485 reader protocol

Reader communication protocol format is as follows:

HEAD				DATA	BCC CHECK (8bits BCC）		END
SOH	TYPE	ID	FC				
0x09					BCC1	BCC2	0x0D

1. SOH and END control character is a byte
SOH controller side is defined as <0x09>
End reader is defined as <0x0A>
END-side controller and readers are defined as <0x0D>
Where <0x> hexadecimal notation
2. TYPE for the reader type number is fixed at one byte, the type of number is fixed at "A"
3. ID for the reader side of the identification code, the bytes of ASCII characters must be in the 1 <0x31> to 8 <0x38> in the range, if the controller value and the client sends the ID number to the same reader address, the reader will will receive the data sent by the controller side, while the reader response will return the same address number.
4. FC is a communication code, and data are relevant, is fixed to one byte, such information, please refer to the communication protocol and the related instructions.
5. 8bits BCC field inspection of all characters, two bytes. DATA BCC code data for the 1,2,3,4 and part of the difference or checksum, the format is ASCII code form. For example:
0x09 0x41 0x31 0x42 XOR result 0x3B, is BCC1 for the 0x33, BCC2 to 0x42;
Another example:
0x09 0x41 0x32 0x42 XOR result is 0x38, then the BCC1 for the 0x33, BCC2 to 0x38.
6. RS485 transmission protocol is set to "E, 8,1",Boud rate as "19200",

Communication protocol controller and the reader table

FC	Function	Description
B	read the reader’s manufactory serial No.	to read the reader’s manufactory serial No. (which is pasted on the

		back of readers,a 8-digits number)
C	set the reader's ID	To set the reader's ID (1 to 8)
D	read the reader's ID	To read the reader's ID
F	read the card code data	To read the card data
G	re-read the card	to re-read the card

FC: B read the reader's serial No.

Description: This function reads the card number within the reader factory, a total of eight digits. Section 1 to 2 for the year of manufacture, the first 3 to 4 means weeks , the 5 to 8 digits are sequence number,0001 to 9999.

Examples:

Controller or PC sends information below:
Reader code (ID): <1> ~ <8>
Data (DATA): <none>

HEAD				DATA	BCC CHECK (8bits BCC）		END
SOH	TYPE	ID	FC				
0x09	A	1	B		BCC1	BCC2	0x0D

Reader will response:
Data (DATA):if the reader's manufactory serial No.is<99080001>

HEAD				DATA	BCC CHECK (8bits BCC）		END
SOH	TYPE	ID	FC				
0x0A	A	1	B	99080001	BCC1	BCC2	0x0D

FC: C set the reader ID

Description: This function is to set the ID, using the reader factory serial number
Controller or PC sends information below:
Reader code (ID): fixed <X>
Information: (DATA): factory serial number is <99080001>,we want to set the

reader ID as <1>

HEAD				DATA	BCC CHECK (8bits BCC）		END
SOH	TYPE	ID	FC				
0x09	A	X	C	990800011	BCC1	BCC2	0x0D

Reader response information:
Data (DATA): <none>

HEAD				DATA	BCC CHECK (8bits BCC）		END
SOH	TYPE	ID	FC				
0x0A	A	X	C		BCC1	BCC2	0x0D

FC: D read the reader ID

Description: This function reads the ID, using the reader factory serial number.

Controller or PC sends information below:
Reader code (ID): fixed <X>
Data (DATA): the factory serial number <99080001>

HEAD				DATA	BCC CHECK (8bits BCC）		END
SOH	TYPE	ID	FC				
0x09	A	X	D	990800011	BCC1	BCC2	0x0D

Reader response information:
Data (DATA): reader ID <1>

HEAD				DATA	BCC CHECK (8bits BCC）		END
SOH	TYPE	ID	FC				
0x0A	A	X	D	1	BCC1	BCC2	0x0D

FC: F read the card data

Description: This function to read the card DATA
Controller or PC sends information below:
Reader (ID): <1> ~ <8>
Data (DATA): <none>

HEAD				DATA	BCC CHECK (8bits BCC）		END
SOH	TYPE	ID	FC				
0x09	A	1	F		BCC1	BCC2	0x0D

Reader response information: (a card sensing)
Data (DATA) L: <00000FF1A> (* Note)

HEAD				DATA	BCC CHECK (8bits BCC）		END
SOH	TYPE	ID	FC				
0x0A	A	1	F	00000FF1A	BCC1	BCC2	0x0D

Note:
If you read the card number is 0x89DA4436, the reader will response the information below:
0x0A 0x41 0x31 0x46 0x30 0x38 0x39 0x44 0x41 0x34 0x34 0x33 0x36 0x30 0x44 0x0D

Reader response message: (no card sense)
Information (DATA): <none>

HEAD				DATA	BCC CHECK (8bits BCC）		END
SOH	TYPE	ID	FC				
0x0A	A	1	F		BCC1	BCC2	0x0D

Note: Data (DATA): 00000FF1A
The first code is the form of a card code, fixed to 0, the second code after the code for the card (CARD ID) encoding for the ASCII code.

FC: G re-read the card data

Description: This function is to re-read the card reader reader to read the card information
Controller or PC sends information below:

Reader code (ID): <1> ~ <8>
Data (DATA): <none>

HEAD				DATA	BCC CHECK (8bits BCC）		END
SOH	TYPE	ID	FC				
0x09	A	1	G		BCC1	BCC2	0x0D

Reader response information:
Data (DATA): <00000FF1A> (* Note)

HEAD				DATA	BCC CHECK (8bits BCC）		END
SOH	TYPE	ID	FC				
0x0A	A	1	G	00000FF1A	BCC1	BCC2	0x0D

Note:
PowerOn card reader, if you have not read the data line, the sensor to the card, the card reader and the LED will be lit ring out what, if read off-line data, when the sensor card, LED will always light green and not be able to re-induction card, read the card until you receive the information (FC: "F") after the changes back to red and back to normal readers.

Examples.
19200 EVEN 8 1

09 41 31 42 33 42 0D read SN

09 41 58 44 31 36 31 31 30 36 31 36 35 32 0D Read ID by SN "31 36 31 31 30 36 31 36"

09 41 31 46 33 46 0D read card number via ID(the third byte is ID ,shoud be 31 to 38)