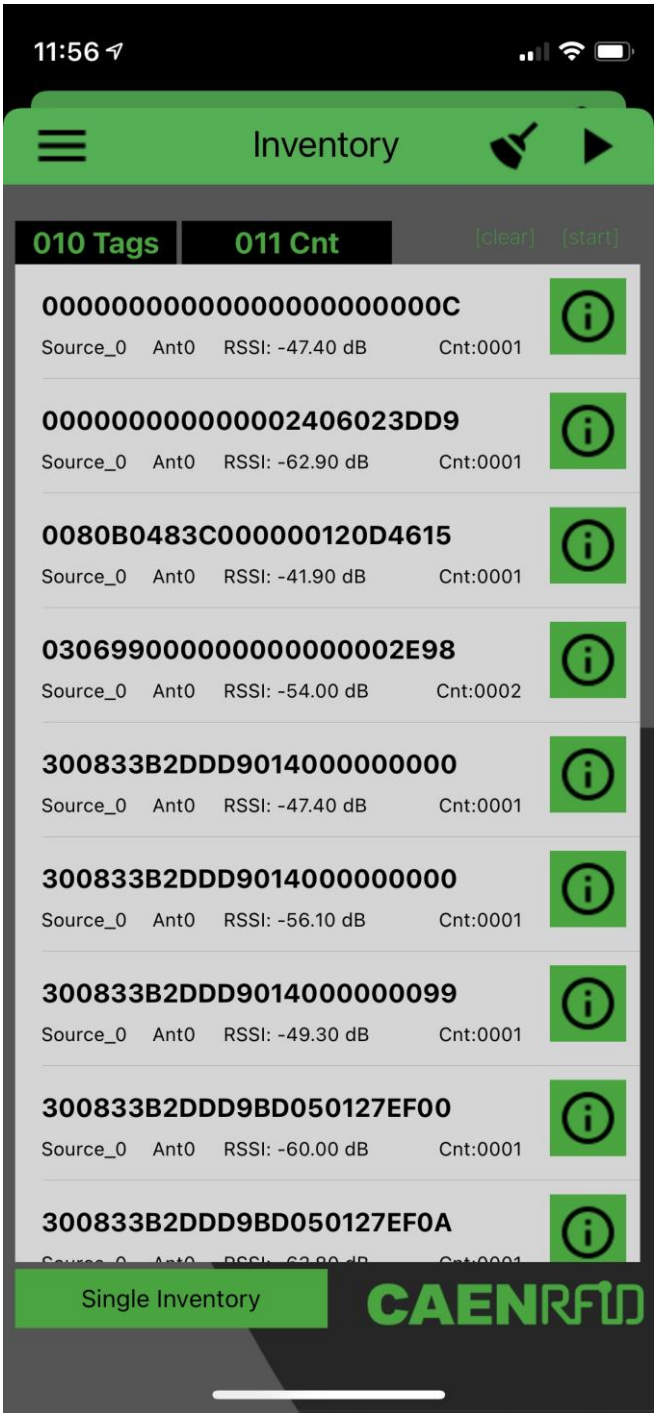
6. Into the *Reader Information* box you can find information on reader model, serial number and firmware release:



7. Once the connection is established, the Bluetooth blue LED on the skID R1280I reader turns on (see § *Tab. 1.4: Bluetooth and USB/charger LED status table* page 10) and you can start using your reader
8. Come back and click on the *Menu→Inventory*:



9. Click on icon to start the inventory. A list of the read tags is shown:



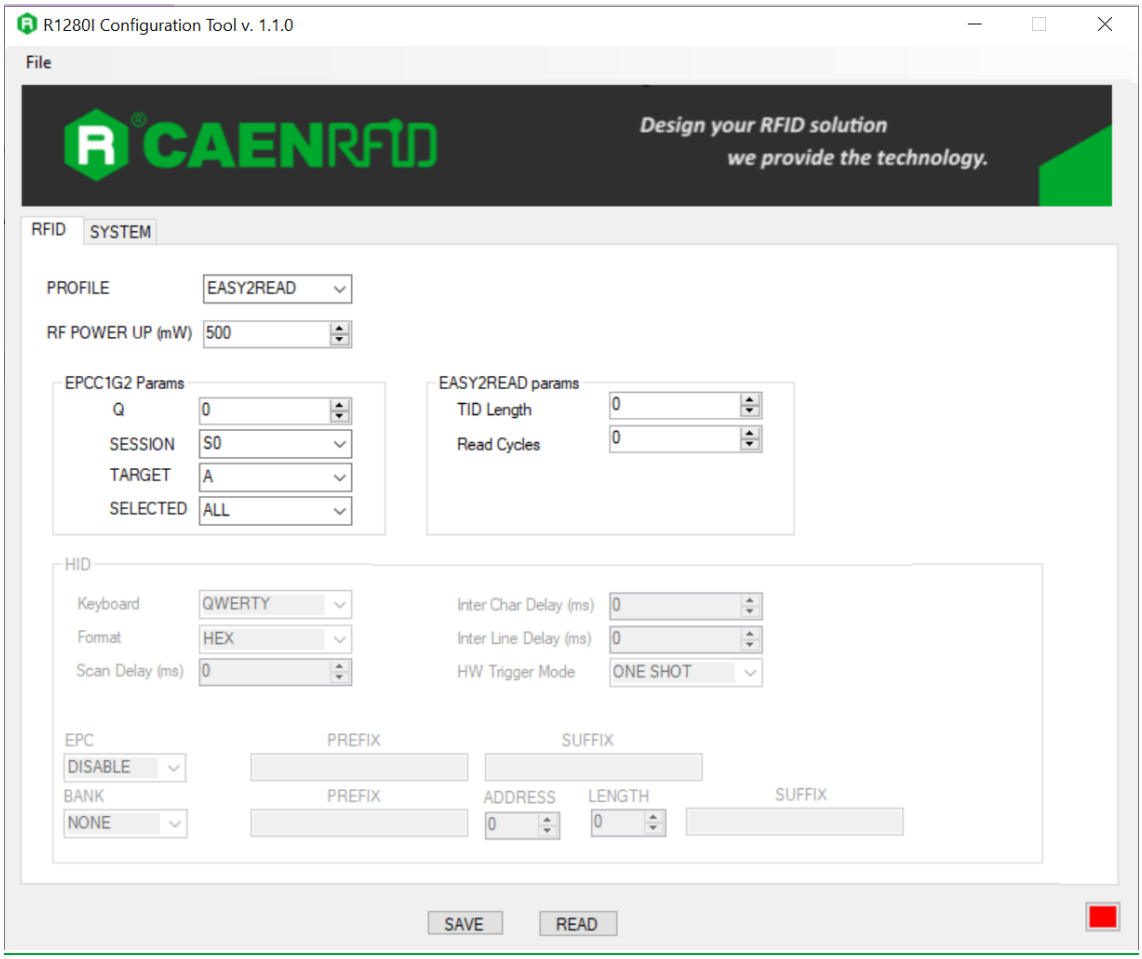
3 CONFIGURATION MENU

Introduction

The skID R1280I configuration can be performed via USB using the *R1280I Configuration Tool*.

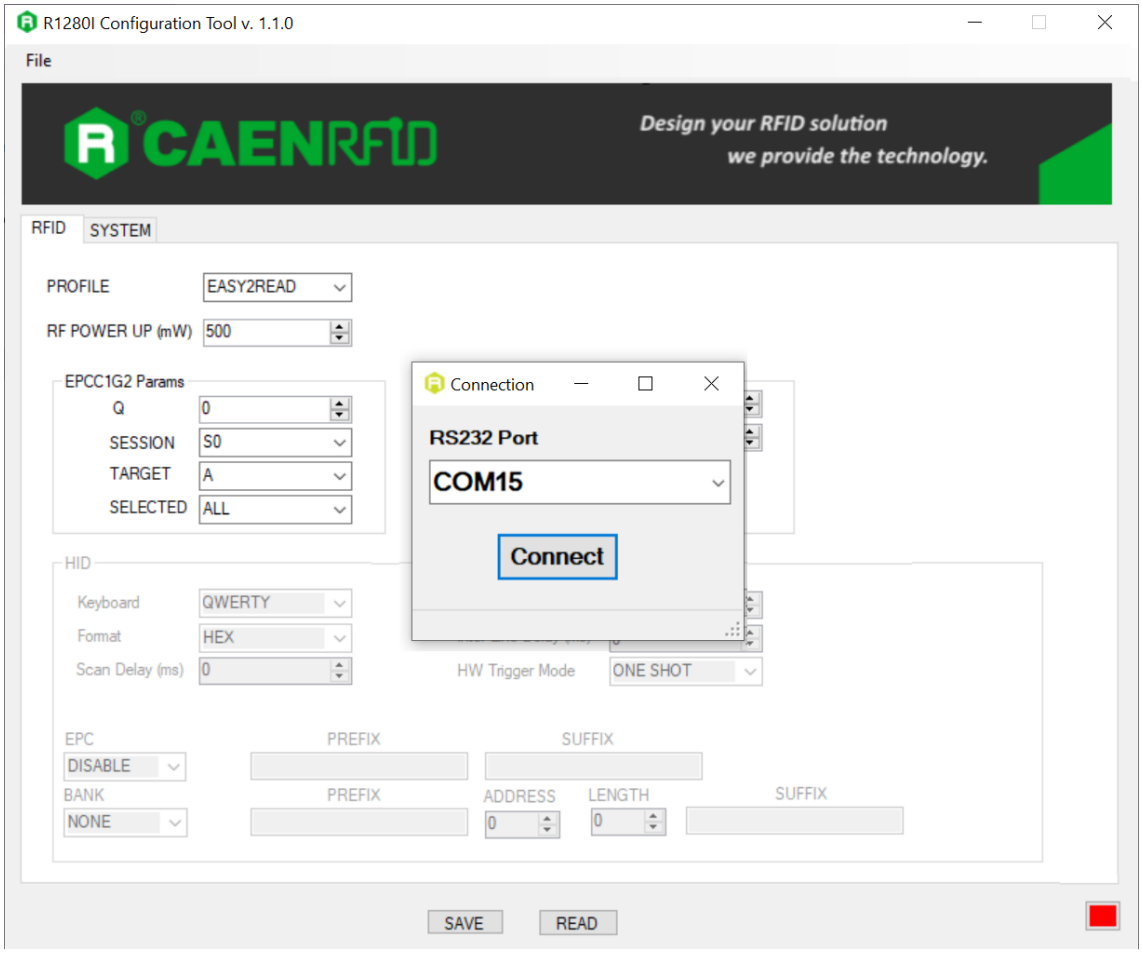
In order to access the configuration menu, follow the steps described below:

1. Download from the skID R1280I web page the latest version of the *skID R1280I Configuration Tool*.
2. With the reader switched off, connect the R1280I skID reader to a PC using the provided USB cable.
3. Hold down the trigger button and then press the power button (1sec) to power on the device. Release the buttons: the reader beeps and the Bluetooth LED should turn green.
4. Open the *skID R1280I Configuration Tool*:



5. On the main application window click on *File* → *Connect*; the connection dialog box will appear.

6. Select the right COM port number from the RS232 Port combo box (COM15 in the example):



7. Click on *Connect*. If the connection is not successful, the message “connection error” appears.

The skID R1280I menu options are the following:

- **RFID**
- **SYSTEM**

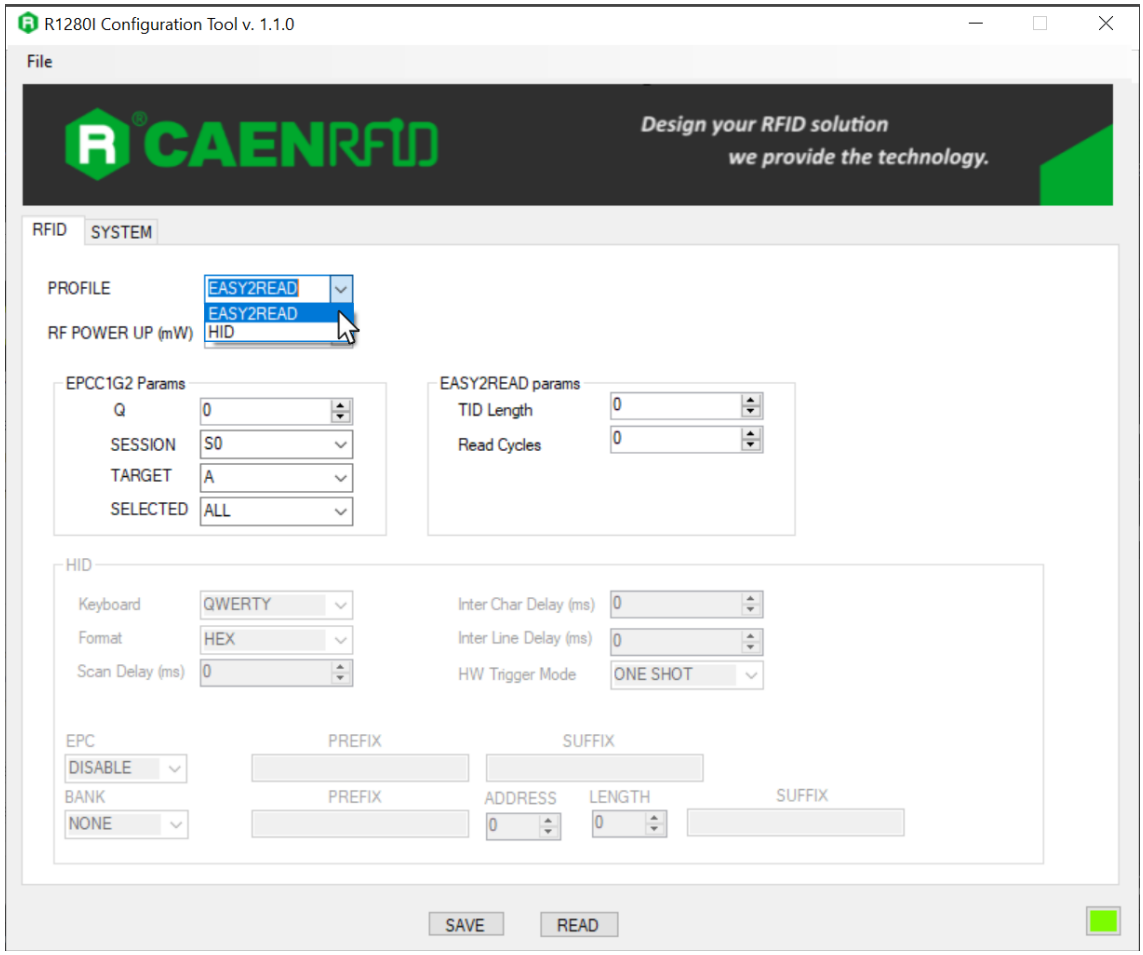
RFID

Access the configuration menu as explained in the *Introduction* paragraph page 34.

Use this section in order to set the desired profile and then the related configuration options.

Profile

You can change the profile value using the drop-down menu:



The available profiles are:

- **EASY2READ (factory default)** is the CAEN RFID easy2read communication protocol that permits to control the reader using the CAEN RFID Easy Controller Application or the SDK (Software Development Kit) library. For details on the use of the EASY2READ profile please refer to *§ EASY2READ Profile* chapter page 45.

  For details on the EASY2READ configuration options, refer to § *EASY2READ Parameters* page 38.

- **HID:** choosing this option you select the keyboard emulation protocol.

  For details on the use of the HID profile please refer to *§ HID Profile* chapter page 76.

  For details on the HID configuration options, refer to § *HID Parameters* page 39.

Warning: To save the changes click on the *SAVE* button (check the green dot on the bottom right side of the sidebar). On the main application window click on *File → Disconnect*. Power off the reader, disconnect the USB cable and then power on the reader, the new settings are active.

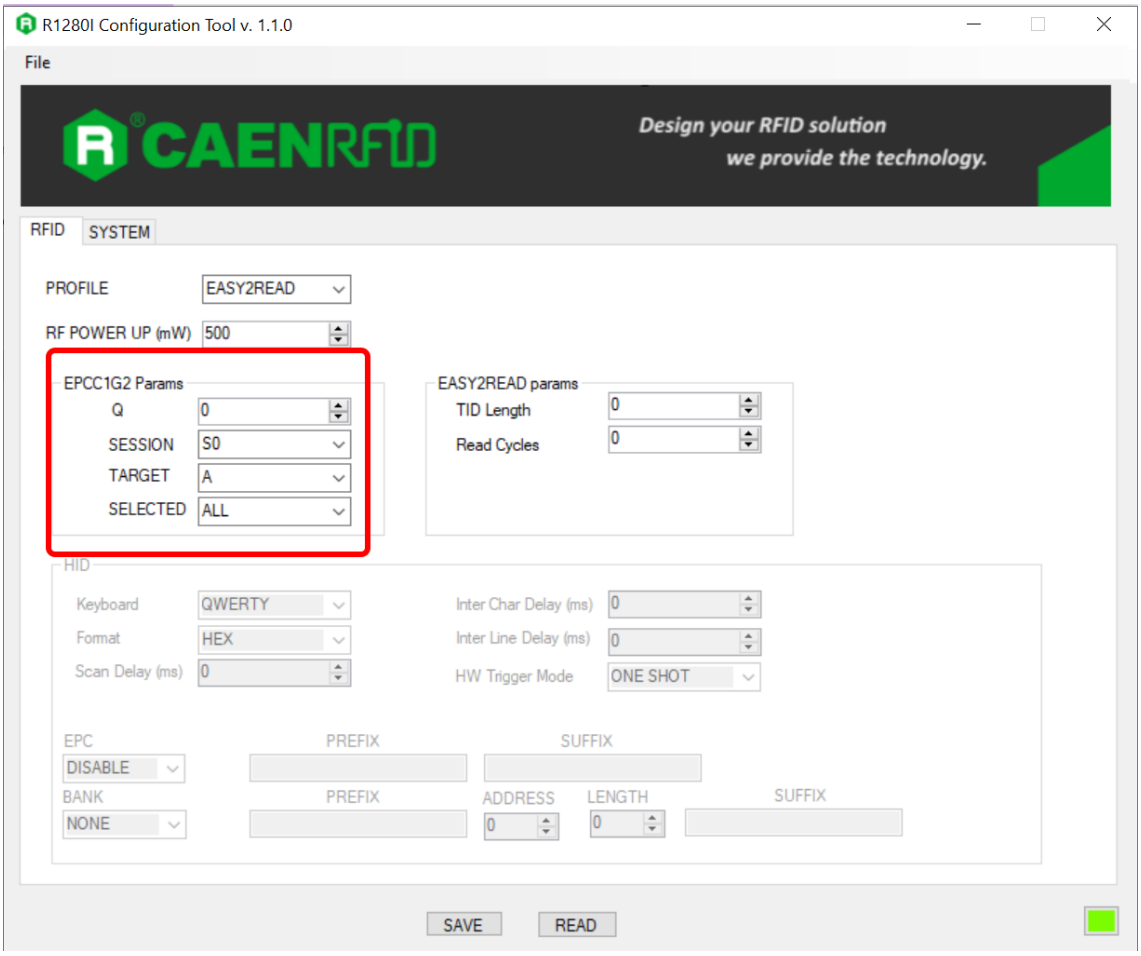
RF Power Up (mW)

Through the *RF Power Up* you can set the power level emitted by the reader. The *RF Power Up* is an editable field and the default value is 500 mW. Accepted values are included in the range 0÷500. The *RF Power Up* is expressed in mW.

When the reader is configured in the EASY2READ profile, to set the *RF Power* you can also use the *CAEN RFID Easy Controller Application* or the *SetPower* function of the SDK (Software Development Kit) library. Note that using the SDK or the Easy Controller only the current value of the *RF Power* is set, the *RF Power Up* is not changed and when the reader is turned off, the parameter assumes the value set via the configuration interface again.

Warning: To save the changes click on the *SAVE* button (check the green dot on the bottom right side of the sidebar). On the main application window click on *File* → *Disconnect*. Power off the reader, disconnect the USB cable and then power on the reader, the new settings are active.

EPCC1G2 Parameters



- **Q:** *Q* parameter is useful for the optimization of the inventory efficiency. As a rule of thumb, if you have to read a huge population of tags you need to select a high value for the Q parameter, otherwise you can select a lower value. For more information on *Q* parameter refer to *EPC Class1 Gen2 protocol specification* [RD1]. The Q default value is 6, accepted values are included in the range 0÷15. *Q* parameter is an editable field.
- **SESSION:** the *SESSION* used by the anticollision algorithm. The reader chooses one of four sessions available (S0/S1/S2/S3) and inventories tags within that session. For more information on *SESSION* parameter refer to *EPC Class1 Gen2 protocol specification* [RD1]. Default value is *SESSION* = S0. You can change the default value using the drop-down menu.

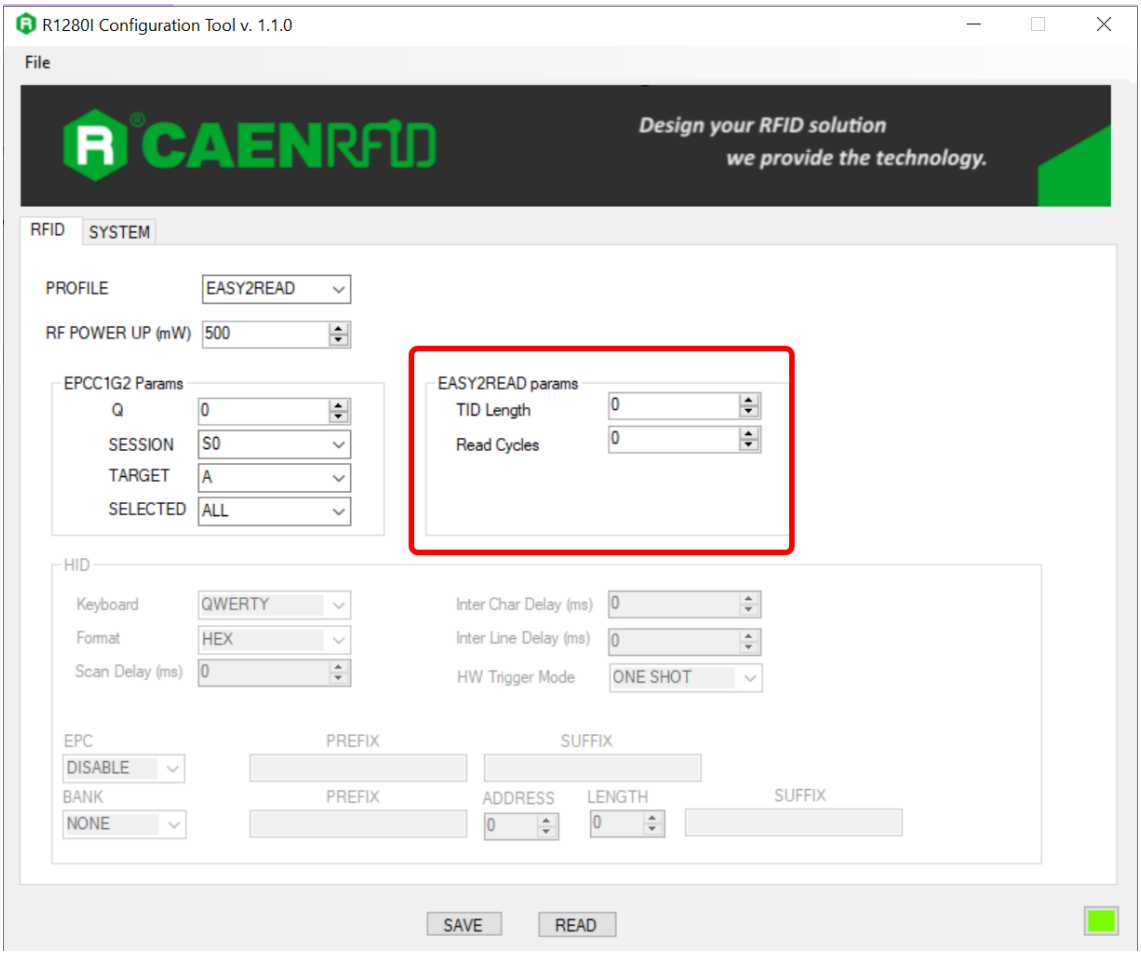
- **TARGET:** two options available, A or B. For more information on *TARGET* parameter refer to *EPC Class1 Gen2 protocol specification* [RD1]. Default value is *TARGET* = A. You can change the default value using the drop-down menu.
- **SELECTED:** three options available, ALL/NOT selected/selected. For more information on *SELECTED* parameter refer to *EPC Class1 Gen2 protocol specification* [RD1]. Default value is *SELECTED* = ALL. You can change the default value using the drop-down menu

When the reader is configured in the EASY2READ profile, to set the *EPCC1G2 Parameters* you can also use the CAEN RFID Easy Controller Application or the SDK (Software Development Kit) library. Note that using the SDK or the Easy Controller only the current values are set, therefore when the reader is turned off, the parameters assume the values set via the configuration interface again.

Warning: To save the changes click on the *SAVE* button (check the green dot on the bottom right side of the sidebar). On the main application window click on *File* → *Disconnect*. Power off the reader, disconnect the USB cable and then power on the reader, the new settings are active.

EASY2READ Parameters

Choosing the EASY2READ profile, the EASY2READ parameters available are:

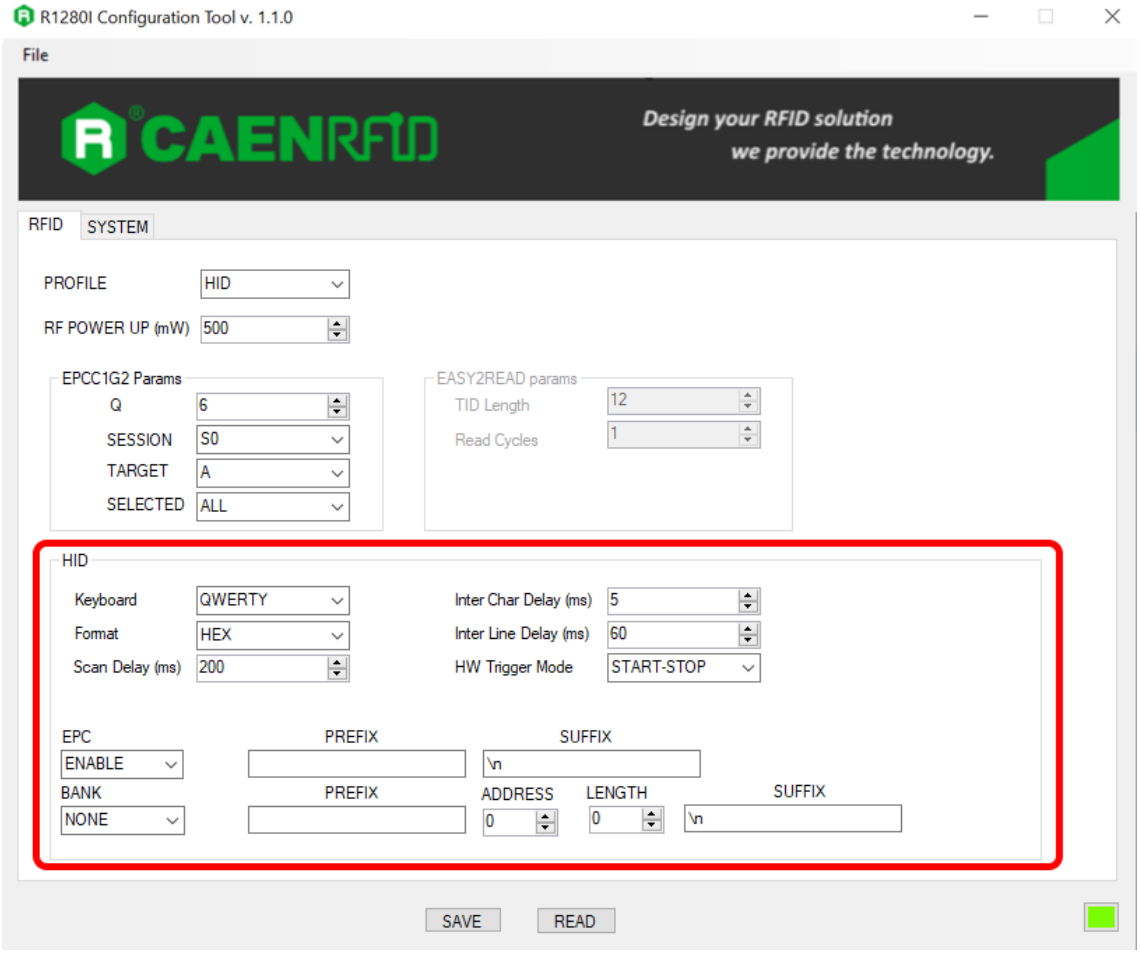


- **TID Length:** *TID Length* is an editable field and represents the length of the TID memory to be read during the inventory, expressed in bytes. The default value is 12, accepted values are included in the range 0÷64.
- **Read Cycles:** *Read cycles* is an editable field and represents the number of read cycles performed by the logical source during the inventory algorithm execution. The default value is 1. *Read cycles* = 0 means no stop in the continuous inventory mode. Note that *Read Cycles* affects only inventory performed with continuous mode.

Warning: To save the changes click on the *SAVE* button (check the green dot on the bottom right side of the sidebar). On the main application window click on *File* → *Disconnect*. Power off the reader, disconnect the USB cable and then power on the reader, the new settings are active.

HID Parameters

Choosing the HID profile, the HID parameters available are:



- **Keyboard:** The Keyboard options are the following:
  - QWERTY: standard keyboard.
  - AZERTY: French keyboard

  By default, the *Keyboard* is set to "QWERTY".

  You can change the default value using the drop-down menu.
- **FORMAT:** In the HID profile you can set different EPC formats:
  - HEX: The EPC code is represented as a hexadecimal number. For example, an EPC Code of 96 bits long corresponds to 24 hexadecimal digits (96/4=24).
  - ASCII: The EPC code is interpreted as 8 bits at a time, each byte being represented as ASCII character. For example, an EPC Code of 96 bits corresponds to a string of 12 ASCII characters (96/8 = 12).

  By default, the EPC HID *Format* is set to "HEX". You can change the default value using the drop-down menu.
- **Scan Delay (ms):** *Scan Delay* is an editable field and the value is expressed in ms. By default, the *Scan Delay* is 200 ms. The scan delay is the time between two inventories when the inventory is performed in HW trigger START/STOP mode.

- **Inter Char Delay (ms):** The *Inter Char Delay* is the delay between printing one character and the next. It is expressed in ms. The default value is 5. If set to 0, the reader does not introduce delay: the only delay is that of the BT of the device in use. The use of the *Inter Char Delay* is recommended to slow down the sending of characters from the reader to mobile devices, as these are not performing enough to keep up with the Bluetooth transmission, with the risk of losing characters.
- **Inter Line Delay (ms):** The *Inter Line Delay* is the delay between printing one last character of a line and the first character of the next line. It is expressed in ms. The default value is 60. If set to 0, the reader does not introduce delay: the only delay is that of the BT of the device in use. The use of the *Inter Line Delay* is recommended to slow down the sending of characters from the reader to mobile devices, as these are not performing enough to keep up with the Bluetooth transmission, with the risk of losing characters.
- **HW Trigger Mode:** this option selects the type of trigger button event which triggers the inventory. The *HW Trigger Mode* options are the following:
    - ONE-SHOT: inventory cycles will be performed as long as the trigger button is kept pressed.
    - START/STOP: to start the inventory cycles press once the trigger button. Press the button again when you want to stop the inventory cycles.

  By default, the *HW Trigger Mode* is set to "ONE SHOT".

  You can change the default value using the drop-down menu.

Warning: To save the changes click on the *SAVE* button (check the green dot on the bottom right side of the sidebar). On the main application window click on *File* → *Disconnect*. Power off the reader, disconnect the USB cable and then power on the reader, the new settings are active.

EPC code parameters

Using the table below you can customize the text of the code displayed on the screen:

Tab. 3.1: EPC Code parameters

- **EPC Code:** enable or disable. By default, the *EPC Code* is enabled and the EPC code is displayed on the screen. You can change the default value using the drop-down menu.
- **PREFIX:** The *PREFIX* option permits to specify a string to add before the EPC when a tag is read.

  The following list shows the accepted characters for the prefix:

  'a', 'b', 'c', 'd', 'e', 'f', 'g', 'h', 'i', 'j', 'k', 'l', 'm', 'n', 'o', 'p', 'q', 'r', 's', 't', 'u', 'v', 'w', 'x', 'y', 'z', 'A', 'B', 'C', 'D', 'E', 'F', 'G', 'H', 'I', 'J', 'K', 'L', 'M', 'N', 'O', 'P', 'Q', 'R', 'S', 'T', 'U', 'V', 'W', 'X', 'Y', 'Z', '0', '1', '2', '3', '4', '5', '6', '7', '8', '9', '{', '|', '}', '!', '"', '#', '$', '(', ')', '*', '+', ',', '.', '/', ':', ';', '=', '?', '@', '[', ']', '^', '_', '-'

  By default, the *prefix* string is empty. The maximum allowed length of the string is 7 characters.

  Warning: if you are using a qwerty keyboard, pay attention that it is a **standard** qwerty keyboard because if not the conversion of symbols could create display problems.
- **SUFFIX:** The *SUFFIX* option permits to specify a string to add after the EPC when a tag is read.

  The following list shows the accepted characters for the postfix:

'a', 'b', 'c', 'd', 'e', 'f', 'g', 'h', 'i', 'j', 'k', 'l', 'm', 'n', 'o', 'p', 'q', 'r', 's', 't', 'u', 'v', 'w', 'x', 'y', 'z', 'A', 'B', 'C', 'D', 'E', 'F', 'G', 'H', 'I', 'J', 'K', 'L', 'M', 'N', 'O', 'P', 'Q', 'R', 'S', 'T', 'U', 'V', 'W', 'X', 'Y', 'Z', '0', '1', '2', '3', '4', '5', '6', '7', '8', '9', '{', '|', '}', '!', '"', '#', '$', '(', ')', '*', '+', ',', '-', '/', ':', ';', '=', '?', '@', '[', ']', '^', '_', '-'

By default, the *suffix* string is \n (see the following table Tab. 3.2: Escape Sequences supported page 41). The maximum allowed length of the string is 7 characters.

Warning: if you are using a qwerty keyboard, pay attention that it is a **standard** qwerty keyboard because if not the conversion of symbols could create display problems.

Escape Sequences	Description
\n	Newline (Line Feed)
\r	Carriage Return
\t	Horizontal Tab
\v	Vertical Tab
\\	Backslash

Tab. 3.2: Escape Sequences supported

Bank parameters

These options allow the printing of the words contained in a bank of the tag's EPCC1G2 memory.

- **BANK:**
  - NONE: printing disabled
  - RESERVED/EPC/TID/USER: the bank to be read
- **ADDRESS:** the word *address* to start reading the words to be displayed. By default, the *address* value is 0.
- **LENGTH:** number of words of the selected BANK that must be displayed. If set to 0 no words will be displayed. By default, the *length* value is 0.
- **SUFFIX:** see *Suffix* definition in the previous paragraph (EPC code parameters).
- **PREFIX:** see *Prefix* definition in the previous paragraph (EPC code parameters).

Warning: To save the changes click on the *SAVE* button (check the green dot on the bottom right side of the sidebar). On the main application window click on *File* → *Disconnect*. Power off the reader, disconnect the USB cable and then power on the reader, the new settings are active.

SYSTEM

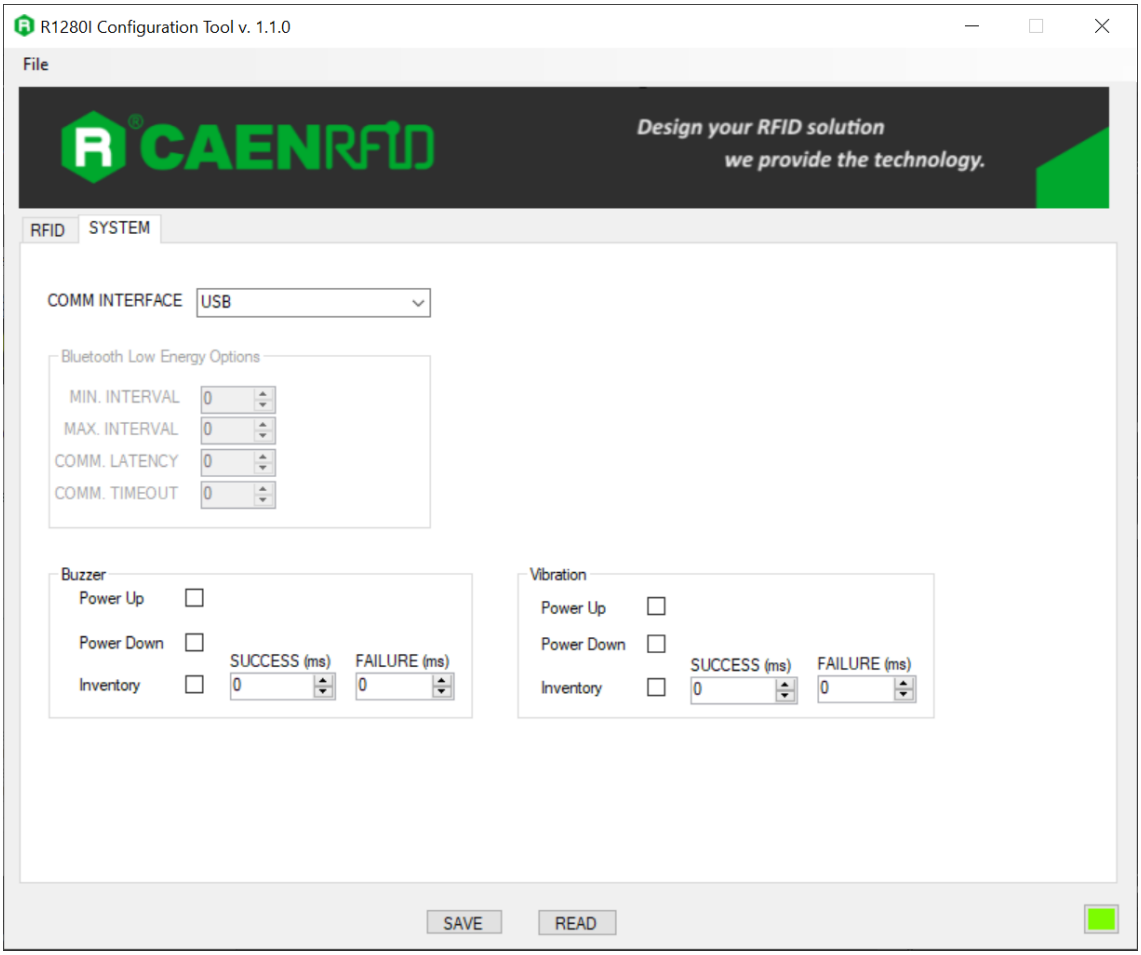
Bluetooth and USB communication

Access the configuration menu as explained in the *Introduction* paragraph page 34.

The skID R1280I menu options are the following:

- **RFID**
- **SYSTEM**

Click on *SYSTEM*:



Use this section in order to set the communication interface:

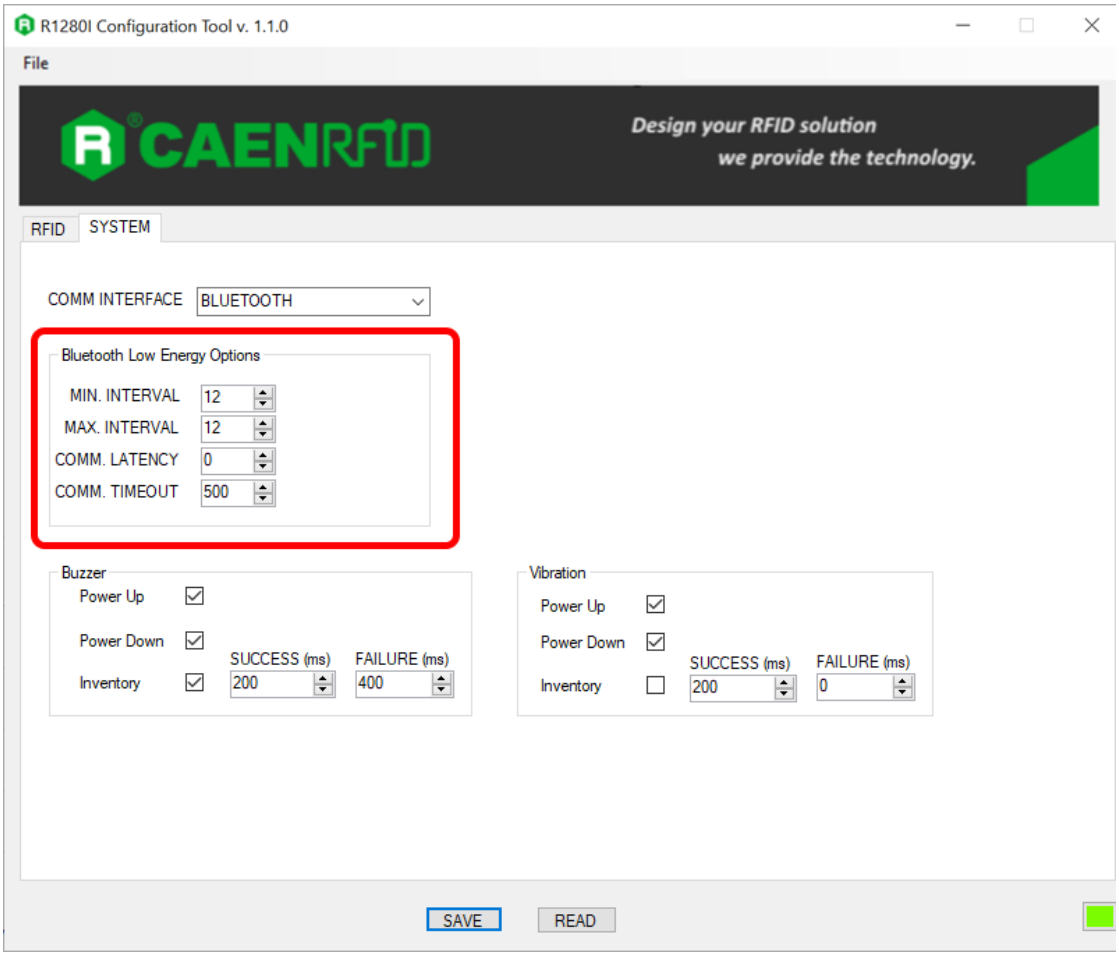
- **COMM INTERFACE:** in the *COMM INTERFACE* box you can set two different communication interface:
  - **USB**
  - **Bluetooth** (BT or BLE, depending on the firmware uploaded into the reader's Bluetooth module)

  By default, the *COMM INTERFACE* is set to “Bluetooth”.

Warning: To save the changes click on the *SAVE* button (check the green dot on the bottom right side of the sidebar). On the main application window click on *File* → *Disconnect*. Power off the reader, disconnect the USB cable and then power on the reader, the new settings are active.

Bluetooth Low Energy Options

By setting the *COMM INTERFACE* to *Bluetooth*, the window *Bluetooth Low Energy Options* is enabled:



Warning: To enable the Bluetooth Low Energy it is necessary to set the *Bluetooth* option in the *COMM INTERFACE* and to upload the BLE firmware into the reader's Bluetooth module (see § *BT-BLE Switching* page 89).

In this section you can set the BLE communication parameters for iOS devices.

This operation is necessary to optimally configure the communication between the Bluetooth module and the iOS operating system. These parameters are important, since they affect power consumption for both the reader and iOS device, data transfer speed of the connection, and, in some cases, the stability of the connection. Default values are:

- **MIN INTERVAL:** 12
- **MAX INTERVAL:** 12
- **COMM LATENCY:** 0
- **COMM TIMEOUT:** 500

Warning: To save the changes click on the *SAVE* button (check the green dot on the bottom right side of the sidebar). On the main application window click on *File* → *Disconnect*. Power off the reader, disconnect the USB cable and then power on the reader, the new settings are active.

Buzzer

Use this section to set the *Buzzer* options:

- **Power Up:** beep at the power on of the reader. By default, the *Power Up* is enabled.
- **Power Down:** beep at the power off of the reader. By default, the *Power Down* is enabled.
- **Inventory:** beep at the identification of a tag. By default, the *Inventory* is enabled.
  - **Success (ms):** length of tone expressed in ms in case of success. The default value is 200.
  - **Failure (ms):** length of tone expressed in ms in case of failure. The default value is 400.

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

Warning: To save the changes click on the *SAVE* button (check the green dot on the bottom right side of the sidebar). On the main application window click on *File* → *Disconnect*. Power off the reader, disconnect the USB cable and then power on the reader, the new settings are active.

Vibration

Use this section in order to set the Vibration options:

- **Power Up:** vibration at the power on of the reader. By default, the *Power Up* is enabled.
- **Power Down:** vibration at the power off of the reader. By default, the *Power Down* is enabled.
- **Inventory:** vibration at the identification of a tag. By default, the *Inventory* is disabled.
  - **Success (ms):** length of vibration expressed in ms in case of success. The default value is 200.
  - **Failure (ms):** length of vibration expressed in ms in case of failure. The default value is 0.

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.

Warning: To save the changes click on the *SAVE* button (check the green dot on the bottom right side of the sidebar). On the main application window click on *File* → *Disconnect*. Power off the reader, disconnect the USB cable and then power on the reader, the new settings are active.

4 EASY2READ PROFILE

Introduction

By default, the reader is in the easy2read profile and the BLE is activated.

With the EASY2READ profile active you will use the CAEN RFID easy2read communication protocol and the reader can be controlled using the CAEN RFID Easy Controller Application or the SDK (Software Development Kit) library.

In the following table it is shown the compatibility between the EASY2READ profile and BT/BLE/USB connection for different Operating Systems (Android, Windows and iOS):

	ANDROID devices			WINDOWS PC			iOS devices		
	BT	BLE	USB	BT	BLE	USB	BT	BLE	USB
EASY2READ	V	V		V		V		V	

Tab. 4.1: Compatibility table EASY2READ-BT/BLE/USB for different OS

Android devices

BLE Communication Setup and the Easy Controller for Android

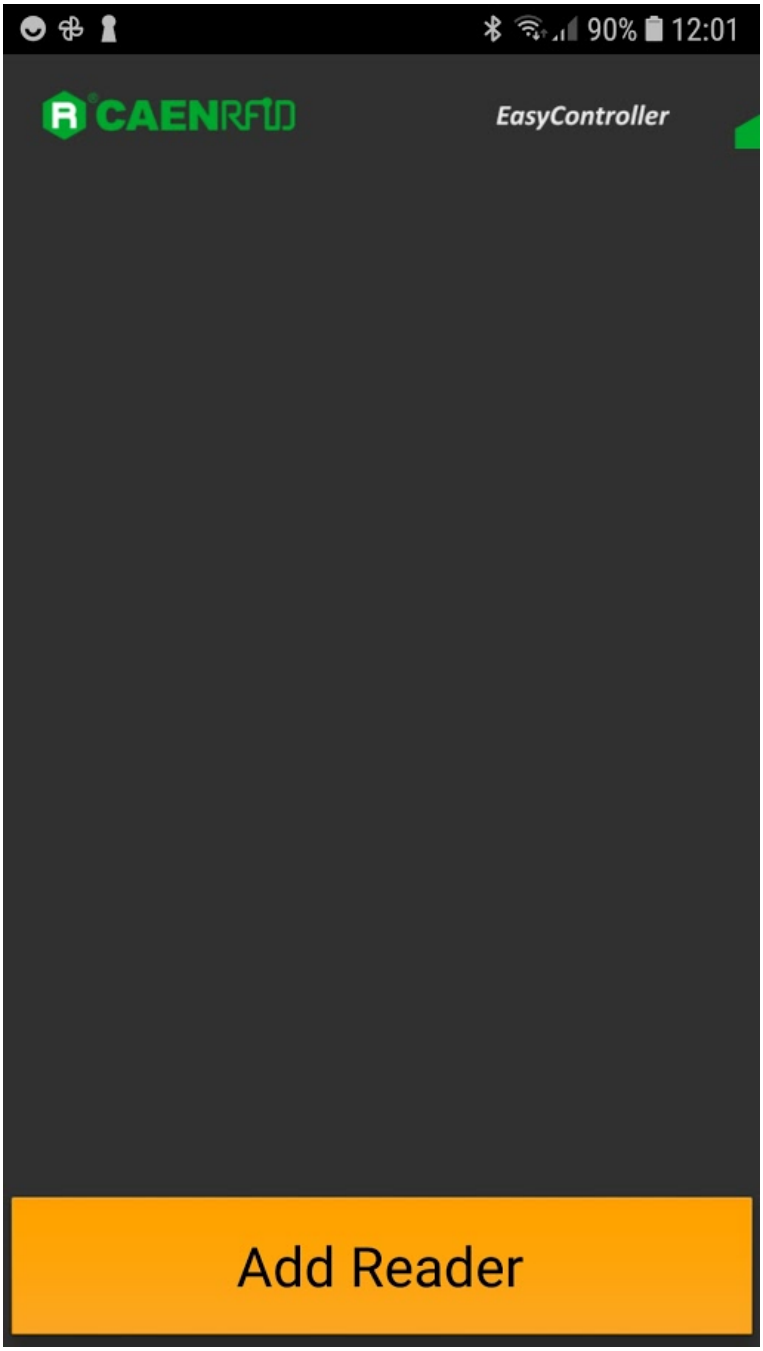
Warning: By default, the reader is in the easy2read profile and the BLE is activated.

- If your reader is in the **HID** profile active, to set the EASY2READ profile, please refer to § *Profile* paragraph page 36.
- If your reader is in the **USB** communication interface active, follow the instructions given in paragraph § *Bluetooth and USB communication* page 42 to select the Bluetooth communication interface using the skID R1280I Configuration Tool and then the instructions in chapter § *BT-BLE Switching* page 89 to switch the reader from BT (Bluetooth Classic) to BLE (Bluetooth Low Energy).
- If your reader is in the **BT** communication interface active, follow the instructions in chapter § *BT-BLE Switching* page 89 to switch the reader from BT (Bluetooth Classic) to BLE (Bluetooth Low Energy).

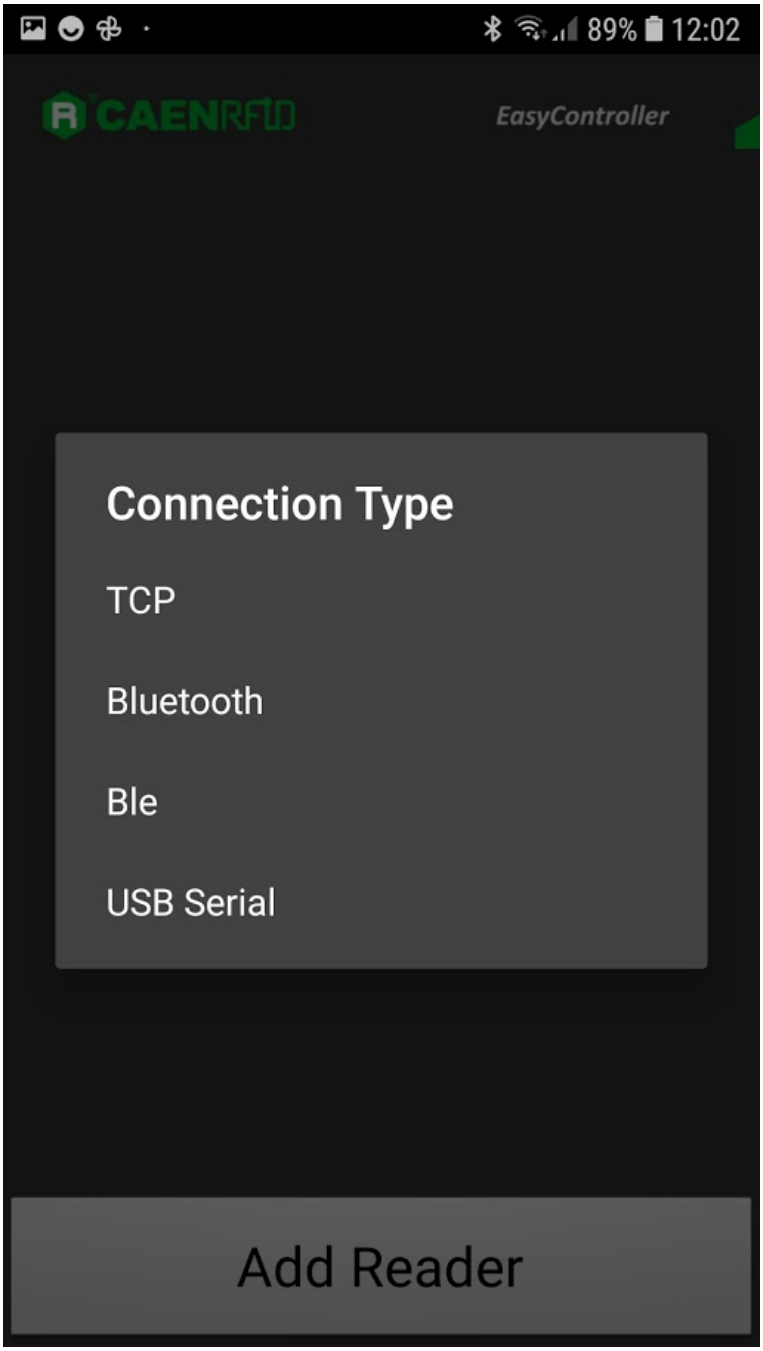
Follow the steps below to connect your Android device to the skID reader using the BLE connection and the Easy Controller App. All the images below were generated using a Samsung S7 model device.

1. Download on your Android device the *CAEN RFID Easy Controller for Android App* (available link at the skID R1280I 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 "*BLE*" in the *"Connection Type"* window:

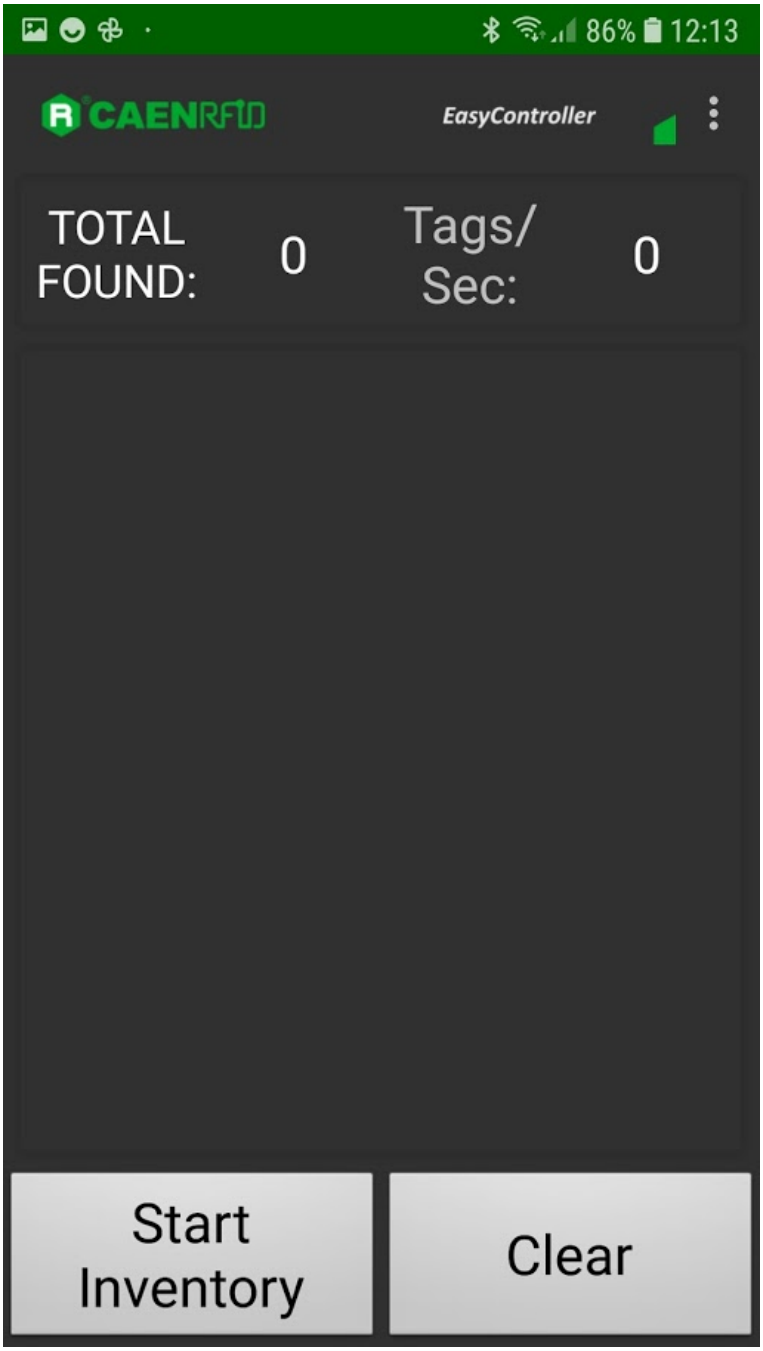


5. Select the skID R1280I reader from the list of Bluetooth devices available (in this example the skID with serial number 20400008):

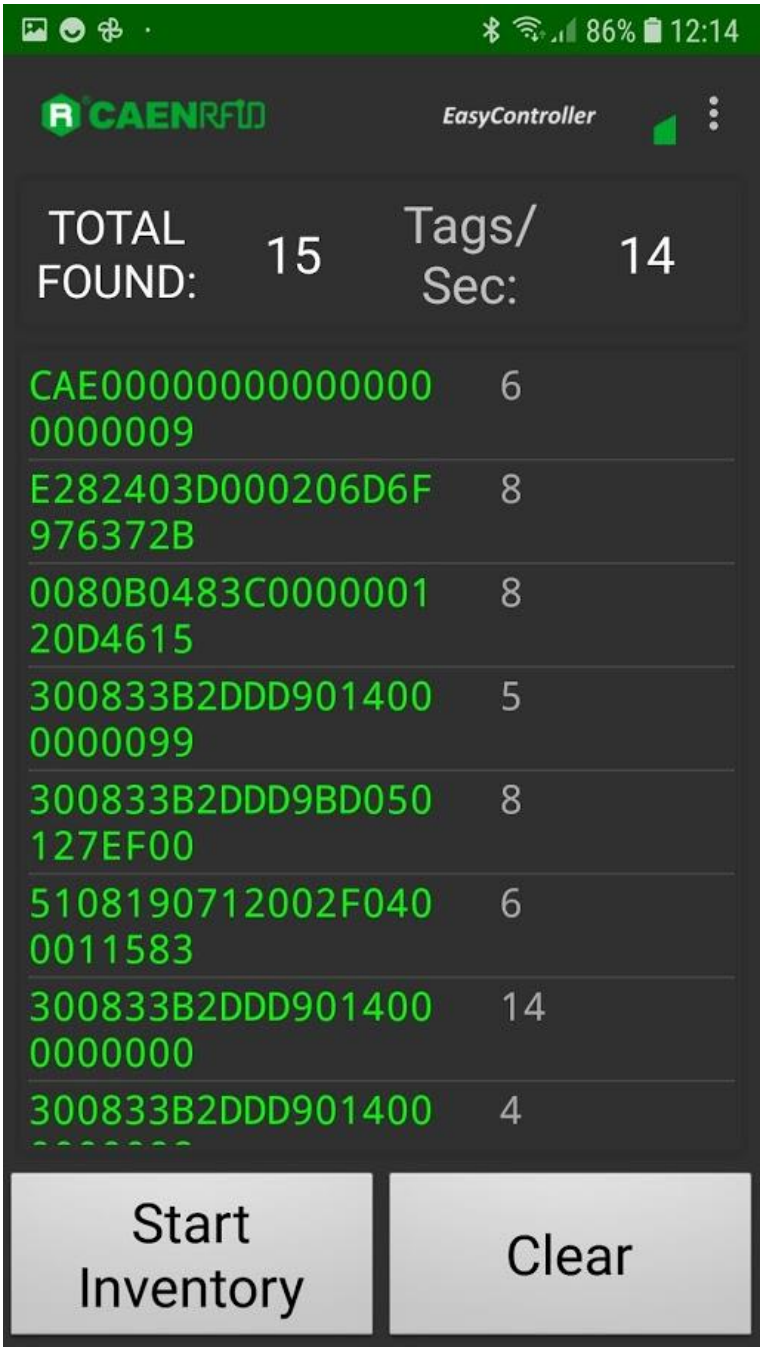
6. Once the connection is established the Bluetooth blue LED of the reader turns on (see § *Tab. 1.4: Bluetooth and USB/charger LED status table* page 10).

7. To start using your skID R1280I, click on the reader line:

8. Click on "*Start Inventory*":



9. A list of the read tags is shown:



BT Communication Setup and the Easy Controller for Android

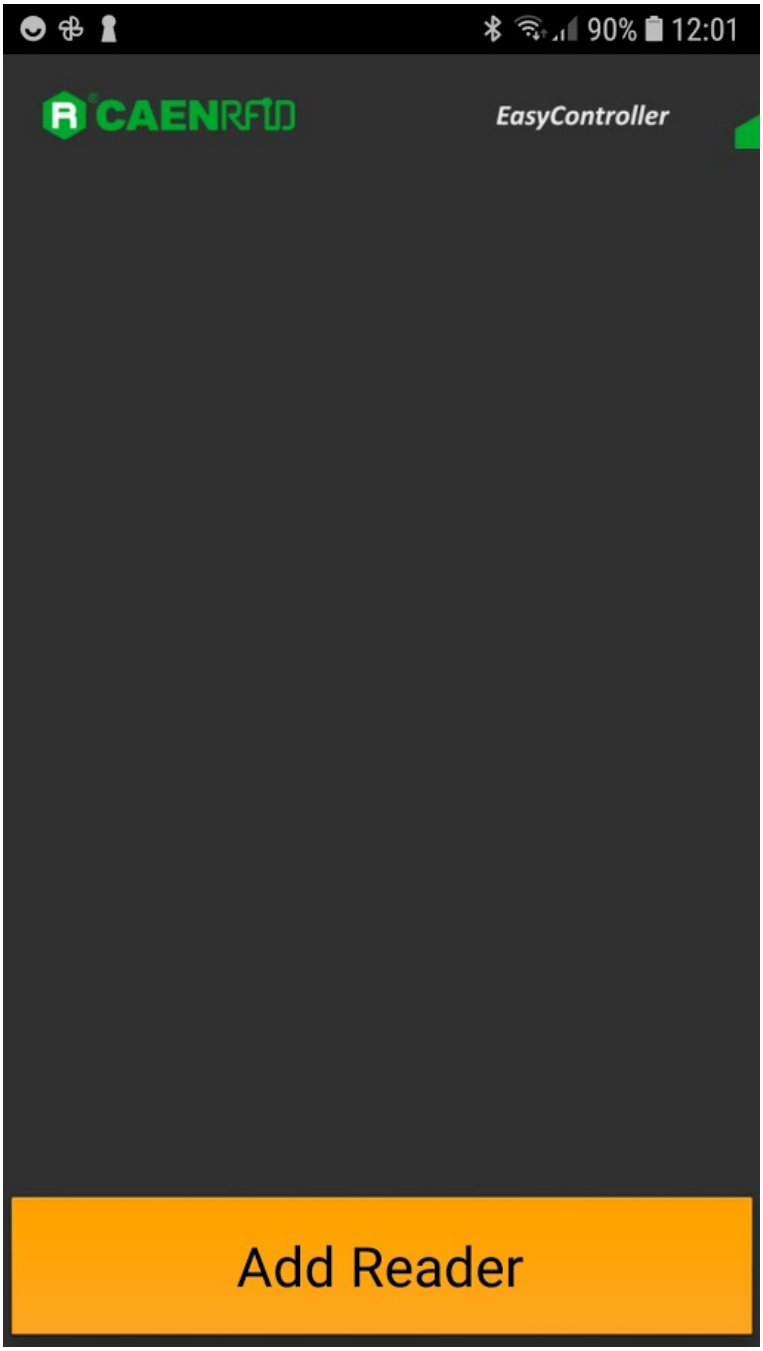
Warning: By default, the reader is in the easy2read profile and the BLE is activated.

- If your reader is in the **HID** profile active, to set the EASY2READ profile, please refer to § *Profile* paragraph page 36.
- If your reader is in the **USB** communication interface active, follow the instructions given in paragraph § *Bluetooth and USB communication* page 42 to select the Bluetooth communication interface using the skID R1280I Configuration Tool and then the instructions in chapter § *BT-BLE Switching* page 89 to switch the reader from BLE (Bluetooth Low Energy) to BT (Bluetooth Classic).
- If your reader is in the **BLE** communication interface active, follow the instructions in chapter § *BT-BLE Switching* page 89 to switch the reader from BLE (Bluetooth Low Energy) to BT (Bluetooth Classic).

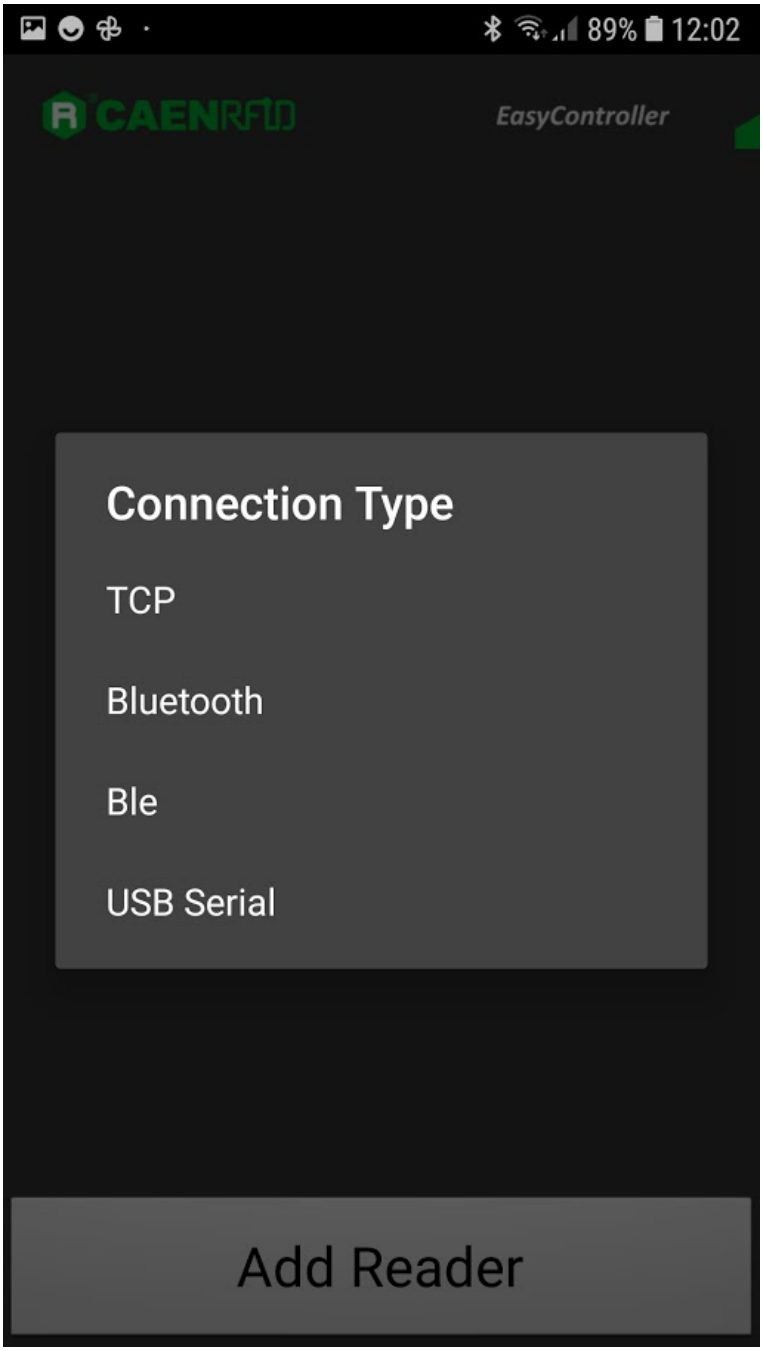
Follow the steps below to connect your Android device to the skID reader using the BT connection and the Easy Controller App. All the images below were generated using a Samsung S7 model device.

1. Download on your Android device the *CAEN RFID Easy Controller for Android App* (available link at the skID R1280I 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:

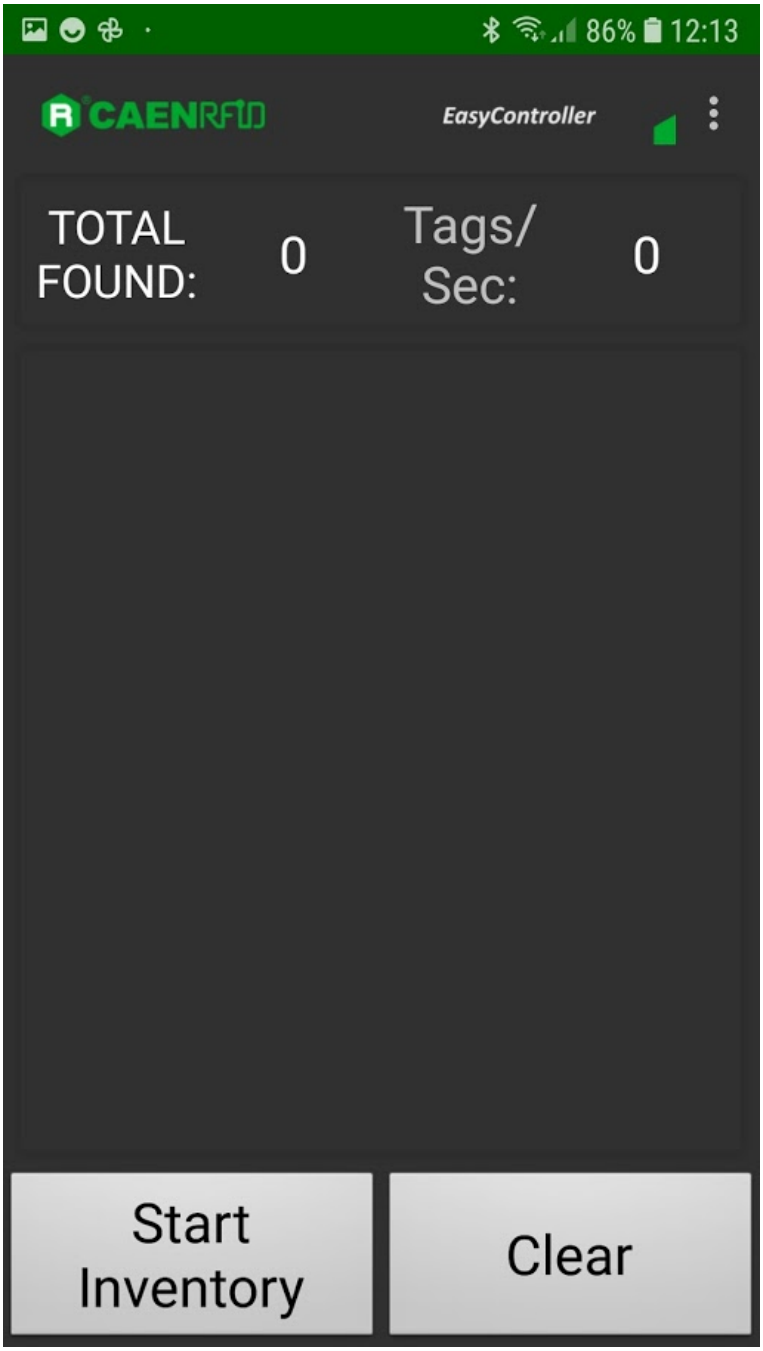


5. Select the skID R1280I reader from the list of Bluetooth devices available (in this example the skID with serial number 20400008):

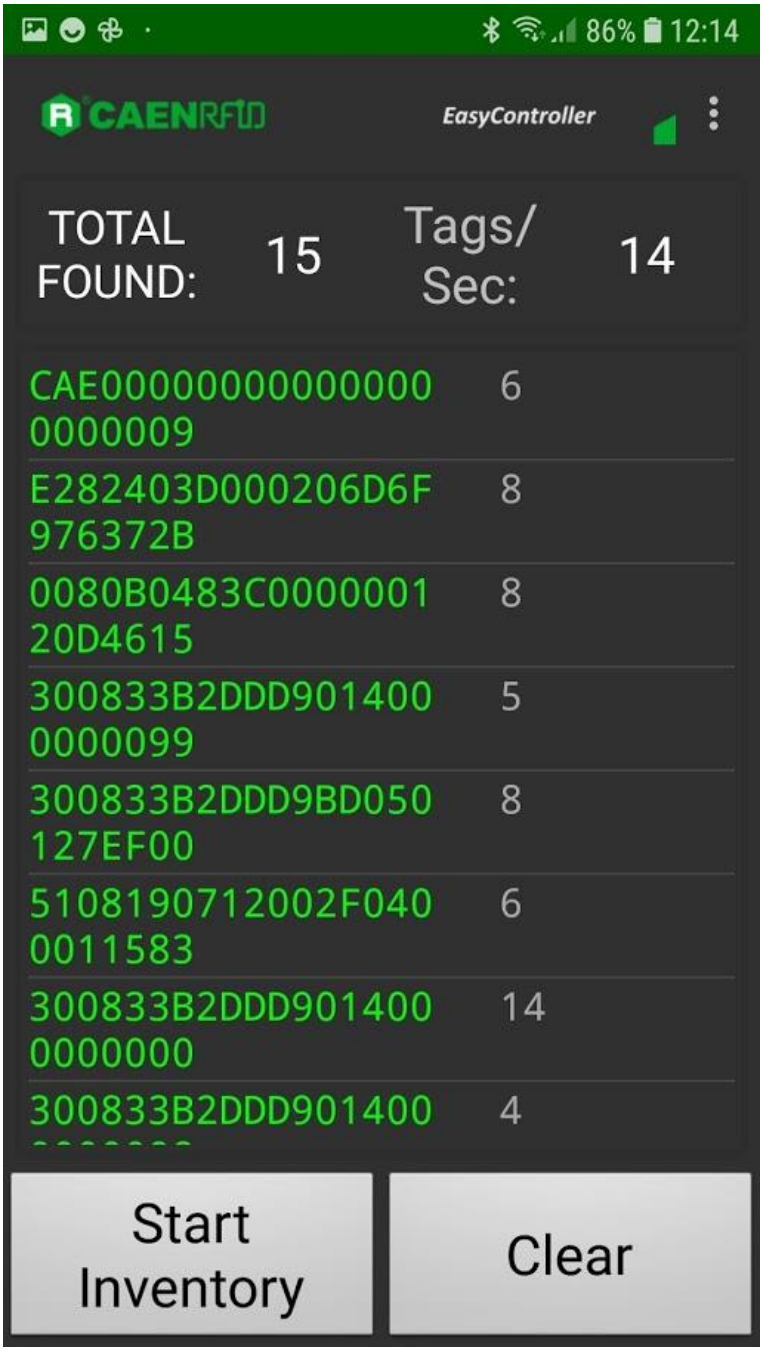
6. Once the connection is established the Bluetooth blue LED of the reader turns on (see § *Tab. 1.4: Bluetooth and USB/charger LED status table* page 10).

7. To start using your skID R1280I, click on the reader line:

8. Click on "*Start Inventory*":



9. A list of the read tags is shown:



Windows PCs

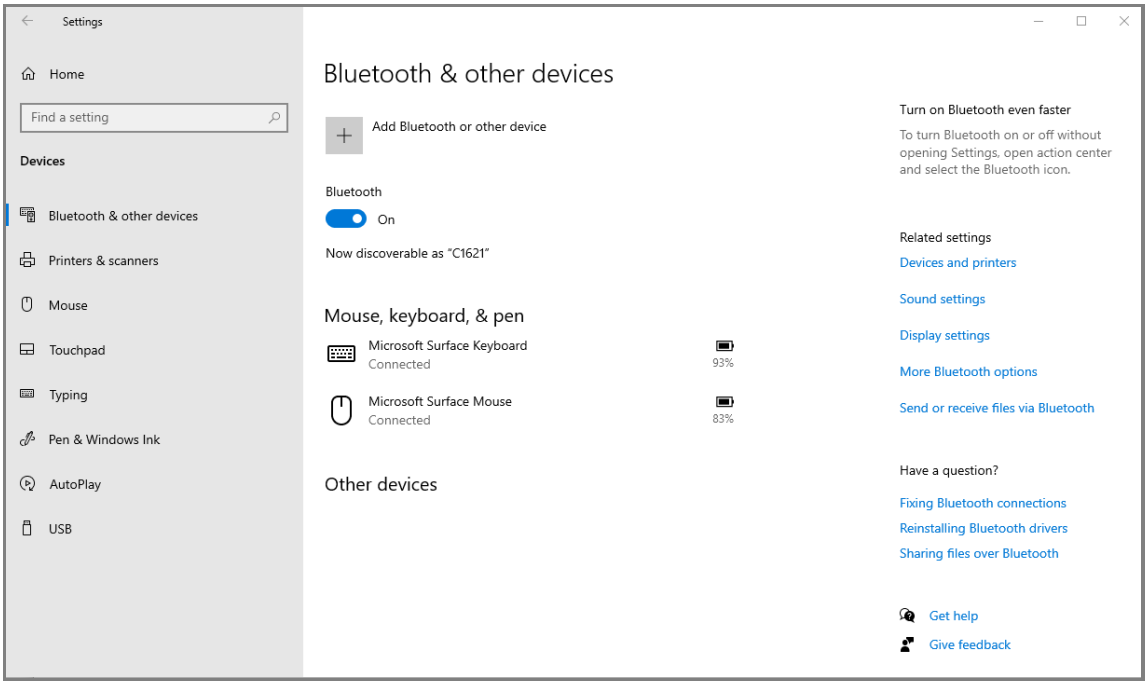
BT Communication Setup and the Easy Controller for Windows

Warning: By default, the reader is in the easy2read profile and the BLE is activated.

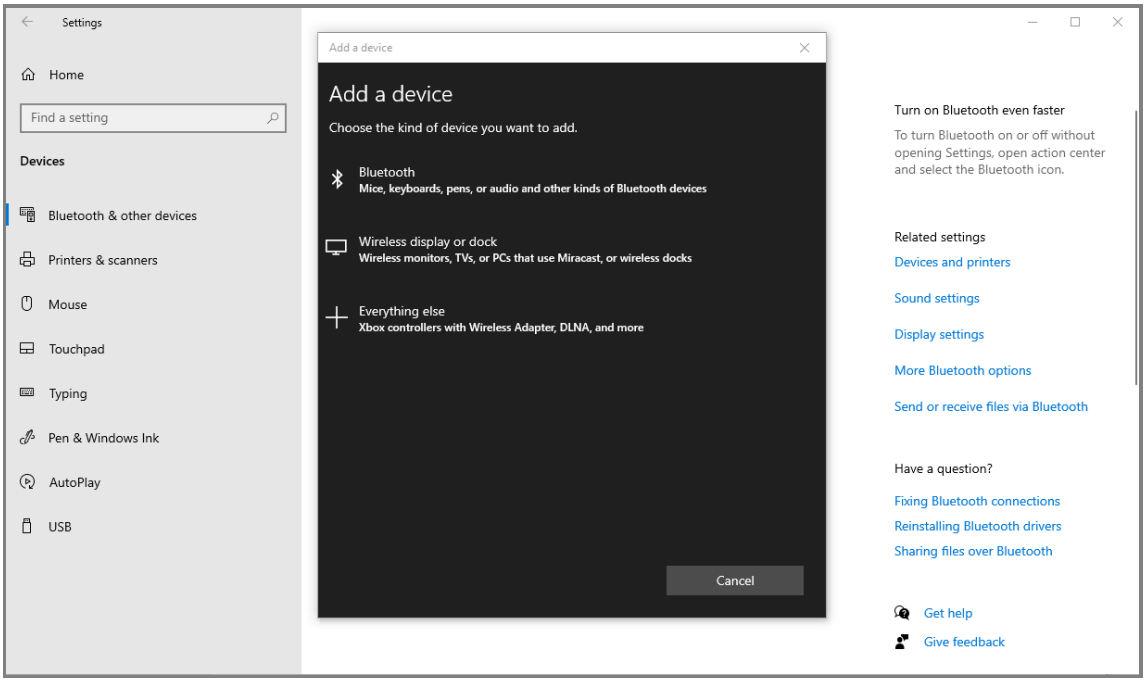
- If your reader is in the **HID** profile active, to set the EASY2READ profile, please refer to § *Profile* paragraph page 36.
- If your reader is in the **USB** communication interface active, follow the instructions given in paragraph § *Bluetooth and USB communication* page 42 to select the Bluetooth communication interface using the skID R1280I Configuration Tool and then the instructions in chapter § *BT-BLE Switching* page 89 to switch the reader from BLE (Bluetooth Low Energy) to BT (Bluetooth Classic).
- If your reader is in the **BLE** communication interface active, follow the instructions in chapter § *BT-BLE Switching* page 89 to switch the reader from BLE (Bluetooth Low Energy) to BT (Bluetooth Classic).

Follow the steps below to connect your Windows PC to the skID reader using the BT connection and the Easy Controller Application. All the images below were generated using the Windows 10 Operating System.

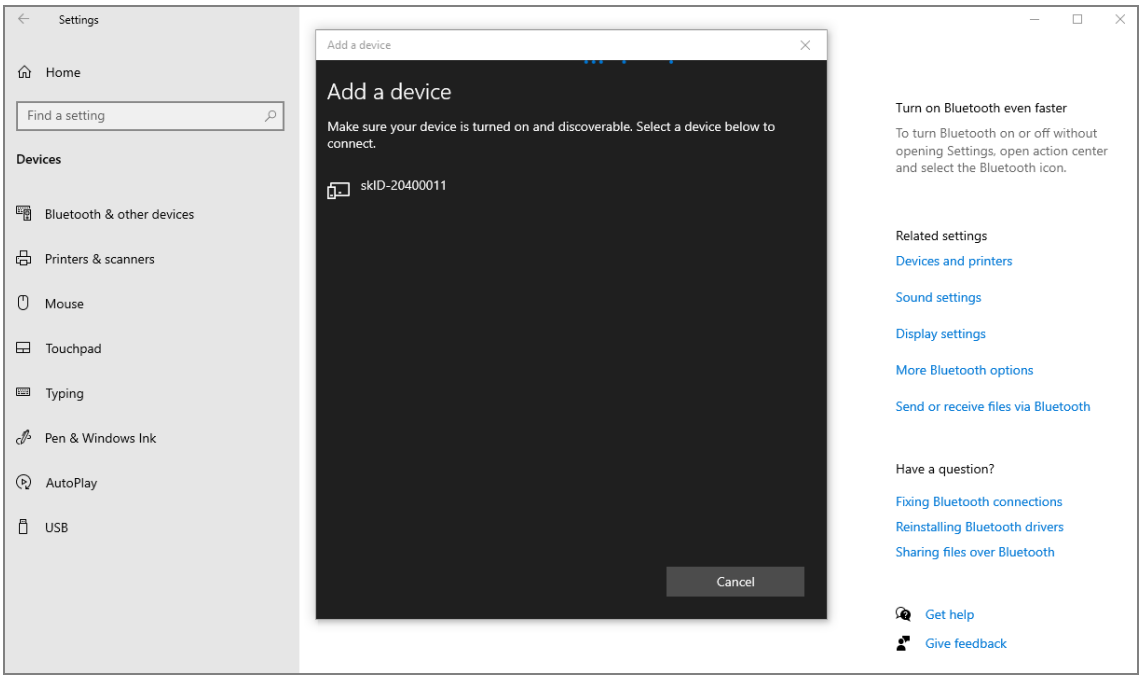
1. In your Windows Pc go to *Settings* → *Devices*.
2. Click on *Bluetooth & other devices* → *Add Bluetooth or other device*:



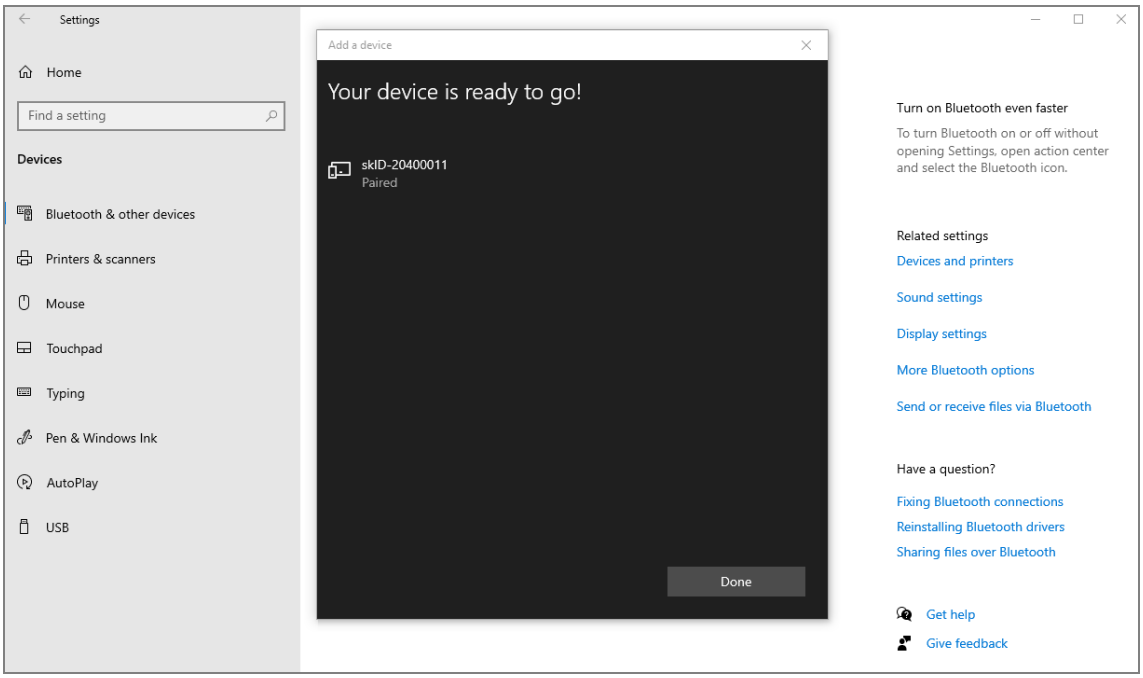
3. Click on *Bluetooth*:



4. Select the skID R1280I reader (in this example the skID with serial number 20400011):



5. The message on the screen “Your device is ready to go!” informs you that the connection is established.

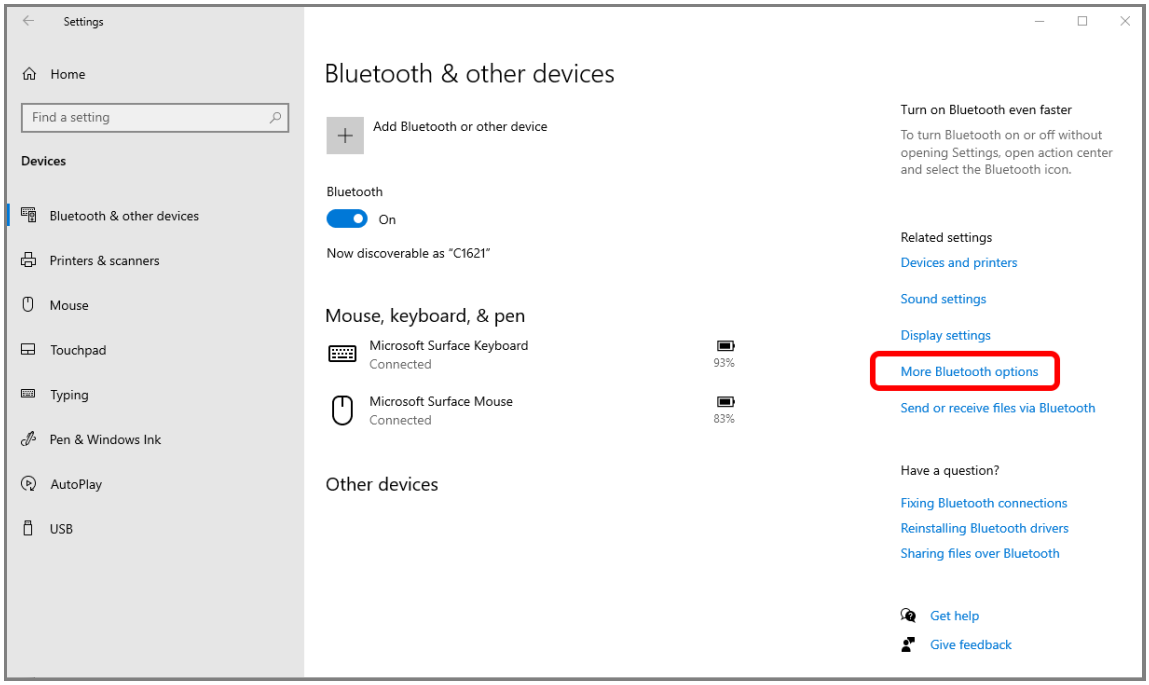


Once the Bluetooth connection is established, a virtual COM port is created on the host PC.

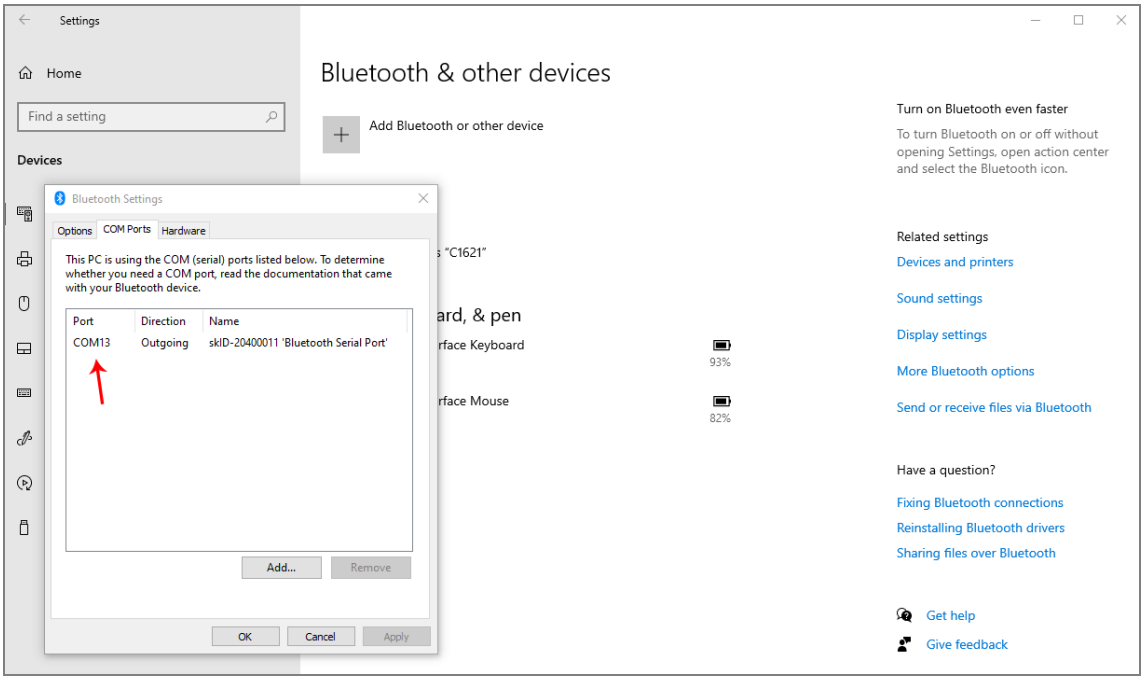
This COM port is used to connect to the reader with the CAEN RFID Easy Controller application.

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

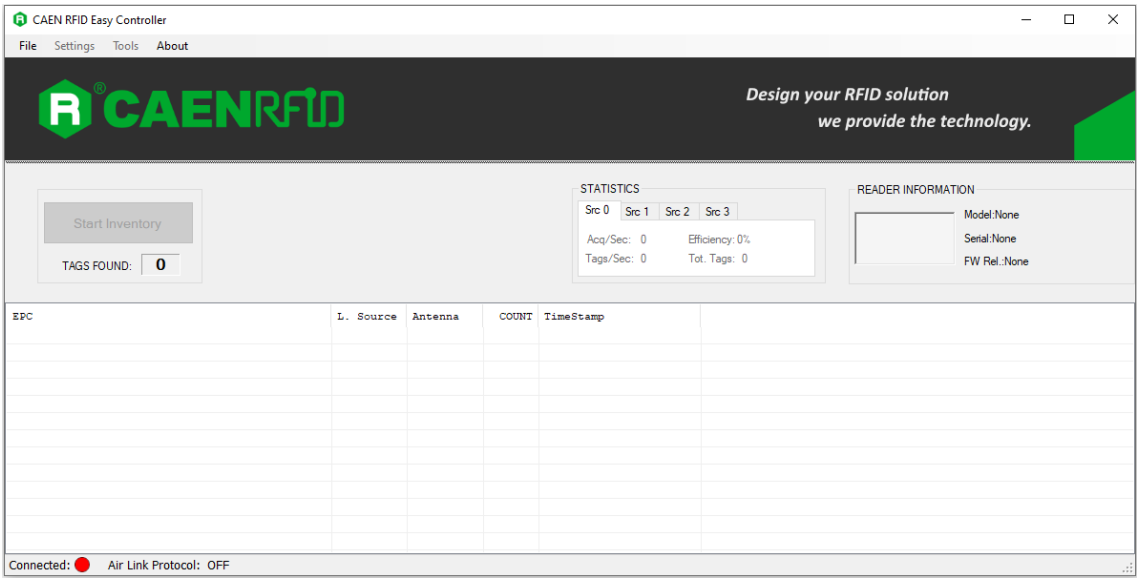
1. Connect the skID reader to your PC using the Bluetooth connection as explained in previous paragraph (§ *BT Communication Setup* page 59).
2. Download from the CAEN RFID web site the latest version of the CAEN RFID Easy Controller for Windows software and install it.
3. In your Windows Pc go to *Settings* → *Devices*. Click on *Bluetooth & other devices* → *More Bluetooth option*:



4. Look for the COM port in the *Bluetooth Settings* (COM 13 in the example below):

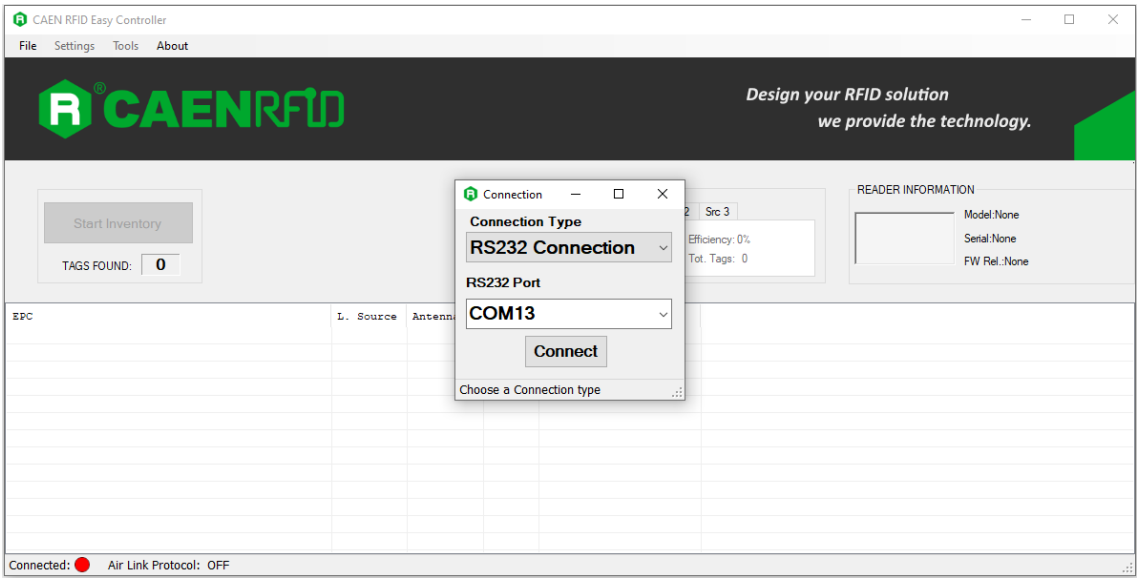


5. Launch the CAEN RFID Easy Controller application:



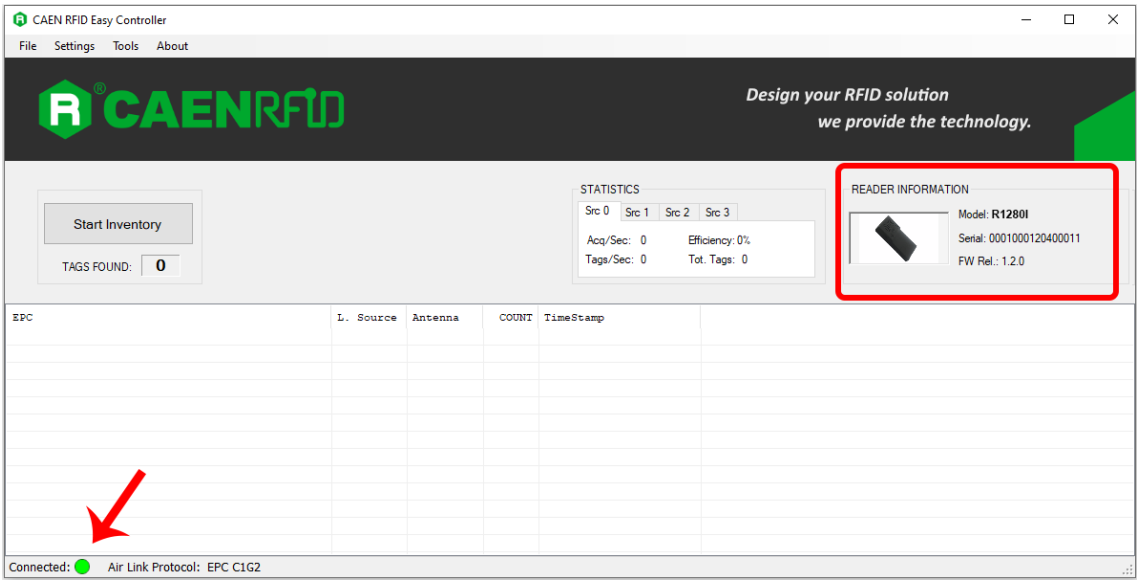
6. On the main application window click on *File → Connect;* the connection dialog box will appear.

7. Select *RS232* from the *Connection Type* combo box and the right COM port number from the *RS232 Port* combo box (COM13 in this example):

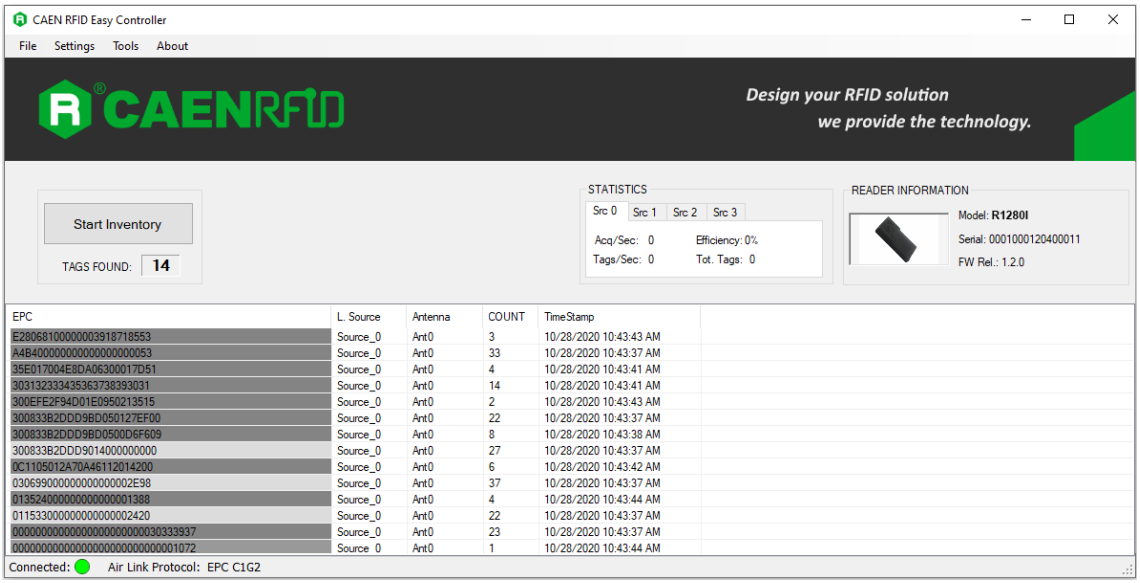


8. Click on *Connect*.

9. To verify if the connection with the reader has been established, check the green dot on the bottom left side of the sidebar. Into the *READER INFORMATION* box you can find information on reader model, serial number and firmware release:



10. Place tags 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 skID R1280I web page, *Downloads* section or in the Manuals and Documents web area.

Warning: Note that in the EASY2READ profile holding down the *trigger* button activates the tag inventory only if the event-based continuous mode is active (see the function *EventInventoryTag Method* in the *CAEN RFID API Reference Manual* that can be download from skID R1280I web page, *Documents* section).

USB Communication Setup and the Easy Controller for Windows

Warning: By default, the reader is in the easy2read profile and the BLE is activated.

- If your reader is in the **HID** profile active, to set the EASY2READ profile, please refer to § *Profile* paragraph page 36.
- If your reader is in the **Bluetooth** communication interface active, follow the instructions given in paragraph § *Bluetooth and USB communication* page 42 to select the USB communication interface using the skID R1280I Configuration Tool.

The skID R1280I reader can be connected to a PC using the provided USB cable and it is detected by the PC as an emulated serial port.

Follow the steps below to connect your Windows PC to the skID reader using the USB connection and the Easy Controller Application. All the images below were generated using the Windows 10 Operating System.

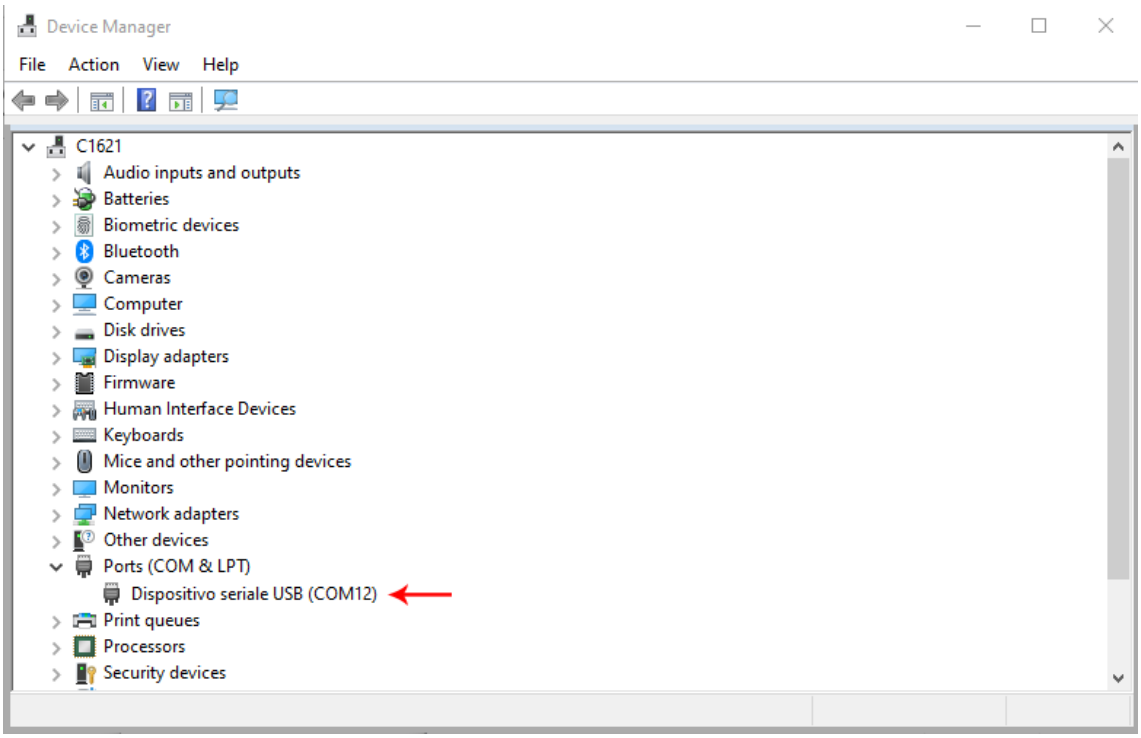
1. Connect the skID R1280I reader to the PC using the provided USB cable and then power ON the reader again. The USB interface creates virtual COM port on the host PC that can be used to connect to the reader with the CAEN RFID Easy Controller application.

   Once the USB connection is established, a virtual COM port is created on the host PC. This COM port is used to connect to the reader with the CAEN RFID Easy Controller application.

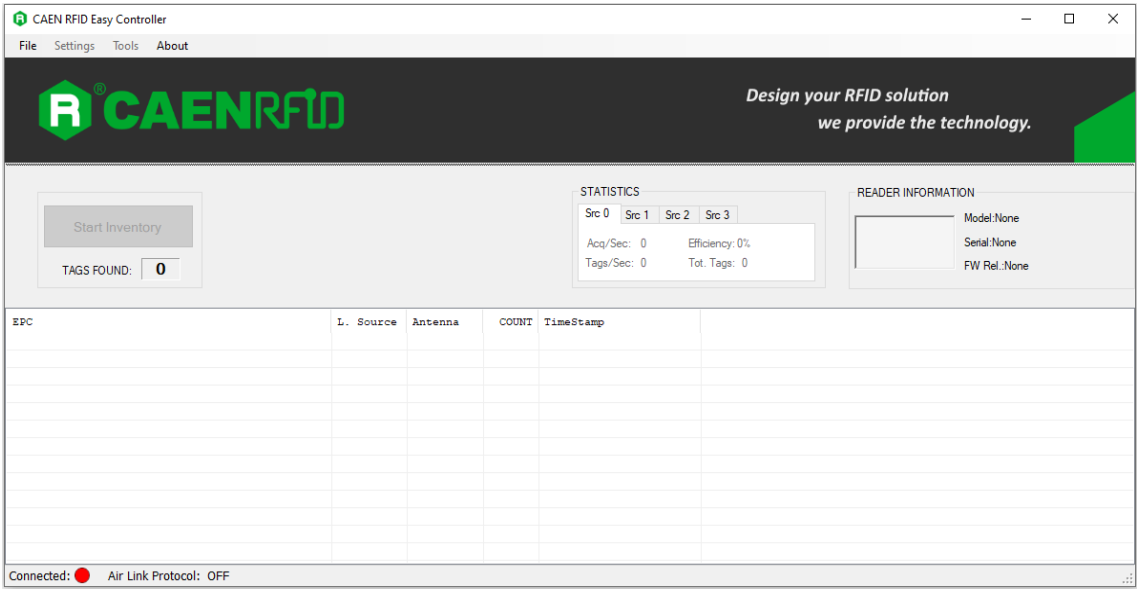
2. Download from the CAEN RFID web site the latest version of the CAEN RFID Easy Controller for Windows software and install it.

3. In your Windows Pc go to *Settings* → *System*. Open the *System properties* and click on *Device Manager*.

4. Look for the COM port in the *Device Manager* window (COM 12 in the example below):

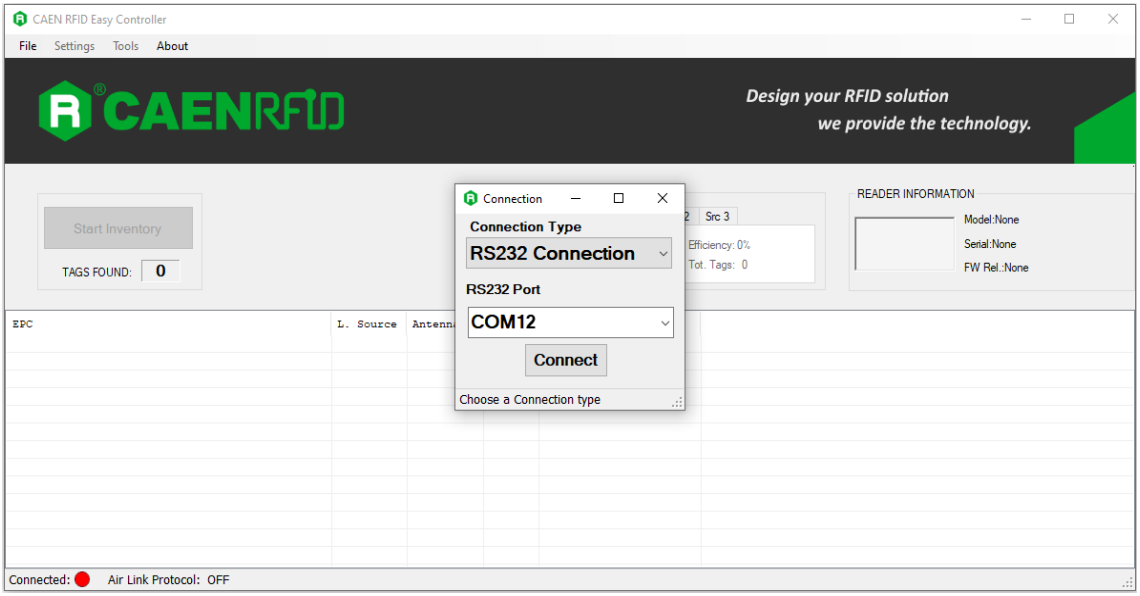


5. Launch the CAEN RFID Easy Controller application:



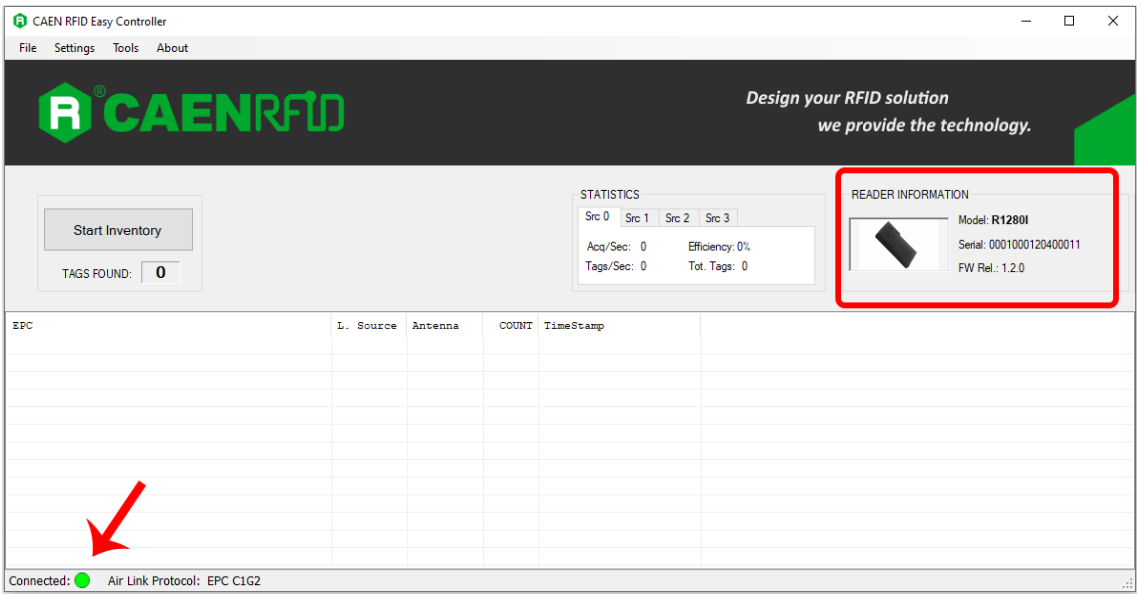
6. On the main application window click on *File → Connect;* the connection dialog box will appear.

7. Select *RS232* from the *Connection Type* combo box and the right COM port number from the *RS232 Port* combo box (COM12 in this example):

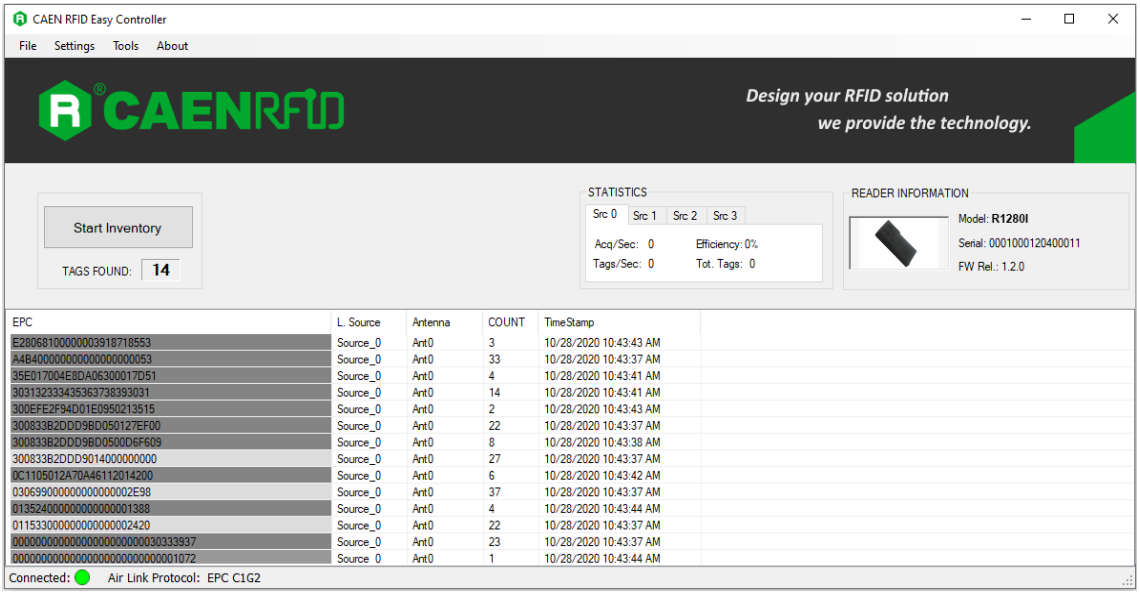


8. Click on *Connect*.

9. To verify if the connection with the reader has been established, check the green dot on the bottom left side of the sidebar. Into the *READER INFORMATION* box you can find information on reader model, serial number and firmware release:



10. Place tags 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 skID R1280I web page, *Downloads* section or in the Manual and Documents web area.

Warning: Note that in the EASY2READ profile holding down the *trigger* button activates the tag inventory only if the event-based continuous mode is active (see the function *EventInventoryTag Method* in the *CAEN RFID API Reference Manual* that can be download from skID R1280I web page, *Documents* section).

iOS devices

BLE Communication Setup and the Easy Controller for iOS

Warning: By default, the reader is in the easy2read profile and the BLE is activated.

- If your reader is in the **HID** profile active, to set the EASY2READ profile, please refer to § *Profile* paragraph page 36.
- If your reader is in the **USB** communication interface active, follow the instructions given in paragraph § *Bluetooth and USB communication* page 42 to select the Bluetooth communication interface using the skID R1280I Configuration Tool and then the instructions in chapter § *BT-BLE Switching* page 89 to switch the reader from BT (Bluetooth Classic) to BLE (Bluetooth Low Energy).
- If your reader is in the **BT** communication interface active, follow the instructions in chapter § *BT-BLE Switching* page 89 to switch the reader from BT (Bluetooth Classic) to BLE (Bluetooth Low Energy).

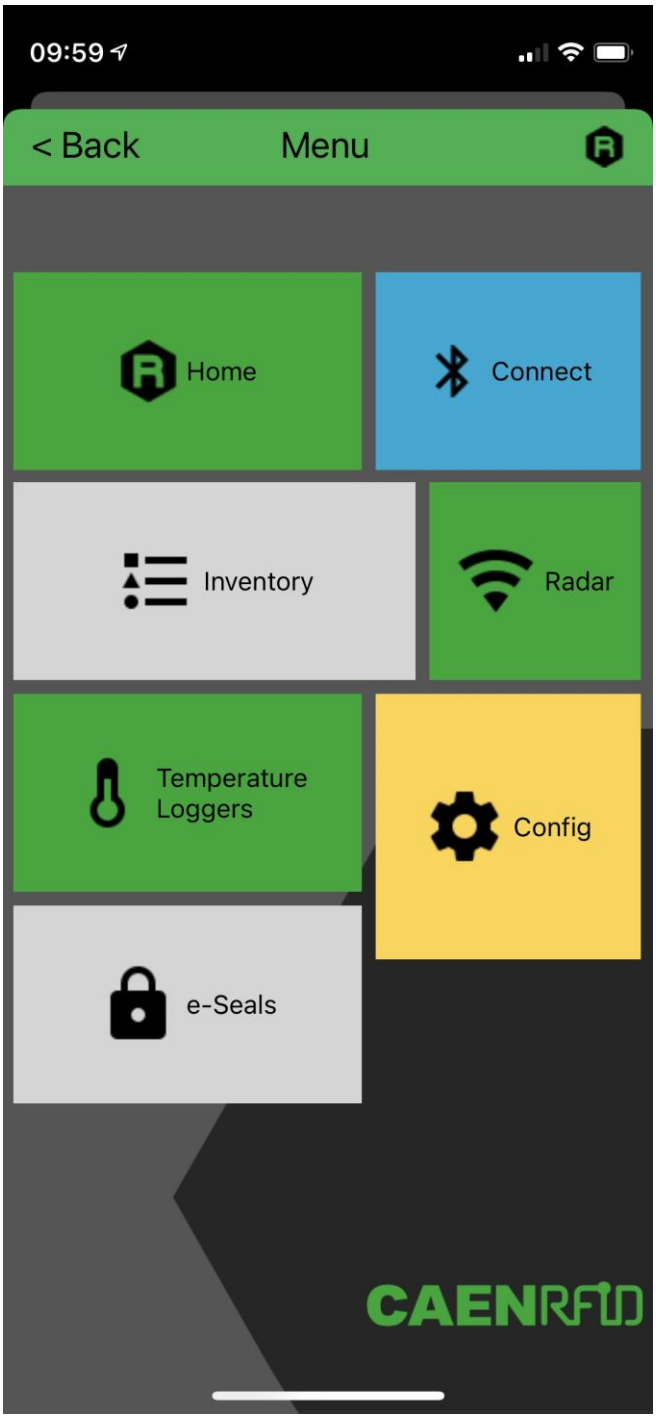
Follow the steps below to connect your iOS device to the skID reader using the BLE connection and the Easy Controller App. All the images below were generated using an Apple iphone XR model.

1. Download on your iOS device the *CAEN RFID Easy Controller for iOS App* (available link at the skID R1280I web page, by clicking on the App Store icon).

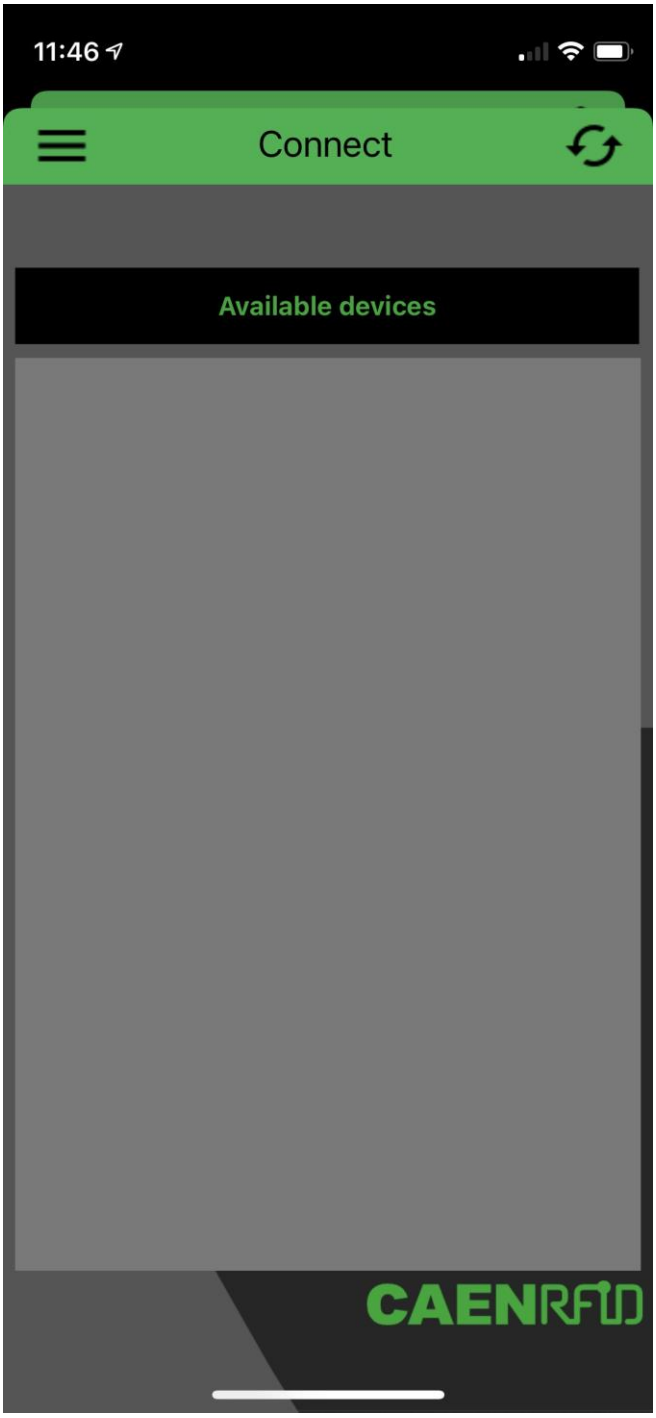
Warning: Note that in the EASY2READ profile, the BLE connection between your iOS device and the skID reader is managed directly through the Easy Controller app.

2. Launch the *CAEN RFID Easy Controller for iOS App*:

3. Click on *Menu*: →*Connect*.

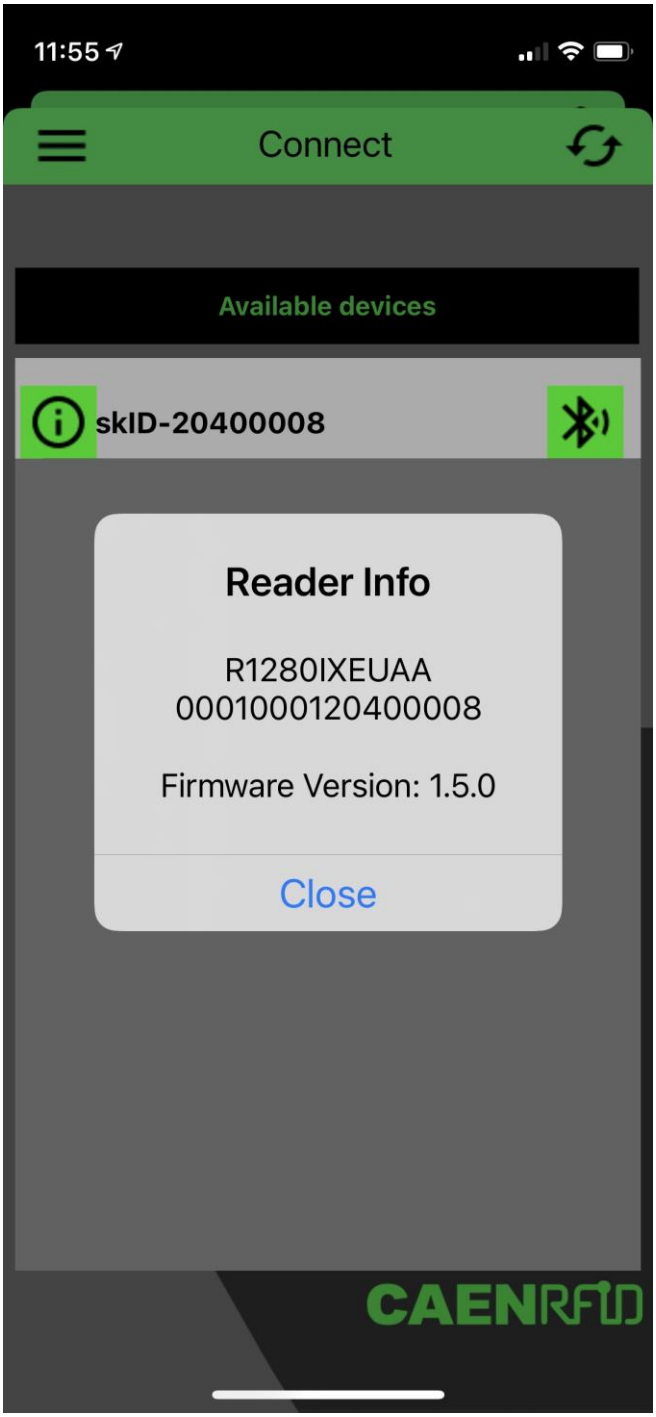


4. Click on icon:

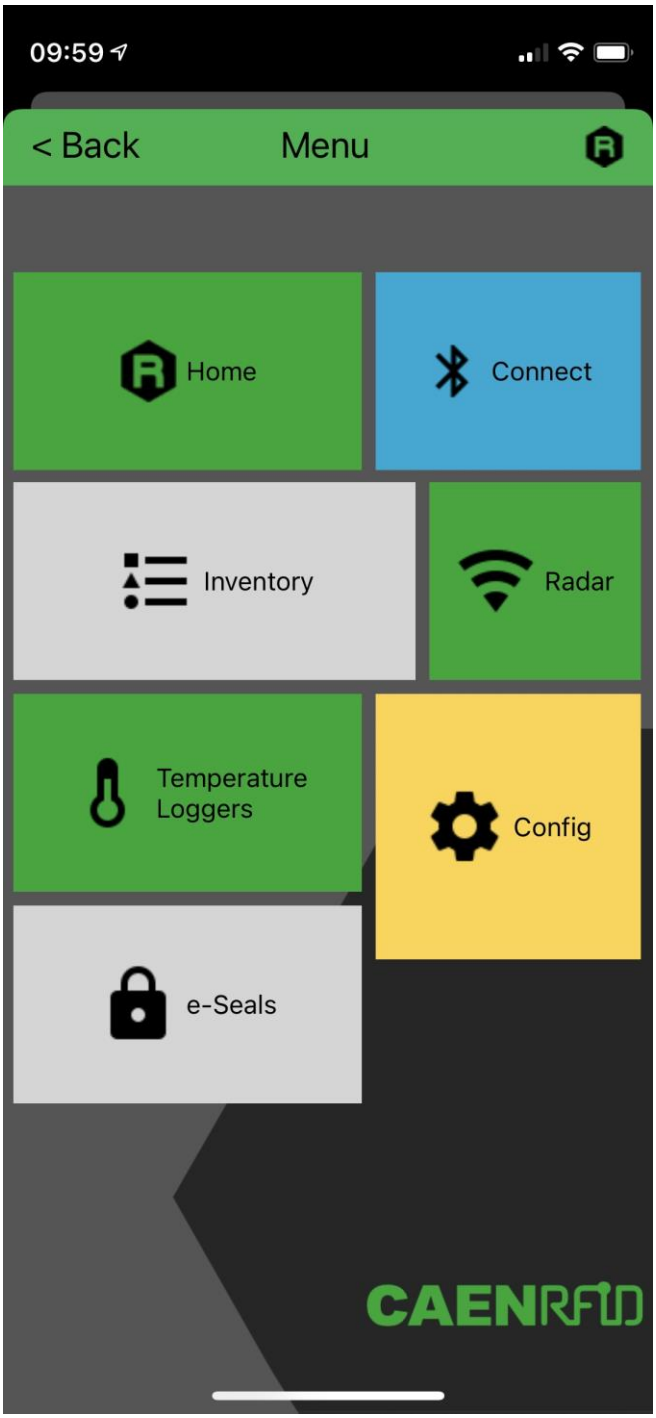


5. The available devices are shown, click on the icon in the skID R1280I reader line (in this example skID s.n. 20400008):

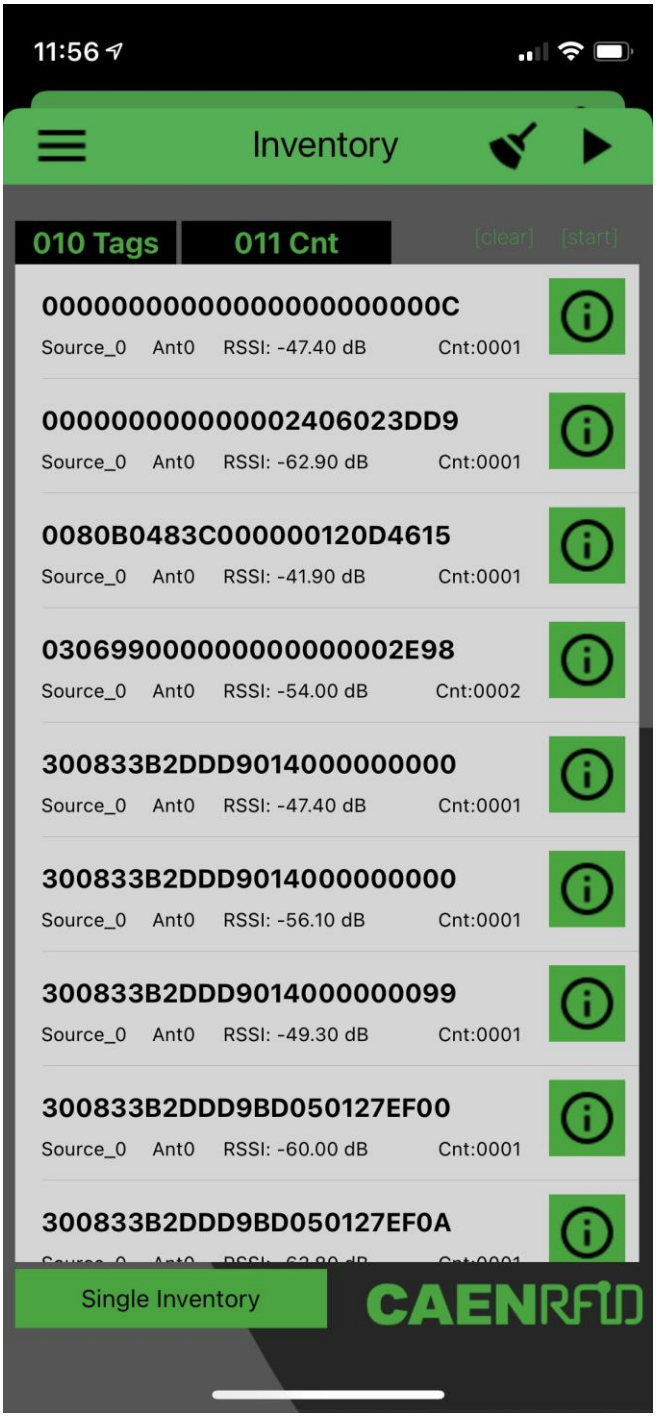
6. Into the *Reader Information* box you can find information on reader model, serial number and firmware release:



7. Once the connection is established, the Bluetooth blue LED on the skID R1280I reader turns on (see § *Tab. 1.4: Bluetooth and USB/charger LED status table* page 10) and you can start using your reader
8. Come back and click on the *Menu→Inventory*:



9. Click on icon to start the inventory. A list of the read tags is shown:



5 HID PROFILE

Introduction

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

In the following table it is shown the compatibility between the HID profile and BT/BLE/USB connection for different Operating Systems (Android, PC and iOS):

	ANDROID devices			WINDOWS PC			iOS devices		
	BT	BLE	USB	BT	BLE	USB	BT	BLE	USB
HID	V	V		V				V	

Tab. 5.1: Compatibility table HID-BT/BLE/USB for different OS

By default, the reader is in the easy2read profile and the BLE is activated.

Android devices

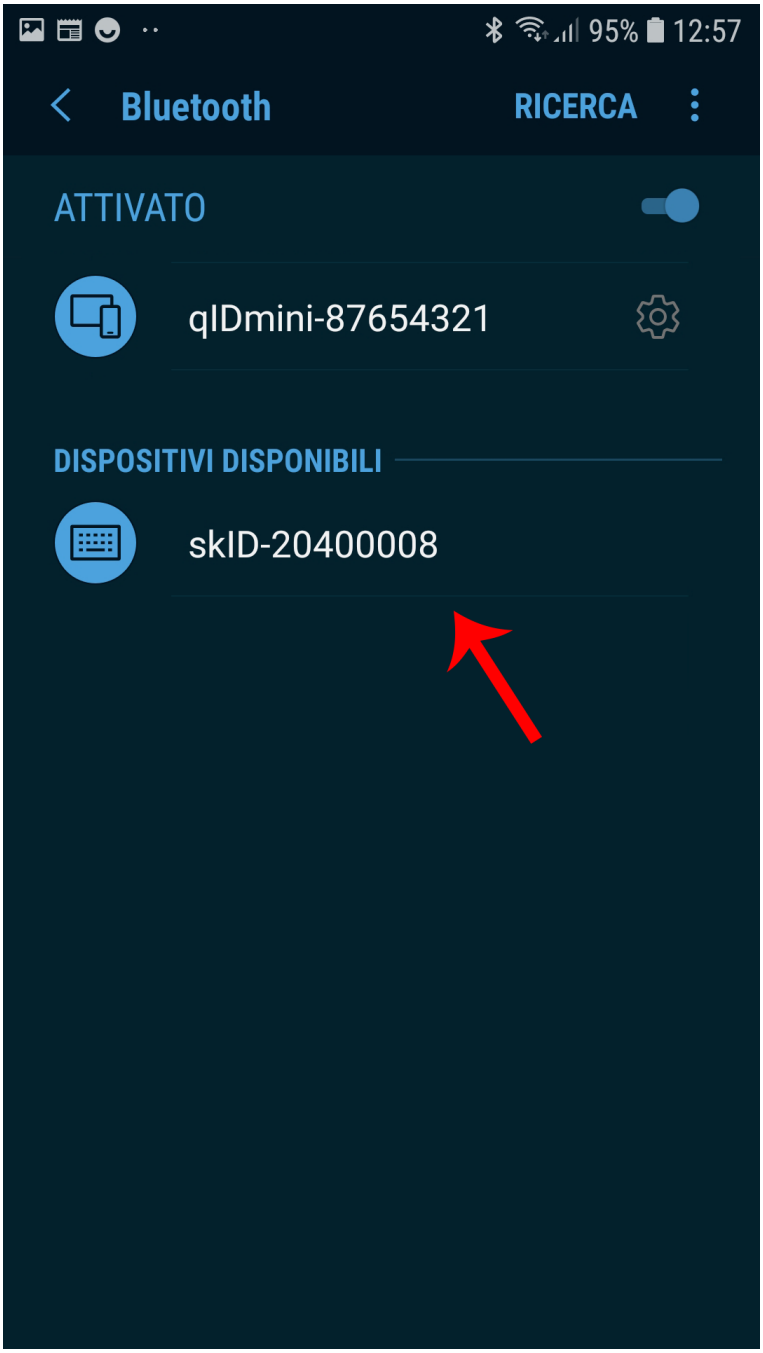
BLE and BT Communication Setup

Warning: By default, the reader is in the easy2read profile and the BLE is activated.

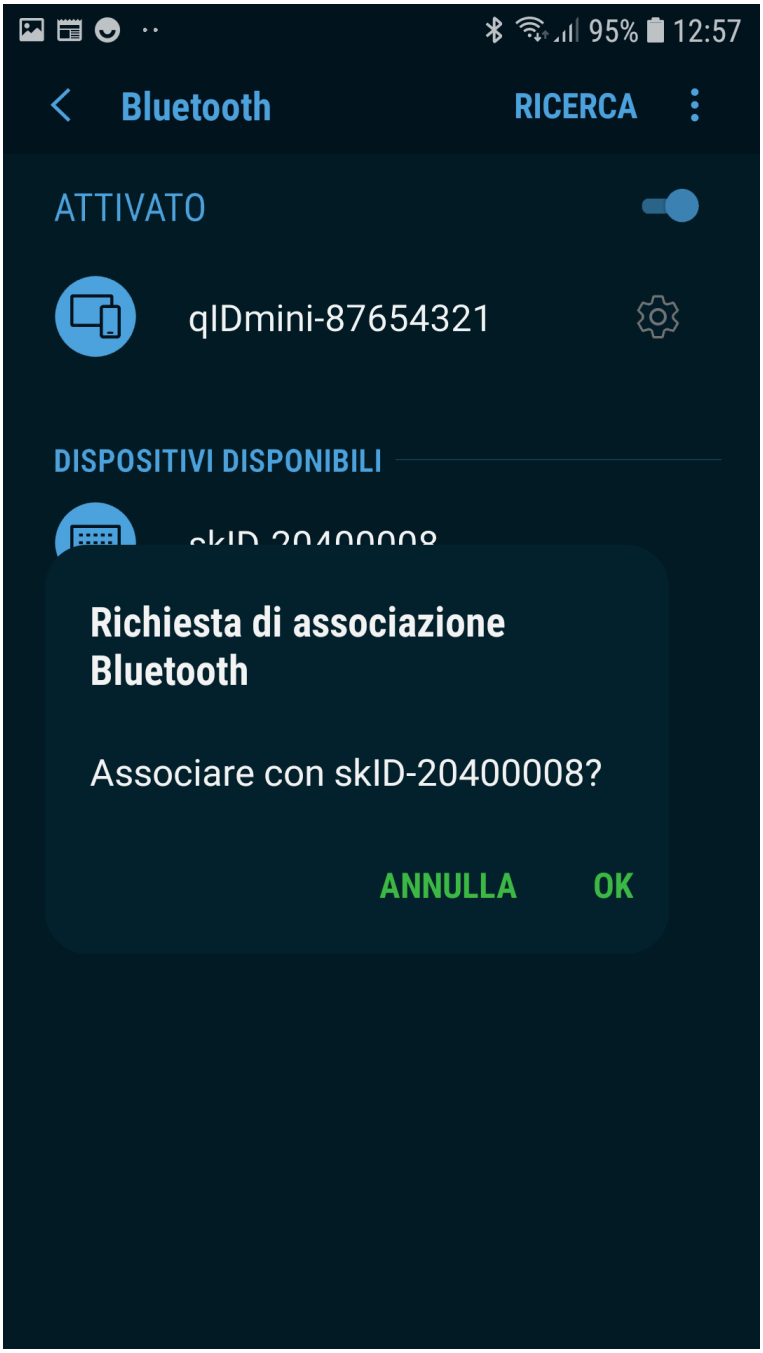
- If your reader is in the **EASY2READ** profile active, to set the HID profile, please refer to § *Profile* paragraph page 36.
- If your reader is in the **USB** communication interface active, follow the instructions given in paragraph § *Bluetooth and USB communication* page 42 to select the Bluetooth communication interface using the skID R1280I Configuration Tool and then the instructions in chapter § *BT-BLE Switching* page 89 to switch the reader from BLE (Bluetooth Low Energy) to BT (Bluetooth Classic) or vice-versa.
- If your reader is in the **BLE** or **BT** communication interface active, follow the instructions in chapter § *BT-BLE Switching* page 89to switch the reader from BLE (Bluetooth Low Energy) to BT (Bluetooth Classic) or vice-versa.

Follow the steps below to connect your Android device to the skID reader using the BT or BLE connection. All the images below were generated using a Samsung S7 model device.

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

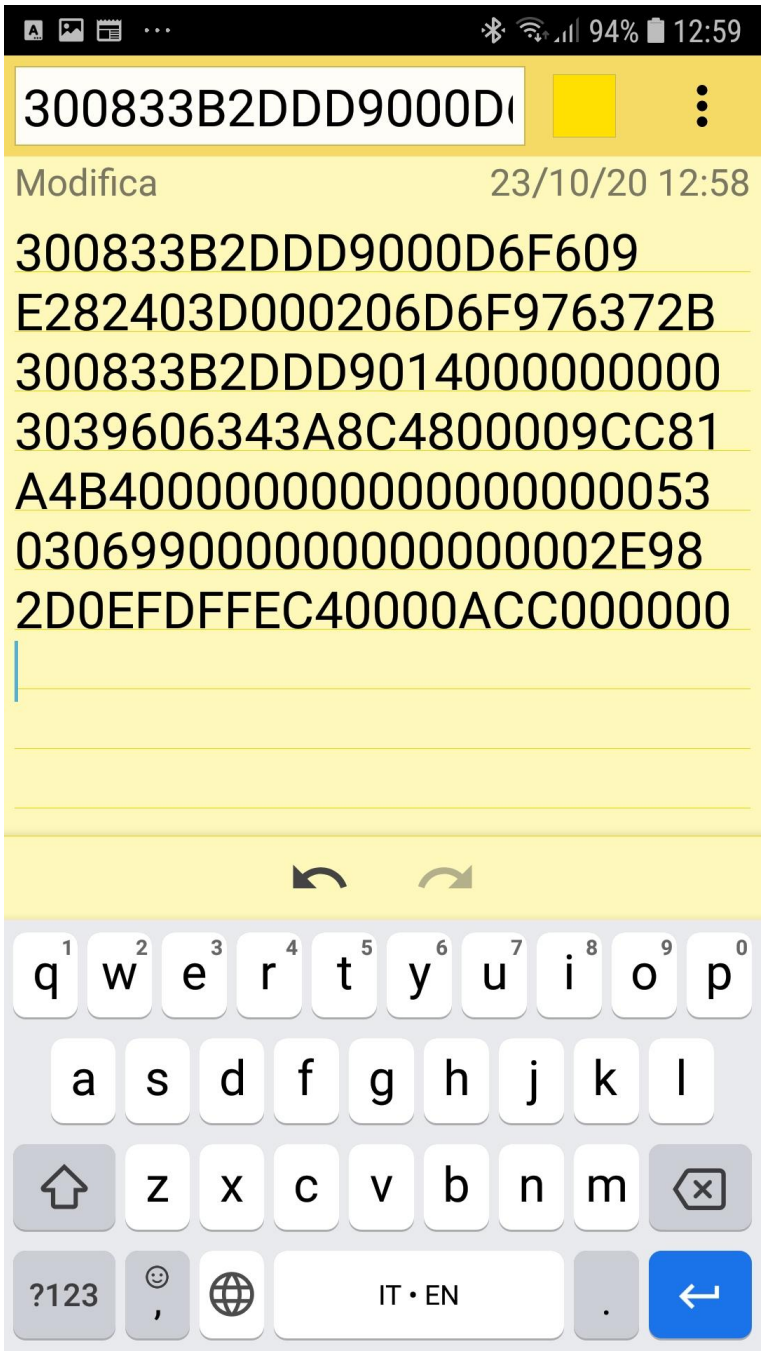


2. Click on the skID R1280I reader (in this example the skID with serial number 20400008), confirm the Bluetooth pairing and wait until the pairing is complete:



3. Once the connection is established, the Bluetooth blue LED on the skID R1280I reader turns on (see § *Tab. 1.4: Bluetooth and USB/charger LED status table* page 10) and you can start using your reader.

4. Launch a text editing App (or any other App accepting keyboard input).
5. Start an inventory cycle by pressing the *trigger* button. On the text editing App window you will see the EPCs of the tags:



Note that, when configured in the HID profile and paired to a device, the skID R1280I reader will automatically reconnect to the same device every time the Bluetooth link is active (skID R1280I 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 skID R1280I reader.

Windows PCs

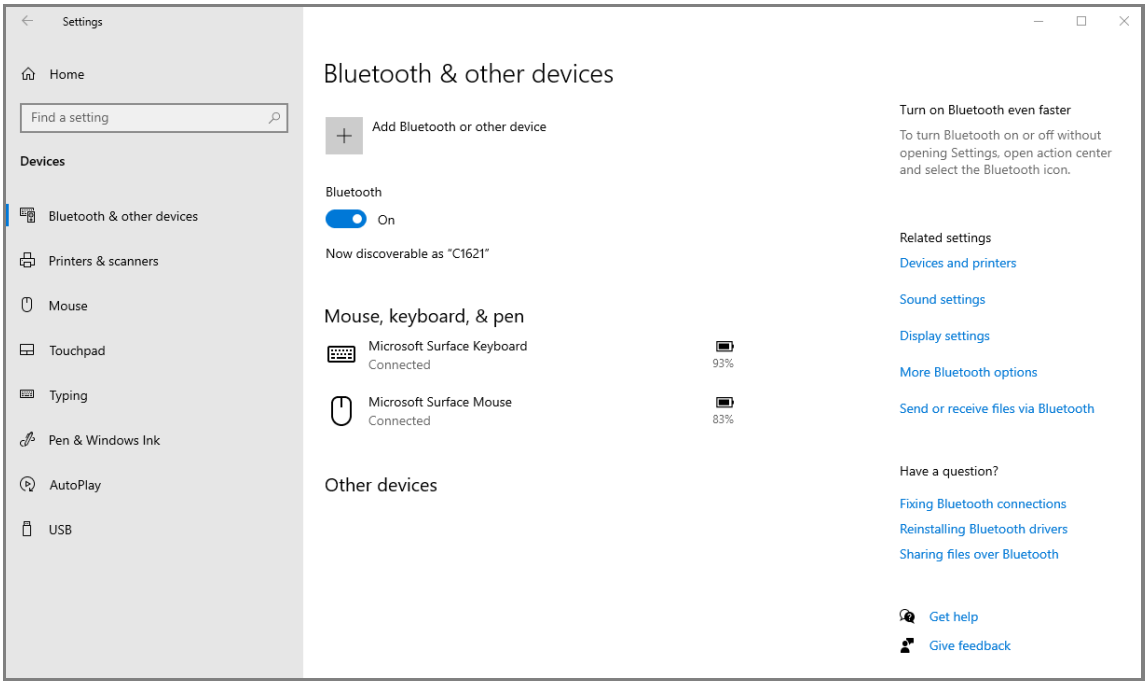
BT Communication Setup

Warning: By default, the reader is in the easy2read profile and the BLE is activated.

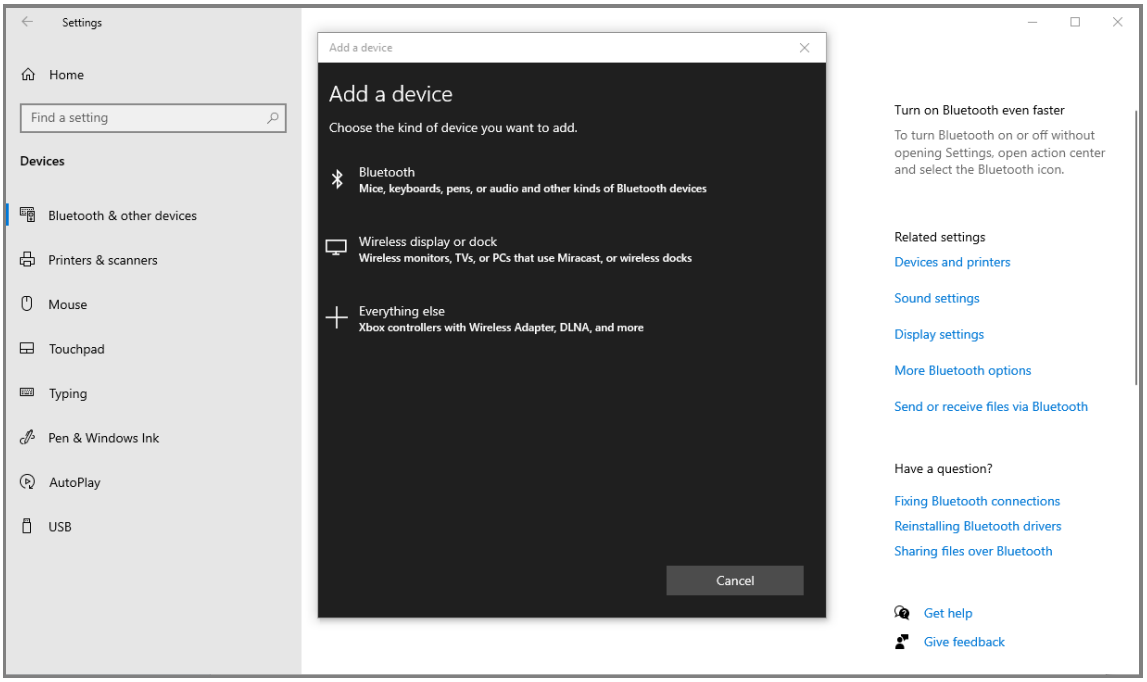
- If your reader is in the **EASY2READ** profile active, to set the HID profile, please refer to § *Profile* paragraph page 36.
- If your reader is in the **USB** communication interface active, follow the instructions given in paragraph § *Bluetooth and USB communication* page 42 to select the Bluetooth communication interface using the skID R1280I Configuration Tool and then the instructions in chapter § *BT-BLE Switching* page 89 to switch the reader from BLE (Bluetooth Low Energy) to BT (Bluetooth Classic).
- If your reader is in the **BLE** communication interface active, follow the instructions in chapter § *BT-BLE Switching* page 89 to switch the reader from BLE (Bluetooth Low Energy) to BT (Bluetooth Classic).

Follow the steps below to connect your Windows PC to the skID reader using the BT connection. All the images below were generated using the Windows 10 Operating System.

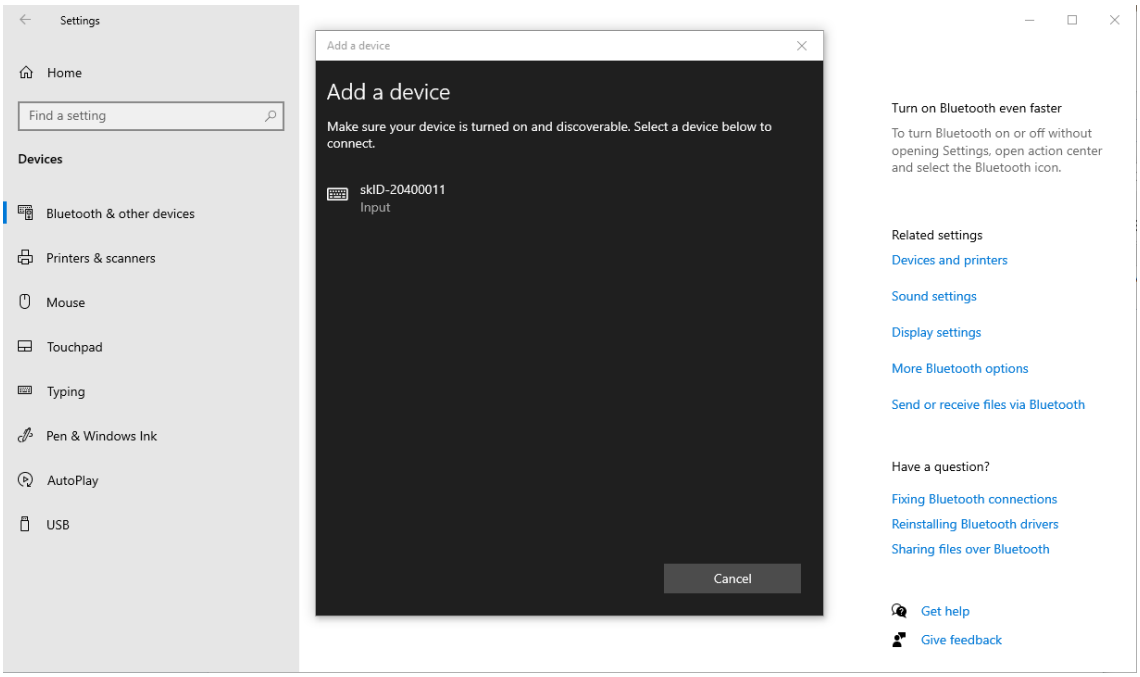
1. In your Windows Pc go to *Settings* → *Devices*.
2. Click on *Bluetooth & other devices* → *Add Bluetooth or other device*:



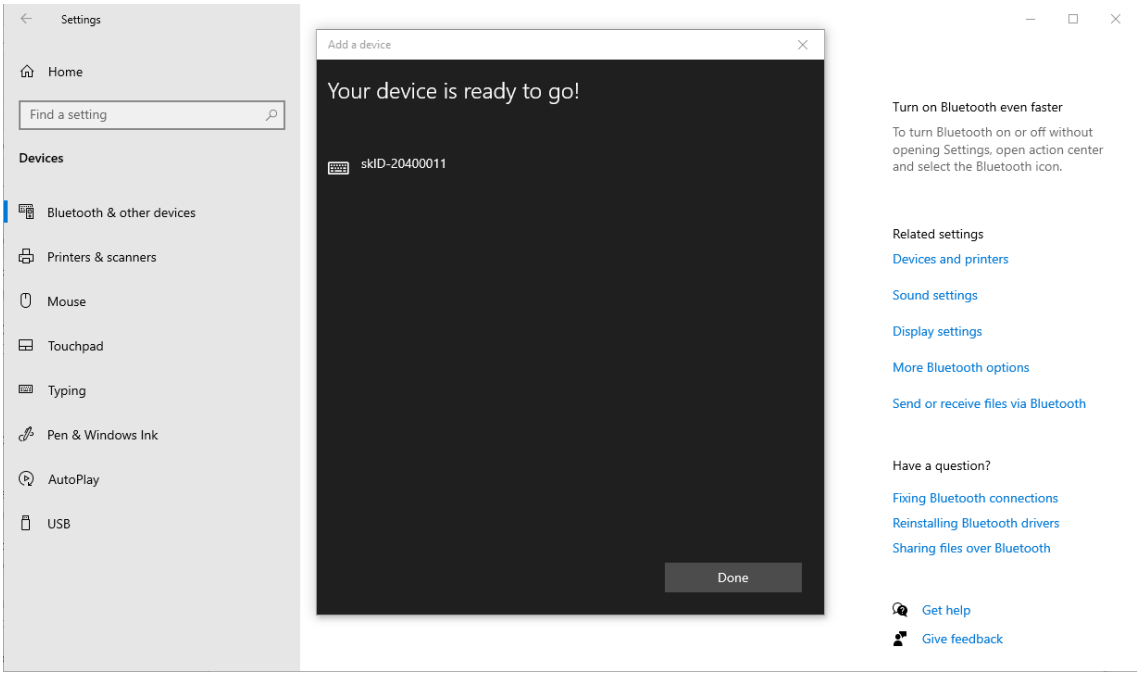
3. Click on *Bluetooth*:



4. Select the skID R1280I reader (in this example the skID with serial number 20400011):

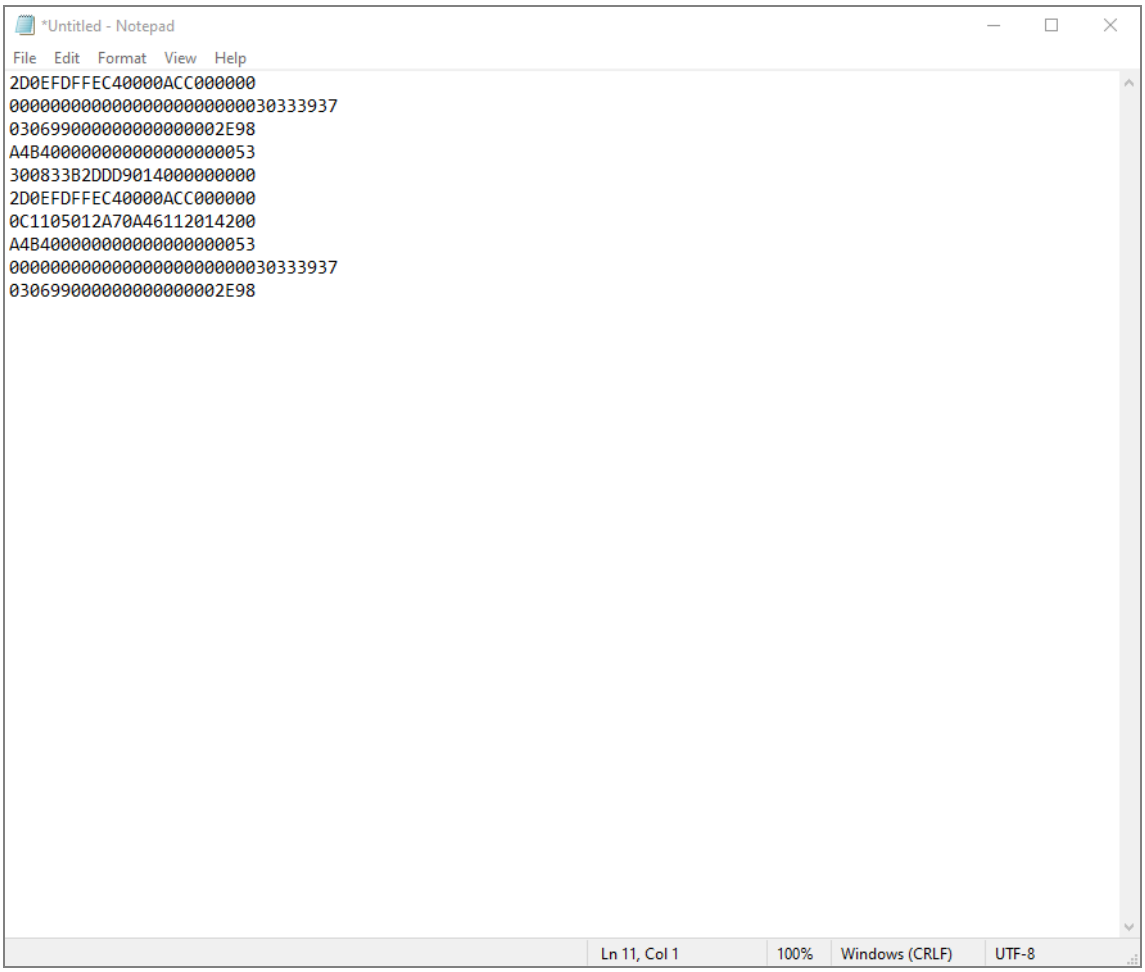


5. The message on the screen “Your device is ready to go!” informs you that the connection is established:



6. The Bluetooth blue LED on the skID R1280I reader turns on (see § *Tab. 1.4: Bluetooth and USB/charger LED status table* page 10) and you can start using your reader.

7. Launch a text editing App (or any other App accepting keyboard input).
8. Start an inventory cycle by pressing the trigger button. On the text editing App window you will see the EPCs of the tags (example using Notepad App):



Note that, when configured in the HID profile and paired to a device, the skID R1280I reader will automatically reconnect to the same device every time the Bluetooth link is active (skID R1280I 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 skID R1280I reader.

iOS devices

BLE Communication Setup

Warning: By default, the reader is in the easy2read profile and the BLE is activated.

- If your reader is in the **EASY2READ** profile active, to set the HID profile, please refer to § *Profile* paragraph page 36.
- If your reader is in the **USB** communication interface active, follow the instructions given in paragraph § *Bluetooth and USB communication* page 42 to select the Bluetooth communication interface using the skID R1280I Configuration Tool and then the instructions in chapter § *BT-BLE Switching* page 89 to switch the reader from BT (Bluetooth Classic) to BLE (Bluetooth Low Energy).
- If your reader is in the **BT** communication interface active, follow the instructions in chapter § *BT-BLE Switching* page 89 to switch the reader from BT (Bluetooth Classic) to BLE (Bluetooth Low Energy).

Follow the steps below to connect your iOS device to the skID reader using the BLE connection. All the images below were generated using an Apple iphone XR model.

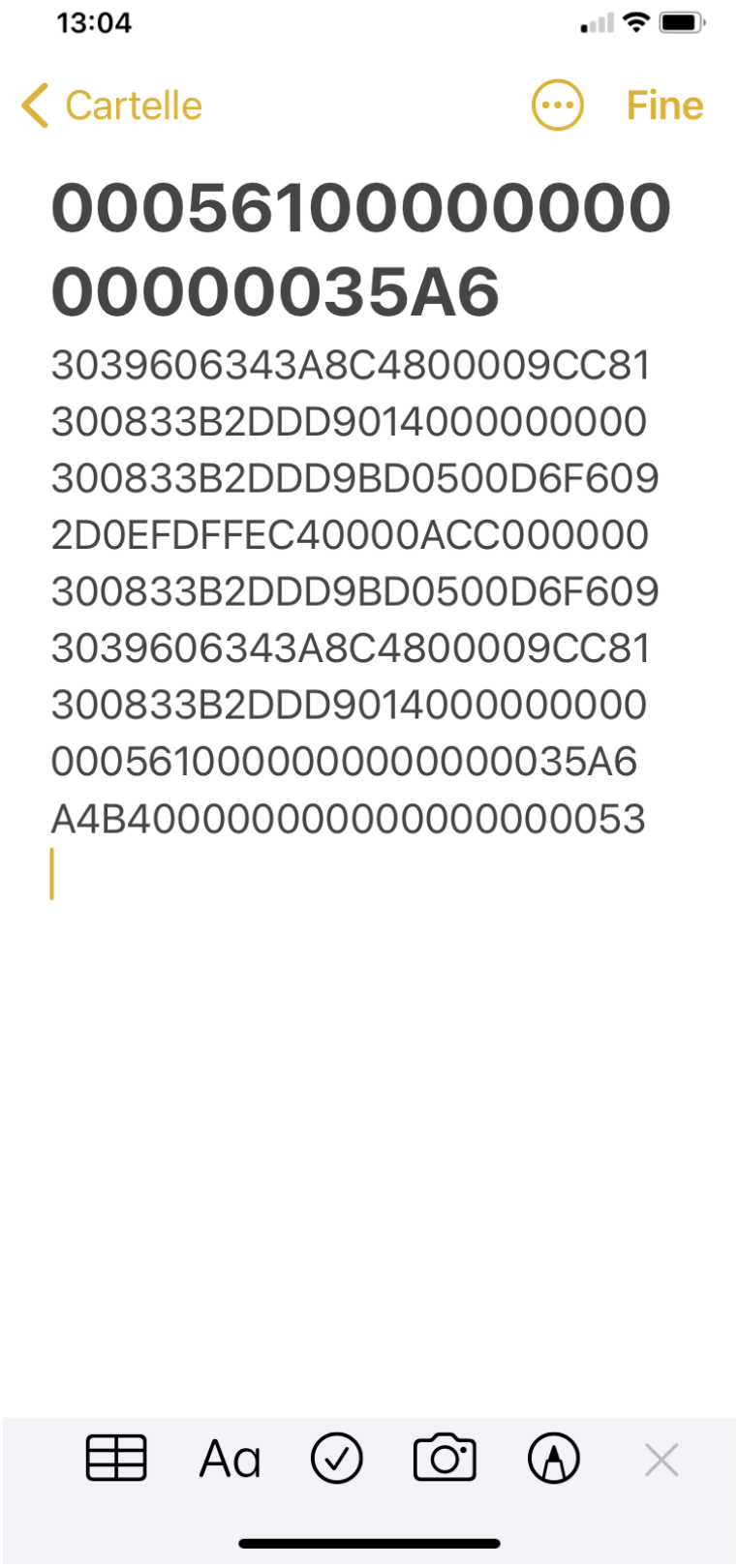
1. On your iOS device, go to *Setting* and enable the *Bluetooth*.
2. Select the skID R1280I reader from the list of Bluetooth devices available (in this example the skID with serial number 20400008):


13:04
Indietro
Bluetooth
Bluetooth
I MIEI DISPOSITIVI
qID-19070081
Non connesso
ALTRI DISPOSITIVI
skID-20400008

3. Confirm the Bluetooth pairing and wait until the pairing is complete:

4. Once the connection is established, the Bluetooth blue LED on the skID R1280I reader turns on (see § *Tab. 1.4: Bluetooth and USB/charger LED status table* page 10) and you can start using your reader.
5. Launch a text editing App (or any other App accepting keyboard input).

6. Start an inventory cycle by pressing the *trigger* button. On the text editing App window, you will see the EPCs of the tags (example using Note App):



6 BT-BLE SWITCHING

Introduction

In the following table it is shown the compatibility between the skID R1280I reader profiles and BT/BLE/USB connection for different Operating Systems (Android, Windows and iOS):

		ANDROID devices			WINDOWS PC			iOS devices		
		BT	BLE	USB	BT	BLE	USB	BT	BLE	USB
Profile	**EASY2READ**	V	V		V		V		V	
	HID	V	V		V				V	

Tab. 6.1: Compatibility table profiles-BT/BLE/USB for different OS

Follow the instructions in the next paragraph to switch the reader from BT (Bluetooth Classic) to BLE (Bluetooth Low Energy) and vice-versa.

Otherwise, to configure the reader to communicate via the USB cable instead of Bluetooth, follow the instructions in § *Bluetooth and USB communication* page 42 using the *skID R1280I Configuration Tool*.

Switching the reader from BT to BLE

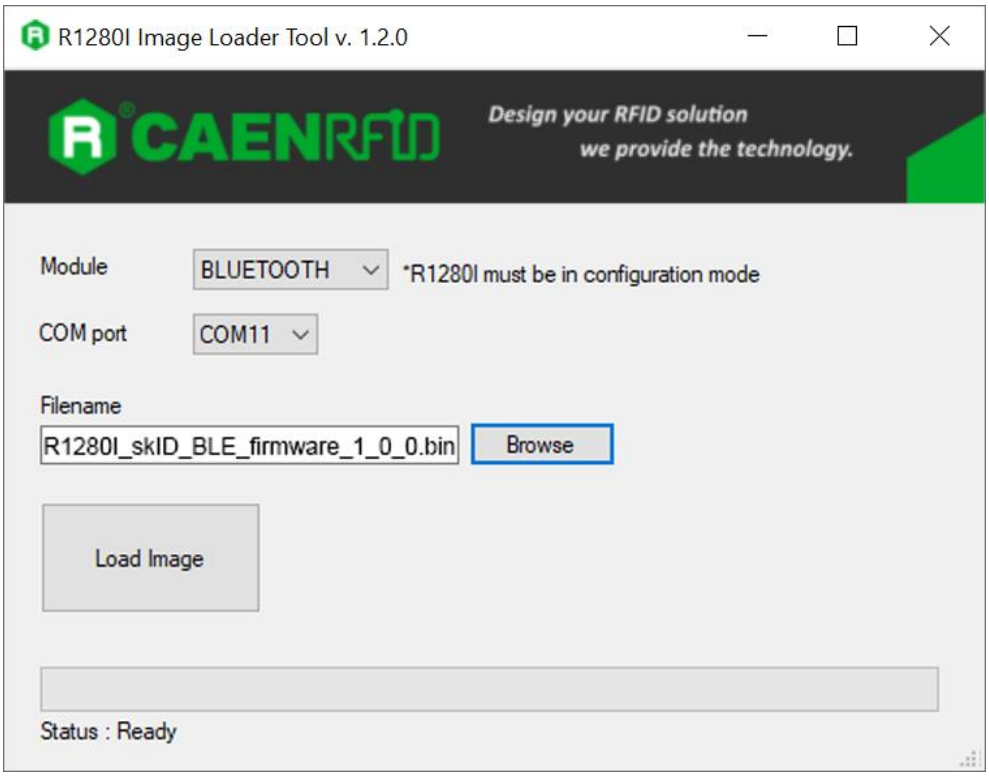
Follow the instructions below to load the Bluetooth BLE firmware into the Bluetooth module.

This step is mandatory for the communication with iOS devices.

Note that when BLE is available, Bluetooth Classic profile is not available and vice-versa.

1. Power off the skID R1280I reader
2. Attach an USB cable to the reader and connect it to a Windows PC
3. Hold down the trigger button and then press the power button (1sec) to power on the device. Release the buttons: the reader beeps and the communication LED should turn green.
4. Run the *skID R1280I Image Loader Tool* available at the skID R1280I web page and click on *next*.

5. In the *Module* combo box select the *BLUETOOTH* option, in the *COM Port* the reader's COM Port and in the *Filename* text box upload the *R1280I_skID_BLE_firmware.bin* file (available at the skID R1280I web page):



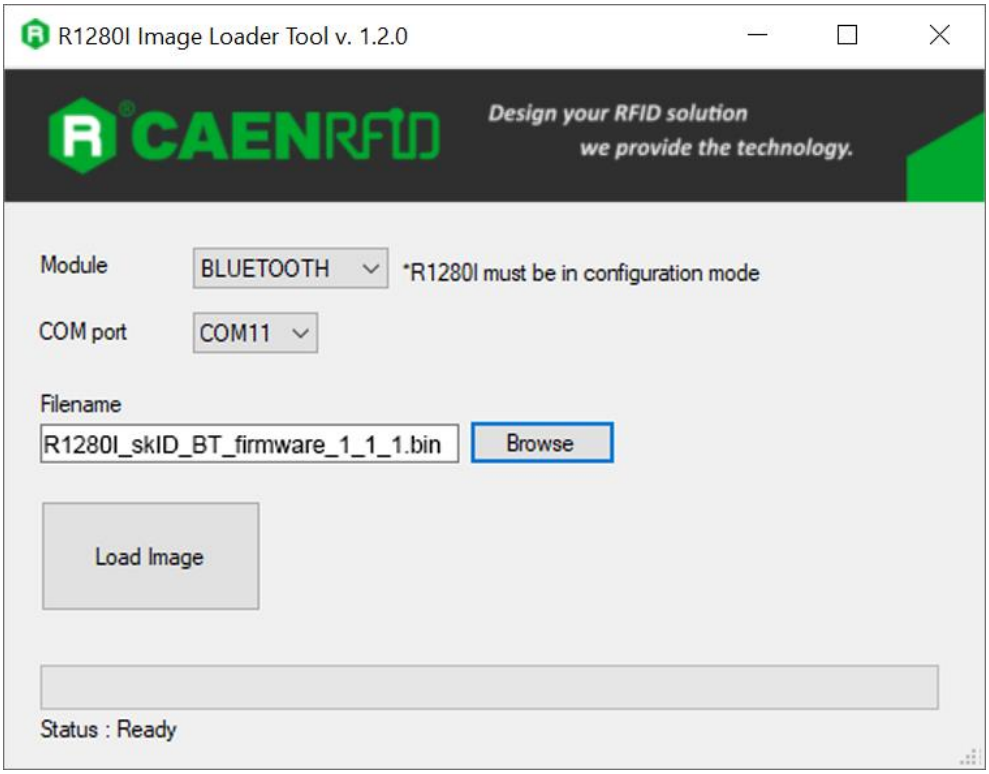
6. Press the *Load Image* button
7. When requested by the tool, power off the reader then press the OK button

Switching the reader from BLE to BT

Follow the instructions below to load the Bluetooth BT firmware into the Bluetooth module.

Note that when Bluetooth Classic is available, BLE profile is not available and vice-versa.

1. Power off the skID R1280I reader
2. Attach an USB cable to the reader and connect it to a Windows PC
3. Hold down the trigger button and then press the power button (1sec) to power on the device. Release the buttons: the reader beeps and the communication LED should turn green.
4. Run the *skID R1280I Image Loader Tool* available at the skID R1280I web page
5. In the *Module* combo box select the *BLUETOOTH* option, in the *COM Port* the reader's COM Port and in the *Filename* text box upload the *R1280I_skID_BT_firmware.bin* file (available at the skID R1280I web page):



6. Press the *Load Image* button
7. When requested by the tool, power off the reader then press the OK button

7 READER RESET

To reset the reader, press the *power* and the *trigger* buttons (see § *Fig. 1.5: Bottom Panel* page 10) simultaneously for about five 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, to restore the normal reader operation, disconnect the USB cable and repeat the reset procedure.

8 FIRMWARE UPGRADE

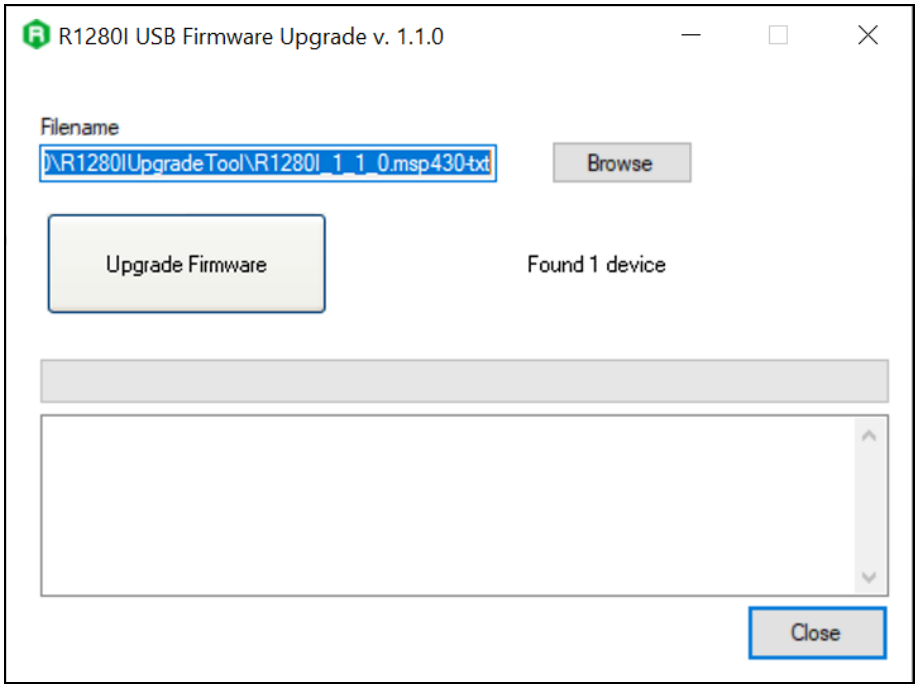
The skID R1280I firmware upgrade can be performed via USB using the *skID R1280I Firmware Upgrade Tool*, available for free at the skID R1280I web page.

To upgrade the firmware, follow the steps described below:

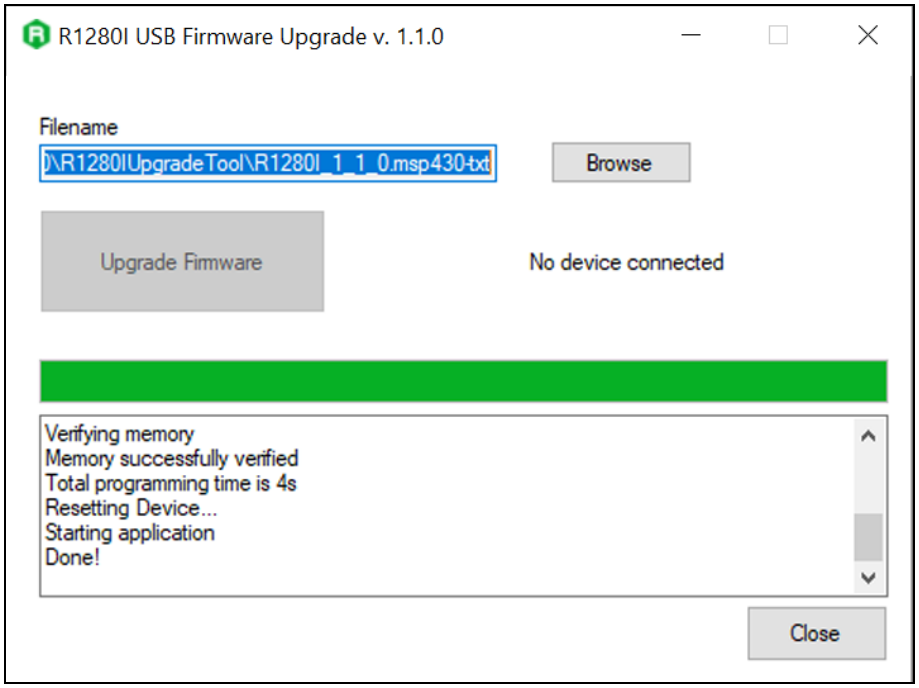
1. With the reader switched off, connect the R1280I skID reader to a PC using the provided USB cable.
2. Press simultaneously the *trigger* and the *power* button for at least 10 seconds and then release them.
3. Open the *skID R1280I Firmware Upgrade Tool*.
4. Click on *Next* button:

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 firmware 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:



9. Power off the reader, disconnect the USB cable and then power on the reader again: the reader is ready for normal operation.

9 TECHNICAL SPECIFICATIONS

Technical Specifications Table

Frequency Range	865.600÷867.600 MHz (ETSI EN 302 208 V3.1.1) (Mod. WR1280IXEUAA) 902÷928 MHz (FCC part 15.247) (Mod. WR1280IXUSAA)
RF Power	Configurable from 8 dBm ERP to 22 dBm ERP (Mod. WR1280IXEUAA) Configurable from 8.5 dBm EIRP to 24 dBm EIRP (Mod. WR1280IXUSAA)
Number of Channels	4 channels (compliant to ETSI EN 302 208 V3.1.1) (Mod. WR1280IXEUAA) 50 hopping channels (compliant to FCC part 15.247) (Mod. WR1280IXUSAA)
Standard Compliance	ISO 18000-63/EPC C1G2
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 – 12dBm EIRP output power BR/EDR – 8dBm 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 3.7V, 1200mAh
Battery Life	Operating: > 12h (with 40,000 tag readings) Standby: > 15 days (powered off, no LED blinking)
Battery Charging Time	– 3h connected to a PC USB port – 2h 15min with 1A 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 $inches^3$
Length of USB cable	1.5 m
Operating Temperature	-10 °C to +55 °C
Weight	110 g

Tab. 9.1: skID R1280I Technical Specifications Table

Warning: The RF settings must match the operating country/region 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

Link profile #	Modulation	Return Link
0	PR–ASK; f=40kHz	Miller (M=4); f = 300kHz[1]
1	PR–ASK; f=40kHz	Miller (M=4); f = 250kHz
2	DSB–ASK; f=40kHz	FM0; f = 40kHz

Tab. 9.2: Reader to tag link profiles – ETSI Regulation

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

Tab. 9.3: Reader to tag link profiles – FCC Regulation

[1] Default value.
[2] Default value.

Radiation Patterns

The radiation patterns of skID R1280I reader are shown in the following figures.

Model WR1280IXEUAA (ETSI version)

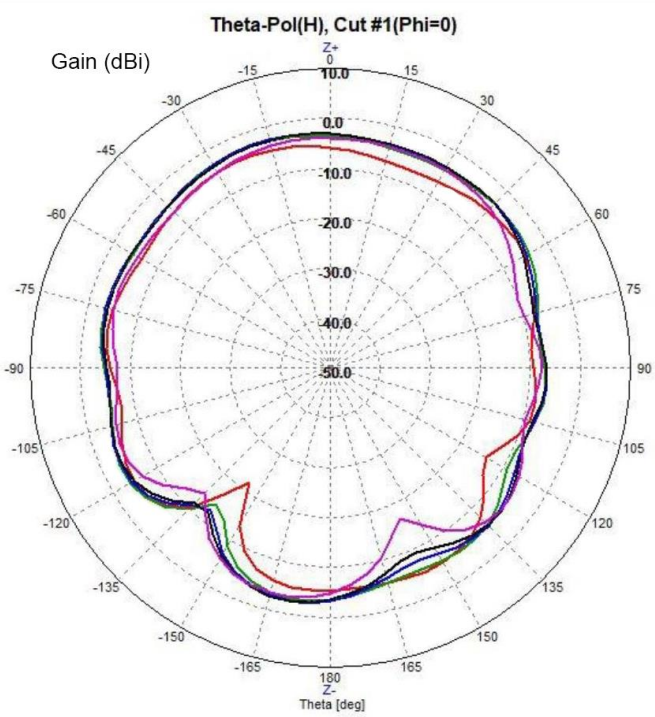
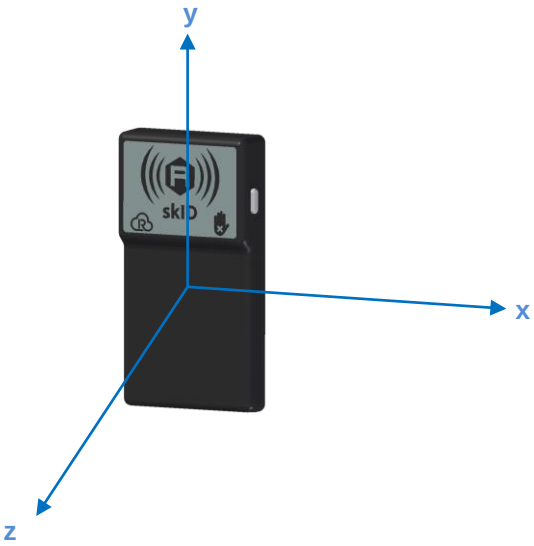


Fig. 9.1: skID Mod. WR1280IXEUAA Radiation pattern H plane



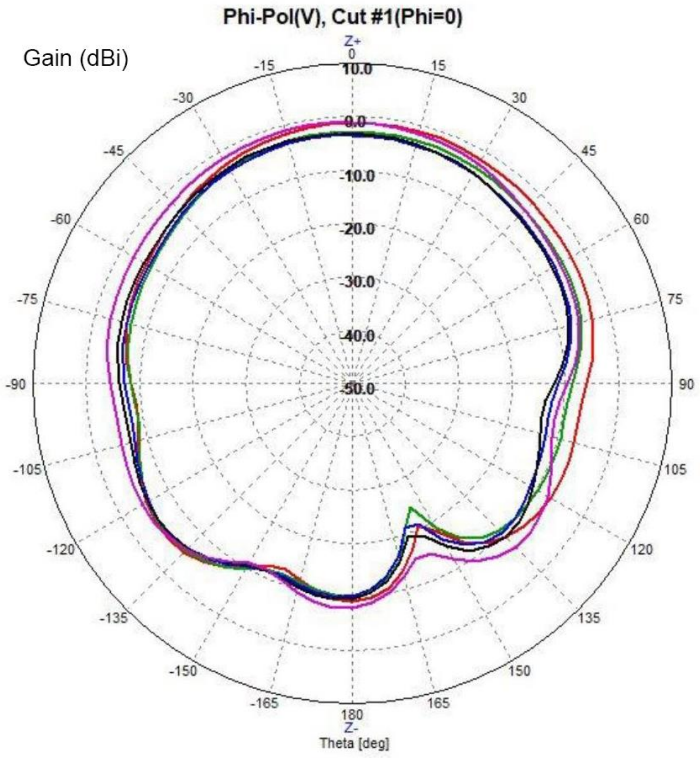


Fig. 9.2: skID Mod. WR1280IXEUAA Radiation pattern V plane

Model WR1280IXUSAA (FCC version)

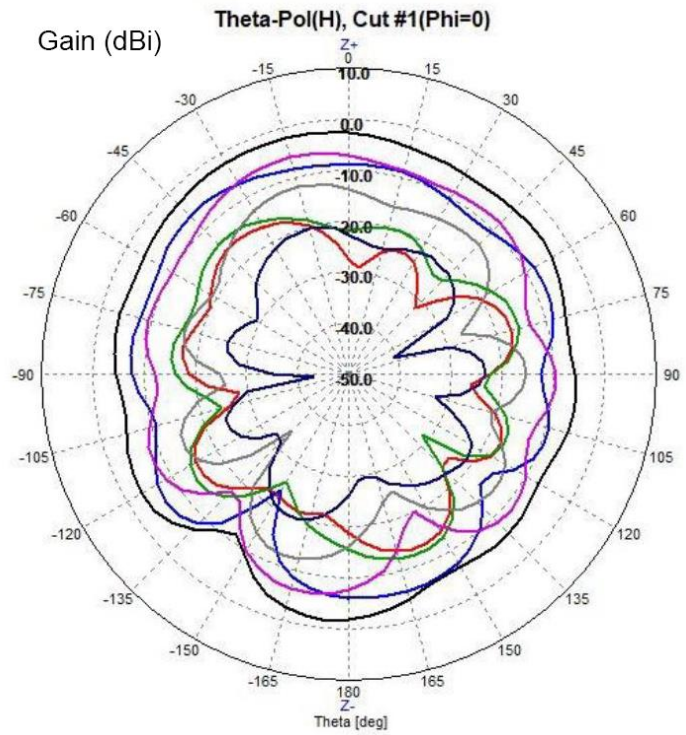
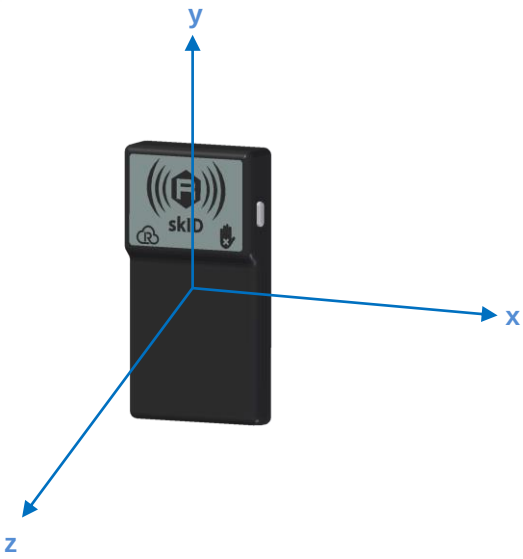


Fig. 9.3: skID Mod. WR1280IXUSAA Radiation pattern H plane



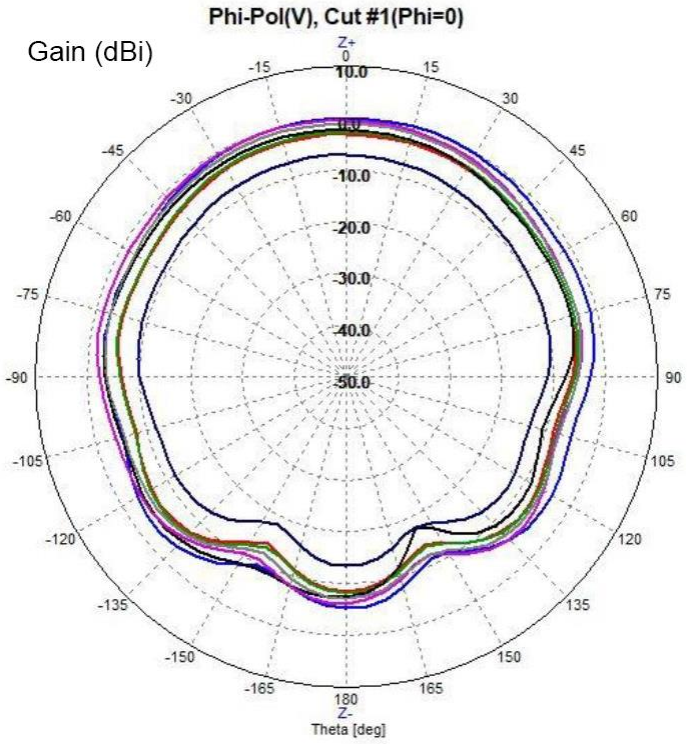


Fig. 9.4: skID Mod. WR1280IXUSAA Radiation pattern V plane

Technical Drawings

The following drawings show the R1280I skID from different points of view.

All dimensions are in millimeters.

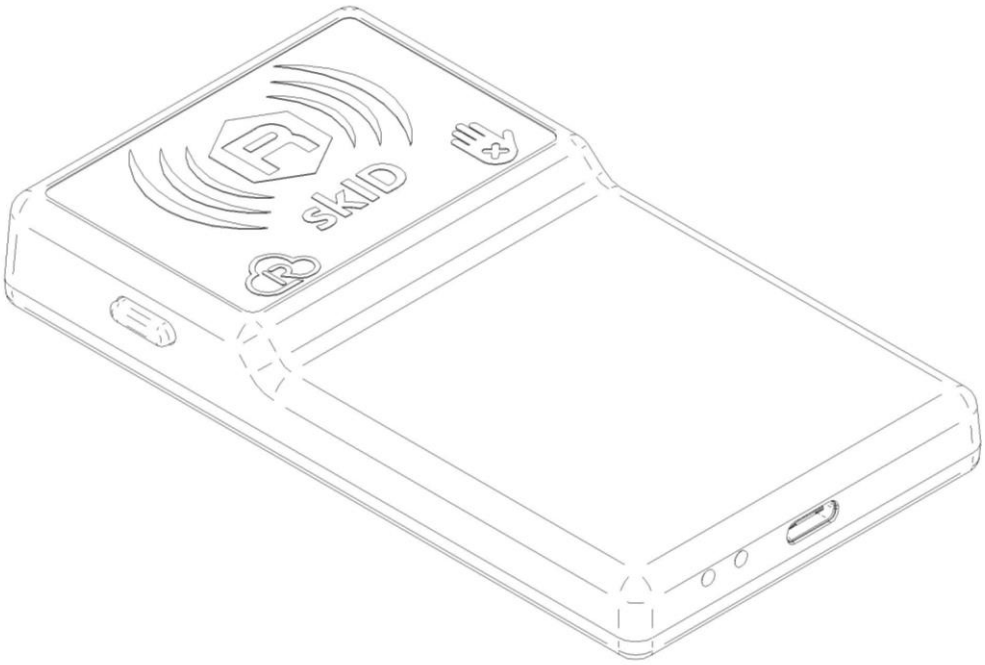


Fig. 9.5: skID R1280I Technical Drawings

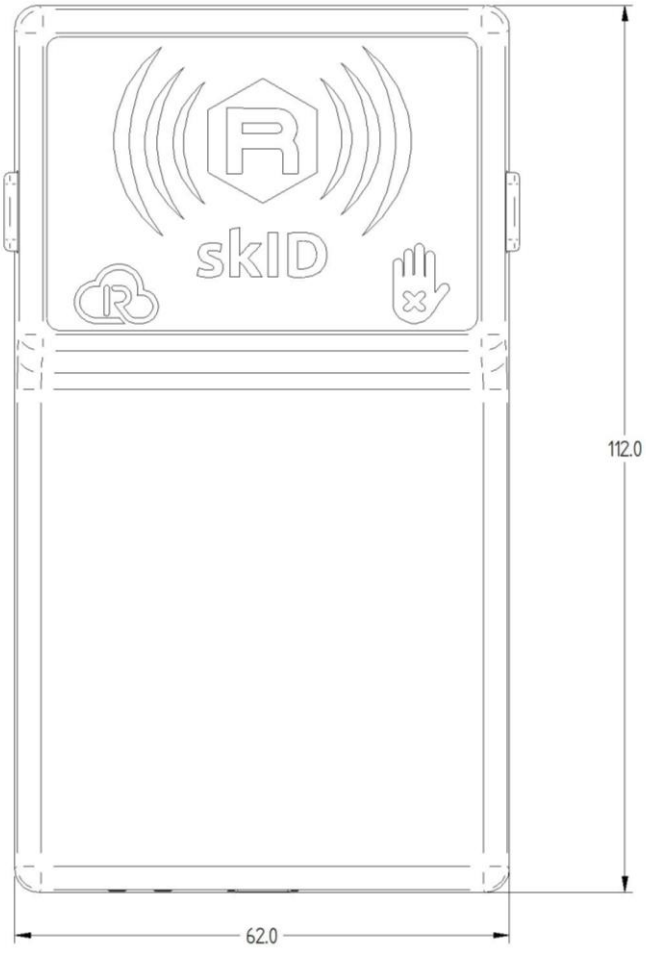


Fig. 9.6: skID R1280I Technical Drawings – Front panel view

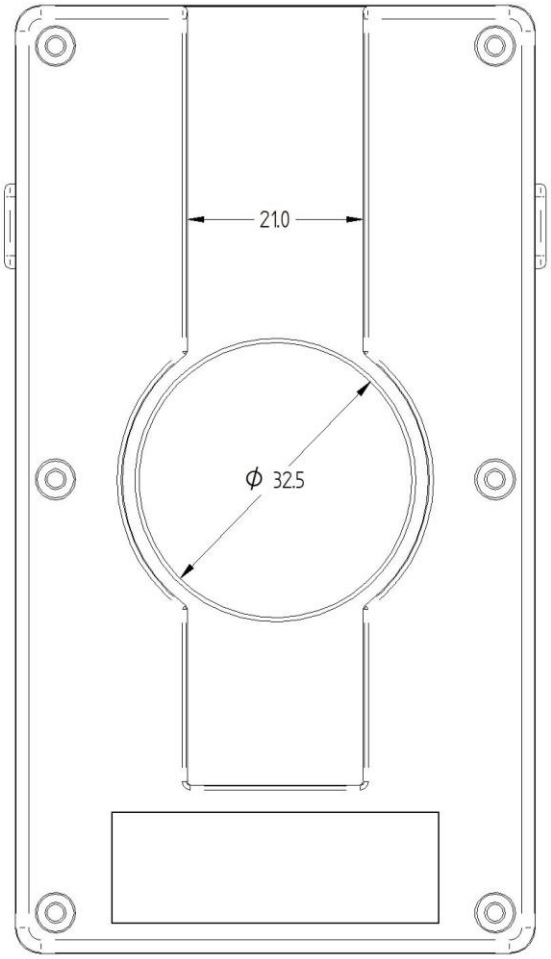


Fig. 9.7: skID R1280I Technical Drawings – Back panel view

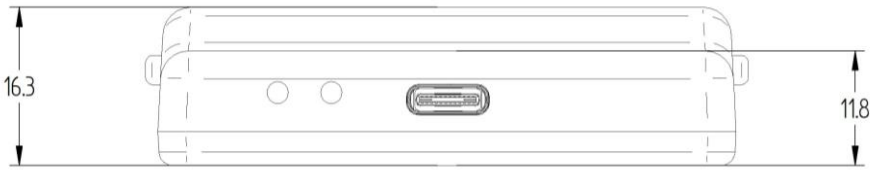


Fig. 9.8: skID R1280I Technical Drawings – Bottom panel view

Battery Life

The following table shows the values of the battery life of the SKID R1280I reader in three different operating states:

No.	Status	Property	Battery Life
1	Power down	Not discoverable by BT Not indication status battery	50 days
2	Stand by	Discoverable by BT Indication status battery	3,5 days
3	Connected	Connected BT Indication status battery	24 hours

Tab. 9.4: skID R1280I Battery Life

When the reader is completely discharged, it is recommended to fully charge it, until the link LED is off (see § *Charging* page 11) with the USB cable connected.

If you do not fully charge, the battery level indicated by the power LED (according to table *Tab. 1.3: Power LED Status Table* page 10) may not be accurate.

By default, if the reader is turned on, it stays on all the time, until the power button is long pressed. There is currently no automatic shutdown mode.

Some typical usage scenarios of the reader have been described below to show battery life for different applications.

3 modes of use are described: intensive, moderate, light. The reading mode has been calibrated to cover 8 hours working day.

1. **Intensive Use**

Scenario A: Incoming goods in stock

Configuration	Reading mode	Target	Approx tag reads	Battery consumption
– BT Always Connected – Power 500mW – Q default – No vibration – No sound	Continuous inventory of 30 seconds every 5 minutes for 8 hours	Box of 100 tags	9600	90,00%

Tab. 9.5: skID R1280I Battery Life – Intensive Use – Scenario A

Scenario B: Access Control (e.g., stadium, show…)

Configuration	Reading mode	Target	Approx tag reads	Battery consumption
– BT Always Connected – Power 200mW – Q default – Vibration – Sound	Inventory on button press every 10 seconds for 8 hours	Ticket with single tag	2880	80,00%

Tab. 9.6: skID R1280I Battery Life – Intensive Use – Scenario B

2. **Moderate Use**

Scenario C: Incoming goods in stock

Configuration	Reading mode	Target	Approx tag reads	Battery consumption
– BT Always Connected – Power 500mW – Q default – No vibration – No sound	Continuous inventory of 10 seconds every 3 minutes for 8 hours	Box of 30 tags	4800	65,00%

Tab. 9.7: skID R1280I Battery Life – Moderate Use – Scenario C

Scenario D: Clothing store inventory

In this scenario the reader is switch off between one inventory and another:

Configuration	Reading mode	Target	Approx tag reads	Battery consumption
– Power down after inventory – Power 500mW – Q default – No vibration – No sound	Continuous inventory of 20 minutes twice in 8 hours	Shop with 1000 tags	2000	50,00%

Tab. 9.8: skID R1280I Battery Life – Moderate Use – Scenario D

3. **Light Use**

Scenario E: Car parking ticket check

Configuration	Reading mode	Target	Approx tag reads	Battery consumption
– BT Always Connected – Power 500mW – Q default – Vibration – Sound	Inventory on button press every 1 minute for 8 hours	Ticket with single tag	480	45,00%

Tab. 9.9: skID R1280I Battery Life – Light Use – Scenario E

Scenario F: Separate waste collection operator

Configuration	Reading mode	Target	Approx tag reads	Battery consumption
– BT Always Connected – Power 200mW – Q default – Vibration – Sound	Inventory on button press every 1 minute for 8 hours	Bin with single tag	480	40,00%

Tab. 9.10: skID R1280I Battery Life – Light Use – Scenario F

10 REGULATORY COMPLIANCE

CE Compliance

Reference standard:

ETSI EN 301 489-1 V2.2.3

ETSI EN 301 489-3 V2.1.1

ETSI EN 302 208 V3.1.1

EN 55032:2015

EN 61000-3-2:2019

EN 61000-3-3:2013+A1:2019

EN 55035:2017+/AC:2019

ETSI EN 300 328 V2.2.2

EN 62368-1:2014+/AC:2015+/A11:2017

See § *skID R1280I CE Declaration of Conformity* page 106 for the skID R1280I CE Compliance Certificate.

Warning: The CE compliance is guaranteed only if the reader is used as described in this manual

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.

See § ***skID R1280I FCC GRANT part B and C*** page 107 and 108 for the skID R1280I FCC Compliance Certificate.

RoHS EU Directive

The skID R1280I Reader is compliant with the EU Directive 2015/863/EU on the Restriction of the Use of certain Hazardous Substances in Electrical and Electronic Equipment (RoHS3).

SKID R1280I
CE DECLARATION OF CONFORMITY

We

CAEN RFID Srl
Via Vetraia, 11
55049 Viareggio (LU)
Italy
Tel.: +39.0584.388.398 Fax: +39.0584.388.959
Mail: info@caenrfid.com
Web site: www.caenrfid.com

herewith declare under our own responsibility that the product:

Code: **WR1280IXEUAA**

Description: **R1280I - skID - RAIN RFID Mini Sled Reader ETSI**

corresponds in the submitted version to the following standards:

ETSI EN 301 489-1 V2.2.3

ETSI EN 301 489-3 V2.1.1

ETSI EN 302 208 V3.1.1

EN 55032:2015

EN 61000-3-2:2019

EN 61000-3-3:2013+A1:2019

EN 55035:2017+/AC:2019

ETSI EN 300 328 V2.2.2

EN 62368-1:2014+/AC:2015+/A11:2017

and declare under our sole responsibility that the specified product meets the principle requirements and other applicable regulations of directives 2014/53/EU (RED) and 2015/863/EU (RoHS3)

Date: 01/07/2021

Adriano Bigongiari (Chief Executive Officer)

On the basis of this declaration, this product will bear the following mark: CE

The compliance is guaranteed only if the reader is used as described in the skID R1280I Technical Information Manual.

SKID R1280I
FCC GRANT part B

TCB

GRANT OF EQUIPMENT AUTHORIZATION

TCB

Certification
Issued Under the Authority of the
Federal Communications Commission
By:

EMCCons DR RASEK GmbH & Co. KG
Stoernhofer Berg 15
Unterleinleiter, 91364
Germany

Date of Grant: 04/07/2021

Application Dated: 04/07/2021

CAEN RFID srl
via Vetraia, 11 - 55049 Viareggio (LU) - ITALY
Viareggio, 55049
Italy

Attention: Adriano Bigongiari , CEO

NOT TRANSFERABLE

EQUIPMENT AUTHORIZATION is hereby issued to the named GRANTEE, and is VALID ONLY for the equipment identified hereon for use under the Commission's Rules and Regulations listed below.

FCC IDENTIFIER: UVECAENRFID032
Name of Grantee: CAEN RFID srl
Equipment Class: Part 15 Class B Computing Device Peripheral
Notes: R1280IU - skID - RAIN RFID Mini Sled Reader FCC

Grant Notes	FCC Rule Parts	Frequency Range (MHZ)	Output Watts	Frequency Tolerance	Emission Designator
CC	15B	-			

This device contains FCC ID: QOQBT121.

CC: This device is certified pursuant to two different Part 15 rules sections.

SKID R1280I
FCC GRANT part C

TCB

GRANT OF EQUIPMENT AUTHORIZATION

Certification
Issued Under the Authority of the
Federal Communications Commission
By:

TCB

EMCCons DR RASEK GmbH & Co. KG
Stoernhofer Berg 15
Unterleinleiter, 91364
Germany

Date of Grant: 04/07/2021

Application Dated: 04/07/2021

CAEN RFID srl
via Vetraia, 11 - 55049 Viareggio (LU) - ITALY
Viareggio, 55049
Italy

Attention: Adriano Bigongiari , CEO

NOT TRANSFERABLE

EQUIPMENT AUTHORIZATION is hereby issued to the named GRANTEE, and is VALID ONLY for the equipment identified hereon for use under the Commission's Rules and Regulations listed below.

FCC IDENTIFIER: UVECAENRFID032
Name of Grantee: CAEN RFID srl
Equipment Class: Part 15 Spread Spectrum Transmitter
Notes: R1280IU - skID - RAIN RFID Mini Sled Reader FCC

Grant Notes	FCC Rule Parts	Frequency Range (MHZ)	Output Watts	Frequency Tolerance	Emission Designator
CC	15C	902.75 - 927.25	0.643		

Output power listed is conducted, calculated from a radiated measurement. This device and its antenna(s) must not be co-located or operating in conjunction with any other antenna or transmitter except in accordance with FCC accepted multi-transmitter procedures.

End-users must be provided with specific operating instructions for satisfying RF exposure compliance.

The highest reported SAR values for extremity (hand) and extremity simultaneous transmission conditions are 3.19 W/kg and 3.40 W/kg.

This device contains FCC ID: QOQBT121.

CC: This device is certified pursuant to two different Part 15 rules sections.