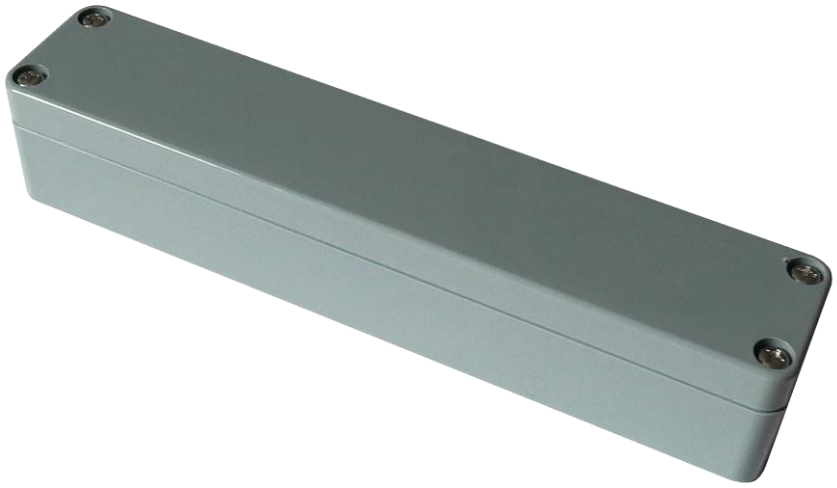
TECHNICAL DOCUMENTATION
ACTS-2



Version:	ACTS-2-MAN-v1
Date:	09.10.2018
Author:	Patryk Burczyński
Valid from FV:	ACTS-2-V1.11A1.1

Contents

1 INTRODUCTION

This ACTS-2 reader is of active tag reader type which operates with ATPLA-N and ATPLA-S tags. The ATPLA-N tags send their ID periodically, but ATPLA-S tags send ID, when they are placed only in a field generated by the ACTS-2 reader.

2 SPECIFICATIONS

Parameters	
Frequencies used	125 kHz 869 MHz
Ranges	Stimulation – up to 5 m ID read-out – up to 200 m
Internal tag buffer	64 B (16 x ID)
Interfaces	
RS232 / RS485	
Interface type	Serial: RS232 / RS485
Baud rate	Depending on setting: 1200 bps, 2400 bps, 4800 bps 9600 bps, 19200 bps, 57600 bps, 115200 bps. (Factory default setting: 9600 bps)
Parity bit	None
Number of data bits	8
Number of stop bits	1
WIEGAND	
Number of bits	Depending on setting: 10 to 48
1-WIRE	
Family code	1
Commands supported:	READ_ROM SERACH_ROM
Power supply	
Supply voltage	9 to 15 V

3 DIMENSIONS, TERMINAL DESCRIPTION

3.1 DIMENSIONS

Length x width x height = 184.5 x 36.5 x 35.3 [mm]

3.2 TERMINAL DESCRIPTION

Terminal arrangement on PCB of the reader is shown in picture 3.1, and connector assignment is described in table 3.1.

Picture 3.1 Terminal arrangement on PCB of the reader

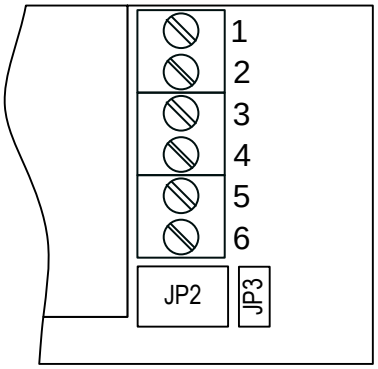
Table 3.1. Connector description

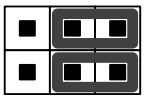
Terminal no.	Name	Description
1	WIEGAND0	WIEGAND interface line
2	WIEGAND1 / 1-WIRE	Depending on configuration of WIEGAND interface line or 1-WIRE interface line
3	GND	Power supply: ground
4	VCC	Power supply: 9 to 15 V
5	RS232 RX / RS485 A	Line of RS232 or RS485 serial interface
6	RS232 TX / RS485 B	Line of RS232 or RS485 serial interface

4 CONFIGURATION

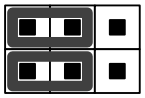
4.1 SELECTION BETWEEN RS232 AND RS485

To select RS232 or RS485 interface, set JP2 jumper as in picture below:





- RS232 interface



- RS485 interface

4.2 INTERFACE SELECTION FOR AUTOREADER

The autoreader function can send ID of read tags via one of following interfaces. Method of selecting the reader is described in a table below.

		Interface configuration	Description
		JP1	
Interface	WIEGAND	ON	WIEGAND interface
	1-WIRE	OFF	The interface will switch to 1-WIRE automatically, when reset signal appears on 1-WIRE line. The interface will switch to RS-XXX, if there is no reset signal on 1-WIRE line during time longer than defined by DallasTimeOut parameter.
	RS-XXX		

4.3 SETTING THE STIMULATING SIGNAL STRENGTH.

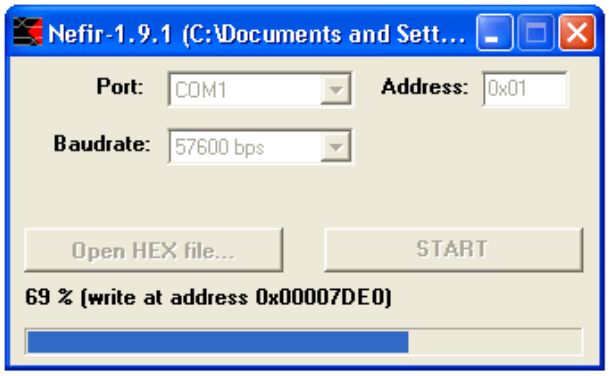
In order to reduce the power of the stimulating signal, jumper JP3 should be established.

.

5 BOOTLOADER - UPDATING THE FIRMWARE VERSION

To update modem firmware version:

1. Connect to computer a device for which firmware is to be updated via RS232 or RS485 interface.
2. Launch NEFIR.exe program.
3. Set interface baud rate to 57600 bps and address to 0x01.
4. Push „Open HEX file…" button and choose a file (*.nhex) comprising the firmware we want to load to the device.
5. Push START button. If reloading will not begin automatically, put the device into BOOTLOADER mode by resetting the device or sending the *C_RunBootloader* command.



Picture 5.1. The program window during firmware reloading

6 COMMUNICATION WITH THE DEVICE

6.1 CHANGING / READING THE PARAMETERS

To change or read modem parameters, send to modem via RS-232 or RS-485 serial interface a frame which is complied with Netronix protocol and comprises appropriate data. Description of frames is in section „Available commands / orders" of this manual.

6.2 RS-232 / RS-485 TRANSMISSION PROTOCOL

The module configured in accordance with scheme shown in picture 4.1 operates in RS-232 interface mode. In this documentation, the description of the RS-232 protocol is limited to command and response descriptions and to their parameters. Header and CRS control sum exists always and complies with full "Netronix Protocol" documentation which is available on *www.netronix.pl*.

Command frame:

Response frame:

You can test an operation with RS protocol by means of "FRAMER" free software development tool.

6.3 AVAILABLE COMMANDS / ORDERS

6.3.1 READING THE FIRMWARE VERSION

To read firmware version, send to the device the following data frame:

Where:

- Command – code of *C_FirmwareVersion* order.

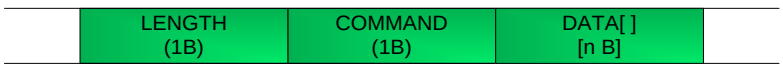
The device should respond with following data frame:

Where:

- Command+1 – code of executed order increased by 1.
- Length – length of data frame in bytes.
- Data[ ] – ASCII character sequence describing firmware version

6.3.2 PIN CODE SETTING

To set the PIN code, send a data frame to your device as:



Where:

- Command – Command code *C_SetPIN*.
- Length – The length of the frame, in bytes.
- Data[4] –PIN code.

- The device should respond with following data frame:

Where:

- Command+1 – code of executed order increased by 1.
- Length – length of data frame in bytes.
- OpCode – operation code.

6.3.3 SETTING THE SERIAL INTERFACE PARAMETERS

To set parameters of serial interface, send to the device, the following data frame:

Where:

- Command – code of *C_SetInterfaceConfig* order.
- Length – length of data frame in bytes.
- Data[]

Field	Parameter name	Description	Values allowed Default value
Data[0]	UartAdr	Device address on RS-XXX bus	1 to 254 (Default value: 1)
Data[1]	UartSpeed	Baud rate of RS-XXX interface	0 – 1200 bps 1 – 2400 bps 2 – 4800 bps 3 – 9600 bps 4 – 19200 bps 5 – 57600 bps 6 – 115200 bps (Default value: 3)
Data[2]	WiegandBitNum	Number of bits for Wiegand frame	10 to 48 (Default value: 37)

The device should respond with following data frame:

Where:

- Command+1 – code of executed order increased by 1.
- Length – length of data frame in bytes.
- OpCode – operation code.

6.3.4 READING THE PARAMETERS OF SERIAL INTERFACE

To read parameters of serial interfaces, send to the device the following data frame:

Where:

- Command – code of *C_GetInterfaceConfig* order.
- Length – length of data frame in bytes.

The device should respond with following data frame:

Where:

- Command+1 – code of *C_GetInterfaceConfig*.
- Length – frame length in bytes
- Data[] – UartAdr, UartSpeed, WiegandBitNum

6.3.5 SETTING THE AUTOREADER PARAMETERS

To set the autoreader parameters, send to the device the following data frame:

Where:

- Command – code of *C_SetUartAddr* order.
- Length – length of DATA[ ] field in bytes.
- Data[]

Field	Parameter name	Description	Values allowed Default value
Data[0]	Period	ID sending period of tags stored in buffer. Concerns to RS-XXX or Wiegand interface	5 to 255 (x 10 ms) (Default value: 20)
Data[1]	DallasTimeOut	Timeout parameter which determines time between last reset on 1-WIRE line and switching the autoreader to RS-XXX interface	5 to 255 (x 100 ms) (Default value: 50)
Data[2]	AR_RS_EN	The flag which provides disabling the tag ID sending via RS-XXX interface	0 – OFF 1 – ON (Default value: 1)
Data[3]	AR_RS_MULTI	The flag which determines whether tag ID's stored in buffer are to be sent within one frame or each ID in separate frame. The setting concerns to RS-XXX	0 – send once 1 – send within one frame (Default value: 0)
Data[4]	AR_SO	The flag which determines whether read ID's are to be sent once or periodically until given tag is within reader range	0 – send repeatedly 1 – send once only (Default value: 1)

The device should respond with following data frame:

Where:

- Command+1 – code of executed order increased by 1.
- Length – length of DATA[ ] field in bytes.
- OpCode – operation code

6.3.6 READING THE AUTOREADER PARAMETERS

To read autoreader parameters, send to the device the following data frame:

Where:

- Command – code of *C_GetAutoreaderConfig* order.
- Length – length of data frame in bytes.

The device should respond with following data frame:

Where:

- Command+1 – code of executed command increased by one 1.
- Length – length of data frame in bytes.
- Data[] – Period, DallasTimeOut, AR_RS_EN, AR_RS_MULTI, AR_RS_SO
- OpCode – operation code

6.3.7 SETTING THE CONFIGURATION OF READING AUTOMAT

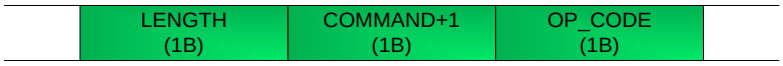
To set reading automat configuration, send to the device the following data frame:

Where:

- Command – code of *C_SetPLCAddr* order.
- Length – length of data frame in bytes.
- Data[ ]

Field	Parameter name	Description	Values allowed
Data[0]	RSSI	Minimum value of signal received from tags, above that read ID will be added to the buffer.	0x00 to 0x50 (Default value: 0)
Data[1]	Period	Interval of signal generation which is to stimulate the tags	10 to 255 (x 10 ms) (Default value: 50)
Data[2]	CardTimeOut	Time within which ID tags are stored in the buffer	1 to 255 (x 100 ms) (Default value: 50)

The device should respond with following data frame:



Where:

- Command+1 – code of executed order increase by 1.
- Length – length of DATA[ ] field in bytes.
- OpCode – operation code

6.3.8 READING THE CONFIGURATION OF READING AUTOMAT

To read a configuration of reading automat, send to the device the following data frame:

Where:

- Command – code of *C_GetReaderConfig* order.
- Length – length of data frame in bytes.

The device should respond with following data frame:

Where:

- Command+1 – code of executed order increase by 1.
- Length – length of data frame in bytes.
- Data[] – RSSI, Period, CardTimeOut
- OpCode – operation code

6.3.9 LAUNCHING THE BOOTLOADER

To force switching to the bootloader mode, send to the device the following data frame:

Where:

- Command – code of *C_RunBootloader* order.
- Length – length of data frame in bytes.
- Data[ ] – timeout in second, after which the program exits the bootloader and returns to an application

The device should respond with following data frame:

Where:

- Command+1 – code of executed command increase by 1.
- Length – length of data frame in bytes.
- OpCode – operation code

6.3.10 RESETTING THE MODEM

To reset the device, send to the device the following data frame:

Where:

- Command – code of *C_Reset* order.
- Length – length of data frames in bytes.

Order codes and operation codes

APPENDIX A. ORDER CODES AND OPERATION CODES

Commands codes are gathered in a table below.

Command	Command code	Description
C_FirmwareVersion	0xFE	Read-out of firmware version
C_SetInterfaceConfig	0x54	Setting the parameters of serial interfaces
C_GetInterfaceConfig	0x56	Reading the parameters of serial interfaces
C_SetAutoReaderConfig	0x58	Setting the autoreader parameters
C_GetAutoReaderConfig	0x5A	Reading the autoreader parameters
C_SetReaderConfig	0x5C	Setting the parameters concerning to read-out of transponders
C_GetReaderConfig	0x5E	Reading the parameters concerning to read-out of transponders
C_RunBootloader	0xD2	Entering to bootloader mode
C_Reset	0xD0	Resetting the device

Response codes are gathered in a table below.

Response	Response code	Description
OC_Successful	0xFF	Order executed correctly
OC_RangeError	0xF2	Incorrect parameter value
OC_LengthError	0xF1	Incorrect frame length
OC_UnknowCommand	0xF0	Unknown order
OC_Error	0xE0	Error
OC_NoACK	0xA0	No frame receiving confirmation

X-ON Electronics

Largest Supplier of Electrical and Electronic Components

Click to view similar products for Netronix ***manufacturer:***

Other Similar products are found below :

ACTS-2 AGEDI-B ANTENNA L112 50 MM COTER-E4I COTER-ECI CTU-D2R CTU-D2RM CTU-D4R CTU-D5N CTU-D5R CTU-M5N CTU-M5RM CTU-R5RM I2M-005 MM-R5 MW-D7G MW-R7B MW-R7G NANO-MS PAC-AUB PAC-DUB PAC-DUG PAC-PUB PLA-D6L PLA-MDK PLA-MDL PLA-R6L UW-D4G UW-DAL UW-R4G