



# **RD200 Serial USB RFID Reader Protocol Manual**

**Document Version  
V0192**

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## 0. Revision History

Date	Version	Description
13-Jul-09	0100	Initial version
22-Jul-09	0110	Add Mafire function commands
21-Aug-09	0111	Correct wrong value of LEN
13 July 2011	0150	Add ISO15693 function commands
12 Sep 2013	0160	Add Mifare UltraLight function commands
31 Dec 2013	0170	Add ISO-18000-6C function commands
2 Oct 2015	0192	Add Multi-TAG read EPC function commands

# 1. Introduction

This document specifies how a host controller can configure and command a RFID reader in order to read and write to RFID tags. The content of these messages is base on the type of RFID reader, and this document must be used in conjunction with the reference guide of the specific reader.

The RD200 protocol supports Binary format.

- STX is for a start of transmission. (STX = CHR\$(2) = 0x02)

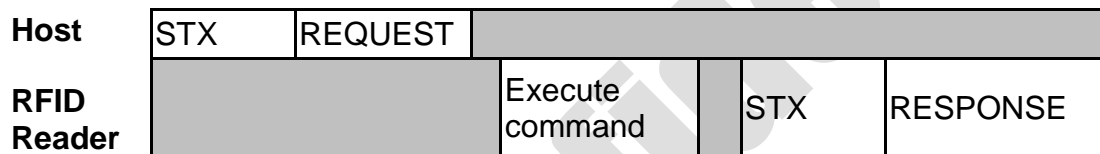


Figure 1 – Binary Request and Response

## 2. Command Descriptions

Host controller (PC) can send command to control the RD200 via USB virtual com port. And the command is composed of STX and Request message, and the Request message contains MSG LEN, COMMAND and DATA.

MSG LEN Field tells how many bytes are in the host request, not including the <STX> and not including the MSG LEN Field. In the request message, user could put parameters into the {DATA} field to change settings or carry data to the RD200.

### Request Command: Host (PC) → RD200



Figure 2.1 – Request Command Format

After host controller sent a command to RD200, it will respond a response message that contains MSG LEN, COMMAND, STATUS and DATA. User could according to the response message to know the request command whether it is success or fail.

### Response Data: RD200 → Host (PC)



Figure 2.2 – Response Data Format

<NOTE> Some of the commands are for specific models; the command title will be appended annotation of models, if not, which means that command can be used on all serial models.

## 2.1 Command Types

RD200 protocol provides 16 types of command to control the reader.

	Command	Description	
1	0x01	Read card data	
2	0x02	Reader action command	
3	0x03	Set reader parameters	
4	0x0C	Read/Write user data in EEPROM inside reader	
5	0x0D	Get serial number of reader	
6	0x0E	Get reader model and firmware version	
7	0x0F	System command	
<b>MIFARE Function Commands</b>			
8	0x11	Read MIFARE UID	RD200-M1 RD200-MIC
9	0x12	Write Key to EEPROM	RD200-M1 RD200-MIC
10	0x13	Ultralight/NTAG Read Data	RD200-M1 RD200-MIC
11	0x14	Ultralight/NTAG Write Data	RD200-M1 RD200-MIC
12	0x15	Read Data	RD200-M1 RD200-MIC
13	0x16	Write Data	RD200-M1 RD200-MIC
<b>ISO15693 Function Commands</b>			
14	0x21	ISO15693 Inventory	RD200-MIC
15	0x22	ISO15693 Read Block	RD200-MIC
16	0x23	ISO15693 Write Block	RD200-MIC
17	0x24	ISO15693 Information	RD200-MIC
<b>ISO-18000-6C Function Commands</b>			
18	0x00	ISO-18000-6C Command	RD200-U1
19	0xF0	ISO-18000-6C Command Multi-TAG read EPC Command	RD200-U1

Figure 2.1.1 – Command type table

## 2.2 Read Tag Data (0x01)

\*[ ] is HEX

Request				
	LEN	CMD	{DATA}	Description
<STX>	[01]	[01]		Read card data once and auto-erase <b>before</b> remove card
<STX>	[02]	[01]	[01]	Read card data once and auto-erase <b>after</b> remove card

Figure 2.2.1 – Read tag data – Request

Response					
	LEN	CMD	STATUS	{DATA}	Description
<STX>	[02]	[01]	[10]		Command error
<STX>	[02]	[01]	[01]		No card
<STX>	[0A]	[01]	[00]	[XX]*8	Shows up 8 Byte card data

Figure 2.2.2 – Read tag data - Response

## 2.3 Reader Action Command (0x02)

Request				
	LEN	CMD	{DATA}	Description
<STX>	[02]	[02]	[01]	Restore default action setting
<STX>	[02]	[02]	[02]	Beep + Green light On (0.5 sec)
<STX>	[02]	[02]	[03]	Beep + light Off (0.5 sec)
<STX>	[02]	[02]	[04]	Beep + Green light On (1 sec)
<STX>	[02]	[02]	[05]	Beep + light Off (1 sec)
<STX>	[02]	[02]	[06]	Beep (0.5sec)
<STX>	[02]	[02]	[07]	Bell (1sec)
<STX>	[02]	[02]	[08]	Green light On (1 sec)
<STX>	[02]	[02]	[09]	Light Off (1 sec)
<STX>	[02]	[02]	[11]	Stop sense card
<STX>	[02]	[02]	[12]	Start sense card
<STX>	[02]	[02]	[13]	Turn off the reader for 0.2sec then turn on.

Figure 2.3.1 – Reader action command - Request

Response					
	LEN	CMD	STATUS	{DATA}	Description
<STX>	[02]	[02]	[10]		Command error
<STX>	[02]	[02]	[00]		Command complete

Figure 2.3.2 – Read action command - Response



## 2.4 Set Reader Parameter (0x03)

### 2.4.1 Set USB Mode

Request					
	LEN	CMD	{DATA}	Description	
<STX>	[03]	[03]	[01]+{USB Mode}	{USB HID Mode} [01] = HID + Keyboard [02] = HID [03] = HID Auto Send  {USB Serial Mode} [01] = Serial Auto Send [02] = Serial Mode	

Figure 2.4.1 – Set USB Mode - Request

Response					
	LEN	CMD	STATUS	{DATA}	Description
<STX>	[03]	[03]	[00]	USB Mode	Command complete

Figure 2.4.2 – Set USB Mode – Response

### 2.4.2 Set Read Card Mode

Request					
	LEN	CMD	{DATA}	Description	
<STX>	[03]	[03]	[02]+{ReadCardMode}	{ReadCardMode} Bit.0 = Auto Read; 1 = ON, 0 = OFF Bit.1 = Beep; 1 = ON, 0 = OFF Bit.2 = LED; 1 = ON, 0 = OFF Bit.3 = Same Card; 1 = ON, 0 = OFF Bit.4 = Green Mode; 1 = ON, 0 = OFF	

Figure 2.4.3 – Set Read Card Mode - Request

#### Example – How to compute {Read Card Mode} value:

Set "Auto Read", "Beep", "LED", "Same Card" all ON, The value of {Read Card Mode} = 00001111 = [0F].

Read Card Mode							
bit 7	bit 6	bit 5	bit 4	bit 3	bit 2	bit 1	bit 0
0	0	0	0	1	1	1	1

Figure 2.4.4 – Example – Read Card Mode

Response					
	LEN	CMD	STATUS	{DATA}	Description
<STX>	[04]	[03]	[00]	02+ReadCardMode	Command complete

Figure 2.4.5 – Set Read Card Mode - Response

## 2.4.3 Keyboard Emulation Format

Request				
	LEN	CMD	{DATA}	Description
<STX>	[05]	[03]	[03]+{UID Format + Reverse UID + Add Type}	<p><b>{UID Format} – UID Sending Format</b>            [01]=4H; [02]=5D; [03]=6H; [04]=8D;            [05]=8H; [06]=10D; [07]=10H; [08]=13D;            [09]=16H; [0A]=4D;            [0B]=ASC; [0C]=32H;</p> <p><b>{Reverse UID} – Reverse UID</b>            [01]=Normal; [02]=Reverse Byte;            [03]=Reverse Bit</p> <p><b>{Add Type} – Add Separation Symbol and Enter</b>            Bit.0=Comma(,);            Bit.1=Add ([ ]);            Bit.2=Add ( ' ');            Bit.3=Add Space;            Bit.4=Add Up;            Bit.5=Add Down;            Bit.6=Add Left;            Bit.7=Add Enter(CR+LF);</p>

Figure 2.4.6 – Keyboard Simulation Format - Request

Response					
	LEN	CMD	STATUS	{DATA}	Description
<STX>	[06]	[03]	[00]	[03]+UID Format + Reverse UID+ Add Type	Command complete

Figure 2.4.7 –Keyboard Simulation Format - Response

## 2.4.4 Read Card Postponement Time

Request				
	LEN	CMD	{DATA}	Description
<STX>	[03]	[03]	[04] + {Postponement Time}	Postponement Time [00] - [FF] <b>(Default: 5)</b> Unit: 10ms

Figure 2.4.8 – Read Card Postponement Time - Request

Response					
	LEN	CMD	STATUS	{DATA}	Description
<STX>	[04]	[03]	[00]	[04]+ Postponement Time	Command complete

Figure 2.4.9 – Read Card Postponement Time - Response

## 2.4.5 Same Card Detection Time

Request				
	LEN	CMD	{DATA}	Description
<STX>	[03]	[03]	[05] + {Detection Time}	Detection Time [00] – [FF] <b>(Default: 15)</b> Unit: 100ms

Figure 2.4.10 – Same Card Detection Time - Request

Response					
	LEN	CMD	STATUS	{DATA}	Description
<STX>	[04]	[03]	[00]	[05] + Detection Time	Command complete

Figure 2.4.11 – Same Card Detection Time - Response

## 2.4.6 Keypad Delay Time

Request				
	LEN	CMD	{DATA}	Description
<STX>	[03]	[03]	[06] + {Delay Time}	Delay Time [00] – [FF] (Default: 10) Unit: ms

Figure 2.4.12 – Keypad Delay Time - Request

Response					
	LEN	CMD	STATUS	{DATA}	Description
<STX>	[04]	[03]	[00]	[06] + Delay Time	Command complete

Figure 2.4.13– Keypad Delay Time - Response

## 2.4.7 Mifare Reading Sector Setting <RD200-M1/RD200-MIC>

Request				
	LEN	CMD	{DATA}	Description
<STX>	[08]	[03]	[11] + {ReadSector + ReadBlock + ReadStart + ReadByte + ReadKey + ReadMsg}	[ReadSector] – Read Sector Number (Default: 0) [ReadBlock] – Read Block Number (Default: 0) [ReadStart] – The start byte of read block (Default: 0) [ReadByte] – The number of byte of read block (Default: 4) [ReadKey] -- Verifying condition (Default: 0) 0=KeyA 1=KeyB [ReadMsg] – Set reader action when reading (Default: 0) Bit.0=LED Bit.1=BELL

Figure 2.4.14 – Mifare Reading Sector Setting - Request

Response					
	LEN	CMD	STATUS	{DATA}	Description
<STX>	[09]	[03]	[00]	[11] + [ReadSector] + [ReadBlock] + [ReadStart] + [ReadByte] + [ReadKey] + [ReadMsg]	Command complete

Figure 2.4.15 – Mifare Reading Sector Setting - Response

## 2.4.8 ISO15693 Read Block Setting <RD200-MIC>

Request				
	LEN	CMD	{DATA}	Description
<STX>	[05]	[03]	[21] + {ReadBlock+ ReadStart+ReadByte}	[ReadBlock] – Read block number (Default: 0) [ReadStart] -- The start byte of read block (Default: 0) [ReadByte] – The number of byte of read block (Default: 4)

Figure 2.4.16 – ISO15693 Read Block Setting - Request

Response					
	LEN	CMD	STATUS	{DATA}	Description
<STX>	[06]	[03]	[00]	[21] + [ReadBlock] + [ReadStart] + [ReadByte]	Command complete

Figure 2.4.17 – ISO15693 Read Block Setting - Response

## 2.4.9 Set MIC Read Card Type <RD200-MIC>

Request				
	LEN	CMD	{DATA}	Description
<STX>	[03]	[03]	[23] + {CardType}	[Card Type] Bit.0 = ISO15693 Bit.1 = ISO14443A

Figure 2.4.18– Set MIC Read Card Type - Request

Response					
	LEN	CMD	STATUS	{DATA}	Description
<STX>	[04]	[03]	[00]	[23] + [CardType]	Command complete

Figure 2.4.19 –Set MIC Read Card Type - Response

## 2.4.10 Set Available Card Type <RD200-LF>

Request				
	LEN	CMD	{DATA}	Description
<STX>	[03]	[03]	[31] + {Card Type}	{Card Type} Bit.0=EM/TEMIC Bit.1=SYRIS Bit.2=SECURITY Bit.3=FDX-B (ISO11784) Bit.4=SOKYMAT TITAN (Option) Bit.5=HID Proximity (Option)

Figure 2.4.20 – Set Available Card Type – Request

Response					
	LEN	CMD	STATUS	{DATA}	Description
<STX>	[04]	[03]	[00]	[31] + [Card Type]	Command complete
<STX>	[02]	[03]	[10]		Command error

Figure 2.4.21 – Set Available Card Type - Response

## 2.5 Read/Write User Data on EEPROM (0x0C)

Request				
	LEN	CMD	{DATA}	Description
<STX>	[LEN]	[0C]	[AddrHigh] + [AddrLow] + [Num]	[AddrHigh]&[AddrLow] - The address range of read that value is [00]-[FF]  [Num] – Number of read
<STX>	[LEN]	[0C]	[AddrHigh] + [AddrLow] + [Num] + [Data]*8	[AddrHigh]&[AddrLow] - The address range of writing that value is [00]-[FF]  [Num] – Number of writing  [Data]*8 – Enter the 8 HEX numbers

Figure 2.5.1 – Read/Write User Data on EEPROM - Request

Response					
	LEN	CMD	STATUS	{DATA}	Description
<STX>	[LEN]	[0C]	[10]		Command error
<STX>	[LEN]	[0C]	[00]	[AddrHigh] + [AddrLow] + [Num] + [Data]*Num	Response data

Figure 2.5.2 –Read/Write User Data on EEPROM – Response

## 2.6 Get Serial Number of Reader (0x0D)

Request				
	LEN	CMD	{DATA}	Description
<STX>	[01]	[0D]		Get serial number of reader

Figure 2.6.1 – Get Serial Number of Reader - Request

Response					
	LEN	CMD	STATUS	{DATA}	Description
<STX>	[02]	[0D]	[10]		Command error
<STX>	[0A]	[0D]	[00]	[Data]*8	Command complete Check "Response Data" - "ASCII" column for decimal number

Figure 2.6.2 –Get Serial Number of Reader - Response

## 2.7 Get Reader Model & Firmware Version (0x0E)

Request				
	LEN	CMD	{DATA}	Description
<STX>	[01]	[0E]		Get reader model name & firmware version

Figure 2.7.1 – Get Reader Model Name &amp; Firmware Version- Request

Response					
	LEN	CMD	STATUS	{DATA}	Description
<STX>	[02]	[0E]	[10]		Command error
<STX>	[12]	[0E]	[00]	[Data]*16	Command complete Check "Response Data" - "ASCII" column for readable data

Figure 2.7.2 –Get Reader Model Name &amp; Firmware Version - Response

## 2.8 System Command (0x0F)

Request				
	LEN	CMD	{DATA}	Description
<STX>	[02]	[0F]	[01]	Reboot
<STX>	[02]	[0F]	[02]	Restore default setting

Figure 2.8.1 – System Command- Request

Response					
	LEN	CMD	STATUS	{DATA}	Description
<STX>	[02]	[0F]	[10]		Command error
<STX>	[02]	[0F]	[00]		Command complete

Figure 2.8.2 – System Command - Response



## 3. Mifare Function Commands

We separate the part of Mifare function commands in this section that commands are available for RD200-MIC and RD200-M1.

### 3.1 Read Mifare UID (0x11)

Request				
	LEN	CMD	{DATA}	Description
<STX>	[01]	[11]		Read Mifare card UID

Figure 3.1.1 – Read Mifare UID - Request

Response					
	LEN	CMD	STATUS	{DATA}	Description
<STX>	[02]	[11]	[10]		Command error
<STX>	[02]	[11]	[01]		No card
<STX>	[06]	[11]	[00]	[Data]*4	Command complete

Figure 3.1.2 – Read Mifare UID – Response

### 3.2 Write Key to EEPROM (0x12)

Request				
	LEN	CMD	{DATA}	Description
<STX>	[0A]	[12]	[Key Type] + [Key Value] + [Sector Number]	<b>[Key Type]:</b> [60] = KeyA, [61] = KeyB  <b>[Key Value]:</b> e.g. [FF FF FF FF FF FF]  <b>[Sector Number]:</b> e.g. [01]

Figure 3.2.1 – Write Key to EEPROM - Request

Response					
	LEN	CMD	STATUS	{DATA}	Description
<STX>	[02]	[12]	[10]		Command error
<STX>	[02]	[12]	[00]		Command complete

Figure 3.2.2 – Write Key to EEPROM - Response

### 3.3 Ultralight/NTAG Read Data (0x13)

Request				
	LEN	CMD	{DATA}	Description
<STX>	[04]	[13]	[00] + [00] + [Block Number]	[Block Number]: e.g. [00]

Figure 3.3.1 –Ultralight/NTAG Read Data - Request

Response					
	LEN	CMD	STATUS	{DATA}	Description
<STX>	[02]	[13]	[10]		Command error
<STX>	[02]	[13]	[01]		No card or invalid Key
<STX>	[12]	[13]	[00]	[Data]*16	Command complete

Figure 3.3.2 –Ultralight/NTAG Read Data - Response

### 3.4 Ultralight/NTAG Write Data (0x14)

Request				
	LEN	CMD	{DATA}	Description
<STX>	[14]	[14]	[00] + [00] + [Block Number] + [Data]*16	<p>[Block Number]: e.g. [00]</p> <p>[Data]: e.g. [FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF]</p>

Figure 3.4.1 –Ultralight/NTAG Write Data - Request

Response					
	LEN	CMD	STATUS	{DATA}	Description
<STX>	[02]	[14]	[10]		Command error
<STX>	[02]	[14]	[01]		No card or invalid Key
<STX>	[12]	[14]	[00]	[Data]*16	Command complete

Figure 3.4.2 –Ultralight/NTAG Write Data - Response

### 3.5 Read Data (0x15)

Request				
	LEN	CMD	{DATA}	Description
<STX>	[04]	[15]	[Key Type] + [Sector Number] + [Block Number]	<b>[Key Type]:</b> [60] = KeyA, [61] = KeyB <b>[Sector Number]:</b> e.g. [01] <b>[Block Number]:</b> e.g. [00]
<STX>	[0A]	[15]	[Key Type] + [Key Value] + [Sector Number] + [Block Number]	<b>[Key Type]:</b> [60] = KeyA, [61] = KeyB <b>[Key Value]:</b> e.g. [FF FF FF FF FF FF] <b>[Sector Number]:</b> e.g. [01] <b>[Block Number]:</b> e.g. [00]

Figure 3.5.1 – Read Data - Request

Response					
	LEN	CMD	STATUS	{DATA}	Description
<STX>	[02]	[15]	[10]		Command error
<STX>	[02]	[15]	[01]		No card or invalid Key
<STX>	[12]	[15]	[00]	[Data]*16	Command complete

Figure 3.5.2 – Read Data - Response

### 3.6 Write Data (0x16)

Request				
	LEN	CMD	{DATA}	Description
<STX>	[14]	[16]	[Key Type] + [Sector Number] + [Block Number] + [Data]*16	<p><b>[Key Type]:</b> [60] = KeyA, [61] = KeyB</p> <p><b>[Sector Number]:</b> e.g. [01]</p> <p><b>[Block Number]:</b> e.g. [00]</p> <p><b>[Data]:</b> e.g. [FF FF FF FF FF FF FF FF FF FF FF FF]</p>
<STX>	[1A]	[16]	[Key Type] + [Key Value] + [Sector Number] + [Block Number] + [Data]*16	<p><b>[Key Type]:</b> [60] = KeyA, [61] = KeyB</p> <p><b>[Key Value]:</b> e.g. [FF FF FF FF FF FF]</p> <p><b>[Sector Number]:</b> e.g. [01]</p> <p><b>[Block Number]:</b> e.g. [00]</p> <p><b>[Data]:</b> e.g. [FF FF FF FF FF FF FF FF FF FF FF FF]</p>

Figure 3.6.1 – Write Data - Request

Response					
	LEN	CMD	STATUS	{DATA}	Description
<STX>	[02]	[16]	[10]		Command error
<STX>	[02]	[16]	[01]		No card or invalid Key
<STX>	[12]	[16]	[00]	[Data]*16	Command complete

Figure 3.6.2 – Write Data – Response

## 4. ISO15693 Function Commands

We separate the part of ISO15693 function commands in this section that commands are available for RD200-MIC.

### 4.1 ISO15693 Inventory (0x21)

Request				
	LEN	CMD	{DATA}	Description
<STX>	[01]	[21]		ISO15693 Inventory

Figure 4.1.1 – ISO15693 Inventory - Request

Response					
	LEN	CMD	STATUS	{DATA}	Description
<STX>	[02]	[21]	[10]		Command error
<STX>	[02]	[21]	[01]		No card
<STX>	[0C]	[21]	[00]	[Data]*10	Command complete

Figure 4.1.2 – ISO15693 Inventory – Response

## 4.2 ISO15693 Read Block (0x22)

Request				
	LEN	CMD	{DATA}	Description
<STX>	[0B]	[22]	[UID] + [Block No] + [Block Number]	<b>[UID]:</b> ex.[F6 0C CF 07 00 01 04 E0] <b>[Block No]:</b> e.g. [00] <b>[Block Number]:</b> e.g. [01]

Figure 4.2.1 – ISO15693 Read Block - Request

Response					
	LEN	CMD	STATUS	{DATA}	Description
<STX>	[02]	[22]	[10]		Command error
<STX>	[02]	[22]	[01]		No card or invalid Key
<STX>	[07]	[22]	[00]	[Bytes] + [Value]	Command complete <b>[Bytes]:</b> [04] ([Block Number]*4) <b>[Value]:</b> [11 22 33 44]

Figure 4.2.2 – ISO15693 Read Block - Response

### 4.3 ISO15693 Write Block (0x23)

Request				
	LEN	CMD	{DATA}	Description
<STX>	[0F]	[23]	[UID] + [Block No] + [Block Number] + [Value]	<b>[UID]:</b> ex.[F6 0C CF 07 00 01 04 E0] <b>[Block No]:</b> e.g. [00] <b>[Block Number]:</b> e.g. [01] <b>[Value]:</b> [11 22 33 44]

Figure 4.3.1 – ISO15693 Write Block - Request

Response					
	LEN	CMD	STATUS	{DATA}	Description
<STX>	[02]	[23]	[10]		Command error
<STX>	[02]	[23]	[01]		No card or invalid Key
<STX>	[07]	[23]	[00]	[Bytes] + [Value]	Command complete <b>[Bytes]:</b> [04] ([Block Number]*4) <b>[Value]:</b> [11 22 33 44]

Figure 4.3.2 – ISO15693 Write Block - Response



## 4.4 ISO15693 Information (0x24)

Request				
	LEN	CMD	{DATA}	Description
<STX>	[09]	[24]	[UID]	[UID]: ex.[F6 0C CF 07 00 01 04 E0]

Figure 4.4.1 – ISO15693 Information - Request

Response					
	LEN	CMD	STATUS	{DATA}	Description
<STX>	[02]	[24]	[10]		Command error
<STX>	[02]	[24]	[01]		No card
<STX>	[11]	[24]	[00]	[Data]*15	Command complete

Figure 4.4.2 – ISO15693 Information – Response

## 5. ISO-18000-6C Function Commands

We separate the part of ISO-18000-6C function commands in this section that commands are available for RD200-U1.

\*\* CMD=[F0] is support Multi-TAG read EPC.

### 5.1 ISO-18000-6C Read data ('R')

Request				
	LEN	CMD	{DATA}	Description
<STX>	[08]	[00] or [F0]	'R' + [Bank] + ',' + [Addr] + ',' + <Length>	<b>[Bank]:</b> 1:EPC; 2:TID; 3:USER <b>[Addr]:</b> 0-3FFF <b>[Length]:</b> 1-20
			ex: "R1,2,4"	

Figure 5.1.1 – ISO-18000-6C Read Data - Request

Response					
	LEN	CMD	STATUS	{DATA}	Description
<STX>	[02]	[00] or [F0]	[10]		Command error
<STX>	[03]	[00] or [F0]	[00]	'R'	No tag
<STX>	[??]	[00] or [F0]	[00]	'R'+[Data]	Command complete <b>[Data]:</b> Read data
<STX>	[??]	[00] or [F0]	[00]	[Error code]	Command complete <b>[Error code]:</b> 0:Other error 3:Memory overrun 4:Memory locked B:Insufficient power F:Non-specific error

Figure 5.1.2 – ISO-18000-6C Read Data - Response

## 5.2 ISO-18000-6C Write data ('W')

Request				
	LEN	CMD	{DATA}	Description
<STX>	[18]	[00] or [F0]	'W' + [Bank] + ',' + [Addr] + ',' + <Length> + ',' + <Data>	<b>[Bank]:</b> 1:EPC; 2:TID; 3:USER <b>[Addr]:</b> 0-3FFF <b>[Length]:</b> 1-20 <b>[Data]:</b> Write data
			ex: "W1,2,4,1111111111111111"	

Figure 5.2.1 – ISO-18000-6C Write Data - Request

Response					
	LEN	CMD	STATUS	{DATA}	Description
<STX>	[02]	[00] or [F0]	[10]		Command error
<STX>	[03]	[00] or [F0]	[00]	'W'	No tag
<STX>	[05]	[00] or [F0]	[00]	'W'+"OK"	Command complete <b>[Data]:</b> Written ok
<STX>	[??]	[00] or [F0]	[00]	[Error code]	Command complete <b>[Error code]:</b> 0:Other error 3:Memory overrun 4:Memory locked B:Insufficient power F:Non-specific error

Figure 5.2.2 – ISO-18000-6C Write Data - Response

## 5.3 ISO-18000-6C Kill tag ('K')

Request				
	LEN	CMD	{DATA}	Description
<STX>	[??]	[00] or [F0]	'K' + [Password] + ',' + [recom]	[Password]: 00000000-FFFFFFFF
			ex: "K00000000,0"	[Recom]: 0-7

Figure 5.3.1 – ISO-18000-6C Kill Tag - Request

Response					
	LEN	CMD	STATUS	{DATA}	Description
<STX>	[02]	[00] or [F0]	[10]		Command error
<STX>	[03]	[00] or [F0]	[00]	'K'	No tag
<STX>	[05]	[00] or [F0]	[00]	'K'+"OK"	Command complete [Data]: Kill ok
<STX>	[??]	[00] or [F0]	[00]	[Error code]	Command complete [Error code]: 0:Other error 3:Memory overrun 4:Memory locked B:Insufficient power F:Non-specific error

Figure 5.3.2 – ISO-18000-6C Kill Tag - Response

## 5.4 ISO-18000-6C Lock memory ('L')

Request				
	LEN	CMD	{DATA}	Description
<STX>	[05]	[00] or [F0]	'L' + [Mask] + ',' + [Action]	[Mask]: 0-3FFF [Action]: 0-3FFF
			ex: "L1,1"	

Figure 5.4.1 – ISO-18000-6C Lock memory- Request

Response					
	LEN	CMD	STATUS	{DATA}	Description
<STX>	[02]	[00] or [F0]	[10]		Command error
<STX>	[03]	[00] or [F0]	[00]	'L'	No tag
<STX>	[05]	[00] or [F0]	[00]	'L'+"OK"	Command complete [Data]: Written ok
<STX>	[??]	[00] or [F0]	[00]	[Error code]	Command complete [Error code]: 0:Other error 3:Memory overrun 4:Memory locked B:Insufficient power F:Non-specific error

Figure 5.4.2 – ISO-18000-6C Lock memory - Response

## 5.5 ISO-18000-6C Set password ('P')

Request				
	LEN	CMD	{DATA}	Description
<STX>	[1A]	[00] or [F0]	'P' + [Password]	<b>[Password]:</b> 00000000-FFFFFFFF  set access password for R W L command, one time use
			ex: "P00000000"	

Figure 5.5.1 – ISO-18000-6C set password - Request

Response					
	LEN	CMD	STATUS	{DATA}	Description
<STX>	[02]	[00] or [F0]	[10]		Command error
<STX>	[03]	[00] or [F0]	[00]	'P'	

Figure 5.5.2 – ISO-18000-6C set password - Response

## 5.6 ISO-18000-6C Multi-TAG Read ('U')

Request				
	LEN	CMD	{DATA}	Description
<STX>	[03]	[00] or [F0]	'U'	Multi-TAG read EPC

Figure 5.6.1 – ISO-18000-6C Multi-TAG Read - Request

Response					
	LEN	CMD	STATUS	{DATA}	Description
<STX>	[02]	[00] or [F0]	[10]		Command error
<STX>	[03]	[00] or [F0]	[00]	'U'	No tag
<STX>	[??]	[00] or [F0]	[00]	'U'+<EPC>	Command complete [EPC]: PC+EPC+CRC16

Figure 5.6.2 – ISO-18000-6C Multi-TAG Read - Response

## 5.7 ISO-18000-6C Select matching tag ('T')

Request				
	LEN	CMD	{DATA}	Description
<STX>	[??]	[00] or [F0]	'T' + [Bank] + ',' + [BitAddr] + ',' + <BitLength> + ',' + <BitData>	<b>[Bank]:</b> 1:EPC; 2:TID; 3:USER <b>[BitAddr]:</b> 0-3FFF <b>[BitLength]:</b> 1-60 <b>[BitData]:</b> select bit mask data
			ex: "T1,2,16,1111"	

Figure 5.7.1 – ISO-18000-6C Select matching tag - Request

Response					
	LEN	CMD	STATUS	{DATA}	Description
<STX>	[02]	[00] or [F0]	[10]		Command error
<STX>	[03]	[00] or [F0]	[00]	'T'	

Figure 5.7.2 – ISO-18000-6C Select matching tag - Response