



TECHNICAL INFORMATION MANUAL

Revision 0 – 08/05/2025

R1353I **Slate³** RAIN RFID Desktop Reader



Visit the <u>Slate³ R1353I web page</u>, 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 the Manual

The goal of this manual is to provide the basic information to work with the Slate³ R1353I RAIN RFID Desktop Reader.

This manual refers to:

- <u>Slate³ R1353I firmware</u> revision ≥ 1.0.0
- SDK (Software Development Kit) revision ≥ 4.7.0
- <u>R1353I Configuration Tool</u> revision ≥ 1.0.0

Change Document Record

Date	Revision	Changes	
08 May 2025	00	Preliminary revision	-

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

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1 INTRODUCTION

Description

The **Slate**³ (**Model R1353I**) is a slim RAIN RFID desktop reader of the easy2read[®] product line with integrated antenna for short to medium range applications.

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

Thanks to its compact size, the Slate³ reader is the perfect choice for various applications such as points-ofsale, document tracking, tag programming stations, access control and so on. It can also be used as a building block for smart shelves and smart displays.

The Slate³ reader supports the HID profile (native keyboard emulation) allowing to interact directly with legacy applications, office automation SW or any other generic solution requiring manual input.

The reader has a physical trigger button that, if enabled, permits to start the reading process only when needed. The same trigger signal is available also via a jack connector to use an external trigger button.

The Slate³ can also be fixed with screws using the fixing holes available on the corners of the reader.

Being compliant with both European and US regulatory environments, the Slate³ reader allows installations in various countries worldwide as needed by retailers, forwarders, warehouses and other global organizations.

The core component of the Slate³ reader is the CAEN RFID Lepton³ module, an ultra-compact RAIN RFID module based on the Impinj E310 reader IC.





Fig. 1.1: Slate³ R1353I Reader

Front panel

The Slate³ R1353I front panel houses the following buttons and LEDs (see figure below):



Fig. 1.2: Front Panel

No.	Name	Туре	Description
1	Trigger	Button	Inventory mode: press to perform an inventory cycle (hold down the button to repeat inventory cycles)
2	Tag ID	LED	Indicates the inventory activity or configuration mode
3	Power	LED	Indicates the reader status ON/OFF
Tab 11	· Econt Dano	1	

Tab. 1.1: Front Panel

Status	Description
Orange	Reader is ON
OFF	Reader is OFF
Tab. 1.2: Power I ED Status	

Tab. 1.2: Power LED Status

Status	Description
Green	Configuration mode or inventory activity
OFF	No connection established
Tab. 1.3. Tag ID I ED status	

Tab. 1.3: Tag ID LED status

Bottom panel

The Slate³ R1353I bottom panel houses the following connectors and buttons (see figure below):



Fig. 1.3: Bottom Panel

No.	Name	Туре	Description		
1	Jack	Connector	2.5mm jack for optional external trigger		
2	Power	Button	Press the power button to turn the reader on/off (with the reader connected to a PC via USB cable)		
3	USB	Connector	USB Type C socket connector		

Tab. 1.4: Bottom Panel

Accessories

The following accessories are supplied with the Slate³ R1353I reader:



Ordering Options

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

	Code	Description
Dender	WR1353IXEUAA	R1353I - Slate ³ - RAIN RFID Desktop Reader ETSI
Reader	WR1353IXUSAA	R1353I - Slate ³ - RAIN RFID Desktop Reader FCC



Jakob-Haringer-Str.3 A-5020 Salzburg https://www.bsr.at sales@bsr.at



2 GETTING STARTED

Introduction

This quickstart guide will help you to get started with your Slate³ (Model R1353I) reader.

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 <u>CAEN RFID</u> <u>Easy Controller Application</u> or the <u>SDK (Software Development Kits)</u> 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 33.

The reader is sold with the factory profile set to *EASY2READ*. This guide helps you to get started with your reader using the EASY2READ profile.

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

Windows PCs

USB Communication Setup and the Easy Controller for Windows

Follow the steps below to connect your Windows PC to the Slate³ 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 Slate³ R1353I reader to the PC using the provided USB cable (the reader is powered through the USB port). Verify that the provided USB cable is correctly plugged into the PC. 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.

The orange light of the power LED indicates that the reader is ON.

- 2. Download from the CAEN RFID web site the latest version of the CAEN RFID <u>Easy Controller for</u> <u>Windows</u> software and install it.
- 3. In your Windows Pc go to Settings \rightarrow System. Open the System properties and click on Device Manager.



4. Look for the COM port in the *Device Manager* window:

🗄 Device Manager	-	Х
File Action View Help		
✓		
> 🔟 Audio inputs and outputs		
> 🗃 Batteries		
> 📓 Biometric devices		
> 🛞 Bluetooth		
> 👰 Cameras		
> 💻 Computer		
> 👝 Disk drives		
> 🖙 Display adaptors		
> 🎽 Firmware		- 1
> 🛺 Human Interface Devices		- 1
> 🥅 Keyboards		- 1
> 🕕 Mice and other pointing devices		- 1
> 🛄 Monitors		- 1
> 🖵 Network adapters		
V Ports (COM & LPT)		- 1
USB Serial Port (COM5)		- 1
USB Serial Port (COM6)		- 1
> 🚍 Print queues		- 1
> Processors		- 1
> P Security devices		- 1
> 📑 Software components		
> 📱 Software devices		
> 💵 Sound, video and game controllers		
> 🎪 Storage controllers		
🗴 🔚 Sustem Newicer		

5. Right click each USB serial port, go to *Properties* → *Details* → *Bus reported device description* and look at the value. The correct USB serial port is the one with *Bus reported device description* value = *R1353I-Slate3*. In this example it is COM5:

USB Serial Port (COM5) Properties $\qquad \qquad \qquad$	USB Serial Port (COM6) Properties $ imes$
General Port Settings Driver Details Events	General Port Settings Driver Details Events
USB Serial Port (COM5)	USB Serial Port (COM6)
Property	Property
Bus reported device description \checkmark	Bus reported device description $\qquad \checkmark$
Value R1353I-Slate3	Value MCP2200 USB Serial Port Emulator
OK Cancel	OK Cancel



6. Launch the CAEN RFID Easy Controller application:

CAEN RFID Easy Controller						- 🗆 X	
File Settings Tools About							
				Design your RFID solution we provide the technology.			
Start Inventory TAGS FOUND: 0				Statistics Src 0 Src 1 Src 2 Acq/Sec: 0 Eff Tags/Sec: 0 To	Src 3 ficiency: 0% st. Tags: 0	READER INFORMATION Model:None Sentil/None FW Rel:None	
EPC	L. Source	Antenna	COUNT	TimeStamp			
Connected: Air Link Protocol: OEE							

- 7. On the main application window click on $File \rightarrow Connect$; the connection dialog box will appear.
- 8. Select *RS232* from the *Connection Type* combo box and the right COM port number from the *RS232 Port* combo box (COM5 in this example):

CAEN RFID Easy Controller			
File Settings Tools About			
	RE TU		Design your RFID solution we provide the technology.
Start Inventory TAGS FOUND: 0		Connection - X Connection Type RS232 Connection RS232 Port	Src 3 Model.None Serial.None FW Rel.None
20	L. Source Ante	ani COM5 ~	
		Choose a Connection type:	
nnected: 🛑 🛛 Air Link Protocol: OFF			

9. Click on Connect.



10. 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:

CAEN RFID Easy Controller					– 🗆 ×
File Settings Tools About					
	כ		De	sign your RFID solutio we provide the	n technology.
Start Inventory TAGS FOUND:		STATIST Src 0 Acq/Se Tags/S	Src 1 Src 2 Src 3 c: 0 Efficiency: 0% ec: 0 Tot. Tags: 0		ATION Model: R13531 Serial: 000000021410003 FW Rel.: 1.0.0
EPC	L. Source Antenna	COUNT TimeStamp			
K					
Connected: 🔵 Air Link Protocol: EPC C1G2					

11. Place tags in front of the reader and click on *Start Inventory* to see the tag information displayed on the main window:

CAEN RFID Easy Controller						– 🗆 X
File Settings Tools About						
	ئ				Design your F we p	RFID solution provide the technology.
				STATISTICS		
				Sm0 of 0 of 0		NEADER INFORMATION
Start Inventory				Sic U Src I Src Z Src.	5	Model: R1353
				Acq/Sec: 0 Efficience	y: 0%	Serial: 000000021410003
TAGS FOUND: 14				Tags/Sec: 0 Tot. Tag	is: 0	FW Rel.: 1.0.0
EPC	L. Source	Antenna	COUNT	TimeStamp		
E2806810000003918718553	Source_0	Ant0	3	10/28/2020 10:43:43 AM		
A4B4000000000000000053	Source_0	Ant0	33	10/28/2020 10:43:37 AM		
35E017004E8DA06300017D51	Source_0	Ant0	4	10/28/2020 10:43:41 AM		
303132333435363738393031	Source_0	Ant0	14	10/28/2020 10:43:41 AM		
300EFE2F94D01E0950213515	Source_0	Ant0	2	10/28/2020 10:43:43 AM		
300833B2DDD9BD050127EF00	Source_0	Ant0	22	10/28/2020 10:43:37 AM		
300833B2DDD9BD0500D6F609	Source_0	Ant0	8	10/28/2020 10:43:38 AM		
300833B2DDD901400000000	Source_0	Ant0	27	10/28/2020 10:43:37 AM		
0C1105012A70A46112014200	Source_0	Ant0	6	10/28/2020 10:43:42 AM		
030699000000000002E98	Source_0	Ant0	37	10/28/2020 10:43:37 AM		
0135240000000000001388	Source_0	Ant0	4	10/28/2020 10:43:44 AM		
0115330000000000002420	Source_0	Ant0	22	10/28/2020 10:43:37 AM		
0000000000000000000030333937	Source_0	Ant0	23	10/28/2020 10:43:37 AM		
000000000000000000000000000000000000000	Source 0	Ant0	1	10/28/2020 10:43:44 AM		
Connected: Air Link Protocol: EPC C1G2						

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 <u>Slate³ R1353I web page</u>, *Downloads* section or in the <u>Manual and Documents</u> 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 <u>Slate³ R1353I web page</u>, *Documents* section).



3 CONFIGURATION MENU

Introduction

The Slate³ R1353I configuration can be performed via USB using the *R1353I Configuration Tool*.

To access the configuration menu, follow the steps described below:

- 1. Download from the <u>Slate³ R1353I web page</u> the latest version of the *Slate³ R1353I Configuration Tool*.
- 2. With the reader switched off, hold down the trigger button and connect the Slate³ R1353I reader to the PC using the provided USB cable. Release the trigger button. The orange light of the power LED indicates that the reader is ON. The green light of the tag ID LED indicates that the reader is in the configuration mode.
- 3. Look for the COM port in the *Device Manager* window:

🛃 Device Manager	-	×
File Action View Help		
✓ 릅 CE000254		 -
> 🖬 Audio inputs and outputs		1
> 🍃 Batteries		
> 📓 Biometric devices		
> 🚯 Bluetooth		
> 👰 Cameras		
> 🛄 Computer		
> 👝 Disk drives		
> 🔙 Display adaptors		
> 🎽 Firmware		
> 🛺 Human Interface Devices		
> 🥅 Keyboards		
> 🕕 Mice and other pointing devices		
> 🛄 Monitors		
> 🚽 Network adapters		
✓		
USB Serial Port (COM5)		
💭 USB Serial Port (COM6)		
> 🚍 Print queues		
> 🔲 Processors		
> 📲 Security devices		
> 📲 Software components		
> 📓 Software devices		
> 🕡 Sound, video and game controllers		
> 🍰 Storage controllers		
🔪 🔚 Sustem devices		



4. Right click each USB serial port, go to *Properties* → *Details* → *Bus reported device description* and look at the value. The correct USB serial port is the one with *Bus reported device description* value = *R1353I-Slate3*. In this example it is COM5:

USB Serial Port (COM5) Properties	imes USB Serial Port (COM6) Properties $ imes$
General Port Settings Driver Details Events	General Port Settings Driver Details Events
USB Serial Port (COM5)	USB Serial Port (COM6)
Property	Property
Bus reported device description	Bus reported device description \sim
Value R1353I-Slate3	Value MCP2200 USB Serial Port Emulator
OK Cance	el OK Cancel

5. Open the *Slate*³ *R1353I Configuration Tool*:

R1353I Configuration Too	bl v. 1.0.0			_	
File					
	EN RFID		Design your RFID so we provide	lution the technology.	
General Settings					
PROFILE	EASY2READ 🗸	- EPCC1G2 Params			
RF POWER UP (mW)	500 🜲	SESSION SO	▼ ~		
HW TRIGGER MODE	ONE SHOT \sim	TARGET	~		
Scan Delay (ms)	0	SELECTED ALL	~		
- EASY2READ					
TID Length	0				
Read Cycles	0				
HID					
Keyboard	QWERTY \checkmark				
Inter Char Delay (ms)	0				
Inter Line Delay (ms)	0				
	FORMAT	PREFIX SL	IFFIX		
EPC DISABLE	FORMAT	PREFIX AD	DRESS LENGTH	SUFFIX	
	SAV	/E READ			

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



7. Select the right COM port number from the RS232 Port combo box (COM5 in the example):

1353I Configuration Tool	v. 1.0.0			_	
	ENRF	י נו	Design your RFID solution we provide the te	echnology.	
General Settings					
PROFILE	EASY2READ V	EPCC1G2 Params			
RF POWER UP (mW)	500	Q 0	×		
HW TRIGGER MODE	ONE SHOT V	G Connection —	×		
Scan Delay (ms)	0	RS232 Port			
EASY2READ		COM5	~		
TID Length	0	Connect			
Read Cycles	0				
HID		-	.::		
Keyboard	QWERTY \sim				
Inter Char Delay (ms)	0				
Inter Line Delay (ms)	0				
	FORMAT	PREFIX SUFFIX	<		
EPC DISABLE					

8. Click on *Connect*. To verify if the connection with the reader has been established, check the green square on the bottom right side of the sidebar. If the connection is not successful, the message "connection error" appears.

To disconnect the reader, on the main application window click on $\mathit{File} \rightarrow \mathit{Disconnect}$.

The Slate³ R1353I menu options are the following:

- RFID
- SYSTEM



RFID

Access the configuration menu as explained in the *Introduction* paragraph page 12. Use this section to set the desired profile and then the related configuration options.

General	Settings
---------	----------

13531 Configuration Tool	v. 1.0.0			_	
	ENRFU)	Design your RFID so we provide	olution e the technology.	
General Settings		EBCC1C2 Deserve			
PROFILE	EASY2READ ~	Q 6			
RF POWER UP (mW)	316	CESSION S0			
	•	35331011 30	Ψ.		
HW TRIGGER MODE	ONE SHOT	TARGET A	~		
HW TRIGGER MODE Scan Delay (ms)	ONE SHOT ~	TARGET A SELECTED ALL	× × ×		
HW TRIGGER MODE Scan Delay (ms) EASY2READ TID Length Read Cycles	Image: Contract of the second secon	TARGET A SELECTED ALL			
HW TRIGGER MODE Scan Delay (ms) EASY2READ TID Length Read Cycles HID	Image: None Shot ✓ 200 12 1	TARGET A SELECTED ALL	× ×		
HW TRIGGER MODE Scan Delay (ms) EASY2READ TID Length Read Cycles HID Keyboard	ONE SHOT V 200 V 1 V QWERTY V	TARGET A SELECTED ALL	× ×		
HW TRIGGER MODE Scan Delay (ms) EASY2READ TID Length Read Cycles HID Keyboard Inter Char Delay (ms)	Image: Control of the second seco	TARGET A SELECTED ALL			
HW TRIGGER MODE Scan Delay (ms) EASY2READ TID Length Read Cycles HID Keyboard Inter Char Delay (ms) Inter Line Delay (ms)	Image: None Shot ✓ 200 ✓ 12 ✓ 1 ✓ QWERTY ✓ 5 ✓ 60 ✓	TARGET A SELECTED ALL			
HW TRIGGER MODE Scan Delay (ms) EASY2READ TID Length Read Cycles HID Keyboard Inter Char Delay (ms) Inter Line Delay (ms) EPC ENABLE	ONE SHOT 200 1 0 5 60 FORMAT HEX	PREFIX SI	JFFIX		

Profile

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

R1353I Configuration Tool v	/. 1.0.0		– 🗆 X
File			
RFID SYSTEM	ENRFU	Design your RFID solution we provide the technolog	у.
General Settings			
PROFILE	EASY2READ ~	EPCC1G2 Params	
RF POWER UP (mW)	316	SESSION SO	
HW TRIGGER MODE	ONE SHOT V	TARGET A	
Scan Delay (ms)	200	SELECTED ALL ~	
EASY2READ			
TID Length	12 🔹		
Read Cycles	1		
- HID			
Keyboard	QWERTY ~		
Inter Char Delay (ms)	5		
Inter Line Delay (ms)	60 🗘		
	FORMAT	PREFIX SUFFIX	
	FORMAT	PREFIX ADDRESS LENGTH SUFFIX	
	SAVE	READ	

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 29.

For details on the EASY2READ configuration options, refer to § EASY2READ Parameters page 19.

• 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 33.

For details on the HID configuration options, refer to § *HID Parameters* page 20.



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 316 mW. Accepted values are included in the range 0÷1000. 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* \rightarrow *Disconnect*. Power off the reader, disconnect the USB cable and then power on the reader, the new settings are active.

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* \rightarrow *Disconnect*. Power off the reader, disconnect the USB cable and then power on the reader, the new settings are active.

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.



EPCC1G2 Parameters

R1353I Configuration Tool	v. 1.0.0			_	□ ×
File					
	ENRFLD		Design your RFID solu we provide t	ution the technology.	
STOTEM					^
General Settings		EPCC1G2 Params			
PROFILE	EASY2READ ~	Q 6	_		
RF POWER UP (mW)	316	SESSION S0	~		
HW TRIGGER MODE	ONE SHOT V	TARGET A	~		
Scan Delay (ms)	200	SELECTED ALL	~		
	Lund				
EASY2READ					
TID Length	12 🗘				
Read Cycles	1				
HID					
Keyboard	QWERTY \sim				
Inter Char Delay (ms)	5				
Inter Line Delay (ms)	60				
EPC ENABLE	FORMAT	PREFIX SUF	FIX RESS LENGTH	SUFFIX	>
	SA	VEREAD			
	0,				

- **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.



EASY2READ Parameters

Choosing the EASY2READ profile, the EASY2READ parameters available are:

R1353I Configuration Tool	v. 1.0.0		-	
File				
RFID SYSTEM	ENRFU	Design your RFID solut we provide th	tion he technology.	
General Settings				
PROFILE RF POWER UP (mW)	EASY2READ ~ 316	EPCC1G2 Params Q 6 € SESSION S0 ✓		
HW TRIGGER MODE	ONE SHOT V	TARGET A V		
Scan Delay (ms)	200	SELECTED ALL ~		
EASY2READ TID Length Read Cycles	12 ÷ 1 ÷			
- HID Keyboard	QWERTY ~			
Inter Char Delay (ms)	5			
Inter Line Delay (ms)	60 🚖			
EPC ENABLE	FORMAT	PREFIX SUFFIX	SHEEIY	
	TOTMAT	THEIR ROMESS LENGTH	JULIA	
	SAV	READ		

- **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.





HID Parameters

Choosing the HID profile, the HID parameters available are:

R1353I Configuration Tool v. 1.0.0	– 🗆 X
File	
	Design your RFID solution we provide the technology.
RFID SYSTEM HW TRIGGER MODE ONE SHOT Scan Delay (ms) 200	TARGET A v SELECTED ALL v
EASY2READ TID Length	
Read Cycles 1	
Keyboard QWERTY Inter Char Delay (ms) 5 Inter Line Delay (ms) 60	
EPC ENABLE V FORMAT	PREFIX SUFFIX
	MATCH TYPE MASKS
	SAVE READ

- **Keyboard:** The Keyboard options are the following:
 - o 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.

- **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 use of the *Inter Char Delay* is recommended to slow down the sending of characters from the reader to host devices.
- 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 use of the Inter Line Delay is recommended to slow down the sending of characters from the reader to host devices.



EPC code parameters

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

🗊 R135	3l Configuration Tool	v. 1.0.0					-	×
File								
	В °СА	ENRFU)	Design y	our RFID so we provide	lution the technolo	gy.	
RFID	SYSTEM		TARGET	A				^
	Scan Delay (ms)	200 	SELECTED	ALL V				
E	ASY2READ							1
	TID Length	12						
	Read Cycles	1						
Н	ID							
	Keyboard	QWERTY ~						
	Inter Char Delay (ms)	5						
	Inter Line Delay (ms)	60						
	EPC ENABLE	FORMAT	PREFIX	SUFFIX				
	BANK NONE	FORMAT	PREFIX	ADDRESS	0	SUFFIX		
	FILTER DISABLE	offset		MASKS	0			
								~
			SAVE					

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.
- 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).
 - GTIN + SERIAL: if the tag is properly encoded, the reader returns the GTIN + Serial string associated to the tag EPC code

By default, the EPC HID *Format* is set to "HEX". You can change the default value using the dropdown 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:

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

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:

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

By default, the *suffix* string is \n (see the following table Tab. 3.2: Escape Sequences supported page 22). 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 2 2. Escapo Soguon	cas supposted

Tab. 3.2: Escape Sequences supported

Bank parameters

These options allow the printing of the words contained in a bank of the tag EPCC1G2 memory:

R1353I Configuration Tool	v. 1.0.0	– 🗆 X
File		
	Design your RFID s we provid	colution de the technology.
HW TRIGGER MODE	ONE SHOT V TARGET A V	^
Scan Delay (ms)	200 ÷ SELECTED ALL V	
EASY2READ TID Length Read Cycles HID Keyboard Inter Char Delay (ms) Inter Line Delay (ms)	12 1 ↓ QWERTY 5 60 ♥ EDEMAT PREFY CUTERY	
EPC ENABLE	FORMAT PREFIX SUFFIX HEX	
BANK NONE	FORMAT PREFIX ADDRESS LENGTH	SUFFIX
FILTER DISABLE		
	SAVE READ	-

- BANK:
 - NONE: printing disabled.
 - RESERVED/EPC/TID/USER: the bank to be read.

G[®]CAENRFID

• FORMAT:

- HEX: The bank code is represented as a hexadecimal number. For example, a bank code of 96 bits long corresponds to 24 hexadecimal digits (96/4=24).
- ASCII: The bank code is interpreted as 8 bits at a time, each byte being represented as ASCII character. For example, a bank code of 96 bits corresponds to a string of 12 ASCII characters (96/8 = 12).

By default, the *Format* is set to "HEX". You can change the default value using the drop-down menu.

- **PREFIX:** see *Prefix* definition in the previous paragraph (EPC code parameters).
- **ADDRESS:** the starting word address of the string 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).



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* \rightarrow *Disconnect*. Power off the reader, disconnect the USB cable and then power on the reader, the new settings are active.

Filter parameters

These options allow you to filter the read tags by sending only those with the conditions specified in the following fields:

R1353I Configuration Tool	v. 1.0.0			– 🗆 X
File				
B °CA	ENRFID	Desig	n your RFID solution we provide the technol	logy.
RFID SYSTEM				
HW TRIGGER MODE	ONE SHOT \sim	TARGET A	~	^
Scan Delay (ms)	200	SELECTED ALL	~	
EASY2READ				
TID Length	12			
Read Cycles	1			
HID				
Keyboard	QWERTY ~			
Inter Char Delay (ms)	5			
Inter Line Delay (ms)	60 🜩			
	FORMAT	PREFIX SUFFIX		
EPC ENABLE	✓ HEX ✓	\n]	
	FORMAT	PREFIX ADDRESS	LENGTH SUFFIX	
BANK NONE			0 🕆 m	
FILTER DISABLE		KE V	€0	
				~
	SA	KEAD		

• **FILTER:** enable/disable. By default, the *Filter* is disable. You can change the default value using the drop-down menu. If enable, it allows to filter the read tags by sending only those satisfying the conditions in the next fields.



- **OFFSET:** optional. The "offset" indicates after how many EPC code characters to start filtering. By default, the offset is set to 0 and the filter considers the entire EPC code string.
- MATCH TYPE: like/not like. By default, the Match Type is set to "like". You can change the default
 value using the drop-down menu. The mask type indicates the link between the various masks: if
 set to "like", the masks are linked by the "or" function, if set to "not like", the masks are linked to
 the "and" function.
- **MASKS:** Mask is an editable field. By default, the field is empty. It allows to filter read tags by sending only those with the specified mask. It is possible to insert a maximum of 4 masks linked by the "match type".



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 $File \rightarrow Disconnect$. Power off the reader, disconnect the USB cable and then power on the reader, the new settings are active.

SYSTEM

USB communication

Access the configuration menu as explained in the *Introduction* paragraph page 12.

The Slate³ R1353I menu options are the following:

- RFID
- SYSTEM

Click on SYSTEM:

R1353I Configuration Tool v. 1.0.0	B R1353I Configuration Tool v. 1.0.0 - X						
File							
	Design your RFID solution we provide the technology.						
Buzzer Power Up ✓ Power Down ✓ SUCCESS (ms) FAILURE (ms) Inventory 200 ♀ 400 ♀	Vibration Power Up Power Down SUCCESS (ms) FAILURE (ms) Inventory						
Power Auto Shut Down 3600 \$	Firmware Release Reader: 1.0.0 RF: 1.4.0/1.2.0						
SAVE	READ						



Buzzer

R1353I Configuration Tool v. 1.0.0	– 🗆 X
File	
RFID SYSTEM	Design your RFID solution we provide the technology.
Buzzer Power Up Power Down SUCCESS (ms) FAILURE (ms) Inventory 200 400 Power Power Auto Shut Down 3600 3600	Vibration Power Up Power Down Inventory 200 FAILURE (ms) 0 0 FAILURE (ms) 0 FAILURE (ms) FAILURE (ms) FA
SAVE	READ

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 disabled.
 - **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.





Vibration

R1353l Configuration Tool v. 1.0.	D		- [×
File				
RFID SYSTEM	NRFD	Design your RFID solution we provide the techn	ology.	
Buzzer Power Up 🗹 Power Down 🗹 SUCCE Inventory 🗌 200	SS (ms) FAILURE (ms) 400 • Inventory	ywn ☑ SUCCESS (ms) FAILURE (ms) □ 200 🐳 0 €		
Power TIMEOU Auto Shut Down [] 3600	IT(s) Reader: RF:	elease 1.0.0 1.4.0/1.2.0		
	SAVE DEAD			

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.





Power

R1353I Configuration Tool v. 1.0.0	– 🗆 X
File	
RFID SYSTEM	Design your RFID solution we provide the technology.
Buzzer Power Up Power Down SUCCESS (ms) FAILURE (ms) Inventory 200 ↓ 400 ↓ Power TIMEOUT(s) Auto Shut Down 3600 ↓	Vibration Power Up ✓ Power Down ✓ SUCCESS (ms) FAILURE (ms) Inventory 200 🗼 Firmware Release Reader: 1.0.0 RF: 1.4.0/1.2.0
SAVE	READ

Auto Shut Down: automatic shutdown of the reader after a certain time of inactivity. If enabled, define the shutdown time in *Timeouts* in seconds. By default, the *Auto Shut Down* is disabled.





Firmware Release

R1353I Configuration Tool	v. 1.0.0		- 🗆 🗡
File			
	ENRFLD	Design your RFID solution we provide the technolog	gy.
Buzzer Power Up Power Down Inventory Power Auto Shut Down 3	5UCCESS (ms) FAILURE (ms) 200 € 400 € IMEOUT(s) 1600 €	Vibration Power Up Power Down SUCCESS (ms) FAILURE (ms) Inventory Pirmware Release Reader: 1.0.0 RF: 1.4.0/1.2.0	
	SAVE	READ	

In this section you can find information about:

- **Reader:** the reader firmware release
- **RF**: the internal RF module revision



4 EASY2READ PROFILE

Introduction

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 <u>CAEN RFID</u> <u>Easy Controller Application</u> or the <u>SDK (Software Development Kits)</u> 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 33.

The reader is sold with the factory profile set to EASY2READ.

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

Windows PCs

USB Communication Setup and the Easy Controller for Windows

Follow the steps below to connect your Windows PC to the Slate³ 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 Slate³ R1353I reader to the PC using the provided USB cable (the reader is powered through the USB port). Verify that the provided USB cable is correctly plugged into the PC. 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.

The orange light of the power LED indicates that the reader is ON.

- 2. Download from the CAEN RFID web site the latest version of the CAEN RFID <u>Easy Controller for</u> <u>Windows</u> software and install it.
- 3. In your Windows Pc go to Settings \rightarrow System. Open the System properties and click on Device Manager.



4. Look for the COM port in the *Device Manager* window:

🛃 Device Manager	-	×
File Action View Help		
V 🗄 CE000254		
> 🖺 Audio inputs and outputs		
> 🗃 Batteries		- 1
> 🗑 Biometric devices		- 1
> 🚯 Bluetooth		- 1
> 👰 Cameras		- 1
> 💻 Computer		- 1
> 👝 Disk drives		- 1
> 🔙 Display adaptors		- 1
> 📓 Firmware		- 1
> 🛺 Human Interface Devices		- 1
> 🥅 Keyboards		- 1
> 📗 Mice and other pointing devices		- 1
> 🛄 Monitors		- 1
> 👮 Network adapters		- 1
V Ports (COM & LPT)		- 1
USB Serial Port (COM5)		- 1
USB Serial Port (COM6)		- 1
> 🚍 Print queues		- 1
> Processors		- 1
> 🛐 Security devices		- 1
> 📑 Software components		- 1
> Software devices		- 1
> 🖬 Sound, video and game controllers		
> 🍇 Storage controllers		
🔪 🏣 Sustem devices		

5. Right click each USB serial port, go to *Properties* → *Details* → *Bus reported device description* and look at the value. The correct USB serial port is the one with *Bus reported device description* value = *R1353I-Slate3*. In this example it is COM5:

USB Serial Port (COM5) Properties $\qquad \qquad \qquad$	USB Serial Port (COM6) Properties $\qquad \qquad \qquad$
General Port Settings Driver Details Events	General Port Settings Driver Details Events
USB Serial Port (COM5)	USB Serial Port (COM6)
Property	Property
Bus reported device description \checkmark	Bus reported device description $\qquad \lor$
Value R1353I-Slate3	Value MCP2200 USB Serial Port Emulator
OK Cancel	OK Cancel



6. Launch the CAEN RFID Easy Controller application:

CAEN RFID Easy Controller						- 🗆 X	
File Settings Tools About							
			Design your RFID solution we provide the technology.				
Start Inventory TAGS FOUND: 0				STATISTICS Src 0 Src 1 Src 2 Acq/Sec: 0 EF Tags/Sec: 0 To	Src 3 fficiency: 0% ot. Tags: 0	READER INFORMATION Model None Serial None FW Rel. None	
EPC	L. Source	Antenna	COUNT	TimeStamp			
Connected: 🌒 Air Link Protocol: OFF						ii.	

- 7. On the main application window click on $File \rightarrow Connect$; the connection dialog box will appear.
- 8. Select *RS232* from the *Connection Type* combo box and the right COM port number from the *RS232 Port* combo box (COM5 in this example):

ile Settings Tools About	RFID		Design your RFID solution we provide the technology.
Start Inventory TAGS FOUND: 0	L. Source Ante	Connection Type RS232 Connection RS232 Port COM5 Connect	C 3 READER INFORMATION Model:None Setal:None FW Rel:None
		Choose a Connection type	

9. Click on Connect.



10. 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:

CAEN RFID Easy Controller							- 🗆 X
File Settings Tools About	כ				Design you we	r RFID solution e provide the t	n sechnology.
Start Inventory TAGS FOUND:				STATISTICS Src 0 Src 1 Src 0 Src 1 Src 1 Src 2 Src 2 Src 2	Sirc 3 liency: 0% Tags: 0		TION - Model: R13531 Serial: 000000021410003 FW Rel.: 1.0.0
EPC	L. Source	Antenna CC	DUNT Time S	tamp			
Connected: Air Link Protocol: EPC C1G2							

11. Place tags in front of the reader and click on *Start Inventory* to see the tag information displayed on the main window:

CAEN REID Easy Controller					- 🗆 X
File Settings Tools About					
© CAEN	RFID			De	esign your RFID solution we provide the technology.
Start Inventory TAGS FOUND: 14				STATISTICS Src 0 Src 1 Src 2 Src 3 Acq/Sec: 0 Efficiency: 0% Tags/Sec: 0 Tot. Tags: 0	READER INFORMATION Model: R1353/ Serial: 000000021410003 FW Rel:: 10.0
FPC	L Source	Antenna	COUNT	TimeStamp	
EPC	L. Source	Antenna Ant0	COUNT	TimeStamp 10/28/2020 10:43:43 AM	
EPC E2806810000003918718553 A&ARD0000003918718553	L. Source Source_0 Source_0	Antenna Ant0 Ant0	COUNT 3	TimeStamp 10/28/2020 10:43:43 AM 10/28/2020 10:43:37 AM	
EPC E28068100000003918718553 A48400000000000053 356701700LE870A6300017551	L. Source Source_0 Source_0	Antenna Ant0 Ant0 Ant0	COUNT 3 33 4	TimeStamp 10/28/2020 10.43:43 AM 10/28/2020 10.43:37 AM 10/28/2020 10.43:41 AM	
EPC E28068100000003918718553 A48400000000000000053 35E017004E8DA06300017D51 30113233434563728133031	L. Source Source_0 Source_0 Source_0 Source_0	Antenna Ant0 Ant0 Ant0 Ant0	COUNT 3 33 4 14	Time Stamp 10/28/2020 10.43.43 AM 10/28/2020 10.43.37 AM 10/28/2020 10.43.37 AM 10/28/2020 10.43.41 AM 10/28/2020 10.43.41 AM	
EPC E28066100000003918718553 A48400000000000000053 356077004680A06300017051 30312233435953738390031 303167E5P54D101F6967013515	L. Source Source_0 Source_0 Source_0 Source_0 Source_0	Antenna Ant0 Ant0 Ant0 Ant0 Ant0	COUNT 3 33 4 14 2	TimeStamp 10/28/2020 10:43:43 AM 10/28/2020 10:43:37 AM 10/28/2020 10:43:41 AM 10/28/2020 10:43:41 AM 10/28/2020 10:43:41 AM	
EPC E28068100000003918718553 A484000000000000000053 35601700480A0630017051 300EFE2FAPD0160590213515 300EFE2FAPD0160590213515 300618275PD0050127EP00	L. Source Source_0 Source_0 Source_0 Source_0 Source_0 Source_0	Antenna Ant0 Ant0 Ant0 Ant0 Ant0 Ant0 Ant0	COUNT 3 33 4 14 2 22	TimeStamp 10/28/2020 10:43:43 AM 10/28/2020 10:43:43 AM 10/28/2020 10:43:41 AM 10/28/2020 10:43:41 AM 10/28/2020 10:43:43 AM 10/28/2020 10:43:43 AM	
EPC E28068100000003918718553 A484000000000000000053 356017004580A0630017051 30313233435363738393031 30087625749010590213515 30083820DD980050127EF00 30083820DD980050012FE709	L. Source Source_0 Source_0 Source_0 Source_0 Source_0 Source_0 Source_0	Antenna Ant0 Ant0 Ant0 Ant0 Ant0 Ant0 Ant0 Ant0	COUNT 3 33 4 14 2 22 8	TimeStamp 10/28/2020 10:43:43 AM 10/28/2020 10:43:47 AM 10/28/2020 10:43:47 AM 10/28/2020 10:43:47 AM 10/28/2020 10:43:43 AM 10/28/2020 10:43:37 AM 10/28/2020 10:43:37 AM	
EPC E20085100000003318718553 A4840000000000000000053 356017004680A06300017051 300FE2F34D016055017551 300038282DD980050127EP00 300838282DD980050127EP00 300838282DD9901400000000	L. Source Source_0 Source_0 Source_0 Source_0 Source_0 Source_0 Source_0 Source_0 Source_0	Antenna Ant0 Ant0 Ant0 Ant0 Ant0 Ant0 Ant0 Ant0	COUNT 3 33 4 14 2 22 8 8 27	TimeStamp 10/28/2020 10.43.43 AM 10/28/2020 10.43.37 AM 10/28/2020 10.43.41 AM 10/28/2020 10.43.41 AM 10/28/2020 10.43.43 AM 10/28/2020 10.43.37 AM 10/28/2020 10.43.37 AM 10/28/2020 10.43.37 AM	
EPC E28068100000003918718553 A840000000000000000053 356017004680A0630017051 300124324355373833031 3006FE2F94D0160950215515 30083382DDD98050056127EF00 30083382DD98050056102 30083382DD990500056102	L. Source Source_0 Source_0 Source_0 Source_0 Source_0 Source_0 Source_0 Source_0 Source_0 Source_0	Antenna Ant0 Ant0 Ant0 Ant0 Ant0 Ant0 Ant0 Ant0	COUNT 3 33 4 14 2 22 8 8 27 6	TimeStamp 10/28/2020 10:43:43 AM 10/28/2020 10:43:37 AM 10/28/2020 10:43:37 AM 10/28/2020 10:43:41 AM 10/28/2020 10:43:43 AM 10/28/2020 10:43:37 AM 10/28/2020 10:43:37 AM 10/28/2020 10:43:37 AM 10/28/2020 10:43:37 AM 10/28/2020 10:43:38 AM 10/28/2020 10:43:38 AM 10/28/2020 10:43:37 AM 10/28/2020 10:43:38 AM 10/28/2020 10:43:38 AM	
EPC E28068100000003918718553 A440000000000000000053 35E017004E8DA06300017D51 30312233435963728393031 3008282DD196D590278F00 30082382DD196D590278F00 3008382DD196D5902F609 3008382DD196159005F609 3008382DD1961400000000 CC1105012470A46112014220 00365900000000000000258	L. Source_D Source_D Source_O Source_O Source_O Source_O Source_O Source_O Source_O Source_O Source_O	Antenna Art0 Art0 Ant0 Ant0 Art0 Art0 Art0 Art0 Art0 Art0 Art0 Ar	COUNT 3 33 4 14 2 22 8 27 6 37	TimeStamp 10/28/2020 10:43:43 AM 10/28/2020 10:43:37 AM 10/28/2020 10:43:37 AM 10/28/2020 10:43:41 AM 10/28/2020 10:43:37 AM 10/28/2020 10:43:37 AM 10/28/2020 10:43:37 AM 10/28/2020 10:43:37 AM 10/28/2020 10:43:37 AM 10/28/2020 10:43:37 AM 10/28/2020 10:43:37 AM	
EPC E28068100000003918718553 A484000000000000000053 356017004680A0630017051 3000FE2F84D0160550213515 300033828DD09805012FE00 30083382D009805012FE00 30083382D009805012FE00 30083382D009014000000000 30083382D00981412014200 330639300000000000002588	L. Source _0 Source _0	Antenna Ant0 Ant0 Ant0 Ant0 Ant0 Ant0 Ant0 Ant0	COUNT 3 33 4 14 2 22 8 27 6 37 4	Time Stamp 10/28/2021 04:34:34 AM 10/28/2021 04:34:37 AM 10/28/2020 104:34:37 AM 10/28/2020 104:34:34 AM 10/28/2020 104:34:34 AM 10/28/2020 104:33:7 AM 10/28/2020 104:34:24 AM 10/28/2020 104:34:24 AM 10/28/2020 104:34:34 AM	
EPC E2806810000003918718553 A484000000000000053 356017004507A0530017051 303132334356373833031 30305FE2F340160560215515 30083822DD99005012FF00 30083822DD99005012FF00 30083822DD99005002F629 30083822DD9914000000000 00 11551300000000000022E8 1155300000000000022E9	L. Source D Source D	Antenna Ant0 Ant0 Ant0 Ant0 Ant0 Ant0 Ant0 Ant0	COUNT 3 33 4 14 2 22 8 27 6 37 6 37 4 22	TimeStamp 10/28/2020 10:43:43 AM 10/28/2020 10:43:37 AM 10/28/2020 10:43:37 AM 10/28/2020 10:43:41 AM 10/28/2020 10:43:43 AM 10/28/2020 10:43:43 AM 10/28/2020 10:43:37 AM	
EPC	L. Source_0 Source_0 Source_0 Source_0 Source_0 Source_0 Source_0 Source_0 Source_0 Source_0 Source_0 Source_0 Source_0 Source_0 Source_0	Antenna Arit0 Arit	COUNT 3 33 4 14 2 22 8 27 6 37 4 22 23	TimeStamp 10/28/2020 10:43:43 AM 10/28/2020 10:43:43 AM 10/28/2020 10:43:41 AM 10/28/2020 10:43:41 AM 10/28/2020 10:43:43 AM 10/28/2020 10:43:43 AM 10/28/2020 10:43:37 AM 10/28/2020 10:43:42 AM 10/28/2020 10:43:42 AM 10/28/2020 10:43:43 AM 10/28/2020 10:43:37 AM	

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 <u>Slate³ R13531 web page</u>, *Downloads* section or in the <u>Manual and Documents</u> 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 <u>Slate³ R1353I web page</u>, *Documents* section).



5 HID PROFILE

Introduction

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 <u>CAEN RFID</u> <u>Easy Controller Application</u> or the <u>SDK</u> (Software Development Kits) library.
- HID: choosing this option you select the keyboard emulation protocol.

By default, the reader is in the easy2read profile.

To set the HID profile, please refer to § *Profile* paragraph page 16.

Windows PCs

- 1. Launch a text editing App (or any other App accepting keyboard input).
- 2. 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). The green light of the tag ID LED indicates the reading activity.

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6 FIRMWARE UPGRADE

The Slate³ R1353I firmware upgrade can be performed via USB using the *Slate³ R1353I Firmware Upgrade Tool*, available for free at the <u>Slate³ R1353I web page</u>.

To upgrade the firmware, follow the steps described below:

- 1. With the reader switched off, hold down the *power* button, connect the R1353I Slate³ reader to a PC using the provided USB cable and then release the power button.
- 2. Open the Slate³ R1353I Firmware Upgrade Tool.
- 3. Click on the *Next* button:



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



5. Select the firmware image file by clicking on the "Browse" button:

R1353I Firmware Upgrad	e v. 1.0.0	_		×
CAEN	RFUD	Design your RFID solution we provide the tech	nology.	
Filename				
PRODUCTION\R1353I_Slate3	_1_0_0.msp430+	Browse		
Upgrade Firmware		Found 1 device		
				^
				Ŧ
			Close	

- 6. Click on the "Upgrade Firmware" button and wait for the upgrade process to be completed.
- 7. At the end of procedure, if the upgrade has been successfully performed, you will see the messages reported in the image below:

R1353I Firmware Upgrade v. 1.0.0 —		×
B CAENRFD Design your RFID solution we provide the tech	nology.	
Filename		
PRODUCTION\R1353I_Slate3_1_0_0.msp430txt Browse		
Upgrade Firmware Found 1 device		
Verifying memory		^
Memory successfully verified Total programming time is 4s		
Resetting Device Starting application		
Done!		~
	Close	

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



7 TECHNICAL SPECIFICATIONS

Technical Specifications Table

Frequency Range	865.600+867.600 MHz (ETSI EN 302 208 V3.3.1) (Mod. R1353IE) 902÷928 MHz (FCC part 15.247) (Mod. R1353IU)
RF Power	Configurable from -5 dBm ERP to 20 dBm ERP (Mod. R1353IE) Configurable from -3 dBm EIRP to 22 dBm EIRP (Mod. R1353IU)
Number of Channels	4 channels (compliant to ETSI EN 302 208 V3.3.1) (Mod. R1353IE) 50 hopping channels (compliant to FCC part 15.247) (Mod. R1353IU)
Standard Compliance	ISO 18000-63/EPC C1G2
Antenna Gain	-3 dBi (typical)
Antenna Type	Circular Polarized UHF Antenna
Read Range	up to 1 m (typical)
USB Interface	USB 2.0 Full Speed (12 Mbit/s) via USB Type-C connector • HID profile available • Virtual COM Port parameters: - Baudrate up to 921.600 kbit/s - Databits: 8 - Stopbit: 1 - Parity: none - Flow control: none • Power button
User Interface	 Power and tag read status LED Trigger button Jack connector for external trigger button Bi-tonal buzzer for event signalling
IP Rating	IP30
Dimensions	220 x 140 x 13/17 mm ³ (8.67 x 5.51 x 0.51/0.67 inches ³)
Length of USB cable	1.5 m
Operating Temperature	-10 °C to +55 °C
Weight	275 g

Tab. 7.1: 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.

Supported RF modes

The Slate³ R1353I reader supports the following link profiles, whose characteristics are reported in the following table:

Link Drofilo	Pogulation	Forward Lin	k Profile		Reverse Link Profile		
Link Prome	Regulation	R2T Modulation	Tari	PIE	T2R Modulation	Link Frequency	
1	ETSI	PR-ASK	20 µs	2	Miller M=2	320 kHz	
2	ETSI	PR-ASK	20 µs	2	Miller M=4	320 kHz	
3	FCC	PR-ASK	20 µs	2	Miller M=4	250 kHz	
4	ETSI	PR-ASK	15 µs	2	Miller M=2	320 kHz	
5	ETSI/FCC	PR-ASK	20 µs	2	Miller M=8	160 kHz	

Tab. 7.2: RF Modes – Forward and Reverse Link Profiles





Technical Drawings

The following drawings show the R1353I Slate³ from different points of view.

All dimensions are in millimeters.



Fig. 7.1: Technical Drawings



8 **REGULATORY COMPLIANCE**

RoHS Directive

The Slate³ R1353I Reader is compliant with the EU Directive 2015/863/EU (RoHS3) and the UK Regulation 2012 SI 2012/3032 (RoHS) on the Restriction of the Use of certain Hazardous Substances in Electrical and Electronic Equipment.

