FQ

Ingeniería Electrónica

SMART IDENT

COMPACT CARD DISPENSER

WITH CAPTURE FUNCTIONINTEGRATED

Specifications

User Manual

Compact Card Dispenser

WITH Capture Function integrated

● REVISION HISTORY

CHECK	DATE	DESCRIPTION	REV.	PAGE
1	2013. 12. 21	First Edition	A	19

C O N T E N T S

1. Overview

All the processes and operations of KHT-23XXX are monitored by its intelligent Microprocessor,

which makes itself self-recover function from faulty running. The most significant feature of KHT-23xxx is

the metallic finger to dispense the cards.   KHT-23xxx has both stacker type and cartridge type dispensers.

KHT-22XXF has a function to takes an Error card back to the bin. This function is called "Capture".

2. Features

2.1. Card thickness dispensable can be adjusted easily.

2.2. RS232C Interface

   A. Baud Rate: changeable (9,600 BPS ◄──► 19,200BPS)

   B. Can change position of card (one way direction allowed)

   C. With self-diagnosis function.

   D. Easy to control

2.3. KHT-23XXXF series are applied and integrated to following products and systems;

- Prepaid card vending machine
- ID card issuing machine
- Parking card vending machine
- Payphone card vending machine
- Automatic card issuing machine
- Ticketing vending machine
- And more
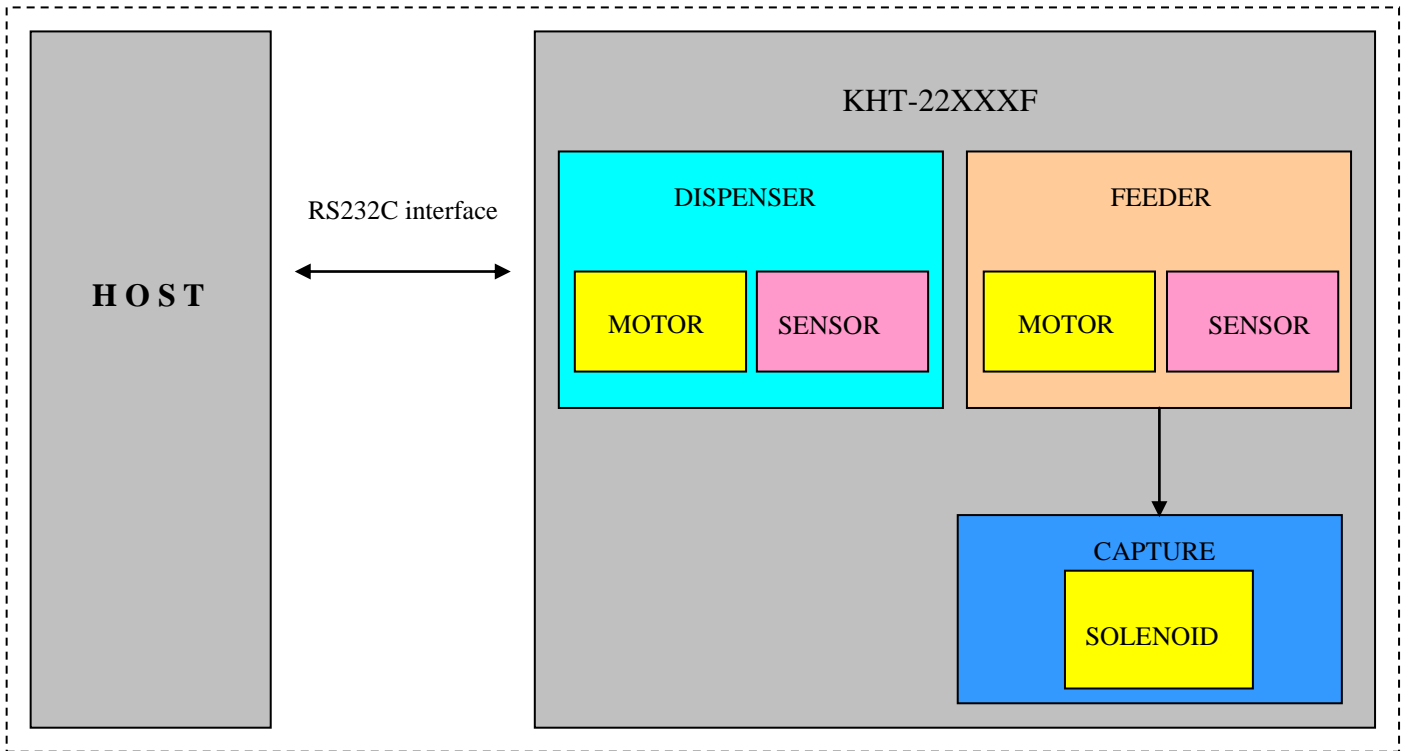
2.4. Card Capture Function

   - An error card is captured to bin.

2.5. Intelligent monitoring all the process cards empty and card low level warning

function with its own microprocessor

3. System Block Diagram

```
┌─────────────────────────────────────────────────────────────────────────┐
│                                                                           │
│  ┌──────────┐                    ┌──────────────────────────────────────┐ │
│  │          │                    │             KHT-22XXXF               │ │
│  │          │  RS232C interface  │  ┌──────────────┐  ┌──────────────┐  │ │
│  │          │                    │  │  DISPENSER   │  │   FEEDER     │  │ │
│  │  HOST    │ <───────────────>  │  │ ┌────┐┌────┐ │  │ ┌────┐┌────┐ │  │ │
│  │          │                    │  │ │MOTOR││SENSOR││  ││MOTOR││SENSOR│ │ │
│  │          │                    │  │ └────┘└────┘ │  │ └────┘└────┘ │  │ │
│  │          │                    │  └──────────────┘  └──────────────┘  │ │
│  │          │                    │                    ┌──────────────┐  │ │
│  │          │                    │                    │   CAPTURE    │  │ │
│  │          │                    │                    │ ┌──────────┐ │  │ │
│  │          │                    │                    │ │ SOLENOID │ │  │ │
│  │          │                    │                    │ └──────────┘ │  │ │
│  └──────────┘                    │                    └──────────────┘  │ │
│                                  └──────────────────────────────────────┘ │
└─────────────────────────────────────────────────────────────────────────┘
```

5. Specifications.

5.1. Model.

MODEL	KHT-231XXF	KHT -232XX	KHT -233XX	KHT -234XX
Dimensions (W x L x H) mm	Refer to Page 10			
Card Dispensing Time (Sec)	1.2	1.2	1.2	1.2
Max. Card Loading Capacity	100 PCS	200 PCS	300 PCS	500 PCS
	In case of 0.76 mm card			
Card Material	P.V.C			
Max. Card Width, Length	ISO 7810			
Max. Card Thickness	0.76~1.0 mm			
Environmental Requirements	1. Operating Temperature and Humidity: 0~40℃, 0~95% RH 2. Conservation Temperature and Humidity: -20~70℃, 0~95% RH			
Power Consumption	1. DC Motor Driver: Output Current 1.5A per channel. 2. Input voltage: DC 24V Only (DC±5%, Min. 2.5A) 3. Standby: 44 ㎃(+5%).			

K H T – 2 3 [X] [X] [X]

INTERFACE	FUNCTION	TYPE	CAPACITY	THICKNESS	OPTION	OPTION II
T: RS-232C	2: Dispenser	2: Single Stacker & Card Capture Function	1: 100 PCS 2: 200 PCS 3: 300 PCS 4: 500 PCS	4: 0.76T 5: 0.84T 6: 1.00T	**S**: Stacker Type **C**: Cartridge Type	0 : - 5 : Shutter 6 : Short Bezel

6. DC Power Connector (RS-232C ONLY)

6.1. Connector number: J7-1
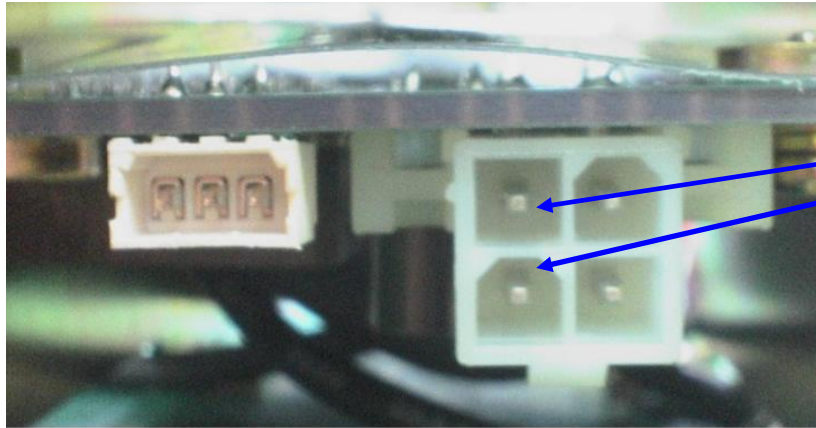
Pin 1. GND
Pin 3. +24V

Pin NO.	Signal Name	Direction
1	GND	
2	Not use	Input
3	+24V	
4	Not use	

7. Interface

7.1 RS232C type model

. Interface connector:

When use the KHT-23XXX's com-cable, connect to twist cable.

When use the user's com-cable, connect to as bellows table
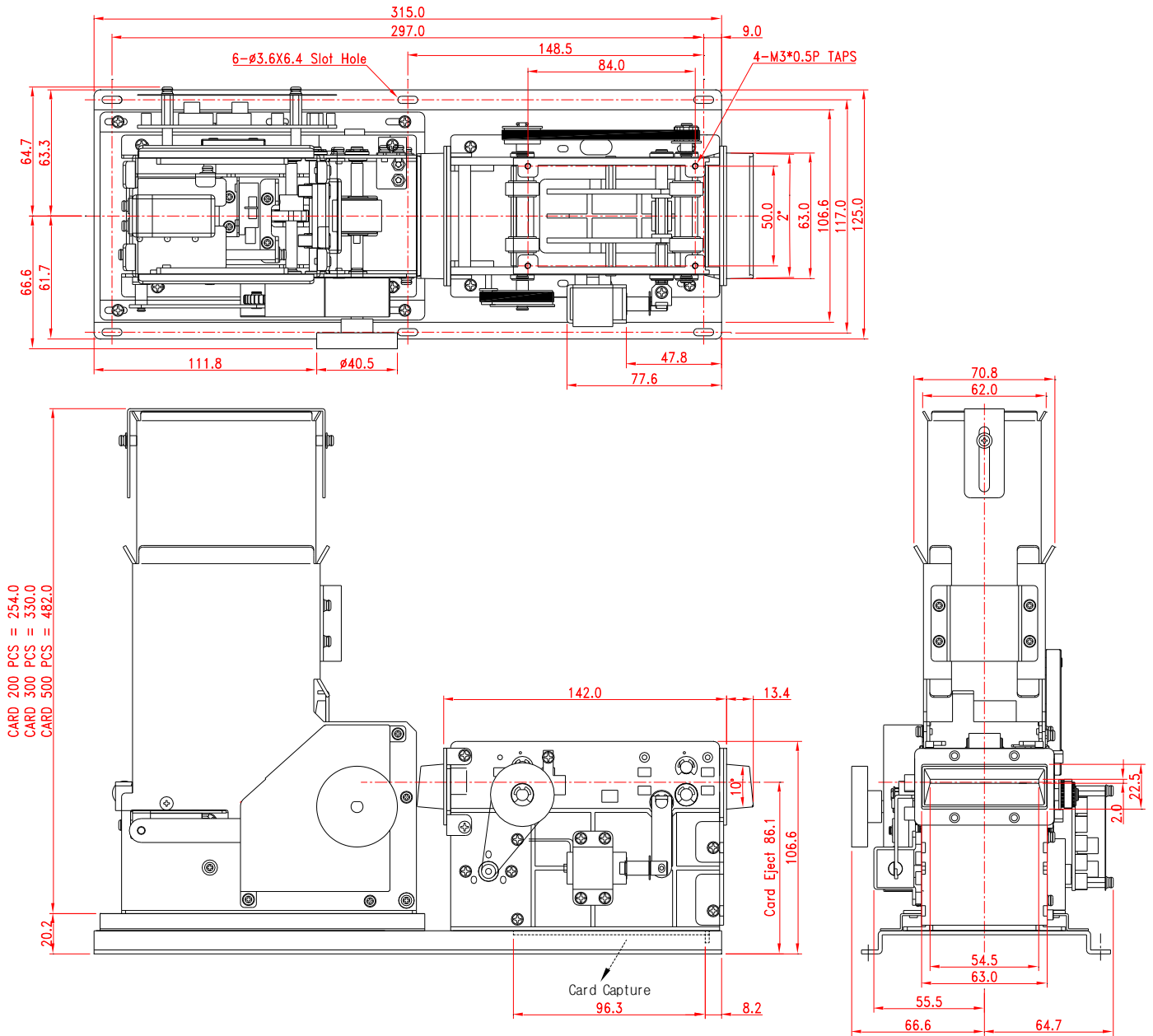
. Connector number: J1

. Connector signal table
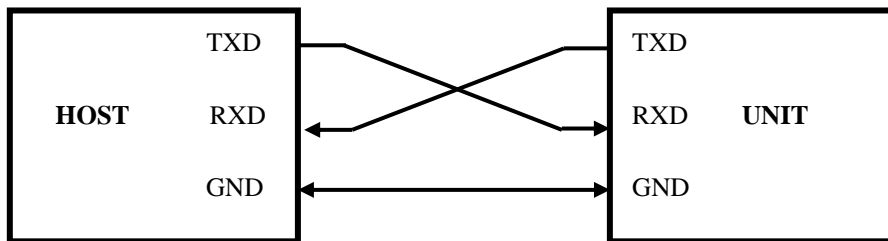
Pin No.	Index	KHT-23XXXF HOST	Dsub-9	Remark
1	RXD	←	3	Receive
2	TXD	→	2	Transmit
3	GND	↔	5	S.G

. Communication Method

- Asynchronous, Half duplex.

- Baud Rate: 9600, 19200BPS (Default: 9600BPS)

- Data Length: 8Bits

- Parity: None

- Stop Bit: 1Bit

.

8. Technical Drawing

<Sensor & Motor locations>

Connector No.	Remark
J3	Finish Sensor
J14	Feed2 Sensor
J17	Feed1 Sensor
J5	Empty Sensor
J4	Hook Sensor
J8	Warning Sensor
J13	Feed3 Sensor
J9	Feed4 Sensor
J11	Dispenser Motor1
J15	Feed Motor2
J12	Capture Solenoid
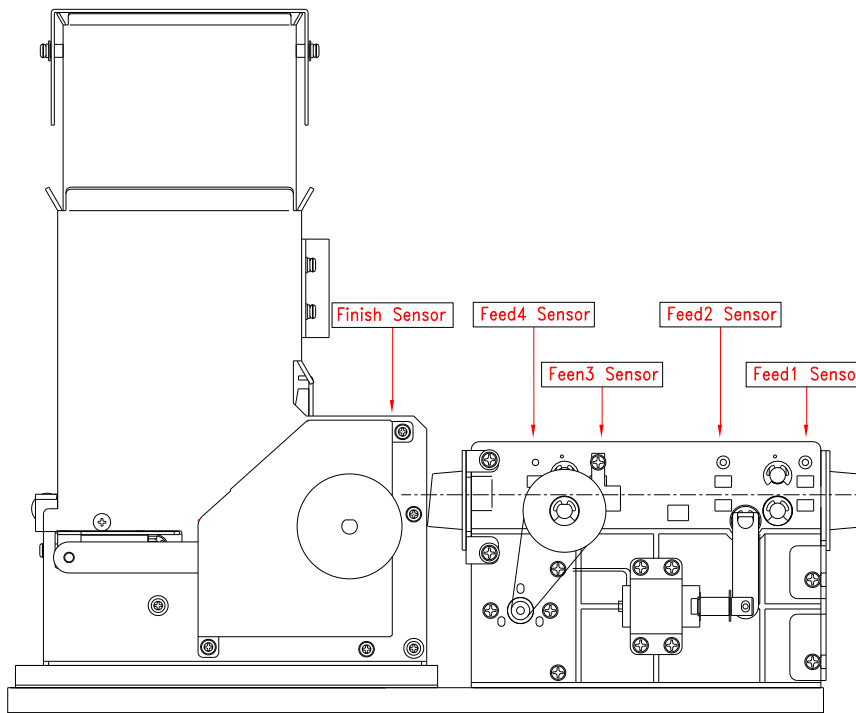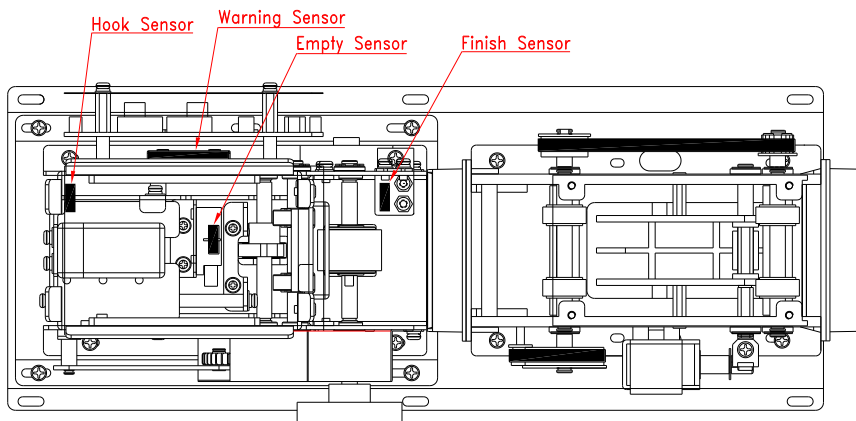
9. RS232C Interface

9.1. Control Characters

Character	Hex Value	Description
STX	02	Start of Text Character
ETX	03	End of Text Character
EOT	04	End of Text Character
ENQ	05	Enquiry Character
ACK	06	Acknowledge Character
NAK	15	Negative Acknowledge Character
CAN	18	Cancel Character

9.2. Frame Format

Command structure

STX	Command	ETX	BCC

Response structure

STX	Status	Status	ETX	BCC

BCC(X-OR)

BCC = STX ^ (Command and Status) ^ ETX
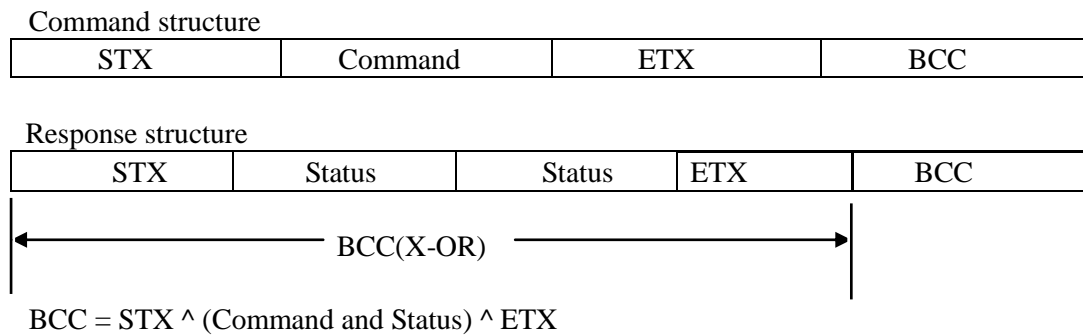
9.3. Communication Protocol Sequence

CASE 1)

CASE 2) Request Command (0x31)
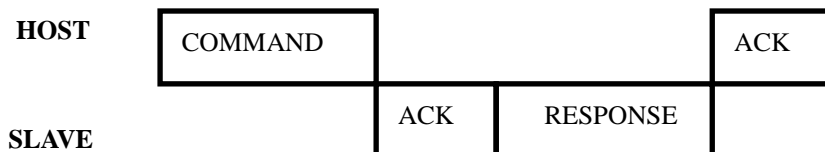
CASE 2-1)

HOST	COMMAND		COMMAND				ACK	COMMAND
SLAVE		ACK			ACK	RESPONSE		

CASE 2-2)

HOST	COMMAND		COMMAND				ACK
SLAVE		ACK		ACK	RESPONSE		

HOST	COMMAND		COMMAND				ACK
SLAVE		CAN		ACK	RESPONSE		

HOST	COMMAND		COMMAND				ACK
SLAVE		NAK		ACK	RESPONSE		

CASE 2-3)

HOST	COMMAND			COMMAND			ACK
SLAVE		ACK			ACK	RESPONSE	
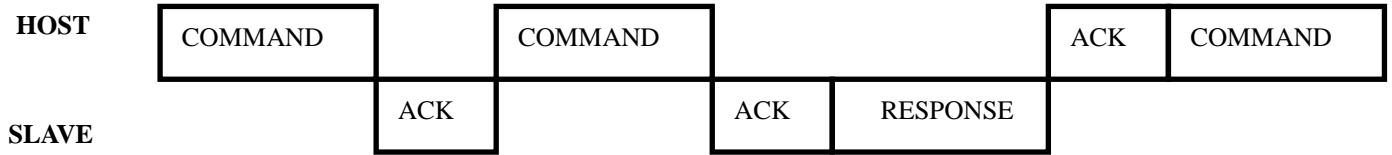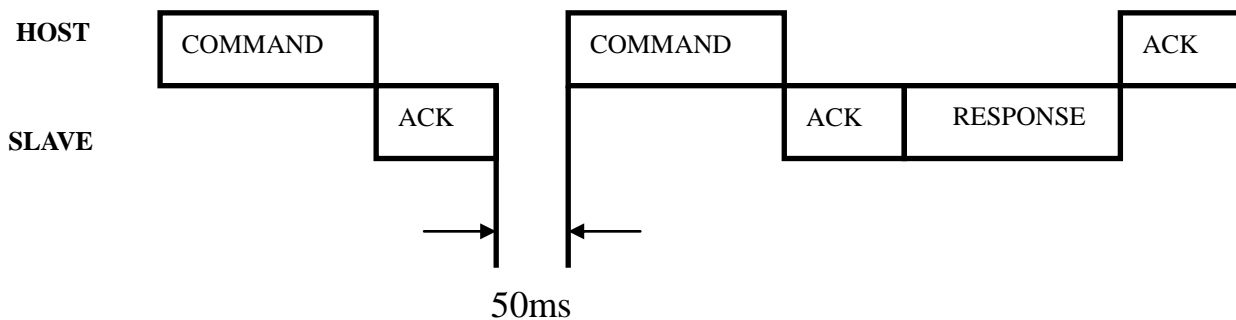
50ms

Cf.)   To change Baud Rate, send command 50mS after receiving ACK.

10.1. Command Sets List

Item	Command	Description	Note
Clear	0x30	Error Clear	
Request	0x31	Status Request	
Issue	0x40	Issue	
	0x41	Issue Feeder Standby	
Move	0x44	Feed Out	
	0x45	Capture	
	0x47	Feed Hold	
	0x48	Feeder Standby	
Rom	0x60	Rom Version	
Baud Rate Set	0x50	9600 BPS Setting	Default
	0x51	19200 BPS Setting	

10.2. Command Details

10.2.1. Clear

: Clear Motor Jam bit of Status Request Command Response

※ Command Packet

STX	Command(0x30)	ETX	BCC

10.2.2. Status Request

: Host's Request for status of dispenser

※ Command Packet

STX	Command(0x31)	ETX	BCC

※ Response Packet

STX	Status 1	Status 2	ETX	BCC

※ Status Data Format (Status 1) – cf.) Page 12

7	6	5	4	3	2	1	0
1	0	0	0	0	0	0	0

Data	Status 1	Remark
0x80	Good	Normal
0x81	Dispenser Jam	Dispenser Motor Jam
0x82	Feed Jam	Feed Motor Jam
0x84	Hook Sensor Detection	Hook Sensor Detection
0xc0	Busy	Ready

※ Status Data Format (Status 2) – cf.) Page 12

7	6	5	4	3	2	1	0
1	0	0	0	0	0	0	0

Data	Status 2	Remark
0x80	Good	Normal
0x81	Card Empty	Dispenser Card Empty
0x82	Warning Sensor Detection.	Warning Sensor detect Card
0x90	Finish Sensor Detection	Finish Sensor detect Card
0x84	Feed1 Sensor Detection	Feed Sensor detect Card
0x88	Feed2 Sensor Detection	
0xA0	Feed3 Sensor Detection	
0xC0	Feed4 Sensor Detection	

-Warning Sensor Setting
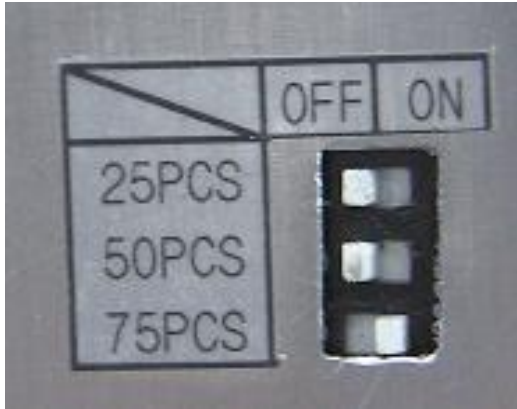
Stacker Status	Detail
'Stacker Good'	Good.
'Card Warning'	A few Card in the stacker
'Stacker Empty'	No cards in the stacker

Set Value	25pcs	50pcs	75pcs
Set to 25pcs cards	ON	OFF	OFF
Set to 50pcs cards	OFF	ON	OFF
Set to 75pcs cards	OFF	OFF	ON

10.2.3. Issue

: Dispense the card. And completely eject it from the feeder module.

While only feeder module sensors detect the card, if the unit receives "Feed Stop" command, the unit makes the card stop at once.

※ Command Packet

STX	Command(0x40)	ETX	BCC

10.2.4. Issue Feeder Stand By

: Dispense the card and move it between Feed1 Sensor and Feed3 Sensor.

While only feeder module sensors detect the card, if the unit receives "Feed Stop" command, the unit makes the card stop at once.

※ Command Packet

STX	Command(0x41)	ETX	BCC

10.2.5. Feeder Standby

: In the case that the card is present in the feeder module, move the card between Feed1 Sensor and Feed3 Sensor. And then if Feed1 Sensor detection the card, move it between Feed1 Sensor and Feed3 Sensor.

While only feeder module sensors detect the card, if the unit receives "Feed Stop" command, the unit makes the card stop at once.

※ Command Packet

STX	Command(0x48)	ETX	BCC

10.2.6. Feed Out

: When the card is present in the feeder module, completely eject the card.

While only feeder module sensors detect the card, if the unit receives "Feed Stop" command, the unit makes the card stop at once.

※ Command Packet

STX	Command(0x44)	ETX	BCC

10.2.7. Capture

: When the card is present in the feeder module, capture the card.
If card is not present in the feeder module, spin the feeder motor in reverse direction during waiting time (2 seconds).
And then if Sensor1 detect the card in waiting time, capture it.

While only feeder module sensors detect the card, if the unit receives "Feed Stop" command, the unit makes the card stop at once.

※ Command Packet

STX	Command(0x45)	ETX	BCC

10.2.8. Feed Hold
  : Move the card to the outlet. And stop the card in Feed 1Sensor and Feed2 Sensor.

  While only feeder module sensors detect the card, if the unit receives "Feed Stop" command,
  the unit makes the card stop at once.

  ※ Command Packet

STX	Command(0x47)	ETX	BCC

10.2.9. Baud Rate Set
  : Baud Rate Setting (After ACK receive, next Command should be transmitted after 50ms)
 Case)
 ※ Command Packet (9600BPS)

STX	Command(0x50)	ETX	BCC

10.2.10. Status of the card jam and the way to deal with the card jam

  - Dispenser Jam
    : Can't use all command except Status Request commands
     (All jam is canceled and you can use these command, if Clear command is executed.)
  - Feeder Jam
    : Can't use all command except Status Request commands.
     (All jam is canceled and you can use all command, if Clear command is executed)
  - In the case that card is detected by Feed1, Feed2 and Feed3 Sensor at the same time.
    : Can't use Issue, Issue Feeder Stand By commands.
     But can use the feeder commands such as Capture, Feed In, Feed Out, Feed Hold, Feeder Standby.