

UIC680

Contactless Smart Card Reader Module
RS232 & USB Interface

Configuration Guide

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PREFACE

This document provides detailed information relating to the configuration data setting of the UIC680. This document should be read and understood prior to initial operation of the product.

When designing the UIC680, we selected what we feel are the most useful features and functions. If in some cases you find that your specific needs differ from our existing products, we welcome your comments and suggestions.

Custom-designed models are also available.

If further questions do arise, please call for technical support. Our FAE will assist you in any way we can.



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Chapter1. General Description

1.1 EEPROM Configuration

1.1.1 EEPROM Data Summary

Field Offset	Description
0	First model byte
1	Second model byte
2	Host communication speed
3	Host protocol type
4-13	Reserved
14	Operational mode
15	Self-Arm parameters
16-20	Track 1 prefix, up to 5 bytes
21-25	Track 1 suffix, up to 5 bytes
26-30	Track 2 prefix, up to 5 bytes
31-35	Track 2 suffix, up to 5 bytes
36-40	Track 3 prefix, up to 5 bytes
41-45	Track 3 suffix, up to 5 bytes
46	Track separator
47	Track1 ID
48	Track2 ID
49	Track3 ID
50	RF Card Support
51	Terminal Type
52	Transaction Type
53-55	Transaction Setting
56	Custom power on character, default is ':'.(00h means no character sent)
57-64	'680-RH'
65-72	Serial Number
73-80	Reserved
81	Manufacture configuration version number
82	Host communication parity and data bits of protocol 1
83	COM2 communication speed
84	Beep Setting
85-86	AMEX random range

87	Extension Flag(for Beeper)
88	Protocol and Track Out Format Flag
89-93	Preamble
94-98	Postamble
99-105	Reserved
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108-112	Reserved
113-114	Polling MF531 Time
115	Reserved
116-117	RFID card reading delay timer
118-127	Reserved
128-129	Random number seed
130	USB mode
131-145	TAC setting
146	TAC Flag
147-149	Terminal Capabilities
150-166	Reserved
167-168	VISA, ISO 3166 Country Codes
169-170	VISA, Transaction Currency Code
171	VLP Terminal. Support Indicator
172	MSD support type
173-221	Reserved
222-236	Merchant Identifier
237-241	Additional Terminal Capabilities
242-245	VSDC Terminal Transaction Qualifiers
246-251	Amount Authorized(Numeric)
252-257	Amount Other(Numeric)
258-317	Reserved
318-321	Transaction Sequence Counter(TSC)
322-325	Terminal Floor Limit(Binary)
326-331	Threshold of Random Transaction Selection
332	Target percentage of Random Transaction Selection
333	Max Target percentage of Random Transaction Selection

334-337	Default TDOL
338	Reserved
339	VISA Opt
340-374	Reserved
375	Record RF Card Data
376-387	Default DDOL
388-393	VISA CVM Required Limit
394	VISA CVM Enable
395-424	Reserved
425	VISA qVSDC DDA version
426	LED lighting interval
427-428	LED listing time
429-509	Reserved

1.1.2 EEPROM Data Description

◆ First model byte(offset 0)

7	6	5	4	3	2	1	0	
1	0	1	1	1	1	1	0	Default = BE h

Bit	Value: 0	Value: 1
0	Reserved for Future Use	Reserved for Future Use
1	TK1 not present	TK1 present
2	TK2 not present	TK2 present
3	TK3 not present	TK3 present
4-7	Reserved for Future Use	Reserved for Future Use

◆ Second model byte(offset 1)

7	6	5	4	3	2	1	0	
0	1	0	0	1	1	0	0	Default = 4C h

Bit	Value: 0	Value: 1
0-5	Reserved for Future Use	Reserved for Future Use
6	No send SS/ES when Self-Arm mode	Send SS/ES when Self-Arm mode
7	No send LRC of magnetic card data when Self-Arm mode	Send LRC of magnetic card data when Self-Arm mode

◆ Host communication speed(offset 2)

The speed communicates with host.

Value	Baud Rate	
00h	1200	
01h	2400	
02h	4800	
03h	9600	Default
04h	19200	
05h	38400	
06h	57600	
07h	115200	
Other	9600	

◆ **Host protocol type(offset 3)**

The protocol communicates with host.

Value	Protocol Type	Default
00h	USI2	
03h	USI0	
06h	USI1	

◆ **Operational mode(offset 14)**

7 6 5 4 3 2 1 0

1	0	0	0	0	0	1	0	Default = 82 h
---	---	---	---	---	---	---	---	----------------

Bit	Value: 0	Value: 1
0	No imitative Sensor Report mode enable	Imitative Sensor Report mode enable
1	No send SS/ES when Self-Arm mode	Send SS/ES when Self-Arm mode
2-6	Reserved for Future Use	Reserved for Future Use
7	Configuration response use 16 bytes	Configuration response use 1 byte

◆ **Self-Arm parameters(offset 15)**

7 6 5 4 3 2 1 0

0	0	0	0	0	0	0	0	Default = 00 h
---	---	---	---	---	---	---	---	----------------

Bit	Value: 0	Value: 1
0	Transmit TK1 data when Self-Arm mode	Don't transmit TK1 data when Self-Arm mode
1	Transmit TK2 data when Self-Arm mode	Don't transmit TK2 data when Self-Arm mode
2	Transmit TK3 data when Self-Arm mode	Don't transmit TK3 data when Self-Arm mode
3-4	Reserved for Future Use	Reserved for Future Use
5	Send magnetic stripe card data without protocol (i.e. send data only) when Self-Arm mode.	Send magnetic stripe card data using selected protocol when Self-Arm mode.
6-7	Reserved for Future Use	Reserved for Future Use

◆ **Track 1 prefix(offset 16-20)**

Setting by customer to identify the reader, up to 5 characters.

◆ **Track 1 suffix(offset 21-25)**

Setting by customer to identify the reader, up to 5 characters.

◆ **Track 2 prefix(offset 26-30)**

Setting by customer to identify the reader, up to 5 characters.

◆ **Track 2 suffix(offset 31-35)**

Setting by customer to identify the reader, up to 5 characters.

◆ **Track 3 prefix(offset 36-40)**

Setting by customer to identify the reader, up to 5 characters.

◆ **Track 3 suffix(offset 41-45)**

Setting by customer to identify the reader, up to 5 characters.

◆ **Track separator(offset 46)**

Setting by customer to identify the reader, one character.

◆ **Track1 ID(offset 47)**

Setting by customer to identify the reader, 1 binary format.

◆ **Track2 ID(offset 48)**

Setting by customer to identify the reader, 1 binary format.

◆ **Track3 ID(offset 49)**

Setting by customer to identify the reader, 1 binary format.

◆ **RF Card Support(offset 50)** Default: M/Chip disabled

Bit	Value: 0	Value: 1
0	M/Chip Disable	M/Chip Enable
1-7	Reserved for Future Use	Reserved for Future Use

◆ **Terminal Type(offset 51)** Default = 22h

1 byte binary format.

◆ **Transaction Type(offset 52)** Default = 00h

1 byte binary format.

◆ Transaction Info(offset 54)

Value	Transaction Info	Default
20h	Service	
40h	Goods	

◆ Custom power on character(offset 56) Default = ':'

Reader will send a character if Power on successfully.

◆ '680-RH'(offset 57-64)

Default value.

◆ Serial Number(offset 65-72)

Setting by customer to identify the reader, up to 8 characters.

◆ Manufacture configuration version number(offset 81)

The identification of configuration setting version, don't change this character.

◆ Host communication parity and data bits of protocol 1(offset 82)

Value	Parity & Data Bits	(USI1 Protocol Only)
00h	E, 7, 1	
01h	O, 7, 1	
02h	M, 7, 1	
03h	S, 7, 1	
04h	N, 8, 1	Default (All Protocol)

◆ COM2 communication speed(offset 83)

The speed communicates with other board.

Value	Baud Rate	Default
00h	1200	
01h	2400	
02h	4800	
03h	9600	
04h	19200	
05h	38400	
06h	57600	
07h	115200	
Other	9600	

◆ **Beep Setting(offset 84)**

7	6	5	4	3	2	1	0	
0	0	0	0	0	0	1	0	Default = 02 h

Bit	Value: 0	Value: 1
0	Pass-Thru disabled.	Pass-Thru enabled.
1	Set beep disabled.	Set beep enabled.
2-7	Reserved for Future Use	Reserved for Future Use

◆ **AMEX random range(offset 85-86)**

Up to 2 bytes binary format.

◆ **Extension Flag(for Beeper) (offset 87)**

7	6	5	4	3	2	1	0	
1	0	0	0	0	0	0	0	Default = 80 h

Bit	Value: 0	Value: 1
0	Disabled	Master Card error beep
1	Disabled	AMEX error beep
2	Disabled	VISA error beep.
3-5	Reserved for Future Use	Reserved for Future Use
6	indication on the card data	'R' on RFID output.
7	4 beeps on reading RFID successful	one beep on reading RFID successful

◆ **Protocol and Track Out Format Flag(offset 88)** Default = 80h

Bit	Value: 0	Value: 1
0-3		00: USI0 01: USI1 10: USI2
4-6	Reserved for Future Use	Reserved for Future Use
7	Disabled	USI1-STX included

◆ **Track Preamble(offset 89-93)**

Setting by customer to identify the reader, up to 5 characters.

◆ **Track Postamble(offset 94-98)**

Setting by customer to identify the reader, up to 5 characters.

◆ **PayPass Application Version(offset 106-107)**

Up to 2 bytes binary format.

◆ **Polling RFID Time(offset 113-114)**

Up to 2 bytes binary format.(Range: 0000h-FFFFh = 0-65535ms)

◆ **RFID card(AE ExpressPay) reading delay timer(offset 116-117)**

Up to 2 bytes binary format.(Range: 0000h-FFFFh; FFFFh = 0ms)

◆ **Random number seed(offset 128-129)**

Up to 2 bytes binary format.

◆ **USB mode(offset 130)**

Value	USB mode	Default
00h	HID_KBD	
01h	CDC	
02h	HID_MSR	

◆ **Set Default TAC(offset 131-135)**

Up to 5 bytes binary format.

◆ **Set Denial TAC(offset 136-140)**

Up to 5 bytes binary format.

◆ **Set Online TAC(offset 141-145)**

Up to 5 bytes binary format.

◆ **Set TAC Enable Flag(offset 146)** Default = 07h

b0 = Default

b1 = Denial

b2 = Online

◆ **Terminal Capabilities(offset 147-149)**

Up to 3 bytes binary format.

◆ **Country Code(offset 167-168)** Default = 08h 40h

Up to 2 bytes binary format.

◆ **Currency Code(offset 169-170)** Default = 08h 40h

Up to 2 bytes binary format.

- ◆ **VLP Terminal. Support Indicator(offset 171)** Default = 00h

1 byte binary format.

- ◆ **MSD support(offset 172)**

Value	Visa Version support	Default
00h	VISA 2.1	
01h	MSD 1.4.2	
02h	Auto	

- ◆ **Merchant Identifier (offset 222-236)**

EMV Tag 9F16, When concatenated with the Acquirer Identifier, uniquely identifies a given merchant.

- ◆ **Additional Terminal Capabilities(offset 237-241)** Default = 60h 00h 00h 00h 01h

Up to 5 bytes binary format.

- ◆ **VSDC Terminal Transaction Qualifiers(offset 242-245)** Default = A0h 00h 00h 00h

Up to 4 bytes binary format.

- ◆ **Amount Authorized(offset 246-251)** Default = 00h 00h 00h 00h 00h 00h

Up to 6 bytes numeric data format.

- ◆ **Amount Other(offset 252-257)** Default = 00h 00h 00h 00h 00h 00h

Up to 6 bytes numeric data format.

- ◆ **Transaction Sequence Counter (offset 318-321)**

EMV Tag 9F41, Counter maintained by the terminal that is incremented by one for each transaction.

- ◆ **Terminal Floor Limit(offset 322-325)** Default = 00h 00h 27h 10h

Up to 4 bytes binary format.

- ◆ **Threshold(offset 326-331)** Default = 00h 00h 00h 00h 05h 00h

Up to 6 bytes numeric format.

- ◆ **Target percentage(offset 332)** Default = 00h

1 byte binary format, 00H~63H.

- ◆ **Max Target percentage(offset 333)** Default = 00h

1 byte binary format, 00H~63H.

- ◆ **Set Default TDOL(offset 334-337)** Default = 03h 9Fh 08h 02h
Up to 4 bytes binary format.

- ◆ **VISA Option(offset 339)**

Value	VISA Option	Default
00h	Option 0	
01h	Option 1	

- ◆ **Record RF card data(offset 375)**

Value	Record RF card data	Default
00h	Not record	
01h	Record, but stop recording after memory full, continue reading	
02h	Record, but stop reading after memory full, 3 beeps	
03h	Record, but stop reading after memory full, 3 beeps and send '&' out	

- ◆ **Set Default DDOL(offset 376-387)**

Up to 4 bytes binary format.

- ◆ **VISA CVM Required Limit(offset 388-393)**

If amount over CVM required Limit, then do CVM.

- ◆ **VISA CVM Enable(offset 394)**

Enable CVM required.

- ◆ **VISA qVSDC DDA version(offset 425)**

Value	VISA qVSDC DDA version	Default
00h	Disable	
01h	Enable	

- ◆ **LED Light interval(offset 426)**

1 byte binary format (Default is 0ms).

- ◆ **LED Listing interval(offset 427-428)**

Up to 2 bytes binary format (Default is 760ms).

1.2 Configuration Protocol

There are two ways to configure the EEPROM setting.

1. Send commands by Configuration Protocol described as below.
2. Send <09> command by the reader current protocol. Please refer to “UIC680 Programmer’s Manual”.

1.2.1 Send command: PC → Reader

Protocol of RS232 interface

<09H><ADDR><LEN><COMMAND><BCC>

where

<09H><00H><00H><3 BYTE COMMAND><BCC> is default command format

Protocol of USB HID interface

<C2H><2-BYTE TOTAL DATA LEN><09H><ADDR><LEN><COMMAND><BCC>

where

<LEN><09H><00H><00H><3 BYTE COMMAND><BCC> is default command format

EXAMPLE:

<C2H><00H><07H><09H><00H><00H><45H><53H><44H><5BH>

TOTAL DATA LEN = <09H> + <ADDR> + <LEN> + <COMMAND> + <BCC>

ADDR This field is reserved and should always be 00H

LEN give the length of the command. If LEN is 00h that indicates the command is 3 bytes

BCC = <09H> ⊕ <ADDR> ⊕ <LEN> ⊕<COMMAND N>

Note:

If LEN is 00h or 03h, it indicates that 3-byte commands come next.

If LEN is 02h, it indicates that 2-byte commands come next.

In configuration protocol, if the third command byte is <00h>, you can send only 2 bytes command (LEN = 02h) and ignore the third command byte.

1.2.2 Response: Reader → PC

Protocol of RS232 interface

^ (5Eh) – **ACK**: Acknowledges correct completion of most recent command.

! (21h) – **Invalid Command**: Command was received correctly, but is not a recognized.

DATA: No wrapped data.

Protocol of USB HID interface

<C2h><00h><01h><5Eh> – **ACK**: Acknowledges correct completion of most recent command.

<C2h><00h><01h><21h> – **Invalid Command**: Command was received correctly, but is not a recognized.

<C2h><2 Bytes Len>**DATA**: No wrapped data.

Chapter2. Configuration Setting Commands

This chapter describes the internal configuration settings available for the UIC680 series. Each item includes ASCII, hexadecimal codes and an explanation of the command. The letter ‘x’, ‘y’ or ‘z’ indicates a variable and the letter ‘h’ is an abbreviation of “hexadecimal”.

ARx(41h 52h x) — AMEX random number max range

Use 2 bytes binary format to set the max range.

APVx(41h 50h 56h x) — Change Application Version label

x means 2 bytes binary format.

APS(41h 50h 53h) — Output Application Version label

Output settings of the above ‘APV’ command.

BAx(42h 41h x) — Beep Enable/Disable

Set enable/disable to beep of read.

x	Command Form (Hex)	Beeper
‘D’	09h 00h 03h 42h 41h 44h 4Dh	Disable
‘E’	09h 00h 03h 42h 41h 45h 4Ch	Enable(default)

BRx(42h 52h x) — Set COM 1 Baud Rate

COM1 is the main communication port of UIC680.

x	Command Form (Hex)	Baud Rate setting
‘0’	09h 00h 03h 42h 52h 30h 2Ah	1200
‘1’	09h 00h 03h 42h 52h 31h 2Bh	2400
‘2’	09h 00h 03h 42h 52h 32h 28h	4800
‘3’	09h 00h 03h 42h 52h 33h 29h	9600(default)
‘4’	09h 00h 03h 42h 52h 34h 2Eh	19200
‘5’	09h 00h 03h 42h 52h 35h 2Fh	38400
‘6’	09h 00h 03h 42h 52h 36h 2Ch	57600
‘7’	09h 00h 03h 42h 52h 37h 2Dh	115200

BEx(42h 45h x) — Set Error Beep Option

The beep on when read data error for selected card type.

x	Command Form (Hex)	Card Type
'1'	09h 00h 03h 42h 45h 31h 3Ch	AMEX error beep
'2'	09h 00h 03h 42h 45h 32h 3Fh	VISA error beep

BSx(42h 53h x) — Set Beep Option on a Successful Read

The beep on when read data succeed.

x	Command Form (Hex)	Beep Setting
'0'	09h 00h 03h 42h 53h 30h 2Bh	4 beeps on when reading RFID successfully
'1'	09h 00h 03h 42h 53h 31h 2Ah	One beep(default)

CCx(43h 43h x) — Set Code

x is an ASCII number '1', '2', '3'.

'1': Country Code, followed by 2 bytes parameter in binary format.

'2': Currency Code, followed by 2 bytes parameter in binary format.

'3': Terminal Capabilities, followed by 3 bytes parameter in binary format.

EXAMPLE:

x	Command Form (Hex)	Meaning
'1'	09h 00h 05h 43h 43h 31h 08h 40h 75h	Set Country Code '08 40'
'2'	09h 00h 05h 43h 43h 32h 08h 40h 76h	Set Currency Code '08 40'
'3'	09h 00h 06h 43h 43h 33h 00h 08h 88h BCh	Set Terminal Capabilities '00 08 88'

CPx(43h 50h x) — PayPass Support

x	Command Form (Hex)	Meaning
00h	09h 00h 03h 43h 50h 00h 19h	MagStripe Only
01h	09h 00h 03h 43h 50h 01h 18h	MChip Enable

CTx(43h 54h x) — Set Terminal/Transaction Type/Info

x is an ASCII number '0', '1', '2'.

'0': Terminal Type, followed by 1 byte parameter in binary format.

'1': Transaction Type, followed by 1 byte parameter in binary format.

'2': Transaction Info, followed by 1 byte parameter in binary format.

EXAMPLE:

x	Command Form (Hex)	Meaning
'0'	09h 00h 04h 43h 54h 30h 22h 08h	Set Terminal Type '22'
'1'	09h 00h 04h 43h 54h 31h 00h 2Bh	Set Transaction Type '00'
'2'	09h 00h 04h 43h 54h 32h 40h 68h	Set Transaction Info '40'

CLx(43h 4Ch x) — Set TRM Parameters

x is an ASCII number '0'-'4'.

This command has the following parameters

'1' Terminal Floor Limit: 4-byte binary format

'2' Threshold: 6-byte numeric format

'3' Target percentage: 1 byte binary format, 00H~63H.

'4' Max Target percentage: 1 byte binary format, 00H ~ 63H.

EXAMPLE:

x	Command Form (Hex)	Meaning
'0'	09h 00h 03h 43h 4Ch 30h 35h	Dump setting parameters
'1'	09h 00h 07h 43h 4Ch 31h 31h 30h 30h 32h 33h	Set Terminal Floor Limit
'2'	09h 00h 09h 43h 4Ch 32h 31h 30h 30h 32h 30h 3Dh	Set Threshold
'3'	09h 00h 04h 43h 4Ch 33h 20h 11h	Set Target percentage 32%
'4'	09h 00h 04h 43h 4Ch 34h 26h 10h	Set Max Target percentage 38%

DFx(44h 46h x) — Default Setting

The reader will restore the configuration to default manufacture settings after receiving this command.

x is the choice of restore area , please see below.

x	Command Form (Hex)	Restore Area
00h	09h 00h 03h 44h 46h 00h 08h	All of EEPROM. Exclude Serial and PCB Number.
01h	09h 00h 03h 44h 46h 01h 09h	All of EEPROM. Exclude Serial and PCB Number.

02h	09h 00h 03h 44h 46h 02h 0Ah	All of EEPROM. Exclude Tracks prefix, suffix...settings.
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The major default settings of choice 02h are as below:

Reader Protocol	USI0 protocol
Baud rate	9600, N, 8, 1
Self-Arm Mode	Enable
Tracks Enable	Transmit TK1, TK2 and TK3
Power On Character	‘.’

DTx(44h 54h x) — RFID inter-reading delay time(AE ExpressPay)

Range: 0000h-FFFFh; 0000h-FFFEh means 0-65534ms, FFFFh = 0ms.

ECx(45h 43h x) — Extended Configuration Report Enable/Disable

x	Command Form (Hex)	Extended Configuration Report
‘D’	09h 00h 03h 45h 43h 44h 4Bh	Disable, returns one byte with configuration(default)
‘E’	09h 00h 03h 45h 43h 45h 4Ah	Enable, returns 16 bytes string with configuration

If the “Extended Configuration Report” is enabled, the Configuration Request Command ‘#’ will return an extended 16-byte string with configuration, else return a standard one byte. Please refer to the ‘#’ command in the “UIC680 Programmer’s Manual”.

ERx(45h 52h x) — Record RF card data

x	Command Form (Hex)	Meaning
00h	09h 00h 03h 45h 52h 00h 1Dh	Not record
01h	09h 00h 03h 45h 52h 01h 1Ch	Record, but stop recording after memory full, continue reading
02h	09h 00h 03h 45h 52h 02h 1Fh	Record, but stop reading after memory full, 3 beeps
03h	09h 00h 03h 45h 52h 03h 1Eh	Record, but stop reading after memory full, 3 beeps and send '&' out

ESx(45h 53h x) — SS/ES Enable/Disable

x	Command Form (Hex)	SS & ES
'D'	09h 00h 03h 45h 53h 44h 58h	Disable
'E'	09h 00h 03h 45h 53h 45h 59h	Enable(default)

If SS/ES is enabled, each track data of magnetic stripe card that sent by automation in Self-Arm mode will be wrapped by SS/ES character.

Note: This command is only effective in Self-Arming mode.

EV<00>(45h 56h 00h) — EEPROM Verify

The reader will execute EEPROM verification after receiving this command, and return the result.

For example, if EEPROM verification is successful, the reader will respond the message “^EEPROM verified successfully”.

Command Form:

PC -> Reader: <09h 00h 00h 45h 56h 00h 1Ah> or <09h 00h 02h 45h 56h 18h>

Reader -> PC: “^EEPROM verified successfully”

FAx(46h 41h x) — Set Track 1 Prefix Code

x = Up to 5 bytes of programmable Prefix, 00h means do not send track 1 prefix code.

EXAMPLE:

Command Form (Hex)	Track 1 Prefix Code
09h 00h 03h 46h 41h 00h 0Dh	Disable(default)
09h 00h 07h 46h 41h 55h 36h 38h 64h 72h 44h	Set 'U68dr' as TK1 prefix

Fax(46h 61h x) — Set Track 1 Suffix Code

x = Up to 5 bytes of programmable Suffix, 00h means do not send track 1 suffix code.

EXAMPLE:

Command Form (Hex)	Track 1 Suffix Code
09h 00h 03h 46h 61h 00h 2Dh	Disable(default)

FBx(46h 42h x) — Set Track 2 Prefix Code

x = Up to 5 bytes of programmable Prefix, 00h means do not send track 2 prefix code.

EXAMPLE:

Command Form (Hex)	Track 2 Prefix Code
09h 00h 03h 46h 42h 00h 0Eh	Disable(default)

Fbx(46h 62h x) — Set Track 2 Suffix Code

x = Up to 5 bytes of programmable Suffix, 00h means do not send track 2 suffix code.

EXAMPLE:

Command Form (Hex)	Track 2 Suffix Code
09h 00h 03h 46h 62h 00h 2Eh	Disable(default)

FCx(46h 43h x) — Set Track 3 Prefix Code

x = Up to 5 bytes of programmable Prefix, 00h means do not send track 3 prefix code.

EXAMPLE:

Command Form (Hex)	Track 3 Prefix Code
09h 00h 03h 46h 43h 00h 0Fh	Disable(default)

Fcx(46h 63h x) — Set Track 3 Suffix Code

x = Up to 5 bytes of programmable Suffix, 00h means do not send track 3 suffix code.

EXAMPLE:

Command Form (Hex)	Track 3 Suffix Code
09h 00h 03h 46h 63h 00h 2Fh	Disable(default)

FPx(46h 50h x) — Set Preamble Code

x = Up to 5 bytes of programmable preamble, 00h means do not send preamble code.

EXAMPLE:

Command Form (Hex)	Preamble Code
09h 00h 03h 46h 50h 00h 1Ch	Disable(default)
09h 00h 07h 46h 50h 70h 72h 65h 30h 31h 7Eh	Set 'pre01' as preamble

Fpx(46h 70h x) — Set Postamble Code

x = Up to 5 bytes of programmable postamble, 00h means do not send postamble code.

EXAMPLE:

Command Form (Hex)	Postamble Code
09h 00h 03h 46h 70h 00h 3Ch	Disable(default)
09h 00h 06h 46h 70h 50h 4Fh 53h 54h 21h	Set 'POST' as postamble

LCx(4Ch 43h x) — LRC Enable/Disable

If LRC is enabled, each track data that sent by automation in self-arm mode will be followed by LRC character.

x	Command Form (Hex)	LRC Setting
'D'	09h 00h 03h 4Ch 43h 44h 41h	Disable(default)
'E'	09h 00h 03h 4Ch 43h 45h 40h	Enable

Note: This command is only effective in Self-Arming mode.

LIX(4Ch 49h x) — LED Lighting Interval(PayPass)

Set LED lighting Interval for MasterCard PayPass card.

x is an 1-byte binary data; range from 0 to 255 , time unit is mini second.

LLx(4Ch 4Ch x) — LED Listing Time(PayPass)

Set LED-listing timer for MasterCard PayPass card.

x is a 2-byte binary data; range from 0 to 65535, time unit is mini second.

MFxy(4Dh 46h x y) — Set Payment Card and MIFARE Auto-Polling

x is an ASCII number '0' or '1'(30h or 31h), y is an ASCII number '0' or '1'(30h or 31h).

x = '0': Disable Payment Card. '1': Enable Payment Card.

y = '0': Disable MIFARE Auto-Polling. '1': Enable MIFARE Auto-Polling.

Note: Once MIFARE Auto-Polling is enabled, reader will send out the following characters to host if MIFARE Card detected.

'M1' — MIFARE Ultralight

'M2' — MIFARE 1K

'M3' — MIFARE 4K

- ‘M4’ — MIFARE DESFire
- ‘M5’ — MIFARE Plus 2K
- ‘M6’ — MIFARE Mini
- ‘M7’ — MPCOS Gemplus
- ‘M8’ — Jewel for Innovision
- ‘M9’ — JCOP31
- ‘M0’ — Not MIFARE card or Not supported card

PCx(50h 43h x) — Set Host Protocol

x is an ASCII number ‘0’, ‘3’ or ‘6’.

x	Command Form (Hex)	Protocol Setting
‘0’	09h 00h 03h 50h 43h 30h 29h	USI2
‘3’	09h 00h 03h 50h 43h 33h 2Ah	USI0
‘6’	09h 00h 03h 50h 43h 36h 2Fh	USI1

Note: This command will cause the device warm-reset!

PEx (50h 45h x) — Set Pass-Through Function

x is an ASCII number ‘0’ or ‘1’ (30h or 31h).

x	Command Form (Hex)	Set Pass-Through Function
‘0’	09h 00h 03h 50h 45h 30h 2Fh	Disable Pass-Through
‘1’	09h 00h 03h 50h 45h 31h 2Eh	Enable Pass-Through

PHx(50h 48h x) — Set Power On Character

x is the power on character, default is ‘.’.

EXAMPLE:

Command Form (Hex)	Set Power On Character
09h 00h 03h 50h 48h 3Ah 28h	‘.’(default)
09h 00h 03h 50h 48h 00h 12h	Disable Power On Character

PTx(50h 54h x) — Set Host Parity & Data Bits(Valid only for Protocol 1)

x is an ASCII number(‘0’-‘4’).

x	Command Form (Hex)	Parity & Data Bits Setting
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'0'	09h 00h 03h 50h 54h 30h 3Eh	E, 7, 1
'1'	09h 00h 03h 50h 54h 31h 3Fh	O, 7, 1
'2'	09h 00h 03h 50h 54h 32h 3Ch	M, 7, 1
'3'	09h 00h 03h 50h 54h 33h 3Dh	S, 7, 1
'4'	09h 00h 03h 50h 54h 34h 3Ah	N, 8, 1(default)

Note: To transmit data output properly, users shall also set output format to USI1 by using the 'TO' command.

PLx(50h 4Ch x) — Determine USI1 BCC Calculation Method

x is an ASCII number '0', '1'.

x	Command Form (Hex)	Meaning
'0'	09h 00h 03h 50h 4Ch 30h 26h	STX not included
'1'	09h 00h 03h 50h 4Ch 31h 27h	STX included(default)

PWx(50h 57h x) — Polling RFID Time

Use 2-byte binary data to set RFID polling period. Range: 0000h-FFFFh = 0-65535ms.

RP<00>(52h 50h 00h) — Request Current Protocol

The reader will return current protocol and baud rate to host after receiving this command.

For example:

PC -> Reader: <09h 00h 03h 52h 50h 00h 08h> or <09h 00h 02h 52h 50h 09h>

Reader -> PC: 30h 35h

where The first byte 'x' 30h means Protocol 2

The second byte 'y' 35h means baud rate 5(38400 bps)

x	Request Protocol
'0'	USI2
'3'	USI0
'6'	USI1

y	Request Baud Rate
'0'	1200
'1'	2400
'2'	4800
'3'	9600(default)
'4'	19200
'5'	38400

'6'	57600
'7'	115200

RNx(52h 4Eh x) — Random Number Seed

x is 30h, 7Fh. If x=30h, 2 bytes of data follow.

x	Command Form (Hex)	Meaning
30h	09h 00h 05h 52h 4Eh 30h FFh FFh 20h	EXAMPLE: Set <FF><FF> as random seed
7Fh	09h 00h 03h 52h 4Eh 7Fh 69h	Read random seed

RIx(52h 49h x) — RF LED indicator ON/OFF

x	Command Form (Hex)	LED indicator
'D'	09h 00h 03h 52h 49h 44h 55h	OFF
'E'	09h 00h 03h 52h 49h 45h 54h	ON(default)

SAx(53h 41h x) — Self-Arm Mode Enable/Disable

x	Command Form (Hex)	Self-Arm Mode Setting
'D'	09h 00h 03h 53h 41h 44h 5Ch	Disable
'E'	09h 00h 03h 53h 41h 45h 5Dh	Enable(default)

SEx(53h 45h x) — Self-Arm Mode Data Envelope Enable/Disable

In the self-arm mode, the default is not to send any protocol information with the magnetic stripe card data.

x	Command Form (Hex)	Self-Arm Mode Data Envelope Setting
'D'	09h 00h 03h 53h 45h 44h 58h	Disable. The data is not wrapped in the current protocol envelope.(default)
'E'	09h 00h 03h 53h 45h 45h 59h	Enable. The data is wrapped in the current protocol envelope.

SNx(53h 4Eh x) — Set Serial Number

x is an up to 8-byte string.

EXAMPLE:

Command Form (Hex)	Serial Number
09h 00h 0Ah 53h 4Eh 31h 30h 30h 30h 30h 30h 30h 31h 1Eh	'10000001'

SPx(53h 50h x) — Set Track Separator

x = 00h means do not send separator code.

EXAMPLE:

x	Command Form (Hex)	Track Separator
00h	09h 00h 03h 53h 50h 00h 09h	Disable(default)
0Dh	09h 00h 03h 53h 50h 0Dh 04h	0Dh, <CR>
2Bh	09h 00h 03h 53h 50h 2Bh 22h	2Bh, <+>

SRx(53h 52h x) — Set Sensor Reporting Enable/Disable

x	Command Form (Hex)	Sensor Report Setting
'D'	09h 00h 03h 53h 52h 44h 4Fh	Disable(default)
'E'	09h 00h 03h 53h 52h 45h 4Eh	Enable

Enable: 's' + card data + 'p'.(for RS232 only)

SVx(53h 4Bh x) — VISA Option

x	Command Form (Hex)	Meaning
00h	09h 00h 03h 53h 56h 00h 0Fh	VISA Option0(default)
01h	09h 00h 03h 53h 56h 01h 0Eh	VISA Option1

TAx(54h 41h x) — Set Track 1 ID

x = 00h means do not send Track 1 ID.

EXAMPLE:

x	Command Form (Hex)	Track 1 ID
00h	09h 00h 03h 54h 41h 00h 1Fh	Disable(default)
31h	09h 00h 03h 54h 41h 31h 2Eh	'1'(31h)

TBx(54h 42h x) — Set Track 2 ID

x = 00h means do not send Track 2 ID.

EXAMPLE:

x	Command Form (Hex)	Track 2 ID
00h	09h 00h 03h 54h 42h 00h 1Ch	Disable(default)
32h	09h 00h 03h 54h 42h 32h 2Eh	'2'(32h)

TCx(54h 43h x) — Set Track 3 ID

x = 00h means do not send Track 3 ID.

EXAMPLE:

x	Command Form (Hex)	Track 3 ID
00h	09h 00h 03h 54h 43h 00h 1Dh	Disable(default)
33h	09h 00h 03h 54h 43h 33h 2Eh	'3'(33h)

TDxy(54h 44h x y) — Set Default TDOL

This Command has the following parameters

x is the length of TDOL, 1 byte binary number.

y is TDOL, 3 bytes max. in binary format.

Note: Command <54h 44h 00h> means disable default TDOL.

EXAMPLE:

Command Form (Hex)	Meaning
09h 00h 06h 54h 44h 03h 9Fh 08h 02h 89h	Set TDOL '9F 08 02'

TKx(54h 4Bh x) — Set Transmitting Data Tracks

x is an ASCII number ('1' - '7').

x	Command Form (Hex)	Transmit Track(s)
'1'	09h 00h 03h 54h 4Bh 31h 24h	Track 1
'2'	09h 00h 03h 54h 4Bh 32h 27h	Track 2
'3'	09h 00h 03h 54h 4Bh 33h 26h	Track 1 & 2
'4'	09h 00h 03h 54h 4Bh 34h 21h	Track 3
'5'	09h 00h 03h 54h 4Bh 35h 20h	Track 1 & 3
'6'	09h 00h 03h 54h 4Bh 36h 23h	Track 2 & 3

'7'	09h 00h 03h 54h 4Bh 37h 22h	Track 1, 2 & 3(default)
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TRx(54h 52h x) — Set CARD data indication on RFID

x	Command Form (Hex)	Meaning
'D'	09h 00h 03h 54h 52h 44h 48h	Track Data Output only
'E'	09h 00h 03h 54h 52h 45h 49h	'R' on RFID output(before SS)

TOx(54h 4Fh x) — Set Transmitting Data Output Format

x is an ASCII number '0', '1', '2'.

x	Command Form (Hex)	Output Format
'0'	09h 00h 03h 54h 4Fh 30h 21h	USI0
'1'	09h 00h 03h 54h 4Fh 31h 20h	USI1
'2'	09h 00h 03h 54h 4Fh 32h 23h	USI2

USBx(55h 53h 42h x) — USB Mode

x	Command Form (Hex)	Mode
00h	09h 00h 04h 55h 53h 42h 00h 49h	HID_KBD
01h	09h 00h 04h 55h 53h 42h 01h 48h	CDC
02h	09h 00h 04h 55h 53h 42h 02h 4Bh	HID_MSR

UDx(55h 44h x) — Set TAC Enable Flag

bit 0=1: Default, bit 1=1: Denial, bit 2=1: Online (other bits: not used)

For example: To enable all TAC, command should be <55h 44h 07h>.

UExyz(55h 45h x y z) — Write Data to User Storage Area

x is the address of user application storage, 1 byte binary number (00h ~ 7Fh).

y is the length of the data, 1byte binary number (01h ~ 80h).

z is the data to be stored. The length is specified in y.

For example: 09h 00h 05h 55h 45h 00h 01h 5Ah 47h, write 1 byte, 5Ah, to user storage address 00h.

URxy(55h 52h x y) — Read Data from User Storage Area

x is the address of user application storage, 1 byte binary number (00h ~ 7Fh).

y is the length of the data, 1byte binary number (01h ~ 80h).

For example: 09h 00h 04h 55h 52h 00h 01h 0Bh, read 1 byte from user storage address 00h.

UTx(55h 54h x) — Set TAC

x is an ASCII number('0', '1', '2'), followed by 5 bytes parameters in binary format.

x	Command Form (Hex)	Mode
'0'	09h 00h 08h 55h 54h 30h 00h 00h 00h 00h 30h	Default
'1'	09h 00h 08h 55h 54h 31h 00h 00h 00h 00h 31h	Denial
'2'	09h 00h 08h 55h 54h 32h 00h 00h 00h 00h 32h	Online

VFx(56h 46h x) — VISA FDDA Version 0

Default is enabled.

x	Command Form (Hex)	Version 0
00h	09h 00h 03h 56h 46h 00h 1Ah	Disable
01h	09h 00h 03h 56h 46h 01h 1Bh	Enable

VMx(56h 4Dh x) — VISA MSD Misc setting

This command has the following parameters

VISA, ISO 3166 Country Codes: 2 bytes

VISA, Transaction Currency Code: 2 bytes

VLP Terminal. Support Indicator: 1 byte

MSD support type: 1 byte; 0 - MSD 2.0.2, 1 - MSD 1.4.2, 2 - Auto

EXAMPLE: 09h 00h 06h 56h 4Dh 08h 40h 08h 40h 00h 02h 18h

Meaning: Country Code '08 40', Currency Code '08 40', VLP Terminal. Support Indicator '00', MSD Type Auto

Vm(56h 6Dh) — Output VISA MSD Misc setting

Output settings of the above 'VMx' command.

VSx(56h 53h x) — VISA MSD Parameters setting

This command has the following parameters

Additional Terminal Capabilities: 5 bytes binary format

VSDC Terminal Transaction Qualifiers: 4 bytes binary format

Amount Authorized(Numeric): 6 bytes

EXAMPLE:

Command Form (Hex)	Meaning
09h 00h 11h 56h 53h 60h 00h 00h 00h 01h A0h 00h 00h 00h 00h 00h 00h 01h 00h DDh	Set ATC '60 00 00 00 01' TTQ 'A0 00 00 00' Amount '00 00 00 00 01 00'

Vs(56h 73h) — Output VISA MSD Parameters setting

Output settings of the above 'VS' command.

VTx(56h 54h x) — VISA Terminal Transaction Qualifier(Tag '9F66') Setting

x is fixed at 4 bytes and has data format of binary.

EXAMPLE: 09h 00h 06h 56h 54h A0h 00h 00h 00h ADh

Meaning: Set TTQ 'A0 00 00 00'

VVx(56h 56h x) — VISA MSD Version setting

x is an Binary number. Default is Auto.

x	Command Form (Hex)	Version
00h	09h 00h 03h 56h 56h 00h 0Ah	2.0.2
01h	09h 00h 03h 56h 56h 01h 0Bh	1.4.2
02h	09h 00h 03h 56h 56h 02h 08h	Auto

VCx(56h 43h x) — VISA CVM Enable

x is an Binary number.

bit 7	.	.	.	.	bit 2	bit 1	bit 0
Not Used						1/0	1/0

bit 0: VISA CVM Required Limit Enable/Disable

bit 1: VISA CVM Processing Enable/Disable

EXAMPLE:

x	Command Form (Hex)	Meaning
01h	09h 00h 03h 56h 43h 01h 1Eh	Enable VISA CVM Required Limit
03h	09h 00h 03h 56h 43h 03h 1Ch	Enable VISA CVM Required Limit & VISA CVM Processing

VLx(56h 4Ch x) — VISA CVM Required Limit setting

x is fixed at 6 bytes and has data format of numeric.

EXAMPLE: 09h 00h 08h 56h 4Ch 31h 30h 30h 30h 30h 30h 1Ah

Meaning: Set Limit '31 30 30 30 30 30'