OPERATION GUIDE

RS232 SERIAL COMMUNICATION PROTOCOL

Version No. : **2**

Date: : **2017-01-01**

QU-CM-5510

MOTORIZED CARD READER

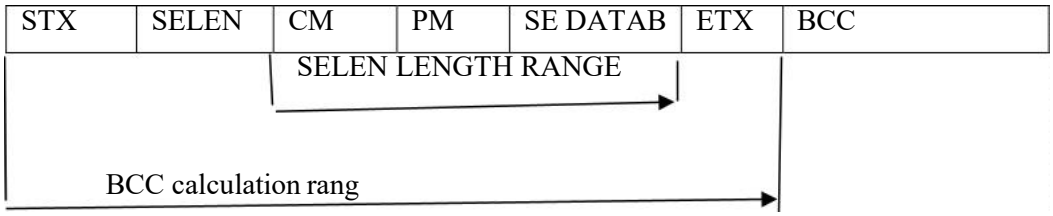
Communication protocol

I communication Data format

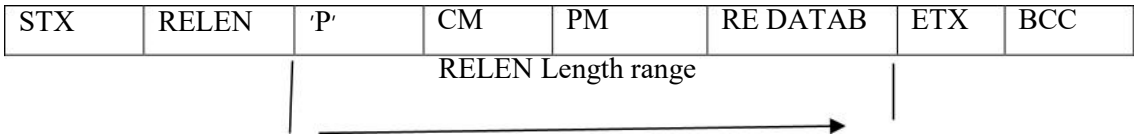
Communication Method	Asynchronous communication ,half duplex
Initial bit	1bit
Data bit	8 bit
Check bit	None
Stop bit	1 bit
Preset baud rate	9600bps

II Data packet format

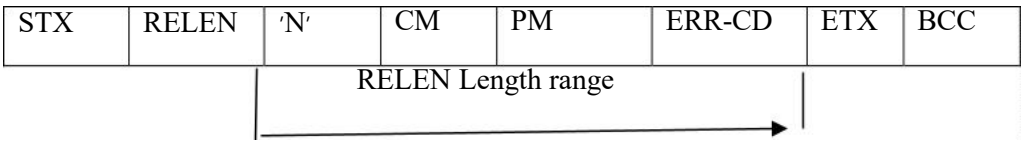
Command -sending packet format



Correct returning packet format



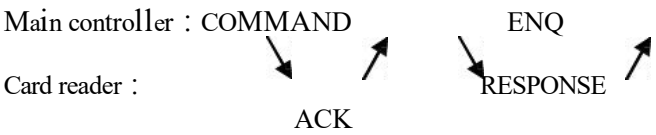
Error returning packet format



Note:
1. CM, Command code
2. PM ,Command parameter
3. SE-DATAB, sending data bag
4. RE-DATAB, Returning data bag
5. ERR-CD,Error code
6. BCC,Block check character ,Calculating method:Xor operation every data from stx (include STX) to ETX(Inc ETX)
7. "P", =0x50. Means that command operation succeed
8. "N", =0X4E. Means that command operation fail
9. SELEN,Length of the sending data packet .two byte
10. RELEN, Length of the returning data packet. Twobytes.
11 STX, Block begin symbol. Preset：0X02
12 ETX,Block end symbol。Preset：0x03 .

Communication Procedure:

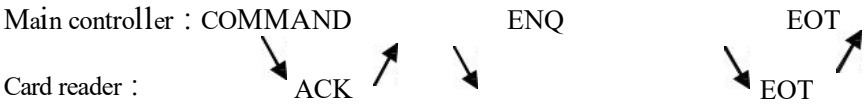
CorrectCommunication:



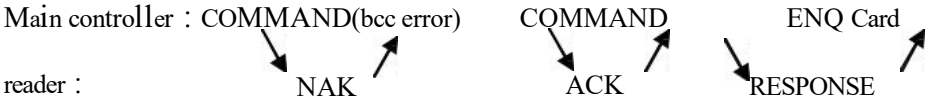
Communication procedure that error occurs

[1] No response

[2] No response



[3]BCCerror



Note：
[1]COMMAND：command packet
[2] RESPONSE：response packet
[3]ACK：Control character , length is one byte, active response, value =0x06
[4]NAK：Controlcharacter , length is one byte, negative response, value =0x15。
[5]ENQ：Control character , length is one byte, execute command request, value =0x05
[6]EOT：Control character , length is one byte, cancel command， value=0x04
Note :ACK ,NAK ,ENQ,EOT character are sent with single character and do not need packet headand tailor. E.g , Positive response data to host machine should be 0x06.
III Command sheet

Serial	Command name	Command code (CM)	Parameter (PM)	Command function
1	restore	0X30	0x30	Initial machine, eject card if have
			0x31	Initial machine,retrieve card if have
			0x32	Initial machine and re-insert card.
			0x33	Initial machine
2	Read machine status	0x31	0x30	Read card position in the machine
			0x31	Read status of sensors
3	Card entry setting (Effective: It is not effective after card enters into machine. If card is ejected out of machine, machine must send command again to reinsert card.)	0x32	0x30	Enable card entry(Including magnetic card and Non magnetic card).After card entry,and then in answer to command.
			0x31	Enable magnetic card entry only. After card entry,and then in answer to command.
			0x32	Enable card entry from back-end.After card entry,and then in answer to command.If no card entry within 30sec,error response
			0x33	Disable card entry. After setting, could not be entried any card.
			0x34	Enable card entry(Including magnetic card and Non magnetic card). Response command immediately.Through inquiry command to check card whether entry card.
			0x35	Enable magnetic card entry only. Response command immediately. Through inquiry command to check card whether entry card.
4	Conveying card	0x33	0x30	Convey card into machine
			0x31	Convey card to read chip card position
			0x32	Convey card to front card holding position
			0x33	Convey card to back card holding position
			0x34	eject card out of machine from front position.
			0x35	eject card out of machine from back position.
5	Detect IC card type automatically	0x34	0x30	Detect IC card type automatically
6	Indicator light 1 operation	0x35	0x30	Pow off light
			0x31	Pow on light
			0x32	Light flicker

7	Indicator light 2 operation	0x36	0x30	Pow off light
			0x31	Pow on light
			0x32	Light flicker
8	Read magcard decoded data	0x37	0x30	Read ISO data on track 1
			0x31	Read ISO data on track 2
			0x32	Read ISO data on track 3
			0x33	Read ISO data on track 1 and 2
			0x34	Read ISO data on track 1 and 3
			0x35	Read ISO data on track 2 and 3
			0x36	Read ISO data on tripe track
			0x39	Clear Magcard data.
9	Read magcard undecoded data	0x38	0x30	Read ISO data on track 1
			0x31	Read ISO data on track 2
			0x32	Read ISO data on track 3
			0x33	Read ISO data on track 1 and 2
			0x34	Read ISO data on track 1 and 3
			0x35	Read ISO data on track 2 and 3
			0x36	Read ISO data on tripe track
10	CPU card operation	0x39	0x30	Activate (fixed voltage 5v)
			0x31	Power off
			0x32	Activate (optional voltage)
			0x33	T=0 card communication command
			0x34	T=1 card communication command
11	SAM card operation	0x3A	0x30	Activate (fixed voltage 5v)
			0x31	Power off
			0x32	Activate (optional voltage)
			0x33	SAM T=0 card communication command
			0x34	SAM T=1 card communication command
			0x35	Choose SAM card
12	Contactless card S50 operation	0x3B	0x30	Search card
			0x31	Read serial number
			0x32	Check password
			0x33	Read card
			0x34	Write card
			0x35	Value operation initial
			0x36	Increment operation
			0x37	Devalue operation
			0x38	Close down
13	Contactless card S70 operation	0x3C	0x30	Search card
			0x31	Read serial number
			0x32	Check password

			0x33	Read card
			0x34	Write card
			0x35	Value operation initial
			0x36	Increment operation
			0x37	Devalue operation
			0x38	Close down
14	Contactless UL card operation	0x3D	0x30	Search card
			0x31	Read serial number
			0x32	Read card
			0x33	Write card
			0x34	Close down
15	AT24 serial card operation	0x3E	0x30	Read data
			0x31	Write data
16	AT45DB041 card operation	0x3F	0x30	Restore
			0x31	Read data
			0x32	Write data
17	AT88S102 card operation	0x40	0x30	Restore
			0x31	Check password
			0x32	Read data
			0x33	Erase data(Unpersonified)
			0x34	Erase application zone 1 (Personified)
			0x35	Erase application zone 2 (Personified)
			0x36	Write data
			0x37	Change password
			0x38	Personified setting
18	AT88S1604 card operation	0x41	0x30	Restore
			0x31	Check password
			0x32	Read data
			0x33	Erase data
			0x34	Write data
			0x35	Change password
			0x36	Personified setting
19	AT88S1608 card operation	0x42	0x30	Activate contact and power on restore
			0x31	Check password
			0x32	Read data
			0x33	Write data
			0x34	Read fuse status
			0x35	Fuse
			0x36	Initial authentication.
			0x37	Check authentication.
			0x38	Change password
			0x30	Activate contact and power on restore
			0x31	Check password
			0x32	Read data
			0x33	Read protection bit

20	SLE4442 card operation	0x43	0x34	Read PSC zone
			0x35	Write data
			0x36	Write protection bit
			0x37	Change password
21	SLE4428 card operation	0x44	0x30	Restore
			0x31	Check password
			0x32	Read data
			0x33	Read protection bit
			0x34	Write data
			0x35	Write data with protection bit
			0x36	Change password
22	IC card power on/off operation	0x45	0x30	Power on
			0x31	Power off
23	Set baud rate	0x46	0x30	Baud rate=1200
			0x31	Baud rate=2400
			0x32	Baud rate=4800
			0x34	Baud rate =19200
			0x35	Baud rate =38400
24	Contactless CPU card operation (ISO14443 TYPEA)	0x47	0x30	Activate card and get restore information
			0x31	
			0x32	
			0x33	Send APDU command

III Command detailed explanation

1、Initial command (After execute initial command,need delayed 500M Sto send other command)

1·1、Initial card reader/writer,no action of card

0x02	0x00	0x02	0x30	0x30	0x03	BCC

PM=0X32,initial card reader/writer, no action

Return sucessfully：

0x02	0x00	0x03	0x50	0x30	0x30	Version	0x03	BCC

Version information:RCM-5510_V2.3

Return with failure：

0x02	0x00	0x04	0x4E	0x30	0x30	ERR_CD	0x03	BCC

1·2、Initial cardreader/writer,eject cardfromfront-end

0x02	0x00	0x02	0x30	0x31	0x03	BCC

PM=0X30· Initial card reader/writer, eject card if have

Return successfully ：

0x02	0x00	0x03	0x50	0x30	0x31	Version	0x03	BCC

Version information: RCM-5510_V2.3
Return with failure：

0x02	0x00	0x04	0x4E	0x30	0x31	ERR_CD	0x03	BCC

1．3、Initial machine,retrieve card if have

0x02	0x00	0x02	0x30	0x32	0x03	BCC

PM=0X31：Initial machine,retrieve card if have
Return sucessfully：

0x02	0x00	0x03	0x50	0x30	0x32	Version	0x03	BCC

Version information: RCM-5510_V2.3
Return with failure：

0x02	0x00	0x04	0x4E	0x30	0x32	ERR_CD	0x03	BCC

1．4、Initialmachine,andre-insertcard.

0x02	0x00	0x02	0x30	0x33	0x03	BCC

PM=0X32,Initial machine,no action of card.
Return sucessfully：

0x02	0x00	0x11	0x50	0x30	0x33	version	0x03	BCC

Version information: RCM-5510_V2.3
Return with failure：

0x02	0x00	0x04	0x4E	0x30	0x33	ERR_CD	0x03	BCC

2、Read status of sensors
2．1、Detectcardpositioninthemachine

0x02	0x00	0x02	0x31	0x30	0x03	BCC

Return sucessfully：

0x02	0x00	0x04	0x50	0x31	0x30	Card position	0x03	BCC

Channel card position：One byte length.
=0x30：have card at front card not holding position
=0x31：have card at front card holding position
=0x32：have card at contactless chip card position
=0x33：have card at contact chip card position
=0x34：have card at back card holding position
=0x35： No card in the channel
=0x36：Card is not at standard position
Return with failure：

0x02	0x00	0x04	0x4E	0x31	0x30	ERR_CD	0x03	BCC

2．2、Readstatusofsensors

0x02	0x00	0x02	0x31	0x31	0x03	BCC

Return sucessfully：

0x02	0x00	0x0A	0x50	0x31	0x31	Sensors status	0x03	BCC

Sensorsstatus：7 bytes lenght
Upload sequence：PSS1、PSS2、PSS3、PSS4、PSS5、CTKSW, KSW。
=0x30：No card
=0x31：Have card

Return with failure：

0x02	0x00	0x04	0x4E	0x31	0x31	ERR_CD	0x03	BCC

3. Card entry setting (Machine default setting is disable card entry)

3．1、Enablecardentryfromfrontposition:magcardandNonmagcardcanentry.

0x02	0x00	0x02	0x32	0x30	0X03	BCC

Return sucessfully：

0x02	0x00	0x03	0x50	0x32	0x30	0x03	BCC

Return with failure：

0x02	0x00	0x04	0x4E	0x32	0x30	ERR_CD	0x03	BCC

3．2、Enablecardentryfromfrontposition:magcardcanentry.

0x02	0x00	0x02	0x32	0x31	0X03	BCC

Return sucessfully：

0x02	0x00	0x03	0x50	0x32	0x31	0x03	BCC

Return with failure：

0x02	0x00	0x04	0x4E	0x32	0x31	ERR_CD	0x03	BCC

3．3、Enablecardentryfrombackposition:

0x02	0x00	0x02	0x32	0x32	0X03	BCC

Return sucessfully：

0x02	0x00	0x03	0x50	0x32	0x32	0x03	BCC

Return with failure：

0x02	0x00	0x04	0x4E	0x32	0x32	ERR_CD	0x03	BCC

3．4、Disablecardentry：

0x02	0x00	0x02	0x32	0x33	0X03	BCC

Return sucessfully：

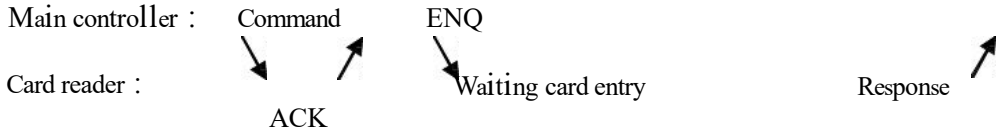
0x02	0x00	0x03	0x50	0x32	0x33	0x03	BCC

Return with failure：

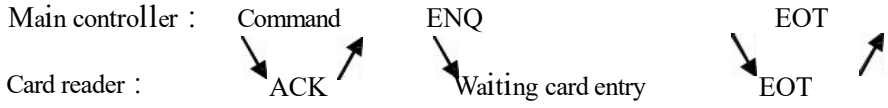
0x02	0x00	0x04	0x4E	0x32	0x33	ERR_CD	0x03	BCC

Note：

[1] Normal card entry process



[2] Cancel card entry process



[3] Only can entry 1pcs card while executed one time command of entry card. After card eject, please send command again to entry card.

4、Cardmovement

0x02	0X00	0X02	0x33	PM	0x03	BCC

PM=0X30， Move cardto machine inside

PM=0X31， Move cardto chip card postion PM=0X32，
Move cardto front card holding position PM=0X33，
Move cardto back card holding position PM=0X34，
eject card out of machine fromfront-end PM=0X35，
eject card out of machine fromback-end

Return sucessfully：

0x02	0X00	0X03	0x50	0x33	PM	0x03	BCC

Return with failure：

0x02	0X00	0X04	0x4E	0x33	PM	ERR_CD	0x03	BCC

5、CheckICcardtype

0x02	0X00	0X02	0x34	0x30	0x03	BCC

Return sucessfully：

0x02	0X00	0X03	0x50	0x34	0x30	CARDTP	0x03	BCC

[1]CARDTP：card type
CARDTP=0X30：AT24C01
CARDTP=0X31：AT24C02
CARDTP=0X32：AT24C04
CARDTP=0X33：AT24C08
CARDTP=0X34：AT24C16
CARDTP=0X35：AT24C32
CARDTP=0X36：AT24C64
CARDTP=0X37：AT45DB041
CARDTP=0X38：AT102
CARDTP=0X39：AT1604
CARDTP=0X3A：AT1608
CARDTP=0X3B：SLE4442
CARDTP=0X3C：SLE4428
CARDTP=0X3D：CPU T=0
CARDTP=0X3E：CPU T=1
CARDTP=0XFF：Card type that cannot be identified

Return with failure：

0x02	0X00	0X04	0x4E	0x34	0x30	ERR_CD	0x03	BCC

6、Indicatorlight1operation

0x02	0X00	0X02	0x35	PM	0x03	BCC

PM=0X30：Power off
PM=0X31：Power on
PM=0X32：flicker

Return sucessfully：

0x02	0X00	0X03	0X50	0x35	PM	0x03	BCC

Return with failure：

0x02	0X00	0X04	0X4E	0x35	PM	ERR_CD	0x03	BCC

7、Indicator light2operation

0x02	0X00	0X02	0x36	PM	0x03	BCC

PM=0X30：Power off

PM=0X31：Power on

PM=0X32：flicker

Return sucessfully：

0x02	0X00	0X03	0X50	0x36	PM	0x03	BCC

Return with failure：

0x02	0X00	0X04	0X4E	0x36	PM	ERR_CD	0x03	BCC

8、 ReadMagcarddecodeddata

Note：

[1]0XFA，start character of track 1 data

[2]0XFB，start character of track 2 data

[3]0XFC，start character of track 3 data

[4]TRX_ST，Read status of each track

=0x60，Read magcard correct

=0x61，SS error

=0x62，ES error

=0x63，P error

=0x64，LRC error

=0x65 Blank magnetic track

8．1、 ReadISOdataontrack1

0x02	0x00	0x02	0x37	0x30	0X03	BCC

Return sucessfully：

0x02	RELEN_H	RELEN_L	0X50	0x37	0x30	磁卡数据包	0x03	BCC

Magcard data packet format ：

TR1_ST	LEN	Data

Return with failure：

0X02	0X00	0X04	0X4E	0X37	0X30	ERR_CD	0X03	BCC

8．2、ReadISOdataontrack2

0x02	0x00	0x02	0x37	0x31	0X03	BCC

Return sucessfully：

0x02	RELEN_H	RELEN_L	0X50	0x37	0x31	Magcard data packet	0x03	BCC

Magcard data packet format：

TR2_ST	LEN	Data

Return with failure：

0X02	0X00	0X04	0X4E	0X37	0X31	ERR_CD	0X03	BCC

8．3、 ReadISOdataontrack3

0x02	0x00	0x02	0x37	0x32	0X03	BCC

Return sucessfully：

0x02	RELEN_H	RELEN_L	0X50	0x37	0x32	Magcard data packet	0x03	BCC

Magcard data packet format：

TR3_ST	LEN	Data

Return with failure：

0X02	0X00	0X04	0X4E	0X37	0X32	ERR_CD	0X03	BCC

8．4、ReadISOdataontrack1and2

0x02	0x00	0x02	0x37	0x33	0X03	BCC

Return sucessfully：

0x02	RELEN_H	RELEN_L	0X50	0x37	0x33	Magcard data packet	0x03	BCC

Magcard data packet format：

TR1_ST	LEN1	TR2_ST	LEN2	TR1 data	TR2 data

Return with failure：

0X02	0X00	0X04	0X4E	0X37	0X33	ERR_CD	0X03	BCC

8．5、 ReadISOdataontrack1and3

0x02	0x00	0x02	0x37	0x34	0X03	BCC

Return sucessfully：

0x02	RELEN_H	RELEN_L	0X50	0x37	0x34	Magcard data packet	0x03	BCC

Magcard data packet format：

TR1_ST	LEN1	TR3_ST	LEN2	TR1 data	TR3 data

Return with failure：

0X02	0X00	0X04	0X4E	0X37	0X34	ERR_CD	0X03	BCC

8．6、ReadISOdataontrack2and3

0x02	0x00	0x02	0x37	0x35	0X03	BCC

Return sucessfully：

0x02	RELEN_H	RELEN_L	0X50	0x37	0x35	Magcard data packet	0x03	BCC

Magcard data packet format：

TR2_ST	LEN1	TR3_ST	LEN2	TR2 data	TR3 data

Return with failure：

0X02	0X00	0X04	0X4E	0X37	0X35	ERR_CD	0X03	BCC

8．7、 Readdataontripletrack

0x02	0x00	0x02	0x37	0x33	0X03	BCC

Return sucessfully：

0x02	RELEN_H	RELEN_L	0X50	0x37	0x36	Magcard data packet	0x03	BCC

Magcard data packet format：

TR1_ST	LEN1	TR2_ST	LEN2	TR3_ST	LEN3	TR1d data	TR2d data	TR3d data

Return with failure：

0X02	0X00	0X04	0X4E	0X37	0X36	ERR_CD	0X03	BCC

9、 Readmagcardundecodeddata

Note：

[1]TRX_ST · card reading status of tracks · LENX · data length of tracks
=0x60 · read magcard correct
=0x65 · blank magnetic track
[4]TRX_ST · Reading status of each track.
[1]0XFA · start character of track 1 data
[2]0XFB · start character of track 2 data
[3]0XFC · start character of track 3 data
[4]TRX_ST · read status of each track
=0x60 · Read magcard correct
=0x65 · Blank magnetic track

9 · 1 、 ReadISOdataontrack1

0x02	0x00	0x02	0x38	0x30	0X03	BCC		

Return sucessfully：

0x02	RLEN_H	RLEN_L	0X50	0x38	0x30	Magcard data packet	0x03	BCC

Magcard data packet format：

TR1_ST	LEN	data

Return with failure：

0X02	0x00	0x04	0X4E	0X38	0x30	ERR_CD	0X03	BCC

9 · 2 、 ReadISOdataontrack2

0x02	0x00	0x02	0x38	0x31	0X03	BCC		

Return sucessfully：

0x02	RLEN_H	RLEN_L	0X50	0x38	0x31	Magcard data packet	0x03	BCC

Magcard data packet format：

TR2_ST	LEN	data

Return with failure：

0X02	0x00	0x04	0X4E	0X38	0x31	ERR_CD	0X03	BCC

9 · 3 、 ReadISOdataontrack3

0x02	0x00	0x02	0x38	0x32	0X03	BCC		

Return sucessfully：

0x02	RLEN_H	RLEN_L	0X50	0x38	0x32	Magcard data packet	0x03	BCC

Magcard data packet format：

TR3_ST	LEN	data

Return with failure：

0X02	0x00	0x04	0X4E	0X38	0x32	ERR_CD	0X03	BCC

9 · 4 、 ReadISOdataontrack1and2

0x02	0x00	0x02	0x38	0x33	0X03	BCC		

Return sucessfully：

0x02	RLEN_H	RLEN_L	0X50	0x38	0x33	Magcard data packet	0x03	BCC

Magcard data packet format：

TR1_ST	LEN1	TR2_ST	LEN2	TR1 data	TR2 data

Return with failure：

0X02	0x00	0x04	0X4E	0X38	0x33	ERR_CD	0X03	BCC

9．5、ReadISOdataontrack1and3

0x02	0x00	0x02	0x38	0x34	0X03	BCC

Return sucessfully：

0x02	RLEN_H	RLEN_L	0X50	0x38	0x34	Magcard data packet	0x03	BCC

Magcard data packet format：

TR1_ST	LEN1	TR3_ST	LEN2	TR1 data	TR3 data

Return with failure：

0X02	0x00	0x04	0X4E	0X38	0x34	ERR_CD	0X03	BCC

9．6、ReadISOdataontrack2and3

0x02	0x00	0x02	0x38	0x35	0X03	BCC

Return sucessfully：

0x02	RLEN_H	RLEN_L	0X50	0x38	0x35	Magcard data packet	0x03	BCC

Magcard data packet format：

TR2_ST	LEN1	TR3_ST	LEN2	TR2 data	TR3 data

Return with failure：

0X02	0x00	0x04	0X4E	0X38	0x35	ERR_CD	0X03	BCC

9．7、ReadISOdataontripletrack

0x02	0x00	0x02	0x38	0x36	0X03	BCC

Return sucessfully：

0x02	RLEN_H	RLEN_L	0X50	0x38	0x36	Magcard data packet	0x03	BCC

Magcard data packet format：

TR1_ST	LEN1	TR2_ST	LEN2	TR3_ST	LEN3	TR1 data	TR2 data	TR3 data

Return with failure：

0X02	0x00	0x04	0X4E	0X38	0x36	ERR_CD	0X03	BCC

10、CPUcardoperation

Note：

[1]CARD_TP：CPU card type。One byte length ；=0X30 means T=0card；=0X31 means T=1card

[2]RLEN： Length of restore information. One byte length.

[3]RESET_DATA：restore information

[4]BLEN：data packet length，two bytes length.

10．1、CPUcardactivatesICcontacts，fixedvoltage5V

0X02	0X00	0X02	0X39	0x30	0X03	BCC

Return sucessfully：

0x02	BLEN	0x50	0x39	0x30	RLEN	CARD_TP	RESET_DATA	0x03	BCC

Return with failure：

0x02	0X00	0X04	0x4E	0x39	0x30	ERR_CD	0X03	BCC

10．2、Poweroff

0x02	0X00	0X02	0x39	0x31	0x03	BCC

Return sucessfully：

0X02	0X00	0X03	0X50	0X39	0X31	0X03	BCC

Return with failure：

0X02	0X00	0X04	0X4E	0X39	0X31	ERR_CD	0X03	BCC

10．3、CPUcardactivated,optionalvoltage(1.8v,3v,5v)

0x02	0X00	0X02	0x39	0x32	PT	0x03	BCC

PT=0X30: Power on voltage is 1.8v
PT=0X31: Power on voltage is 3v
PT=0X32: Power on voltage is 5v

Return sucessfully：

0x02	BLEN	0x50	0x39	0x32	RLEN	CARD_TP	RESET_DATA	0x03	BCC

Return with failure：

0x02	0x00	0x04	0x39	0x32	0x45	ERR_CD	0X03	BCC

10．4、T=0cardcommunicationcommand

Note：

[1]T0_CMD：T=0 command packet
[2]RE_DATA：returned data packet
[3]SELEN_H,SELEN_L：packet length of sending data packet
[4]RELEN_H,SELEN_L：packet length of receiving data packet
[5]SELEN：T0_CMD length of command packet
[6]RLEN：length of command execution return packet

0x02	SELEN_H	SELEN_L	0x39	0x33	SELEN	T0_CMD	0x03	BCC

Return sucessfully：

0x02	RELEN_H	RELEN_L	0X50	0x39	0x33	RLEN	RE_DATA	0x03	BCC

Return with failure：

0x02	0X00	0X04	0x45	0x39	0x33	ERR_CD	0X03	BCC

10．5、T=1cardcommunicationcommand

Note：

[1]SE_LEN：T1_CMD length, 2 bytes length.
[2]T1_CMD：T=1 command packet
[3]RE_LEN：returned data length, 2 bytes length
[4]RE_DATA：returned data packet
[5]SELEN: command packet length
[6]RLEN:length of command execution return packet

0x02	SELEN_H	SELEN_L	0x39	0x34	SELEN	T1_CMD	0X03	BCC

Return sucessfully：

0x02	RELEN_H	RELEN_L	0x50	0x39	0x34	RLEN	RE_DATA	0x03	BCC

Return with failure：

0x02	0X00	0X04	0x4E	0x39	0x34	ERR_CD	0X03	BCC

11、SAMcardoperation

Note：

[1]SAM_TP：SAM card type.One byte length ；=0X30 means T=0card；=0X31 means T=1card.

[2]R_LEN：Length of restore information.One byte length.

[3]RESET_DATA：Restore information.

[4]SAM_NUM：SAM card serial number.

11．1、SAMcardactivatesICcontacts．fixedvoltage5V

0X02	0X00	0X02	0X3A	0x30	0X03	BCC

Return sucessfully：:

0x02	RELEN	0x50	0x3A	0x30	RLEN	SAM_TP	RESET_DATA	0x03	BCC

Return with failure：

0x02	0X00	0X04	0x4E	0x3A	0x30	ERR_CD	0X03	BCC

11．2、Poweroff

0x02	0X00	0X02	0x3A	0x31	0x03	BCC

Return sucessfully：

0X02	0X00	0X03	0X50	0X3A	0X31	0X03	BCC

Return with failure：

0X02	0X00	0X04	0X4E	0X3A	0X31	ERR_CD	0X03	BCC

11．3、SAMcardactivated．optionalvoltage(1.8v,3v,5v)

0x02	0X00	0X02	0x3A	0x32	PT	0x03	BCC

PT=0X30: power on voltage is 1.8v

PT=0X31: power on voltage is 3v

PT=0X32: power on voltage is 5v

Return sucessfully：

0x02	RELEN	0x50	0x3A	0x32	RLEN	SAM_TP	RESET_DATA	0x03	BCC

Return with failure：

0x02	0x00	0x04	0x3A	0x32	0x45	ERR_CD	0X03	BCC

11．4、SAMT=0cardcommunicationcommand

0x02	SELEN_H	SELEN_L	0x3A	0x33	SELEN	T0_CMD	0x03	BCC

Return sucessfully：

0x02	RELEN_H	RELEN_L	0X50	0x3A	0x33	RLEN	RE_DATA	0x03	BCC

Return with failure：

0x02	0X00	0X04	0x45	0x3A	0x33	ERR_CD	0X03	BCC

11．5、SAMT=1cardcommunicationcommand

0x02	SELEN_H	SELEN_L	0x3A	0x34	SELEN	T1_CMD	0X03	BCC

Return sucessfully：

0x02	RELEN_H	RELEN_L	0x50	0x3A	0x34	RLEN	RE_DATA	0x03	BCC

Return with failure：

0x02	0X00	0X04	0x4E	0x3A	0x34	ERR_CD	0X03	BCC

11．6、SAMcardchoosecommand

0x02	0x00	0x03	0x3A	0x35	SAM_NUM	0X03	BCC

Return sucessfully：

0x02	RELEN_H	RELEN_L	0x50	0x3A	0x35	0x03	BCC

Return with failure：

0x02	0X00	0X04	0x4E	0x3A	0x35	ERR_CD	0X03	BCC

12、ContactlesscardS50operationcommand

12．1、Searchcard

0x02	0x00	0x02	0x3B	0x30	0X03	BCC

Return successfully：

0x02	0X00	0X03	0x50	0x3B	0x30	0x03	BCC

Return with failure:

0x02	0X00	0X04	0x4E	0x3B	0x30	ERR_CD	0X03	BCC

12．2、Readserialnumber

0x02	0x00	0x02	0x3B	0x31	0X03	BCC

Return successfully：

0x02	RELEN_H	RELEN_L	0x50	0x3B	0x31	~~卡序列号~~	0x03	BCC

Return with failure：

0x02	0X00	0X04	0x4E	0x3B	0x31	ERR_CD	0X03	BCC

12．3、Checkpassword

0x02	0x00	0x0a	0x3B	0x32	Block address	Password type	6 byte pass word	0X03	BCC

Note:

Passwordtype:=0X30, check KEYA;=0X31,check KEYB

password：Length is 6 bytes sectors password.

Return successfully：

0x02	0x00	0x03	0x50	0x3B	0x32	0x03	BCC

Return with failure：

0x02	0X00	0X04	0x4E	0x3B	0x32	ERR_CD	0X03	BCC

12．4、Readdata

0x02	0x00	0x03	0x3B	0x33	Block address	0X03	BCC

Return successfully：

0x02	0x00	0x13	0x50	0x3B	0x33	16 bytes data block	0x03	BCC

Return with failure ：

0x02	0X00	0X04	0x4E	0x3B	0x33	ERR_CD	0X03	BCC

12．5、Writedata

0x02	0x00	0x13	0x3B	0x34	Block address	16 bytes data block	0X03	BCC

Return successfully：

0x02	0x00	0x03	0x50	0x3B	0x34	0x03	BCC

Return with failure：

0x02	0X00	0X04	0x4E	0x3B	0x34	ERR_CD	0X03	BCC

12．6、Incrementoperationinitialized

0x02	0x00	0x13	0x3B	0x35	Block address	16 bytes data block	0X03	BCC

Return successfully：

0x02	0x00	0x03	0x50	0x3B	0x35	0x03	BCC

Return with failure：

0x02	0X00	0X04	0x4E	0x3B	0x35	ERR_CD	0X03	BCC

Initialized value format as below

0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Value				/Value				Value				Adr	/Adr	Adr	/Adr

Value: Need to initialize 4 byte value, low byte at front, high byte at behind.

/Value: Negate the 4 byte value which need to be initialized

Adr: Block address of the value need to be initialized.

Adr= block number X 4 + block number (S50 card the 0-15 section，S70 card the 0－31 section block value operation address calculation)

Adr= (section number－32) X 16 + 128 + block number (S70 card the 32－39 section block value operation address calculation)

/Adr: Negate the block address which you needto initialize value

Noted：!For each section last block, please do not operatetheir value.

E.g： Set the five section block 0 initialization value to 10 ,must to write in 16 byte section block data is:

" 0x0A, 0x00, 0x00, 0x00, 0xF5 0xFF,0xFF ,0xFF , 0x0A, 0x00, 0x00, 0x00, 0x14, 0xEB, 0x14, 0xEB "

For s70 card,Set the thirtynine section block 0 initialization value to 10, must to write in 16 bytes section block data is:

" 0x0A, 0x00, 0x00, 0x00, 0xF5, 0xFF,0xFF ,0xFF , 0x0A,0x00, 0x00, 0x00, 0xF0, 0x0F, 0XF0, 0x0F "

12．7、Increment operation

0x02	0x00	0x07	0x3B	0x36	Block address	4 bytes increment data	0X03	BCC

Note: Increment data,low byte at front,high byte at behind.

Return successfully：

0x02	0x00	0x03	0x50	0x3B	0x36	0x03	BCC

Return with failure ：

0x02	0X00	0X04	0x4E	0x3B	0x36	ERR_CD	0X03	BCC

4 byte hex Data is appointed section,appointed block value must need to increase value.(low byte at front, high byte at behind)

If need to increase 0x10，send 4 byte hex datais：" 0x10, 0x00, 0x00, 0x00 "

12．8、Devalueoperation

0x02	0x00	0x07	0x3B	0x37	Block add	4 bytes devalue data	0X03	BCC

Note: Devalue data, low byte at front,high byte at behind.

Return successfully：

0x02	0x00	0x03	0x50	0x3B	0x37	0x03	BCC

Return with failure：

0x02	0X00	0X04	0x4E	0x3B	0x37	ERR_CD	0X03	BCC

4 byte hex data is appointed section and appointed block value need to increase value.(low byte at front, high byte at behind)

If need to decrease 0x10，send 4 byte hex data is：" 0x10, 0x00, 0x00, 0x00 "

13、ContactlesscardS70operation

13．1、Searchcard

0x02	0x00	0x02	0x3C	0x30	0X03	BCC

Return successfully：

0x02	0X00	0X03	0x50	0x3C	0x30	0x03	BCC

Return with failure ：

0x02	0X00	0X04	0x4E	0x3C	0x30	ERR_CD	0X03	BCC

13．2、Readcardserialnumber

0x02	0x00	0x02	0x3C	0x31	0X03	BCC

Return successfully：

0x02	0X00	0X07	0x50	0x3C	0x31	4 bytes serial no	0x03	BCC

Return with failure：

0x02	0X00	0X04	0x4E	0x3C	0x31	ERR_CD	0X03	BCC

13．3、Checkpassword

0x02	0x00	0x0A	0x3C	0x32	Block address	Pass word type	6 bytes pass word	0X03	BCC

Return successfully：

0x02	0x00	0x03	0x50	0x3C	0x32	0x03	BCC

Return successfully：

0x02	0X00	0X04	0x4E	0x3C	0x32	ERR_CD	0X03	BCC

13．4、Readdata

0x02	0x00	0x03	0x3C	0x33	Block address	0X03	BCC

Return successfully：

0x02	0x00	0x13	0x50	0x3C	0x33	16 bytes data block	0x03	BCC

Return with failure ：

0x02	0X00	0X04	0x4E	0x3C	0x33	ERR_CD	0X03	BCC

13．5、Writedata

0x02	0x00	0x13	0x3C	0x34	Block address	16 bytes data block	0X03	BCC

Return successfully：

0x02	0x00	0x03	0x50	0x3C	0x34	0x03	BCC

Return with failure：

0x02	0X00	0X04	0x4E	0x3C	0x34	ERR_CD	0X03	BCC

13．6、Incrementoperationinitialized

0x02	0x00	0x13	0x3C	0x35	Block address	16 bytes data block	0X03	BCC

Return successfully：

0x02	0x00	0x03	0x50	0x3C	0x35	0x03	BCC

Return with failure ：

0x02	0X00	0X04	0x4E	0x3C	0x35	ERR_CD	0X03	BCC

Initialized value format as below

0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Value				/Value				Value				Adr	/Adr	Adr	/Adr

Value: Need to initialize 4 byte value, low byte at front, high byte at behind.

/Value: Negate the 4 byte value which need to be initialized

Adr: Block address of the value need to be initialized.

Adr= block number X 4 + block number (S50 card the 0-15 section · S70 card the 0 –31 section block value operation address calculation)

Adr= (section number – 32) X 16 +

– 39 section block value operation address calculation) 128 + block number (S70 card the 32

/Adr: Negate the block address which you needto initialize value

Noted：!For each section last block, please do not operatetheir value.

E.g： Set the five section block 0 initialization value to 10 ,must to write in 16 byte section block data is:

" 0x0A, 0x00, 0x00, 0x00, 0xF5 0xFF,0xFF ,0xFF , 0x0A, 0x00, 0x00, 0x00, 0x14, 0xEB, 0x14, 0xEB "

For s70 card,Set the thirtynine section block 0 initialization value to 10, must to write in 16 bytes section block data is:

" 0x0A, 0x00, 0x00, 0x00, 0xF5, 0xFF,0xFF ,0xFF , 0x0A,0x00, 0x00, 0x00, 0xF0, 0x0F, 0XF0, 0x0F "

13 · 7 、Incrementoperation

0x02	0x00	0x07	0x3C	0x36	Block address	4 bytes increment data	0X03	BCC

Note: Increment data,low byte at front,high byte at behind.

Return successfully：

0x02	0x00	0x03	0x50	0x3C	0x36	0x03	BCC

Return with failure：

0x02	0X00	0X04	0x4E	0x3C	0x36	ERR_CD	0X03	BCC

13 · 8 、Devalue operation

0x02	0x00	0x07	0x3C	0x37	Block address	4 bytes devalue data	0X03	BCC

Note: Devalue data, low byte at front, high byte at behind.

Return successfully：

0x02	0x00	0x03	0x50	0x3C	0x37	0x03	BCC

Return with failure：

0x02	0X00	0X04	0x4E	0x3C	0x37	ERR_CD	0X03	BCC

14 、ContactlessULcardoperation

14 · 1 、searchcard

0x02	0x00	0x02	0x3D	0x30	0X03	BCC

Return successfully：

0x02	0x00	0x03	0x50	0x3D	0x30	0x03	BCC

Return with failure：

0x02	0X00	0X04	0x4E	0x3D	0x30	ERR_CD	0X03	BCC

14．2、Readserialnumber

0x02	0x00	0x02	0x3D	0x31	0X03	BCC

Return successfully：

0x02	0x00	0x0a	0x50	0x3D	0x31	7 bytes serial no	0x03	BCC

Return with failure：

0x02	0X00	0X04	0x4E	0x3D	0x31	ERR_CD	0X03	BCC

14．3、Readoperation

0x02	0x00	0x03	0x3D	0x32	Block address	0X03	BCC

Return successfully：

0x02	0x00	0x13	0x50	0x3D	0x32	16 byte data	0x03	BCC

Return with failure：

0x02	0X00	0X04	0x4E	0x3D	0x32	ERR_CD	0X03	BCC

14．4、Writeoperation

0x02	0x00	0x13	0x3D	0x33	Block address	16 bytes data	0X03	BCC

Return successfully：

0x02	0x00	0x03	0x50	0x3D	0x33	0x03	BCC

失败返回：

0x02	0X00	0X04	0x4E	0x3D	0x33	ERR_CD	0X03	BCC

Note：block address 0-1 only read not write, block address 2-3 with special meaning, please do not write in it.

14．5、Closedonw

0x02	0x00	0x07	0x3D	0x34	0X03	BCC

Return successfully：

0x02	0x00	0x03	0x50	0x3D	0x34	0x03	BCC

Return with failure：

0x02	0X00	0X04	0x4E	0x3D	0x34	ERR_CD	0X03	BCC

15、AT24serialcardoperation

15．1、Readdata

0x02	0x00	0x05	0x3E	0x30	CARDTP	RDLEN	ADDR	0X03	BCC

[1]ADDR：start address of read data，two byte length.

[2]RDLEN：length of read data，one byte length. Must below orequal to 256.

[3]CARDTP：card type

Return successfully：

0x02	RELEN_H	RELEN_L	0x50	0x3E	0x30	数据包	0x03	BCC

Return with failure：

0x02	0X00	0X04	0x4E	0x3E	0x30	ERR_CD	0X03	BCC

15．2、Writedata

0x02	SELEN_H	SELEN_L	0x3E	0x31	CARDTP	WLEN	ADDR	数据包	0X03	~~BCC~~

[1]ADDR：start address of write data，two byte length.

[2]WLEN：length of written data，effective value 0X01~0XFF

[3]data package：length must below or equal to 256.

Return successfully：

0x02	0x00	0x03	0x50	0x3E	0x31	0x03	BCC

Return with failure ：

0x02	0X00	0X04	0x4E	0x3E	0x31	ERR_CD	0X03	BCC

16、AT45DB041cardoperation

16．1、Reset

0x02	0x00	0x02	0x3F	0x30	0X03	BCC

Return successfully：

0x02	0x00	0x03	0x50	0x3F	0x30	0x03	BCC

Return with failure：

0x02	0X00	0X04	0x4E	0x3F	0x30	ERR_CD	0X03	BCC

16．2、Readdata

0x02	0x00	0x04	0x3F	0x31	ADDR	0X03	BCC

[1]ADDR：read page address of data ，two byte length.

Return successfully：

0x02	0x01	0x0B	0x50	0x3F	0x31	264 字节的数据	0x03	BCC

Return with failure：

0x02	0X00	0X04	0x4E	0x3F	0x31	ERR_CD	0X03	BCC

16．3、Writedata

0x02	0X01	0X0C	0x3F	0x32	ADDR	264 字节数据	0X03	BCC

[1]ADDR：Write data start address of write data，two byte length.

Return successfully：

0x02	0x00	0x03	0x50	0x3F	0x32	0x03	BCC

Return with failure ：

0x02	0X00	0X04	0x4E	0x3F	0x32	ERR_CD	0X03	BCC

17、AT88S102cardoperation

17．1、Reset

0x02	0x00	0x02	0x40	0x30	0X03	BCC

Return successfully：

0x02	0x00	0x03	0x50	0x40	0x30	0x03	BCC

Return with failure：

0x02	0X00	0X04	0x4E	0x40	0x30	ERR_CD	0X03	BCC

17．2、Checkpassword

0x02	0x00	0x04	0x40	0x31	2 bytes password	0X03	BCC

Return successfully：

0x02	0x00	0x03	0x50	0x40	0x31	0x03	BCC

Return with failure：

0x02	0X00	0X04	0x4E	0x40	0x31	ERR_CD	0X03	BCC

17．3、Readdata

0x02	0x00	0x04	0x40	0x32	Address	Length	0X03	BCC

[1]Address：Read start address of data,one byte length

[2]Length：Read length of data. One byte length.

Return successfully：

0x02	RELEN_H	RELEN_L	0x50	0x40	0x32	数据	0x03	BCC

Return with failure：

0x02	0X00	0X04	0x4E	0x40	0x32	ERR_CD	0X03	BCC

17．4、Erasedatabeforepersonified

0x02	0x00	0x04	0x40	0x33	Address	Length	0X03	BCC

[1]Address：Start address of erase data , one byte length

[2]Length：Length of erase data, one byte length

Return successfully：

0x02	0x00	0x03	0x50	0x40	0x33	0x03	BCC

Return with failure ：

0x02	0X00	0X04	0x4E	0x40	0x33	ERR_CD	0X03	BCC

17．5、 Erase1ofapplicationzone,cardpersonified

0x02	0x00	0x08	0x40	0x34	6 byte zone one erasing password	0X03	BCC

Return successfully：

0x02	0x00	0x03	0x50	0x40	0x34	0x03	BCC

Return with failure：

0x02	0X00	0X04	0x4E	0x40	0x34	ERR_CD	0X03	BCC

17．6 、Erase2ofapplicationzone,cardpersonified

0x02	0x00	0x07	0x40	0x35	PM	4 字节的二区擦除密码	0X03	BCC

Note:

PM=0X30．erase before fuse

PM=0X31．erase after fuse

Return successfully：

0x02	0x00	0x03	0x50	0x40	0x35	0x03	BCC

Return with failure：

0x02	0X00	0X04	0x4E	0x40	0x35	ERR_CD	0X03	BCC

17．7、Writedata

0x02	SELEN_H	SELEN_L	0x40	0x36	address	Length	data package	0X03	BCC

Return successfully：

0x02	0x00	0x03	0x50	0x40	0x36	0x03	BCC

Return with failure：

0x02	0X00	0X04	0x4E	0x40	0x36	ERR_CD	0X03	BCC

17．8、Changepassword

0x02	SELEN_H	SELEN_L	0x40	0x37	Password type	Pass word	0X03	BCC

Note:

[1] Password type：

=0X30：change main password,password length is two bytes.

=0X31：change zone one erasepassword,password length is 6 byte.

=0X32：change zone two erasepassword,password length is 4 byte.

Return successfully：

0x02	0x00	0x03	0x50	0x40	0x37	0x03	BCC

Return with failure ：

0x02	0X00	0X04	0x4E	0x40	0x37	ERR_CD	0X03	BCC

17．9、Personifiedoperation

0x02	0x00	0x03	0x40	0x38	Work mode	0X03	BCC

说明：

Note:

[1]Work mode：

=0X30：false personified，can be restored。

=0X31：exit fromfalse personified.

=0X32：personified, cannot be restored.

Return successfully：

0x02	0x00	0x03	0x50	0x40	0x38	0x03	BCC

Return with failure：

0x02	0X00	0X04	0x4E	0x40	0x38	ERR_CD	0X03	BCC

17．10、ErasecounteroperatingcharacterEC2ofzone2,settoinvalidoperation

HOST sending：

0x02	0x00	0x02	0x40	0x39	0x03	BCC

Return successfully：

0x02	0x00	0x03	0x50	0x40	0x39	0x03	BCC

Return with failure ：

0x02	0X00	0X04	0x4E	0x40	0x39	ERR_CD	0X03	BCC

18．AT88S1604cardoperation

18．1、Reset

0x02	0x00	0x02	0x41	0x30	0X03	BCC

Return successfully：

0x02	0x00	0x03	0x50	0x41	0x30	0x03	BCC

Return with failure ：

0x02	0X00	0X04	0x4E	0x41	0x30	ERR_CD	0X03	BCC

18．2、Checkpassword

0x02	0x00	0x05	0x41	0x31	Password type	2 byte password	0X03	BCC

Note：

= 0x30 Check main password
= 0x31 Check application zone one password
= 0x32 Check application zone one erasepassword
= 0x33 Check application zone two password
= 0x34 Check application zone two erase password
= 0x35 heck application zone three password
= 0x36 Check application zone three erasepassword
= 0x37 Check application zone four password
= 0x38 Check application zone four erase password

Return successfully：

0x02	0x00	0x03	0x50	0x41	0x31	0x03	BCC

Return with failure ：

0x02	0X00	0X04	0x4E	0x41	0x31	ERR_CD	0X03	BCC

18．3、Readdata

0x02	0x00	0x05	0x41	0x32	Address	Length	0X03	BCC

[1]Address：Read start address of data,two byte lengt.

[2]Length：read length of data，one byte length.

Return successfully：

0x02	RELEN_H	RELEN_L	0x50	0x41	0x32	data	0x03	BCC

Return with failure ：

0x02	0X00	0X04	0x4E	0x41	0x32	ERR_CD	0X03	BCC

18．4、Erasedata

0x02	0x00	0x05	0x41	0x33	address	length	0X03	BCC

[1]Address：Erase start address of data,two byte length

[2]Length：Erase length of data,one byte length.

Return successfully：

0x02	0x00	0x03	0x50	0x41	0x33	0x03	BCC

Return with failure ：

0x02	0X00	0X04	0x4E	0x41	0x33	ERR_CD	0X03	BCC

18．5、Writedata

0x02	SELEN_H	SELEN_L	0x41	0x34	addres s	lengt h	data packag e	0X03	BCC
[1]Address ：Start address of written data,two byte length									

[2]Length：Length of written data. One byte length.

[3] Data packet ：Length of data to be written should be below or equal to 256

Return successfully：

0x02	0x00	0x03	0x50	0x41	0x34	0x03	BCC

Return with failure ：

0x02	0X00	0X04	0x4E	0x41	0x34	ERR_CD	0X03	BCC

18．6、Changepasswordbeforecardpersonified

0x02	0x00	0x05	0x41	0x35	Password type	2 byte password	0X03	BCC

Note:
[1]Password type：
= 0x30 change main password
= 0x31 change application zone one password
= 0x32 change application zone one erasepassword
= 0x33 change application zone two password
= 0x34 change application zone two erase password
= 0x35 change application zone three password
= 0x36 change application zone three erasepassword
= 0x37 change application zone four password
= 0x38 change application zone four erase password

Return successfully：

0x02	0x00	0x03	0x50	0x41	0x35	0x03	BCC

Return with failure ：

0x02	0X00	0X04	0x4E	0x41	0x35	ERR_CD	0X03	BCC

18．7、Personified

0x02	0x00	0x03	0x41	0x36	Work mode	0X03	BCC

Note:
[1]Work mode：
=0X30：false personified, can be restored.
=0X31：exit fromfalse personified.
=0X32：personified, cannot be restored.

Return successfully：

0x02	0x00	0x03	0x50	0x41	0x36	0x03	BCC

Return with failure ：

0x02	0X00	0X04	0x4E	0x41	0x36	ERR_CD	0X03	BCC

19．AT88S1608cardoperation

19．1、Reset

0x02	0x00	0x02	0x42	0x30	0X03	BCC

Return successfully：

0x02	0x00	0x03	0x50	0x42	0x30	0x03	BCC

Return with failure ：

0x02	0X00	0X04	0x4E	0x42	0x30	ERR_CD	0X03	BCC

19．2、Checkpassword

0x02	0x00	0x06	0x42	0x31	Password type	3 byte password	0X03	BCC

Note：

Password type：

= 0x30 Check application zone one read password
= 0x31 Check application zone two read password
= 0x32 Check application zone three read password
= 0x33 Check application zone fourread password
= 0x34 Check application zone five read password
= 0x35 Check application zone six read password
= 0x36 Check application zone seven read password
= 0x37 Check application zone eight read password
= 0x38 Check application zone one write password
= 0x39 Check application zone two write password
= 0x3A Check application zone three write password
= 0x3B Check application zone four write password
= 0x3C Check application zone five write password
= 0x3D Check application zone six write password
= 0x3E Check application zone seven write password /main password
= 0x3F Check application zone eight write password

Return successfully：

0x02	0x00	0x03	0x50	0x42	0x31	0x03	BCC

Return with failure ：

0x02	0X00	0X04	0x4E	0x42	0x31	ERR_CD	0X03	BCC

19．3、Readdata

0x02	0x00	0x05	0x42	0x32	Section Number	Address	Length	0X03	BCC

Note：

Operation address range：

Application zone：0x00----0xFF

Setting zone：0x00----0x80

Operation length ：0x01----0x80

Zone No.： = 0x30 Application zone one (len=0x01—0x80)
= 0x31 Application zone two (len=0x01—0x80)
= 0x32 Application zone three (len=0x01—0x80)
= 0x33 Application zone four (len=0x01—0x80)
= 0x34 Application zone five (len=0x01—0x80)
= 0x35 Application zone six (len=0x01—0x80)
= 0x36 Application zone seven (len=0x01—0x80)
= 0x37 Application zone eight (len=0x01—0x80)
= 0x38 setting zone (len=0x01—0x80)

Return successfully：

0x02	RELEN_H	RELEN_L	0x50	0x42	0x32	data	0x03	BCC

Return with failure ：

0x02	0X00	0X04	0x4E	0x42	0x32	ERR_CD	0X03	BCC

19．4、Writedata

0x02	SELEN_H	SELEN_L	0x42	0x33	Section number	address	length	data	0X03	BCC

Note：

Operation address range：

Application zone：0x00----0xFF

Setting zone：0x00----0x80

Operation length ：0x01----0x80

Zone No.： = 0x30 application zone one (len=0x01—0x80)

= 0x31 application zone two (len=0x01—0x80)

= 0x32 application zone three (len=0x01—0x80)

= 0x33 application zone four (len=0x01—0x80)

= 0x34 application zone five (len=0x01—0x80)

= 0x35 application zone six (len=0x01—0x80)

= 0x36 application zone seven (len=0x01—0x80)

= 0x37 application zone eight (len=0x01—0x80)

= 0x38 setting zone (len=0x01—0x80)

Return successfully：

0x02	0x00	0x03	0x50	0x42	0x33	0x03	BCC

Return with failure ：

0x02	0X00	0X04	0x4E	0x42	0x33	ERR_CD	0X03	BCC

19．5、Readfusewirestatus

0x02	0x00	0x02	0x42	0x34	0X03	BCC

Return successfully：

0x02	0x00	0x06	0x50	0x42	0x34	FAB	CMA	PER	0x03	BCC

Note：

FAB：is preset fuse sign of ATMEL chip, after chip out of factory ,it has been fused.

CMA：is preset fuse sign of card , after card out of factory ,it has been fused PER：is issuer fuse ．fuse sign of personified before application system starts.

Fuse status FAB： FAB =0X30 fused, FAB=0X31 unfused

Fuse status CMA： CMA =0X30 fused, CMA =0X31 unfused

Fuse status PER ： PER=0X30 fused, PER=0X31 unfused

Return with failure ：

0x02	0X00	0X04	0x4E	0x42	0x34	ERR_CD	0X03	BCC

19．6、Fusewire

Note：

Every execute this command once, melt one level fuse wire. After execute this command three times,all fuse wire will be fused and cannot be restored.

Fuse wire sequence： FAB à CMA à PER

0x02	0x00	0x02	0x42	0x35	0X03	BCC

Return successfully：

0x02	0x00	0x03	0x50	0x42	0x35	0x03	BCC

Return with failure ：

0x02	0X00	0X04	0x4E	0x42	0x35	ERR_CD	0X03	BCC

19．7、Initializationauthentification

0x02	0x00	0x0A	0x42	0x36	8 byte random number Q0~Q7	0x03	BCC

Return successfully：

0x02	0x00	0x03	0x50	0x42	0x36	0x03	BCC

Return with failure ：

0x02	0X00	0X04	0x4E	0x42	0x36	ERR_CD	0X03	BCC

Note：

Initialization authentification is that readNc · Ci in the card first,then calculate Gc=F1（Ks· Nc）through F1 or F2 calculation method to get random Q0~Q7, then sendinto AT88SC1608 card to complete initialization authentification zone. Calculation method can get fromcard manufacturer.

19．8、Checkauthentification

0x02	0x00	0x0A	0x42	0x37	8 byte random number Q0~Q7	0x03	BCC

Return successfully：

0x02	0x00	0x03	0x50	0x42	0x37	0x03	BCC

Return with failure ：

0x02	0X00	0X04	0x4E	0x42	0x37	ERR_CD	0X03	BCC

Note:

Check authentification zone is that after initialization authentification, complete Q1 = F2(Gc · Ci · Q0) through F2 calculation method to get Q0, Q1 · Q2 · Q3 · Q4 · Q5 · Q6 and Q7, and send into AT88SC1608 card to complete check authentification zone to make check. Calculation method can get from card manufacturer.

9．9、Changepassword

0x02	0x00	0x06	0x42	0x38	Password tyype	3 byte password	0X03	BCC

Note：

Password type ：

= 0x30 Change application zone one read password
= 0x31 Change application zone two read password
= 0x32 Change application zone three read password
= 0x33 Change application zone four read password
= 0x34 Change application zone five read password
= 0x35 Change application zone six read password
= 0x36 Change application zone seven read password
= 0x37 Change application zone eight read password
= 0x38 Change application zone one write password
= 0x39 Change application zone two write password
= 0x3A Change application zone three write password
= 0x3B Change application zone four write password

= 0x3C Change application zone five write password
= 0x3D Change application zone six write password
= 0x3E Change application zone seven write password/check main password
= 0x3F Change application zone eight write password

Return successfully：

0x02	0x00	0x03	0x50	0x42	0x38	0x03	BCC

Return with failure ：

0x02	0X00	0X04	0x4E	0x42	0x38	ERR_CD	0X03	BCC

20、SLE4442cardoperation

20．1、Reset

0x02	0x00	0x02	0x43	0x30	0X03	BCC

Return successfully：

0x02	0x00	0x03	0x50	0x43	0x30	0x03	BCC

Return with failure ：

0x02	0X00	0X04	0x4E	0x43	0x30	ERR_CD	0X03	BCC

20．2、Checkpassword

0x02	0x00	0x05	0x43	0x31	3 byte password	0X03	BCC

Return successfully：

0x02	0x00	0x03	0x50	0x43	0x31	0x03	BCC

Return with failure ：

0x02	0X00	0X04	0x4E	0x43	0x31	ERR_CD	0X03	BCC

20．3、Readdata

0x02	0x00	0x04	0x43	0x32	address	length	0X03	BCC

Note：

[1]Address：read start address of data，effective value：0x00~0xFF,one byte length.

[2]Length：read length of data.

Return successfully：

0x02	RELEN_H	RELEN_L	0x50	0x43	0x32	data	0x03	BCC

Return with failure ：

0x02	0X00	0X04	0x4E	0x43	0x32	ERR_CD	0X03	BCC

20．4、Readprotectionbit

0x02	0x00	0x02	0x43	0x33	0X03	BCC

Note：

[1]Address：read start address of data，effective value：0x00~0x1F, one byte length.

[2]Length：read length of data.

Return successfully：

0x02	0x00	0x23	0x50	0x43	0x33	data	0x03	BCC

Note：

[1]Data：Effective value onlu has ：0X30 and 0X31。0X30 means that related address are protected,

and data can not be changed.

0X31 means that related address are not protected, and data can be changed. Return with failure ：

0x02	0X00	0X04	0x4E	0x43	0x33	ERR_CD	0X03	BCC

20 · 5 、ReadPSCzone

0x02	0x00	0x02	0x43	0x34	0X03	BCC

Return successfully÷

0x02	0x00	0x07	0x50	0x43	0x34	PSC zone data	0x03	BCC

Note：PSC zone data has four bytes, sequence as below:

The first byte is ： passworderror counter

The second byte is ： password data 1

The third byte is ：password data 2

The fourth byte is ：password data 3

Password error counter=0X07（no error ）·0X06（error value is 1）·0X04（error value is 2 ）· 0X00

（error value is 3 · card is void）

Return with failure ÷

0x02	0X00	0X04	0x4E	0x43	0x34	ERR_CD	0X03	BCC

.20 · 6 、Writedata

Note：Before write data check password must succeed

0x02	SELEN_H	SELEN_L	0x43	0x35	Address	Length	data	0X03	BCC

Note：

[1]Address：Write start address of data · effective value ：0x00~0x1F,one byte length.

[2]Length：Write length of data.

Return successfully：

0x02	0x00	0x03	0x50	0x43	0x35	0x03	BCC

Return with failure ÷

0x02	0X00	0X04	0x4E	0x43	0x35	ERR_CD	0X03	BCC

20 · 7 、Writeprotectionbit

Note:

[1]Before write protection bit check password must succeed.

[2]Only write protection bit data is same as data before write protection bit, write protection bit can succeed.

[3]Once write protection bit succeed, relative address data cannot be changed.

0x02	SELEN_H	SELEN_L	0x43	0x36	Address	Length	Data	0X03	BCC

Note:

[1]Address：Write start address of data · effective value：0x00~0x1F,one byte length.

[2]Length：write length of data.

Return successfully：

0x02	0x00	0x03	0x50	0x43	0x36	0x03	BCC

Return with failure ：

0x02	0X00	0X04	0x4E	0x43	0x36	ERR_CD	0X03	BCC

20．8、Changepassword

Note:

[1]Before change password check password must succeed.

0x02	0x00	0x05	0x43	0x37	3 byte password	0X03	BCC

Return successfully÷

0x02	0x00	0x03	0x50	0x43	0x37	0x03	BCC

Return with failure ÷

0x02	0X00	0X04	0x4E	0x43	0x37	ERR_CD	0X03	BCC

21、SLE4428cardoperation

21．1、Activatecontacts ，andpoweronreset

0x02	0x00	0x02	0x44	0x30	0X03	BCC

Return successfully：

0x02	0x00	0x03	0x50	0x44	0x30	0x03	BCC

Return with failure ÷

0x02	0X00	0X04	0x4E	0x44	0x30	ERR_CD	0X03	BCC

21．2、Checkpassword

0x02	0x00	0x04	0x44	0x31	2 byte password	0X03	BCC

Return successfully：

0x02	0x00	0x03	0x50	0x44	0x31	0x03	BCC

Return with failure ÷

0x02	0X00	0X04	0x4E	0x44	0x31	ERR_CD	0X03	BCC

21．3、Readdata

0x02	0x00	0x05	0x44	0x32	Address	Length	0X03	BCC

Note:

[1]Address：Read start address of data ，effective value：0x00~0xFF，two byte length.

[2]Length：read length of data.

Return successfully：

0x02	RELEN_H	RELEN_L	0x50	0x44	0x32	data	0x03	BCC

Return with failure ：

0x02	0X00	0X04	0x4E	0x44	0x32	ERR_CD	0X03	BCC

21．4、Readprotectionbit

0x02	0x00	0x05	0x44	0x33	Address	Length	0X03	BCC

Note:

[1]Address：Read start address of data ，effective value: 0x00~0x1F, two byte length.

[2]Length：read length of data.

Return successfully：

0x02	RELEN_H	RELEN_L	0x50	0x44	0x33	data	0x03	BCC

Note:

[1]Data :effective value only has :0X30 and 0X31 ;0X30 means that relative address is protected, and data cannot be changed.

0X31 means that relative address is not protected, and data can be changed. Return with failure ：

0x02	0X00	0X04	0x4E	0x44	0x33	ERR_CD	0X03	BCC

21．5、Writedata

Note:Before write data check password must succeed.。

0x02	SELEN_H	SELEN_L	0x44	0x34	Address	Lenght	data	0X03	BCC

[1]Address：two byte length.

[2]Length：write length of data,effective value: 0X00~0XFF.One byte length.

Return successfully：

0x02	0x00	0x03	0x50	0x44	0x34	0x03	BCC

Return with failure ÷

0x02	0X00	0X04	0x4E	0x44	0x34	ERR_CD	0X03	BCC

21．6、Writedatawithprotectionbit

Note:

[1] Before write data check password must succeed.

[2] Once write protection bit succeed, relative address data cannot be changed.

0x02	SELEN_H	SELEN_L	0x44	0x35	Address	Length	data	0X03	BCC

[1]Address：two byte length.

[2]Length：write length of data, effective value：0X00~0XFF.One byte length.

Return successfully：

0x02	0x00	0x03	0x50	0x44	0x35	0x03	BCC

Return with failure ÷

0x02	0X00	0X04	0x4E	0x44	0x35	ERR_CD	0X03	BCC

21．7、 Changepassword

[1]Before change password check password must succeed.

0x02	0x00	0x04	0x44	0x36	2 byte password	0X03	BCC

Return successfully：

0x02	0x00	0x03	0x50	0x44	0x36	0x03	BCC

Return with failure ÷

0x02	0X00	0X04	0x4E	0x44	0x36	ERR_CD	0X03	BCC

22、ICcardpoweron/offoperation

22．1、Poweron

0x02	0x00	0x02	0x45	0x30	0X03	BCC

Return successfully：

0x02	0x00	0x03	0x50	0x45	0x30	0x03	BCC

Return with failure÷

0x02	0X00	0X04	0x4E	0x45	0x30	ERR_CD	0X03	BCC

22．2、Poweroff

0x02	0x00	0x02	0x45	0x31	0X03	BCC

Return successfully：

0x02	0x00	0x03	0x50	0x45	0x31	0x03	BCC

Return with failure：

0x02	0X00	0X04	0x4E	0x45	0x31	ERR_CD	0X03	BCC

23、Setbaudrate

0x02	0x00	0x02	0x46	PM	0X03	BCC

Note：

PM effective value and related baud rate

0x30	Baud rate=1200
0x31	Baud rate=2400
0x32	Baud rate=4800
0x33	Baud rate=9600
0x34	Baud rate=19200
0x35	Baud rate=38400

Return successfully：

0x02	0x00	0x03	0x50	0x46	PM	0x03	BCC

Return with failure：

0x02	0X00	0X04	0x4E	0x46	PM	ERR_CD	0X03	BCC

24．ContactlessCPUcardoperationcommand

24．1、ActivedContactlessCPUcard

0X02	0X00	0X02	0X47	0x30	0X03	BCC

Return successfully：

0x02	BLEN	0x50	0x47	0x30	RESET_DATA	0x03	BCC

Return with failure：

0x02	0X00	0X04	0x4E	0x47	0x30	ERR_CD	0X03	BCC

24．2、APDUcommandofcontactlessCPUcard

0X02	0X00	0X02	0X47	0x33	sch	slen	sapdu	0X03	BCC

Return successfully：

0x02	BLEN	0x50	0x47	0x33	rch	rapdu	0x03	BCC

Return with failure：

0x02	0X00	0X04	0x4E	0x47	0x33	ERR_CD	0X03	BCC

Note：

[1]sch: Link symbol ，=0 no needlink ，=1 need link

[2]sapdu: APDU command packet which need to be sent

[3]rch: Link symbol of receiving,=0 no needlink ，=1 need link

[4]rapdu: APDU command packetof returning

III Error code

Error code	Explanation
Command error code	

0x00	Undefined command
0x01	Command parameter error
0x02	Command data error
0x03	Command cannot be executed
0x04	Execute command failed
Power error code	
0x05	Power error, high>13v
0x06	Power error, low<10v
0x07	Main power is low or absent
0x08	Sensor abnormal
card action error code	
0x0a	Jam card
0x0b	Open flop failed
0x0c	Card abnormal,with long card.
0x0d	Card abnormal,with short card.
0x0e	Entry card overtime fromback
Chip card operation error code-CPU card	
0x21	Reset CPU card failed
0x22	T=0CPU card command execution failed
0x23	T=1CPU card capacity requested failed
0x24	T=1CPU card command execution failed
Chip card operation error code--SAM card	
0x30	Reset SAM card failed
0x31	T=0SAM card command execution failed
0x32	T=1SAM card capacity requested failed
0x33	T=1SAM card command execution failed
Chip card operation error code-Mifare(RFID) card	
0X40	No card at Mifare card position, can not execute command of Mifare card
0x41	Search card failed
0x42	Read serial no failed
0x43	Check password error
0x44	Choose card failed
0x45	Read data failed
0x46	Write data failed
0x49	Devalue failed
0x4a	Increment failed
Chip card operation error code-- Memory card, logic encryption card	
0x50	No card at chip card position, can not execute command of chip card
0x51	Read Failed of AT24 serial card
0x52	Write Failed of AT24 serial card
0x53	Reset AT45DB041 card failed
0x56	Reset AT88S1608 card failed
0x57	Check AT88S1608 card password error
0x58	Read AT88S1608 card data error
0x59	Write AT88S1608 card data error
0x5a	Write AT88S1608 card fuse error
0x5b	Initial AT88S1608 authentication error
0x5c	Check AT88S1608 authentication error
0x5d	Reset AT88S102 errot

0x5e	CheckAT88S102 passworderror
0x5f	AT88S102cardscrap
0x60	CleanAT88S102operation failed
0x61	WriteAT88S102 failed
0x62	SetAT88S102passworderror
0x63	ResetAT88S1604error
0x64	CheckAT88S1604password error
0x65	AT88S1604cardscrap
0x66	CleanAT88S1604error
0x67	WriteAT88S1604 carderror
0x68	ReadAT88S1604error
0x69	Reset SLE4442error
0x6a	SLE4442card scrap
0x6b	SLE4442card passworderror
0x70	Reset SLE4428failed
0x71	SLE4428card scrap
0x72	CheckSLE4428 cardpassword error
0x73	Set SLE4428 cardpassword error

END