RFID Gate-Control

Demo program for IUR-F800-V1D-4A* RFID read/write device

Version 11.08.02

Manual





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Worldwide

Pepperl+Fuchs Group Lilienthalstr. 200 68307 Mannheim Germany Phone: +49 621 776 - 0 E-mail: info@de.pepperl-fuchs.com **North American Headquarters** Pepperl+Fuchs Inc. 1600 Enterprise Parkway Twinsburg, Ohio 44087 USA Phone: +1 330 425-3555 E-mail: sales@us.pepperl-fuchs.com **Asia Headquarters** Pepperl+Fuchs Pte. Ltd. P+F Building 18 Ayer Rajah Crescent Singapore 139942 Phone: +65 6779-9091 E-mail: sales@sg.pepperl-fuchs.com https://www.pepperl-fuchs.com

1	Introd	uction	5
	1.1	Content of this Document	5
	1.2	Target Group, Personnel	5
	1.3	Intended Use	5
	1.4	Symbols Used	6
	1.5	General	7
2	Produ	ct Description	8
	2.1	Software	8
	2.2	Licensing Agreement for Use of the Software "RFID Gate-Control"	8
	2.3	Third-Party Licensing Agreements	10
	2.4	Product description	12
3	Install	ation	13
	3.1	System Requirements	13
4	Comm	issioning	14
	4.1	Supported RFID read/write devices	14
	4.2	Connection	14
5	Opera	tion	20
	5.1	Program structure	20
	5.2	Program Settings	21
	5.3	Communication Ports	23
	5.3.1	Settings for Physical Serial Port and Virtual COM Ports (Bluetooth / USB Converter).	23
	5.3.2 5.3.3	Settings for USB	24 25
	5.4	The Beader Editor	
	5.4.1	Commands	28
	5.4.	1.1 Reading the serial number (UID) of a transponder	29
	5.4.	1.2 Read/write Transponder Data	30
	5.4.	2.1 Physical View and Logical View	31
	5.4.	2.2 Changing Configuration Settings	
	5.4.	2.3 Saving and loading a complete device configuration in an XML file	
	5.4.3 5 / /	Bullerea Read Mode	38 ຊດ
	5.4.5	Scan Mode	40
	5.4.6	USB Keycode Table	41
	5.4.7	EPCglobal	43

	5.4.8	5	Action on EPC	
	5.4	1.8.1	Configuration requirements	
	5.4	1.8.2	Defining Rules with RFID Gate-Control	
	5.4	1.8.3	Control Buttons	
	5.4	1.8.4	Creating new Rules	
	5.4.9)	Test and Measurement	
	5.5	TI	he Protocol Editor	50
	5.6	ΤI	he Protocol Window	52
6	Hand	ling	g Communication Problems	53
7	Unins	stall	ling RFID Gate-Control	



1 Introduction

1.1 Content of this Document

This document contains information required to use the product in the relevant phases of the product life cycle. This may include information on the following:

- Product identification
- Delivery, transport, and storage
- Mounting and installation
- Commissioning and operation
- Maintenance and repair
- Troubleshooting
- Dismounting
- Disposal

Note

For full information on the product, refer to the further documentation on the Internet at www.pepperl-fuchs.com.

The documentation comprises the following parts:

- This document
- Datasheet
- Programming manual

The documentation may also comprise the following parts, if applicable:

- EU-type examination certificate
- EU declaration of conformity
- Attestation of conformity
- Certificates
- Control drawings
- Instruction manual
- Functional safety handbook
- Other documents

1.2 Target Group, Personnel

Responsibility for planning, assembly, commissioning, operation, maintenance, and dismounting lies with the plant operator.

Only appropriately trained and qualified personnel may carry out mounting, installation, commissioning, operation, maintenance, and dismounting of the product. The personnel must have read and understood the instruction manual and the further documentation.

Prior to using the product make yourself familiar with it. Read the document carefully.

1.3 Intended Use

Always operate the device as described in these instructions. Only in this way, the safe function of the device and the connected systems is guaranteed.

The protection of operating personnel and plant is only given if the device is used in accordance with its intended use.



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1.4 Symbols Used

This document contains symbols for the identification of warning messages and of informative messages.

Warning Messages

You will find warning messages, whenever dangers may arise from your actions. It is mandatory that you observe these warning messages for your personal safety and in order to avoid property damage.

Depending on the risk level, the warning messages are displayed in descending order as follows:



Danger!

This symbol indicates an imminent danger.

Non-observance will result in personal injury or death.



Warning!

This symbol indicates a possible fault or danger.

Non-observance may cause personal injury or serious property damage.



Caution!

This symbol indicates a possible fault.

Non-observance could interrupt the device and any connected systems and plants, or result in their complete failure.

Informative Symbols Note

This symbol brings important information to your attention.



Action

1. This symbol indicates a paragraph with instructions. You are prompted to perform an action or a sequence of actions.



1.5 General

Responsibility for planning, assembly, commissioning, operation, maintenance, and dismounting lies with the plant operator.

Installation and commissioning of all devices may be performed only by trained and qualified personnel.

Protection of operating personnel and the system is not ensured if the product is not used in accordance with its intended use.

Observe the applicable laws and regulations regarding the intended use of the device. The devices are only approved for proper use for the intended purpose. Improper use will void any warranty and liability claims.

The corresponding datasheets, declarations of conformity, and/or EC-type examination certificates form an integral part of this document. The data sheet contains the electronic data of the EC-type-examination certificate.

These documents can be found at www.pepperl-fuchs.com or contact your local Pepperl+Fuchs representative.

2 Product Description

2.1 Software

This product includes software developed by the OpenSSL Project for use in the OpenSSL Toolkit.

(http://www.openssl.org/)

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- 3. This agreement is subject to the laws of the Federal Republic of Germany. Place of jurisdiction is Mannheim.

Please direct any questions pertaining to this agreement to:

Pepperl+Fuchs SE Lilienthalstraße 200 68307 Mannheim Germany info@de.pepperl-fuchs.com phone +49 621 776-0 www.pepperl-fuchs.com

2.3 Third-Party Licensing Agreements

Licensing Agreement of OpenSSL Organization

The following license issues are to be applied in the case that encrypted data transmission is used.

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==

This product includes cryptographic software written by Eric Young (eay@cryptsoft.com). This product includes software written by Tim Hudson (tjh@cryptsoft.com).





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2024-01

2.4 **Product description**

Use and Application

The RFID Gate-Control demo program has been developed to familiarize you with the functionality of the Pepperl+Fuchs IUR-F800-V1D-4A* RFID read/write device. With this software, you can do the following:

- Test communication with UHF transponders.
- Read out and modify the configuration of the Pepperl+Fuchs IUR-F800-V1D-4A* RFID read/write device.
- Activate a firmware upgrade.

The transmission protocols between the PC and the device are displayed on the screen for each action. This transparency guides you to the software interface of the Pepperl+Fuchs IUR-F800-V1D-4A* RFID read/write device. Refer to the relevant system manuals for interpretation of the protocols and to study the device characteristics.

RFID Gate-Control has the following unique features:

- The Reader Editor for editing the parameters of the Pepperl+Fuchs IUR-F800-V1D-4A* RFID read/write device. You can open any number of reader files and "link" them to different interface types.
- The **Protocol Editor** for manual protocol entry and editing.
- The **Protocol Windows** to visualize the communication.
- Test the automatic device modes such as the following modes:
 - Buffered Read Mode
 - Scan Mode
 - Notification Mode

This manual provides a brief introduction to the RFID Gate-Control program. Some special features and help in using the program can be accessed via context menus that can be opened with the right mouse button. If you have any questions regarding this program, please contact Pepperl+Fuchs SE for additional information.



3 Installation

3.1 System Requirements

The system has the following requirements:

- Windows®Vista (32/64Bit) or Windows® 7 or 8 or 10 (32/64Bit) or 11 with Intel x86 CPU.
- Hard disk with at least free 50 MB memory space.
- Minimum graphics resolution: 800x600. (1024x768 or higher recommended).

RFID Gate-Control can only be installed on a computer using the supplied setup program. Start the **SETUP.EXE** installation program and follow the instructions.



Note

The setup program will not update a previous version of RFID Gate-Control. The new RFID Gate-Control can be installed in parallel with older versions.



Note

On Windows® Vista and Windows® 7 or 8 or 10 or 11, you must have administrative rights. Consult your network administrator if necessary.

4 Commissioning

4.1 Supported RFID read/write devices

RFID Gate-Control supports the following device types:

	Gate-Con	trol - Ve	rsion 1	1.07.05	i - Pep	operl+Fu	uchs SE			
File V	'iew Opt	tions	Help							
0	2	6	0		6	G	۲	A	8	0
New *	Detect	Open	Save	Cut	Сору	Paste	Print	Output	COM-Port	About
<u>R</u> eade Protoc	er (*.xml) col (*.prt)	•	IUR-	F800-\	V1D-4A	*				
11010	cor(.prt)	_								



4.2 Connection

After successful installation of RFID Gate-Control and before starting the program, you can immediately connect a Pepperl+Fuchs IUR-F800-V1D-4A* RFID read/write device to the serial port COM1¹, USB or the LAN/WLAN interface on your PC. The **Quick Start Wizard** will guide you through a quick configuration of the device.



Connect a Pepperl+Fuchs IUR-F800-V1D-4A* RFID read/write device using the Quick Start Wizard by doing the following:

- 1. Start the RFID Gate-Control demo program. In the default configuration of the program, the **Quick Start Wizard** will be started automatically, which will help you to detect and configure the device.
- 2. Select the type of interface used.



^{1.} COM1 is preset. All other serial ports are initially not in the search list. To change this, open the **Program Options** dialog box in the options menu and select your preferred serial port, see chapter 5.2.

Reader-Type IUR-F800-V1D-4A*	Reader-Name Device-ID Frequency Software Version RFC	: IUR-F800-V1D-4A* : 0x180A269F (403318431) : EU : 02.06.00
Communication Interface C COM-Port Nr C USB	More	BusAdr 0
C TCP/IP IP-	Adr. 192 . 168 . 10 . 10	Port 10001

Figure 4.2

- 3. Click Detect.
- 4. If the connected device is successfully detected, you can use the **Quick Start Wizard** by clicking **Run Quick Start Wizard** and following the instructions on the next pages.



Note

If the connected and activated device does not appear in the list, check the interface settings, see chapter 6.

The Quick Start Wizard will change the existing device configuration.

If you want to leave the existing device configuration unchanged, click **Run** without change. Now the existing device configuration is read without any changes.

5. Read the information notice.



Quick Start	Vizard - Step 1: Information			×
	Welcome to the Qu	ick Start Wiza	ard	
т	his Wizard helps you to setup a basic Rea	ider configura	ation.	
Y	ou can:			
	- select Transponder types			
	- setup a basic RF configuration			
	- select a working mode			
N	OTE: the complete Reader configuration	n will be chan	ged.	
		< Zurück	Weiter >	Abbrechen

Figure 4.3

6. Continue with UHF / RAIN RFID.



7. Select the desired Reader Mode.







- 8. Click Next.
- 9. Make antenna settings.

Quick Start Wizard - Step 4: Ma	ake Antenna Settings			×
Connected Antennas	Output 1			
	Cutput 2			
	Cutput 3			
	Cutput 4			
		< Zurück	Weiter >	Abbrechen





- **10.** Select the connected antenna outputs.
- 11. Click Next.
- **12.** Verification Results.

Quick Start Wizard - Step 5: V	erification Results	\times
Reader-Name Device-ID Frequency Software Version RFC Reader-Mode Connected Antennas	: IUR-F800-V1D-4A* : 0x180A269F (403318431) : EU : 02.06.00 : Host Mode : 1	
	Apply	
	< Zurück Fertig stellen Abbreche	en

Figure 4.7

13. Click Apply to confirm.

 \mapsto The wizard configures the device and displays the verification results.



Quick Start Wizard - Step 5: V	erification Results	×
Reader-Name Device-ID Frequency Software Version RFC Reader-Mode Connected Antennas Result of Reader Diagno - Firmware Status: OK No errors or warnin	: IUR-F800-V1D-4A* : 0x180A269F (403318431) : EU : 02.06.00 : Host Mode : 1 	
	Apply	
	< Zurück Fertig stellen Ab	brechen

Figure 4.8

- 14. Click Finish.
 - → You have succesfully connected a Pepperl+Fuchs IUR-F800-V1D-4A* RFID read/write device using the **Quick Start Wizard**.

5 Operation

5.1 Program structure

The graphic below illustrates the data-oriented structure of the program. Each data type has a special visual editor that can be used to edit, save and send the data or protocols to the Pepperl+Fuchs IUR-F800-V1D-4A* RFID read/write device. The protocols transported through the interfaces are displayed in the **Protocol Window**.



i

Note

If the communication was faulty or if the Pepperl+Fuchs IUR-F800-V1D-4A* RFID read/write device signals an error status in the response protocol the demo program does not use error messages in separate notification windows.

All output is sent to the **Protocol Window** with a comment. To interpret the response protocols, refer to the system manual.



Note

The ID FECOM, ID FEUSB, ID FETCP and ID FEISC components are special DLLs (Dynamic Link Library) for communication and are available together in a Software Development Kit (SDK) to support your own program development.





5.2 Program Settings



The program can be customized by doing the following:

- 1. Click Options.
- 2. Click Program.



Figure 5.2

 \rightarrow You can now customize the program settings.

Program Options	×
Automatic search for readers after program start with Quick Start Wizard	
Port Number	
▼ Filter Level for configuration view No Filter ▼	
I ✓ Show HexBar in reader configuration	
Settings for	
Max. Transponder per 256	
Max. Transponder memory size (datablocks x 256 x 32 = 8192 Bytes	
Support for Proprietary Tag Commands	
Work-Directory	,
	Select
Database-Directory	
C:\Users Pepperl+Fuchs\RFID-Gate-Control\11.07.05\xml-database\	Select
Log-Directory	
C:\Users\Pepperl+Fuchs\RFID-Gate-Control\11.07.05	Select
ОК	Abbrechen





The following settings are available:

- Automatic search for readers after program start
 This option enables the automatic scanning for devices after program start. The search for
 devices is limited to the serial ports in the list below and to USB devices.
- Scan over following Serial Ports This option enables / disables COM-Ports for automatic scanning for the device.
- Filter Level for configuration view
 - You can select from the following filter levels:
 - Standard
 - Expert
 - and No Filter

Level	Description	User
Standard	Limited view of key parame- ters	Beginners
Expert	Additional parameters are displayed for experts	Experienced user
No Filter	All device parameters are displayed	Professional user

Table 5.1

Show HexBar in reader configuration

This option displays the **Hex Edit** bar in the configuration pages when the **Physical View** is used.

0	1	2	3	4	5	6	7	8	9	10	11	12	13
00	00	08	01	00	00	00	C8	00	00	00	00	84	EO

Figure 5.4

Settings for Host Mode

The maximum number of tags per inventory can be set. The maximum transponder memory size can be adjusted.

Support for custom commands must be enabled before use with the dialog box below.

STMicroelectronics SA Abbrechen Infineon Technologies AG Texas Instruments Fujitsu Limited	fanufacturers	ОК
Infineon Technologies AG Texas Instruments Fujitsu Limited	NXP Semiconductors	Abbrechen
Texas Instruments Fujitsu Limited	Infineon Technologies AG	
🗖 Fujitsu Limited	Texas Instruments	
	Fujitsu Limited	

Figure 5.5

Work Directory

Location where the last device configuration XML file was stored.

- Database Directory
 - Location where the various device definition files are stored. Should not be changed.

Log Directory

Location where the log files should be stored.



5.3 Communication Ports

5.3.1 Settings for Physical Serial Port and Virtual COM Ports (Bluetooth / USB Converter)

RFID Gate-Control supports up to four simultaneously opened serial ports which can be assigned to any editor. Each port can also use an RS232/485-converter¹ to operate a data bus to which several Pepperl+Fuchs IUR-F800-V1D-4A* RFID read/write devices can be connected. In this way, it is possible to have many **Reader Editors** active at the same time, each one connected to a port. These serial ports are managed through the **COM-Port** dialog box.

OM-Port			×
Information Open COM Ports None	Settings COM Baudrate Frame Block Timeout	8 38400 8E1 5000 ms	Open Port Save
Associated with Files/Readers	Char Timeout Char-Timeout Multip TxTimeControl max. Performanc	5 ms lier 1 10 ms ce (experimental)	
	E RTS E DTR	CTS DSR	OK Abbrechen

Figure 5.6

- Open the COM-Port dialog box by clicking the COM-Port button in the toolbar or by using the Options/COM-Port menu.
- Use this dialog box to open or close a port, or to change its configuration. In addition, the two list boxes on the left give you an overview of which ports are already open and which files or editors are using a port.

Note

If you try to close a port that is still being used by files or editors, you will get a message and the affected editors will go offline.

Open ports are automatically closed when you quit the program, and automatically reopened with the same parameters when you restart the program.

Note

Serial ports are unique system resources that can only be assigned once by the operating system.

If a port cannot be opened, first make sure that the port is not being used by another program.

^{1.} Changing the data direction is not handled by RFID Gate-Control. The RS232/485 converter must be able to do this by itself.



Note

When using an RS232/TTL converter on a notebook, it is sometimes necessary to activate the **RTS** and **DTR** signals to provide the converter with sufficient power.

Block Timeout (Timeout)

Maximum wait time for the receive protocol. If this time is too short, the status message **Receive Timeout(-1030)** is displayed. This value depends on several other settings and conditions, such as the following:

- The number of transponders in the antenna field.
- The types of transponders used and the number of active transponder drivers.
- The **Block Timeout** should be greater than the **AirInterface.TimeLimit** (e.g. **TR Response-Time**) (see system manual of the device).

TxTimeControl

- If set (1), the output of the next transmit protocol is delayed until at least TxDelayTime (ms) after the last receive protocol has elapsed.
- If not set (0), the transmit protocol is always output as soon as possible, which may result in a **Receive Timeout** (-1030).

TxDelayTime

• Minimum time between the last receive protocol and the next transmit protocol. Only applicable when **TxTimeControl**=1.

5.3.2 Settings for USB

RFID Gate-Control supports simultaneously opened USB devices. These can be assigned to any editor.

USB-Port		×	
Block-Timeout 30	3000 ms	ОК	
		Abbrechen	

Figure 5.7

Block Timeout (Timeout)

Maximum wait time for the receive protocol. If this time is too short, the status message **Receive Timeout** (-1130) is displayed. This value depends on several other settings and conditions, such as the following:

- The number of transponders in the antenna field.
- The types of transponders used and the number of active transponder drivers.
- The Block Timeout should be greater than the AirInterface.TimeLimit (e.g. TR Response-Time) (see system manual of the device).



5.3.3 Settings for TCP/IP

RFID Gate-Control supports simultaneously opened socket connections. These can be assigned to any editor.

	×	
5000 ms	ОК	
250 ms	Abbrechen	
	5000 ms 250 ms	5000 ms 250 ms Abbrechen

Figure 5.8

Block Timeout (Timeout)

Maximum wait time for the receive protocol. If this time is too short, the status message **Receive Timeout** (-1230) is displayed. This value depends on several other settings and conditions, such as the following:

- The number of transponders in the antenna field.
- The types of transponders used and the number of active transponder drivers.
- The Block Timeout should be greater than the AirInterface.TimeLimit (e.g. TR Response-Time) (see system manual of the device).

5.4 The Reader Editor

The Reader Editor is divided into the four panes shown below:

Navigation bar Structure	window D	ata window	Control	window
RFID Gate Control - Version 11.07.05 - Pepperl+Fuchs SB - xml2				- 🗆 ×
File Edit View Window Options Help				
New Detett Open Save Cut Copy Paste Print Output	t COM-Port About			
xml2				4 Þ 🗕 🗙
Reader Basics IUR-F800-V1D-4A* - Configurat	ion			*
Commands	CFG1: Interface and Mode		[0×80] [Read
Configuration CFG1: Interface and Mode 	0 1 2 3 4 5 6 7 8 9 1 00 00 08 01 00 00 01 2C 00 00 0	0 11 12 13 0 02 95 00	[0×81] \	Write
CFG4: Transponder Parameters	G CEG1: Interface and Mode		[0x83] F	Reset
CFG6: Reserved	Grot: Interface and Mode			
Buffered Read	READER-MODE	Host Mode	* FEPROM	•
CFG9: Input/Output II	Transponder Response Time		The second	
CFG10: Trigger	TR-RESPONSE-TIME	00300 x 5 ms		
Notification CFG11: Read Mode - Read Data	Interfaces	(DCDDD ANU ICD D:		
CFG13: Scan Mode	E INTERFACES	[RS232;LAN;USB;Discovery]	Communicatio	n Port
CFG14: Reserved	1 AN	True	DeviceID	
Scan Mode Configuration 16, 20	USB	True	403318431	
Configuration 2129	Discovery	True	-	
CFG21: Reserved	RS232 Settings			
EPCglobal CFG22: First Selection Mask EPC Cla	Scan Mode Interface			
CFG23: First Selection Mask EPC Ca			LISB	-
Action on EPC CFG25: Second Selection Mask EPC			1038	-
CFG26: Third Selection Mask EPC Cla				
CFG22: Ihird Selection Mask EPC Ck				
USB Keycode CFG29: Reserved				
Table 🖨 🍓 Configuration 33, 34				
CFG33: LAN Hostname, Part 1				
Test Configuration 4041, 49				
E Configuration 63				
**#S				
Firmware				
opulate >	1			
3 11/24/23 13:32:31.755 << 02 00 16 00 80 00 C0 A8	OA OA 00 00 00 00 27 11 00 00 00 00 8	9 D9 OK		^
2 11/24/23 13:32:31.758 << 02 00 16 00 80 00 FF FF	00 00 01 02 00 00 00 00 00 01 00 05 0	1 97 OK		
= 11/24/23 13:32:31.759 >> 02 00 08 FF 80 2F 34 76				
11/24/23 13:32:31.761 << 02 00 16 00 80 00 00 00 11/24/23 13:32:31 761 >> 02 00 08 FF 90 31 CP 9F	00 00 00 00 00 00 11 A3 19 19 22 3C 8	E 02 OK		
11/24/23 13:32:31.762 << 02 00 16 00 80 00 00 00	00 00 00 00 02 C0 A8 0A 05 4E 21 05 0	2 C9 OK		
11/24/23 13:32:31.762 >> 02 00 08 FF 80 3F B5 66		7.7. 0.7		
11/24/23 13:32:31.763 << 02 00 16 00 80 00 00 00 11/24/23 13:32:31.965 >> 02 00 08 FF 80 01 48 BE	00 00 00 00 00 00 00 00 00 00 00 00 00			
11/24/23 13:32:31.967 << 02 00 16 00 80 00 00	08 01 00 00 01 2C 00 00 00 02 95 00 B	EA5 OK		
11/24/23 13:32:35.172 >> 02 00 08 FF 80 01 48 BE	08 01 00 00 01 20 00 00 00 02 05 00 8	7.35 OV		
11/24/25 15:52:55.1/4 << 02 00 10 00 00 00 00 00	00 01 00 00 01 20 00 00 02 95 00 B			
NUM				×
				11

Figure 5.9

Pane	Function
Navigation bar	For selecting a function group
Structure window	For subdividing the protocols and configura- tions
Data window	For displaying and/or editing device and tran- sponder data
Control window	For activating the communication

Table 5.2

The function of the parameters in the input windows can be found in the respective system manuals.

When a new reader file is created, a serial or USB port is assigned to it and is visible in the control window. If more than one serial port is open at the same time, the **COM** list box in the control window can be used to change the port at any time. If a "-" character is visible in **COM**, there is <u>no</u> connection to a device and <u>no</u> protocols can be exchanged.

The current bus address of the device is set in the text field **BusAdr** in the control window (above **COM**). If this address is unknown, the value **255** can be used. This will address any device, regardless of which bus address is currently used with the device.



If a USB device is used, it is automatically detected and the DeviceID is displayed in the . Communication Port window.

If multiple devices of the same type are detected, each **DeviceID** is displayed in the list and can be selected. Different device types are displayed in separate **Reader Editor** windows.

DeviceiD	
393508165	
USB	
USD	

Figure 5.10

If a device is connected through an Ethernet adapter, you can enter the IP address and port number in the **Communication Port** window. The IP address and port used should • be enabled by the system administrator.

Communication Port		
IP-Address		
192.168.10.10		
Port 10001		
Connect		
Adv. Protocol		

Figure 5.11

5.4.1 Commands

The **Commands** window contains all device protocols associated with the device and the **Host Commands** for communicating with transponders in **Host Mode**.



Figure 5.12

- The protocol is sent to the device by selecting a protocol and clicking Send.
- Some protocols allow parameters to be entered in the data window and sent to the device.
- For detailed protocol descriptions, refer to the system manual for the device.



Figure 5.13

2024-01



5.4.1.1 Reading the serial number (UID) of a transponder

Before each data exchange with the transponder, a reader file must first be opened and the **[0x01] Inventory (Read Serial Number) Host Command** must be executed. The report with the collected serial numbers (**UID**) of the transponders is shown below.

```
4 Transponder in Protocol
  1. Transponder
    TR-TYPE....: 0x84 (UHF / RAIN RFID GS1-coded)
    PC....: 1400
    SNR.....: 30303234
  2. Transponder
    TR-TYPE....: 0x84 (UHF / RAIN RFID GS1-coded)
    PC....: 3400
    SNR.....: 00012480000000000001F36
  3. Transponder
    TR-TYPE....: 0x84 (UHF / RAIN RFID GS1-coded)
    PC....: 3400
    SNR.....: 00012480000000000001F35
  4. Transponder
    TR-TYPE....: 0x84 (UHF / RAIN RFID GS1-coded)
    PC....: 3000
    SNR.....: 30396062C391D100000A6FD2
```

Figure 5.14

After that, any other action (e.g. reading and writing data blocks) can be performed with the transponder.see chapter 5.4.1.2.

5.4.1.2 Read/write Transponder Data

After selecting the **[0x23] Read Multiple Blocks** (**[0x24] Write Multiple Blocks**) Host Command you can make the following necessary settings:

- Addressed Mode: the selection of the address mode depends on the transponder type.
 - In Addressed Mode, the UID must be selected.
 - In Addressed Mode with UIDs other than 8 bytes, the Length field must contain the number of bytes and the Length Flag must be enabled.
- The Extended Address Mode flag is reserved for UHF transponders.
- The Bank field is reserved for UHF transponders and HF GEN2 transponders.
- The **Address** and **No. of Blocks** fields specify the range and number of transponder data.
- The **Blocksize** field is read from the transponder with the **[0x23] Read Multiple Blocks** command, but for **[0x24] Write Multiple Blocks** the **Blocksize** must be set.
- The Access Password flag is reserved for UHF transponders.



Figure 5.15



5.4.2 Configuration

5.4.2.1 Physical View and Logical View

RFID Gate-Control can display the configuration area in the following two different modes:

Physical View



Figure 5.16

The configuration parameters are sorted by physical location and addressing.

Logical View



Figure 5.17

The configuration parameters are arranged according to the logical grouping of the parameters.

2024-01





You can change the View Mode at any time by doing the following:

- 1. Click View.
- 2. Click Configuration Presentation.
- 3. Choose between the following two options:
 - Logical View or
 - Physical View

View	Window	Options	?	1 5	
Conf	iguration Pi	esentation		Þ	Logical View
🗸 Tool	Bar				✓ Physical View

Figure 5.18

 \mapsto You have successfully changed the **View Mode**.

5.4.2.2 Changing Configuration Settings

The Configuration window is used to read, modify and reset the current device configuration.

	*
¢	Configuration

Figure 5.19

The **Configuration** control window contains a control element for selecting the memory type of the device. Depending on the text in the list box (**RAM** or **EEPROM**), the corresponding parameter data in the device will be affected. This selection also changes the configuration data in the current data window. Mixing of **RAM** and **EEPROM** data is therefore impossible.

	_	_	
-			

Note

As a rule, the entire configuration of the device should be read out first, then modified, and then written back. RFID Gate-Control prevents writing configuration data if the configuration has not been read before.

	Juration			
Complete Configuration				
		[PS222d ANd JSP Discoursed	<u>R</u> ead	
Serial	PC222	Two		
	N3232	T		
🗄 💼 DataClock	LAN	Irue		
	O2B	Irue	▼ Reset	
🖻 🔄 BufferedReadMode	Discovery	True	·	
🗄 💼 DataSelector	□ Serial			
DataSource	BusAddress	000		
Filter	Baudrate	38400 baud	•	
trigger	Parity	even Parity	▼ EEPROM	
	Databits	8 Data Bits	·	
H- DataSelector	Stopbits	1 Stop Bit	· · · · ·	
DataSource			Communication F	'ort
DataFormat	PortNumber	10001	DeviceID	
Filter		10001	403318431	
主 💼 Trigger	E nostiane	-		
🗄 💼 Miscellaneous	Enable			
AirInterface	Length	00		
E Antenna	Name			
E Region	☐ Keepalive			
	Enable		USB	
	RetransmissionCount	002		
Anticollision	IdleTime	00001 s		
PersistenceReset	IntervalTime	00005 s		
	⊟ IPv4			
EPC_Class1Gen2	Enable DHCP			
Anticollision	IPAddress	192.168.10.10		
	SubpatMack	255 255 0.0		
Miscellaneous	CatewayAddress	0000		
Miscellaneous	GatewayAddress	0.0.0.0		
- Digitallo		_		
No1	Disable			
	Duplex	Half Duplex		
	Speed	10 MBit		
🗄 ··· 🧰 No 1				
± 🛅 No2				
🗄 📹 Relay				
🕂 🧰 No 1				

Figure 5.20

- Click **Read** to read the selected configuration page of the device. To read the entire device configuration, select the first item (e.g., **Complete Configuration**) in the structure window.
- Click Apply to write modified parameters to EEPROM or RAM. When writing to the EEPROM, the program automatically performs a [0x63] CPU-Reset to apply the change to RAM as well.
- Click Reset to reset the entire configuration to the default values (factory settings).

Note

For information on each parameter, refer to the device's system manual.



Note

Depending on the selected **Reader Mode**, the unused parameters can't be modified in the **Logical View** of the configuration, they are displayed in gray letters.



5.4.2.3 Saving and loading a complete device configuration in an XML file After reading and/or changing the device configuration in RFID Gate-Control, it is possible to save the complete device configuration in an XML file.



Save a configuration in an XML file by doing the following:

- 1. Click File.
- 2. Click Save As.

File	Edit	View	Window	Options	Help
Nev	N				Þ
<u>O</u> pe	en				Ctrl+O
<u>C</u> lo:	se				
<u>S</u> av	e				Ctrl+S
Sav	e <u>A</u> s				
	24				

Figure 5.21

3. Select a location and file name, and click Save.

Öffnen			×				
\leftarrow \rightarrow \checkmark \bigstar RFID-Gate-Control $>$ 11.07.05 $>$ \checkmark \circlearrowright \circlearrowright 11.07.05 durchsuchen							
Organisieren 👻 Neue	er Ordner		III 🕶 🔲 ?				
🕹 Schnellzugriff	Name	Änderungsdatum	Тур				
- Serificizagini	manuals	10.11.2023 08:57	Dateiordner				
lessona ConeDrive - Persona	USBKeycodeTables	10.11.2023 08:57	Dateiordner				
Discor DC	xml-database	10.11.2023 08:57	Dateiordner				
Dieser PC	LastCfgTreeExpand.xml	11.08.2023 12:27	XML-Dokument				
鹶 Netzwerk	LastCmdTreeExpand.xml	24.11.2023 14:17	XML-Dokument				
	LastTreeExpand.xml	24.11.2023 14:17	XML-Dokument				
	📄 xml2.xml	24.11.2023 15:02	XML-Dokument				
	<		>				
Date	Dateiname: xml2.xml		s (*.xml) 🗸 🗸 🗸				
		Öffnen	Abbrechen				

Figure 5.22

 \mapsto The configuration is now stored in an XML file.

>

Load a configuration XML file into RFID Gate-Control and store it on the device by doing the following:

- 1. Click File.
- 2. Click Open.



3. Select the configuration file you want to load into RFID Gate-Control.

→ → ↑ <mark>↓</mark> « V11.07.00 »	ReaderConfig	~	Q	○ ReaderC	onfig durchsuche
Organisieren 🔻 Neuer Ordner					EE 🔹 🛄
 Schnellzugriff OneDrive Dieser PC Netzwerk Linux 	Name	Config.xml		Ă١ 01	nderungsdatum
Datei <u>n</u> ame:	9000		~	XML Reader F	iles (*.xml)

Figure 5.24

 \mapsto The configuration is now visible in RFID Gate-Control.





Note

You can use the Write command to store the new configuration on the device.

4. Select the Complete Configuration folder and click Apply in the EEPROM.

IUR-F800-V1D-4A* - Configuration				
Complete Configuration	^	Read		
⊡ Serial ⊡…⊡ LAN ⊡…⊡ DataClock		Apply		
OperatingMode OperatingMode OperatingMode OperatingMode OperatingMode OperatingMode OperatingMode OperatingMode OperatingMode		Reset		



 \mapsto The complete device configuration is now stored on the device.

5.4.3 Buffered Read Mode

If the device is configured to work in **Buffered Read Mode**, the **Buffered Read Mode** button can be used to open a window to read out the data stored in the buffer.



Figure 5.27

00:46:13.345 1 Start 00:46:13.455 1 Hait 00:46:13.455 1 Step 00:46:21.335 1 Step 00:46:21.445 1 Continue 00:46:25.975 1 Data-Sets 00:46:26.070 1 Clear before Start 00:46:31.135 1 Autom. Stop after 00:46:36.370 1 Buffer Commands	00:46:13 00:46:13 00:46:13	0x05FF40E1 0x30303030	E0025E2E8A584E92		
00:46:13.450 1 00:46:13.455 1 00:46:21.335 1 00:46:21.430 1 00:46:21.430 1 00:46:21.430 1 00:46:21.435 1 00:46:25.975 1 00:46:25.975 1 00:46:25.070 1 00:46:31.135 1 00:46:31.135 1 00:46:36.275 1 00:46:36.370 1	00:46:13	0x30303030		ISO 15693 GS1-coded	1
00:46:13.455 1 00:46:21.335 1 00:46:21.430 1 00:46:21.430 1 00:46:21.445 1 00:46:25.975 1 00:46:26.070 1 00:46:31.135 1 00:46:31.135 1 00:46:31.135 1 00:46:36.275 1 00:46:36.370 1	00:46:13		E004010800009C0D	ISO 15693 GS1-coded	
O0:46:21.335 1 Step O0:46:21.430 1 Continue O0:46:21.445 1 Continue O0:46:25.975 1 Data-Sets 25 O0:46:25.070 1 Data-Sets 25 O0:46:26.080 1 Clear before Start Autom. Stop after O0:46:36.275 1 000 ms Step		0xD6FCC4E4	E004035004F6A1DE	ISO 15693 GS1-coded	
00:46:21.430 1 Continue 00:46:21.445 1 Continue 00:46:25.975 1 Data-Sets 25 00:46:26.070 1 Data-Sets 25 00:46:26.080 1 Clear Lefure Start Autom. Stop after 00:46:36.370 1 1000 ms ms	00:46:21	0x05FF40E1	E0025E2E8A584E92	ISO 15693 GS1-coded	
O0:46:21.445 1 Continue 00:46:25.975 1 Data-Sets 25 00:46:25.070 1 Data-Sets 25 00:46:31.135 1 Clear before Stat Autom. Stop after 00:46:36.370 1 1000 ms Buffer Commande	00:46:21	0x30303030	E004010800009C0D	ISO 15693 GS1-coded	
00:46:25.975 1 00:46:26.070 1 00:46:26.080 1 00:46:31.045 1 00:46:31.135 1 00:46:31.150 1 00:46:36.275 1 00:46:36.370 1	00:46:21	0xD6FCC4E4	E004035004F6A1DE	ISO 15693 GS1-coded	
00:46:26.070 1 Data-Sets 28 00:46:26.080 1 I Clear before Start 00:46:31.135 1 I Autom. Stop after 00:46:36.275 1 1000 ms 00:46:36.370 1 Buffer Commande	00:46:25	0x05FF40E1	E0025E2E8A584E92	ISO 15693 GS1-coded	
00:46:26.080 1 00:46:31.045 1 00:46:31.135 1 00:46:31.150 1 00:46:36.275 1 00:46:36.370 1	00:46:26	0x30303030	E004010800009C0D	ISO 15693 GS1-coded	1
00:46:31.045 1 00:46:31.135 1 00:46:31.150 1 00:46:36.275 1 00:46:36.370 1	00:46:26	0xD6FCC4E4	E004035004F6A1DE	ISO 15693 GS1-coded	1
00:46:31.135 1 00:46:31.150 1 00:46:36.275 1 00:46:36.370 1 Bitfer Commands	00:46:31	0x05FF40E1	E0025E2E8A584E92	ISO 15693 GS1-coded	0
00:46:31.150 1 00:46:36.275 1 00:46:36.370 1	00:46:31	0x30303030	E004010800009C0D	ISO 15693 GS1-coded	1
00:46:36.275 1 00:46:36.370 1	00:46:31	0xD6FCC4E4	E004035004F6A1DE	ISO 15693 GS1-coded	2
00:46:36.370 1 Buffer Commands	00:46:36	0x05FF40E1	E0025E2E8A584E92	ISO 15693 GS1-coded	3
- Burrer Lommands	00:46:36	0x30303030	E004010800009C0D	ISO 15693 GS1-coded	4
00:46:36.385 1	00:46:36	0xD6FCC4E4	E004035004F6A1DE	ISO 15693 GS1-coded	15
00:46:40.515 1 [0x31] Buffer Info	00:46:40	0x05FF40E1	E0025E2E8A584E92	ISO 15693 GS1-coded	16
00:46:40.610 1	00:46:40	0x30303030	E004010800009C0D	ISO 15693 GS1-coded	17
00:46:40.620 1 [0x33] Initialize	00:46:40	0xD6FCC4E4	E004035004F6A1DE	ISO 15693 GS1-coded	18
00:46:44.660 1	00:46:44	0x05FF40E1	E0025E2E8A584E92	ISO 15693 GS1-coded	19
00:46:44.755 1	00:46:44	0x30303030	E004010800009C0D	ISO 15693 GS1-coded	20
00:46:44.765 1	00:46:44	0xD6FCC4E4	E004035004F6A1DE	ISO 15693 GS1-coded	21

Figure 5.28



The following order is recommended:

- 1. The [0x33] Initialize command clears and initializes the device's internal buffer.
- 2. Click Start.

→ The [0x21] Read or [0x22] Read command executes the reading of the stored transponder data.



Note

Note

The edit box can be used to specify the number of **Data-Sets** to read. The actual number of **Data-Sets** in the response protocol depends on the amount of data per **Data-Set**. A maximum of 255 bytes of standard protocol length¹ can be sent with a read command.

1. The maximum number of bytes with extended protocol length depends on the device hardware and can be 4096 or 65535 bytes.

3. After reading out the **Data-Sets**, the **[0x32] Clear** acknowledgement command clears the transferred data records in the internal buffer of the device. Otherwise, the same records will be transmitted again.

→ The **Read** and **Clear** command is now automatically executed when you click **Start**.



Information on the current status of the buffer (number of records stored) can be obtained using the **[0x31] Buffer Info** command.

2024-01



5.4.4 Notification Mode

If the device is configured to operate in **Notification Mode**, the **Notification Mode** button can be used to open a window to receive and display notifications. The **Notification Mode** is an extended mode of the **Buffered Read Mode**. Therefore, the structure of the notified data is the same.



Figure 5.29

- Notification Mode	
	▲ Buffer Commands
ate/Time: 2023-11-01 14:10:54.684 ource: 192.168.3.97	[0x31] <u>B</u> uffer Info
	[0v33] Initialize
0x22] Read Buffer >> Statusbyte: 0x00 (OK)	
IR-DATAUX33	
DATA-SEIS4	
TR TURE - 0002 (ICO) CCC - CTWinner Lastranian CD)	
IR-IIFE: UXU3 (ISUIS693 - SIMICROELECTRONICS SA)	
IDD: EU025E2E6A564E92	North Channel
DB-N OXUUUI	Notify Channel
DB-SIZE: UXU4	initiated by
DB USFF40E1	Reader 👻
11ME: 0030CF49, (00:48:53.065)	
Antenna No.: UXUI	
2. Transponder	
TR-TYPE: 0x03 (IS015693 - NXP Semiconductors)	Port 20001
IDD: E004010800009C0D	
DB-N: 0x0001	Apply
DB-SIZE: 0x04	T with Authors
DB 30303030	1 with Authent
TIME: 0030CFA8. (00:48:53.160)	J with Ack. [0x32]
Antenna No.: 0x01	
	📃 Write in File
3. Transponder	Disable Window
TR-TYPE: 0x03 (IS015693 - NXP Semiconductors)	
IDD: E004035004F6A1DE	Clear <u>W</u> indow
DB-N: 0x0001	
DB-SIZE: 0x04	Communication Port-
DB: D6FCC4E4	DeviceID
TIME: 0030CFB2, (00:48:53.170)	202500165
Antenna No.: 0x01	33306163
4. Transponder	
TR-TYPE: 0x03 (IS015693 - NXP Semiconductors)	
IDD: E004010800009C0D	
DB-N: 0x0001	USB
DB-SIZE: 0x04	1000
DB: 30303030	Adv. Protocol
TIME: 0030E529, (00:48:58.665)	
Antenna No.: 0x01	

Figure 5.30



The following order is recommended:

- 1. The [0x33] Initialize command clears and initializes the device's internal buffer.
- 2. Click Apply.

 \mapsto The receive process starts and incoming messages are displayed in the text window.

Note

The port number must be the same as configured in the device's configuration.

If configured in the device, notification acknowledgement must be enabled. Otherwise, the device will always report the same data.

Information about the current status of the buffer (number of **Data-Sets** stored) can be obtained with the **[0x31] Buffer Info** command.

5.4.5 Scan Mode

If the device is configured to work in **Scan Mode**, the **Scan Mode** button can be used to open a window that displays the transponder data sent by the device.



Figure 5.31

- Scanner Mode						
-1- 02/26/09 11:31:57.203	E00700001874D10C,00000000,01,0A2C10B7,1409021300	Format				
-2- 02/26/09 11:31:57.765	E00700001874D10B,00000000,01,0A2C129C,1409021300					
-3- 02/26/09 11:31:57.875	E00700001874D10A,00000000,01,0A2C134B,1409021300	ASCII				
-4- 02/26/09 11:31:59.578	E00700001874D0FD,84747454,01,0A2C1A03,1409021300					
-5- 02/26/09 11:32:00.281	E00700001874D103,00000000,01,0A2C1CAB,1409021300	Line Number				
-6- 02/26/09 11:32:01.312	E00700001874D109,00000000,01,0A2C211F,1409021300	I Date+Time				
-7- 02/26/09 11:32:01.453	E00700001874D107,00000000,01,0A2C2151,1409021300					
-8- 02/26/09 11:32:02.343	E00700001874D108,00000000,01,0A2C2471,1409021300	Uutput Window				
-9- 02/26/09 11:32:02.687	E00700001874D10C,00000000,01,0A2C2679,1409021300	Clear Screen				
-10- 02/26/09 11:32:03.531	E00700001874D10A,00000000,01,0A2C29B7,1409021300					
E00700001874D10B,00000000,03	,0A2C29C1,1409021300	Show Data				
-11- 02/26/09 11:32:03.828	E00700001874D0F8,00000000,01,0A2C2A48,1409021300					
-12- 02/26/09 11:32:04.906	E00700001874D0FA,00000000,01,0A2C2EC1,1409021300	🕅 write in file				
-13- 02/26/09 11:32:05.078	E00700001874D0F9,85566774,01,0A2C2F1B,1409021300	- Communication Port-				
-14- 02/26/09 11:32:05.343	E00700001874D0FC,6E696C6B,01,0A2C3079,1409021300	Commenceder of				
-15- 02/26/09 11:32:05.750	E00700001874D103,00000000,01,0A2C31E6,1409021300					
E00700001874D106,00000000,01	,0A2C325E,1409021300	BusAdr: 0				
-16- 02/26/09 11:32:05.828	E00700001874D0FD,84747454,01,0A2C32B3,1409021300	СОМ 1 🔻				
-17- 02/26/09 11:32:05.937	E00700001874D104,00000000,01,0A2C32B8,1409021300					
E00700001874D105,00000000,01	,0A2C331C,1409021300					
-18- 02/26/09 11:32:06.109	E00700001874D101,AAAAAAAA,01,0A2C334E,1409021300					
E00700001874D102,00000000,01	.,UA2C33B7,1409021300	Carial Dark				
E00700001874D0FB,00000000,03	.,UA2C33C6,1409021300	J Senar Port				
E00700001874D0FE,00000000,01	., UA2U33DU, 1409U213UU	Adv. Protocol				
-19- 02/26/09 11:32:06.250	EUU/UUUU18/4D100,6/696546,01,0A2C33DA,1409021300					
E00/000018/4D0FF,00000000,03	, DA20344D, 1409021300					
-20- 02/26/09 11:32:07.265	E00700001874D107,00000000,01,0A203830,1409021300					
21 02/26/00 11.22.02 875	F00700001974D109 0000000 01 002C2001 1400021200	8				
-22- 02/26/09 11:32:09 640	E00700001874D100,00000000,01,0A2C3AA1,1409021300					
-23- 02/26/09 11:32:00.840	E00700001874D101 00000000 01 01203E08 1409021300					
F00700001874D10B 00000000 01	00/000010/4010A,00000000,01,0A2C3FD0,1409021300					
-24- 02/26/09 11:32:00 359	F0020000187400021300					
-24- 02/20/03 11:32:09.339	2007000010742010700000000000000000000000					

Figure 5.32





The following order is recommended:

- 1. To receive **Scan Mode** data, the communication port type **Serial Port** must be selected. All other port types are not supported.
- 2. The **Display Format** must be set to match the device's format setting. In addition, a line number and date and time to each data record can be added.



Note

For long runs, the data display should be turned off. **Show Data** controls data output. Failure to do so may reduce performance and/or cause the PC to run out of memory.

3. When the **write in file** function is enabled the scanned data can be saved in a file. The file name consists of the prefix **Scan** followed by the date, e.g. Scan060317.txt.



Note

USB readers working in **Scan Mode** send data to the HID kernel driver of the PC and act like a keyboard.

The data can be viewed in this gray window by positioning the cursor in this window.

The data can also be viewed in any other Windows® application where the cursor is positioned.

5.4.6 USB Keycode Table

As described in the chapter **Scan Mode**, USB readers working in **Scan Mode** send data to the HID kernel driver of the PC and act like a keyboard. Depending on the keyboard layout, some keys have different key codes. For example, "Z" and "Y" are swapped in the German and English keyboard layouts. This makes it necessary to change the keycodes used by the device. This can be done using the **Keycode table**. The keycodes for the German, French and English keyboard can be found in the installation path of RFID Gate-Control (RFID Gate-Control\11.08.02\USBKeycodeTables). With the **Load Table** button one of the keycode tables can be opened with RFID Gate-Control. With the **Transfer** button the table can be sent to the device. The 127 characters of the ASCII table can be edited in RFID Gate-Control and saved as a text file by clicking the **Save Table** button and then loaded into another device.



Figure 5.33

Note



The keycode is limited to 128 characters and cannot be extended.

Dec-Value	Hex-Value	ASCII-Char	Key-Code	Comment	^	
0	0x00	NUL	0000	1.1		<u>T</u> ransfer
1	0x01	SOH	0000			
2	0x02	STX	0000			
3	0x03	ETX	0000			
4	0x04	EOT	0000			Clear Table
5	0x05	ENQ	0000			
6	0x06	ACK	0000			
7	0x07	BEL	0000			
8	0x08	BS	0000			
9	0x09	HT	002B			Save Table
10	0x0A	LF	0028			
11	0x0B	VT	0000			
12	0x0C	FF	0000			
13	0x0D	CR	0028			
14	0x0E	SO	0000			
15	0x0F	SI	0000			
16	0x10	DLE	0000			Communication Port-
17	0x11	DC1	0000			DeviceID
18	0x12	DC2	0000			400052260
19	0x13	DC3	0000			
20	0x14	DC4	0000			
21	0x15	NAK	0000			
22	0x16	SYN	0000			
23	0x17	ETB	0000			LISB
24	0x18	CAN	0000			1000
25	0x19	EM	0000			Adv. Protocol
26	0x1A	SUB	0000			
27	0x1B	ESC	0000			
28	0x1C	FS	0000			
29	0x1D	GS	0000			
30	0x1E	RS	0000			
31	0x1F	US	0000			
32	0x20	SPACE	002C			
33	0x21	1-	201E			
34	0x22	п	201F			
35	0x23	#	0031			
36	0x24	S	2021			
37	0x25	%	2022			
38	0x26	81	2023		5	

Figure 5.34



5.4.7 EPCglobal

If the device is configured to work in **Host Mode**, the **EPCglobal** button can be used to open a window to work with EPC (UHF) Class 1 GEN2 or 18000-6-B/C transponders.



Figure 5.35

EPCglobal	Read EPC	
EPC Class I Test - Multiple tags	3005 FB63 AC1F 3681 EC88 2222 UHF / RAIN RFID	
	-Write EPC	
	Format EPC (Hex) 3005FB634C1F3681EC882222 Write EPC	
	C Numerical Transponder Type unspecified 💌	
	EPC Manager (numerical) 0 Automatic EPC Object (numerical) 0 EPC Serial No EPC Serial No (numerical) 0	Communication Port IP-Address 192.168.3.237
	Conditions	
	Access Password (Hex) 4 : 0000000 Kill Password (Hex) 4 : 0000000 Lock EPC	
	Lock Data Lock Data unchanged	Adv. Protocol

Figure 5.36

To work with an EPC transponder, select **EPC Class 1 Test - One Tag**. The dialog box allows you to **Write**, **Lock** and **Kill** a UHF EPC transponder. For HF EPC transponders, only the **Write** button is available.



Warning!

Irreversible damage to the EPC transponder

These functions should be used with care as they can cause irreversible damage to the EPC transponder. For more information about the access and kill password and the lock data, refer to the **EPCglobal** specification **EPCglobal Class-1 Generation-2 UHF RFID Protocol V2.1.pdf**, which can be downloaded from the **GS1** website at www.gs1.org.

5.4.8 Action on EPC

The Action on EPC group provides the ability to define rules for automatic output events.

Action on E	PC						
Figure 5.3	37						
RFID Gate-Contro File Edit View V New Detect Op xml1	I - Version 11.07.05 - Pepperl - Fuchs SE - Vindow Options Help) 💽 🕐	1				X
Reader Basics	IUR-F800-V1D-4A* - Action of	n EPC					Þ
Configuration Configuration Beffere Read Mode Netficiation Mode Scan Mode EPCglobal EPCglobal Configuration Action on EPC EPCglobal USS Reycode Lible	No. In EPC	Data	EPCLength Data	Data Ant	Antenna Apply 1 1 2 3 4 1 1 2 3 4 1 1 2 3 4	Data	Header Read Read Read Balance Contract Delete Rule Delete Rule Load Save Communication Port DeviceID 403318431 USB
Firmware Update	Output 1 Output 2 0 x 100ms 0 x 100ms	Output 3 Oc 0 x 100ms 0	tou 4 Relay 1	Relay 3 Relay 3 0 x 100ms 0 x 100md	Relay 4		

Figure 5.38

- The **Action on EPC** function provides the ability to perform automatic output events when a specific rule is met.
- Up to 70 rules can be defined in the device. The rules are "or" linked.
- Each rule can consist of 4 conditions.
- A condition can require the reading of an EPC number, the reading of data blocks and the reading on a specific antenna. A filter on the EPC number can have a maximum length of 32 bytes.
- Filtering of data blocks is possible with a length of 16 bytes. The conditions are linked with "and", i.e. a rule is set true only if all conditions are met and all requested data are read within one sequence.
- If a rule is met, all available outputs of a device can be affected. The output active time can be configured individually for each output.
- A typical application where this feature is used is in sorting machines. These can be found in logistics for sorting packages or in rental systems for returning items. In logistics, parcels are sorted according to their destination. The postal code of the destination address could be part of the serial number or stored as additional data in the transponder's user memory. Depending on the data read, an output is affected that controls the sorting machine to direct the package in one direction or the other.

2024-01





Figure 5.39

5.4.8.1 Configuration requirements

The following requirements must be met:

- The device must be configured in **Buffered Read Mode** or **Notification Mode** (**CFG11**). This is the only way the **Action on EPC** functionality will be available.
- The antenna number must be stored in the generated transponder data sets. Therefore, the **Number of Antenna** parameter in **CFG11** must be enabled.
- The Antenna Store (CFG11) parameter must be configured to the value Collect transponder data from all antennas in one record. This is the only way the device can verify that all data to be verified has been read from all requested antennas.
- The Action on EPC function must be enabled in CFG11 of the configuration.
- Data block reading must be enabled in **CFG11**, if data blocks are to be used to create a rule.
- The following information for the data location definition must be provided:
 - Data from which memory bank should be read?
 - From which start address within the memory bank should the information be retrieved?
 - How many blocks should be read from the selected bank?

CFG1: Interface and Mode	
🖂 Reader Mode	
Reader Mode	Buffered Read Mode

Figure 5.40

🗉 CFG11: Read Mode - Read Data		
Transponder Data		
E TR-DATA 1		
Serial Number		
Data Block		
Byte Order	MSB first	
Number of Antenna		
Time		
Extension Flag (enables TR-DATA 2)		
ITR-DATA 2		
E TR-DATA 3		
COM Prefix (only for Seen Made)		
Antenna Store	Collect transponder data from all antennas in one data record	-
Read complete bank		
ActionOnEPC		
Data Location Definition		
Bank	User memory bank	
DB-Address	00000	
Number of Datablocks	00004	
	1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 -	

Figure 5.41

5.4.8.2 Defining Rules with RFID Gate-Control

A special menu is available in RFID Gate-Control for defining rules. **Action on EPC** is supported by RFID Gate-Control 2014 version 09.08.00 or higher.

	um
Action on	EPC

Figure 5.42

En	EPC Data	Ant	En EPC	Data	Ant	En EPC	Data	Ant	En EPC	Data	Ant	Output 1	Output 2	Output 3	Output 4 R	elay I Relay	2 Relay 3 Relay 4	Reader
				10,000					a sector of the							and an a start of the start of		Write
																		Rea
																		Rese
																		Editor
																		New 9
																		Delete
																		Delete
																		- 4090
																		Sav
																		Comunic
																		IP-Address
																		1132.160
																		Fun 1
																		DisCon
																		торир
																		Adv. Ph
	EPC			EPCLength	Data		Data-Length	Antenna		1								
Г							TO 11	F 2E 1E	A	1								
Ē								E2EAE										
i.																		
4				u			1.6	0.21.21	.4.									
l				0			10 171	an sun a n	342									
61	Output 2	Output 3	Output 4	Relay 1		elay 2 F	telay 3 F	Relay 4										
	x 100ms 0 x 100m	0 #1	Kima 0 w	100ma 0	x 100ms	# 100ms	0 x 100ms	0 x 100s	e / .									

Figure 5.43





5.4.8.3 Control Buttons

Rules can be created and managed on the device using the **Control** button on the right side of the window.

Reade	1			
	Write			
	Read			
	Reset			
- E ditor -	<u>,</u>			
Ne	ew Rule			
Del	lete Hule			
D	elete All			
L	Load			
9	Save			

Figure 5.44

Control buttons	Function
Write	Transfers the generated rule table to the mem- ory of the device.
Read	Reads the currently installed rule table from the device's memory.
Reset	Deletes the currently installed rule table from the device's memory.
New Rule	Adds a new rule to the rule table.
Delete Rule	Deletes the selected element from the rule table.
Delete All	Deletes all elements from the current rule table.
Load	Opens a stored rule table.
Save	Saves the generated rule table to the selected directory.

Table 5.3

2024-01

5.4.8.4 Creating new Rules

Up to 70 rules can be defined inside the device, linked with "**or**". Each rule can consist of 4 conditions. Conditions are linked with "**and**". To fulfill a rule, all defined conditions must be fulfilled. For each rule it is possible to define individual output events. The RFID Gate-Control software detects the number of available outputs of the connected device and offers corresponding configuration possibilities.



Create a new rule by doing the following:

1. Click New Rule.

 \mapsto The edit boxes for defining conditions become active.



Note

A condition can consist of either reading EPC data, data blocks or EPC data and data blocks at one or more specific antennas.

If filtering on data blocks is enabled, the location from which the information is to be read must be configured in **CFG11** of the device configuration.

2. Click Apply.

 \mapsto The newly defined rule is added to the rules table.

nable	EPC				EPC-Length	Data			Data-Length	Anten	na
	33004D268	7A129BB4504CD1F			12	E2006806			4		
~	AD62986CA	B4201764490AA52			12				0	□ 1 🔽 2	□3□4
	-									Г 1 Г 2	□3□4
					0				0	1 🗖 2	□3□4
Action		-					noncom esc				
Output	1	Output 2	Output 3	Output 4	Relay 1		Relay 2	I	Relay 3	Relay 4	
50	x 100ms	0 x 100ms	0 x 100ms	0 x 100ms	0	x 100ms	0	x 100ms	0 × 100	ms 0	x 100ms

Figure 5.45

Note

EPC data to be filtered can have an even length between 2 bytes and 32 bytes.

Data blocks to be filtered can have an even length between 2 bytes and 16 bytes.



Example

The screenshot below shows an example of a sorting machine in logistics that filters for a imaginary manufacturer code in the EPC and the postal code of the destination address in the user data.

Four rules are generated to distinguish between two different regions. There are two rules for each region because of the multiple antenna orientation (2 antennas in total, one on each side of the conveyor).

- When antenna 1 or antenna 2 reads a transponder with the correct manufacturer code and user data 0035, digital **Output 1** is active for 5 seconds.
- When antenna 1 or antenna 2 reads a transponder with the correct manufacturer code and user data 0063, digital **Output 2** is active for 5 seconds.

ID	ISC	.LRU1002 - Acti	on on EPC																		
No.	En	EPC	Data	Ant	En	EPC	Data	Ant	Er	n EPC	Data	Ant	En	EPC	Data	Ant	Output 1	Output 2	Outp	Output 4	Relay 1
1	x	3300AD52	0035	1													50	0	0	0	0
2	x	3300AD52	0035	2													50	0	0	0	0
3	х	3300AD52	0063	1													0	50	0	0	0
4	x	3300AD52	0063	2													0	50	0	0	0

Figure 5.46





5.4.9 Test and Measurement

The Test and Measurement group collects some useful functions.

	Te	st.	and	Ê.	
1	vleas	sure	eme	ent	

Figure 5.47

Inventory

This test function can be used to continuously perform the host protocol [0xB0][0x01] inventory. This requires that the device is configured to operate in Host Mode.

Test	No.	Tag-Type	Serial Number	DSFID/Info	Control
- ISO Inventory	1	ISO15693	E0025E2E8A584E92	FF	Stop
Measurement	2	ISO15693	E004010800009C0D	99	
	3	ISO15693	E004035004F6A1DE	99	<u>Halt</u>
					Step
					Continue
					<u>R</u> eset
					☐ Multiple Ant. ⊽ 1
					Settings
					- Sound
					Delay 0 ms
					L L
					Communication Po
					DeviceID
					393508165
					USB
					C Adv Protocol

Figure 5.48

In the Test folder, select Inventory and click Start.

- All transponders in the antenna field are displayed in the list window with serial number and transponder type.
- The Stop button stops the inventory process.
- The **Halt** button puts the inventory process into a wait state to perform single steps with the **Step** button.
- The Continue button exits the wait state and continues the inventory process.
- The Reset button clears the display window.

Note

F

If you want to delay sending each protocol to the device, use the **Delay** slider to set the pause between protocols up to 1000ms.

5.5 The Protocol Editor

The **Protocol Editor** is a useful tool for checking the response of the Pepperl+Fuchs read/write device for faulty, new or unknown protocols. As in the case of the **Reader Editor**, a port type must be assigned to the **Protocol Editor**. In principle, this can be the same port.

With the **Protocol Editor** it is possible to collect any number of protocols and the timing of the protocol is arbitrary.

With the **Protocol Editor** you have the following options:

- The Start, New, Edit and Delete buttons transfer, create, modify and delete the entries.
- The **Record** button activates the recording of all logs sent from the **Reader Editor**. This requires the **Reader Editor** to have been opened first. The recorder can set the process state for each recorded protocol to automatic with next protocol if this option is enabled. This is useful for automatic step-by-step scheduling of protocols.



Generate and save a protocol file by doing the following:

- 1. Click File.
- 2. Click New.
- 3. Click Protocol (*.prt).

→ The **Prot1*** view appears.

Note

The **Prot1*** view appears next to the **xml1*** view. You can switch between these two views.

The **Open.*prt** button also allows you to load files diectly for later evaluation.

- 4. Click File.
- 5. Click Open.*prt.

 \mapsto Files can now be loaded directly for later evaluation.

- 6. Select the Prot1* view.
- 7. Click Record.

 \mapsto Recording of the operations starts.

- 8. Select the xml1* view and run some commands.
- 9. Switch to the Prot1* view.
 - → You will see all previously sent commands with a comment. In the example below, you can see a **Reader Info** request, an **Inventory** request and some **Read Multiple Blocks** requests. These commands have been started before in **Host Mode**.
- 10. Click File.
- 11. Click Save.

 \mapsto The record can be stored in the **Work Directory**, see chapter 5.2.

2024-01



		t COM-Port	0 About				
1	Prot1*	t com-ron	AUUUL				٩
ber	of protocols: 4						
	Protocol	Create Chk	Comment	Process	Prt	Time [ms]	Start
	02 00 08 FF 66 FF F0 1D	no	[0x66] Get Reader Info	manual	-	0	
	02 00 09 FF B0 01 00 18 43	no	[0xB0][0x01] ISO Host-Command (Inventory)	manual	-	0	Halt
	02 00 0B FF B0 23 10 00 01 4C 3E	no	[0xB0][0x23] ISO Host-Command (Read Multiple Blocks)	manual		0	Chan
	02 00 0D FF B0 23 30 03 00 00 02 B6 AF	no	[0xB0][0x23] ISO Host-Command (Read Multiple Blocks)	manual	-	0	oren
	02 00 1A FF B0 23 31 0C 30 14 F7 33 7C 00 1F 00 00 00	no	[0xB0][0x23] ISO Host-Command (Read Multiple Blocks)	manual	-	0	Continue
							<u>N</u> ew
							<u>E</u> dit
							Delete
							Record
							autom. with next Protocol
							Communication Port
							COM

Figure 5.49

- The Edit button opens a dialog box for the selected protocol item.
- Each protocol item must have a unique Item Number. After changing this number, the
 protocol item can be moved up or down in the list using the context menu to have a continuously increasing order.
- The **Hex-Protocol** edit box accepts any chars, but all non-hex chars are stripped before the protocol is sent. This allows the space char to be used as a separator between each hex number.
- The **Hex-Protocol** must contain the complete protocol frame except for the checksum, which is calculated and added internally if the **calculate checksum** option is set. Recorded and unmodified protocols have a valid protocol checksum and the **calculate checksum** option must not be set.
- The Process drop-down box lists a number of scheduling options to organize scheduling.

Edit Protocol		×
Number		ОК
Comment	[0x80][0x01] ISO Host-Command (Inventory) with presence check	Abbrechen
Hex-Protocol	07 FF B0 01 20	
	Calculate checksum	
Process	manual 💽 🔲 after 🗌 ms	-

Figure 5.50

2024-01

• The **manual** option disables scheduling for this protocol item. All other options enable scheduling for this protocol item.

Process	manual 💌	0 after	0 ms
	manual		
	automatic with next protocol automatic with protocol no. continual		

Figure 5.51

5.6

The Protocol Window

- The **Protocol Window** lists each protocol action. All error messages related to protocol traffic are redirected to this window.
- The Protocol Window is a normal editor and allows you to copy lines of text to the clipboard.



Note

Use the right-click context menu. This way you can easily copy protocols into the protocol editor and manipulate them.



Figure 5.52



Note

For long runs of a test function or high-performance tests, the protocol window should be disabled.



Handling Communication Problems

If you are experiencing communication problems with the Pepperl+Fuchs read/write device, check the following:

- Is the cable properly connected to the device?
- Is the power to the device turned on?
- Is the correct port type assigned?
- If there is a series connection, is an open serial port assigned to the device file? Go to the **Reader Editor** and check the **COM** list box at the bottom right.
- If there is a series connection, is the correct bus address set in the **Reader Editor**? Try the broadcast address 255.
- For a serial connection, check the serial port settings, see chapter 5.3.1.
- In the case of an Ethernet connection, does the IP address of the device match the subnet mask of the PC?
- When using a **COM-Port**, test any change using the **[0x52] Baudrate Detection** protocol from the **Reader Editor** commands group.

>

Uninstalling RFID Gate-Control

Uninstall RFID Gate-Control by doing the following:

- 1. Go to the Start Menu.
- 2. Click Settings.
- 3. Click Control Panel.
- 4. Click Add/Remove Programs.
- 5. From the Install/Uninstall tab, locate and select RFID Gate-Control.
- 6. Click Add/Remove.
- 7. In the next dialog box, click **Remove** and confirm the uninstall request with **Yes**.
 - → All components of RFID Gate-Control will now be removed from your computer.



Your automation, our passion.

Explosion Protection

- Intrinsic Safety Barriers
- Signal Conditioners
- FieldConnex[®] Fieldbus
- Remote I/O Systems
- Electrical Ex Equipment
- Purge and Pressurization
- Industrial HMI
- Mobile Computing and Communications
- HART Interface Solutions
- Surge Protection
- Wireless Solutions
- Level Measurement

Industrial Sensors

- Proximity Sensors
- Photoelectric Sensors
- Industrial Vision
- Ultrasonic Sensors
- Rotary Encoders
- Positioning Systems
- Inclination and Acceleration Sensors
- Fieldbus Modules
- AS-Interface
- Identification Systems
- Displays and Signal Processing
- Connectivity

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