JMY680G IC Card Reader

User's manual

(Revision 3.50)

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2012/6/28

Contents

1 Product introduction

JMY680G is a RFID read/write module with UART, IIC, RS232C or USB port. JMY680G has various functions and supports multi ISO/IEC standard of contactless card. The RF protocol is complex, but the designer combined some frequent used command of RF card and then user could operate the cards with full function by sending simple command to the module. The modules build in SAM slot. It could operate contact smart card according to ISO7816.

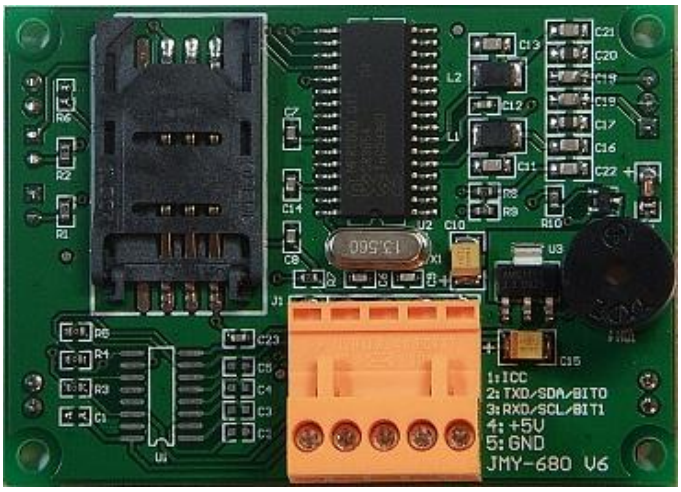
The module and antenna is integrated. The impedance between RF circuit and antenna was tuned by impedance analyzer, and then the module has excellent performance and stability. There is ferrite plate between main PCB and antenna, so such design applies to some metallic-around systems.

2 Characteristics

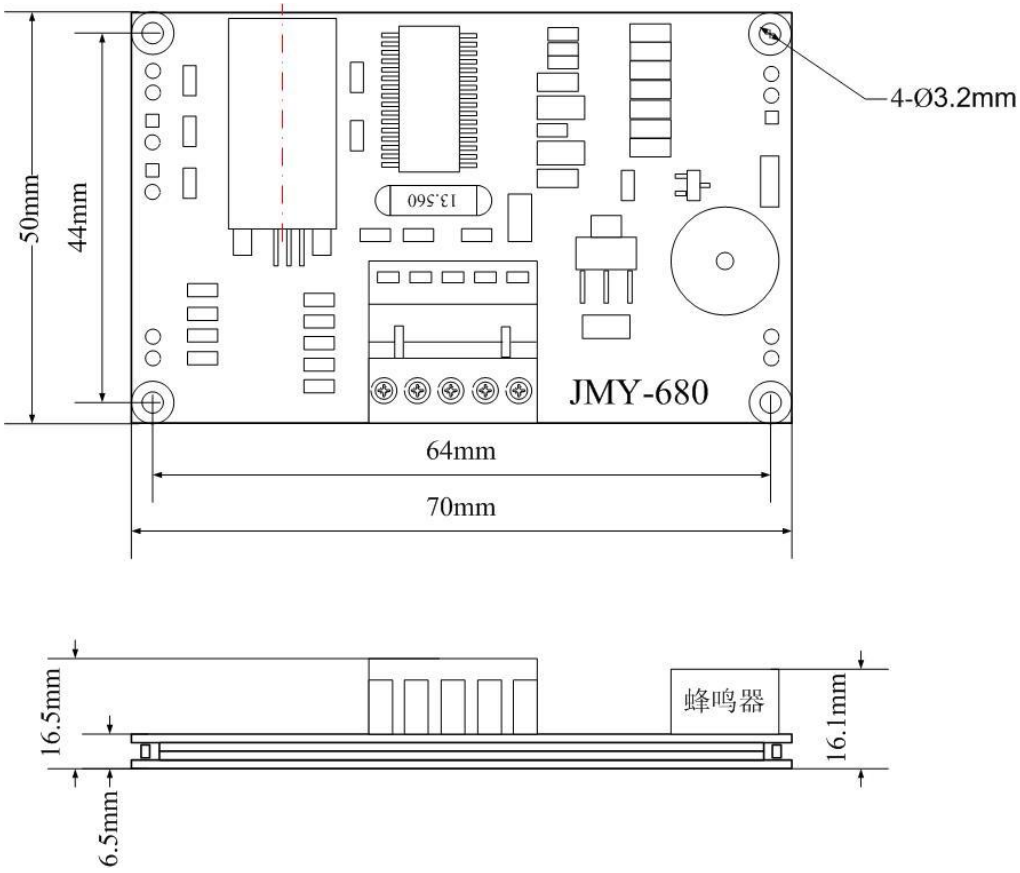
- PCD model: NXP SL RC400
- Working frequency: 13.56MHz
- Supported standard: ISO15693, ISO7816
- Card supported: TI Tag It, I. Code SLI, ST LRI and other tags according to ISO15693, and ISO7816 SAM cards (both T=0 & T=1)
- Anti collision ability: Full function anti collision; be able to process multi-cards; be able to set operate single card only
- Auto detecting card: Supported, default OFF. The default state can be set
- SAM slot: 1 slot
- SAM baud rate: 9600bps/38400bps
- ISO7816 PPSS set: supported
- EEPROM: 512 Bytes
- Power supply: DC 5V (±0.5V)
- Interface: IIC/UART/RS232C/USB (select while place order)
- Communication rate: IIC: 400Kbps
  UART/RS232C/USB: 19.2Kbps/115.2Kbps
- Max. command length: 254 Bytes
- Interface level: UART/IIC: 3.3V (TTL level; 5V tolerance)
- Static power consumption: 150mA
- Operating distance: 80mm (depending on card)
- Dimension: 70mm*50mm*16.5mm
- Weight: About 120g
- ISP: Supported
- Operating temperature: -25 to +85 ℃
- Storage temperature: -40 to +125 ℃
- RoHS: Compliant

3 Physical parameter and pin outs

3.1 Photo



3.2 Dimension



3.3 Pin configurations and pin outs

Pin number	Function	Type	Description
1	ICC	Output	Card in/out indication 0: Card IN; 1: Card OUT
2	TXD/SDA	Input/output	RS232C TXD / UART TXD / IIC SDA
3	RXD/SCL	Input	RS232C RXD / UART RXD / IIC SCL
4	VCC	Power	VCC
5	GND	Power	GND

3.4 Model available

- JMY680GI IIC interface
- JMY680GT UART interface, TTL level
- JMY680GS RS232C (UART interface, RS232 level)
- JMY680GU USB to UART Bridge (Mini USB port with 5 pins)

3.5 Model naming rule

3.5.1 Model format

1	2	3	4
JMY	680	X	X

1: company code; 2: product series code; 3: card operating type; 4: communication port type

3.5.2 Card operating type

M: PCD is RC500, support Mifare Class
A: PCD is RC500, support ISO14443A and Mifare Class
C: PCD is RC531, support ISO14443A, ISO14443B and Mifare Class
G: PCD is RC400, support ISO15693
H: PCD is RC632, support ISO15693, ISO14443A, ISO14443B and Mifare Class
D: PCD is RC500, support ISO14443A and Mifare Class with 511 bytes communication buffer
E: PCD is RC531, support ISO14443A/B and Mifare Class with 511 bytes communication buffer
F: PCD is RC632, support ISO15693, ISO14443A, ISO14443B and Mifare Class with 511 bytes communication buffer

3.5.3 Communication port

I: IIC
T: UART
S: RS232C
U: USB

4 Communication Protocols

4.1 Overview

There are optional IIC, UART or RS232C 3 types' hardware interface between the module and host. The communication rate of IIC is high. Moreover, IIC mode is very convenient, user may not modify the sample code except pin definition for actually use. The advantage of RS232C is the long communication distance, but UART don't need the modulate chip in the control terminal compare with RS232C.

Whatever types of interface user chooses. Please read this chapter before programming and refer to the sample program. There are detailed comments in the sample source code.

4.2 UART protocol

4.2.1 Parameters

The communication protocol is byte oriented. Both sending and receiving bytes are in hexadecimal format. The communication parameters are as follows:

- Baud rate: 19200bps(default), 115200bps
- Data bits: 8 bits
- Stop bits: 1 bit
- Parity check: None
- Flow control: None

4.2.2 Data send format

Length	Command	Data	Checksum

- Length: 1 byte, number of bytes from Command length byte to the last byte of Data
- Command: 1 byte, the command of this instruction
- Data: length depends on the command type, length from 0 to 251 bytes
- Checksum: 1 byte, Exclusive OR (XOR) results from length byte to the last byte of data

4.2.3 Data return format

- Success:

Length	Command	Data	Checksum

- Failure:

Length	Invert Command	Checksum

4.3 IIC protocol

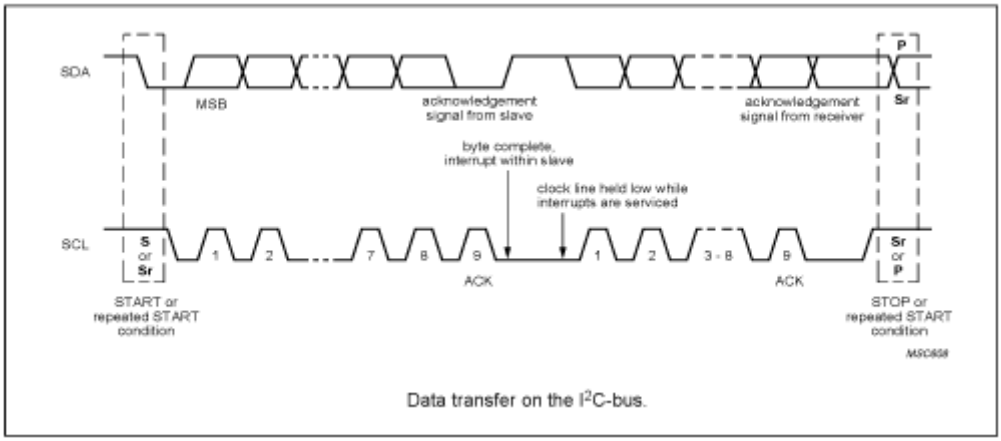
4.3.1 Module IIC address and multi device communications

IIC bus is able to connect with 128 devices. The IIC address of module is default 0xA0. Users change the address setting via sending the command (0x19), so that user could connect multi modules on the same IIC bus.

4.3.2 IIC device operation

4.3.2.1 Clock and data transaction

The SDA pin is normally pulled high with an external device. Data on the SDA pin may change only during SCL low time periods. Data changes during SCL high periods will indicate a start or stop condition as defined below.



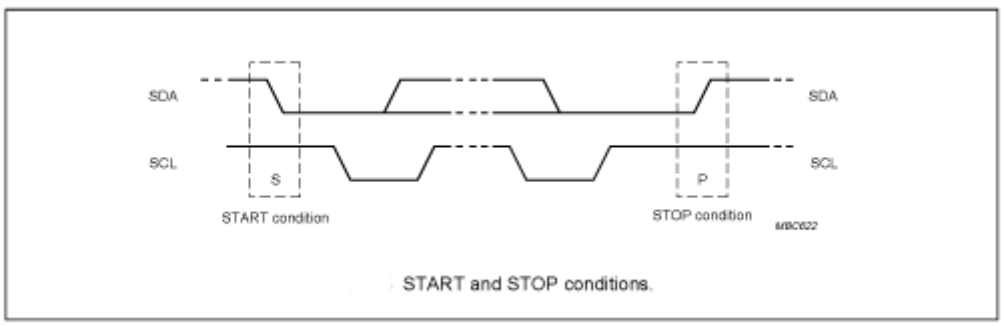
Data transfer on the I²C-bus.

4.3.2.2 Start condition

A high-to-low transition of SDA with SCL high is a start condition, which must precede any other command.

4.3.2.3 Stop condition

A low-to-high transition of SDA with SCL high is a stop condition.



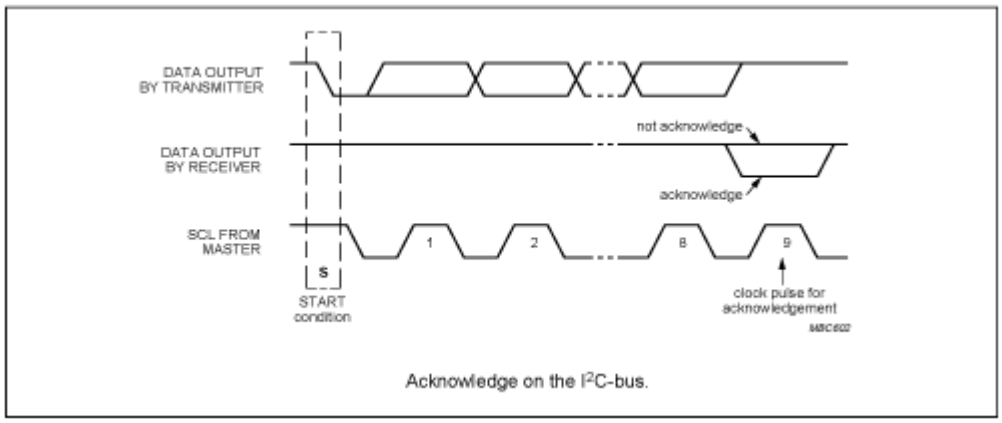
START and STOP conditions.

4.3.2.4 Acknowledge (ACK)

All addresses and data words are serially transmitted to and from the module in 8-bit words. The module sends a zero to acknowledge that it is not busy and has received each word. This happens during the ninth clock cycle.

4.3.2.5 Bus state

When the module has received command, and then doesn't acknowledge IIC bus until ends with the card communication.



Acknowledge on the I²C-bus.

4.3.2.6 Device addressing

The module requires a 8-bit device address following a start condition to enable the chip for a read or write operation.

The device address word consists of 7 addressing bits and 1 operation select bit.

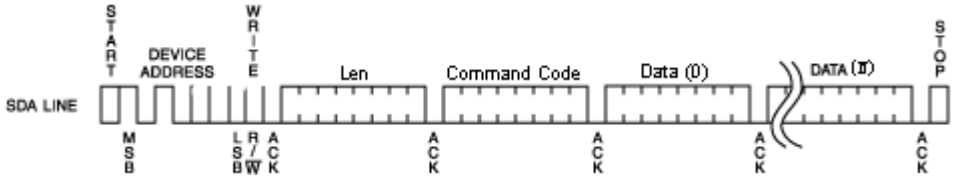
The first 7 bits of the module address are 1010000 (0xA0 in hex)

The eighth bit of the device address is the read/write operation select bit. A read operation is initiated if this bit is high and a write operation is initiated if this bit is low.

The first byte after the START procedure.

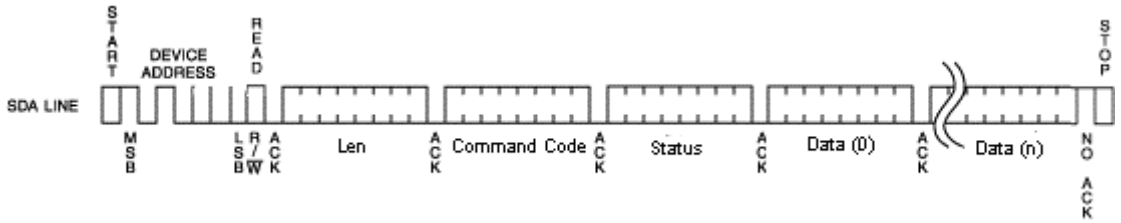
4.3.2.7 Write data operation

The host device sends a command to module via write operation.



4.3.2.8 Read data operation

The host device gets result via read operation.



4.3.3 Data transaction

The module is a slave device of the IIC bus, then the host need to write the command package to module. The module will execute the command. Then the host needs to poll the status of the module while it is working by sending out the command of "read" continuously. If the module answered to a read operation, then the last command execution were finished. At this time the host could read the result and/or data from the module. The read and write operation see chapter 4.3.2.7 and 4.3.2.8.

4.3.4 Data send format

Length	Command	Data	Checksum

- Length: 1 byte, number of bytes from Command length byte to the last byte of Data
- Command: 1 byte, the command of this instruction
- Data: length depends on the command type, length from 0 to 251 bytes
- Checksum: 1 byte, Exclusive OR (XOR) results from length byte to the last byte of data

4.3.5 Data return format

- Success:

Length	Command	Data	Checksum

- Failure:

Length	Invert Command	Checksum

4.3.6 Description of IIC command transaction

E.g.: to read the block 1 of Mifare card, the steps:
Send command: 0A210001FFFFFFFFFFFF2A
There are steps here:

A. Write command to module
   1. Start condition
   2. Send control byte, it is 0xA0, the meaning is: address 0xA0 + write control 0x00
   3. Send module command: 0x0A210001FFFFFFFFFFFF

4. Send command checksum: 0x2A
5. Stop condition

B. Send IIC read command. If module no ACK, then the module is working. Repeat this step.
1. Start condition
2. Send control byte 0xA1, the meaning is address 0xA0 + read control 0x01
3. If module is no ACK, go to step B. if yes, go to step C

C. Get the data bytes from module
1. Get the first byte and send ACK, if the data is 0x12, the meaning is there are 0x12 bytes useful bytes in this package.
2. Get the else 17 bytes data(0x12-1=0x11) and send ACK after every byte
3. Get the checksum and send NACK
4. Stop condition

D. Verify the checksum. if ok then the communication is ok

E. Verify the received data from second byte; this byte is the status of the command just executed. If equal to the command (0x21) then the command execute successful. Then the following 16 bytes data which is the data that to be read in the card.

5 Description of commands

5.1 List of commands

Command code	Command function
0x10	Read product information
0x11	Module working mode set
0x12	Sets module idle
0x13	Set LED
0x14	Set buzzers
0x15	EEPROM read
0x16	EEPROM write
0x17	Set UART communication baud rate
0x19	Set IIC address
0x1A	Set multi-card operation
0x1B	Set ISO15693 automatic detecting card AFI and AFI enable
0x1C	Set automatic detecting card interval time
0x1D	Set the default automatic detect card state default
0x1E	Set automatic detect card and output card UID default
0x50	SAM slot default baud rate set
0x51	SAM reset
0x52	Set SAM baud rate after reset (through PPSS)
0x53	Send APDU to SAM
0x5C	ISO15693 inventory
0x5D	ISO15693 stay quiet
0x5E	ISO15693 get system information
0x5F	ISO15693 reset to ready
0x54	ISO15693 read blocks
0x55	ISO15693 write blocks
0x56	ISO15693 block lock
0x57	ISO15693 AFI write
0x58	ISO15693 AFI lock
0x59	ISO15693 DSFID write
0x5A	ISO15693 DSFID lock
0x5B	ISO15693 get blocks security

5.2 Explanation of commands

5.2.1 Read product information

Function: read the product information of CURRENT PRODUCT, includes product name, firmware version, firmware date and configuration information.

Host sends:

0x02	0x10	Checksum

Module returns success:

0x1F	0x10	Information	Checksum

Information: 29 bytes, 8 bytes product name(0x4A 4D 59 36 38 30 48 20), 4 bytes firmware version(0x35 2E 33 33), 8 bytes firmware date(0x32 30 31 32 30 35 32 39), 1 byte UART baud rate code(0x00), 1byte RFU(0x00), 1 byte IIC address(0xA0), 1 byte multi-card operation enable state(0x01), 1 byte ISO15693 automatic detecting card AFI(0x00), 1 byte ISO15693 automatic detecting card AFI enable state(0x00), 1 byte automatic detecting card interval(0x14) (multiple of 10mS), 1byte default automatically detecting card status when power on(0x00), 1 byte default automatically output SNR set when power on(0x00)

Data in the brackets above taken from JMY680G default product information, as follow：

Send：0x02 10 12

Return：0x1F 10 4A 4D 59 36 38 30 48 20 35 2E 33 33 32 30 31 32 30 35 32 39 00 00 A0 01 00 00 14 00 00 A6

Module returns failure:

0x02	0xEF	Checksum

5.2.2 Module working mode set

Function: set the antenna RF output ON/OFF; set the automatic detecting card ON/OFF. Automatically detect card and output UID ON/OFF. The module will NOT SAVE the setting, and all settings will LOSE on next power on. The multi-card operation will be prohibited while users turn ON the automatic detecting card. If there is more than one card in the RF electric field then the operation will fail. Under the automatic detecting card and output UID

state, after detected the card then output the UID via RS232, finally make the detected card enter into idle state. This command cannot be used in IIC interface.

Host sends:

0x03	0x11	Mode	Checksum

Mode: 1 byte

Antenna status: BIT0 = 0: OFF; BIT0 = 1: ON

Auto request: BIT1 = 0: OFF; BIT1 = 1: ON

Auto request and output UID: BIT2=0: OFF; BIT2=1: ON

Module returns success:

0x02	0x11	Checksum

Module returns failure:

0x02	0xEE	Checksum

5.2.3 Set module idle

Function: set the module idle. In idle mode, the module of RF output turn to OFF, PCD power down, and CPU in idle mode, so the power consumption reduces to about 100uA. Sending the next command to module will wake up the module, and then the RF output ON and automatic detecting card restore default settings. The module will enter into idle mode after the answer procedure is finished. In IIC mode, host need to read the answer and then the module will goes into idle mode.

Host sends:

0x03	0x12	Random data	Checksum

Random data: 1 byte random data, for example: 0x55

Module returns success:

0x02	0x12	Checksum

Module returns failure:

0x02	0xED	Checksum

5.2.4 Set LED

Function: set the LED ON or OFF.

Host sends:

0x03	0x13	State	Checksum

State: 1 byte, 0: OFF, 1: ON, other value: RFU

Module returns success:

0x02	0x13	Checksum

Module returns failure:

0x02	0xEC	Checksum

5.2.5 Set buzzer

Function: set buzzer to beep.

Host sends:

0x03	0x14	Time	Checksum

Time: 1 byte time, time unit is 10mS. If time is 0x0A, then the beep time is 100mS

Module returns success:

0x02	0x14	Checksum

Module returns failure:

0x02	0xEC	Checksum

5.2.6 EEPROM read

Function: read data in EEPROM of the module.

Host sends:

0x05	0x15	Address	Bytes	Checksum

Address: 2 bytes, read start address, address from 0x0000 to 0x01FF, MSB first

Bytes: 1 byte, number of bytes to read, max. 64 bytes

Module returns success:

-	0x15	Data	Checksum

Remark: the byte length is "-", means the byte length depends on the card feedback information. (The same to below)

Data: data read

Module returns failure:

0x02	0xEA	Checksum

5.2.7 EEPROM write

Function: write data into EEPROM of the module

Host sends:

-	0x16	Address	Bytes	Data	Checksum

Address: 2 bytes, write start address, address from 0x0000 to 0x01FF, MSB first

Bytes: 1 byte, number of bytes to read, max. 64 bytes

Data: "Bytes" data to write

Module returns success:

0x02	0x16	Checksum

Module returns failure:

0x02	0xE9	Checksum

5.2.8 Set UART communication baud rate

Function: set UART communication baud rate of the module. After module receive the command, it will first save the new setting, and then send the execute result according to the host. At last it will validate the new setting. UART communication baud rate is default 19200bps. Settings will SAVE in the module; it will not be lost after power OFF.

Host sends:

0x03	0x17	Baud rate	Checksum

Baud rate: 1 byte, baud rate code; 0: 19200bps; 1: 115200bps; other values: RFU

Module returns success:

0x02	0x17	Checksum

Module returns failure:

0x02	0xE8	Checksum

5.2.9 Set IIC communication address

Function: set IIC communication address of the module. After module receive the command, it will first save the new address, and then send the executed result to the host. At last it will validate the new settings. The IIC address of the module is 1 byte HEX data. LSB is 0; the address of module must be the even number, and the invalid address will NOT be

accepted. Settings will save in the module, and it will be not lost after power OFF.

Host sends:

0x03	0x19	Address	Checksum

Address: 1 byte, LSB is 0; address must be the even number

Module returns success:

0x02	0x19	Checksum

Module returns failure:

0x02	0xE6	Checksum

5.2.10 Set multi-card operation

Function: set multi-card operation. If users need select on card from multi-card, then need to use the multi-card operation. If users set the automatic detecting card, the multi-card operation will be prohibited. If there is more than one card in the RF effective field then the operation will fail. Settings will save in the module; it will be not lost after power OFF. Multi-card operation default enables. This function is suitable for ISO14443A & ISO15693.

Host sends:

0x03	0x1A	Multi-card enable	Checksum

Multi-card enable: 1 byte, 0: disable multi-card; 1: enable multi-card; other values: RFU

Module returns success:

0x02	0x1A	Checksum

Module returns failure:

0x02	0xE5	Checksum

5.2.11 Set ISO15693 automatic detecting card AFI and AFI enable

Function: set AFI and AFI enables of automatic detecting card in ISO15693 mode. If users set AFI and AFI enables, then automatic detecting card only detects the AFI of the card equal to the set AFI. Settings will save in the module; it will be not lost after power OFF. AFI is default 0, AFI function is disable.

Host sends:

0x04	0x1B	AFI	AFI enable	Checksum

AFI: 1 byte, AFI, 0~0xFF

AFI enable: 1 byte, 0: disable; 1: enable; other value: RFU

Module returns success:

0x02	0x1B	Checksum

Module returns failure:

0x02	0xE4	Checksum

5.2.12 Set automatic detecting card interval time

Function: set interval time between two automatic detecting card

Host sends:

0x03	0x1C	Interval Time	Checksum

Interval Time: 1 byte, 0x00 to 0xFF, unit is 10mS, 0x01 means 10mS.

Module returns success:

0x02	0x1C	Checksum

Module returns failure:

0x02	0xE3	Checksum

5.2.13 Set the default automatic detect card state default

Function: Set the default automatically detecting card state when boot device. For temporary open or close automatically detect card, please use the 0x11 command.

Host sends:

0x03	0x1D	State	Checksum

State: 1 byte, 0x00: OFF; 0x01: ON, other value: RFU

Module returns success:

0x02	0x1D	Checksum

Module returns failure:

0x02	0xE2	Checksum

5.2.14 Set automatic detect card and output card UID default

Function: Set automatically detecting card and output the card serial number when boot device. Under this model, the card serial number can be output from serial port when

swiping the card. The RF protocol is following ISO14443A and ISO15693. The output format is the same to 0x20 and 0x5C command returned format. This command cannot be operated under IIC mode. When this command is on, then the read/write card cannot be operated because of the card entering into halt state once when the card is detected. If need to read/write card, automatically output the card serial number must be shut temporarily via 0x11 command and then go on with the read/write card operations.

Host sends:

0x03	0x1E	State	Checksum

State: 1 byte, 0x00: OFF; 0x01: ON, other value: RFU

Module returns success:

0x02	0x1E	Checksum

Module returns failure:

0x02	0xE1	Checksum

5.2.15 SAM slot default baud rate set

Function: Before SAM card reset, to set default baud rate of the SAM slot. This baud rate will be used by the reader to reset the SAM. In ISO7816, the default baud rate for the card is 9600bps.

Host sends:

0x03	0x50	Baud rate	Checksum

Baud rate: 1 byte, baud rate code of SAM, 0: 9600bps (default); 2: 38400bps; other value: RFU

Module returns success:

0x02	0x50	Checksum

Module returns failure:

0x02	0xAF	Checksum

5.2.16 SAM reset

Function: reset the SAM in the slot, get ATQ and set the relevant communication parameter.

Host sends:

0x02	0x51	Checksum

Module returns success:

-	0x51	ATQ	Checksum

ATQ: Answer To Reset of the SAM, the length is depend on the card

Module returns failure:

0x02	0xAE	Checksum

5.2.17 Set SAM baud rate after reset (through PPSS)

Function: some SAM support PPSS instruction and then user could modify the communication baud rate.

Host sends:

0x03	0x52	Baud rate	Checksum

Baud rate: 1 byte, baud rate code of SAM, 0: 9600bps; 2: 38400bps; other value: RFU

Module returns success:

0x02	0x52	Checksum

Module returns failure:

0x02	0xAD	Checksum

5.2.18 Send APDU to SAM

Function: send APDU (COS command) to SAM and get result.

Host sends:

-	0x53	APDU	Checksum

APDU: APDU need to send

Module returns success:

-	0x53	Response	Checksum

Response: response of SAM, the length is depend on the detailed command

Module returns failure:

0x02	0xAC	Checksum

5.2.19 ISO15693 inventory

Function: Find a card in RF effective field. If success, to set the tag as CURRENT TAG.

If automatic detecting card function was turned on, then this command is to take the result of automatic detecting card, not to detect card after received the command.

Host sends:

0x03	0x5C	AFI	Checksum

AFI: 1byte AFI, inventory card equal to AFI only

If not use AFI, then host sends:

0x02	0x5C	Checksum

Module returns success:

0x0B	0x5C	DSFID	UID	Checksum

DSFID: 1 byte, DSFID of CURRENT TAG

UID: 8 bytes, UID of CURRENT TAG

Module returns failure:

0x02	0xA3	Checksum

5.2.20 ISO15693 stay quiet

Function: set the CURRENT TAG stay quiet

Host sends:

0x02	0x5D	Checksum

Module returns success:

0x02	0x5D	Checksum

Module returns failure:

0x02	0xA2	Checksum

5.2.21 ISO15693 get system information

Function: get the system information of CURRENT TAG

Host sends:

0x02	0x5E	Checksum

Module returns success:

-	0x5E	Data	Checksum

Data: tag information, the length is a variable, depends on the manufacturer of the tag

Module returns failure:

0x02	0xA1	Checksum

5.2.22 ISO15693 reset to ready

Function: set a stay quiet TAG reset to ready

Host sends:

0x0A	0x5F	UID	Checksum

Data: 8 bytes, UID of the tag to reset to ready

Module returns success:

0x02	0x5F	Checksum

Module returns failure:

0x02	0xA0	Checksum

5.2.23 ISO15693 read blocks

Function: read data blocks of CURRENT TAG

Host sends:

0x04	0x54	Start	Blocks	Checksum

Start: 1 byte, read start block

Blocks: 1 byte, number of blocks to read, max. 62 blocks in one command

Module returns success:

-	0x54	Data	Checksum

Data: Blocks * 4 bytes,

Module returns failure:

0x02	0xAB	Checksum

5.2.24 ISO15693 write blocks

Function: write data blocks of CURRENT TAG

Host sends:

-	0x55	Start	Blocks	Data	Checksum

Start: 1 byte, write start block

Blocks: 1 byte, number of blocks needs to write, max. 62 blocks

Data: Blocks * 4 bytes, data to write to tag

Module returns success:

0x02	0x55	Checksum

Module returns failure:

0x02	0xAA	Checksum

5.2.25 ISO15693 block lock

Function: lock a block of CURRENT TAG

Host sends:

0x03	0x56	Block	Checksum

Block: 1 byte, block number to lock

Module returns success:

0x02	0x56	Checksum

Module returns failure:

0x02	0xA9	Checksum

5.2.26 ISO15693 AFI write

Function: write AFI to CURRENT TAG

Host sends:

0x03	0x57	AFI	Checksum

AFI: 1 byte, AFI value to write to tag

Module returns success:

0x02	0x57	Checksum

Module returns failure:

0x02	0xA8	Checksum

5.2.27 ISO15693 AFI lock

Function: lock AFI of CURRENT TAG

Host sends:

0x02	0x58	Checksum

Module returns success:

0x02	0x58	Checksum

Module returns failure:

0x02	0xA7	Checksum

5.2.28 ISO15693 DSFID write

Function: write DSFID of CURRENT TAG

Host sends:

0x03	0x59	DSFID	Checksum

DSFID: 1 byte, DSFID value to write to tag

Module returns success:

0x02	0x59	Checksum

Module returns failure:

0x02	0xA6	Checksum

5.2.29 ISO15693 DSFID lock

Function: lock DSFID of CURRENT TAG

Host sends:

0x02	0x5A	Checksum

Module returns success:

0x02	0x5A	Checksum

Module returns failure:

0x02	0xA5	Checksum

5.2.30 ISO15693 get blocks security

Function: get blocks security of CURRENT TAG

Host sends:

0x04	0x5B	Start	Blocks	Checksum

Start: 1 byte, start block

Blocks: 1 byte, number of blocks

Module returns success:

0x02	0x5B	Data	Checksum

Data: bytes equal to the sent blocks in the command, the locked info of data block

Module returns failure:

0x02	0xA4	Checksum

5.3 About the automatic detecting card

The automatic detecting card function supports ISO15963. The default state could be set via 0x1D command. This setting will affect on the next power up. After power up, the automatic detect card function can be temporary ON or OFF via 0x11 commands. The module after re-power will return to the default state.

Automatic detecting card supports full function of ISO15963.

Automatic detecting card supports single card operation only. If there is more than one card in the RF effective field then the operation may fail. Then the multi-card operation will automatically turn OFF while the automatic detect card function is ON.

5.4 Example of commands

5.4.1 About UART communication protocol

For example:

Write block, start block 0x08, write 2 blocks: 0C55080211223344AABBCCDD17

0C: package length; from 0C to DD are total 0x0C bytes, the 00 in red is a protocol byte, see chapter 4.2.2

55: instruction of ISO15693 writes block(s)

08: write start block

02: blocks to write

11223344AABBCCDD: data to write

17: 0C ^ 55 ^ 08 ^ 02 ^ 11 ^ 22 ^ 33 ^ 44 ^ AA ^ BB ^ CC ^ DD = 17, in sample program, the function will calculate it, see chapter 4.5

5.4.2 UART commands sample

ISO15693 inventory	035C005F
ISO15693 read blocks	0454000858
ISO15693 write blocks	0C55080211223344AABBCCDD17
ISO15693 get system information	025E5C

5.4.3 IIC commands sample

ISO15693 inventory	035C005F

ISO15693 read blocks	0454000858
ISO15693 write blocks	0C55080211223344AABBCCDD17
ISO15693 get system information	025E5C

5.5 Interface program source code

We have interface program source code to help users. They are KELL project in C51 or ASM51 format. Please mail to jinmuyu@vip.sina.com to obtain the program.