Ingeniería Electrónica

SMART IDENT

INTELLIGENT CARD COLLECTOR

Specifications

User Manual

CMT-1100 Rev. C

CMT – 11XX Series

Intelligent Card Collector with Two Cartridge

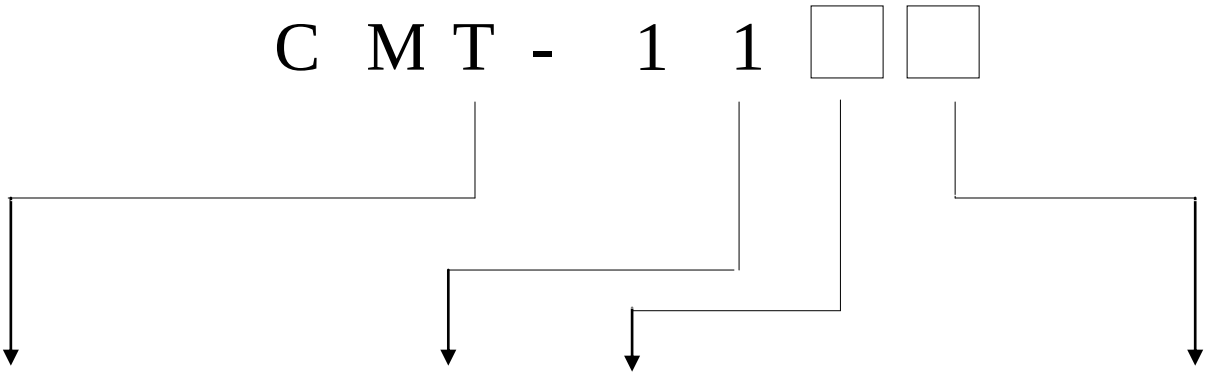
Double Cartridge

RS-232C Interface

REVISION HISTORY

CHECK	DATE	DESCRIPTION	REV	PAGE
1	2005.05.12.	Preliminary	Rev X	16
2	2005.07.06	6.2 Status check bit	Rev A	16
3	2006.10.31	Modified the model name information in the SPEC.	Rev B	17
4	2006,12,14	Power & RS-232C composition (picture addition)	Rev C	18

MODEL NAME INFORMATION



Interface	Function	TYPE	OPTION	CAPACITY
T: RS-232C	COLLECTOR MODULE	1: DUAL	0: STANDARD(Not Cartridge) 1: DUAL CARTRIDGE TYPE	5: 600 PCS(300 x 2) 6: 1000 PCS(500 x 2) CARD STANDARD: 0.76T

Contents

1. Preview

Intelligent card collector CMT-11XX series is a product integrated with new concept, which has Two Cartridge in one body to make its capacity 2 times more than conventional dispensers.
Two different types of card can be collected onto each Cartridge, which brings cost-down and final product down-sizing.

All the processes and operations of CMT-11XX are monitored by its intelligent Microprocessor, which makes itself self-recover function from faulty running.

CMT-11XX series are applied and integrated to followings;

- Automatic Card Collecting Equipment
- Mass Card Issuing System
- Access Control System & More
- Parking Equipments
- Highway Toll Collection System

2. Features

2.1 Card Collecting Capacity

- 0.76mm card collecting capacity : 500 cards per Cartridge (total 1,000 cards of Two Cartridges)

2.2 Two Cartridges in one body make it collect two different types of card onto each Cartridge.

2.3 One Card Transportation Rail and Exit Slot even if it has Two Cartridges.

2.4 Easy adjustment of collectable card gap thickness.

- Gap adjustable : 0.22 to 1.00 mm

2.5 Interface : RS-232C Interface

2.6 It is easy to control card stop, card collecting by microprocessor.

2.7 Card Empty function, Cartridge presence check function and Cartridge Full warning function signals featured.

- Collector #1 and Collector #2 are Card Empty Warning
- Collector #1 and Collector #2 are Cartridge presence check Warning
- Collector #1 and Collector #2 are Cartridge Full Warning

2.8 Communication Baud Rates can be increased from 19,200 to 38,400 bps.

2.9 The size of the product is small in consideration of its collecting capacity.

2.10 It always monitors error and makes it recover for itself from the faulty operation.

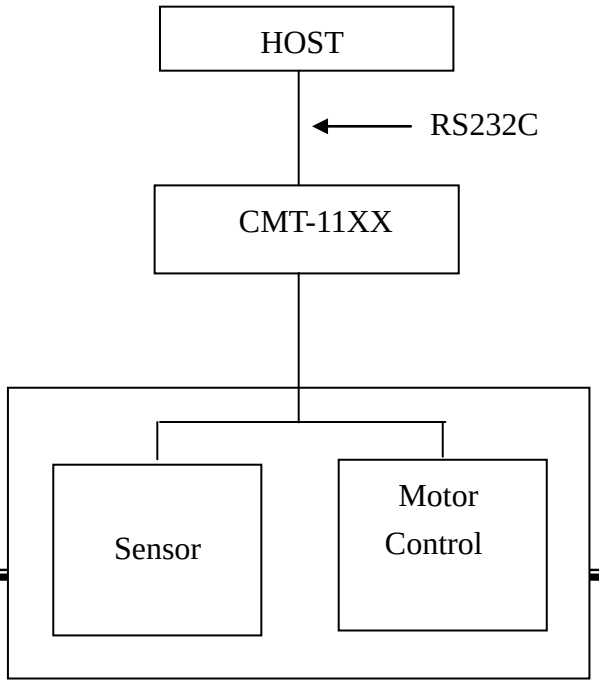
2.11 Card collecting starts from Cartridge-1 (left-hand side) and then Cartridge-2 (Right-hand side) does if Cards are fully collected out.

2.12 Busy signal is detected only when it is in operation.

3. Specification

MODEL	CMT-1115	CMT-1116
Card Loading Capacity (Card thickness : 0.76mm)	600 cards	1000 cards
Height (mm)	395	545
Weight (Kg)	6.0	6.5
Dispensing speed (sec)	1.5	1.6
Card applicable	Phone Card, Credit, Debit, Pre-paid, I.C, R/F, Parking Card	
Width (mm)	52 ~ 55	
Depth (mm)	80 ~ 86	
Card thickness (mm)	0.22 ~ 1.0	
Interface	RS-232C	
Supply voltage & Current consumption	Without Load : DC 24V – 0.3A With Load : DC 24V – 2.0A	
Operating temperature	-5℃ ~ 45℃	
Operating humidity	20% ~ 90% RH	
Operation locus	In the cabinet	

4. Block Diagram



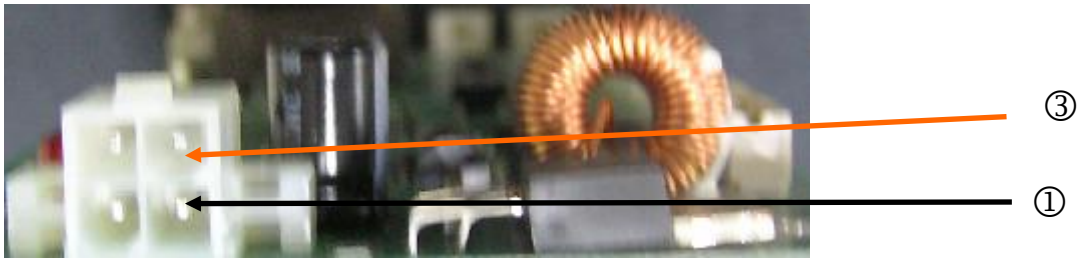
5. Interface Specification

5.1 DC Power

5.1.1 Connector location number : J3

5.1.2 Part name : 5569-04A1 (Manufacture: MOLEX)

5.1.3 Power Connector Pin Table (PCB side: Header)



Pin NO	Signal Name	Direction
1	GND	Input
2	Don't use	
3	+24VDC	
4	Don't use	

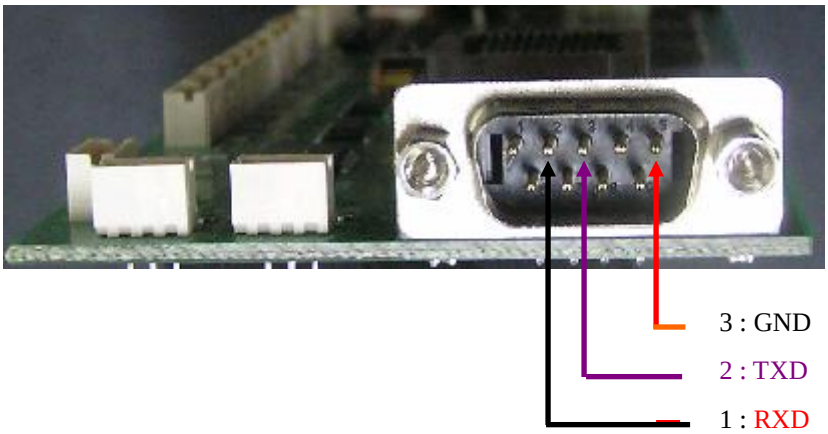
. Power cable configuration

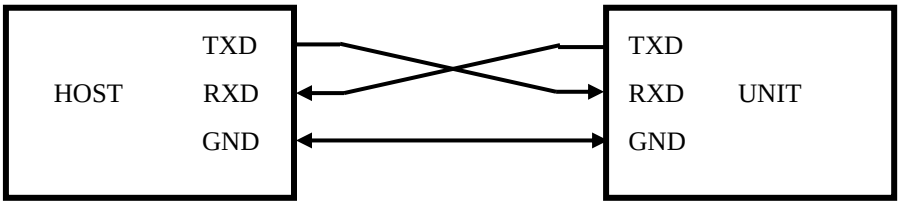
PIN 1 : BLACK (OR GREEN) - GND

PIN 3 : YELLOW - +24VDC

5.2 Communication Connection method

***** RS-232C Connector Location Number : P2



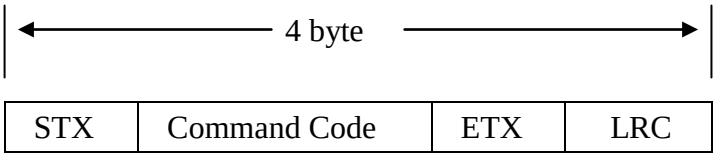


Pin No	INDEX	Remark
1	RXD	Receive
2	TXD	Transmit
3	GND	S.G

6. Interface protocol format

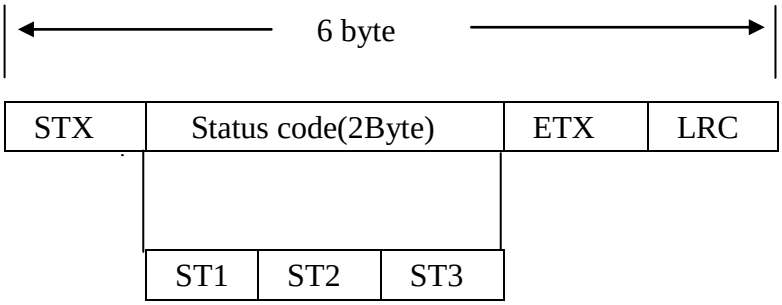
6.1 Command and Response

< Command >



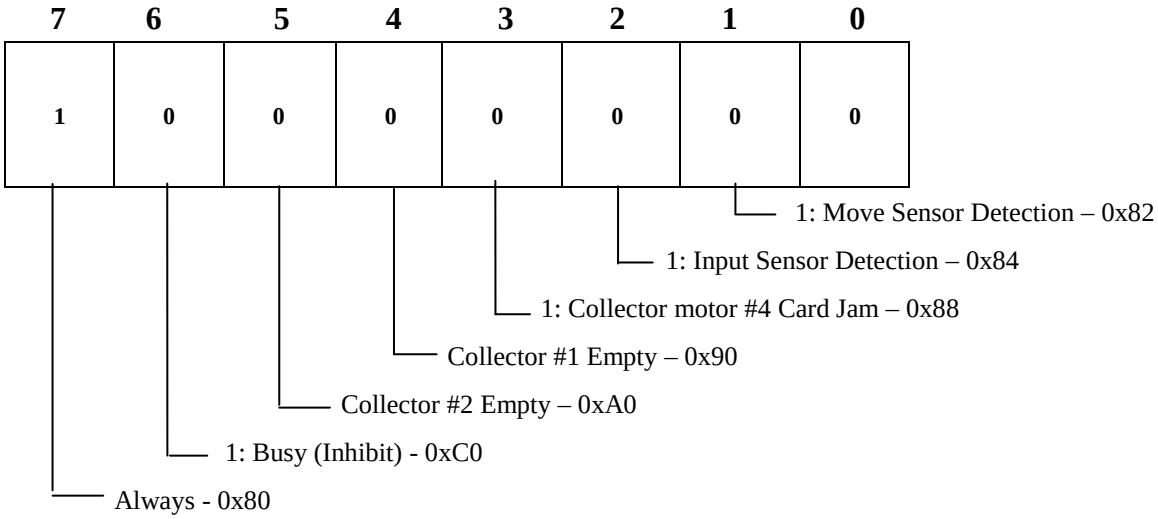
LRC : Longitudinal Redundancy Check– Calculated by EX-OR all Characters from STX to ETX inclusive

< Response >

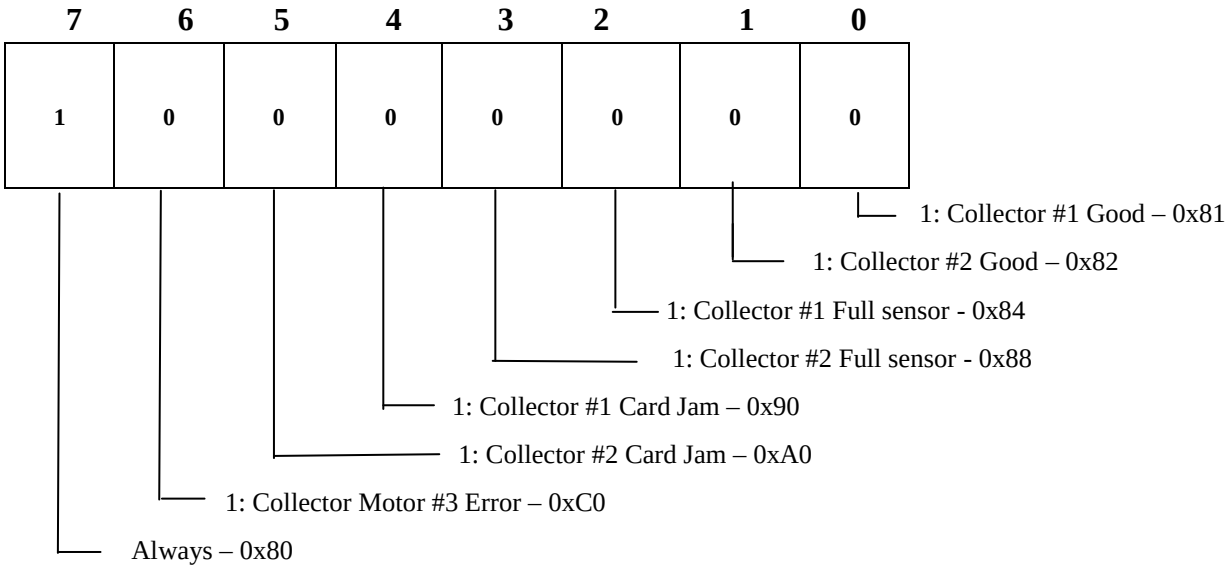


6.2 Status Check bit

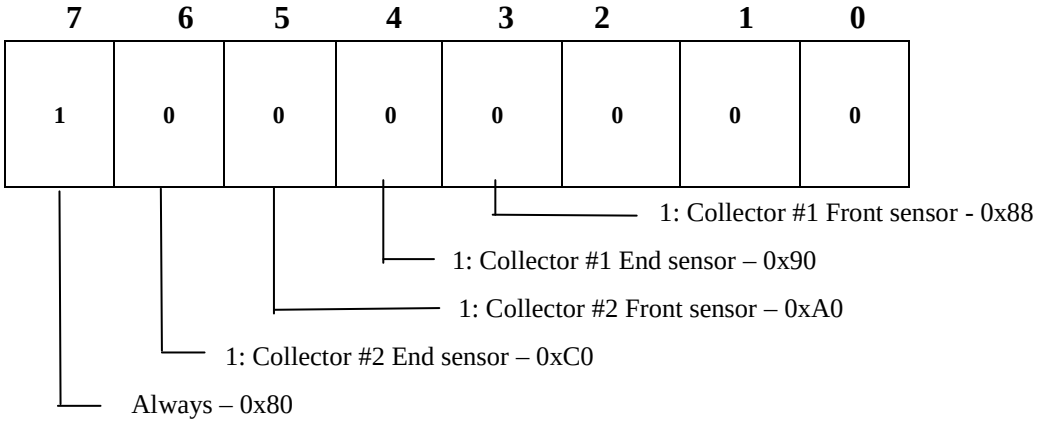
< ST 1 Format >



< ST 2 Format>



< ST 3 Format>



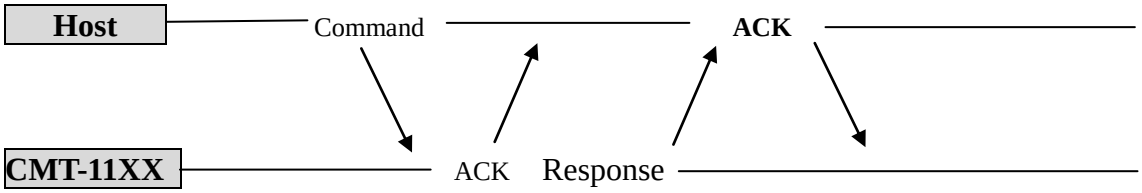
6.3 Transmission Control Characters

Name	Hex Value	Description
STX	02	Character showing the start of text for the Command or Response .
ETX	03	Character showing the end of text for the Command or Response . Next character must be LRC
ENQ	05	Enquiry – Used to obtain an immediate status response.
ACK	06	Acknowledge – LRC correct. Command executed
NAK	15	Negative Acknowledge – LRC Error. Retransmit packet.
CAN	18	Issuing Command is not executed if it is transmitted while Dispenser is under operation

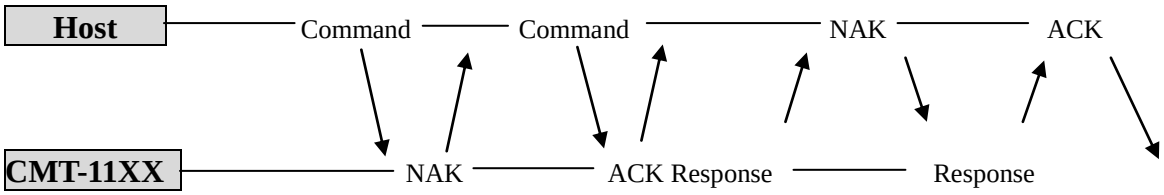
6.4 Character Format : Data bit - 8 bit
Stop bit - 1 bit
Parity bit - None
Baud Rate - 38400(default)

7. Protocol

7.1 General Sequence



There are Two types of sequence. In general, when command received, CMT-11XX checks command and sends ACK. Then, CMT-11XX runs, and as soon as Command executed, it receives ACK after transmitting Response. In another sequence, as soon as CMT-11XX receives Command, it transmits ACK and starts to run, but it does not send Response.



Above is reference sequence in case of the transmission and the sending of abnormal Commands and Responses.

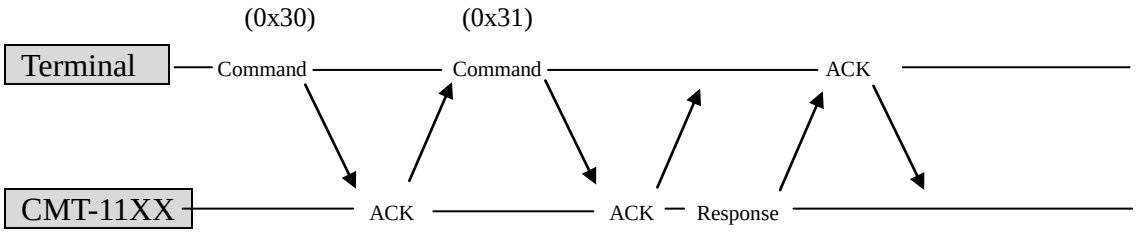
7.2 RS-232C Control Command

In case of RS-232C interface, Function Commands are executed by Command Code as follows table.

NO	Hex Value	Function
1	0x30	Clear
2	0x31	Status Request
3	0x40	Collector #1
4	0x41	Collector #2
5	0x51	19200 bps set
6	0x52	38400 bps set(default)
7	0x60	Firmware version
8	0x71	Collector Solenoid #1
9	0x72	Collector Solenoid #2

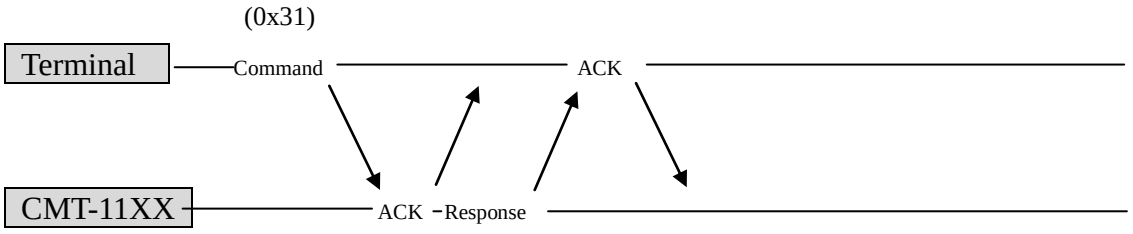
7.2.1 Function

1) Clear : Initializing parameters. Flag Bit not set for Card Jam



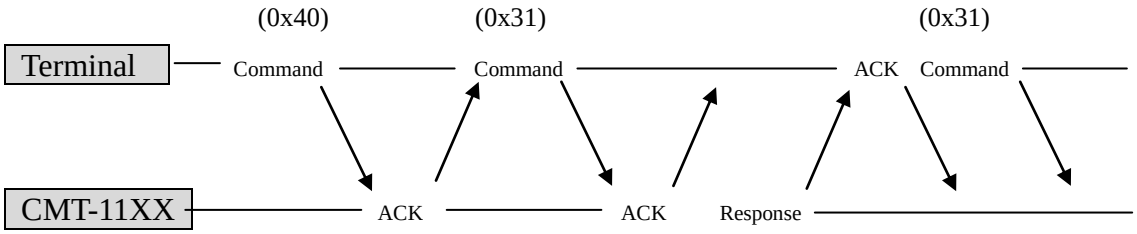
When Clear command 0x30 is occur by JAM in previous status, if you can check by Status Request command 0x31 not set the Flag Bit for JAM of each Bit, Response for Status Request command 0x31.

2) Status Request : Host's request for Status of Dispenser



Card is detection presence check, Dispenser operating status and JAM status and so on by sensor. Except for Status Request command, the other command is no response. Therefore must be checked CMT-11XX status by polling with Status Request command.

3) Collector #1 : Card is collect into Collector #1.

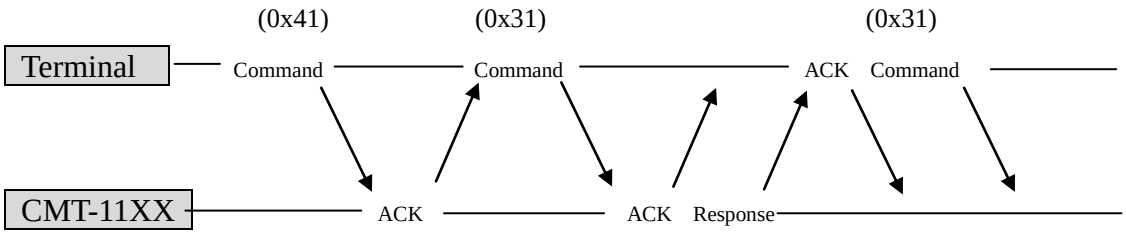


First, after check Card is exist in the CMT-11XX when Card is exist card is Collect by collector #1 command.

Above figuration is check procedure by Status Request Command that after transmit Collector #1 command, Card is collected.

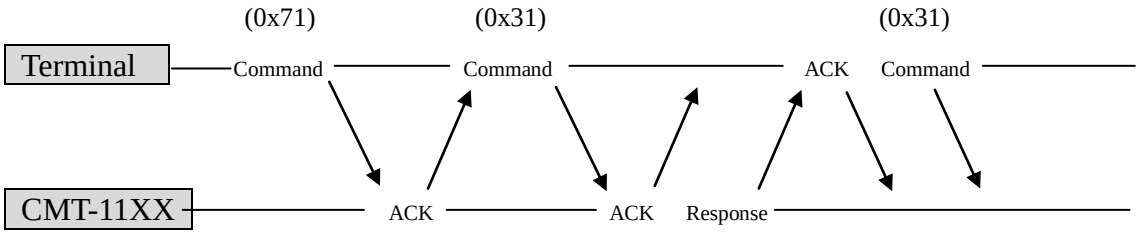
But when Card is full status in collector, don't Card collect.

4) Collector # 2 : Card is collect into Collector # 2.



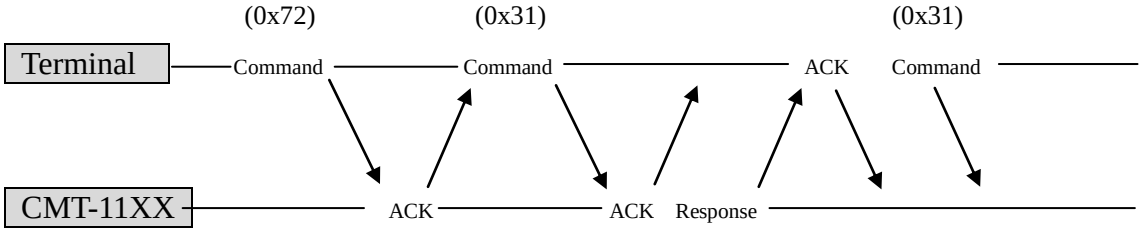
First, after check Card is exist in the CMT-11XX when Card is exist card is Collect by collector #2 command.
Above figuration is check procedure by Status Request Command that after transmit Collector #2 command, Card is collected.
But when Card is full status in collector, don't Card collect.

5) Collector Sol #1 : When Card is location at Drop part, move to Collector #1.



When Card is detect by Move sensor, Collector #1 Front sensor and Collector #1 End sensor, Move to Collector #1.

6) Collector Sol #2 : When Card is location at Drop part, move to Collector #2.



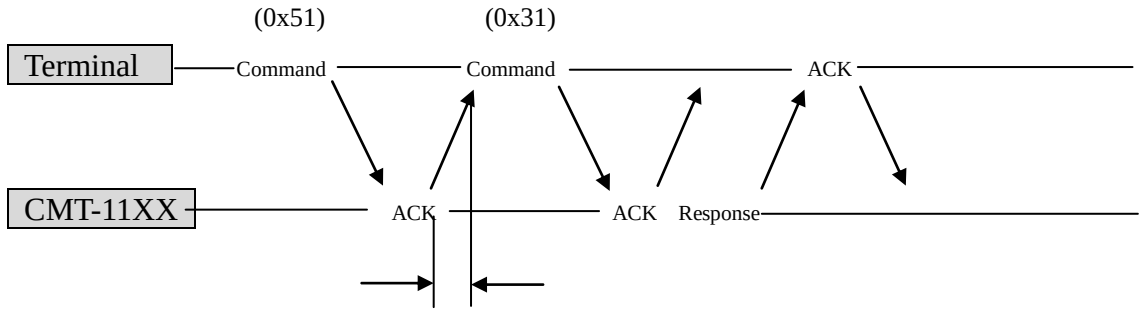
When Card is detect by Move sensor, Collector #2 Front sensor and Collector #2 End sensor,

Move to Collector #2.

7) Baud Rate Control Command

1	0x51	19,200 bps
2	0x52	38,400 bps (default)

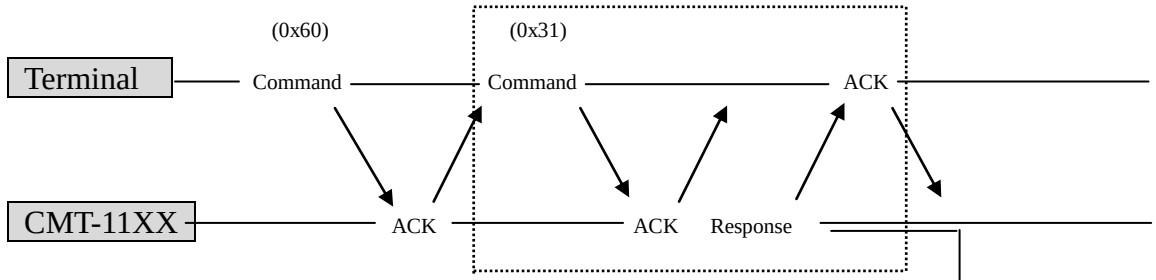
.



Min. 30 ~ 50mS

Ex) | STX | 0x51 | ETX | LRC | : 19,200 bps set

8) Firmware Version : It indicates Firmware Version.



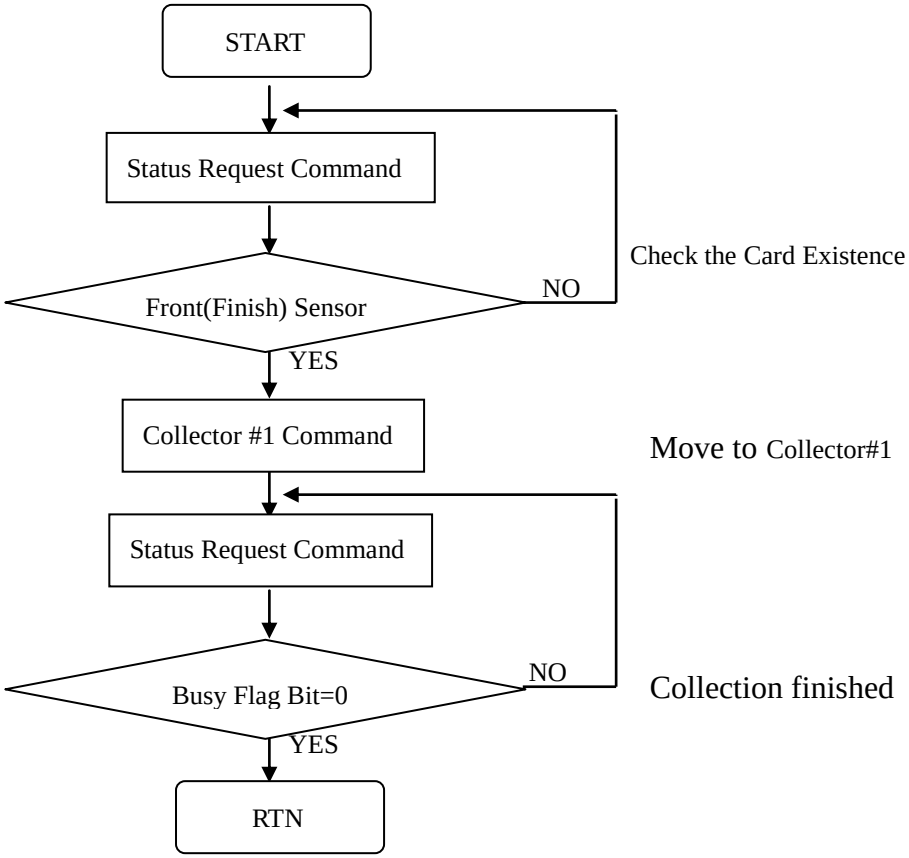
Ex) In case of Firmware Version is 2.00.

STX	0x02	0x00	0x00	ETX	LRC

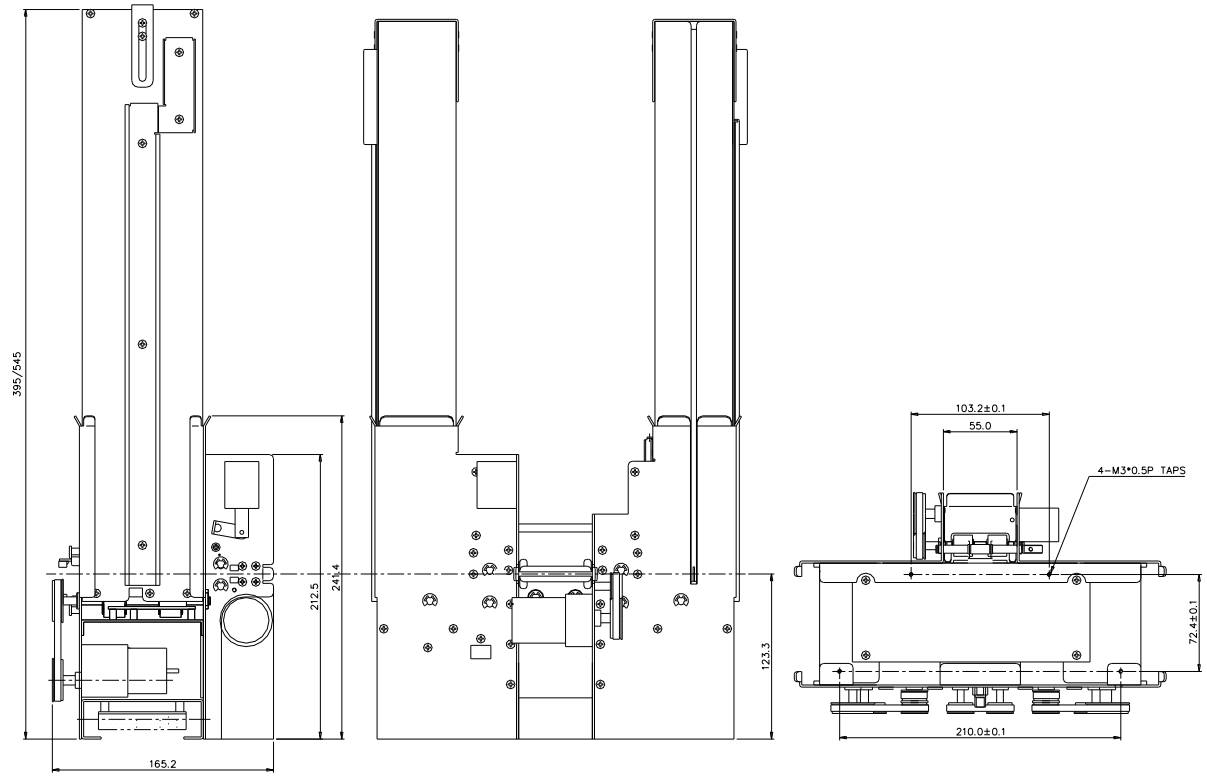
As Firmware version is not checked by sending Command (0x60), Status Command should Be sent thereafter. And then, User gets Firmware version.

Caution) Response to Status Request (0x31) following Command (0x60) is Firmware Versions, and Response to the next Status Request is about Dispenser.

7.3 Flow chart



8. Technical Drawing.



<Side View> <Front view> <Bottom View>