

F1-1000 Communication Protocol

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1 Communication Protocol

Baud rate (BPS) : Can be set by controller (Default at 9600BPS)

Communicate Mode: Asynchronous communication

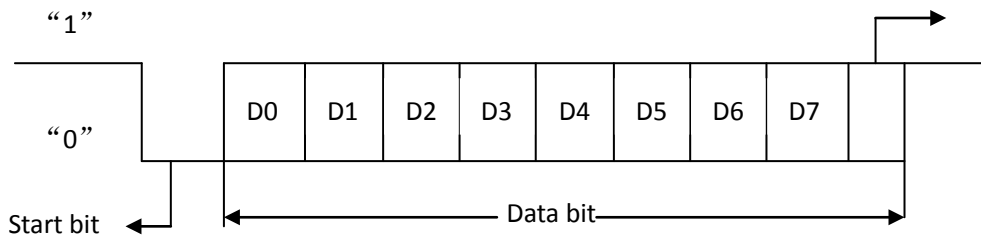
Transmit mode: Half duplex

Data frames structure: Start bit: 1bit

Data bit: 8bits

A Check Bit: No

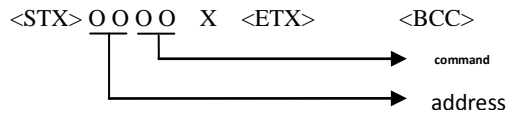
Stop Bit: 1bit



2 Command Structure

Multi-Machines communicate working, dispenser need to have address, single communicate may no address.

2.1 Send command



<STX> : 0 2 H , Frame start

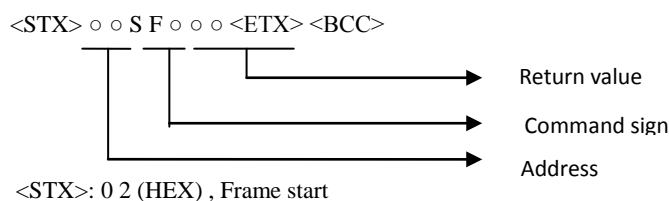
<ETX> : 0 3 H , Frame end

<BCC>: <STX> ⊕ O ⊕ O ⊕ O ⊕ O ⊕ <ETX> , Block checkout

'O' : Means a character's ASCII code

'X' : Means a character's ASCII code, for extend command use, is parameter from command (no basic command is available)

2.2 RF check status return



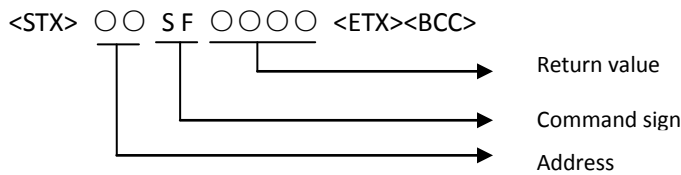
<ETX>: 0 3 (HEX) , Frame end

<BCC>: <STX> ⊕ 0 ⊕ 0 ⊕ ‘S’ ⊕ ‘F’ ⊕ 0 ⊕ 0 ⊕ 0 ⊕ <ETX>, Block Check Code

Flag Code signification

HEX	BIN	STATUS
800	1000 0000 0000	Card dispensing
400	0100 0000 0000	Card collecting
200	0010 0000 0000	Dispense card error
100	0001 0000 0000	Collect card error
080	0000 1000 0000	(hold)
040	0000 0100 0000	Card lap over
020	0000 0010 0000	Card Jam
010	0000 0001 0000	Card going to empty
008	0000 0000 1000	Card empty (no card)
004	0000 0000 0100	Light sensor 3 status
002	0000 0000 0010	Light sensor 2 status
001	0000 0000 0001	Light sensor 1 status

2.3 AP Check status return



<STX>: 0 2 (HEX) , Frame start

<ETX>: 0 3 (HEX) , Frame end

<BCC>: <STX> ⊕ 0 ⊕ 0 ⊕ ‘S’ ⊕ ‘F’ ⊕ 0 ⊕ 0 ⊕ 0 ⊕ 0 ⊕ <ETX>, Block Check Code

Flag Code signification

HEX	BIN	STATUS
8000		(hold)
4000		(hold)
2000	0010 0000 0000 0000	(hold)
1000	0001 0000 0000 0000	Collect bin was full
0800	0000 1000 0000 0000	Dispensing card
0400	0000 0100 0000 0000	Collecting card
0200	0000 0010 0000 0000	Dispense card error
0100	0000 0001 0000 0000	Collect card error
0080	0000 0000 1000 0000	(hold)
0040	0000 0000 0100 0000	Card lap over
0020	0000 0000 0010 0000	Card Jam
0010	0000 0000 0001 0000	Card going to empty

0008	0000 0000 0000 1000	Card empty (no card)
0004	0000 0000 0000 0100	Light sensor 3 status
0002	0000 0000 0000 0010	Light sensor 2 status
0001	0000 0000 0000 0001	Light sensor 1 status

Basic command code

Command (ASCLL)	Contents	Return Information
DC	Dispense card to port	<06H>
CP	Collect card	<06H>
RF	Check status	See: RF Check Status Return
AP	Advanced check status	See: AP Check Status Return
RS	Reset	<06H>

3 Extend enhance style command

Command	Parameter contents	Return information
“FC”+ Position	Dispense card to a certain position Position: {Port outside, Port hold card position, Read card position(Sensor 2)}, Position code are: {0x30,0x34,0x36}	<06H>
“CS”+ Position	Baud rate setting: Position from 0-5, value are from 1200BPS-38400BPS	<06H>
“IN”+ Parameter	Port in card function setting: Parameter= 0x30 Forbid card in from port = 0x31 Enable card in, and card in to collect bin = 0x32 Enable card in, stop in position 2	<06H>
“SI”	Check port card in function setting status	SI+ Parameter (similar to RF command return)

Caution:

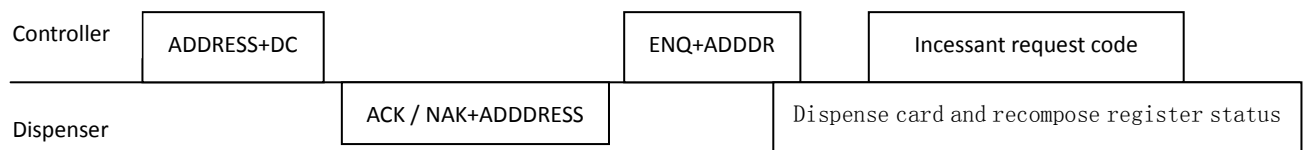
1. Position “4” is pre-dispense card position, machine will execute in advance dispense card motion (Except manual reset), Execute“FC+4” there will be not any motion, and may cause unknowable damage, So this command were not recommended.
2. “SI” card in function status check is similar to“RF”and“AP”, command not include parameter, command return with parameter in 1bit, parameter value consistent to “IN” command.
3. “IN” command is an EEPROM operating command, it will not change it’s setting value by On Power/Reset...operate, machine default setting is enable card in and card into collect bin.。

4 Communication Demonstration

4.1 Dispense cards

Controller : <STX> ADDRESS DC <ETX> <BCC>

Dispenser : send ACK, Take charge dispense card and recompose register status

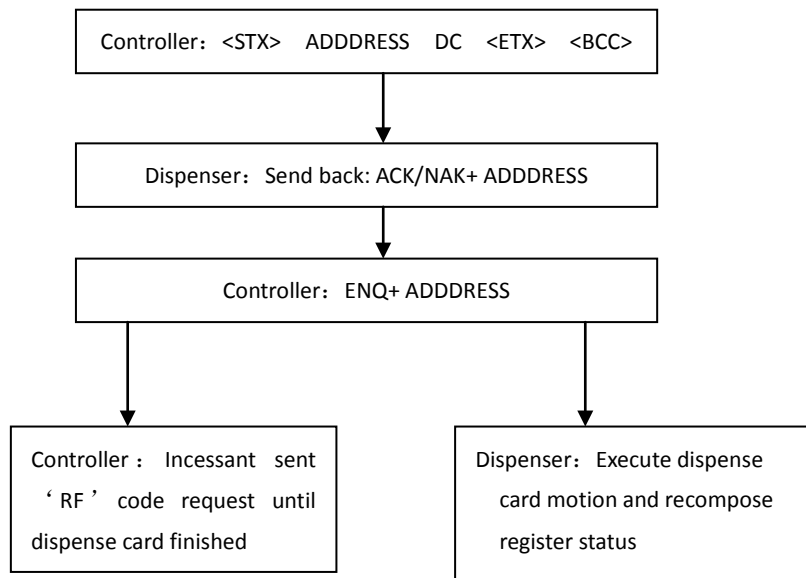


Thereinto: <ACK>: 06H

<NAK>: 15H

<ENQ>: 05H

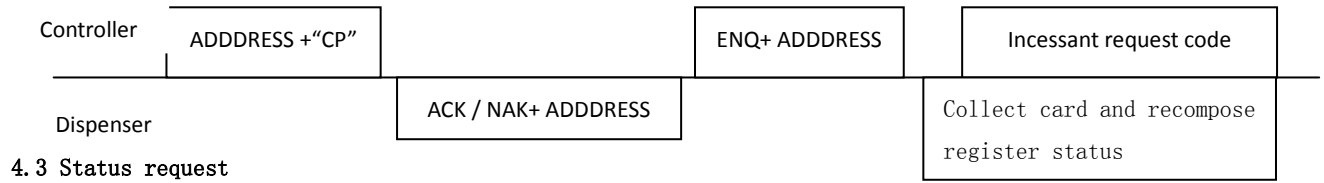
Flow chart:



4.2 Collect cards (Similar with dispense cards!)

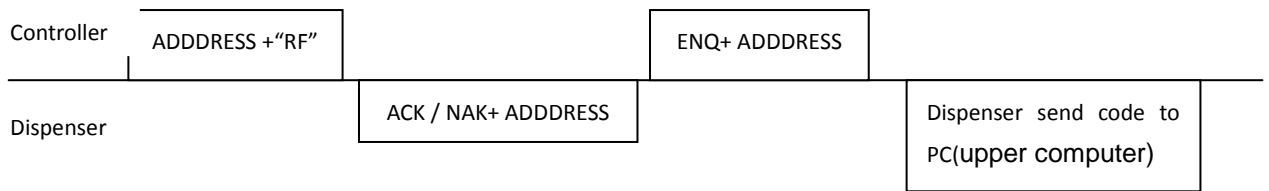
Controller: <STX> ADDRESS CP <ETX> <BCC>

Dispenser : Send: ACK, Take charge collect card and recompose register status



Controller: <STX> ADDRESS RF <ETX> <BCC>

Dispenser : Send: ACK , receive: ENQ, then send<STX> SF 000 <ETX>



5 Light sensor and card position chart:

