TECHNICAL INFORMATION MANUAL

Revision 4 – 23 January 2018





RFID4u Store
Authorized Reseller: RFID4UStore www.rfid4ustore.com 1-408-739-3500 sales@rfid4ustore.com



Visit <u>Slate R1260 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 tag in a few clicks!

Scope of Manual

The goal of this manual is to provide the basic information to work with the SLATE R1260E/EB UHF Desktop Reader.

Change Document Record

Date	Revision	Changes	Pages
11 Apr 11	01	First release	-
		Modified Driver installation paragraph	8
		Added Getting Started chapter	8÷12
		Renamed Slate R1260E Functional Description chapter into Slate R1260E	14
19 Jun 12	02	External Interfaces Description	14
		Moved Firmware Upgrade paragraph into the Reader Upgrade chapter	15
		Modified CE Compliance paragraph	19
		Modified R1260E/EB CE Declaration of Conformity	20
20 10 10		Modified RoHS EU Directive	19
28 JUI 16		Modified R1260E/EB CE Declaration of Conformity	20
		Updated Getting Started chapter	8
23 Jan 2018	04	Modified Product Description and Ordering Options paragraph	5, 6
		Modified R1260E/EB CE Declaration of Conformity	20

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 <u>info@caenrfid.com</u> <u>www.caenrfid.com</u>

© CAEN RFID srl - 2017

Disclaimer

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

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

Disposal of the product

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











Index

	Scope of Manual	2
	Change Document Record	2
	Reference Document	2
Index		4
List of	Figures	4
List of	Tables	4
1	INTRODUCTION	5
	Product Description	5
	Ordering Options	6
	Accessories	6
	Installation Notice	6
2	GETTING STARTED	8
	Introduction	8
	Serial Port Emulator	8
	Driver installation	8
	Connecting the Slate Reader using the EasyController	.12
3	EXTERNAL INTERFACES DESCRIPTION	.14
	External Connection	.14
	Front Panel LEDs	.14
4	READER UPGRADE	. 15
	Firmware Upgrade	.15
5	TECHNICAL SPECIFICATIONS	. 16
	Technical Specification	.16
	Reader – Tag Link Profiles	.17
	Radiation Patterns	.18
6	REGULATORY COMPLIANCE	. 19
	CE Compliance	.19
	RoHS EU Directive	.19
	R1260E/EB CE Declaration of Conformity	.20

List of Figures

Fig. 1.1: Slate reader (Model R1260E)	5
Fig. 1.2: Slate reader (Model R1260EB)	5
Fig. 1.3: Slate R1260E/EB Technical drawings: top view	6
Fig. 1.4: Slate R1260E/EB Wall mounting	7
Fig. 3.1: Slate R1260E/EB Front Panel LEDs	14
Fig. 5.1: Slate R1260E/EB Radiation pattern H plane	18
Fig. 5.2: Slate R1260E/EB Radiation pattern V plane	18

List of Tables

Tab. 3.1: Slate R1260E/EB Front Panel LEDs	14
Tab. 5.1: Slate R1260E/EB Technical Specifications	.16
Tab. 5.2: Slate R1260E/EB Reader to tag link profiles	.17
Tab. 5.2: Slate R1260E/EB Reader to tag link profiles	.1

1 INTRODUCTION

Product Description

The Slate (Model R1260E, R1260EB), the new desktop reader of the easy2read[©] Family, is an UHF multiregional RFID reader with integrated antenna for short to medium range applications.

The Slate Reader is powered and controlled directly by an USB cable, thus allowing to read EPC Class 1 Gen 2 UHF RFID tags in an easy desktop environment.

Thanks to its low profile (15 mm) and its size (approximately an A4 page), the Slate reader is the perfect choice for various applications such as point-of-sales, document tracking, RFID programming stations, access control and so on. It can be used as a building block for smart shelves and smart displays.

The core component of the Slate reader is the CAEN RFID <u>Quark</u> module, the lowest power consuming module available on the market.

The reader is compliant with European regulation (ETSI EN 302-208).



Fig. 1.1: Slate reader (Model R1260E)



Fig. 1.2: Slate reader (Model R1260EB)

Ordering Options

	Code	Description
Doodor	WR1260EZAAAA	R1260E - RFID UHF Desktop Reader (ETSI 302-208)
Reader	WR1260EZBAAA	R1260EB - RFID UHF Desktop Reader (ETSI 302-208) Black version

Accessories

Check for the supplied accessories below:



Installation Notice

The Slate R1260E/EB can be easily placed on a table for desktop applications or it is possible to hang it on the wall.



Fig. 1.3: Slate R1260E/EB Technical drawings: top view

Horizontal Installation:

The Slate can be easily placed on a table for desktop applications affixing the 4 rubber feet to the bottom of the Slate R1260E/EB to prevent it from sliding.

Vertical Installation:

The Slate can be hanged on the wall (see Fig. 1.4: Slate R1260E/EB Wall mounting).

B[®]CAENRFID

First of all, use the two small screws (ø 3 mm) to fix the 2 hooks on the Slate.

Then, to hang the Slate on the wall, fix the hooks to the wall using the 2 rawlplugs (Ø 4 mm) + screws at a distance of 146 mm each other.

If you want to hang the Slate on a wood panelling, fix the hooks to the wall just using the 2 screws.



Fig. 1.4: Slate R1260E/EB Wall mounting

2 GETTING STARTED

Introduction

This quickstart guide will help you to get started with your Slate R1260E/EB reader.

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

To begin, you need first to download and install the <u>.NET framework 2.0</u> (only required if .NET is not already installed on your PC).

Serial Port Emulator

The SLATE R1260E/EB can be connected to a PC via USB connection. The RFID reader emulates a serial port. In the next paragraph the procedure to install the required driver is presented.

Driver installation

The Slate reader is based on a FTDI chip. To connect it to the PC you need to install the VCP (Virtual Com Port) drivers for your operating system.

The procedure to install the USB driver is presented below:

- 1. Connect the Slate to your pc using the USB connection.
- 2. Download VCP drivers for Windows based systems at http://www.ftdichip.com/Drivers/VCP.htm
- 3. Open the System properties (right click on *My computer* icon) \rightarrow *Device Manager*.
- 4. Double click on "USB Serial Port":

📇 Device Manager	_	
File Action View Help		
🗢 🔿 🗊 🕎		
✓ 昔 CE20		
> 👖 Audio inputs and outputs		
> 🗃 Batteries		
> 📓 Biometric devices		
> 🚯 Bluetooth		
> 💻 Computer		
> 🛖 Disk drives		
> 🏣 Display adapters		
> 🔰 Firmware		
> 🐺 Human Interface Devices		
> 🧝 IDE ATA/ATAPI controllers		
> 🚡 Imaging devices		
> 🔤 Keyboards		
> II Mice and other pointing devices		
> 🛄 Monitors		
> 🚅 Network adapters		
🗸 📮 Ports (COM & LPT)		
💭 USB Serial Port (COM3)		
> E Plintqueues		
> Processors		
> IP Security devices		
> 📱 Software devices		
> 👖 Sound, video and game controllers		
> 🍇 Storage controllers		
> 🏣 System devices		
🔪 🛱 Universal Serial Rus controllers		

5. Click on Driver->Update Driver



占 D	evice Manager		_		×
File	Action View Help				
<pre></pre>	🖬 📴 📝 📊	💯 🖡 🗙 🕑			
✓ ∄ > > > > > > > >	CE20 Audio inputs ar Batteries Biometric devic Bluetooth Computer	Update Drivers - USB Serial Port (COM3)			×
> > > > > > > > > > > > > > > > > > > >	Disk drives Display adapter Firmware Human Interfac IDE ATA/ATAPI Imaging device Keyboards	 → Search automatically for updated driver software Windows will search your computer and the Internet for the latest driver software for your device, unless you've disabled this feature in your device installation settings. 			
> > > > > > > > > > > > > > > > > > >	 Mice and other Monitors Network adapte Ports (COM & I USB Serial P Print queues Processors Security devices 	→ Browse my computer for driver software Locate and install driver software manually.			
>	Software device Sound, video ar Storage control System devices			Cancel	

6. Click on "Browse my computer for driver software" and select the VCP drivers folder:

	Select the folder that contains drivers for your hardware.	×
🔶 📱 Update Drivers - US	B CDM v2.12.28 WHQL Certified	
Browse for driver	S Static	
Search for drivers in thi C:\Users\mcippitelli\D Include subfolders	S → Documents S → Downloads C → Music → Pictures → Wideos	
→ Let me pick f This list will show same category as	Folder: CDM v2. 12. 28 WHQL Certified OK Cancel	

7. Now the driver installation procedure is completed:

		Browse For Folder X	
		Select the folder that contains drivers for your hardware.	
÷	📱 Update Driver 🗲	Update Drivers - USB Serial Port (COM3)	×
	Browse for di	Windows has successfully updated your drivers	
	Search for drivers	Windows has finished installing the drivers for this device:	
	C:\Users\mcippi	USB Serial Port	
	→ Let me p This list wil same categ		
		Clos	e

Connecting the Slate Reader using the EasyController

Once the driver installation procedure has completed, you can connect your PC to the Slate R1260E/EB Reader via USB connection using the *EasyController* software:

- 1. Download from the CAEN RFID web site the latest version of the *EasyController* software and install it:
- 2. Connect the Slate to your pc using the USB connection.
- 3. Open the System properties (right click on *My computer* icon) \rightarrow *Device Manager*.
- 4. See the emulated serial port in the "USB serial port (COM X)", in the case below COM3.



- 5. Launch the EasyController by double clicking on the icon on your desktop.
- 6. Click on File → Connect, select the RS232 Connection Type and select from the pull-down menu the COM port number where the driver has mapped the virtual port for the Slate (in the example COM3) and then click on connect:

File Settings Tools About	H H		29550		
CAENFID THE ATT OF TEATTINES					
		💀 Connection — 🗆	×		MAXXXXXXXXXX
		Connection Type	_		READER INFORMATION
Start Inventory		RS232 Connection	~	Src 2 Src 3	Model:None
Sistemation		RS232 Port		Efficiency: 0%	Serial:None
TAGS FOUND: 0		СОМЗ	~	Tot. Tags: 0	FW Rel.:None
PC	L.	Connect		TimeStamp	
		Choose a Connection type			

CAEN RFID Easy Controller File Settings Tools About						-		×
CAENFID THE ANY OF TELEVISION EASY Controller								
Start Inventory TAGS FOUND: 0			STATISTICS Src 0 Src 1 S Acq/Sec: 0 Tags/Sec: 0	rc 2 Src 3 Efficiency: 0% Tot. Tags: 0	READER INFO	ORMATION Mod Seri FW	del: R1260 ial: 00017 / Rel.: 3.8.	0E 260277 .0
EPC	L. Source	Antenna	COUNT	TimeStamp				
Connected: 🔵 Air Link Protocol: EPC C1G2								

7. Place a tag on the reader, click on *start inventory* and see the tag information displayed on the main window.

For more info on the use of the *EasyController Software*, please refer to the manual *Easy Controller Software Technical Information Manual*.

3 EXTERNAL INTERFACES DESCRIPTION

External Connection

The external connection is via USB port.

The USB cable is located in the back side of the Slate. You can pass the USB cable through the opening at the bottom or at the top of the Slate back side. The mechanical specification of the USB Port is as follows:

• USB Port: USB Type A plug connector

The Slate R1260E/EB is powered through the USB host.

Front Panel LEDs

The Slate R1260E/EB front panel houses the following LEDs (see figure below):

LED	FUNCTION	ТҮРЕ				
POWER	Power ON	Green LED				
TAG-ID	Tag detection	Blinking Red LED				
TX/RX	USB communication activity	Blinking Yellow LED				
Tab. 2.1; Slata B1260E/EB Front Danal LEDr						

Tab. 3.1: Slate R1260E/EB Front Panel LEDs



Fig. 3.1: Slate R1260E/EB Front Panel LEDs

4 READER UPGRADE

Firmware Upgrade

The Slate Upgrade Tool is available for free at <u>Slate R1260 page</u> of the CAEN RFID Web Site.

The Slate R1260E/EB firmware upgrade can be managed via USB.

In order to upgrade the firmware follow the steps below:

- Verify the virtual COM port associated to the reader (in this example COM4)
- Open the FW upgrade program
- Select the COM port
- Select the image file by clicking on "Open" button

🔡 Quark Upgrade Tool		<u>_0×</u>
Image file	R1230CB-1.1.3.bin	Open
COM Port	COM4	
	Upgrade	

- Click on "Upgrade" button
- Wait for the upgrade to be completed

🔡 Quark U	pgrade Tool	_ 🗆	×
Image file	R1230CB-1.1.3.bin	Open	×
COM Port	COM4		Upgrade Completed!
	Upgrade		<u>OK</u>

- Disconnect the USB cable
- Connect again the USB cable: now the reader is ready

5

TECHNICAL SPECIFICATIONS

Technical Specification

Frequency Band	865.600÷867.600 MHz (ETSI EN 302 208)	
RF Power	Programmable in 15 levels (1dB step) from 4dBm ERP to 18dBm ERP (from 2.5mW ERP to 67mW ERP)	
Antenna	Integrated Circular Polarized Antenna	
Number of Channels	4 channels (compliant to ETSI EN 302 208 v3.1.1)	
Standard Compliance	EPC C1G2/ISO 18000-6C	
	Green LED: Power	
	Blinking red LED: Tag detection	
Oser Interface	Blinking yellow LED: USB communication activity	
	Buzzer: user programmable event signalling	
	USB Type A plug connector	
	Bus powered USB 2.0 device	
	Must be connected to Hight-power Port (500 mA @ VBUS)	
	It appears as USB serial port	
	Virtual Com Port (VCP) drivers for Windows XP/Vista/Seven (7), Windows	
USB Device Port	CE 4.2, Linux 2.40 and greater	
	Baudrate: 115200	
	Databits: 8	
	Stopbits: 1	
	Parity: none	
	Flow control: none	
Dimonsions	(W)297 x (L)205 x (H)15 mm ³	
Dimensions	$(11.7 \times 8 \times 0.6 \text{ inch}^3)$	
Electrical Bower	5 V DC bus powered (USB)	
Electrical Power	Max 400 mA	
Operating Temperature	-10 °C to +55 °C	
Weight	525 g	
Length of USB cable	1.5 m	

Tab. 5.1: Slate R1260E/EB Technical Specifications



Warning: The RF settings must match the country/region of operating to comply with local laws and regulations. The usage of the reader in different countries/regions from the one in which the device has been sold is not allowed.

Reader – Tag Link Profiles

Slate R1260E/EB reader supports different modulations and return link profiles according to EPC Class1 Gen2 protocol.

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

Link profile #	Regulation	Modulation	Return Link
0	ETSI	DSB–ASK; f=40kHz	FM0; f = 40kHz
1	ETSI	DSB–ASK; f=40kHz	Miller (M=4); f = 256kHz

Tab. 5.2: Slate R1260E/EB Reader to tag link profiles

Radiation Patterns

The radiation patterns of Slate R1260E/EB are shown in the following figures.



Fig. 5.2: Slate R1260E/EB Radiation pattern V plane

6 REGULATORY COMPLIANCE

CE Compliance

Reference standard:

ETSI EN 301 489-1 V. 1.9.2:2011 EN 55032:2012 CEI EN 55024:2013 ETSI EN 302 208 V3.1.1:2017 CEI EN 60950-1:2007 +/A11:2010 +/A1:2012 +/A12:2012 CEI EN 50364:2011 EN 50581:2012

See § R1260E/EB CE Declaration of Conformity page 20 for the Slate R1260E/EB CE Compliance Certificate.

RoHS EU Directive

Slate - R1260E/EB - RFID UHF Desktop Reader is compliant with the EU Directive 2011/65/CE on the Restriction of the Use of certain Hazardous Substances in Electrical and Electronic Equipment (RoHS2).

Slate R1260E/EB 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 products:

Code:	WR1260EZAAAA
Description:	R1260E - RFID UHF Desktop Reader (ETSI 302-208)
Code	WR1260EZBAAA
Description:	R1260EB – RFID UHF Desktop Reader (ETSI 302-208) Black version

correspond in the submitted version to the following standards:

ETSI EN 301 489-1 V. 1.9.2:2011

EN 55032:2012

CEI EN 55024:2013

ETSI EN 302 208 V3.1.1:2017

CEI EN 60950-1:2007 +/A11:2010 +/A1:2012 +/A12:2012

CEI EN 50364:2011

EN 50581:2012

Date: 05/09/2017

and declare under our sole responsibility that the specified products meet the principle requirements and other applicable regulations of directives 2014/53/EU (RED) and 2011/65/EU (ROHS2)

v straia. 5049 VIAREGGIO TALY VAT IT 02032050466

Adriano Bigongiari (Chief Executive Officer)

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

(F