WDI-2000 User Manual

Version 1.52, April 2017

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1.1.1 Use Serial Command

Users are available to configure module via serial instructions from host. Module is only available to communicte with host devices while communication parameters are completely matched. Default serial communication parameters: **Baud rate 9600bps, no parity check, 8 data bit, 1 stop bit, no fluidic control.**

1.1.1.1 Read Flag Bit

Read device flag bit, 256-byte per time to the max.

Command format:

Input: {Head1} {Types} {Lens} {Address} {Datas} {CRC}

Head1 : 0x7E 0x00 (2 bytes)

Types : 0x07 (1 byte)

Lens : 0x01 (1 byte)

Address : 0x0000~0x00FF (2 bytes), means start address of the flag bit to be read.

Datas : 0x00~0xFF (1 byte), means byte numbers of flag bit to be consecutively read, 0x00 means 256-byte.

CRC : CRC_CCITT check value (2 bytes). Calculation of Types, Lens, Address, and Datas is CRC_CCITT, characteristic polynomial: X16+X12+X5+1, which means polynomial coefficient is 0x1021, initial value is full 0. For single byte, calculate the MSB first, do not need to reverse but output directly. C reference code as below:

```
unsigned int crc_cal_by_bit(unsigned char* ptr, unsigned int len)
{
unsigned int crc = 0;
while(len-- != 0)
{
for(unsigned char i = 0x80; i != 0; i /= 2)
{
crc *= 2;
if((crc&0x10000) !=0) // last bit CRC x 2, if the first bit is 1, divided by 0x11021
crc ^= 0x11021;
if((*ptr&i) != 0) //if the base bit is 1, CRC = last bit CRC + base bit/CRC_CCITT
crc ^= 0x1021;
}
ptr++;
}
return crc;
}
```

P.S: While users do not need CRC check, write 0xAB 0xCD at CRC byte, no check needed.

Return: {Head2} {Types} {Lens} {Datas} {CRC}

1）Read succeeds and return the data

Head2 : 0x02 0x00

Types : 0x00 (read succeeds)

Lens : Means uploaded byte number of Datas, 0x00 means 256

Datas : 0x00~0xFF, means data read out

CRC : CRC_CCITT check value. Calculation of Types, Lens and Datas is CRC_CCITT, characteristic polynomial: X16+X12+X5+1, which means polynomial coefficient is 0x1021, initial value is full 0, For single byte, calculate the MSB first, do not need to reverse but output directly (reference code is the same as above)

2）Send CRC check fails

No response command

3）Unknown command answer

No response command

Examples:

Read 1 address of 0x000A 1）

Read succeeds and return 0x3E

Input: 0x7E 0x00 0x07 0x01 0x00 0x0A 0x01 0xEE 0x8A

Return: 0x02 0x00 0x00 0x01 0x3E 0xE4 0xAC

2）Sent CRC error

Input: 0x7E 0x00 0x07 0x01 0x00 0x0A 0x01 0x11 0x22

Return: None

3）Handle as unknown command while the length of instruction sent is not enough, or wait time is over 400ms after sending 0x7e 0x00

Input: 0x7E 0x00 0x07 0x01 0x00 0x0A 0x01

Return: None

1.1.1.2 Write Flag Bit

Write 256-byte flag bit to the max. for one time on device flag bit.

Command format:

Input: {Head1} {Types} {Lens} {Address} {Datas} {CRC}

Head1 : 0x7E 0x00 (2 bytes)

Types : 0x08 (1 byte)

Lens : 0x00~0xFF (1 byte), means the byte number of Datas in the command, also the times of consecutive write, 0x00 means 256-byte

Address : 0x0000~0xFFFF (2 bytes), means starting address of the flag bit to be writen

Datas : 0x00~0xFF (1~256 bytes), means the data writen to flag bit

CRC : CRC_CCITT check value (2 bytes). Calculation of Types, Lens, Address and Datas is CRC_CCITT, characteristic polynomial: X16+X12+X5+1, which means polynomial coefficient is 0x1021, initial value is full 0. For single byte, calculate the MSB first, do not need to reverse but output directly. C reference code is as below:

```
unsigned int crc_cal_by_bit(unsigned char* ptr, unsigned int len)
{
unsigned int crc = 0;
while(len-- != 0)
{
for(unsigned char i = 0x80; i != 0; i /= 2)
{
crc *= 2;
if((crc&0x10000) !=0) //last bit CRC x 2, if the first bit is 1, divided by 0x11021
crc ^= 0x11021;
if((*ptr&i) != 0) //if base bit is 1, CRC = last bit CRC + base bit/CRC_CCITT
crc ^= 0x1021;
}
ptr++;
}
return crc;
}
```

P.S: While users do not need CRC check, write 0xAB 0xCD at CRC byte, no check needed.

Return: {Head2} {Types} {Lens} {Datas} {CRC}

1）Write succeeds

Head2 : 0x02 0x00

Types : 0x00 (write succeeds)

Lens : 0x01

Datas : 0x00

CRC : CRC_CCITT check value (0x33 0x31)

2）Send CRC check fails

No response command 3）

Unknown command response

Examples:

Write 0x3E on flag bit address of 0x000A

1） Set succeeds

Input: 0x7E 0x00 0x08 0x01 0x00 0x0A 0x3E 0x4C 0xCF

Return: 0x02 0x00 0x00 0x01 0x00 0x33 0x31

2） Sent CRC error

Input: 0x7E 0x00 0x08 0x01 0x00 0x0A 0x3E 0x11 0x22

Return: None

3） Handle as unknown command while the length of instruction sent is not enough, or wait time is over 400ms after sending 0x7e 0x00

Input: 0x7E 0x00 0x08 0x01 0x00 0x0A 0x3E

Return: None

1.1.1.3 Save flag bit to instruction of EEPROM

Send the command of save if it is needed to save contents of flag bit to external EERPOM.

Command format:

Input: {Head1} {Types} {Lens} {Address} {Datas} {CRC}

Head1 : 0x7E 0x00

Types : 0x09

Lens : 0x01

Address : 0x0000

Datas : 0x00

CRC : CRC_CCITT check value (0xDE 0xC8)

Return: {Head2} {Types} {Lens} {Datas} {CRC} 1）

Save succeeds

Head2 : 0x02 0x00

Types : 0x00 (write succeeds)

Lens : 0x01

Datas : 0x00

CRC : CRC_CCITT check value (0x33 0x31)

2）Send CRC check fails

3）Unknown command response

No response command

1.1.1.4 Flag bit restores to factory settings

Send command of restore factory settings if it is needed to restore contents of flag bit to factory settings and save to external EERPOM.

Command format:

Input: {Head1} {Types} {Lens} {Address} {Datas} {CRC}

Head1 : 0x7E 0x00

Types : 0x09

Lens : 0x01

Address : 0x0000

Datas : 0xFF

CRC : CRC_CCITT check value **Return:**

{Head2} {Types} {Lens} {Datas} {CRC} 1）Save

succeeds

Head2 : 0x02 0x00

Types : 0x00 (write succeeds)

Lens : 0x01

Datas : 0x00

CRC : CRC_CCITT check value (0x33 0x31)

2）Send CRC check fails

No response command 3）

Unknown command response No

response command

1.1.1.5 Erase program

Select erase BOOT and user program to erase device program, do not use erase command.

Command format:

Input: {Head1} {Types} {Lens} { NotUse } {Datas} {CRC}

Head1 : 0x7E 0x00 (2 bytes)

Types : 0x05 (1 byte)

Lens : 0x01 (1 byte), means the byte number of Datas in the command, also the times of consecutive write, 0x00 means 256-byte

NotUse : 0x0000 (2 bytes), 2-byte 0x00

Datas : 0x11/0x22/0x33 (1 bytes), means writen data; 0x11 means to erase BOOT, 0x22 means erase user program, 0x33 means erase BOOT and user program (use 0x22 while users update their code, 0x11/0x33 are for manufacturer debugging only)

CRC : CRC_CCITT check value (2 bytes). Calculation of Types, Lens, NotUse and Datas is CRC_CCITT, characteristic polynomial: X16+X12+X5+1, which means polynomial coefficient is 0x1021, initial value is full 0. For single byte, calculate the MSB first, do not need to reverse but output directly. C reference code is as below:

```
unsigned int crc_cal_by_bit(unsigned char* ptr, unsigned int len)
{
unsigned int crc = 0;
while(len-- != 0)
{
for(unsigned char i = 0x80; i != 0; i /= 2)
{
crc *= 2;
if((crc&0x10000) !=0) //last bit CRC x 2, if first bit is 1, divided by 0x11021
crc ^= 0x11021;
if((*ptr&i) != 0) //if base bit is 1, CRC = last bit CRC + base bit/CRC_CCITT
crc ^= 0x1021;
}
ptr++;
}
return crc;
}
```

P.S : While users do not need CRC check, write 0xAB 0xCD at CRC byte, no check needed.

Return: {Head2} {Types} {Lens} {Datas} {CRC}

1) Erase succeeds

Head2 : 0x02 0x00

Types : 0x00 (write succeeds)

Lens : 0x01

Datas : 0x00

CRC : CRC_CCITT check value (0x33 0x31)

2) Send CRC check fails

No response command

3) Unknown command response

No response command

Examples:

Erase user program, device automatically enters BOOT and wait to download new user program after erasing user program

4） Erase succeeds

Input: 0x7E 0x00 0x05 0x01 0x00 0x00 0x22 xx xx

Return: 0x02 0x00 0x00 0x01 0x00 0x33 0x31

5） Sent CRC error

Input: 0x7E 0x00 0x05 0x01 0x00 0x00 0x22 xx xx

Return: None

6） Handle as unknown command while the length of instruction sent is not enough, or wait time is over 400ms after sending 0x7e 0x00

Input: 0x7E 0x00 0x05 0x01 0x00 0x00 0x22

Return: None

1.1.1.6 List of Flag Bit

Flag bit	*0x0000*
Data bit	Function
Bit 7	1: Enable LED indication of decode succeeds 0: Disable LED indication of decode succeeds
Bit 6	1: Disable silence 0: Enable silence
Bit 5-4	00: No aiming 01: Normal 10/11: Always on
Bit 3-2	00: No lighting 01: Normal 10/11: Always on

Bit 1-0	00: Manual mode 01: Command triggered mode 10: Continuous mode 11: Inductive mode
Flag bit	*0x0002*
Data bit	Function
Bit 7-0	Reserved
Flag bit	*0x0003*
Data bit	Function
Bit 7-2	HID inquiry period. Period = (Reg0x0003[7:2]+1) ms
Bit 1	1: Disable setup code 0: Enable setup code
Bit0	1: Output contents of setup code 0: Do not output contents of setup code
Flag bit	*0x0004*
Data bit	Function
Bit 7-0	Image stabilization time 0x00-0xFF: 0.0-
Flag bit	*0x0005*
Data bit	Function
Bit 7-0	Read interval time 0x00-0xFF: 0.0-25.5s
Flag bit	*0x0006*
Data bit	Function
Bit 7-0	Single read time 0x00-0xFF: 0.0-25.5s
Flag bit	*0x0007*
Data bit	Function
Bit 7	Auto DeepSleep function 1: Enable 0: Do not enable
Bit6-0	Idle time (high byte Bit14-8) Unit: 100ms
Flag bit	*0x0008*

Data bit	Function
Bit 7-0	Idle time (low byte Bit7-0) Unit: 100ms
Flag bit	*0x0009*
Data bit	Function
Bit7-2	Interval before HID released. Interval = (Reg0x0009[7:2]) ms
Bit 1-0	Image flip 00: Disable image flip 01: Enable image flip 10/11: Reserved
Flag bit	*0x000B*
Data bit	Function
Bit 7-0	Read succeeds sound 0x00-0xFF; 0-255ms
Flag bit	*0x000C*
Data bit	Function
Bit 7-2	Interval after HID released. Interval = (Reg0x000C[7:2]) ms
Bit1	CapsLock on/ff. 0: Off 1: On
Bit0	Buzzer mode, default level 0: High level while idle, low level while busy 1: Low level while idle, high level while busy
Flag bit	*0x000D*
Data bit	Function
Bit 7-6	Reserved
Bit5-4	Input data coding format 00: GBK 01: Reserved 10: AUTO 11: UTF8
Bit 3-2	Output data coding format 00: GBK 01: UNICODE 10: Reserved 11: UTF8
Bit1-0	00: Serial output 01: USB PC keyboard 10: Reserved 11: USB virtual serial port
Flag bit	*0x000E*
Data bit	Function

Bit 7-4	Sleep time. Sleep time = (Reg0x000E[7:4]*500) ms
Bit3	Reserved
Bit2	1: Enable decode succeed sound 0: Disable decode succeed sound
Bit1-0	Reserved
Flag bit	*0x000F*
Data bit	Function
Bit7-0	Sensitivity adjust parameter 1 0x00-0xFF: The higher the valule, the lower the sensitivity is, default value 0x32
Flag bit	*0x0010*
Data bit	Function
Bit 7-0	Sensitivity adjust parameter 2 0x00-0xFF: The higher the valule, the lower the sensitivity is, default value 0x0A
Flag bit	*0x0011*
Data bit	Function
Bit 7-0	Exposure value - high byte 0x00-0xFF
Flag bit	*0x0012*
Data bit	Function
Bit 7-0	Exposure value - low byte 0x00-0xFF
Flag bit	*0x0013*
Data bit	Function
Bit 7	Same bar code read delay 0: Disable same bar code read delay 1: Enable same bar code read delay
Bit 6-0	Same bar code read delay time (unit: 100ms) 0x00: Infinite 0x01-0x7F: 0.1-12.7s
Flag bit	*0x0014*
Data bit	Function

Bit 7-0	Message output reserved time (unit: 10ms) 0x00-0xFF: 0-2.55s
Flag bit	*0x002B , 0x2A*
Data bit	Function
Bit 15-13	Reserved
Bit 12-0	0x09C4: Serial Baud rate 1200 bps 0x0271: Serial Baud rate 4800 bps 0x0139: Serial Baud rate 9600 bps 0x00D0: Serial Baud rate 14400 bps 0x009C: Serial Baud rate 19200 bps 0x004E: Serial Baud rate 38400 bps 0x0034: Serial Baud rate 57600 bps 0x001A: Serial Baud rate 115200bps
Flag bit	*0x002C*
Data bit	Function
Bit 7-4	Reserved
Bit3	Decode range 0: Full area 1: Central area only
Bit 2-1	Bar code switch 00: Disable reading all bar codes; 01: Enable reading all bar codes; 10/11: Open default readable bar code
Bit 0	Read 360 °tilt bar code 0: Disable tilt 1: Enable tilt
Flag bit	*0x002D*
Data bit	Function
Bit 7-0	Central area range 0x01-0x64: 1%-100% Other value: 50%
Flag bit	*0x002E*
Data bit	Function
Bit 7-1	Reserved
Bit0	Read EAN13 0: Disable reading EAN13 1: Enable reading EAN13

Flag bit	*0x002F*
Data bit	Function
Bit 7-1	Reserved
Bit0	Read EAN8 0: Disable reading EAN8 1:Enable reading EAN8
Flag bit	*0x0030*
Data bit	Function
Bit 7-1	Reserved
Bit0	Read UPCA 0: Disable reading UPCA 1: Enable reading UPCA
Flag bit	*0x0031*
Data bit	Function
Bit 7-1	Reserved
Bit0	Read UPCE0 0: Disable reading UPCE0 1: Enable reading UPCE0
Flag bit	*0x0032*
Data bit	Function
Bit 7-1	Reserved
Bit0	Read UPCE1 0: Disable reading UPCE1 1: Enable reading UPCE1
Flag bit	*0x0033*
Data bit	Function
Bit 7-1	Reserved
Bit0	Read Code128 0: Disable reading Code128 1: Enable reading Code128
Flag bit	*0x0034*
Data bit	Function

Bit 7-0	Code128 message min. length 0x00-0xFF: 0-255Byte
Flag bit	*0x0035*
Data bit	Function
Bit 7-0	Code128 message max. length 0x00-0xFF: 0-255Byte
Flag bit	*0x0036*
Data bit	Function
Bit 7-1	Reserved
Bit0	Read Code39 0: Disabel reading Code39 1: Enable reading Code39
Flag bit	*0x0037*
Data bit	Function
Bit 7-0	Code39 message min. length 0x00-0xFF: 0-255Byte
Flag bit	*0x0038*
Data bit	Function
Bit 7-0	Code39 message max. length 0x00-0xFF: 0-255Byte
Flag bit	*0x0039*
Data bit	Function
Bit 7-1	Reserved
Bit0	Read Code93 0: Disable reading Code93 1: Enable reading Code93
Flag bit	*0x003A*
Data bit	Function
Bit 7-0	Code93 message min. length 0x00-0xFF: 0-255Byte
Flag bit	*0x003B*
Data bit	Function

Bit 7-0	Code93 message max. length 0x00-0xFF: 0-255Byte
Flag bit	*0x003C*
Data bit	Function
Bit 7-2	Reserved
Bit1	CodeBar code to transmit start/tail 0: Disable transmitting start/tail 1: Enable transmitting start/tail
Bit0	Read CodeBar 0: Disable reading CodeBar 1: Enable reading CodeBar
Flag bit	*0x003D*
Data bit	Function
Bit 7-0	CodeBar message min. length 0x00-0xFF: 0-255Byte
Flag bit	*0x003E*
Data bit	Function
Bit 7-0	CodeBar message max. length 0x00-0xFF：0-255Byte
Flag bit	*0x003F*
Data bit	Function
Bit 7-1	Reserved
Bit0	Read QR code 0: Disable reading QR code 1: Enable reading QR code
Flag bit	*0x0040*
Data bit	Function
Bit 7-1	Reserved
Bit0	Read Interleaved 2 of 5 0: Disable reading Interleaved 2 of 5 1: Enable reading Interleaved 2 of 5
Flag bit	*0x0041*
Data bit	Function

Bit 7-0	Interleaved 2 of 5 message min. length 0x00-0xFF: 0-255Byte
Flag bit	*0x0042*
Data bit	Function
Bit 7-0	Interleaved 2 of 5 message max. length 0x00-0xFF: 0-255Byte
Flag bit	*0x0043*
Data bit	Function
Bit 7-1	Reserved
Bit0	Read Industrial 25 0: Disable reading Industrial 25 1: Enable reading Industrial 25
Flag bit	*0x0044*
Data bit	Function
Bit 7-0	Industrial 25 message min. length 0x00-0xFF: 0-255Byte
Flag bit	*0x0045*
Data bit	Function
Bit 7-0	Industrial 25 message max. length 0x00-0xFF: 0-255Byte
Flag bit	*0x0046*
Data bit	Function
Bit 7-1	Reserved
Bit0	Read Matrix 2 of 5 0: Disable reading Matrix 2 of 5 1: Enable reading Matrix 2 of 5
Flag bit	*0x0047*
Data bit	Function
Bit 7-0	Matrix 2 of 5 message min. length 0x00-0xFF: 0-255Byte
Flag bit	*0x0048*
Data bit	Function

Bit 7-0	Matrix 2 of 5 message max. length 0x00-0xFF: 0-255Byte
Flag bit	*0x0049*
Data bit	Function
Bit 7-1	Reserved
Bit0	Read Code11 0: Disable reading Code11 1: Enable reading Code11
Flag bit	*0x004A*
Data bit	Function
Bit 7-0	Code11 message min. length 0x00-0xFF: 0-255Byte
Flag bit	*0x004B*
Data bit	Function
Bit 7-0	Code11 message max. length 0x00-0xFF：0-255Byte
Flag bit	*0x004C*
Data bit	Function
Bit 7-1	Reserved
Bit0	Read MSI 0: Disable reading MSI 1: Enable reading MSI
Flag bit	*0x004D*
Data bit	Function
Bit 7-0	MSI message min. length 0x00-0xFF: 0-255Byte
Flag bit	*0x004E*
Data bit	Function
Bit 7-0	MSI message max. length 0x00-0xFF: 0-255Byte
Flag bit	*0x004F*
Data bit	Function

Bit 7-1	Reserved
Bit0	Read RSS-14 0: Disable reading RSS-14 1: Enable reading RSS-14
Flag bit	*0x0050*
Data bit	Function
Bit 7-1	Reserved
Bit0	Read finite RSS code 0: Disable reading finite RSS code 1: Enable reading finite RSS code
Flag bit	*0x0051*
Data bit	Function
Bit 7-1	Reserved
Bit0	Read extended RSS code 0: Disable to read extended RSS code 1: Enable to read extended RSS code
Flag bit	*0x0052*
Data bit	Function
Bit 7-0	RSS message min. length 0x00-0xFF: 0-255Byte
Flag bit	*0x0053*
Data bit	Function
Bit 7-0	RSS message max. length 0x00-0xFF: 0-255Byte
Flag bit	*0x0054*
Data bit	Function
Bit 7-1	Reserved
Bit0	Read DM code 0: Disable reading DM code 1: Enable reading DM code
Flag bit	*0x0055*
Data bit	Function

Bit 7-1	Reserved
Bit0	Read PDF417 0: Disable reading PDF417 1: Enable reading PDF417
Flag bit	*0x0060*
Data bit	Function
Bit 7	serial/virtual serial port output with/without protocol. 0: Original data 1: With protocol
Bit6-5	Tail suffix type 00: CR (0x0D) 01: CRLF (0x0D,0x0A) 10: TAB (0x09) 11: None
Bit4	1: Enable adding RF information 0: Disable adding RF information
Bit3	1: Enable adding prefix 0: Disable adding prefix
Bit2	1: Enable adding Code ID 0: Disable adding Code ID
Bit1	1: Enable adding suffix 0: Disable adding suffix
Bit0	1: Enable adding tail 0: Disable adding tail
Flag bit	*0x0061*
Data bit	Function
Bit 7-0	Keyboard settings of different countries 00: USA 01: Czekh 02: France 03: Germany 04: Hungry 05: Italy 06: Japan 07: Spain 08: Turkey Q 09: Turkey F
Flag bit	*0x0062*
Data bit	Function
Bit 7-4	Prefix character length 0x00-0x0F: Prefix character length
Bit3-0	Suffix character length 0x00-0x0F: Suffix character length
Flag bit	*0x0063 – 0x0071*
Data bit	Function
Bit 7-0	Prefix 0x00-0xFF: Prefix: Prefix character value, 15Byte to the max.

Flag bit	*0x0072 - 0x0080*
Data bit	Function
Bit 7-0	Suffix 0x00-0xFF: Suffix character value, 15Byte to the max.
Flag bit	*0x0081*
Data bit	Function
Bit 7-4	Reserved
Bit3-0	RF information length 0x00-0x0F: RF information length
Flag bit	*0x0082– 0x0081*
Data bit	Function
Bit 7-0	RF information 0x00-0xFF: RF information character, 15Byte to the max.
Flag bit	*0x0091 – 0x00A4*
Data bit	Function
Bit 7-0	Code ID character 0x41-0x5a & 0x61-0x7a (A-Z, a-z): Corresponding Code ID characters (details see appendix C)
Flag bit	*0x00B0*
Data bit	Function
Bit 7-2	Reserved
Bit 1-0	Data character capture 00: Transmit all Data characters 01: Transmit M Data characters only 10: Transmit: Transmit N Data characters only 11: Do not transmit M+N Data characters
Flag bit	*0x00B1*
Data bit	Function
Bit 7-0	Earlier captured length M 0x00-0xFF: 0-255 characters
Flag bit	*0x00B2*
Data bit	Function

Bit 7-0	Later captured length N 0x00-0xFF: 0-255 characters
Flag bit	*0x00D9* (write-only flag bit)
Data bit	Function
Bit 7-0	Function flag bit 0x50: Restore factory settings 0x55: Restore custom factory settings 0x56: Save current settings as custom factory settings 0xA0: Sleep mode, could be waken by serial interrupt, the serial command is valid; Sleep consumption 18mA 0xA5: DeepSleep, could be waken by serial interrupt, and then reboot the device, the serial command is invalid; Sleep consumption 1.8mA 0x00: Write 0 to wake device from Sleep
Flag bit	*0x00E0* (read-only flag bit)
Data bit	Function
Bit 7-0	Product model 0x05: SD-MG1S02
Flag bit	*0x00E1* (read-only flag bit))
Data bit	Function
Bit 7-0	Hardware version 0x64: V1.00 0x6E: V1.10 0x78: V1.20 0x82: V1.30 0x8C: V1.40 .....
Flag bit	*0x00E2* (read-only flag bit)
Data bit	Function
Bit 7-0	Software version 0x64: V1.00 0x6E: V1.10 0x78: V1.20 0x82: V1.30 0x8C: V1.40 .....
Flag bit	*0x00E3* (read-only flag bit)

Data bit	Function
Bit 7-0	Software year (add 2000 based on the value to indicate year) 0x0F: 2015 0x10: 2016 0x11: 2017 .....
Flag bit	*0x00E4* (read-only flag bit)
Data bit	Function
Bit 7-0	Software month (it means month) 0x09: September 0x0A: October 0x0B: November .....
Flag bit	*0x00E5* (read-only flag bit)
Data bit	Function
Bit 7-0	Software date (it means date) 0x09: 9th 0x0A: 10th 0x0B: 11th .....

1.5.2 Setup Code Switch

Enable setup code functions, scan setup code to set parameters.

***Enable setup code**

Disable setup code

Output content of setup code

***Do not output content of setup code**

Output content of setup code

1.5.3 Restore Factory Settings

Scan “Restore factory settings” to restore factory settings.

Restore factory settings

1.5.4 User Default Settings

Except for factory settings, users could save most used settings to user default settings. Scan “save current settings as user default settings” to save current settings as user default settings. If there is already user default settings, the newly saved settings will replace the old user default settings.

Scan “restore user default settings” to switch to user default settings.

Save current settings as user default settings

Restore user default settings

2 Communication Interface

SD-MG1S02 has TTL-232 to connect with host, through the communication interface, it is available to receive data, control instructions and revise functional parameters and so on.

2.1 Serial Communication Interface

Serial communication interface is a common method to connect module and the host device (such as PC, POS etc). While module is connect with host via serial cable, it is default to use serial communication mode, while module must be completed matched with the host device on communication parameter settings to make sure smooth communication and correct contents.

Serial output

TTL-232 is used, and the interface is compatible with most of the system frames. If a system needs to use RS-232, it is needed to add external change-over circuit.

Default parameters as shown in Table 2- 1. Among them, Baud rate could be revised via serial commands, others are not available to be revised.

Table 2- 1 Default serial communication paramters

Parameter	Default
Type	Standard TTL-232
Baud rate	9600
Check	None
Data bit	8
Stop bit	1
Hardware fluidic	None

Baud rate settings

1200bps

4800bps

***9600bps**

14400bps

19200bps

38400bps

57600bps

115200bps

2.2 USB Interface

While module is connected with host via USB cable, scan USB PC setup code to configure the module to standard keyboard input mode.

***USB PC keyboard**

Or scan the following setup codes to revise PC's access periods to HID device.

*1ms

3ms

5ms

10ms

Or scan the following setup codes to revise intervals between valid message and release message.

*0ms

1ms

5ms

10ms

15ms

Or scan the following setup codes to revise intervalas between release message and next valid message.

0ms

*1ms

5ms

10ms

15ms

Or scan the following setup codes to revise CapsLock status while output.

*Off

On

2.3 USB Virtual Serial Port

While module is connected with host via USB cable, scan USB virtual serial port setup code to configure the module to virtual serial output mode.

USB virtual serial port

3 Read Mode

3.1 Manual Mode

Manual mode is the default mode. Under the mode, module starts to read after the trigger button is pressed, stop reading while read succeeds and output message or trigger button is released.

***Manual mode**

Under the mode, the module automatically enters into DeepSleep mode after it's been idle for certain time. Scan the following setup codes to configure.

Enable Sleep mode

***Disable Sleep mode**

Press to wakeup from Sleep mode, device will reboot after exit from Sleep mode.

And while DeepSleep mode is not enabled, scan the following setup codes to configure idle time of Sleep mode.

0ms

***500ms**

3000ms

5000ms

3.2 Continuous Mode

After configuration, module starts to read without being triggered, it waits for certain time (available to be set) to automatically start another reading while read succeeds and output message or finish single read. Module works with the loop if the following situation does not happen: users can single click trigger button to pause reading. Single click the trigger button to continue with loop.

Continuous mode

Single read time

Under the continuous mode, the parameter means the max. length of time for continuous reading before it succeeds. After reading succeeds or single read timeout, the module will enter interval that it doesn't read. The single read range is set 0.1~25.5s, step size 0.1s; while it is set as 0, means infinite. The default time is 5.0s.

1000ms

3000ms

***5000ms**

Infinite

Read interval time

The parameter means interval between adjacent two readings, which is after last reading (succeed or not), do not read during the set interval time, and start next reading until it ends. The time range is set 0~25.5s, step size 0.1s. The default time is 1.0s.

No interval

500ms

***1000ms**

1500ms **2000ms**

Same bar code read delay

To avoid one bar code to be consecutively read for multiple times, it is available to set module not to read out a same bar code during a certain consecutive time.

The delay means after reading the same bar code, it compares with the last read time, only when the interval time is longer than delay time, it is allowed to read out the same bar code, otherwise not allow to output.

Same bar code read delay

***Same bar code does not read delay**

Same bar code read delay time

While t is enabled, scan the following setup codes to set the delay time.

Infinite delay

500ms

1000ms

3000ms

5000ms

3.3 Inductive Mode

After configuration, module immediately starts to monitor the brightness of surroundings without being triggered, it waits until the set image stabilization time ends to read while the scene changes. The module waits for certain time (available to be set) to start monitoring again while read succeeds and output message or single read timeout. Module works the loop if the following situation does not happen: it doesn't scan a bar code within a single read time, the module will automatically pause and enter monitor status. Under the inductive mode, it starts to read while the trigger button is pressed, and keep monitoring the brightness of surroundings while read succeeds and output message or trigger button is released

Inductive mode

Single read time

Under the inductive mode, the parameter means the max. length of time for continuous reading before it succeeds. After reading succeeds or single read timeout, the module will enter interval that it doesn't read. The single read range is set 0.1~25.5s, step size 0.1s; while it is set as 0, means infinite. The default time is 5.0s.

1000ms

3000ms

***5000ms**

Infinite

Read interval time

After reading succeeds and output message or single read timeout, the module will enter monitor status again after a certain time (available to be set). The time range is set 0~25.5s, step size 0.1s. The default time is 1.0s.

No interval

500ms

***1000ms**

1500ms

2000ms

Image stabilization time

Image stabilization time means under the inductive mode, time needed for image to be stabilized while scene change is detected. The time range is set 0~25.5s, step size 0.1s. The default time is 0.4s.

100ms

***400ms**

1000ms

2000ms

Sensitivity

Sensitivity means under the inductive mode, to detect scene changing. While the changing meets the requirement, module changes from monitoring status to reading status.

***Normal sensitivity**

Low sensitivity

High sensitivity

Super high sensitivity

Same bar code read delay

To avoid one bar code to be consecutively read for multiple times, available to set module not to read out a same bar code during a certain consecutive time. Setup code is the same as in continuous mode.

3.4 Command Triggered Mode

Under the mode, module starts to read after receiving host command to scan (wirte “1” to bit0 of 0x0002), stops reading after reading succeeds and output message or single read finishes.

Command triggered mode

P.S: Under the command triggered mode, the serial instruction to trigger is 7E 00 08 01 00 02 01 AB CD; after receiving the instruction, module would output a 7-byte reply message (02 00 00 01 00 33 31) and start to scan.

Single read time

Under the mode, the parameter means the max. length of time for continuous reading before it succeeds. The single read range is set 0.1~25.5s, step size 0.1s; while it is set as 0, means infinite. The defaulttime is 5.0s.

1000ms

3000ms

***5000ms**

Infinite

4 Read Area

Users need different readable areas for different applications, scan following setup codes to configure.

4.1 Full Area

While the read area is full area, module would scan from center, bar code could be at any position.

***Full area**

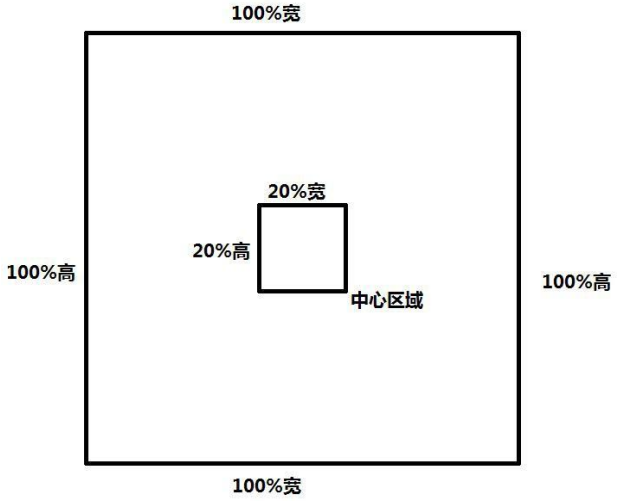
4.2 Central Area Only

While it is central are only, central location of a bar code must be in central area, otherwise it wouldn't be recognized and output.

Central area only

Set size of central area:

Central area is an center point area of a whole image, size of the area is based on certain width or height percentage of a whole image, range 1-100; if set the value 20, it means an area of 20% of the width and height of the image is central area.



Revise size of central area.

Scan the following setup code to set size of central area:

Central area-20% **Central area-40%** **Central area-60%**

Scan “Revise the size of central area” setup code to customize and set while a common central area size is not enough.

Revise the size of central area

Example: Revise central area size to 50%.

1. Check character table to get corresponding hexademical character of “50” is “32”
2. Make sure setup code is enabled, if it is not, scan “enable setup code” (see 1.5.2)
3. Scan “revise the size of central area”
4. Orderly scan data setup code “3”, “2” (see appendix E)
5. Scan “save” (see appendix F)

5 Lighting and Aiming

5.1 Lighting

Users to select any of them based on application environment.

Normal (default): Light is on while work, otherwise off.

Always on: Light is always on while module starts to work.

No lighting: No lighting under any circumstances.

***Normal**

Always on

No lighting

5.2 Aiming

It helps to find the best read distane. Users to select any mode based on application environments.

Normal (default): Aiming while module works only.

Always on: Always on while module starts to work.

No aiming: No aiming under any circumstances.

***Normal**

Always on

No aiming

6 Indication Output

6.1 All Indication Sound

Scan “buzzer drive frequency” to set buzzer to active/passive buzzer, and set drive frequency of passive buzzer as well.

Buzzer drive frequency-passive low frequency

***Buzzer drive frequency-passive mid frequency**

Buzzer drive frequency-passive high frequency

Buzzer drive frequency-active drive

Under passive buzzer mode, scan “buzzer operational level-high” to set the level low while idle, and high while work; scan “buzzer operational level-low” to set the level high while idle, and low while work.

***Buzzer operational level-high**

Buzzer operational level-low

Scan “enable silence” to disable all indication sound. Scan “disable silence” to cancel silence.

Enable silence

***Disable silence**

6.2 Read Succeeds Indication Sound

Scan “disable indication sound of decode succeeds” to disable the indication sound of decode succeeds, scan “Enable indication sound of decode succeeds” to resume.

***Enable indication sound of decode succeeds**

disable indication sound of decode succeeds

Read “indication sound duration” to set the duration. Default 60ms.

Indication sound duration-30ms

***Indication sound duration-60ms**

Indication sound duration-90ms

Indication sound duration-120ms

6.3 Data Coding Format

For module to read all Chinese bar code of different coding formats, scan “input data coding format” to set.

***Input data coding format GBK**

Input data coding format UTF8

Input data coding format AUTO

For host to print all Chinese data with appointed coding format, scan “output data coding format” to set.

P.S: GBK could be used for notepad, UNICODE could be used for WORD and input box of a commonly used instant message tool.

***Output data coding format GBK**

Output data coding format UNICODE

Output data coding format UTF8

6.4 Keyboard Settings of Different Countries

Read “Keyboard” of different countries for host of different countries to use devices.

***USA**

Czech

France

Germany

Hungry

Italy

Japan

Spain

Turkey F

Turkey Q

6.5 Image Flip

In actual cases, we see mirror images or flip vertical images as below:

原始图像　　镜像翻转

While bar code is flipped, enter mirror image flip mode by scanning related setup code.

Enter mirror image flip mode　　***Exit from mirror image flip mode**

P.S: Under the mirror image flip mode, it reads mirror fliped bar code only. Pls. Exit from the mode if it is needed to read normal code or setup code.

6.6 Black and White Flip

In some special cases, black and white part of a bar code could reverse, it it available to configure module to read normal and reversed bar code by scanning the following setup codes.

*One-dimensional code to disable inverse decoding　　One-dimensional code to enable inverse decoding

*Two-dimensional code to disable inverse decoding　　Two-dimensional code to enable inverse decoding

6.7 Read Version

Scan “Read version” for host to fast read and confirm version information of current device.

Read version

7 Edit Data

In actual applications, it is sometimes needed to edit the data and output for the convenience of distinguishing and processing.

Data edit covers:

- Add Prefix
- Add Suffix
- Capture Data seg
- Output CodeID
- Output RF info character after decode fails
- Add Tail

After processing, default output sequence as below:

【Prefix】【CodeID】【Data】【Suffix】【Tail】

7.1 Prefix

Add prefix

Prefix is a user customized character string before decoding, scan “enable to add prefix” to add.

Enable to add prefix

***Do not add prefix**

Revise prefix

Scan “revise prefix” and data setup code, users can revise the contents of prefix, describe each prefix character with 2 hexadecimal values, prefix is 15 characters to the max., see appendix D for hexadecimal conversion table.

Revise prefix

Example: Revise user custom prefix to “DATA”.

1. Check character table to get corresponding hexademical value of “DATA” are “44”, “41”, “54”, “41”

2. Make sure setup code is enabled, if it is not, scan “enable setup code” (see chapter 1.5.2)
3. Scan “revise prefix”
4. Orderly scan data setup code “4”, “4”, “4”, “1”, “5”, “4”, “4”, “1”
5. Scan “save”

7.2 Suffix

Add suffix

Suffix is a user customized character string after decoding, scan “enable to add suffix” to add.

Enable to add suffix

***Do not add suffix**

Revise suffix

Scan “revise suffix” and data setup code, users can revise the contents of suffix, describe each suffix character with 2 hexadecimal values, suffix is 15 characters to the max., see appendix D for hexadecimal conversion table.

Revise suffix

Example: Revise user custom suffix to “DATA”.

1. Check character table to get corresponding hexademical value of “DATA” are “44”, “41”, “54”, “41”
2. Make sure setup code is enabled, if it is not, scan “enable setup code” (see chapter 1.5.2)
3. Scan “revise suffix”
4. Orderly scan data setup code “4”, “4”, “4”, “1”, “5”, “4”, “4”, “1”
5. Scan “save”

7.3 CODE ID

Add CODE ID

Use CODE ID to mark different bar code type, users can reivse different CODE ID freely, CODE ID is marked by a character.

Enable to add CODE ID

***Do not add CODE ID**

CODE ID default value

Scan “CODE ID default value”, each corresponding CODE ID could be restored to default value, see appendix C.

Restore CODE ID of all bar codes to default value

Revise CODE ID

Users can revise corresponding CODE ID freely, by scanning related setup code and data setup code. Describe each corresponding CODE ID character with a hexadecimal value, see appendix D for hexadecimal conversion table.

Example: Revise CODE ID of CODE 128 to “A”.

1. Check character table to get corresponding hexademical value of “A” is “41”
2. Make sure setup code is enabled, if it is not, scan “enable setup code” (see chapter 1.5.2)
3. Scan “revise CODE ID of CODE 128”
4. Orderly scan data setup code “4”, “1”
5. Scan “save”

Revise CODE ID of different bar codes:

Revise CODE ID of EAN13

Revise CODE ID of EAN8

Revise CODE ID of UPCA

Revise CODE ID of UPCE0

Revise CODE ID of UPCE1

ReviseCODE ID of CODE 128

Revise CODE ID of CODE 39

Revise CODE ID of CODE 93

Revise CODE ID of CODE BAR

Revise CODE ID of Interleaved 2 of 5

Revise CODE ID of Industrial 25

Revise CODE ID of Matrix 2 of 5

Revise CODE ID of CODE 11

Revise CODE ID of MSI

Revise CODE ID of RSS

Revise CODE ID of finite RSS

Revise CODE ID of extended RSS

Revise CODE ID of QR CODE

Revise CODE ID of Data Matrix

Revise CODE ID of finite PDF417

7.4 Tail

Enable the function for host to distinguish the decoding results quickly.

Read “Add tail” to enable the function, if read succeeds, add related tail after decoding.

Disable tail

***Add tail CR**

Add tail TAB

Add tail CRLF

7.5 Capture Data Segment

Enable the function if users need to output part of decode information.

Divide【Data】into 3 parts:

【Start】【Center】【End】

Character length of Start and End could be scanned to control.

Users to scan following setup codes to choose to output certain part of decode information.

***Transmit whole Data seg**

Transmit Start seg only

Transmit End seg only **Transmit Center seg only**

Revise Start seg length M

Scan “revise earlier captured length M” and Data setup code to revise length of Start seg, 255 characters in Start seg to the max. M is described with a hexademical character, corresponding conversion table see appendix D.

Revise earlier captured length M

Revise End seg length N

Scan “revise later captured length N” and Data setup code to revise length of End seg, 255 characters in End seg to the max. N is described with a hexademical character, corresponding conversion table see appendix D.

Revise later captured length N

Transmit Start seg only

Example: While decode information is “1234567890123ABC”, output “1234567890123” only.

1. Check character table to get corresponding hexademical character of demical data “13” is “0D”
2. Make sure setup code is enabled, if it is not, scan “enable setup code” (see chapter 1.5.2)
3. Scan “revise earlier captured length M”
4. Orderly scan data setup code “0”, “D”
5. Scan “save”
6. Scan “transmit Start seg only”

Transmit End seg only

Example: While decode information is “1234567890123ABC”, output “ABC” only.

1. Check character table to get corresponding hexademical character of demical data “3” is “03”
2. Make sure setup code is enabled, if it is not, scan “enable setup code” (see chapter 1.5.2)
3. Scan “revise later captured length N”
4. Orderly scan data setup code “0”, “3”
5. Scan “save”

6. Scan “transmit End seg only”

Transmit Center seg only.

Example: While decode information is “1234567890123ABC”, output “0123” only.

1. Check character table to get corresponding hexademical character of demical data “10” “3” is “0A”, “03”
2. Make sure setup code is enabled, if it is not, scan “enable setup code” (see chapter 1.5.2)
3. Scan “revise later captured length N”
4. Orderly scan data setup code “0”, “3”
5. Scan “save”
6. Scan “revise earlier captured length M”
7. Orderly scan data setup code “0”, “A”
8. Scan “save”
9. Scan “transmit Center seg only”

7.6 RF Information

RF(Read Fail) information means under certain modes, while read fail is needed, output some customized information for users or programs to adjust or operate.

Send RF information

***Do not send RF information**

Revise RF information

Scan “revise FR information” and data setup code, users can revise contents of RF information, describe each RF character with 2 hexademical values, each RF is 15 characters to the max, corresponding conversion table see appendix D.

Revise RF information

Example: Revise user custom RF information to “FAIL”.

1. Check character table to get corresponding hexademical value of “FAIL” are “46”, “41”, “49”, “4C”
2. Make sure setup code is enabled, if it is not, scan “enable setup code” (see chapter 1.5.2)
3. Scan “revise RF information”
4. Orderly scan data setup code “4”, “6”, “4”, “1”, “4”, “9”, “4”, “C”
5. Scan “save”

7.7 Output Protocol

Under serial/virtual serial port mode, scan the following setup code to revise output format of decoding results.

Select format output with protocol, the format is as below: <03><Length><Decoding data>.

And, under serial/virtual serial port mode, enable output with protocol, module would not add tail to decoding data.

*Pure data

With protocol

8 Enable/Disable Barcode Types

8.1 All Bar Code

Scan the following setup codes to enable/disable reading all readable types of bar code. Enable to read setup code only after disabling all types.

Enable to read all types

Disable to read all types

***Open default reading types**

8.2 Bar Code Tilt

Scan the following setup codes to enable/disable 360 °tilt reading all readable types of bar code. Disable 360 °tilt reading will improve decoding speed.

***360 °tilt read allowed**

360 °tilt read not allowed

8.3 Enhance Read Angle

Configure to enhance reading angle of all bar codes by enabling and enhancing read angle. Disable angle enhancing will improve decoding speed.

***Angle enhance disabled**

Angle enhance enabled

8.4 EAN13

Scan the following setup codes to enable/disable reading EAN13.

***Enable to read EAN13**

Disable to read EAN13

Scan the following setup codes to enable/disable reading EAN13 extra-code.

***Disable 2-bit extra-code**

Enable 2-bit extra-code

***Disable 5-bit extra-code**

Enable 5-bit extra-code

8.5 EAN8

Scan the following setup codes to enable/disable reading EAN8.

***Enable to read EAN8**

Disable to read EAN8

Scan the following setup codes to enable/disable reading EAN8 extra-code.

***Disable 2-bit extra-code**

Enable 2-bit extra-code

***Disable 5-bit extra-code**

Enable 5-bit extra-code

8.6 UPCA

Scan the following setup codes to enable/disable reading UPCA.

***Enable to read UPCA**

Disable to read UPCA

Scan the following setup codes to enable/disable reading UPCA extra-code.

***Disable 2-bit extra-code**

Enable 2-bit extra-code

***Disable 5-bit extra-code**

Enable 5-bit extra-code

8.7 UPCE0

Scan the following setup codes to enable/disable reading UPCE0.

***Enable to read UPCE0**

Disable to read UPCE0

8.8 UPCE1

Scan the following setup codes to enable/disable reading UPCE1.

***Enable to read UPCE1**

Disable to read UPCE1

Scan the following setup codes to enable/disable reading UPC-E1 extra-code.

***Disable 2-bit extra-code**

Enable 2-bit extra-code

***Disable 5-bit extra-code**

Enable 5-bit extra-code

8.9 Code128

Scan the following setup codes to enable/disable reading Code128.

***Enable to read Code128**

Disable to read Code128

Scan the following setup codes to configure min. reading length of Code128.

Min. Code128 message length is 0

***Min. Code128 length is 4**

San the following setup codes to configure max. reading length of Code128.

***Max. Code128 length is 32**

Max. Code128 length is 255

8.10 Code39

Scan the following setup codes to enable/disable reading Code39.

***Enable to read Code39**

Disable to read Code39

Scan the following setup codes to configure min. reading length of Code39.

Min. Code39 length is 0

***Min. Code39 length is 4**

Scan the following setup codes to configure max. reading length of Code39.

***Min. Code39 length is 32**

Min. Code39 length is 255

Scan the following setup codes to configure Code39 to enable Code32 mode and FullAsc mode.

***Do not enable Code32**

Enable Code32

***Do not enable FullAsc mode**

Enable FullAsc mode

8.11 Code93

Scan the following setup codes to enable/disable reading Code93.

***Enable to read Code93**

Disable to read Code93

Scan the following setup codes to configure min. reading length of Code93.

Min. Code93 length is 0

***Min. Code93 length is 4**

Scan the following setup codes to configure max. reading length of Code93.

***Min. Code93 length is 32**

Min. Code93 length is 255

8.12 CodeBar

Scan the following setup codes to enable/disable reading CodeBar.

***Enable to read CodeBar**

Disable to read CodeBar

Scan the following setup codes to enable/disable to send CodeBar start/tail.

Enable to send CodeBar start/tail

***Disable to send CodeBar start/tail**

Scan the following setup codes to configure min. reading length of CodeBar.

Min. CodeBar length is 0

***Min. CodeBar length is 4**

Scan the following setup codes to configure max. reading length of CodeBar.

***Min. CodeBar length is 32**

Min. CodeBar length is 255

8.13 QR

Scan the following setup codes to enable/disable reading QR.

***Enable to read QR**

Disable to read QR

8.14 Interleaved 2 of 5

Scan the following setup codes to enable/disable reading Interleaved 2 of 5.

Enable to read Interleaved 2 of 5

***Disable to read Interleaved 2 of 5**

Scan the following setup codes to configure min. reading length of Interleaved 2 of 5.

Min. Interleaved 2 of 5 length is 0

***Min. Interleaved 2 of 5 length is 4**

Scan the following setup codes to configure max. reading length of Interleaved 2 of 5.

***Min. Interleaved 2 of 5 length is 32**

Min. Interleaved 2 of 5 length is 255

8.15 Industrial 25

Scan the following setup codes to enable/disable reading Industrial 25.

Enable to read Industrial 25

***Disable to read Industrial 25**

Scan the following setup codes to configure min. reading length of Industrial 25.

Min. Industrial 25 length is 0

***Min. Industrial 25 length is 4**

Scan the following setup codes to configure max. reading length of Industrial 25.

***Min. Industrial 25 length is 32**

Min. Industrial 25 length is 255

8.16 Matrix 2 of 5

Scan the following setup codes to enable/disable reading Matrix 2 of 5.

Enable to read Matrix 2 of 5

***Disable to read Matrix 2 of 5**

Scan the following setup codes to configure min. reading length of Matrix 2 of 5.

Min. Matrix 2 of 5 length is 0

***Min. Matrix 2 of 5 length is 4**

Scan the following setup codes to configure max. reading length of Matrix 2 of 5.

***Min. Matrix 2 of 5 length is 32**

Min. Matrix 2 of 5 length is 255

Scan the following setup codes to configure check format of Matrix2 of 5.

Matrix 2 of 5 format is Mod10

***Matrix 2 of 5 format is None**

8.17 Code11

Scan the following setup codes to enable/disable reading Code11.

Enable to read Code11

***Disable to read Code11**

Scan the following setup codes to configure min. reading length of Code11.

Min. Code11 length is 0

***Min. Code11 length is 4**

Scan the following setup codes to configure max. reading length of Code11.

***Min. Code11 length is 32**

Min. Code11 length is 255

Scan the following setup codes to configure the check format of Code11.

***Code11 uses 1bit to check**

Code11 uses 2bit to check

8.18 MSI

Scan the following setup codes to enable/disable reading MSI.

Enable to read MSI

***Disable to read MSI**

Scan the following setup codes to configure min. reading length of MSI.

Min. MSI length is 0

***Min. MSI length is 4**

Scan the following setup codes to configure max. reading length of MSI.

***Min. MSI length is 32**

Min. MSI length is 255

8.19 RSS

Scan the following setup codes to enable/disable reading RSS-14.

Enable to read RSS-14 ***Disable to read RSS-14**

Scan the following setup codes to enable/disable to read finite RSS.

Enable to read finite RSS

***Disable to read finite RSS**

Scan the following setup codes to enable/disable to read extended RSS.

Enable to read extended RSS

***Disable to read extended RSS**

Scan the following setup codes to configure min. reading length of RSS.

Min. RSS length is 0

***Min. RSS length is 4**

Scan the following setup codes to configure max. reading length of RSS.

*** Min. RSS length is 32**

Min. RSS length is 255

8.20 DM

Scan the following setup codes to enable/disable reading DM.

***Enable to read DM**

Disable to read DM

Scan the following setup codes to disable/enable to simultaneously read multiple DM.

***Disable to simultaneously read multiple DM**

Enable to simultaneously read multiple DM

8.21 PDF417

Scan the following setup codes to enable/disable reading PDF417.

***Enable to read PDF417**

Disable to read PDF417

9 Appendix A: Default Settings

Parameter		Default settings	Remarks
Communication interface			
TTL-232	Baud rate	9600	
	Check	No	
	Data bit	8-bit	
	Stop bit	1-bit	
	Hardware fluidic	No	
Mode parameter			
Default read mode		Manual	
Serial port trigger mode	Single read time	5s	Parameter range: 0.1-25.5s, step size 0.1s; 0 means single decoding time is infinite
Manual mode	Trigger level	Low level triggered	High level by default

10 Appendix B: Common Serial Instructions

Function	Instruction
Set Baud rate at 9600	7E 00 08 01 00 D9 D3 20 38
Save settings to EEPROM	7E 00 09 01 00 00 DE C8
Check Baud rate	7E 00 07 01 00 2A 02 D8 0F

After host trasmits serial instruction of Baud rate inquiry, module would return following messages:

Return	Corresponding Baud rate
02 00 00 02 C4 09 SS SS	1200
02 00 00 02 71 02 SS SS	4800
02 00 00 02 39 01 SS SS	9600
02 00 00 02 D0 00 SS SS	14400
02 00 00 02 9C 00 SS SS	19200
02 00 00 02 4E 00 SS SS	38400
02 00 00 02 34 00 SS SS	57600

P.S: SS SS is check value.

11 Appendix C: List of Code ID

Bar code	Character	Flag bit address
EAN-13	d	0x91
EAN-8	d	0x92
UPC-A	c	0x93
UPC-E0	c	0x94
UPC-E1	c	0x95
Code 128	j	0x96
Code 39	b	0x97
Code 93	i	0x98
Codabar	a	0x99
Interleaved 2 of 5	e	0x9A
Industrial 2 of 5	D	0x9B
Matrix 2 of 5	v	0x9C
Code 11	H	0x9D
MSI-Plessey	m	0x9E
GS1 Databar(RSS-14)	R	0x9F
GS1 Databar Limited(RSS)	R	0xA0
GS1 Databar Expanded(RSS)	R	0xA1
QR Code	Q	0xA2
Data Matrix	u	0xA3
PDF 417	r	0xA4

12 Appendix D: Table of ASCII Code

Hexademical	Demical	Character
00	0	NUL
01	1	SOH
02	2	STX
03	3	ETX
04	4	EOT
05	5	ENQ
06	6	ACK
07	7	BEL
08	8	BS
09	9	HT
0a	10	LF
0b	11	VT
0c	12	FF
0d	13	CR
0e	14	SO
0f	15	SI
10	16	DLE
11	17	DC1
12	18	DC2
13	19	DC3
14	20	DC4
15	21	NAK
16	22	SYN
17	23	ETB
18	24	CAN
19	25	EM
1a	26	SUB
1b	27	ESC

Hexademical	Demical	Character
1c	28	FS
1d	29	GS
1e	30	RS
1f	31	US
20	32	SP
21	33	!
22	34	"
23	35	#
24	36	$
25	37	%
26	38	&
27	39	`
28	40	(
29	41	)
2a	42	*
2b	43	+
2c	44	,
2d	45	-
2e	46	.
2f	47	/
30	48	0
31	49	1
32	50	2
33	51	3
34	52	4
35	53	5
36	54	6
37	55	7
38	56	8
39	57	9
3a	58	:

Hexademical	Demical	Character
3b	59	;
3c	60	<
3d	61	=
3e	62	>
3f	63	?
40	64	@
41	65	A
42	66	B
43	67	C
44	68	D
45	69	E
46	70	F
47	71	G
48	72	H
49	73	I
4a	74	J
4b	75	K
4c	76	L
4d	77	M
4e	78	N
4f	79	O
50	80	P
51	81	Q
52	82	R
53	83	S
54	84	T
55	85	U
56	86	V
57	87	W
58	88	X
59	89	Y

Hexademical	Demical	Character
5a	90	Z
5b	91	[
5c	92	\
5d	93	]
5e	94	^
5f	95	_
60	96	'
61	97	a
62	98	b
63	99	c
64	100	d
65	101	e
66	102	f
67	103	g
68	104	h
69	105	i
6a	106	j
6b	107	k
6c	108	l
6d	109	m
6e	110	n
6f	111	o
70	112	p
71	113	q
72	114	r
73	115	s
74	116	t
75	117	u
76	118	v
77	119	w
78	120	x

Hexademical	Demical	Character
79	121	y
7a	122	z
7b	123	{
7c	124	|
7d	125	}
7e	126	~
7f	127	DEL

13 Appendix E: Data Code

0 ~ 9

0

1

2

3

4

5

6

7

8

9

A – F

A

B

C

D

E

F

14 Appendix F: Save or Cancel

Scan “Save” to save the data that read out. If there is something wrong while read data code, it is available to cancel.

While read certain setup code, orderly read data “A”, “B”, “C”, “D”, scan “cancel data read that read last time”, it will cancel “D”, scan “cancel a string of data that read last time”, it will cancel “ABCD”, scan “cancel revision” will cancel “ABCD” and exit from revising.

Save

Cancel data read that read last time

Cancel a string of data that read last time

Cancel revision