

ICM522-C5-RS232

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1. Product features

- Using highly integrated read-write chip as the characteristics of radio frequency base station products
- Support ISO14443 TYPE A standard, Mifare standard card, the module integrates instructions such as automatic card searching, reading, writing, initializing e-wallet, adding value, reducing value, checking balance, etc. The user uses the command set to simply operate the card;
- Support mobile wallet NFC door key
- Integrated antenna design
- Ultra-low static power consumption: $\leq 30\mu A$
- Support serial port protocol (UART RS232): serial port bit data (8), parity bit (none), stop bit (1), baud rate can be set, default: 9600
- Ultra-small DIP, 45mm×20mm
- The module software has strong extension functions, and personalized modules can be customized according to user requirements

■ **A1190/A2180/A3180-C3566 Port :ttys2,9600 Baud rate**

2. Product introduction

The ICM522-C5-RS232 read-write module adopts

13.56MHZ non-contact radio frequency technology, and an embedded highly integrated read-write chip is used as a radio frequency base station. The user only needs to send commands through simple instructions to achieve complete operation of the card. This series of read-write modules supports MF1: S50, S70, FM11RF08;

MF0: Ultralight, Ultralight C, NTAG203, NTAG213;

CPU: FM1208 and compatible cards. ICM522-C5-RS232 module has strong software and hardware expansion functions, and personalized modules can be customized according to user requirements

3. Product photo



4. Model

Model	Difference	Support card type
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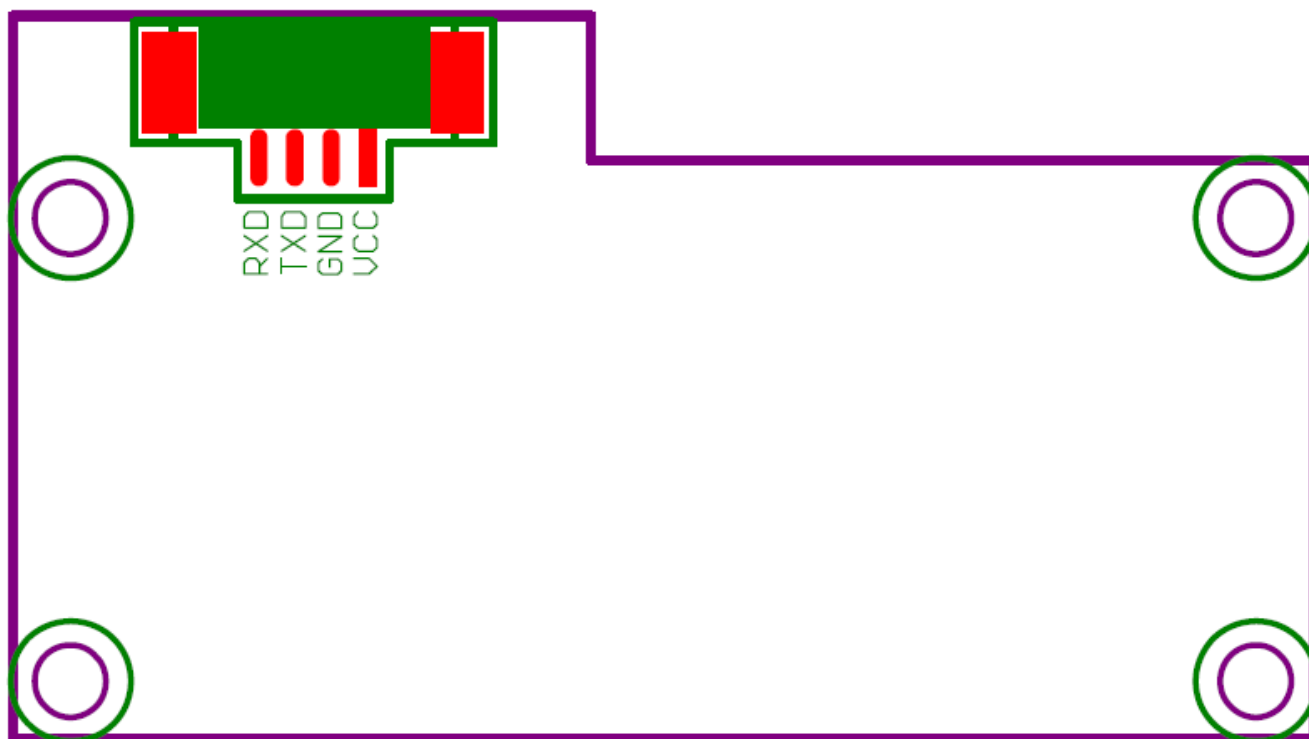
ICM522-C5-CPU-RS232	UART RS232	MF0: Ultralight、Ultralight C、NTAG203、NTAG213 M F1: S50、S70、FM11RF08 CPU: FM1208 and compatible cards
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5. Specification

Parameter	Parameter				Sstatus
	MINI.	TYPE.	MAX.	Unit	
Power					
Select power supply voltage 5.0V	4.7	5.0	6.0	V	
Select power supply voltage 3.3V	3.0	3.3	3.6	V	
Peak reading current	-	35	60	mA	
Average quiescent current	-	-	30	uA	
Reading distance	-	5	-	CM	Standard card test
Frequency					
Frequency range	-	13.56	-	MHz	

6. Pin function

6.1. Terminal: 1.25mm pitch vertical patch header



PIN	Signal name	Direction	Description
J1_1	RXD	I/O	RXD serial data input
J1_2	TXD	I/O	TXD serial data output

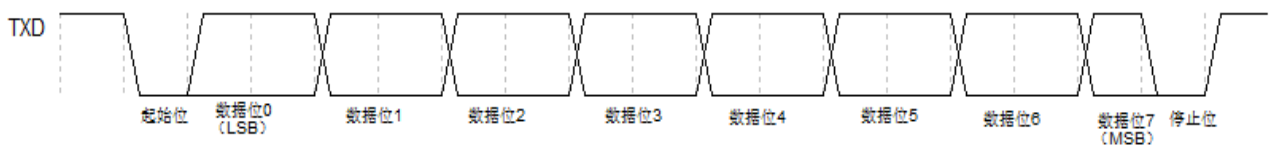
J1_3	GND	G	PWR GND
J1_4	VCC	Pwr/I	DC3.3V OR 5.0V Power input (select one)

7. Power data communication protocol ground

7.1 UART interface:

Start bit: 1
Data bit: 8
Parity bit: None
Stop bit: 1
Baud rate: Default 9600

Timing diagram:



7.2 Send data format:

Data packet content:

Module address (2Byte)	Length(1Byte)	Command(1Byte)	Data(nByte)	Check(1Byte)
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Module address: It is fixed to 0x0000 for modules used alone;
For a single-pair network version module, it is 0x0001~0xFFFE;
0xFFFF is broadcast.

Length: length(1Byte) + Command(1Byte) + Data(nByte)

Command: The meaning of this command

Data: valid data

Check: length (1Byte) + command (1Byte) + data (nByte) XOR and

7.3 Return data format:

Data packet content:

Command header (1Byte)	Length(1Byte)	Success/failure value (1Byte)	Data(nByte)	Check(1Byte)
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Command header: 0xFE

Length: length (1Byte) + command (1Byte) + data (nByte)

Success/Failure value: return command execution success; 0xE0---0xFF execution error

Data: if there is data return, it is valid data

Check: length (1Byte) + command (1Byte) + data (nByte) XOR and

8.Command list

8.1 Set the module to enter sleep mode

Function description: Used to set the module to enter sleep mode, reduce power consumption $\leq 30\mu A$, and send other commands than this command during sleep to wake up.

Send data sequence:

Module address	Length	Command	Data	Check
0x00,0x00	0x02	0x01	null	0x03

Note: When send wakes up the Command, it needs to send 2 Commands. Because the module takes time to start up, the 1st Command is only used for waking up and may not be parsed. It needs to send 2 Commands.

Correctly return data sequence:

Command header	Length	Successful (Command value)	Data	Check
0xFE	0x02	0x01	null	0x03

Error return data sequence:

Command header	Length	Failure (Error value)	Data	Check
0xFE	0x02	0xE0	null	0xE2

Send and return correct example:

【Send Data:】 00 00 02 01 03 ; Set the module to enter sleep mode

【Receive Data:】 FE 02 01 03

8.2 Set antenna and card detection mode

Function description: It is used to set the switch and detection card mode of the module's RF antenna. Automatic card detection means that the user only needs to send a read/write command to operate the card data block, no need to send the card search command, which simplifies the process. In manual mode, send the card search command first, and then send the command to operate the card data block such as read/write, which is more complicated. Turning off the antenna can reduce the power consumption of the module. The module default is: turn on the antenna, turn on the automatic card detection

Send Data sequence:

Module address	Length	Command	Data	Check
0x00,0x00	0x03	0x02	1-byte parameter: BIT0 Antenna status → BIT0=0: OFF BIT0=1: ON BIT1 Automatic card detection →	0"x"XX

			BIT1=0: OFF BIT1=1: ON	
--	--	--	---------------------------	--

Note: Only the automatic card detection mode module can actively output the card number, see 9.3 for details

This parameter will not be saved after power failure.

Correctly return data sequence:

Command header	Length	Successful (Command value)	Data	Check
0xFE	0x02	0x02	null	0x00

Error return data sequence:

Command header	Length	Failure (Error value)	Data	Check
0xFE	0x02	0xE1	null	0xE3

Send and return correct example:

【Send Data:】 00 00 03 02 03 02 ;Turn on the antenna and turn on the automatic card detection

【Send Data:】 00 00 03 02 01 00 ;Turn on the antenna and turn off the automatic card detection

【Send Data:】 00 00 03 02 00 01 ;Turn off the antenna and turn off the automatic card detection

【Receive Data:】 FE 02 02 00

8.3 Set active output card ID mode

Function description: When a card enters the radio frequency area, the buzzer will beep once, and the card ID (4-7 bytes) will be output actively, with the low byte first. Turn on the active output card ID mode, no need to send command to get the card ID, which is simple and convenient. Module default is: Actively output card ID

Send Data sequence:

Module address	Length	Command	Data	Check
0x00,0x00	0x03	0x0C	1-byte parameter: 00: Turn on automatic card number reading 01: Turn off automatic card number reading	0"x"XX

Note: Only the automatic detection card mode module can actively output the card number, see 9.2 for details

This parameter is saved when power off.

Correctly return data sequence:

Command header	Length	Successful (Command value)	Data	Check
0xFE	0x02	0x0C	null	0x0E

Error return data sequence:

Command header	Length	Failure (Error value)	Data	Check
0xFE	0x02	0xEB	null	0xE9

Actively output card ID Data sequence:

Command header	Length	Successful (Command value)	Data		Check
			Card type	4 or 7 byte sequence number	
0xFE	0x0B(MF0)	0x03	44 00	xx xx xx xx xx xx xx	0"x"XX
0xFE	0x08(MF1 S50)	0x03	04 00	xx xx xx xx	0"x"XX
0xFE	0x08(MF1 S70)	0x03	02 00	xx xx xx xx	0"x"XX
0xFE	0x08(CPU FM1208)	0x03	04 00	xx xx xx xx	0"x"XX

Send and return correct example:

【Send Data:】 00 00 03 0C 00 0F ; Open the active output card ID mode

【Send Data:】 00 00 03 0C 01 0E ; Turn off the active output card ID mode

【Receive Data:】 FE 02 0C 0E

8.4 Set LED status

Function description: Set the LED switch status of the module. Module default is: off

Send Data sequence:

Module address	Length	Command	Data	Check
0x00,0x00	0x03	0x0D	1-byte parameter: 00: Turn off the LED 01: Turn on the LED	0"x"XX

Note: This parameter will not be saved after power off.

Correctly return data sequence:

Command header	Length	Successful (Command value)	Data	Check
0xFE	0x02	0x0D	null	0x0F

Error return data sequence:

Command header	Length	Failure (Error value)	Data	Check
0xFE	0x02	0xEC	null	0xEE

Send and return correct example:

【Send Data:】 00 00 03 0D 01 0F ; Turn on the LED

【Send Data:】 00 00 03 0D 00 0E ; Turn off the LED

【Receive Data:】 FE 02 0D 0F

8.5 Set the buzzer on time

Function description: Set the module buzzer on time 0-255mS (00-FF). The module default value is: 255

Send Data sequence:

Module address	Length	Command	Data	Check
0x00,0x00	0x03	0x0E	1-byte parameter: 0x00-0xFF	0"x"XX

Note: This parameter will not be saved after power off.

Correctly return data sequence:

Command header	Length	Successful(Command value)	Data	Check
0xFE	0x02	0x0E	null	0x0C

Error return data sequence:

Command header	Length	Failure(Error value)	Data	Check
0xFE	0x02	0xED	null	0xEF

Send and return correct example:

【Send Data:】 00 00 03 0E 00 0D ; Set the buzzer on time 0mS

【Send Data:】 00 00 03 0E FF F2 ; Set the buzzer on time to 255mS

【Receive Data:】 FE 02 0E 0C

8.6 Set the serial port baud rate

Function description: Set the module serial communication baud rate. Module default baud rate: 19200

Send Data sequence:

Module address	Length	Command	Data	Check
0x00,0x00	0x03	0x0F	1-byte parameter: 01: 9600 02: 14400 03: 19200 04: 28800 05: 38400 06: 57600 07: 115200	0"x"XX

Note: This parameter will not be saved after power off.

Correctly return data sequence:

Command header	Length	Successful (Command value)	Data	Check
0xFE	0x02	0x0F	null	0x0D

Error return data sequence:

Command header	Length	Failure (Error value)	Data	Check
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0xFE	0x02	0xEE	null	0xEC
------	------	------	------	------

Send and return correct example:

【Send Data:】 00 00 03 0F 01 0D ;Set the serial port baud rate: 9600
 【Send Data:】 00 00 03 0F 02 0E ;Set the serial port baud rate: 14400
 【Send Data:】 00 00 03 0F 03 0F ;Set the serial port baud rate: 19200
 【Send Data:】 00 00 03 0F 04 08 ;Set the serial port baud rate: 28800
 【Send Data:】 00 00 03 0F 05 09 ;Set the serial port baud rate: 38400
 【Send Data:】 00 00 03 0F 06 0A ;Set the serial port baud rate: 57600
 【Send Data:】 00 00 03 0F 07 0B ;Set the serial port baud rate: 115200

【Receive Data:】 FE 02 0F 0D

8.7 ISO14443 TYPE A search card

Function description: ISO14443 TYPE A find card to get card type and ID. Contains cards:

ISO14443 TYPE A: MF0: Ultralight、Ultralight C、NTAG203、NTAG213; MF1: S50、S70、FM11RF08; CPU: FM1208.

Send Data sequence:

Module address	Length	Command	Data	Check
0x00,0x00	0x03	0x03	1-byte parameter: 00: Find all cards in the antenna area 01: Find a card that is not sleeping	0"x"XX

Correctly return data sequence:

Command header	Length	Successful (Command value)	Data		Check
			Card type	4 or 7 byte sequence number	
0xFE	0x0B(MF0)	0x03	44 00	xx xx xx xx xx xx xx	0"x"XX
0xFE	0x08(MF1 S50)	0x03	04 00	xx xx xx xx	0"x"XX
0xFE	0x08(MF1 S70)	0x03	02 00	xx xx xx xx	0"x"XX
0xFE	0x08(CPU FM1208)	0x03	04 00	xx xx xx xx	0"x"XX

Error return data sequence:

Command header	Length	Failure (Error value)	Data	Check
0xFE	0x02	0xE2	null	0xE0

Send and return correct example:

【Send Data:】 00 00 03 03 00 00 ; Find all cards in the antenna area
 【Send Data:】 00 00 03 03 01 01 ; Find a card that is not sleeping
 【Receive Data:】 FE 0B 03 44 00 04 1A 70 8A 12 49 81 72 ;MF0 NTAG213
 【Receive Data:】 FE 08 03 04 00 50 F2 12 57 E8 ; MF1 S50

【Receive Data:】 FE 08 03 02 00 EB 86 6D 38 31 ; MF1 S70
 【Receive Data:】 FE 08 03 04 00 5D A2 F2 9A 98 ; CPU FM1208

8.8 Mifare one card reading block

Function description: Mifare one: S50、S70、FM11RF08 card reading block

Send Data sequence:

Module address	Length	Command	Data			Check
			Key ID (1Byte)	Block number (1Byte)	Key (6Byte)	
0x00,0x00	0x0A	0x04	BIT0 =0: A Key =1: B Key BIT1 = 0 : Use the 6-byte Key in the instruction	S50: 0~63 S70: 0~255	Factory default: FF FF FF FF FF FF	0"x"XX

Correctly return data sequence:

Command header	Length	Successful (Command value)	Data	Check
			16 bytes of data read	
0xFE	0x12	0x04	xx xx xx xx xx xx xx xx xx xx xx xx xx xx xx xx	0"x"XX

Error return data sequence:

Command header	Length	Failure (Error value)	Data	Check
0xFE	0x02	0xE3	null	0xE1

Send and return correct example:

【Send Data:】 00 00 0A 04 00 01 FF FF FF FF FF FF 0F ; Read block 1Data

【Receive Data:】 FE 12 04 00 11 22 33 44 55 66 77 88 99 AA BB CC DD EE FF 16 ; The blue part is the read block 1Data

8.9 Mifare one card writing block

Function description: Mifare one: S50、S70、FM11RF08 card writing block。

Send Data sequence:

Module address	Length	Command	Data				Check
			Key ID (1Byte)	Block number (1Byte)	Key (6Byte)	16 bytes of data written into the block	
0x00,0x00	0x1A	0x05	BIT0 = 0 : A Key = 1 : B	S50: 0~63 S70: 0~255	The factory default:	xx xx xx xx xx xx xx xx xx xx xx xx xx xx xx xx	0"x"XX

			Key BIT1 =0: Use the 6-byte Key in the instruction		FF FF FF FF FF FF		
--	--	--	--	--	----------------------	--	--

Note: The third block of each sector is the Key block. Writing this block is equivalent to changing the Key. Philips/NXP has an important update to the S50 chip in 2001: When BKey can be read, BKey becomes invalid. If you want to use BKey, modify the original Key control bit DataFF 07 80 69 to 7F 07 88 69; after modifying this control bit: Modification of Key A, B (write sector block 3), you must use BKey; sector block 0 -2, both A and BKey can be read and written.

Correctly return data sequence:

Command header	Length	Successful (Command value)	Data	Check
0xFE	0x02	0x05	null	0x07

Error return data sequence:

Command header	Length	Failure (Error value)	Data	Check
0xFE	0x02	0xE4	null	0xE6

Send and return correct example:

【Send Data:】 00 00 1A 05 00 01 FF FF FF FF FF FF 00 11 22 33 44 55 66 77 88 99 AA BB CC DD EE FF 1E ; Write block 1 data, the blue part is the data written in block 1

【Send Data:】 00 00 1A 05 00 03 FF FF FF FF FF FF 01 02 03 04 05 06 7F 07 88 69 01 02 03 04 05 06 85 ; Write block 3 to modify 0 sector A, BKey are 01 02 03 04 05 06, the key control bit is 7F 07 88 69

【Receive Data:】 FE 02 05 07

8.10 Mifare one card initialization wallet

Function description: Mifare one: S50, S70, FM11RF08 cards set a block as a wallet and initialize the wallet value.

Send Datasquence:

Module address	Length	Command	Data				Check
			Key ID (1Byte)	Block number (1Byte)	Key (6Byte)	Write 4 bytes of wallet initial value (low byte first)	
0x00,0x00	0x0E	0x06	BIT0 = 0 : A Key = 1 : B Key BIT1 =0: Use the 6-byte Key in the instruction	S50: 0~63 S70: 0~255	The factory default: FF FF FF FF FF FF	xx xx xx xx	0"x"XX

Note: The third block of each sector is the Key block and cannot be used for the wallet block. The low byte of the initial value of the 4-byte wallet is first.

Correctly return data sequence:

Command header	Length	Successful (Command value)	Data	Check
0xFE	0x02	0x06	null	0x04

Error return data sequence:

Command header	Length	Failure (Error value)	Data	Check
0xFE	0x02	0xE5	null	0xE7

Send and return correct example:

【Send Data:】 00 00 0E 06 00 05 FF FF FF FF FF FF 00 00 00 00 0D ; Initialize wallet block 5, the blue value is 0, the low byte is first

【Receive Data:】 FE 02 06 04

8.11 Mifare one card reader wallet

Function description: Mifare one: S50、S70、FM11RF08 card reading or query wallet block。

Send Data sequence:

Module address	Length	Command	Data			Check
			Key ID (1Byte)	Block number (1Byte)	Key (6Byte)	
0x00,0x00	0x0A	0x07	BIT0 =0: A Key =1: B Key BIT1 = 0 : Use the 6-byte Key in the instruction	S50: 0~63 S70: 0~255	The factory default: FF FF FF FF FF FF	0"x"XX

Note: The third block of each sector is the Key block and cannot be used for the wallet block. This block must be initialized as a wallet in advance.

Correctly return data sequence:

Command header	Length	Successful (Command value)	Data	Check
			4-byte wallet value read (low byte first)	
0xFE	0x06	0x07	xx xx xx xx	0"x"XX

Error return data sequence:

Command header	Length	Failure (Error value)	Data	Check
0xFE	0x02	0xE6	null	0xE4

Send and return correct example:

【Send Data:】 00 00 0A 07 00 05 FF FF FF FF FF FF 08 ; Read block 5 wallet value

【Receive Data:】 FE 06 07 00 00 00 00 01 ; The blue part is the read block 5 wallet value, with low byte first

8.12 Mifare one Card charge value wallet

Function description: Mifare one: S50、S70、FM11RF08 card charge value wallet block.

Send Datasequence:

Module address	Length	Command	Data				Check
			Key ID (1Byte)	Block number (1Byte)	Key (6Byte)	Charge into wallet value 4 bytes (low byte first)	
0x00,0x00	0x0E	0x08	BIT0 = 0 : A Key = 1 : B Key BIT1 = 0: Use the 6-byte Key in the instruction	S50: 0~63 S70: 0~255	The factory default: FF FF FF FF FF FF	xx xx xx xx	0"x"XX

Note: The third block of each sector is the Key block and cannot be used for the wallet block. 4-byte wallet value low byte first.

Correctly return Data sequence:

Command header	Length	Successful (Command value)	Data	Check
0xFE	0x02	0x08	null	0x0A

Error return data sequence:

Command header	Length	Failure (Error value)	Data	Check
0xFE	0x02	0xE7	null	0xE5

Send and return correct example:

【Send Data:】 00 00 0E 08 00 05 FF FF FF FF FF FF 02 00 00 00 01 ; The value of wallet block 5 is charged to 2, the blue value is 2, and the low byte is first

【Receive Data:】 FE 02 08 0A

8.13 Mifare one card deduction wallet

Function description: Mifare one: S50、S70、FM11RF08 card deduction wallet block。

Send Datasequence:

Module address	Length	Command	Data				Check
			Key ID	Block	Key	Deduction	

		d	(1Byte)	number (1Byte)	(6Byte)	wallet value 4 bytes (low byte first)	
0x00,0x00	0x0E	0x09	BIT0 = 0 : A Key = 1 : B Key BIT1 =0: Use the 6-byte Key in the instruction	S50:0~63 S70:0~ 255	The factory default: FF FF FF FF FF FF	xx xx xx xx	0"x"XX

Note: The third block of each sector is the Key block and cannot be used for the wallet block. 4-byte wallet value low byte first.。

Correctly return data sequence:

Command header	Length	Successful (Command value)	Data	Check
0xFE	0x02	0x09	null	0x0B

Error return data sequence:

Command header	Length	Failure(Error value)	Data	Check
0xFE	0x02	0xE8	null	0xEA

Send and return correct example:

【Send Data:】 00 00 0E 09 00 05 FF FF FF FF FF FF 01 00 00 00 03 ; The value of wallet block 5 is deducted 1, the blue value is 1, the low byte is first

【Receive Data:】 FE 02 09 0B

8.14 Mifare one card backup wallet

Function description: Mifare one: S50、S70、FM11RF08 card backup wallet block。

Send data sequence:

Module address	Length	Command	Data				Check
			Key ID (1Byte)	Current Wallet Block number (1Byte)	Backup wallet Block number (1Byte)	Key (6Byte)	
0x00,0x00	0x0B	0x0A	BIT0 = 0 : A Key = 1 : B Key BIT1 =0: Use the 6-byte Key	S50:0~63 S70:0~ 255	S50:0~63 S70:0~ 255	The factory default: FF FF FF FF FF FF	0"x"XX

			in the instruction				
--	--	--	-----------------------	--	--	--	--

Note: The third block of each sector is the Key block and cannot be used for the wallet block. The backup wallet spans sectors. The current wallet Block numberKey and the backup wallet Block numberKey must be the same. It is recommended to use the same sector for backup.

Correctly return data sequence:

Command header	Length	Successful (Command value)	Data	Check
0xFE	0x02	0x0A	null	0x08

Error return data sequence:

Command header	Length	Failure (Error value)	Data	Check
0xFE	0x02	0xE9	null	0xEB

Send and return correct example:

【Send Data:】 00 00 0B 0A 00 05 06 FF FF FF FF FF FF 02 ; Backup wallet block 5 to block 6

【Receive Data:】 FE 02 0A 08

8.15 Mifare Ultralight (M0) card page reading

Function description: Ultralight、Ultralight C、NTAG203、NTAG213 card page reading。

Send Data sequence:

Module address	Length	Command	Data	Check
			Starting page number (1Byte)	
0x00,0x00	0x03	0x14	Ultralight: 0-15 Ultralight C: 0-47 NTAG203: 0-41 NTAG213: 0-44	0"x"XX

Note: Continuously read 4 pages of 16-byte data starting from the starting page number, 4 bytes of data per page。

Correctly return data sequence:

Command header	Length	Successful (Command value)	Data	Check
			4 consecutive pages of 16-byte data read	
0xFE	0x12	0x14	xx xx xx xx xx xx xx xx xx xx xx xx xx xx xx xx	0"x"XX

Error return data sequence:

Command header	Length	Failure (Error value)	Data	Check
0xFE	0x02	0xE3	null	0xE1

Send and return correct example:

【Send Data:】 00 00 03 14 04 13 ; Read the first 16 bytes of page 4

【Receive Data:】 FE 12 14 11 11 11 11 22 22 22 22 00 00 00 00 00 00 06 ; The red and blue part is the read Data

8.16 Mifare Ultralight (M0) card write page

Function description: Ultralight、Ultralight C、NTAG203、NTAG213 card write page。

Send data sequence:

Module address	Length	Command	Data		Check
			Page number (1Byte)	4-byte Data written to the page	
0x00,0x00	0x07	0x15	Ultralight: 0-15 Ultralight C: 0-47 NTAG203: 0-41 NTAG213: 0-44	xx xx xx xx	0"x"XX

Note: 4 bytes Data per page.

Correctly return data sequence:

Command header	Length	Successful (Command value)	Data	Check
0xFE	0x02	0x15	null	0x17

Error return data sequence:

Command header	Length	Failure (Error value)	Data	Check
0xFE	0x02	0xE4	null	0xE6

Send and return correct example:

【Send Data:】 00 00 07 15 04 11 11 11 11 16 ; Write the data on page 4, the blue part is the 4 bytes of data written

【Receive Data:】 FE 02 15 17

8.17 Mifare one/Ultralight card sleep

Function description: Mifare one/Ultralight card sleep。

Send data sequence:

Module address	Length	Command	Data	Check
0x00,0x00	0x02	0x0B	null	0x09

Note: This Command is valid only when the automatic card detection mode is turned off (set to manual mode), see 9.2 for details

Correctly return data sequence:

Command header	Length	Successful (Command value)	Data	Check
0xFE	0x02	0x0B	null	0x09

Error return data sequence:

Command header	Length	Failure (Error value)	Data	Check
0xFE	0x02	0xEA	null	0xE8

Send and return correct example:

【Send Data:】 00 00 02 0B 09

【Receive Data:】 FE 02 0B 09

8.18 ISO14443 TYPE A CPU card reset

Function description: It is used to perform the reset operation of the CPU card meeting ISO14443 TYPE A, and the card reset information is returned Correctly.

Note: The CPU card operation module will close the automatic card search, prohibit the module from automatically outputting the card number, and the CPU card operation is completed Send Command 00 00 03 02 03 02 to open the automatic card search; or use the manual card search method Send Command 00 00 03 03 00 00 to obtain the card number, Avoid operating Failure on other cards.

Send Data sequence:

Module address	Length	Command	Data	Check
0x00,0x00	0x03	0x20	0x26 means looking for non-sleeping cards within the antenna range 0x52 means to find all cards within the antenna range	0"x"XX

Correctly return Data sequence:

Command header	Length	Successful (Command value)	Data	Check
0xFE	0x16	0x20	4 bytes CSN+16 bytes information	0"x"XX

Error return data sequence:

Command header	Length	Failure (Error value)	Data	Check
0xFE	0x02	0xF0	null	0xF2

Send and return correct example:

【Send Data:】 00 00 03 20 26 05 ; CPU card reset, find all cards in the antenna area

【Send Data:】 00 00 03 20 52 71 ; CPU card reset, find the card not in sleep state

【Receive Data:】 FE 16 20 **5D A2 F2 9A** 10 78 80 90 02 20 90 00 00 00 00 5D A2 F2 9A FC ; The color part is the information returned

8.19 ISO14443 TYPE A CPU card Send COS instruction

Function description: Used for Send ISO14443 TYPE A CPU card COS command.

Note: The CPU card operation module will close the automatic card search, prohibit the module from automatically outputting the card number, and the CPU card operation is completed Send Command 00 00 03 02 03 02 to open the automatic card search; or use the manual card search method Send Command 00 00 03 03 00 00 to obtain the card number, Avoid operating Failure on other cards.

Send Datasquence:

Module address	Length	Command	Data	Check
0x00,0x00	0"x"XX	0x21	COS command	0"x"XX

Note: Send CPU card reset instruction first, this instruction is valid.

Correctly return data sequence:

Command header	Length	Successful (Command value)	Data	Check
0xFE	0"x"XX	0x21	Return Data for COS instruction	0"x"XX

Error return data sequence:

Command header	Length	Failure (Error value)	Data	Check
0xFE	0x02	0xF1	null	0xF3

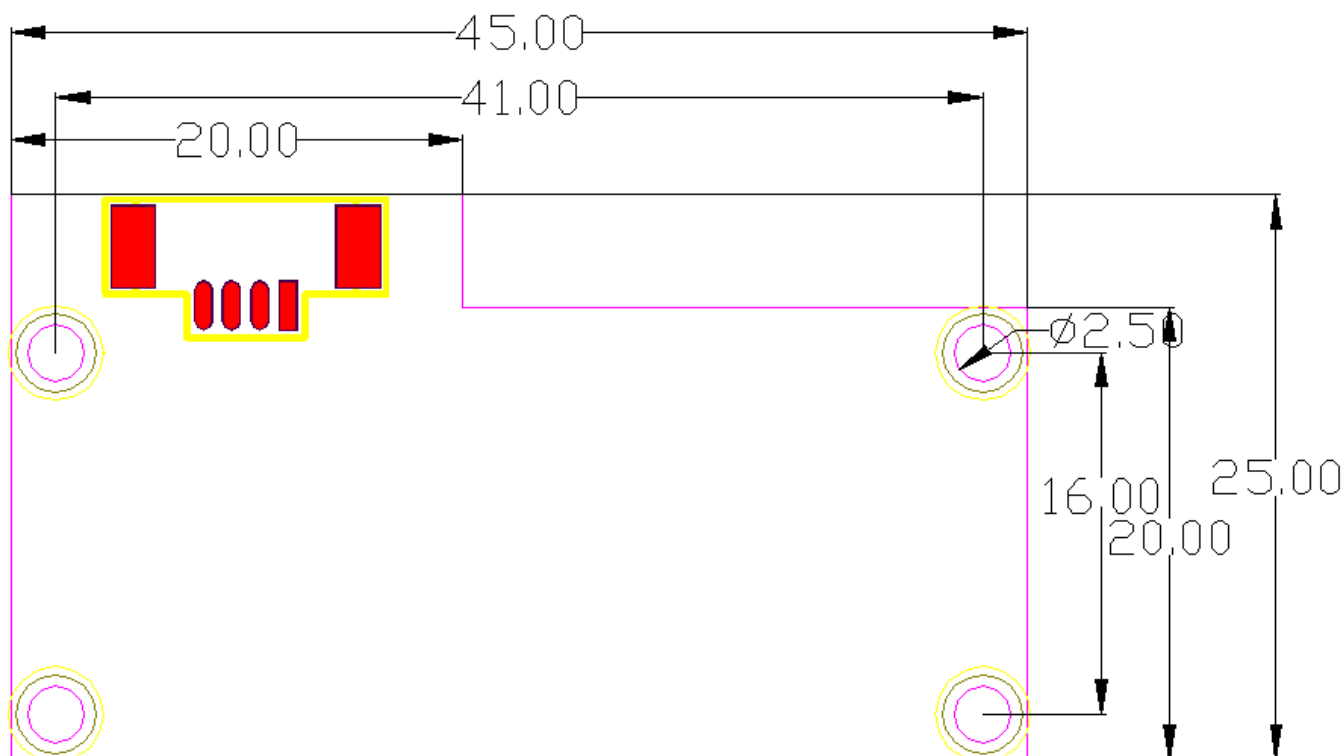
Send and return correct example:

【Send Data:】 00 00 07 21 00 84 00 00 04 A6 ; Take a 4-byte random number instruction (the blue part). Send CPU card reset instruction first, this instruction is valid.

【Receive Data:】 FE 08 21 EE 6E E2 F3 90 00 28 ; Red is a 4-byte random number; blue 90 00 card return indicates successful

9. Size parameters

Unit: mm



10. Appendix 1: Command summary table

NO.	Command	Description	Execute correctly return	Execute Error return
Module settings				
1	0x01	Set the module to enter sleep mode	0x01	0xE0
2	0x02	Set antenna and card detection mode	0x02	0xE1
3	0x0C	Set active output card ID mode	0x0C	0xEB
4	0x0D	Set LED status	0x0D	0xEC
5	0x0E	Set the buzzer on time	0x0E	0xED
6	0x0F	Set the serial port baud rate	0x0F	0xEE
Card operation				
7	0x03	ISO14443 TYPE A search card	0x03	0xE2
8	0x04	Mifare one card reading block	0x04	0xE3
9	0x05	Mifare one card write block	0x05	0xE4
10	0x06	Mifare one card initialization wallet	0x06	0xE5
11	0x07	Mifare one card reader wallet	0x07	0xE6
12	0x08	Mifare one card recharge value wallet	0x08	0xE7
13	0x09	Mifare one card deduction wallet	0x09	0xE8
14	0x0A	Mifare one card backup wallet	0x0A	0xE9
15	0x14	Mifare Ultralight (M0) card page reading	0x14	0xE3
16	0x15	Mifare Ultralight (M0) card write page	0x15	0xE4

17	0x0B	Mifare one/Ultralight card sleep	0x0B	0xEA
18	0x20	ISO14443 TYPE A CPU card reset	0x20	0xF0
19	0x21	ISO14443 TYPE A CPU card Send COS instruction	0x21	0xF1