

RS485 Communication Protocol

Baud rate : 19200 , E, 8 ,1

HEAD				DATA	BCC CHECK		END
SOH	TYPE	ID	FC		(8 bits BCC)		
0X09					BCC1	BCC2	0X0D

1. SOH & END : 1 byte

SOH : controller default <0X09>

SOH : Reader default <0X0A>

END : controller & reader side default <0X0D>

<0X> : Hex value

2. TYPE : 1 Byte / reader type / Fix value for this model no : A

3. ID : 1 Byte / reader's ID /ASCII from 1 < 0X31> to 8 < 0X38>

4. FC : function call

5. 8 bits BCC : Pls refer to the page 4 (BCC Cal' method) in detail

Function call summary :

FC	Function
B	Read reader's factory serial No
C	Set reader ID
D	Read reader ID
F	Read card ID

FC : B Read reader's factory serial no

Controller command :

(ID) – reader's ID : < 1> ~ < 8>

(DATA) : < none>

HEAD				DATA	BCC CHECK (8 bits BCC)		END
SOH	TYPE	ID	FC				
0X09	A	1	B		BCC1	BCC2	0X0D

Reader reponse :

(DATA): < 06344851>

HEAD				DATA	BCC CHECK (8 bits BCC)		END
SOH	TYPE	ID	FC				
0X0A	A	1	B	06344851	BCC1	BCC2	0X0D

e.g

< 06344851> → 06 = year 2006 ; 34 = wk 34 ; 4851 = serial no

FC: C set reader's ID use the factory serial No.

Controller command :

Reader (ID): fix < X>

(DATA): < 06344851> , reader ID < 1>

HEAD				DATA	BCC CHECK (8 bits BCC)		END
SOH	TYPE	ID	FC				
0X09	A	X	C	063448511	BCC1	BCC2	0X0D

Reader reponse :

(DATA): < none>

HEAD				DATA	BCC CHECK (8 bits BCC)		END
SOH	TYPE	ID	FC				
0X0A	A	X	C		BCC1	BCC2	0X0D

FC: D use factory serial no. to read reader ID

Controller command :

(ID) : Fix < X>

(DATA): <06344851>

HEAD				DATA	BCC CHECK		END
SOH	TYPE	ID	FC		(8 bits BCC)		
0X09	A	X	D	06344851	BCC1	BCC2	0X0D

Reader reponse :

(DATA): reader ID < 1>

HEAD				DATA	BCC CHECK		END
SOH	TYPE	ID	FC		(8 bits BCC)		
0X0A	A	X	D	1	BCC1	BCC2	0X0D

FC: F read card ID

Controller command :

(ID) : < 1> ~< 8>

(DATA): < none>

HEAD				DATA	BCC CHECK		END
SOH	TYPE	ID	FC		(8 bits BCC)		
0X09	A	1	F		BCC1	BCC2	0X0D

Reader reponse :

(DATA): < 0000FF1A> when detected

HEAD				DATA	BCC CHECK		END
SOH	TYPE	ID	FC		(8 bits BCC)		
0X0A	A	1	F	0000FF1A	BCC1	BCC2	0X0D

(DATA) : card ID e.g. 0000FF1A

1st byte : fix "0"

2-9 byte : 0000FF1A - card serial no

Remarks :

Difference beep sound will be heard when read the RFID tag for the following status :

[1] Without connect with PC' com port (off line) : Beep one & LED flash one

[2] Connected with PC's com port (on line) : green LED keep on until send the (FC : F) command to the reader and the red LED will be turn on.

BBC Calculation method

BCC is the XOR result for all sent data

e.g.

:

HEAD				DATA	BCC CHECK (8 bits BCC)		END
SOH	TYPE	ID	FC				
0X09	A	1	F		BCC1	BCC2	0X0D

BCC- Calculation method :

1. BCC & END – don't need XOR
2. "SOH" **XOR** "TYPE" , get the result (assume the value is K1)
3. "K1" **XOR** "ID" , get the result (assume the value is K2)
4. "K2" **XOR** "FC" , get the result (assume the value is K3)
5. "K3" **XOR** "DATA" = BCC .

e.g.

Command	Hex	Desp.
SOH	09	Start character – ASCII
TYPE	41	"A" – ASCII
ID	31	"1" – ASCII
FC	46	"F" – ASCII
DATA	-----	No data
BCC		Need calculate
END	0D	End character - ASCII

Step.1

"SOH" XOR "TYPE" :

SOH	0000	1001
	XOR	XOR
TYPE	0100	0001
Result - K1	0100	1000

Step 2.

"K1" XOR "ID" :

K1	0100	1000
	XOR	XOR
ID	0011	0001
Result - K2	0111	1001

Step 3.

"K2" XOR "FC " :

K2	0111	1001
	XOR	XOR
FC	0100	0110
BCC	0011	1111
Hex	3	F

Result :

BCC1=0X33 (ASCII code for the hex "3" is 0X33)

BCC2=0X46 (ASCII code for the hex "F" is 0X46)