

PROTOCOL INSTRUCTION

Catalog

1. Document introduction	2
2. Protocol Instruction Set.....	2
2.1 Configuration command format.....	2
2.2 Control command format	8
2.3 Status command format.....	9
2.4 Obtain image command format.....	10

This document introduces the communication protocol of barcode module RT200. With this introduction, Users can configure the module easily.

2.1 Configuration command format

(1) The host sends the commands for the configuration of module :

Fig 1: Command to module

Command type	PID	FID	Parameteret
0x21			

Fig 2: Response from module

Command type	PID	FID	Parameteret	Result
0x22				

(2) The host sends the commands for reading the state of module:

Fig 3: Command to module

Command type	PID	FID
0x23		

Fig 4: Response from module

Command type	PID	FID	Parameter
0x24			

Notice: PID,FID and Parameterrefer to the following contents.

Bar Code Configuration Instruction Set

1. Bar Code Configuration

Barcode type	Function description	PID	FID	Parametererter
QR code	Decoding setting	0x10	0x40	0x01: enable* 0x00: disable
	Decoding mode	0x10	0x41	0x01: only decode single code* 0x02: only decode double code 0x03: decode single or double code
PDF code	Decoding setting	0x11	0x40	0x01: enable* 0x00: disable
	Decoding mode	0x11	0x41	0x01: only decode single code* 0x02: only decode double code 0x03: decode single or double code
Chinese Sensible code (Hanxin code)	Decoding setting	0x12	0x40	0x01: enable* 0x00: disable
	Decoding mode	0x12	0x41	0x01: only decode single code* 0x02: only decode double code 0x03: decode single or double code
DataMatrix	Decoding setting	0x13	0x40	0x01: enable* 0x00: disable
	Decoding mode	0x13	0x41	0x01: only decode single code* 0x02: only decode double code 0x03: decode single or double code
Aztec	Decoding setting	0x14	0x40	0x01: enable* 0x00: disable
Code128	Decoding setting	0x21	0x40	0x01: enable* 0x00: disable
Code93	Decoding setting	0x22	0x40	0x01: enable* 0x00: disable
	For the full ASCII(extended)	0x22	0x41	0x01: enable 0x00: disable*
Code39	Decoding setting	0x23	0x40	0x01: enable* 0x00: disable
	Check digit	0x23	0x41	0x01: Code32 check mode 0x02: module 43 0x00: disable*
	For the full ASCII(extended)	0x23	0x42	0x01: enable 0x00: disable*
	Start/Stop	0x23	0x43	0x01: transmitted 0x00: not transmitted *
	Check digit transmission	0x23	0x44	0x01: transmitted 0x00: not transmitted *

UPC-A	Decoding setting	0x24	0x41	0x01: enable* 0x00: disable
	Check digit transmission	0x24	0x51	0x01: transmitted 0x00: not transmitted *
UPC-E	Decoding setting	0x24	0x42	0x01: enable* 0x00: disable
	Check digit transmission	0x24	0x52	0x01: transmitted 0x00: not transmitted *
EAN-13	Decoding setting	0x24	0x43	0x01: enable* 0x00: disable
	Check digit transmission	0x24	0x53	0x01: transmitted 0x00: not transmitted *
EAN-8	Decoding setting	0x24	0x44	0x01: enable* 0x00: disable
	Check digit transmission	0x24	0x54	0x01: transmitted 0x00: not transmitted *
Codebar	Decoding setting	0x25	0x40	0x01: enable* 0x00: disable
	Check digit	0x25	0x41	0x01: enable 0x00: disable*
	Check digit transmission	0x25	0x42	0x01: transmitted 0x00: not transmitted *
	Start/Stop	0x25	0x43	0x01: ouput A B C D 0x02:output a b c d 0x00: not transmitted *
Standard 2 of 5 (Industrial 2 of 5)	Decoding setting	0x26	0x40	0x01: enable* 0x00: disable
	Check digit	0x26	0x41	0x01:module 10 0x00:disable*
	Check digit transmission	0x26	0x42	0x01: transmitted 0x00: not transmitted *
Matrix 2 of 5	Decoding setting	0x27	0x40	0x01: enable* 0x00: disable
	Check digit	0x27	0x41	0x01:enable 0x00:disable*
	Check digit transmission	0x27	0x42	0x01: transmitted 0x00: not transmitted *
Interleaved 2 of 5(ITF)	Decoding setting	0x28	0x40	0x01: enable* 0x00: disable
	Check digit	0x28	0x41	0x01:enable 0x00:disable*
	Check digit transmission	0x28	0x42	0x01: transmitted 0x00: not transmitted *

Code11	Decoding setting	0x29	0x40	0x01: enable* 0x00: disable
	Check digit	0x29	0x41	0x01:1 digit 0x02:2 digits 0x03: auto check 0x00: disable*
	Check digit transmission	0x29	0x42	0x01: transmitted 0x00: not transmitted *
MSI	Decoding setting	0x2A	0x40	0x01: enable* 0x00: disable
	Check digit	0x2A	0x41	0x01:module 10* 0x02: module 11 0x03:Double module 10 0x04: module11 module 10 0x00: disable
	Check digit transmission	0x2A	0x42	0x01: transmitted 0x00: not transmitted *
GS1 DataBar	Omni-Directional Decoding setting	0x2B	0x40	0x01: enable* 0x00: disable
	Limited Decoding setting	0x2B	0x41	0x01: enable* 0x00: disable
	Expanded Decoding setting	0x2B	0x42	0x01: enable* 0x00: disable
Plessey	Decoding setting	0x2C	0x40	0x01: enable* 0x00: disable
	Check digit transmission	0x2C	0x42	0x01: transmitted 0x00: not transmitted *
China Post	Decoding setting	0x2D	0x40	0x01: enable* 0x00: disable

2.Interface Configuration

Interface type	Function description	PID	FID	Parametereter
RS-232	Baud rate	0x41	0x41	0x07: 9600 0x08: 19200 0x09: 38400 0x0A: 57600 0x0B: 115200* 0x0C: 128000 0x0D: 230400 0x0E: 256000 0x0F: 460800
	Data bits	0x41	0x42	0x00: 7 bits 0x01: 8 bits*
	parity	0x41	0x43	0x00: None* 0x01: Even 0x02: Odd
	Stop bits	0x41	0x44	0x00: 1 stop bits* 0x01: 2 stop bits
USB	Interface mode	0x42	0x40	0x00: virtual COM 0x01: HID

3. Data Transmission Configuration

Message format	Function description	PID	FID	Parameter
prefix	Add the message before barcode decoding result	0x51	0xC1	The Parameter includes the data length (2 bytes) and data content (0-40 bytes). If you don't want to output any prefix, just set two 0x00 to the Parameter length, and have not any data content. For examples: 1.If you want to add a 'a' before the decoding result,the Parameter is 0x00 0x01 0x61. 2.if you want to delete the prefix of the decoding result,the Parameter is 0x00 0x00.
suffix	Add the message after barcode decoding result	0x51	0xC2	For the Parameter format, you can refer to the Parameter format of prefix
Decoding format	Add the special format for decoding result	0x51	0x43	0x00: disable 0x01: enable The format : 0x03+data length(2 bytes) +decoding data
symbology identifier	Activate symbology identifier transmission for the symbologies.	0x51	0x44	0x00: disable 0x01: enable \a ringtone; \b Backspace; \f Form feed; \n newline; \r carriage return; \t horizontal tab; \v vertical tab; \' Single quote; \" double quote; \ backslash.

4. Running Configuration

Configuration type	Function description	PID	FID	Parameter
Trigger mode	Activate the different trigger mode of decoding	0x61	0x41	0x00: key mode Start decoding when the trigger is pressed, and release the trigger to stop decoding. 0x01: continuous mode Start decoding when the trigger is pressed for the 1 st time, and then stop decoding when the trigger is pressed for the 2 nd time. 0x02: automatic mode After system boot , keep decoding. It's invalid to press the trigger. 0x05: sensing mode After system boot, start decoding when the device has detected a barcode; Otherwise it doesn't work. 0x04: pulse mode After system boot, begin to decode the barcode,and it stops during a period of time that is decided by timeout settings.

Trigger timeout	The trigger timeout in the mode of pulse mode	0x61	0x82	The Parameter is 2 bytes, and the value is from 0x00 0x00 to 0xff 0xff. e.g.: 0x10 0x01 is represented as 4097ms
Auto sleep	If there is no barcode to decode, it will go into the sleep state when sleep mode enabled. And It wakes up when the trigger is pulled down or detects the barcode.	0x61	0x43	0x00: disable 0x01: enable
Fill flash setting	Fill flash running mode	0x62	0x41	0x01: blinking* 0x02: always on 0x00: always off
Aimer flashing	Aimer flashing running mode	0x62	0x42	0x01: blinking* 0x02: always on 0x00: always off
Decoding light	Decoding light running mode	0x62	0x43	0x00: disable 0x01: enable
Buzzer setting	Buzzer running mode	0x63	0x41	0x00: low volume 0x01: medial volume 0x02: high volume
	Buzz number	0x63	0x42	0x00: none 0x01: once 0x02: twice
Decoding time interval setting	decoding time interval between different results	0x64	0x81	The Parameter is 2 bytes, and the value is from 0x00 0x00 to 0xff 0xff. e.g.: 0x10 0x01 is represented as 4097ms
	decoding time interval between same results	0x64	0x82	The Parameter is 2 bytes, and the value is from 0x00 0x00 to 0xff 0xff.. e.g.: 0x10 0x01 is represented as 4097ms

5. Image Settings

Exposure control	Shutter speed	0x71	0x81	The Parameter is 2 bytes, and the value is from 0x00 0x00 to 0xff 0xff.. If the shutter speed is set to 0x00 0x00, the device can automatically adjust exposure value according to the image quality.
-------------------------	---------------	------	------	--

The host sends the commands to control the working action of RT200:

Fig 5: Command to RT200

Command type	PID	FID	Parameter
0x32			

Notice: PID,FID and Parameter refer to the following contents.

The definition of FID, PID and Parameter

Bar Code Control Instruction Set				
1.instruction settings				
Work type	Function description	PID	FID	Parameter
Start decoding setting	The device can begin decoding by the command.	0x75	0x01	
Stop decoding setting	The device can stop decoding by the command	0x75	0x02	
Restore factory setting	Restore all the parameter which is same to factory settings.	0x76	0x01	
1D/2D barcode setting	Enable or disable the decoding functions for 1D / 2D barcodes.	0x76	0x42	0x00: disable all decoding 0x01: enable 1D barcode decoding 0x02: enable 2D barcode decoding 0x03: enable 1D and 2D barcode decoding

(1) The host sends the commands to obtain the information of RT200:

Fig 6: Command to RT200

Command type	PID	FID
0x43		

Fig 7: Response from RT200

Command type	PID	FID	Parameter
0x44			

Notice: PID,FID and Parameter refer to the following contents.

The definition of FID, PID and Parameter

Bar Code Status Command Set				
1.Command Settings				
Information	Function description	PID	FID	Parameter
Hardware version	the version of Electronic circuit	0x02	0xC1	
Firmware version	the version of firmware	0x02	0xC2	
Image resolution	image resolution ratio of the device	0x02	0xC3	
Connect status testing	Testing the device work status, online or offline.	0x02	0x44	

2.4 Obtain image command format

(2) The host sends the commands to obtain the image of RT200:

Fig 8: Command to RT200

Command type	Image Parameter
0x60	

Fig 9: Response from RT200

Command type	Image Parameter	Image Data
0x61		

Notice: The contents of command refer to the following contents.

The definition of contents of command

Obtain Image Command Set			
	Parameter	Length	Significance
Image Parameter	Image width	2 bytes	the width of image
	Image height	2 bytes	the height of image
	Flag	1 bytes	0x00: raw data 0x01: png
	Reserved	1 bytes	0x00
Image Data	-	Decided by width and height	the data of image