USB Proximity Reader
RUD-2 v2.0

Document version: Rev. A

Firmware version RUD-2_fv2.0.4

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Users Manual

Construction and Usage

RUD-2 is a miniature reader for EM 125 kHz proximity transponders. The reader is supplied from serial USB port which is also used for communication with the device. The RUD-2 can be used as card enroll reader for access control system or any other application which requires card reader. Card can be enrolled straight from the PR Master (version 4.4.8 is required) or using dedicated *Roger MiniReader 1.1.3* application. For programmers who want to integrate RUD-2 with their systems the dynamic library DLL is available.

Note: The software package for RACS access system, the *Roger MiniReader* program and a DLL library are free software available for download from Roger's website at http://www.roger.pl./
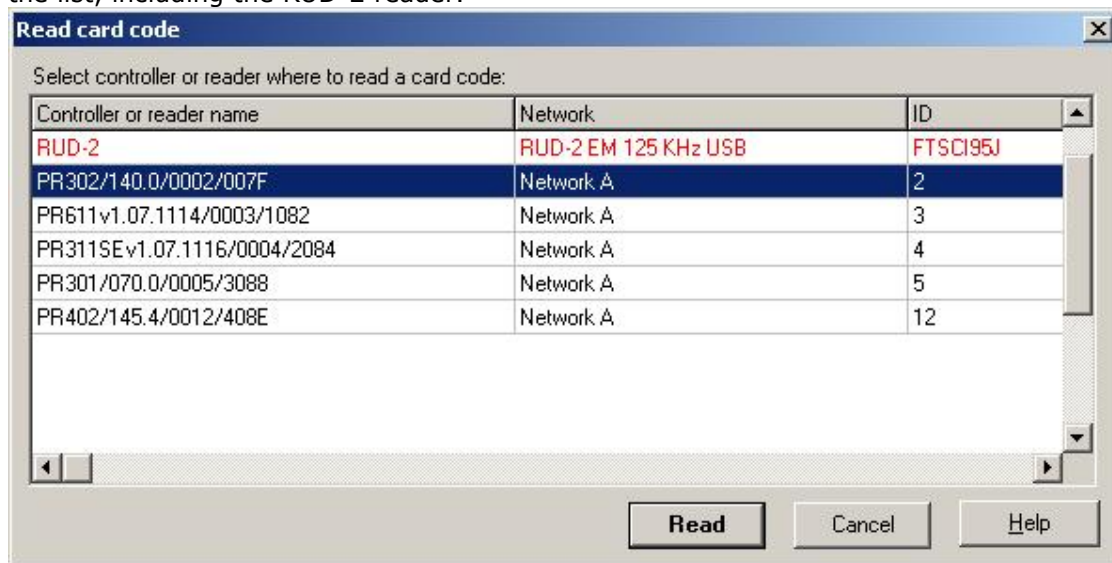
Functional Description

The RUD-2 can be used in three different scenarios:

- as a reader for card enrolling to the RACS access system,

- as a reader for card enrolling through *Roger MiniReader* application,

- as a reader used in third party applications using a DLL library provided.

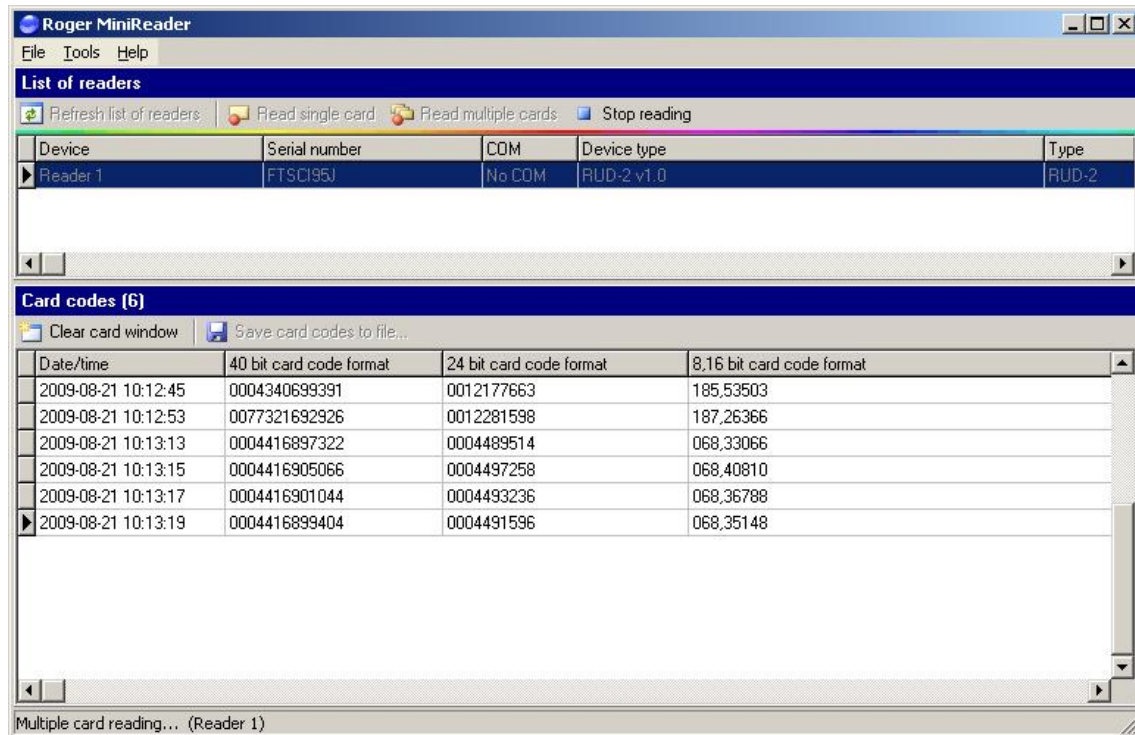## Working with PR Master program

In the list of available readers in the PR Master 4.4.8 control program, RUD-2 readers connected to the system are displayed. When reading a new card into the system or modifying a card which had been enrolled earlier, you can use any device displayed in the list, including the RUD-2 reader.

Working with Roger MiniReader program

The *Roger MiniReader* displays the list of available USB readers connected to the PC. In order to read a single card, you need to select the *Read single card* command, and then put a card close to the reader. When the code is read, it automatically appears in the *Card codes window*. The fact of card reading is signaled acoustically however this feature can be possibly disabled using relevant program's options (see: *Options*). If you use the *Read multiple cards* command, program will read cards in a loop and insert them to the

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Card codes window. In order to interrupt the reading process, you need to use the *Stop reading* command. The cards read can automatically be copied to the Clipboard (option: *Copy card code to clipboard*). By using it, the card codes can be moved to other applications or saved to a text file (option: *Append card code to file*).

Working with other programs

Support for RUD-2 readers can also be implemented in other programs. To do this you need to use a DLL library provided by reader's manufacturer. In this case, the logic of reader handling depends completely on the program's author.

LED Signals

The RUD-2 interface is equipped with one signaling LED. This LED is blinking 3 times after power on and one time for every proximity card read session.

Reading cards

The proximity card which is to be read into should be put close to the reader so that the card's surface is parallel to the reader's front surface. ISO cards have reading range up

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to 8 cm. Nevertheless it is a subject of serious fluctuations depending on the card's type and its characteristics. In particular, the range will be seriously reduced for miniature key fobs. You can assume that in this case you should touch a reading surface with a card and hold a card in a stable position. When the card is read, the computer will generate a short acoustic signal. After that, the reader is not able to read anything for about a second.

D e v i c e   I n s t a l l a t i o n

RUD-2 v2.0 is a USB HID (Human Interface Device Class) device and it's supported by 32bit and 64bit versions of Windows 7, Windows VISTA and Windows XP. RUD-2 doesn't require dedicated drivers, it's handled by OS generic USB HID driver. You may connect the device directly to the PC USB port, driver installation will start automatically.

Note: You should not disconnect a reader while the software working with it is being run. Violating this rule usually causes that the application controlling the reader will hang up and you will have to terminate it by using Windows *Task Manager*.

Programs provided by Roger (*PR Master 4.4.8* and *Roger MiniReader 1.1.3*) automatically detect that the RUD-2 reader and present it on the list of available readers.
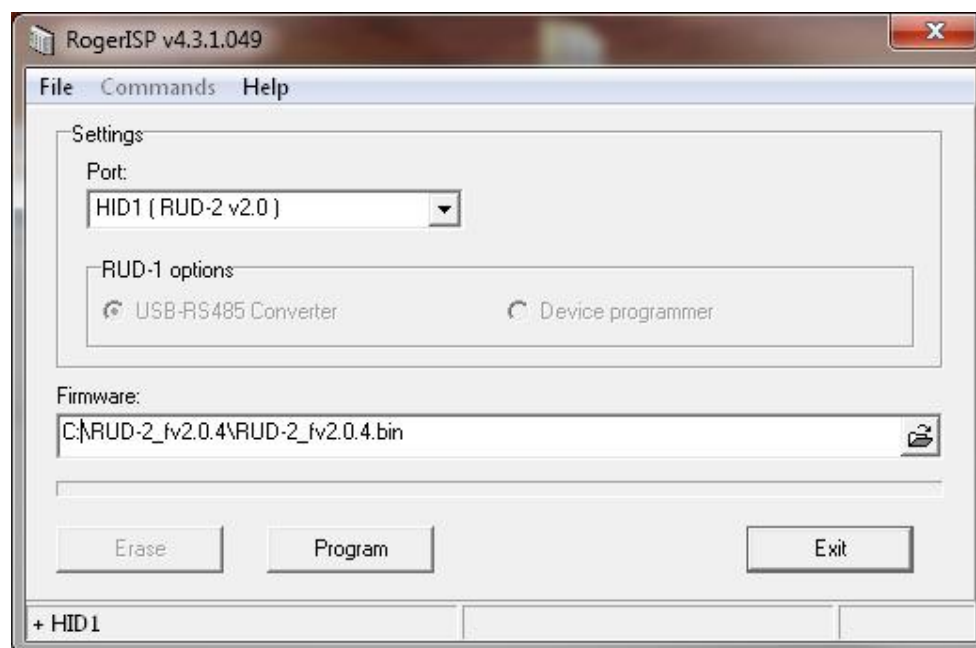The RUD-2 reader can be connected directly to the controller's USB socket or using a cable with magnetic stand provided together with a reader. Using this cable is convenient because when you use a magnetic stand, the reader can be located at computer's case or any other metallic part of a desk or a table.
Optionally, the RUD-2 can be connected to computer by other USB cable of a length not exceeding 5 meters. However any modifications of original USB cables are prohibited. The only acceptable way of prolonging USB cables is by using original factory-made extension cables.

F i r m w a r e   u p d a t e

Firmware update can be performed with Roger firmware update tool RogerISP v4.3.1. Before beginning the firmware update process You need to download adequate for Your device firmware file from manufacturer's website www.roger.pl and save it to known disk location. Close all programs associated with updated reader and run RogerISP tool. Choose Your reader from the list and put appropriate location of the firmware *.bin file, then You can push the "Program" button to start update, follow the instructions to end this process correctly.
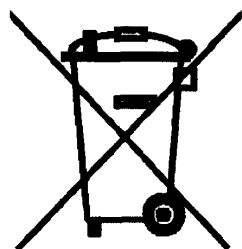
Warning: It is strongly recommended to act in accordance with program instructions, waiver of required actions connected with violations of the update rules can damage Your device. Note that firmware update process is done entirely at your own risk.

Technical Data	
Power supply	5 VDC directly from the USB port
Average current consumption	80 mA
Cards	EM 125 KHz (EM 4100/4102 compatible) proximity transponders
Reading distance	Up to 8 cm for ISO cards (while in an optimal relative location to the reader)
Reading time	~ 200ms
Working temperature range	+5...+45º C
Relative humidity	0 – 95% (non-condensing)
Dimensions	88 x 30.5 x 14.5 mm
Weight	~ 20g

Ordering Information	
RUD-2	The interface together with a cable and a magnetic stand

Versions		
Version	Date	Description
RUD-2 v1.0	29/07/2009	First commercial product version.
RUD-2 v1.1	29/07/2011	
RUD-2 v2.0	01/08/2012	HID class, extended reading range

Such symbol on the product or its package means that the product should not be thrown away together with other wastes, because it may cause negative effects to an environment and humans health. User is responsible for delivering used equipment to the alloted location for gathering used electrical and electronic devices. Detailed information on recycling can be found at relevant local authorities, in a disposing company or in a place, where the product was bought. Separate gathering and recycling of such wastes contributes to natural resources protection and is safe for humans health and for natural environment. The equipment's weight is shown in the guide.

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