

1、 Protocol overview

Tianhe T3020 Inkjet printer communication protocol, Describe the protocol of command control and data exchange between Tianhe T3020 type inkjet printer and computer.

Control unit name definition:

Computer: referred to as PC;

Inkjet printer: PT;

2、 Applicable object

Tianhe T3020 inkjet printer for the preparation, the scope of use is limited to Tianhe T3020 inkjet printer and computer through the RS232 serial communication。

3、 Protocol specification

1) 、 Electrical protocol:

The signal level is RS232 level, full duplex mode, and baud rate can be set independently according to system requirements;

2) 、 Mechanical protocol:

The RS232 signal of the ink jet machine is externally connected through the air plug;

Signal description:

Air plug pin number	Signal	description	Remarks
1	GND	Inkjet printer, communication ground	
2	RXD	Inkjet printer communication reception	
3	TXD	Inkjet printer communication	
4	NC	Unused, reserved	

4、 Communication protocol

4.1 Frame symbol description

Frame symbol description

Symbol	explain	Remarks
ENQ	Query and set the frame start symbol	<ENQ>(0x05) (PC→PT)
ACK	Data correct return code	<ACK>(0x06) (PT→PC)
NACK	Data error return code	<NACK>(0x15) (PT→PC)
STP	PT Start printing	<STP>(0x07) (PT→PC)
EP	PT Jet printing empty information	<EP>(0x0A) (PT→PC)
CHKSUM	checksum code	4 字节(PC→PT)
EOT	End of frame flag	<EOT> (0x04) (PC→PT)
QENQ	Quick command start	0x02(PC→PT)
QEOT	Quick command end flag	0X03(PC→PT)
DENQ	Non check mode command start	0x1B(PC→PT)

4.2、Fast string transfer mode (PC→PT)

T4-2-01: Command information (PC→PRINTER)

Serial number	1	2	3	4
Byte length	1(Ascii)	variable	2	1(Ascii)
format	QENQ	String data	CHKSUM	QEOT

注:

- 1、 string format: String1, String2, String3... Because commas are separated when multiple strings are passed, string commas are not supported in string data
- 2、 CHKSUM for all string characters and separators added to the results, stored in 32 bits, high byte in the front, low byte in the back
- 3、 if check and format correctly return CK(0X06) Check or format error returned NACK(0X15)
- 4、 Example 1: the transfer of a single string, its characters followed by '1' - '8', the data for

Serial number	1	2	3	4
format	QENQ	String data	CHKSUM	QEOT
	0x02	0x31 0x32 0x33 0x34 0x35 0x36 0x37 0x38	0x30 0x31 0x41 0x34	0x03

- 5、 Example 2: the transmission of two strings, the first string characters followed by '1' - '8', second string characters followed by '2' - '9', then the data for

Serial number	1	2	3	4
format	QENQ	String data	CHKSUM	QEOT
	0x02	0x31 0x32 0x33 0x34 0x35 0x36 0x37 0x38 0x2C 0x32 0x33 0x34 0x35 0x36 0x37 0x38 0x39	0x30 0x33 0x37 0x43	0x03

4.3、Non - checked string transfer mode (PC→PT)

T4-3-01: Command information (PC→PRINTER)

Serial number	1	2	3	4
Byte length	1(Ascii)	5	可变	1(Ascii)
format	DENQ	0x4F 0x51 0x30 0x30 0x31	String data	EOT

- 1、 string format: String1, String2, String3... Strings are separated by commas when multiple strings are passed, so commas are not supported in string data
- 2、 if the format is correct, return ACK(0X06) if the format is error return NACK(0X15)

4.4、Single clear buffer data (PC→PT)

T4-3-01: Command information (PC→PRINTER)

Serial number	1	2	3	4
Byte length	1(Ascii)	5	1	1(Ascii)
format	DENQ	0x63 0x6c 0x65 0x61 0x72	0x31	EOT

- 1、 Remove the string information that is placed at the bottom of the buffer. If all the information in the buffer is empty, print the blank information
- 2、 when the command is correct return ACK(0X06), when the command is wrong return NACK(0X15)

4.5、Current jet print data status character (PT→PC)

T4-3-01: Command information (PC→PRINTER)

Serial number	1
Byte length	1(Ascii)
format	STP or EP

- 1、 Every time the inkjet print starts, the ink jet machine sends the data status of the ink jet through the serial port
- 2、 the jet printing data is normal, send STP(0X07)
- 3、 the jet printing data abnormalities, jet printing blank, send EP(0X0A)