UHF RFID Reader Communication Protocol

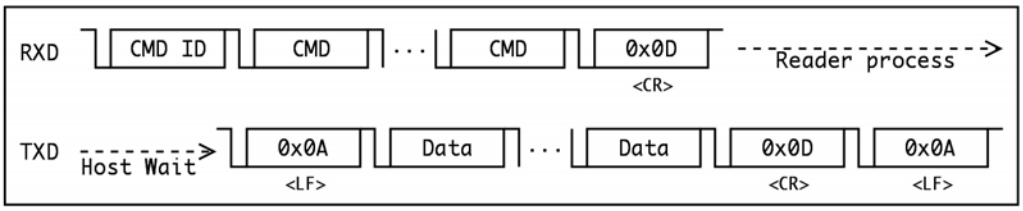
1.0. Reader Interface

1.1. UART

The Host send command and wait for reader return message, the UART parameter as follows:

Baud Rate: 38400 (default)
Data Bits: 8 bit
Stop Bits: 1 bit
Parity Bit: none

Figure 1 UART Communication



2.0. ASCII Protocol Commands

Command and return message is transmitted as **ASCII** format. All command is start with a command character and arguments (if any, in **hexadecimal** units) and stop with a <CR>(0x0D hex), and return message is start with a <LF>(0x0A hex) , command first character and stop with a <CR><LF>.
If command is none match, return message will be <LF>X<CR><LF>.
Ex.
PC or Host: S<CR>
Reader return message: <LF>S01234567<CR><LF>

2.1. RFID Command Overview

Command*	Return Message**	Description
V	Vxxyy,<message> xx: major version number yy: minor version number <message>: other info.	display reader firmware version
S	S01234567 01234567 is reader ID	display reader ID

Q	Q<none or EPC> <none or EPC> none: no tag in RF field EPC: PC+EPC+CRC16	display tag EPC ID
R<bank>,<address>,<length> <bank> memory bank 0: reserved 1: EPC 2: TID 3: USER <address> start address 0 ~ 3FFF <length> read word length 1 ~ 20	R<none or read data> or <error code> <none or read data> none: no tag in RF field <Error code> 0: other error 3: memory overrun 4: memory locked B: Insufficient power F: Non-specific error	read tag memory data
W<bank>,<address>, <length>,<data> <bank> memory bank 0: reserved 1: EPC 2: TID 3: USER <address> start address 0 ~ 3FFF <length> write words length 1 ~ 20	W<none or <OK>> or <error code> <none or <OK>> none: no tag in RF field <OK>: written ok <error code> 0: other error 3: memory overrun 4: memory locked B: Insufficient power F: Non-specific error Z00~Z1F: words write 3Z00~3Z1F: error code and words write	write data to tag memory
K<password>,<recom> <password> kill password 00000000~FFFFFFFF <recom> recommissioning 0~7	K<none or <OK>> or <error code> <none or <OK>> none: no tag in RF field <OK>: kill ok <error code> 0: other error 3: memory overrun	kill tag

	4: memory locked B: Insufficient power F: Non-specific error	
L<mask>,<action> <mask> lock mask 000~3FF <action> lock mask 000~3FF	L<none or <OK>> or <error code> <none or <OK>> none: no tag in RF field <OK>: lock ok <error code> 0: other error 3: memory overrun 4: memory locked B: Insufficient power F: Non-specific error	lock memory
P<password> <password> access password 00000000~FFFFFFFF	P	set access password for R W L command, one time use
U	U<none or EPC> <none or EPC> none: no tag in RF field EPC: PC+EPC+CRC16	Multi-TAG read EPC

*command is end followed by <CR>

*Return Message is start with <LF> stop with <CR><LF>

Example:

1. Read TID memory bank, start address at 0, read 4 words length, TID data is 0x1234567890

   Host send: R2,0,4<CR>

   Hex format: 52 32 2C 30 2C 34 0D

   Reader message: <LF>R123456789ABCDEF0<CR><LF>

   Hex format: 0A 52 31 32 33 34 35 36 37 38 39 41 42 43 44 45 46 30 0D 0A

2. Write USER memory bank, start address at 12, write 2 word length, write data is 0xAAAABBBB

   Host send: W3,C,2,AAAABBBB<CR>

   Hex format: 57 33 2C 43 2C 32 2C 41 41 41 41 42 42 42 42 0D

   Reader message: <LF>W<OK><CR><LF>

   Hex format: 0A 57 3C 4F 4B 3E 0D 0A

3.0. Remote Control Commands support

Command*	Return Message**	Description
M0,<key>,<flag>,<number of times> <key> key code 00~FF <flag> double key 0: no double key 1: flag1 2: flag2 3: flag1+flag2 4: flag3 5: flag1+flag3 6: flag2+flag3 <number of times> send numbers 00~FF 2: single key 37: pair key	M	sending remote control signal, use reader ID for default SN. Note: Every 90ms send a signal
M1,<key>,<flag>,<SN>,<number of times> <key> key code 00~FF <flag> double key 0: no double key 1: flag1 2: flag2 3: flag1+flag2 4: flag3 5: flag1+flag3 6: flag2+flag3 <SN>serial number 00000000~FFFFFFFF <number of times> send numbers 00~FF 2: single key 37: pair key	M	sending remote control signal with SN. Note: Every 90ms send a signal

*command is end followed by <CR>

4.0. Bi-direction Remote Control Commands support

Please reference document “FAVEPC Bidirectional Serial Communication Protocol”

5.0. Revision History

Revision	Description	Date
Ver. 2.2	Modify Q and U display PC+EPC+CRC16	2013/6/14
Ver. 2.3	Modify EPC length 256bit to 496bit Support Bi-directional Remote Control V04.xx: Firmware Version support	2013/11/08