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# PRODUCT MANUAL

## *CRT-580 SERIES MOTOR CARD ISSUING MACHINE*



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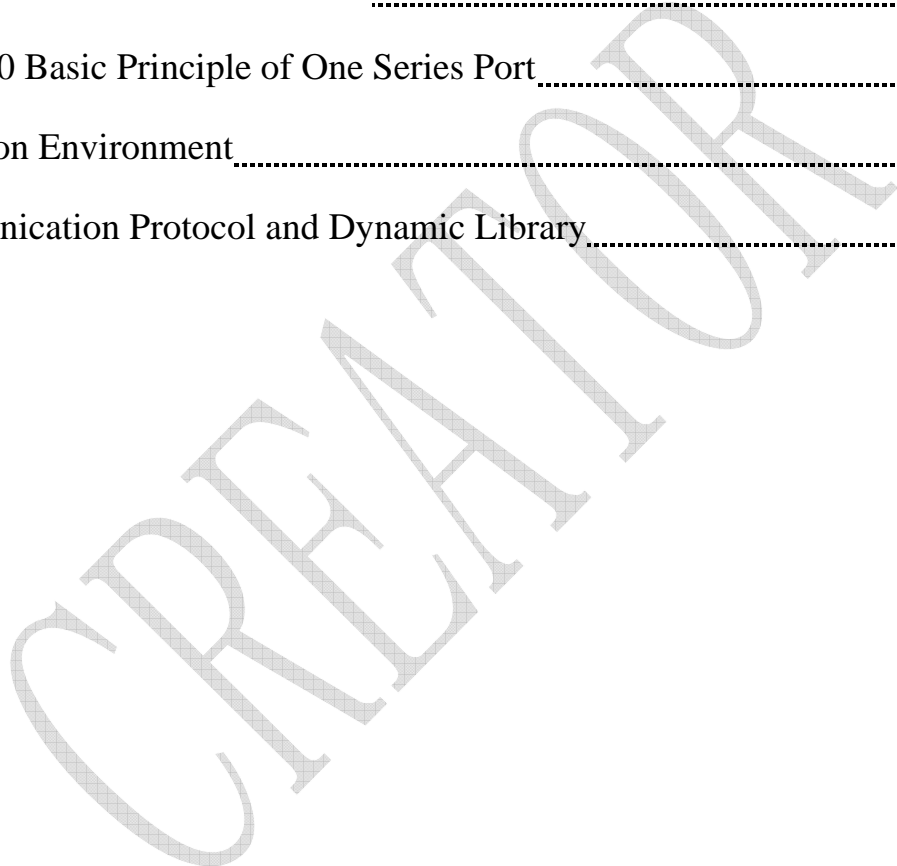
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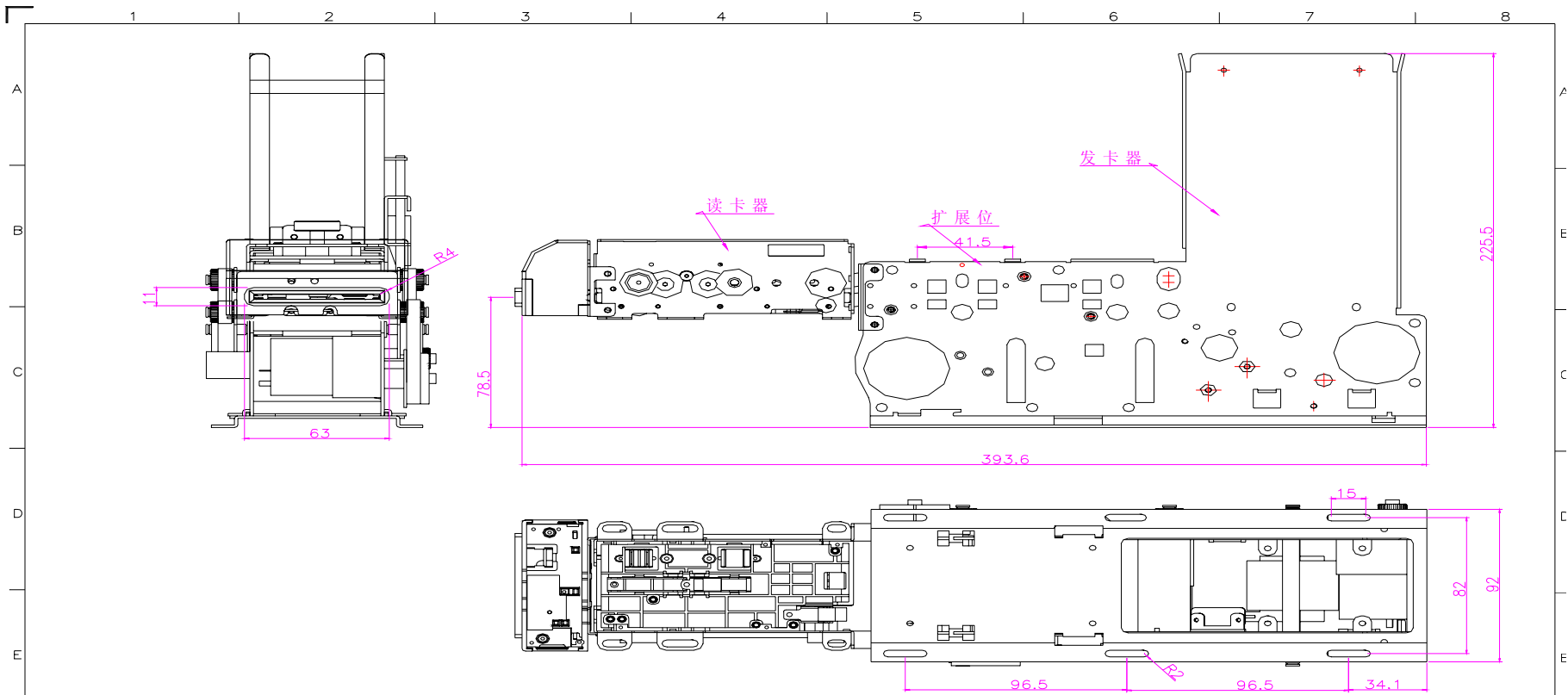


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## 3. Structure and Installation Picture



标记	处数	更改文件号	签字	日期

设计	校对	审核	工艺	未	注	入	公差
				.X			
日期	图样标记	数量	比例	.XX			
				.XXX			
共 页, 第 页				Angle			
姓名 [E:\				Radius			

零件代码	材料
零件名称	TEL 755-26710345
产品名称	FAX 755-26710105
深圳市创自技术有限公司	
CREATOR (CHINA) TECH CO., LTD	

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#### 4. Basic principle of Single serial port

CRT-580 consists of CRT-310 and CRT-550, CRT-310 card reader is the subordinate of CRT-550. All card movement will be controlled by CRT-550 module, card read/write controlled by 'transmitting package of read/write cards'. CRT-550 will transmit the card read/write command package to CRT-310 as soon as it receives command from PC. CRT-310 will execute card read/write command, and then response to CRT-550. CRT-550 packs the responses of CRT-310 module to PC.

By this way, CRT-580 can not only control the CRT-310 read/write module by single port, but also control the third product which connected with any port. It is convenient for the function extension of the CRT-580.

#### 5. Operation Environment

##### 5.1 The Operation condition

Operation temperature/ humidity: -10°C—50°C/ 0—90%(non-condensing)

Storage temperature/humidity: -20°C—80°C/0—90%(non-condensing)

##### 5.2 Current and Voltage

Working voltage: DC24V ±10%

Static current: 150mA

Max peak current value: 3.0A

##### 5.3 Reliability/Durability

A. Vibration: No defect in all items of the characters under normal condition after exposed 15min,each on X,Y and Z directions of 2mm swing,from 10 to 50Hz/min vibrate.

B. Shock: No defect in all items of the characteristics under normal condition after shocked one time on X,Y and Z directions of 294M/S<sup>2</sup>,11ms peak acceleration shock.

Normal condition: 20+/-5°C, 35~60%RH。 The durability is based on the test environment.

#### 6. CRT-580 operation communication protocol:

##### 6. 1 Communication Format

Baud rate (BPS): Defined by the HOST, (default 9600 BPS) (1200/2400/4800/9600/192000/38400BPS)

Communication type: Asynchronous communication

Transmit type: Half duplex

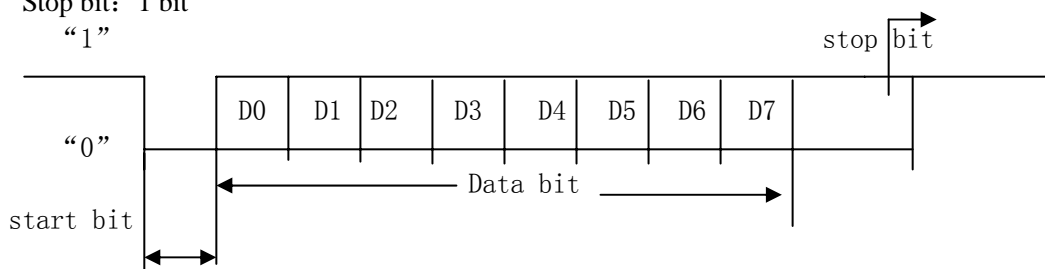
Bit detail: Start bit: 1bit

Data bit: 8 bit

Parity bit: None


Stop bit: 1 bit

“1”



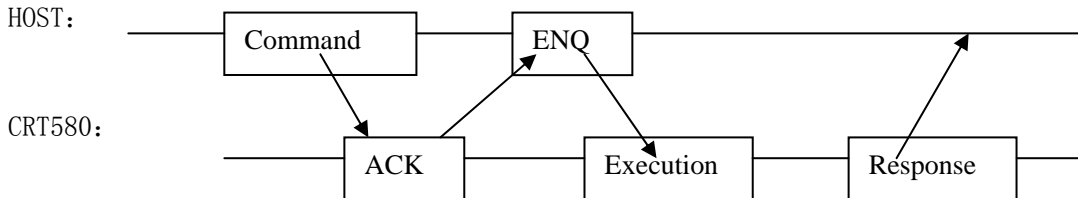
##### 6. 2 Communication Control Method:

The unit, as a subordinate part of host, starts working after received command from host, and return operation

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result to host.

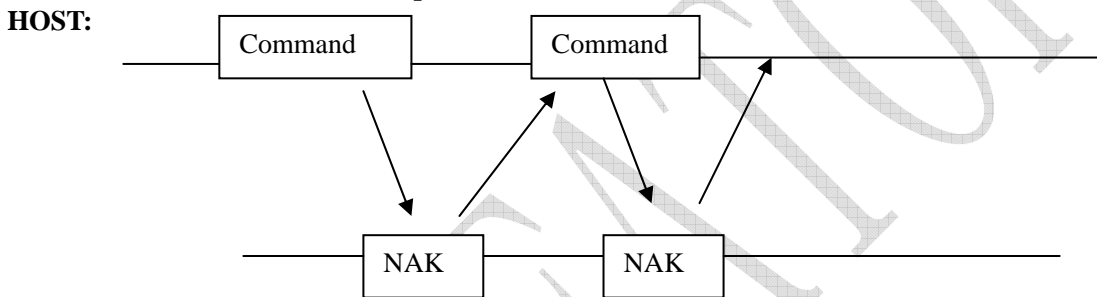
### 6. 2. 1 Normal communication process control



- Command: Sending command package
- ACK : Positive answer
- ENQ : Sending require command
- Execution: Interior execution operation
- Response: Return the command execution package

Host sends command, CRT580 receives and checks if BCC is correct according to the card issuing machine address byte. Host sends ENQ (ENQ+addrh+addrl) after return ACK (ACK+addrh+addrl), CRT580 will execute the relevant operation and return relevant operation information to host according ENQ.

### 6. 2. 2 Abnormal communication process(BBC error)



CRT580:

Host send command, CRT580 receives and checks if BCC is wrong according to the card issuing machine address byte. Host resends the correct command after return NAK, and then CRT580 will return ACK.

### 6. 3 Command character

STX (0X02)	Start character of data package
ETX (0X03)	End character of data package
ENQ (0X05)	Sending require command(host->unit)
ACK (0X06)	Positive answer
NAK (0X15)	Negative answer
EOT (0X04)	Cancel communication

### 6. 4 communication command structure: 6. 4.1 ACK package, ENQ package, NAK package format:

ACK package:


ACK

HOST send the command, CRT580 receives and checks if BCC is correct according to the card issuing machine address byte, then return ACK to HOST, otherwise any relevant information will not be returned..

NAK package:

NAK

HOST sends command, CRT580 receives and checks if BCC is correct according to the card issuing machine address byte, then return NAK to HOST, otherwise will not return any relevant information.

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ENQ package:

ENQ

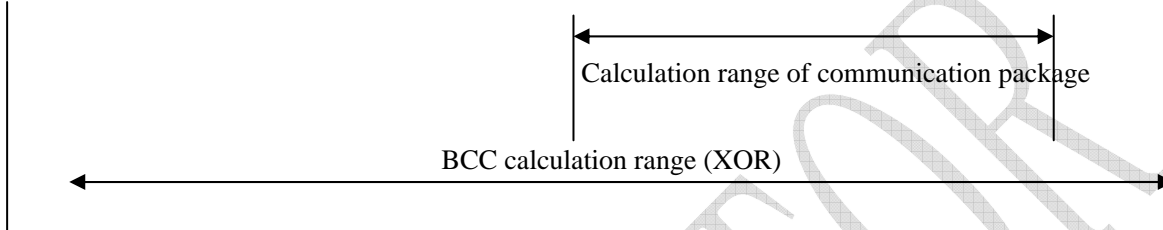
Host received the ACK returned by CRT580, then send ENQ to CRT580, CRT580 can execute related operation after receiving ENQ, then return the result to the host.

Addrh,addrl: Card issuing machine address- address of high byte/low byte

Addrh,addrl= '00', '01', '02', '03', '04', '05', '06', '07', '08', '09', '0A', '0B', '0C', '0D', '0E', '0F'.

**6. 4. 2 Send command data package format:**

STX (0x02)	Address of card issuing machine (2 byte)	Length of communication package (2 byte )	Command character (1 byte )	Command parameter (1 byte )	Data package ( n byte )	ETX (0x03)	BCC (1 byte )
---------------	---	--	--------------------------------	--------------------------------	----------------------------	---------------	------------------



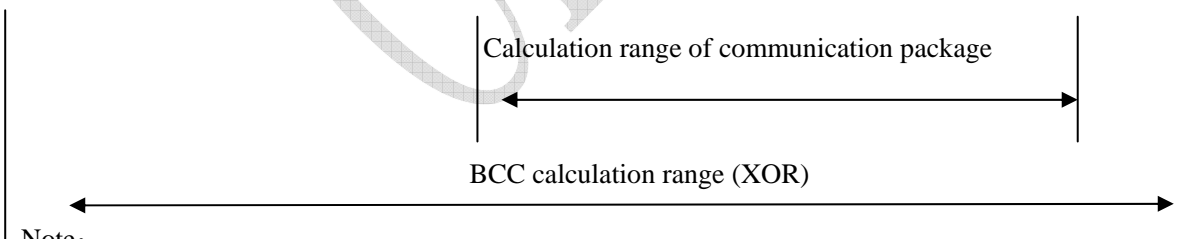
Note:

- a. N byte: range of n: Max=264 byte. Min=0 byte
- b. Communication package in 2 bytes transmit, former one is high byte, latter one is low byte.
- c. Card issuing machine address in 2 bytes transmit, former one is high byte of address, latter one is low byte.

**6. 4. 3 Returned data package format**

**6. 4. 3. 1 Normal return**

STX (0x02)	Address of card issuing machine (2 byte)	Length of communication package (2 byte )	Command character (1 byte )	Command parameter (1 byte )	Operation Status Byte P	Data package (n byte )	ETX (0x03)	BCC (1 byte )
---------------	---	--	--------------------------------	--------------------------------	----------------------------	---------------------------	---------------	------------------




Note:

- a. N byte: range of n: Max=264 byte. Min=0 byte
- b. Communication package in 2 bytes transmit, former one is high byte, latter one is low byte.
- c. Card issuing machine address in 2 bytes transmit, former one is high byte of address, latter one is low byte.
- d. Operation status byte P

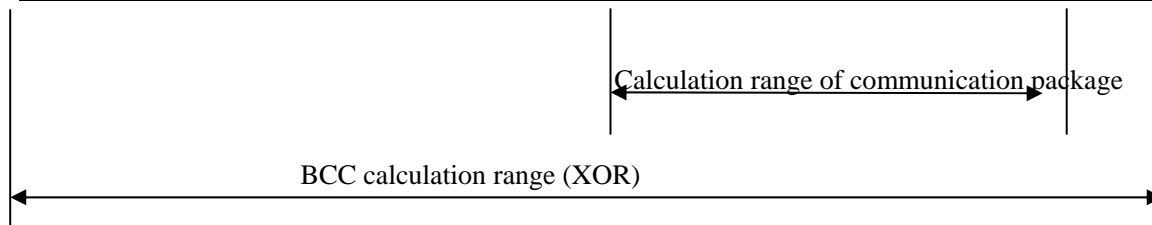
P='Y' (0X59) execute command successful

P='N' (0X4E) execute command fail

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#### 6. 4. 3. 2 Abnormal return

STX (0x02)	Address of Card issuing machine (2 byte)	Length of Communication package (2 byte)	'N'(0X4E) (1 byte)	Command parameter (1 byte)	Error byte E (n byte)	ETX (0x03)	BCC (1 byte)
------------	--	--	--------------------	----------------------------	-----------------------	------------	--------------




Meaning of error byte "E"

Error byte E	Description
0x00	Undefined command
0x01	Undefined parameter
0x02	Command can not be executed
0x04	Command data error
0x05	Power supply exceeds the working condition range of the unit
0x06	Abnormal length cards inside the unit (short card or long card)

#### 6. 5 CRT580 operation Command List:

Command	Command character	Command parameter	Description
Reset	0x70	0x30	Reset CRT580 and return the software version
Set comm. Baud rate	0x71	0x30	Baud rate=1200 BPS
		0x31	Baud rate =2400 BPS
		0x32	Baud rate =4800 BPS
		0x33	Baud rate =9600 BPS
		0x34	Baud rate =19200 BPS
		0x35	Baud rate =38400 BPS
Check status	0x72	0x30	Check status(Ex. Stacker, error card bin, dispensing card channel, reader)
		0x31	check the sensors status
Card move operation	0x73	0x30	Dispensing card to the position which is to pre-dispense the card
		0x31	Dispensing card to the RF card operation position
		0x32	Dispensing card to the IC card poeration position
		0x33	Dispensing card to the front side, and hold the card
		0x34	Dispensing card to the front side, and not hold the card
		0x35	Capture card to the error card bin
Card in control	0x74	0x30	Prohibit the card in from front of the reader
		0x31	Allow card in by magnetic signal
		0x32	Allow card in by switch

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CRT-310 Card read/write operation	0xF0	command package	To read/write RF/IC/MAG card and transmit other command of the readers
Set the baud rate with 3 <sup>rd</sup> module	0xF1	0x30	Baud rate=1200 BPS
		0x31	Baud rate =2400 BPS
		0x32	Baud rate =4800 BPS
		0x33	Baud rate =9600 BPS
		0x34	Baud rate =19200 BPS
		0x35	Baud rate =38400 BPS
Transmit the command of the third party module operation	0xF2	command package	To transmit the control command of the third party module(RESERVED)

Remark: 0xF1 and 0xF2 are reserved temporarily

### 6. 5. 1 Reset CRT580: Reset initialization operation for CRT-580.

Host sends:

0x02	Address of card issuing machine(2 byte)	0x00	0x02	0x70	0x30	0x03	BCC
------	---	------	------	------	------	------	-----

CRT580 returns:

0x02	Address of card issuing machine(2 byte)	Length Of communication package(2 byte)	0x70	0x30	Version information byte SV	0x03	BCC
------	---	---	------	------	-----------------------------	------	-----

Version information byte SV="CRT580-V3.0

### 6. 5. 2 Set CRT580 comm. Baud rate

Host sends:

0x02	Address of card issuing machine (2 byte)	0x00	0x02	0x71	PM	0x03	BCC
------	--	------	------	------	----	------	-----

CRT580 return:

0x02	Address of card issuing machine (2 byte)	0x00	0x03	0x71	PM	Operation status byte P	0x03	BCC
------	--	------	------	------	----	-------------------------	------	-----

PM=0x30 BAUD=1200BPS  
 PM=0x31 BAUD =2400BPS  
 PM=0x32 BAUD =4800BPS  
 PM=0x33 BAUD =9600BPS  
 PM=0x34 BAUD =19200BPS  
 PM=0x35 BAUD =38400BPS

The operation status byte P= 'Y' (0x59) represent the baud rate setting up success.

The operation status byte P= 'N' (0x4E) represent the baud rate setting up fail

**Host gets the returned information success from card reader, CRT580 will reset the Baud rate of interface according the set Baud rate, to save in EEPROM until there are new revised baud rate. Host should also reset the interface according the same baud rate, ensuring HOST and CRT580 have the same baud rate, later host can operate the CRT580 correctly in this way.**

### 6. 5. 2 CRT580 status checking

Host sends:


0x02	Address of card issuing machine (2 byte)	0x00	0x02	0x72	PM	0x03	BCC
------	--	------	------	------	----	------	-----

CRT580 returns:

0x02	Address of card issuing machine (2 byte)	The length of the communication package(2 byte)	0x72	PM	The information of status package	0x03	BCC
------	--	---	------	----	-----------------------------------	------	-----

\*\* PM=0x30, Check the status of stacker/error card bin/dispenser channel/reader


\*\*\* PM=0x31, check the status of sensors

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\*\* PM=0x30, Check the status of stacker/error card bin/dispenser channel/reader  
The return package is S5, S4, S3, S2, S1, S0 (6 byte) .

	Status	Description
S5=0x30	Card stop at front, not hold card	One card stop at the front side of the reader and not hold card
S5=0x31	Card stop at front and hold card	One card stop at the front of the reader. And hold the card
S5=0x32	Card stop at RFID card operation position	One card stop at the RFID card position in the reader
S5=0x33	Card stop at IC card operation operation position	One card stop at the IC card operation position
S4=0x31	Prohibit card in from front side of the reader	Prohibit card in from front side of the reader
S4=0x32	Card in by magnetic signal and switch	Shutter will be open only when mag card is inserted, meanwhile the card should touch the switch
S4=0x33	Card in by switch	Permit mag card, IC card/RF ID card in
S4=0x34	Card in by magnetic signal only	Permit the card in with mag signal only.
S3=0x30	No card in card reader	No card in the reader, card can be dispensed
S3=0x31	With card in RFID card operation position	There is a card on the RFID operation position
S3=0x32	With card in IC card operation position	There is a card on the IC card operation position
S3=0x33	With card at the front of reader and hold card	There is a card at the front of the reader and hold card
S3=0x34	With card at the front of reader ,not hold card	There is a card at the front of the reader, not hold card
S3=0x35	With abnormal long card in reader	There is a abnormal long card in the reader
S3=0x36	With abnormal short card in reader	There is a abnormal short card in the reader
S3=0x37	With card at the rear part of reader and hold card	There is a card at the rear part of the reader and hold card (This position is error position)
S3=0x38	With card at the rear part of reader and not hold card	There is a card at the rear part of the reader and not hold card (This position is error position)
S2=0x30	Without card on dispenser channel	There is no card at the position of the pre-dispense and the dispenser channel
S2=0x31	With a card at pre-dispense position	
S2=0x32	With a card at extension operation position	
S2=0x33	With a card at the abnormal position.	Card is at the error position
S1=0x30	With enough card in stacker	There are enough card in the stacker
S1=0x31	Lack of card in stacker	There is lack of card in the stacker
S1=0x32	No card in stacker	There is no card in the stacker
S0=0x30	Error card bin is not full	Allow card to be captured to the error card bin
S0=0x31	Error card bin is full	Card should be removed due to the bin is full

\*\*\* PM=0x31, checking all sensors status of CRT-580. The Status package is 13 byte  
Status byte=0x31, with card in; byte=0x30, no card in.

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sensor Serial No.	Sensor Tab	Sensor description	Status
1	PH1	card issuing channel 1# infrared sensor status	=0x30 no card , =0x31with card
2	PH2	card issuing channel 2# infrared sensor status	=0x30 no card, =0x31with card
3	PH3	card issuing channel 3# infrared sensors status	=0x30no card, =0x31wih card
4	PH4	card vacancy in card stacker, sensor status	=0x30no card, =0x31wih card
5	PH5	Lack of card in card Stacker , sensor status	=0x30no card, =0x31wih card
6	PH6	card full in error card bin, sensor status	=0x30no card, =0x31wih card
7	KSW	Front side of reader, sensor status	=0x30no card, =0x31wih card
8	CTSW	Shutter status	=0x30 closed , =0x31 opened
9	PSS1	Reader 1#infrared sensor status	=0x30no card , =0x31 with card
10	PSS2	Reader 2#infrared sensor status	=0x30 no card , =0x31with card
11	PSS3	Reader 3#infrared sensor status	=0x30 no card , =0x31with card
12	PSS4	Reader 4#infrared sensor status	=0x30 no card , =0x31with card
13	PSS5	Reader 5#infrared sensor status	=0x30 no card , =0x31with card

### 6. 5. 3 CRT580 dispensing and capturing card Operation

#### 6. 5. 3. 1 To dispense the card to the extension operation position

Host sends:

0x02	Address of card issuing machine (2 byte)	0x00	0x03	0x73	0x30	PM1	0x03	BCC
------	--	------	------	------	------	-----	------	-----

CRT580 returns success: Operation status byte P='Y'(0x59)

0x02	Address of card issuing machine (2 byte)	0x00	0x04	0x73	0x30	PM1	Operation status byte P	0x03	BCC
------	--	------	------	------	------	-----	-------------------------	------	-----

CRT580 returns fail: Operation status byte P='N'(0x4E)

0x02	Address of card issuing machine (2 byte)	0x00	0x05	0x73	0x30	PM1	Operation status byte P	Error information byte E	0x03	BCC
------	--	------	------	------	------	-----	-------------------------	--------------------------	------	-----

PM1=0x30 Dispense the card from the stacker to the extension operation position.

PM1=0x31 Dispense the card from the reader to the extension operation position.

Error type byte E:

E=0x30: command can not be executed


E=0x31: Error when execute command

#### 6. 5. 3. 2 To dispense the card to the RFID operation position

Host sends:

0x02	Address of card issuing machine (2 byte)	0x00	0x03	0x73	0x31	PM1	0x03	BCC
------	--	------	------	------	------	-----	------	-----

CRT580 returns success: Operation status byte P='Y'(0x59)

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0x02	Address of card issuing machine (2 byte)	0x00	0x04	0x73	0x31	PM1	Operation status byte P	0x03	BCC
------	--	------	------	------	------	-----	-------------------------	------	-----

CRT580 returns fail: Operation status byte P='N'(0x4E)

0x02	Address of card issuing machine (2 byte)	0x00	0x05	0x73	0x31	PM1	Operation status byte P	Error byte E	0x03	BCC
------	--	------	------	------	------	-----	-------------------------	--------------	------	-----

PM1=0x30: dispense the card from the stacker or at the pre-dispense position to the RFID operation position

PM1=0x31: dispense the card from the IC card position or at the hold card position to the RFID operation position

Error byte E:

E=0x30: command can not be executed

E=0x31: Error when execute command

### 6. 5. 3. 3 Dispense the card to the IC card operation position:

Host sends:

0x02	Address of card issuing machine (2 byte)	0x00	0x03	0x73	0x32	PM1	BCC
------	--	------	------	------	------	-----	-----

CRT580 returns success Operation status byte P='Y'(0x59)

0x02	Address of card issuing machine (2 byte)	0x00	0x04	0x73	0x32	PM1	Operation status byte P	0x03	BCC
------	--	------	------	------	------	-----	-------------------------	------	-----

CRT580 returns fail: Operation status byte P='N'(0x4E)

0x02	Address of card issuing machine (2 byte)	0x00	0x05	0x73	0x32	PM1	Operation status byte P	Error byte E	0x03	BCC
------	--	------	------	------	------	-----	-------------------------	--------------	------	-----

PM1=0x30: dispense the card from the stacker or at the pre-dispense position to the IC card operation position

PM1=0x31: dispense the card from the RFID card position or at the hold card position to the IC card operation position

Error byte E:

E=0x30: command can not be executed

E=0x31: Error when execute command

### 6. 5. 3. 4 Dispense the card to the front position which hold the card:

Host sends:

0x02	Address of card issuing machine (2 byte)	0x00	0x03	0x73	0x33	PM1	0x03	BCC
------	--	------	------	------	------	-----	------	-----

CRT580 returns success Operation status byte P='Y'(0x59)

0x02	Address of card issuing machine (2 byte)	0x00	0x04	0x73	0x33	PM1	Operation status byte P	0x03	BCC
------	--	------	------	------	------	-----	-------------------------	------	-----

CRT580 returns fail: Operation status byte P='N'(0x4E)

0x02	Address of card issuing machine (2 byte)	0x00	0x05	0x73	0x33	PM1	Operation status byte P	Error information byte E	0x03	BCC
------	--	------	------	------	------	-----	-------------------------	--------------------------	------	-----

PM1=0x30 dispense the card from the stacker or at the pre-dispense position to hold card position.


PM1=0x31 dispense the card from the RFID card position or at the IC card operation position to the hold card position.

Error byte E:

E=0x30 command can not be executed

E=0x31 Error when execute command

### 6. 5. 3. 5 Dispense the card to the front position which not hold card:

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Host sends:

0x02	Address of card issuing machine (2 byte)	0x00	0x03	0x73	0x34	PM1		0x03	BCC
------	--	------	------	------	------	-----	--	------	-----

CRT580 returns success: Operation status byte P='Y'(0x59)

0x02	Address of card issuing machine (2 byte)	0x00	0x04	0x73	0x34	PM1	Operation status byte P	0x03	BCC
------	--	------	------	------	------	-----	-------------------------	------	-----

CRT580 returns fail: Operation status byte P='N'(0x4E)

0x02	Address of card issuing machine (2 byte)	0x00	0x05	0x73	0x34	PM1	Operation status byte	Error information byte E	0x03	BCC
------	--	------	------	------	------	-----	-----------------------	--------------------------	------	-----

PM1=0x30 dispense the card from the stacker or at the pre-dispense position to not hold card position

PM1=0x31 dispense the card from the RFID card position or at the IC card operation position or at the hold card position to the not hold card position.

Error byte E:

E=0x30 command can not be executed

E=0x31 Error when execute command

### 6. 5. 3. 6 Capture card to the error card bin:

Host sends:

0x02	Address of card issuing machine (2 byte)	0x00	0x03	0x73	0x35	PM1	0x03	BCC
------	--	------	------	------	------	-----	------	-----

CRT580 returns success: Operation status byte P='Y'(0x59)

0x02	Address of card issuing machine (2 byte)	0x00	0x04	0x73	0x35	PM1	Operation status byte P	0x03	BCC
------	--	------	------	------	------	-----	-------------------------	------	-----

CRT580 returns fail: Operation status byte P='N'(0x4E)

0x02	Address of card issuing machine (2 byte)	0x00	0x05	0x73	0x35	PM1	Operation status byte P	Error information byte E	0x03	BCC
------	--	------	------	------	------	-----	-------------------------	--------------------------	------	-----

PM1=0x30 capture card from the pre-dispense position to the stacker

PM1=0x31 capture card from IC card position or RFID card position or at the hold card position to the stacker.

Error byte E:

E=0x30: command can not be executed

E=0x31: Error when execute command

### 6. 5. 3. 7 Card in control setting:

Host sends:

0x02	Address of card issuing machine (2 byte)	0x00	0x03	0x74	PM	PM1	0x03	BCC
------	--	------	------	------	----	-----	------	-----

CRT580 returns success: Operation status byte P='Y'(0x59)

0x02	Address of card issuing machine (2 byte)	0x00	0x04	0x74	PM	PM1	0x59	0x03	BCC
------	--	------	------	------	----	-----	------	------	-----

CRT580 returns fail: Operation status byte P='N'(0x4E)

0x02	Address of card issuing machine (2 byte)	0x00	0x05	0x74	PM	PM1	0x4E	Error information byte E	0x03	BCC
------	--	------	------	------	----	-----	------	--------------------------	------	-----

PM=0x31 prohibit card in from front side.


PM=0x32 enable card in by switch & mag signal, permit Magnetic card in from front side.

PM=0x33 enable card in by switch. permit IC/RFID card and Magnetic card ,and dual interface card in from front side.

PM1=0x30: set the card stop position at the front side of reader, and not hold the card after inserting the card.

PM1=0x31: set the card stop position at the front side of reader, and hold card after inserting the card

PM1=0x32: set the card stop position at the RFID card operation position after inserting the card

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PM1=0x33: set the card stop position at the IC card operation position after inserting the card

Error byte E:

E=0x30: command can not be executed

E=0x31: Error when execute command

Remark: CRT-580 prohibit the card in from front side when reset, and the card stop position is at the RFID card position.

### 6. 5. 3. 8 CRT-310 read/write operation:

Read/write operation for contact IC, RFID, magnetic card, It controls CRT580 read/write operation by sending CRT310 card operation command package ,Then get the read/write result through taking out the returned package of CRT310 card operation command from the returned command package.

Host sends:

0x02	Address of card issuing machine (2 byte)	The length of communication package 2 byte	0xF0	CRT310 card command package	0x03	BCC
------	--	--	------	-----------------------------	------	-----

The length of communication package =the length of CRT310 card operation command package+1

CRT580 returns success:

0x02	Address of card issuing machine (2 byte)	The length of communication package 2 byte	0xF0	0x59	CRT310 card returned package	0x03	BCC
------	--	--	------	------	------------------------------	------	-----

The length of communication package =the length of CRT310 card returned package+2

CRT580 returns fail: Operation status byte P="E"(0x4E)

0x02	Address of card issuing machine (2 byte)	The length of communication package 2 byte	0xF0	0x4E	Error byte E	0x03	BCC
------	--	--	------	------	--------------	------	-----

Error type byte E:

E=0x30 command can not to be executed

E=0x31 error when execute command

Note:

1. Read/write operation for the IC card can be executed, only when the card stop at the IC card operation position.
2. Read/write operation for the RFID (M1) can be executed, only when the card stop at the RFID card operation position(in the reader)
3. Read operation for the magnetic card can be executed, when a magnetic card is inserted for one time or dispense the card to the RFID operation position(in the reader)

Eg:

The address of machine is: "10".

Operation for detecting card :

0x02	0x00	0x02	0x35	0x30	0x03	0x06
------	------	------	------	------	------	------


The flow for the HOST control the CRT-580 to detect card as below:

[1]HOST sends:

0x02	0x31	0x30	0x00	0x08	0xF0	0x02	0x00	0x02	0x35	0x30	0x03	0x06	0x03	BCC
------	------	------	------	------	------	------	------	------	------	------	------	------	------	-----

[2]CRT-580 returns:

0x06
------

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[3]HOST sends:

0x05

[4]CRT-580 returns after success operation: (Suppose the length of returned data package is 6 bytes)

0x02	0x31	0x30	0x00	0x08	0xF0	0x59	CRT-310 return package	0x03	BCC
------	------	------	------	------	------	------	------------------------	------	-----

### 6.6 Set the baud rate of 3<sup>rd</sup> module with CRT-580

It is used for the 3<sup>rd</sup> module interface to connect with CRT580, Which can communicate with HOST terminal product via single interface., and the 3<sup>rd</sup> interface requirement is as below:

Communication type: Asynchronous communication

Transmit type: Half duplex

Bit detail: Start bit: 1bit

Data bit: 8 bit

Parity bit: None

Stop bit: 1 bit

Baud rate (BPS): 1200BPS,2400 BPS,4800 BPS,9600 BPS,19200 BPS,38400 BPS

Host sends:

0x02	Address of card issuing machine (2 byte)	Communication package length 2byte	0xF1	PM(1byte)	0x03	BCC
------	--	------------------------------------	------	-----------	------	-----

Parameters Remarks:

The valid value of PM:

PM=0x30 BAUD=1200BPS  
 PM=0x31 BAUD =2400BPS  
 PM=0x32 BAUD =4800BPS  
 PM=0x33 BAUD =9600BPS  
 PM=0x34 BAUD =19200BPS  
 PM=0x35 BAUD =38400BPS

CRT580 return success:

0x02	Address of card issuing machine (2 byte)	Communication package length 2byte	0xF1	0x59	0x03	BCC
------	--	------------------------------------	------	------	------	-----

CRT580 return fail

0x02	Address of card issuing machine (2 byte)	Communication package length 2byte	0xF1	0x4E	Error byte E	0x03	BCC
------	--	------------------------------------	------	------	--------------	------	-----

Error type byte E:

E=0x30 command can not to be executed

E=0x31 error when execute command

### 6.7 Transmit the 3<sup>rd</sup> parties command package

It is used for the 3<sup>rd</sup> module interface to connect with CRT580, Which can communicate with HOST terminal product via single interface., and the 3<sup>rd</sup> interface requirement is as below:

Communication type: Asynchronous communication

Transmit type: Half duplex

Bit detail: Start bit: 1bit


Data bit: 8 bit

Parity bit: None

Stop bit: 1 bit

Baud rate (BPS): 1200BPS,2400 BPS,4800 BPS,9600 BPS,19200 BPS,38400 BPS

Host send:

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0x02	Address of card issuing machine (2 byte)	Communication package length 2byte	0xF2	Estimated returned package length RLEN(2bytes)	Over time TM(1byte)	Command package	0x03	BCC
------	--	------------------------------------	------	--	---------------------	-----------------	------	-----

Remark:

Communication package length = Command package length +4

Overtime TM: It is second as a unit

CRT580 return success:

0x02	Address of card issuing machine (2 byte)	Communication package length 2byte	0xF2	0x59	Real returned data package	0x03	BCC
------	--	------------------------------------	------	------	----------------------------	------	-----

Remark:

Communication package length 2byte =real returned data package length+2

CRT580 return fail:

0x02	Address of card issuing machine (2 byte)	Communication package length 2byte	0xF2	0x4E	Error byte E	0x03	BCC
------	--	------------------------------------	------	------	--------------	------	-----

Error type byte E:

E=0x30 command can not to be executed

E=0x31 error when execute command

E.g :

Suppose to reset command for Module A communication as below:

:

0X10+0X00----->

<-----0X06

0X05----->

<-----0X01+0X02+0X03

If CRT-580 connect with Module A, the control flow is as below:

[1]Host send command package: 0x10+0x00

0X02+ 0X30+0X30+0X00+0X05+0XF2+0X01+0X01+0X10+0X00+0X03+BCC

[2]CRT580Return: 0x06

0x02+0x30+0x30+0x00+0x03+0xf2+0x59+0X06+0x03+bcc

[3]host send: 0x05

0X02+ 0X30+0X30+0X00+0X04+0XF2+0X03+0X01+0X05+0X03+BCC-

[4]CRT580 return: 0x01+0x02+0x03

0x02+0x30+0x30+0x00+0x05+0xf2+0x59+0X01+0X02+0X03+0x03+BCC