NFC SCANNER

USER MANUAL

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Introduction to NFC Scanner

Contents inside the pack

- NFC Scanner RFID Reader
- USB cable A-type male - micro USB male
- Flyer with link to SDK

NFC Scanner components

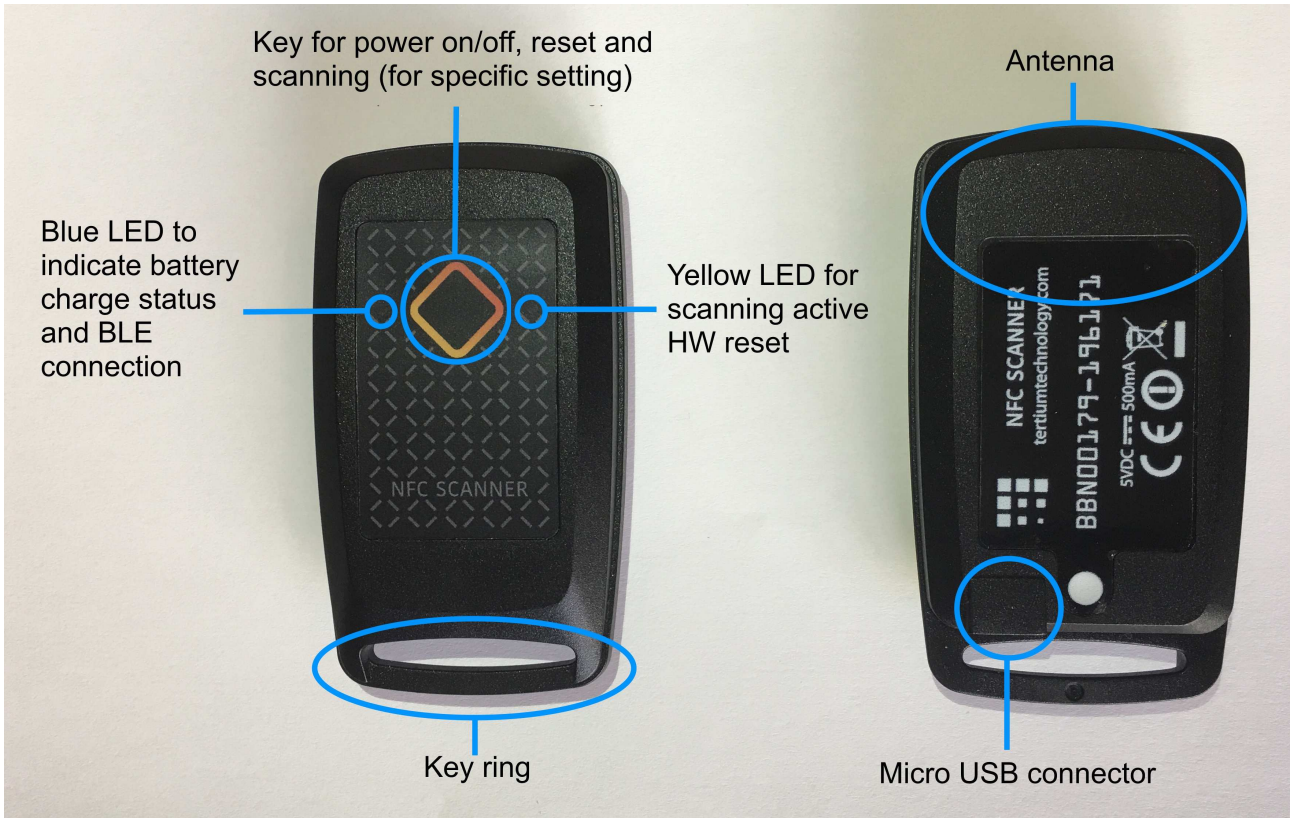

Figure 1: NFC Scanner components

Button , LED and beeper usage

Action	Light Displayed	Light Sequence	Beep Sequence	Status - Function	
				Off	
1 sec. hold				Start Devices	
				Power On	
				Scanning	Scan Functions
				Successful reading	
				Reading error	
2 sec. hold				Shutdown	
				Battery Low	Battery Status
USB connected				Battery Recharge	
plugging USB				Start Devices	
		Max 10 s		Battery Low no operations allowed	

				Bluetooth disconnected
6 sec. hold				Hardware reset

Table 1: Button , LED and beeper usage

Table refer to the operating mode with standard settings. The button can be eable also to start scanning

Technical specifications

MAN/MACHINE INTERFACES	1 function key for RFID read activation, poweron/off
	Multitone Beeper
	2 LED for device operation signaling
INTERNAL DEVICES	Frequency: 13.56 MHz
	Channel occupancy in accordance with: • ETSI EN 302 330-2 V1.6.1, ETSI EN 300 328 V1.9.1
	Power: 200 mW
	Standard: ISO 15693, ISO 14443-A (only ID reading)
	Reading distance: up to 6 cm(*)
	Embedded antenna
INTERFACES	Micro USB type B
	Bluetooth® low energy technology
OS COMPATIBILITY	Android, iOS, RIM, Windows Mobile/Phone, Windows, OSX, Linux compatible with Bluetooth® low energy technology
PROCESSOR	Texas Instruments MSP430 (16 bit RISC a 16MHz)
POWER SUPPLY	**USB powered:** 230mA peak @ 5Vdc (RF active full power,beeper,battery charging), 30mA @ 5Vdc (idle mode,battery charged)
	Battery powered: Li-Poly Battery 3.7 Vdc 300mAh, rechargeable via micro USB, battery life 15000 reading, 24 h in idle mode
WORKING TEMPERATURE	-20°C / 60°C
DIMENSIONS	Width 4.3 cm – Height 7.7 cm – Depth 1.7 cm
WEIGHT	21 g
PROTECTION DEGREE	IP54

(*) depending on the TAG

Table 2: Technical specifications

Instructions for use

Installation

When NFC Scanner is connected to the computer for the first time, if an internet connection is available, an automatic installation take place. If the internet connection is not available or no suitable driver is automatically found download driver and installation guide at the following link:
http://www.ftdichip.com/Drivers/VCP.htm

Connection of NFC Scanner to the computer

Connect NFC Scanner to the computer to recharge the battery, to configure the device through the TT_RFID_Configurator application, to carry out operation testing through the TT_RFID_PCDemo application or to send commands to it according to the specific TERTIUM Technology protocol (see TERTIUM_RFID_Reader_Protocol.pdf).
Connect NFC Scanner to a USB port.
Once connected, the state of the LEDs and the acoustic signal will indicate the state of the RFID reader as explained in the paragraph "Charging the battery".

NOTE: when NFC Scanner is connected to the computer through USB, the Bluetooth® interface is enabled as well. Once NFC Scanner is connected to Bluetooth® interface the USB interface will be disabled. To use USB interface again unplugged NFC Scanner, switch it off if necessary and plug it again.

Disconnection of NFC Scanner

To disconnect NFC Scanner from the computer, simply disconnect the USB cable. If Bluetooth® interface is not connected the reader switches off automatically.
To switch off NFC Scanner when Bluetooth® interface is connected, press the button for 2 seconds after disconnecting the cable.

Connection of NFC Scanner through Bluetooth®

NFC Scanner can be connected through Bluetooth® low energy to any device such as a computer or smartphone supplied with this interface.

To connect and use NFC Scanner you need a specific application that can connect to a Bluetooth Smart device and manage a bi-directional communication.

If NFC Scanner is powered via USB and the Bluetooth connection is active, the user can unplug the reader without loosing the connection; NFC Scanner will be automatically battery powered.
When connected via Bluetooth® the blue LED stops to makes the 3 quick flashes.

Charging the battery

NFC Scanner is equipped with an internal, non-user-replaceable, rechargeable battery. The high performing Li-Poly battery guarantees up to 15000 readings.
A discharged battery is completely charged in about 3.5 hours.

To recharge NFC Scanner, connect it to the computer via USB or a wall adapter power supply. The reader automatically switches on and the state of the battery charge is signalled by the blue LED as described in the following paragraph.

Control of the battery charge status

When the NFC Scanner is switched on with the button, the following situations related to the battery's charge level may occur:

- an acoustic signal and a fixed blue LED: charged battery (*)
- an acoustic signal and the blue LED blinks each seconds: low battery charge (*)
- no acoustic signal and quick blinking blue LED: battery charge very low. No operation is possible in this condition; if the reader is not switched off, it will automatically switch off after 10 sec. It is recommended to charge NFC Scanner up to complete recharge.

If the blue LED starts to blink every seconds during normal use of NFC Scanner, it means that very little charge is left. The reader will only have few minutes of autonomy.
If you continue to use it, the LED will begin to blink quickly signalling a very low battery charge as described above.

When NFC Scanner is connected to the computer, the following situations related to the battery charge level may occur:

- an acoustic signal and a fixed blue LED: charged battery (*)
- an acoustic signal and blinking blue LED: battery charging (*). While charging it's possible to use NFC Scanner as usual, both connections USB or Bluetooth® are available.

(*) 3 quick flashes each 3 seconds means Bluetooth® disconnected

In Table 1, you can see the activities of the blue LED and of the acoustic beeper related to the battery level.

Hardware reset

To reset the device hold the button for 6 seconds (yellow led is switched on during this interval time) until NFC Scanner makes the power on sound.

Reading distance

NFC Scanner is equipped with an integrated antenna, for the reading of TAG RFID, located above the button as shown in Figure 1.
The ideal reading distance and conditions for NFC Scanner are as follows.

NOTE: the reading distance varies based on the type of TAG. Also, metal objects and surfaces located very near NFC Scanner can notably invalidate the reader's performance.

NFC Scanner reader supports the ISO 15693 standard and ISO 14443A (only ID) and is able to read TAG RFID to a maximum distance of 6 cm. The optimal conditions of reading are obtained positioning the TAG inside the field pointed out in Figure 2 (the figure is for example purpose only and doesn't represent the real antenna radiation pattern).

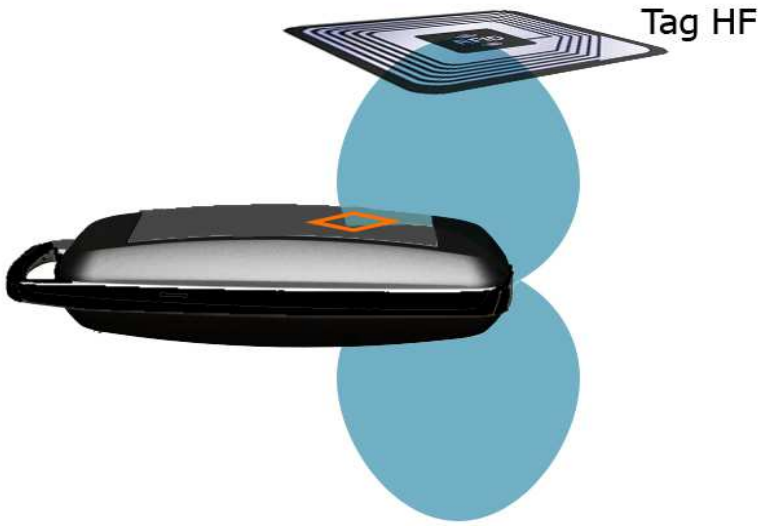

Figure 2: reading field of NFC Scanner

Configuration of NFC Scanner

NFC Scanner is an RFID reader able to read one or more TAGs and to transmit data via Bluetooth® or USB to any device provided with such interfaces.
NFC Scanner is a highly configurable device: it is possible to choose scanning activation mode, the scanning timeout, the enabling/disabling of the signalling LED and the acoustic beeper, the frame format, etc.
The configuration can be done through the serial commands, as described in the document *TERTIUM_RFID_Reader_Protocol.pdf* or more simply through the *TT_RFID_Configurator* application supplied in the SDK.

To configure NFC Scanner using *TT_RFID_Configurator,* connect NFC Scanner to the computer with the USB cable and execute the application; in the section "Device selection", select the BlueBerry HF device to configure and the COM to which it is connected. Click on the "Connect to device" button. If the connection is successful, the LED next to the Com becomes green and the state of the device and the firmware version will be indicated below (e.g. "Status: Connected v9.2").
Click on the button "Read config" to read the current configuration of NFC Scanner.

The *TT_RFID_Configurator* main window with the default configuration of NFC Scanner is shown in Fig. 3.

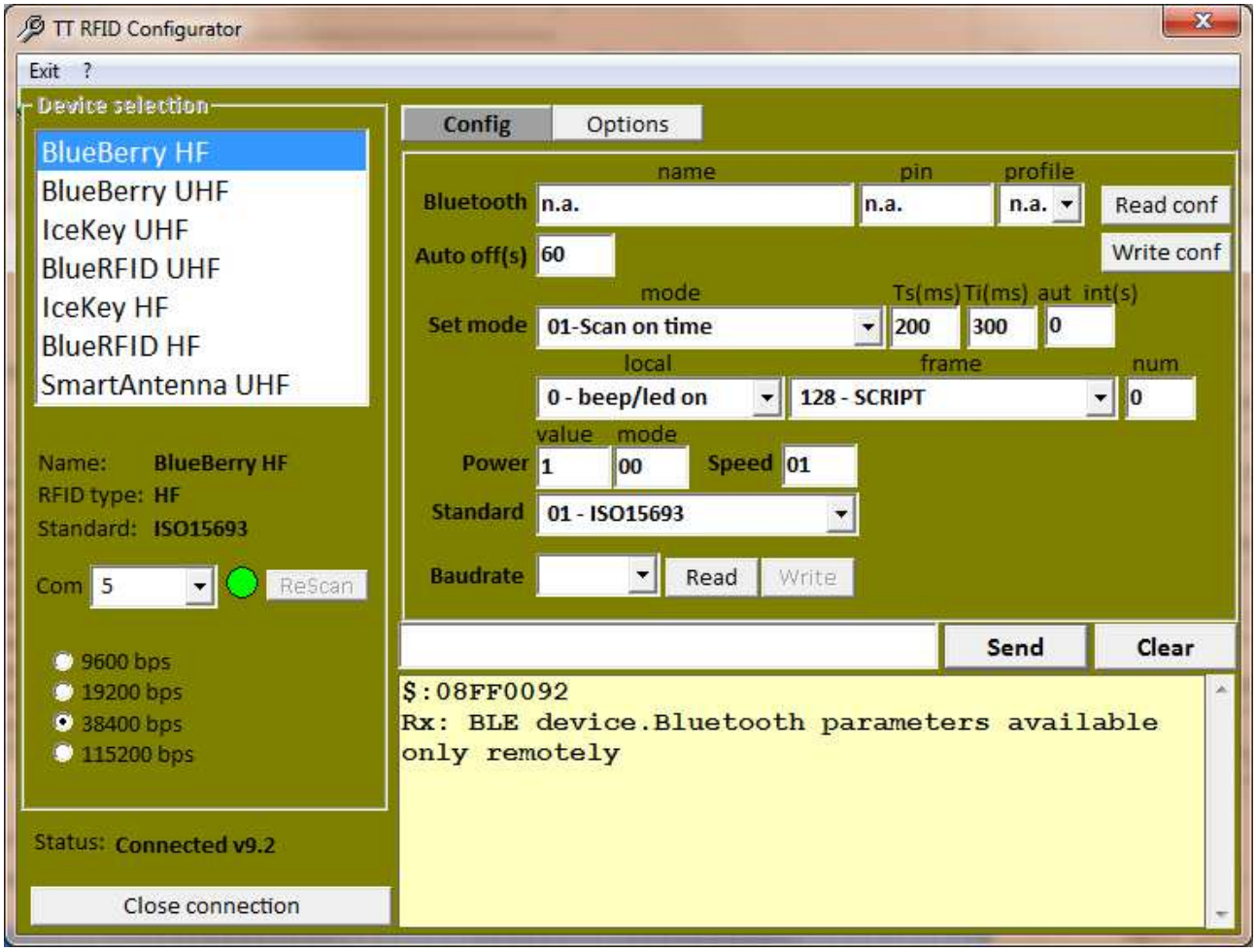

Figure 3: TT_RFID_Configurator

To save the changes click on the button "Write config" .

Bluetooth®

Bluetooth® low energy interface doesn't implements SPP or HID profiles.
Bluetooth® low energy name and pincode are available in the label on the bottom side of the NFC Scanner. For example:
BBN00046-668741
where:
BBN00046 is the Bluetooth® low energy name
668741 is the pincode

These, together with other parameters, are available sending specific commands via USB or remotely.

Auto off

It is the time of automatic switching off of NFC Scanner. The auto-switching off mechanism is not active when NFC Scanner is connected to the computer with the USB cable. Autooff timer is reset every time the reader found a tag while scanning or when it reaceive a command from the host.

Set mode

Figure 4: TT_RFID_Configurator - scanning mode parameters

Operation modes

"Normal mode"
In this mode NFC Scanner operates only as a slave peripheral therefore it is only possible to send commands through the serial USB or Bluetooth® interface.

To carry out a scanning, it is necessary to send an INVENTORY command. The yellow LED will turn on fixed during the scanning time (the *Ts* scanning timeout that can be configured by the user is 200ms by default).
After scanning the behaviour of the reader will depend on the ID_format set as follow.

ID_format = 128
If the reader finds a tag it sends a list of commands. If it gets a successful response and the Bluetooth® connection is active the reader makes a successful sound (3 different beeps) and sends data. If the list of commands fails or it succseeds but Bluetooth® is disconnected the reader makes the error sounds (2 identical beeps)

ID_format ≠ 128
If a TAG is identified, the reader makes an acoustic beep and the yellow LED will blink 2 times. Immediately after, NFC Scanner sends the ID of the identified TAG on the active connection, USB or Bluetooth®, and it makes 3 louder acoustic beeps while the yellow LED will blink 3 times.

The "Normal mode", therefore the possibility to send commands to NFC Scanner, will still remain active when the reader is configured in the other modes.

aut int parameter not used for this operation mode, please leave *aut int* = 0.

"Scan on input"
In this mode, the scanning is started pressing the button. The yellow LED will remain fixed on during the scanning time (the *Ts* scanning timeout that can be configured by the user is 200ms by default).
After scanning the behaviour of the reader will depend on the ID_format set as follow.

ID_format = 128
If the reader finds a tag it sends a list of commands. If it gets a successful response and the Bluetooth® connection is active the reader makes a successful sound (3 different beeps) and sends

data. If the list of commands fails or it succseeds but Bluetooth® is disconnected the reader makes the error sounds (2 identical beeps) .

ID_format ≠ 128

If a TAG is identified, the reader makes an acoustic beep and the yellow LED will blink 2 times. Immediately after, NFC Scanner sends the ID of the identified TAG on the active connection, USB or Bluetooth®, and it makes 3 louder acoustic beeps while the yellow LED will blink 3 times.
Setting *aut int* > 0 will automatically set "*PUSH mode*" (see TERTIUM_RFID_Reader_Protocol_App_E.pdf for further details).

"Scan on time"
In this mode, automatic scannings with regular intervals, *Ti,* will be started. *Tinterval* can be selected by the user (300ms by default). The yellow LED will remain fixed on during the scanning time (the *Ts* scanning timeout that can be configured by the user is 200ms by default).
After scanning the behaviour of the reader will depend on the ID_format set as follow.

ID_format = 128
If the reader finds a tag it sends a list of commands. If it gets a successful response and the Bluetooth® connection is active the reader makes a successful sound (3 different beeps), sends data and stops scanning. If the list of commands fails the reader makes the error sounds (2 identical beeps) and stops scanning.
If the list of commands succseeds but Bluetooth® is disconnected the reader makes the error sounds (2 identical beeps) and keeps on scanning.

ID_format ≠ 128
If a TAG is identified, the reader makes an acoustic beep and the yellow LED will blink 2 times. Immediately after, only if USB or Bluetooth® connection is active, NFC Scanner will send the ID of the identified TAG on the active connection and it makes 3 louder acoustic beeps while the yellow LED will blink 3 times.
Setting *aut int* > 0 will automatically set "*PUSH mode*" (see TERTIUM_RFID_Reader_Protocol_App_E.pdf for further details).

"Scan on power on"
In this mode, a scanning session will start when switched on. The yellow LED will remain fixed on during the scanning time (the *Ts* scanning timeout that can be configured by the user is 200ms by default).
After scanning the behaviour of the reader will depend on the ID_format set as follow.

ID_format = 128
If the reader finds a tag it sends a list of commands. If it gets a successful response and the Bluetooth® connection is active the reader makes a successful sound (3 different beeps), sends data and stops scanning. If the list of commands fails the reader makes the error sounds (2 identical beeps) and stops scanning.
If the list of commands succseeds but Bluetooth® is disconnected the reader makes the error sounds (2 identical beeps) and keeps on scanning.

ID_format ≠ 128
If a TAG is identified, it makes an acoustic beep and the yellow LED will blink 2 times. Subsequently, the yellow LED keeps on blinking for maximum time equal to *Ti* waiting for a USB or Bluetooth® connection. If the reader finds an active connection within *Ti*, the data will be sent and 3 louder acoustic beeps will be heard while the yellow LED will blink 3 times.
Setting *aut int* > 0 will automatically set PUSH mode (see TERTIUM_RFID_Reader_Protocol_App_E.pdf for further details).

"Scan on input timed"
In this mode, automatic scanning are started pressing the button. The yellow LED will remain fixed on during each scanning time (the *Ts* scanning timeout that can be configured by the user is 200ms by default). If any tags is found the reader starts a new scanning after Ts ms until Ti time is elapsed.
After scanning the behaviour of the reader will depend on the ID_format set as follow.

ID_format = 128
If the reader finds a tag it sends a list of commands. If it gets a successful response and the Bluetooth® connection is active the reader makes a successful sound (3 different beeps), sends data and stops scannings.
If the list of commands fails the reader makes the error sounds (2 identical beeps) and stops scanning.
If the list of commands succseeds but Bluetooth® is disconnected the reader makes the error sounds (2 identical beeps) and keeps on scanning until Ti time elapsed.

ID_format ≠ 128
If a TAG is identified, the reader makes an acoustic beep and the yellow LED will blink 2 times. Immediately after, NFC Scanner sends the ID of the identified TAG on the active connection, USB or Bluetooth®, it makes 3 louder acoustic beeps while the yellow LED will blink 3 times and stops scanning.

"Scan on single on/off input"
Not available for this product

"Scan on generic on/off input"
Not available for this product

"Boot-loader mode"
Not available for this product

ID format

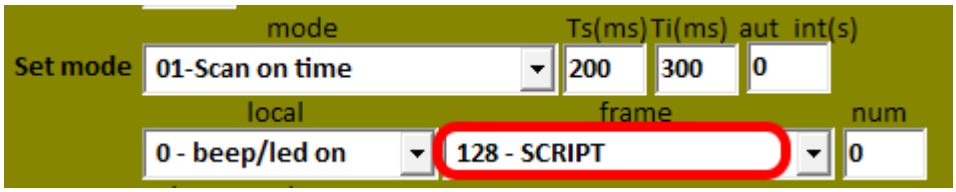

Figure 5:TT_RFID_ Configurator – frame form sent

To select the ID format sent by the reader containing the ID, modify the field *frame* type in Figure 5 as follows.

- Selecting "0 - $:+UID", the frame containing the ID of the identified TAGs will have the structure of the
  TERTIUM protocol (see document TERTIUM_RFID_Reader_Protocol.pdf).
- Selecting "1 - UID", NFC Scanner sends the ID of the identified TAGs, each one followed by CR or CRLF.
- With values > 1 the user can choose which memory data get after a scanning (UID, UID+MEM_SMALL, UID+MEM_LARGE) and how to post data (hexadecimal or ASCII code).
  Each string is ended by CR or CRLF
  The answer string allowed upon a scanning is described in the following table:

ID_format (decimal value)	**Answer string**
0	$: + UID
1	UID
5	UID + USER_SMALL
9	UID + SP + USER_LARGE
12	$: + UID+ALL_USER
13	UID+ALL_USER
21	UID + SP + USER_SMALL (ASCII)
25	UID + SP + USER_LARGE (ASCII)
29	UID + ALL_USER + ASCII
69	UID + USER_SMALL + REV
73	UID + USER_LARGE + REV
76	$: + UID+ALL_USER + REV
77	UID+ALL_USER + REV
85	UID + SP + USER_SMALL (ASCII) + REV
89	UID + SP + USER_LARGE (ASCII) + REV
93	UID + ALL_USER + ASCII + REV
128	SCRIPT

Table 3: ID_format values

Please, see TT_RFID_Reader_Protocol - SETMODE command for further details and examples.
The answer strings described for ID_format > 1 are valid only if the reader detects only one TAG; if more than one tag is detected it returns the UID of all the TAGs without the USER_SMALL (max 16 bytes of EEPROM memory starting from address 0) or USER_LARGE (max 64 bytes of EEPROM memory starting from address 0).
Answer strings with ASCII, means USER content will be consider as ASCII format.

Answer string with REV means that each USER block is sent with bytes revers order.
If the reading of USER memory banks failed it returns ERR CR or CRLF string and makes a lower beep.

ID_format = 12,13,29,76,77 and 93 available only on specific FW.

Activation and deactivation of the LED and the acoustic beep

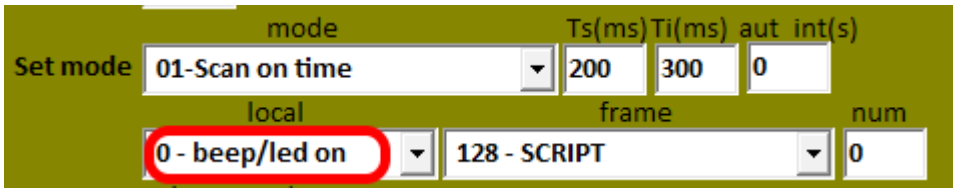

Figure 6: TT_RFID_Configurator - activation and deactivation of the LED signal and the acoustic beep

It is possible to disable the yellow LED and the acoustic beep when a TAG is identified as decribed in the operation modes. Select "1 – beep/led off" in the field *local* showed in Figure 6 to disable these. Select "0 – beep/led on" to reactivate them.
Selections "2" and "3" are not available on this product.

Maximum number of TAGs to scan

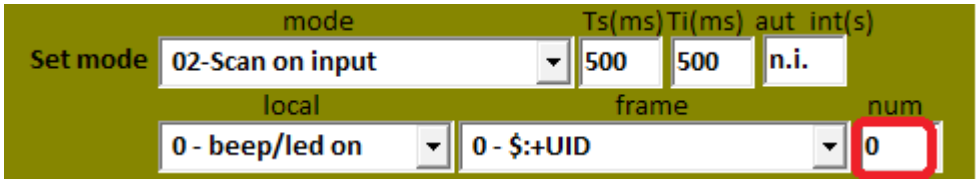

Figure 7: TT_RFID_Configurator - setting of the maximum number of scanned IDs to be sent

It is possible to limit the number of scanned IDs to send modifying the field *num* indicated in Fig.7.

- 0 the reader will return all the IDs of the identified TAGs (the maximum number of detectable TAG is 8).
- 1 in the field, if the reader identifies only one TAG, it will returns its ID; if it identifies more than one TAG, it will send an error string as result.
- N the reader will return n ID of the identified m TAGs (with m>n). Max number of tag scanned in the field is 8.

Power

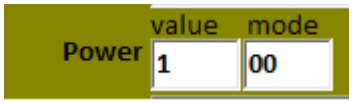

Figure 8: TT_RFID_Configurator - RF output power setting

Value
Allows to switch from full-power, RF output =200mW (value = 1,default), to half power RF output =100mW(value =0).

Mode
Mode different from 00 are for test purpose only and can cause high battery consumption.
It's highly recommended to leave mode = 0.

Speed

This field allows the increasing or decreasing the bit rate for the ISO 15693 standard.
Selecting "00", you will have a low bit rate while with "01", you will have a higher bit rate.

Standard

This field allows to change RFID HF standard to read.
- 00 EPCC1 Gen2: not allowed (UHF standard)
- 01 ISO15693: set standard ISO15693
- 02 ISO14443-A: set standard ISO14443-A(only UID)
- 03 ISO15693 & ISO14443A: set standard ISO15693+ISO14443A

Baudrate

Not available on this product.
Baudrate is fixed at 38400bps, 8, n, 1, no flow control.

Sending commands with TT_RFID_Configurator

With the *TT_RFID_Configurator* application, it is possible to send the commands of the TERTIUM Technology protocol to NFC Scanner (see *TERTIUM_RFID_Reader_Protocol.pdf*). Simply insert the command in the field next to "Send" button, Figure 3, and click on the "Send" button. The sent command and the response of the reader or an error message are shown in the underlying window.
You can use it to send any commands, included optional and custom ISO15693 commands described in TERTIUM_RFID_Reader_Protocol_App_F.pdf.

Option settings

Bluetooth® authentication

Figure 9: TT_RFID_Configurator – Bluetooth authentication setting

That feature is not available for Bluetooth® low energy interface.

Prefix and suffix

Figure 10: TT_RFID_Configurator – add prefix and/or suffix to the ID read

It's possible to add up to 3 prefix and/or suffix charters (ASCII code) to the string (UID, UID+USER...) you get after a scanning. See the example in Fig. 10.
Prefix and suffix can be added to each kind of response string selected with ID_format except for ID_format = 128 – SCRIPT.

Add delay sending string via Bluetooth®

Figure 11: TT_RFID_Configurator – add delay sending string via bluetooth

Feature not needed for Bluetooth® low energy.

Quick press code

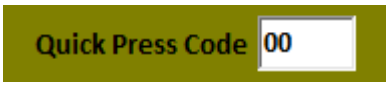

Figure 12: TT_RFID_Configurator – add quick press code

It's possible to send a single value (1 byte chosen by the user) and get a beep when you slide your finger on the scan button.

Extension flag

Figure 13: TT_RFID_Configurator – protocol extension flag

To change the protocol extension flag for ISO 15693, change the parameter Extension flag as follow:

- 0 protocol extension flag for tag ≤ 4Kbit; value saved in EEPROM
- 1 protocol extension flag for tag > 4Kbit; value saved in EEPROM

- 2 protocol extension flag for tag ≤ 4Kbit; value not saved in EEPROM
- 3 protocol extension flag for tag > 4Kbit; value not saved in EEPROM

Option flag

Figure 14: TT_RFID_Configurator – Option flag

To change the option bit for ISO 15693 (according to specifics of your tag) select the right value to set/reset option bit for each specific command (INVENTORY, READ, WRITE, LOCK) as shown in the following table.

data	INVENTORY	READ	WRITE	LOCK
0	0	0	0	0
1	0	0	0	1
2	0	0	1	0
3	0	0	1	1
4	0	1	0	0
5	0	1	0	1
6	0	1	1	0
7	0	1	1	1
8	1	0	0	0
9	1	0	0	1
10	1	0	1	0
11	1	0	1	1
12	1	1	0	0
13	1	1	0	1
14	1	1	1	0
15	1	1	1	1

Table 4: Options flag value

RF Timeout

Figure 14: TT_RFID_Configurator – RF Timeout for Tunnel mode

RF Timeout is a parameter used in Tunnel Mode and it's the interval time in seconds the RF remains switched on after the transmission of a command
(see TERTIUM_RFID_Reader_Protocol_App_F.pdf for further details).

Other information and support

Declaration of conformity

Manufacturer	TERTIUM Technology S.r.l. Via Picotti,8 56124 Pisa Italy
Product	NFC Scanner
Description	HF reader with Bluetooth® low energy technology interface
Conformity standard	EMC: EN 301 489-3 V1.6.1, EN 301 489-1 V1.9.2, EN 301 489-17 V2.2.1 [Art. 3.1b – 2014/53/UE] LV: EN 60950-1:2006 +/A1+/A2+/A11+/A12, EN 50566, EN 62479 [Art. 3.1a – 2014/53/UE] EMF: EN 50364:2010 [Art. 3.1a – 2014/53/UE] Radio conformity: EN 300 330-2 V1.6.1, EN 300 330-1 V1.8.1 EN 300 328 V1.9.1 [Art. 3.2 - 2014/53/UE]

The present document declares that the NFC Scanner product is compliant with the standards described above and it meet the essential requirements expressed in the RED European Directive 2014/53/EU.

Pisa (Italy), October 2016

Dr. Marco Consani
CEO

Based on these declarations, the products can bear the following mark:

CE

Federal Communication Commission (FCC) Notice

FCC certified: FCC ID: Y6D-NFCLE-RW050

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.

NOTE: THE **GRANTEE** IS NOT RESPONSIBLE FOR ANY CHANGES OR MODIFICATIONS NOT EXPRESSLY APPROVED BY THE PARTY RESPONSIBLE FOR COMPLIANCE COULD VOID THE USER'S AUTHORITY TO OPERATE THE EQUIPMENT.

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 or more of the following measures:

—Reorient or relocate the receiving antenna.

—Increase the separation between the equipment and receiver.

—Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.

—Consult the dealer or an experienced radio/TV technician for help.

Disposal

According to the European directive 2012/19/EU the disposal of electric and electronic equipment (WEEE) must not be carried out as urban waste, but it must be done separately following specific guidelines. Such obligation is expressed by the following symbol, applied on the container. The disposal will be managed by the producer and therefore the consumer wishing to get rid of the device shall contact the producer and shall follow the procedure he has adopted to collect aforementioned waste.

RoHS Conformity

NFC Scanner has been realized using materials and constructive processes conforming to the limits imposed by the directive 2011/65/EU (RoHS) concerning the use of dangerous substances in electronic products.

Warranty

TERTIUM Technology guarantees that this product will be exempt from material defects of production and conforming to the stated technical data, under conditions of normal use, for the period of one year-old from the date of purchase. The warranty covers the reparations but it is void if TERTIUM Technology determines that the product has been damaged following improper installation, abuse, not authorized reparations or modifications.
The slip (receipt) or freight bill can be issued.

Assistance
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Precautions of use

Attentively read all the precautions of use and the operating instructions before use.
You are responsible for use of this device and any consequences of improper use.

- If necessary, clean the device with a dampened cloth. Do not immerse in water. Do not directly apply detergents on the product.
- Do not expose to direct heat sources (flames, heaters, stoves, ovens,etc).
- Do not expose the device to very cold or very hot temperatures since they can damage the device and reduce the battery life.
- In case of malfunction do not try to disassemble the device, but contact authorized personnel.
- Charge the battery via USB cable provided or use chargers approved by the manufacturer. If in doubt contact your supplier.
- Always supervise children when they come into contact with the device.
- Do not use if broken or damaged.
- The device is not a medical device.

Legal notes

TERTIUM Technology declines every responsibility in relation to possible damages, losses of income or any other damage resulting from the use of this product.
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