



Mifare Card Reader/Writer

Model : Y4/S

Firmware Ver: V2.8

Software Ver: PSM-M2Y4-E v1.0.1.10V1.0.2.7

Features:

1. Support ISO14443A S50/S70 1K/4K and UltraLight card.
2. Support RS232 interface In/Output.
3. Support Wiegand interface Output. (S/N Only)
4. Multiples read blocks by single command.
5. Automatic scan serial number and remove card detected. (Choose one)
6. Automatic read Block N data form card. (Choose one)

Functions:

1. Reader baud rate setup.
2. Select card type.
3. Antenna On/Off.
4. Get serial number of card.
5. Read data from card.
6. Write data to card.
7. Get firmware version.
8. Get RAD.
9. Edit RAD.
10. Auto Scan Card.
11. Write Key to E2.
12. Auto Read Block N data.
13. Write Sector N & Block N.
14. Get Reader Mode.

Protocol:

1. PC to Reader Command Protocol format:

Byte[n]	0	[1:2]	[3:4]	[5:6]	[7:8]	...	[n-2:n-1]	n
Name	STX	RAD	Length	Command	Parameter	...	LRC	ETX
Value	0x02	"00"	"04+n"	"07"	"01"	...	"06"	0x03

STX: Start byte. It's a fix value (0x02). (Hexadecimal stand for it)

RAD: Reader Address.("01" ~ "FF"), INITIAL by ("00") (ASCII stand for it)

Length: Total length of Command and Parameter. (ASCII stand for it)

Command: (ASCII stand for it)

Value	Description	Value	Description
“01”	Setup baud rate of Reader	“0A”	reserved for future use
“02”	Select card type	“0B”	Get firmware version
“03”	Antenna On/Off	“0C”	Edit RAD
“04”	Get serial number of card	“0D”	Get RAD
“05”	Read data from card	“0E”	Auto Scan Card
“06”	Write data to card	“0F”	Write Key to E2
“07”	reserved for future use	“10”	Auto Read Block N data
“08”	reserved for future use	“11”	Write Sector N & Block N
“09”	reserved for future use	“12”	Get Reader Mode

Parameter: for example address of card or data. (ASCII stand for it)

LRC: Command \oplus Parameter1 \oplus Parameter2 $\oplus \dots$ (ASCII stand for it)

ETX: End byte. It's a fix value (0x03). (Hexadecimal stand for it)

\oplus : The symbol means XOR.

2. Reader to PC Response Protocol format:

Byte[n]	0	[1:2]	[3:4]	[5:6]	[7:8]	...	[n-2:n-1]	n
Name	STX	RAD	Length	Command	Parameter	...	LRC	ETX
Value	0x02	“00”	“04+n”	“07”	“00”	...	“07”	0x03

STX: Start byte. It's a fix value (0x02). (Hexadecimal stand for it)

RAD: Reader Address.(“01” ~ “FF”), INITIAL by (“00”) (ASCII stand for it)

Length: Total length of Command and Parameter. (ASCII stand for it)

Command: Depend on PC to Reader command. (ASCII stand for it)

Parameter: for example address of card or data. (ASCII stand for it)

If parameter is result code:

Result code	Description
“00”	Command be executed is successful.
“01”	Command be executed is fail.
“02”	Authentication failure
“03”	Money Overflow
“04”	String Error
“05”	LRC Error
“06”	Command not support
“07”	Parameter Error
“08”	Hardware Error

LRC: Command \oplus Parameter1 \oplus Parameter2 $\oplus \dots$ (ASCII stand for it)

ETX: End byte. It's a fix value (0x03). (Hexadecimal stand for it)

Command Description:

1. Reader baud rate setup: "01"

1.1. Command format:

Name	STX	RAD	Length	Command	Parameter	LRC	ETX
Value	0x02	"00"	"04"	"01"	"03"	"02"	0x03

1.2. Command parameter:

Baud rate code	Baud rate (bps)	Baud rate code	Baud rate (bps)
"00"	4800	"03"	19200 (default)
"01"	9600	"04"	28800
"02"	14400	"05"	38400

1.3. Return format:

Name	STX	RAD	Length	Command	Parameter	LRC	ETX
Value	0x02	"00"	"04"	"01"	"00"	"01"	0x03

1.4. Return parameter:

Result code	Description
"00"	Command be executed is successful.
"07"	Parameter error.

2. Select card type: "02"

2.1. Command format:

Name	STX	RAD	Length	Command	Parameter	LRC	ETX
Value	0x02	"00"	"06"	"02"	"0004"	"06"	0x03

2.2. Command parameter:

Card Type	ISO 14443A S50/S70 1K = "0004" ISO 14443A S50/S70 4K = "0002" ISO 14443A UltraLight = "0044" ISO 15693 = "1252"
-----------	--

2.3. Return format:

Name	STX	RAD	Length	Command	Parameter	LRC	ETX
Value	0x02	"00"	"04"	"02"	"00"	"02"	0x03

2.4. Return parameter:

Result code	Description
"00"	Command be executed is successful.
"07"	Parameter error.

3. Antenna On/Off: "03"

3.1. Command format:

Name	STX	RAD	Length	Command	Parameter	LRC	ETX
Value	0x02	"00"	"04"	"03"	"01"	"02"	0x03

3.2. Command parameter:

On/Off flag	Description
"00"	Antenna Off (default)
"01"	Antenna On

3.3. Return format:

Name	STX	RAD	Length	Command	Parameter	LRC	ETX
Value	0x02	"00"	"04"	"03"	"01"	"02"	0x03

3.4. Return parameter:

Result code	Description
"00"	Antenna Off.
"01"	Antenna On

4. Get serial number of card: "04"

4.1. Command format:

Name	STX	RAD	Length	Command	LRC	ETX
Value	0x02	"00"	"02"	"04"	"04"	0x03

4.2. Command parameter: None

4.2.1. Return format for ISO14443A S50/S70 1k/4k:

Name	STX	RAD	Length	Command	S/N	Type	LRC	ETX
Value	0x02	"00"	"0E"	"04"	"A6520BC0"	"0004"	"71"	0x03

4.2.2. Return format for ISO14443A UltraLight:

Name	STX	RAD	Length	Command	S/N	Type	LRC	ETX
Value	0x02	"00"	"14"	"04"	"044DE011D 40280"	"0044"	"7F"	0x03

4.2.3. There is not a card return format:

Name	STX	RAD	Length	Command	Parameter	LRC	ETX
Value	0x02	"00"	"14"	"04"	"01"	"05"	0x03

4.3. Return parameter:

If card is exit from the reader, the S/N and Type both are zero,

Name	LRC	ETX
Value	“76”	0x03

6.1.2. For ISO14443A UltraLight:

Name	STX	RAD	Length	Command	Page
Value	0x02	“00”	“000C”	“06”	“04”

Name	Data	LRC	ETX
Value	“FFFFFFFF”	“02”	0x03

6.2. Command parameter:

Parameter	Description
Sector	The value from “00” to “40”
Block	The value from “00” to “0F”
Key type	The value is “0A” or “0B”
Authentication Key	The value from “000000000000” to “FFFFFFFFFFFFFF”

6.3. Return format:

6.3.1. For ISO14443A S50/S70 1k/4k:

Name	STX	RAD	Length	Command	Sector	Block	Error code	LRC	ETX
Value	0x02	“00”	“08”	“06”	“00”	“01”	“00”	“07”	0x03

6.3.2. For ISO14443A UltraLight:

Name	STX	RAD	Length	Command	Page	Error code	LRC	ETX
Value	0x02	“00”	“06”	“06”	“00”	“00”	“06”	0x03

6.4. Return parameter:

Error code	Description
“00”	Command be executed is successful.
“01”	There is not a card.
“02”	Authentication failure.

7. Get firmware version: “0B”

7.1. Command format:

Name	STX	RAD	Length	Command	LRC	ETX
Value	0x02	“00”	“02”	“0B”	“72”	0x03

7.2. Command parameter:None

7.3. Return format:

Name	STX	RAD	Length	Command	Parameter	LRC	ETX
Value	0x02	“00”	“0A”	“0B”	“56322E30”	“04”	0x03

7.4. Return parameter:

“56322E30” = V2.0

8. EDIT RAD: “0C”

9.1. Command format:

Name	STX	Original RAD	Length	Command	Edit RAD	LRC	ETX
Value	0x02	“00”	“04”	“0C”	“03”	“70”	0x03

8.2. Command parameter:

Edit RAD NO.	“00” (default)
	“01”
	“02”
	continuous number
	“0E”
	“0F”

8.3. Return format:

Name	STX	Original RAD	Length	Command	Edit RAD	LRC	ETX
Value	0x02	“03”	“04”	“0C”	“03”	“70”	0x03

8.4. Return parameter:

Result code	Description
Original RAD = Edit RAD	Command be executed is successful.
Original RAD != Edit RAD	Parameter error.

9. Get RAD: “0D”

9.2. Command format:

Name	STX	RAD	Length	Command	LRC	ETX
Value	0x02	“00”	“02”	“0D”	“74”	0x03

9.3. Return format:

Name	STX	Original RAD	Length	Command	Get RAD	LRC	ETX
Value	0x02	“00”	“04”	“0D”	“00”	“74”	0x03

9.3. Return parameter:

Result code	Description
Original RAD = Get RAD	Command be executed is successful.
No answer	Parameter error.

10. Auto Scan Card: "0E"

10.1. Command format:

Name	STX	RAD	Length	Command	Parameter	LRC	ETX
Value	0x02	"00"	"04"	"0E"	"01"	"74"	0x03

10.2. Command parameter:

On/Off flag	Description
"00"	Disable Auto Scan Function (default)
"01"	Enable Auto Scan Function

※ Auto Read Block N data Function will be disabled automatically when Auto Scan Function are Enabled.

10.3. Return format:

Name	STX	RAD	Length	Command	Parameter	LRC	ETX
Value	0x02	"00"	"04"	"0E"	"00"	"75"	0x03

10.4. Return parameter:

Result code	Description
"00"	Command be executed is successful.
"07"	Parameter error.

11. Write Key to E2: "0F"

11.1. Command format for ISO14443A S50/S70 1k/4k:

Name	STX	RAD	Length	Command	Key type	Authentication Key	LRC	ETX
Value	0x02	"00"	"10"	"0F"	'0A'	"FFFFFFFFFFFF"	"07"	0x03

11.2. Command parameter:

Parameter	Description
Key type	The value is "0A" or "0B"
Authentication Key	The value from "000000000000" to "FFFFFFFFFFFF"

11.3. Return format:

Name	STX	RAD	Length	Command	Parameter	LRC	ETX
Value	0x02	"00"	"04"	"0F"	"00"	"76"	0x03

11.4. Return parameter:

Result code	Description
“00”	Command be executed is successful.
“07”	Parameter error.

12. Auto Read Block N data: “10”

12.1. Command format:

Name	STX	RAD	Length	Command	Parameter	LRC	ETX
Value	0x02	“00”	“04”	“10”	“01”	“00”	0x03

12.2. Command parameter:

On/Off flag	Description
“00”	Disable Auto Read Block N data Function (default)
“01”	Enable Auto Read Block N data Function

※ Auto Scan Function will be disabled automatically when Auto Read Block N data Function are Enabled.

12.3. Return format:

Name	STX	RAD	Length	Command	Parameter	LRC	ETX
Value	0x02	“00”	“04”	“10”	“00”	“01”	0x03

12.4. Return parameter:

Result code	Description
“00”	Command be executed is successful.
“07”	Parameter error.

13. Write Sector N & Block N: “11”

13.1. Command format for ISO14443A S50/S70 1k/4k:

Name	STX	RAD	Length	Command	Sector	Block	LRC	ETX
Value	0x02	“00”	“06”	“11”	“00”	“01”	“01”	0x03

13.2. Command parameter:

Parameter	Description
Sector	The value from “00” to “40”
Block	The value from “00” to “03”

13.3. Return format:

Name	STX	RAD	Length	Command	Sector	Block	Parameter	LRC	ETX
Value	0x02	“00”	“08”	“11”	“00”	“01”	“00”	“01”	0x03

13.4. Return parameter:

Result code	Description
“00”	Command be executed is successful.
“07”	Parameter error.

14. Get Reader Mode: “12”

14.1 Command format:

Name	STX	RAD	Length	Command	LRC	ETX
Value	0x02	“00”	“02”	“12”	“03”	0x03

14.2 Return format:

Name	STX	Original RAD	Length	Command	Mode	LRC	ETX
Value	0x02	“00”	“04”	“12”	“00”	“33”	0x03

14.3. Return parameter:

Result code	Description
“00”	Normal Mode.
“01”	Auto Scan Mode.
“02”	Auto Read Block N Mode.