Communication Protocol Specification

Summary

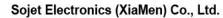This user manual is the full version of network communication protocol introduction. The protocol contains all command for the inkjet printer's external connection.

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CONTENT

Preface

Thank you for using our product. The user manual is communication protocol introduction for the inkjet printer's external connection. We hope it can provide you helpful information for your work

How to use this user manual?

Before the first use, please read the user manual carefully, and pay more attention to the precautions. If there are some problems during using, please read the relative chapters and record the problems. If it is still insoluble, please contact us for assistance.

The content of the manual is subject to change without notice. The amended content will be updated in user manual by new edition.

Note: For the device damage caused by not operating according to manual, and the editing error or printing error of the manual, the company does not accept any responsibility.

1. Connection Description

1.1 DEVICE

Client Port	LAN Communication Environment, PC Host
Server Port	Our printer
LAN Communication Cable	LAN Cable
Software	The software on the host （Must make the software which comply with the communication protocol）

1.2 LAN Connection Description

A） PC connected to the device through the network, device is the server port, PC is the Client port.

B） PC uses the form of UDP broadcast to search device, the UDP broadcast port is 26088.

C） After PC connected to the device, it passes through two TCP channels to make data communications. The first TCP channel's port for device is 16888. This channel is responsible for the communication instructions by operations. The second TCP channel port is 17000. This channel is responsible for the state of query system.

D） The PC port of the second TCP channel (17000) makes device receive query system's statue in at least 30 seconds. Otherwise the device will be forced to disconnect with PC.

2. Document Description

a) We use hexadecimal system.
b) '##' means bit, the value is unknown.
c) '******' means data stream.
d) Start with '0x' means HEX system.
e) DV means device.
f) MSG means message.

3. Command Structure Description

It is consist of SOC, CHKSUM, EG#, LEN, CMD, DATA_PACK, EOC, see below.

No	Name	Size(bytes)	Description
1	SOC	4	head, 4 bytes, value:0x30434F53 "SOC0"
2	CHKSUM	4	Check code,4 bytes ,value=G#+ LENGTH+ CMD + Data Pack, if Data Pack don't have 4 bytes, fill 0
3	EG#	4	Device No,4 bytes ,value=device SN(serial number)
4	LEN	4	Command length, 4bytes, value=length of CMD+ length of Data PACK.
5	CMD	4	Command mark,4 bytes
6	DATA PACK	0…N	Content of this command, within 16K
7	EOC	4	Command head, 4 bytes, value=0x30434F45 "EOC0".

4. Command description

4.1 Search Device

4.1.1 Search Device

Command code: 0x00000001

Structure:

SOC	CHKSUM	EG#	LEN	CMD	EOC
53 4F 43 30	## ## ## ##	## ## ## ##	04000000	0x00000001	45 4F 43 30

Response command structure:

SOC	CHKSUM	EG#	LEN	CMD	DATA PACK	EOC
53 4F 43 30	## ## ## ##	## ## ## ##	## ## ## ##	01 00 00 00	Structure table	45 4F 43 30

* The length of CHKSUM, EG, LEN can be computed by" 3.Command Structure Description-3", so the structure tables of the follow-up commands (as "Response command structure" above), of which the CHKSUM, EG, LEN may be filled with "## ## ## ##", If you need, may compute its' numerical value by self.

Data Pack structure:

Name	Length	description
IP address	4	IP address of the device
Gateway	4	Gateway of the device
Mac address	8	Mac address of the device
Serial Number	4	Serial number of the device
DV Soft Version	16	Software version
HardWare version	12	Hardware version
Sales Code	4	Sales code
DeviceNameSize	4	Device name size
NetStatus	4	Net status 0: No connection 1: connected 2: fail
PartNO	8	
RunType	4	Run status 0: test 1: run ok 2: upgrade

PrintStatus	4	Print status 0: no print 1: in print
TrialPeriod	4	If device is in trail run period 0: No 1: yes
SoftType	4	Device type 1:E1 2:E2 6:E6
MsgDot	4	Message dot 1:75 2:150
Reserve	40	Reserve value=0.
DeviceName	**50**	Device name

4.2 General Command

4.2.1 OK Command

Command code: 0x00000080

Structure:

SOC	CHKSUM	EG#	LEN	Ok CMD	Return CMD	EOC
53 4F 43 30	## ## ## ##	## ## ## ##	1C 00 00 00	0x00000080	## ## ## ##	45 4F 43 30

Command Detail: **Return CMD is the sent command.**

4.2.2 Error Command

Command code: 0x00000081

Structure:

SOC	CHKSUM	EG#	LEN	Error CMD	Error Code	Return CMD	EOC
53 4F 43 30	## ## ## ##	## ## ## ##	20 00 00 00	0x00000081	## ## ## ##	## ## ## ##	45 4F 43 30

Command Detail: **Return CMD is the sent command.**

Error Code Description:

Error Code	Description
Printing Module Error	
0x11000001	Empty cartridge

0x11000002	illegal
0x11000003	Print delay is not in the scope.
0x11000004	Current print page is not in the scope.
0x11000005	In printing.
0x11000006	Not in printing.
0x11000007	Printing times exceed maximum.
0x11000008	Print interval exceeds maximum.
0x11000009	It has error for dynamic data being sent.
0x20000001	Messages not exist.
Printing Options Error	
0x18000001	Wrong registration code.
0x18000002	System setting saves error.
0x18000003	Error for running speed test.
Data synchronization error	
0x20000001	File not exists.
0x20000002	Wrong file route.
0x20000003	Wrong file type.
0x20000004	System is busy.
0x20000005	File for delete is in use.
0x20000006	Fail to open file.
0x20000007	Fail to write file.
0x20000008	Wrong route format.
Refresh error	
0x31000001	Error when refresh list.
Error when restore factory setting	
0x32000001	Error when restore factory setting

4.3 Device Status Search Command

4.3.1 Obtain Device Status

Command code: 0x10000001

Command structure:

SOC	CHKSUM	EG#	LEN	CMD	EOC
53 4F 43 30	## ## ## ##	## ## ## ##	04 00 00 00	0x10000001	45 4F 43 30

Return command structure:

SOC	CHKSUM	EG#	LEN	CMD	DATA PACK	EOC
53 4F 43 30	## ## ## ##	## ## ## ##	## ## ## ##	0x10000001	Structure table	45 4F 43 30

Structure:

Name	Length	Description
Base of device status	28	Device status (structure as the table below)
InkInfo	48*6	Ink status(structure as the table below)
EncoderStatus	4	Encoder status (structure as the table below)
PhotocellStatus	4	Photocell status (structure as the table below)
EthernetInfo	4*4	network status (structure as the table below)
SystemInfo	4	System information Status (structure as the table below)
UV Status	4*7	UV Status (structure as the table below)
SysInfo	N	System information, the length depends on the information length of the string end with '\0' returned from device
InkTypeBuf	6*N	Ink type(name),now there are 6 groups. Each group is a string end with '\0'
UV DeviceType	N	UV Status depends on DeviceType Size
UV HardVer.	N	UV Status depends on HardVer. Size
UV SoftVer.	N	UV Status depends on SoftVer. Size
UV Serial	N	UV Status depends on Serial Size
UV BootTime	N	UV Status depend on BootTime Size

Basic info of device

Name	length	description
InterfaceStatu	4	Connection status: USB 0: can't use 1: normal 2: unknown 3: forbidden 4: USB working ok 5:USB forbidden 6: mouse ok 7: mouse forbidden 8: keyboard ok 9: keyboard forbidden
Encoder status	4	Encoder status: 0, not open; 1, open
Photocell status	4	Photocell status: 0, not open; 1, open
Ethernet status	4	Ethernet status: 0, not open; 1, open
Ink status	4	Ink status: 1, has ink; 2 no ink
System status	4	System status
UVStatus	4	UV status: 0, UV can't use; 1, UV being connected.

Ink info structure

Name	Length	Description
Card No	4	Cartridge number
Customer No	4	Customer code
InkTypeSize	4	Ink type byte
InkCapacity	4	Ink volume

PartNo(long long)	4*2	Part Number
Status	4	Cartridge status:1,normal 2,warning 3,error
PrintNo	4	Print number
RemainInk	4	Remaining ink
RemainInkPrint	4	Remaining printing times
DotSize	4	Dot size
*PS: Compute by all string builder and type, an ink information size is 11*4, but its structure must be "struct", need follow the byte alignment computation rules, the space size (the size of the ink information structure body) should be 12*4.		

Encoder Info.Structure

Name	Length	Description
EncoderStatus	4	Encoder status

Photocell INFO. Structure

Name	Length	Description
Photocell Status	4	Photocell status

Network structure

Name	Length	Description
DV IP	4	Device IP
Gateway	4	Gateway
Netmask	4	Network mask
PC IP	4	PC IP

System info structure

Name	Length	Description
SysStatusSize	4	Device status bytes

UV info.structure

Name	Length	Description
DeviceTypeSize	4	Device type size
HardVersionSize	4	Hardware version size
SoftVersionSize	4	Software version size
SerialSize	4	Device serial number size
BootTimeSize	4	Boot time size
Reserve*2	4*2	Reserved

The structure of return command for executing failed in device:

SOC	CHKSUM	EG#	LEN	CMD	DATA PACK	EOC
534F4330	## ## ## ##	## ## ## ##	## ## ## ##	00000081	Structure table	45 4F 43 30

* CHKSUM, EG, LEN which length can compute with "3.Command Structure Description-错误!未定

义书签。" .

Structure table

DATA PACK	Length	Description
SendCmd	4	0x10000001
HardVersionSize	4	Hardware Version

4.3.2 Modify Device Name

Command code: 0x11000001

Send command:

SOC	CHKSUM	EG#	LEN	CMD	DATA PACK	EOC
53 4F 43 30	## ## ## ##	## ## ## ##	## ## ## ##	0x1100000 1	Structure table	45 4F 43 30

Structure table

Name	Length	Description
Length of Device Name	4	Length of the device name after modification
Device Name	32	device name after modification, add 0 if needed

Modify successful return command:

SOC	CHKSUM	EG#	LEN	CMD	DATAPACK	EOC
5344330	## ## ## ##	## ## ## ##	## ## ## ##	0x11000001	Structure table	45 4F 43 30

Structure table

Name	Length	Description
Length of Device Name	4	Length of the device name after modification
Device Name	32	device name after modification, add 0 if needed

Modify failed return command:

SOC	CHKSUM	EG#	LEN	CMD	DATAPACK	EOC
5344330	## ## ## ##	########	#### ####	0x00000081 or 0x11000001	Structure table	45 4F 43 30

Structure table While CMD is 11000001

Name	Length	Description
ErrorType	4	Error Type

Structure table While CMD is 00000081

Name	Length	Description
SendCmd	4	0x11000001
ErrorType	4	Error Type

4.3.3 Modify Device IP Address

Command code: 0x11000002

Sent command:

SOC	CHKSUM	EG#	LEN	CMD	DATA PACK	EOC
53 4F 43 30	## ## ## ##	## ## ## ##	## ## ## ##	0x11000002	Structure table	45 4F 43 30

Structure table

name	length	description
Type	4	0:DHCP model 1: IP model
IPAddr	4	IP address
Mask	4	Mask
NetGate	4	Gateway

Return command:

SOC	CHKSUM	EG#	LEN	CMD	ReturnValue	EOC
53 4F 43 30	## ## ## ##	## ## ## ##	## ## ## ##	11000002	## ## ## ##	45 4F 43 30

Return Value:
0: success
1: fail

4.4 Printing Command

4.4.1 Start Printing

Command code: 0x12000004

Send command:

SOC	CHKSUM	EG#	LEN	CMD	DATA PACK	EOC
53 4F 43 30	## ## ## ##	## ## ## ##	## ## ## ##	0x12000004	Structure table	45 4F 43 30

Structure table

name	length	description
PrintBase	32	Printing content, see below
DataSourceType	N	Data source type, reserved
DataSource	N	Data source, reserved
MessageName	N	Message name, end with \0

Printing message structure:

Name	Length	Description
MessageNameSize	4	Length of message name
DataSourceTotal	4	Data source number, reserved, fill 0
DataSourceTypeSize	4	Data source type byte, reserved. fill 0
DataSourceSize	4	Data source byte, reserved, fill 0
Delay	4	Delay, reserved, fill 0
CurValue	4	Current Value, reserved, fill 0
RepeatIndex	4	Repeat times, reserved, fill 0
CntRest	4	If reset counter, yes, fill 1,no,fill 0

Return command: OK or Error

4.4.2 Search Printing Report

Command code: 0x12000005

Send command:

SOC	CHKSUM	EG#	LEN	CMD	EOC
53 4F 43 30	## ## ## ##	## ## ## ##	04 00 00 00	0x12000005	45 4F 43 30

Return command:

SOC	CHKSUM	EG#	LEN	CMD	DATA PACK	EOC
53 4F 43 30	## ## ## ##	## ## ## ##	## ## ## ##	05 00 00 12	Structure table	45 4F 43 30

Structure table

Name	Length	Description
PrintStatus	60	Printing status, see below
BoxLot	N	BoxLot: Buff length is set by BoxLot Size Buff format is below: Box string length(4 bytes)

		Box string, end with \0
		Lot length of string(4 bytes)
		Lot string, end with \0
Counter	N	counter:
		Buff length is set by Counter Size
		Buff format is below:
		Counter1 string length(4 bytes)
		Counter1 string, end with \0
		Counter2 length of string(4 bytes)
		Counter2 string, end with \0
		……
Shift	N	shift:
		Buff length is set by Shift Size
		Buff format is below
		Shift1 string length(4 bytes)
		Shift 1 string, end with \0
		Shift 2 length of string(4 bytes)
		Shift 2 string, end with \0
		……
MessageName	N	Message name:
DBCount	N	Number of database object, reserved
DynamicText	N	Dynamic text object, reserved.

"Printing status" structure:

Name	Length	Description
ProduceCount	4	Product counter, printing times
DBNum	4	Number of database object, reserved ,fill 0
CounterNum	4	Number of counter object, reserved, fill 0
ShiftNum	4	Number of shift object, reserved ,fill 0
ConterSize	4	Number of counter byte
ShiftSize	4	Number of shift byte
DBConterSize	4	Length of database counter
MessageNameSize	4	Length of message name
DynTextSize	4	Length of dynamic text, reserved, fill 0
BoxLotSize	4	BoxLot Size
PrintStatus	4	Printing status
ReprintStatus	4	Repetition printing
DynDataPrintStatus	4	Dynamic data printing status
Wherefore	4	Reason for stopping printing
CurPointArray[10]	80	Counter CurPoint value
ConterNum	4	Number of total counter
SysClock	32	System clock, reserved, fill 0
DbCurPontArray[20]	160	Database Current Point value

4.4.3 Stop Printing

Command code:　0x12000006

Send command:

SOC	CHKSUM	EG#	LEN	CMD	EOC
53 4F 43 30	## ## ## ##	## ## ## ##	04 00 00 00	0x12000006	45 4F 43 30

Return command:

SOC	CHKSUM	EG#	LEN	CMD	DATA PACK	EOC
53 4F 43 30	## ## ## ##	## ## ## ##	## ## ## ##	06 00 00 12	Structure table	45 4F 43 30

Structure table

Name	Length	Description
PrintBase	32	Printing info, see below
DataSourceType	N	Data source type, reserved
DataSource	N	Data source, reserved.
MessageName	N	Message name, end with \0

Printing message structure

name	length	description
MessageNameSize	4	Length of message name
DataSourceTotal	4	Total number of data source, reserved, fill 0
DataSourceTypeSize	4	Byte number of data source type, reserved, fill 0
DataSourceSize	4	Byte number of data source, reserved, fill 0
Delay	4	Delay, reserved, fill 0
CurValue	4	Current Value, reserved, fill 0
RepeatIndex	4	Repeat time, reserved, fill 0
CntRest	4	Counter reset: 1, reset;　　0, not reset

4.4.4 Dynamic Data Printing

Command code:　0x12000007

Send command:

SOC	CHKSUM	EG#	LEN	CMD	DATA PACK	EOC
53 4F 43 30	## ## ## ##	## ## ## ##	## ## ## ##	0x12000007	Structure table	45 4F 43 30

Structure table:

Name	Length	Description
Reserve	4	Reserved
DataSize	4	Current length of dynamic data
PackIndex	4	Pack index, if no, fill 0
PackTotal	4	Total pack number, if no, fill 1
ObjNum	4	Number of object
TotalDataSize	4	Length of below dynamic data
DataBuff	N	DataBuff's format: DataSize1: Length of the dynamic data 1. (4 bytes) DataCurPoint1: Reserved, fill in 1 .(4bytes) DataType1: 0, Character string; 1, Data stream.(4bytes) DataSize2: Length of the dynamic data 2. (4 bytes) DataCurPoint2: Reserved, fill in 1 .(4bytes) DataType2: 0, Character string; 1, Data stream.(4bytes) ……

While "Databuff" is over 16k bytes, the data stream needs to be divided into several on the basic of 16K bytes. Then pack the data in order, send one by one.

Return command: OK or Error

4.4.5 Set Printing Delay

Command code: 0x12000001

Sent data pack:

SOC	CHKSUM	EG#	LEN	CMD	DATA PACK	EOC
53 4F 43 30	## ## ## ##	#### ####	#### ####	0x12000001	Structure table	45 4F 43 30

Structure table:

Name	Length	Description
FileFolderPathSize	4	Value is 10
MessageNameSize	4	Length of the message name (excluding the suffix name, but include the end mark).
Delay1	4	PH1's delay=real value(mm) *1000"
Delay2	4	PH2's delay=real value(mm) *1000"
Delay3	4	PH3's delay=real value(mm) *1000"
Delay4	4	PH4's delay=real value(mm) *1000"
Delay5	4	PH5's delay=real value(mm) *1000"
Delay6	4	PH6's delay=real value(mm) *1000"
FileFolderPath	10	"nand:\\MSG" string includes the end mark \0
MessageName	N	Message name (excluding suffix name, but including the end mark \0）

Return command: OK or Error

SOC	CHKSUM	EG#	LEN	CMD	DATA PACK	EOC
53 4F 43 30	## ## ## ##	#### ####	#### ####	Fail=0x00000081 SUCCESS=0x0000 0080	0x12000001	45 4F 43 30

4.4.6 Obtain Printing Delay

Command code: 0x12000002

Send command:

SOC	CHKSUM	EG#	LEN	CMD	DATA PACK	EOC
53 4F 43 30	#### ####	#### ####	#### ####	0x12000002	Structure table	45 4F 43 30

Structure table:

Name	Length	Description
FileFolderPathSize	4	value is10
MessageNameSize	4	Length of the message name (excluding the suffix name, but include the end mark).
ReservBuf	4*6	Reserved Buffer, value 0
FileFolderPath	10	"nand:\\MSG" string includes the end mark \0
MessageName	N	Message name (excluding suffix name, but including the end mark \0）

Return command:

SOC	CHKSUM	EG#	LEN	CMD	DATA PACK	EOC
53 4F 43 30	## ## ## ##	## ## ## ##	## ## ## ##	02 00 00 12	Structure table	45 4F 43 30

Structure table:

Name	Length	Description
FileFolderPathSize	4	Value is 11
MessageNameSize	4	Length of the message name (excluding the suffix name, but include the end mark).
Delay1	4	PH1's delay=real value(mm) *1000"
Delay2	4	PH2's delay=real value(mm) *1000"
Delay3	4	PH3's delay=real value(mm) *1000"
Delay4	4	PH4's delay=real value(mm) *1000"

Delay5	4	PH5's delay=real value(mm) *1000"
Delay6	4	PH6's delay=real value(mm) *1000"
FileFolderPath	10	"nand:\\MSG" string includes the end mark \0
MessageName	N	Message name (excluding suffix name, but including the end mark \0）

4.4.7 Set Current Printing Page Value

Command code: 0x12000003

Send command:

SOC	CHKSUM	EG#	LEN	CMD	DATA PACK	EOC
53 4F 43 30	## ## ## ##	## ## ## ##	## ## ## ##	0x12000003	Structure table	45 4F 43 30

Structure table:

Name	Length	Description
ObjNum	4	Set total number of current value.
MessageNameSize	4	Length of the message name (excluding the suffix name, but include the end mark).
CurPageData[10]	120	10 group Current Page Data. The structure is as below
MessageName	N	Message name (excluding suffix name, but including the end mark \0）

CurPageData Structure table:

Name	Length	Description
DataType	4	Set current value's type: 1=normal counter 2=box counter 3=lot counter 4=database
CurValue	4	Current value
RepeatValue	4	Index quantity of the current value (if no repeat, it is 1）

Return Command: OK or Error.

SOC	CHKSUM	EG#	LEN	CMD	DATA PACK	EOC
53 4F 43 30	## ## ## ##	## ## ## ##	#### ####	Fail: 00000081 Success: 00000080	Success=0x12000003 Fail=Structure table	454F 4330

Structure table:

Name	Description

SendCmd	0x12000003
ErrorCode	E.g.: 11000004=>Printing current page isn't in range

4.4.8 Set Printing Offset

Command code: 0x12000008

Send command:

SOC	CHKSUM	EG#	LEN	CMD	DATA PACK	EOC
53 4F 43 30	## ## ## ##	## ## ## ##	## ## ## ##	0x12000008	Structure table	45 4F 43 30

Structure table:

Name	Length	Description
iX[6]	4*6	6 groups of X-axis offset
iY[6]	4*6	6 groups of Y-axis offset
MessageNameSize	4	Length of the message name (excluding the suffix name, but include the end mark).
MessageName	N	Message name (excluding suffix name, but including the end mark \0）

Return Command: OK or Error.

SOC	CHKSUM	EG#	LEN	CMD	DATA PACK	EOC
53 4F 43 30	## ## ## ##	## ## ## ##	#### ####	Success: 00000080 Fail: 00000081	SUCCESS=0x12000 008 Fail=Structure table	454F 4330

Structure table:

Name	Description
SendCmd	0x12000008
ErrorCode	Error code

4.4.9 Printer Enter Patch Code Mode

Command code: 0x12000009

Send command:

SOC	CHKSUM	EG#	LEN	CMD	EOC
53 4F 43 30	## ## ## ##	## ## ## ##	## ## ## ##	0x12000009	45 4F 43 30

Return Command:

SOC	CHKSUM	EG#	LEN	CMD	Return Value	EOC
53 4F 43 30	## ## ## ##	## ## ## ##	## ## ## ##	09 00 00 12	Value as below	45 4F 43 30

Return Value:

    1: Patch code mode succeed.

    2: Patch code mode failed (other reasons).

    3: The device is not in printing.

    4: The device is already in patch code mode.

    5: The message is not able to enter patch code mode.

4.4.10 Printer Enter Common Printing Mode

Command code: 0x1200000A

Send command:

SOC	CHKSUM	EG#	LEN	CMD	EOC
53 4F 43 30	## ## ## ##	## ## ## ##	## ## ## ##	0x1200000A	45 4F 43 30

Return command:

SOC	CHKSUM	EG#	LEN	CMD	Return Value	EOC
53 4F 43 30	## ## ## ##	## ## ## ##	#### ####	1200000A	Value as below	45 4F 43 30

Return Value:

    1: Common mode succeed.

    2: Common mode failed (other reasons).

    3: The device is not in printing.

    4: The device is already in common mode.

    5: The patched data has not been printed.

4.4.11 Patched Data Printing

Command code: 0x1200000B

Send command:

SOC	CHKSUM	EG#	LEN	CMD	DATA PACK	EOC
53 4F 43 30	## ## ## ##	## ## ## ##	## ## ## ##	0x1200000B	Structure table	45 4F 43 30

Structure table:

Name	Length	Description
Reserve	4	Reserved
DataSize	4	Current pack dynamic data length
PackIndex	4	Pack Index value
PackTotal	4	Total packs number
ObjNum	4	Objects' quantity
TotalDataSize	4	The total length of the dynamic data below
DataBuff	N	DataBuff's format: DataSize1: the length of the dynamic data 1 (4 bytes). DataCurPoint1: reserved, fill 1 (4bytes). DataType1: 0=character string, 1=data stream (4 bytes). DataSize2: the length of the dynamic data 2 (4 bytes). DataCurPoint2: reserved, fill 1 (4bytes). DataType2: 0=character string, 1=data stream (4 bytes). ……

While "Databuff" is over 16k bytes, the data stream needs to be divided into several on the basic of 16K bytes. Then pack the data in order and send one by one.

Return command: OK or Error

SOC	CHKSUM	EG#	LEN	CMD	Return Value	EOC
53 4F 43 30	## ## ## ##	#### ## ##	#### ####	Success=00000080 Fail=00000081	Success=1200000B Fail=Data structure	45 4F 43 30

Data structure

Name	Length	Description
SenCmd	4	Send command value 1200000B
ErrorCode	4	Error code

4.4.12 Require reprinting one time

Command code: 0x1200000C

Send command:

SOC	CHKSUM	EG#	LEN	CMD	ReType	Reserved	Reserved	EOC
534F 4330	#### ####	#### ####	#### ####	0x1200000C	##00 00 00	0100 0000	0100 0000	454F 4330

ReType: Reprint type, 1=require reprinting, 2=cancel reprinting.

Return command:

SOC	CHKSUM	EG#	LEN	CMD	Return Value	EOC
53 4F 43 30	## ## ## ##	## ## ## ##	## ## ## ##	0x1200000C	## ## ## ##	45 4F 43 30

Return Value:

- 0: Success.
- 1: Fail

4.4.13 Shift Photocell Mode

Command code: 0x1200000D

Send command:

SOC	CHKSUM	EG#	LEN	CMD	Mode	EOC
53 4F 43 30	## ## ## ##	## ## ## ##	## ## ## ##	0x1200000D	## ## ## ##	45 4F 43 30

Mode: 0=common mode,   1=PC photocell mode

Return command:

SOC	CHKSUM	EG#	LEN	CMD	Return Value	EOC
53 4F 43 30	## ## ## ##	## ## ## ##	## ## ## ##	0x1200000D	## ## ## ##	45 4F 43 30

Return Value:

- 0: Success   1: Fail

4.4.14 Photocell Signal

Command code: 0x1200000E

Send command pack:

SOC	CHKSUM	EG#	LEN	CMD	Reserved	EOC
53 4F 43 30	## ## ## ##	## ## ## ##	#### ####	0x1200000E	#### ####	45 4F 43 30

Return command:

SOC	CHKSUM	EG#	LEN	CMD	Return Value	EOC
53 4F 43 30	## ## ## ##	## ## ## ##	## ## ## ##	0E 00 00 12	## ## ## ##	45 4F 43 30

Return Value:

- 0: Success   1: Fail

4.4.15 Remove Printing Cache

Command code: 0x1200000F
Send command pack:

SOC	CHKSUM	EG#	LEN	CMD	Type	Index	EOC
53 4F 43 30	## ## ## ##	## ## ## ##	## ## ## ##	0x1200000F	####	####	454F
					####	####	4330

Type:

    0: remove one,   1: remove all.

Index: Index for only one cache removed.

Return command:

SOC	CHKSUM	EG#	LEN	CMD	Return Value	EOC
53 4F 43 30	## ## ## ##	## ## ## ##	## ## ## ##	0F 00 00 12	## ## ## ##	45 4F 43 30

Return Value:

    0: Success   1: Fail

4.5 Printing Option Protocol Command

4.5.1 Clean Print head

Command code: 0x13000001

Send command:

SOC	CHKSUM	EG#	LEN	**CMD**	Nozzle Index N	EOC
53 4F 43 30	## ## ## ##	## ## ## ##	08000000	0x13000001	0<=N<=5	45 4F 43 30

SOC	CHKSUM	EG#	LEN	CMD	DATA PACK	EOC
53 4F 43 30	## ## ## ##	## ## ## ##	08 00 00 00	00 00 00 80 or 00 00 00 81	0x13000001	45 4F 43 30

Return command pack: OK or Error

4.5.2 Ask for Production Line Speed Test

Command code: 0x13000003

Send command:

SOC	CHKSUM	EG#	LEN	CMD	Line length (mm)	EOC
53 4F 43 30	## ## ## ##	## ## ## ##	08 00 00 00	0x13000003	## ## ## ##	45 4F 43 30

Return command pack: OK or Error

SOC	CHKSUM	EG#	LEN	CMD	DATA PACK	EOC
53 4F 43 30	## ## ## ##	## ## ## ##	08 00 00 00	00 00 00 80 or 00 00 00 81	0x13000003	45 4F 43 30

4.5.3 Obtain Line Speed

Command code: 0x13000004

Send command:

SOC	CHKSUM	EG#	LEN	CMD	EOC
53 4F 43 30	## ## ## ##	## ## ## ##	04 00 00 00	0x13000004	45 4F 43 30

Return command pack:

SOC	CHKSUM	EG#	LEN	CMD	DataPack	EOC
53 4F 43 30	## ## ## ##	## ## ## ##	04 00 00 00	0x05000013	Line speed(Not open test it returns 0)	45 4F 43 30

4.5.4 Stop Line Speed Test

Command code: 0x13000006

Send command:

SOC	CHKSUM	EG#	LEN	CMD	EOC
53 4F 43 30	## ## ## ##	## ## ## ##	04 00 00 00	0x13000006	45 4F 43 30

Return command pack:

SOC	CHKSUM	EG#	LEN	CMD	DataPack	EOC
53 4F 43 30	## ## ## ##	########	04000000	0x07000013	Final line speed(Not open test it returns 0)	45 4F 43 30

4.5.5 Set System Time

Command code: 0x13000008

Send command:

SOC	CHKSUM	EG#	LEN	CMD	DATA PACK	EOC

| 53 4F 43 30 | ## ## ## ## | ## ## ## ## | 1C 00 00 00 | 0x13000008 | Data pack | 45 4F 43 30 |

Data pack:

Name	Length	Description
Year	4	Year
Month	4	Month
Day	4	Date
Hour	4	hour
Minute	4	Minute
Second	4	second

Return command pack:

SOC	CHKSUM	EG#	LEN	CMD	DATA PACK	EOC
53 4F 43 30	## ## ## ##	## ## ## ##	08 00 00 00	Success=00 00 00 80 Fail=00 00 00 81	08 00 00 13	45 4F 43 30

4.5.6 Obtain System Time

Command code: 0x13000009

Send command:

SOC	CHKSUM	EG#	LEN	CMD	EOC
53 4F 43 30	## ## ## ##	## ## ## ##	04 00 00 00	0x13000009	45 4F 43 30

Return command pack:

SOC	CHKSUM	EG#	LEN	CMD	DATA PACK	EOC
53 4F 43 30	## ## ## ##	## ## ## ##	1C 00 00 00	09 00 00 13	Data pack	45 4F 43 30

Data pack:

Name	Length	Description
Year	4	year
Month	4	month
Day	4	date
Hour	4	hour
Minute	4	minute
Second	4	second

4.5.7 Modify System Settings

Command code: 0x1300000A

Send command:

SOC	CHKSUM	EG#	LEN	CMD	DATA PACK	EOC
53 4F 43 30	## ## ## ##	## ## ## ##	14000000	0x1300000A	Data pack	45 4F 43 30

Data pack:

Name	Length	Description
Language	4	Language 1=Chinese
Screen	4	Screensaver 0=closed
Unit	4	Unit setting 0=metric unit
Daylight	4	Daylight saving time: 0=closed, 1=European Standard, 2=USA standard
Gregorian	4	Calendar type: 0=Gregorian calendar, 1= Mohammedian calendar

Return command pack:

SOC	CHKSUM	EG#	LEN	CMD	DATA PACK	EOC
53 4F 43 30	## ## ## ##	## ## ## ##	08 00 00 00	00 00 00 80/ 00 00 00 81	0A 00 00 13	45 4F 43 30

4.5.8 Modify Edit Options

Command code: 0x1300000B

Send command:

SOC	CHKSUM	EG#	LEN	CMD	DATA PACK	EOC
53 4F 43 30	## ## ## ##	## ## ## ##	## ## ## ##	0x1300000B	Data pack	45 4F 43 30

Data pack:

Name	Length	Description
EnableUserYeay	4	Whether enable User Year or not
SetUserYear	4	User Year setting, 0=not enabled
DatePreZero	4	Date Pre-zero
EnableDateTransTime	4	Whether enable Date Transition Time
DateTransHour	4	Date transition hour, 0=not enabled
DateTransMinute	4	Date transition minute, 0=not enabled
CounterVal	4	Counter current value
CntPreZero	4	Counter pre-zero
CntAlarm	4	Counter alarm
CntReset	4	Counter reset
DateFmtTotal	4	Total number of date formats
DateFmtLenSize	4	The length of buffer which save each date format length

DateFmtSize	4	Total buffer length of all date formats (including the delimiter at each format's end) "\0"）
DBAlarm	4	Database alarm
DBErrorAlarm	4	Database error alarm
RdxIndex	4	Unused for the moment
RdxCount	4	Numerical system format
RdxNameSize	4	The number of characters of the string which consist of all numerical system name.
EvrNameLenSize	4	The number of characters of the string which means each numerical system length.
RdxTextSize	4	The number of characters of the string which consist of all numerical system content.
EvrTextLenSize	4	The number of characters of the string which means each numerical system content length
DateFmtLen	N	The string means each numerical system format length(Per byte stores length of a date format; N=DateFmtTotal =DateFmtLenSize-1 <=50
DateFmt	N	Content of date format(The component content of date formats joined together); N= DateFmtTotal*30 =<=50*30
RdxName	N	The string of all numerical system joined together(each system end with o) N<=3*5
EvrRdxNameLen	N	The string of each numerical system name size value (Per byte stores a numerical system name size value); N= RdxCount <=5
RdxText	N	The string of all numerical systems content joined together(each system content end with o); N<=5*50
EvrRdxTextLen	N	The string of each numerical system content size value (Per byte stores a numerical system content size value); N<=5

Return command pack

SOC	CHKSUM	EG#	LEN	CMD	DATA PACK	EOC
53 4F 43 30	## ## ## ##	## ## ## ##	08 00 00 00	00 00 00 80 or 00 00 00 81	0B 00 00 13	45 4F 43 30

4.5.9 Modify Printing Options

Command code: 0x1300000C

Send command:

SOC	CHKSUM	EG#	LEN	CMD	DATA PACK	EOC
534F4330	########	########	#########	0x1300000C	Data pack	45 4F 43 30

Data pack:

Name	Length	Description
Idleinkjet	4*6	Spit function, at present the 6 print head of E6 are valid; For the E1, only Idleinkjet[0] is valid; For the E2, only Idleinkjet[0] and Idleinkjet[1] are valid.
PrintDirection	4*6	Printing direction , as above
PrintChannel	4*6	Printing channel, as above
LineSpeed	4	Line speed= (real float value)*100
DPI	4	DPI print resolution 50~600
PrintRecovery	4	Repeat print switch 0=off, 1=on
NozzleGroup	4	Print heads combination, 0=combined; 1=separated; 2= nozzle 1; 3= nozzle 2;
PHxUsed	4*6	Print head switch, now E6 includes 6 print heads. 0=off, 1=on
PhotCell	4	0=photocell of P1; 1 = photocell of P2;
IdleMode	4	Pre-purge mode 1=single channel of the working print head; 2=double channels of the working print heads;
ObjWidth	4	Object width, unused, set 0
IsCopy	4	Copy function switch 0=off, 1=on
PHMode	4	0= Standard mode; 1= Array mode
CountPPH	4	Print lines. Now is the specific parameter of E6, E1 and E2 set zero.
Distance	4	Print line spacing, mm. Now is the specific parameter of E6, E1 and E2 set zero.
DPIMultiple	4	DPI multiple, unused, set 0

Return command pack:

SOC	CHKSUM	EG#	LEN	CMD	DATA PACK	EOC
53 4F 43 30	## ## ## ##	## ## ## ##	08 00 00 00	00 00 00 80 or 00 00 00 81	0C 00 00 13	45 4F 43 30

4.5.10 Modify User Password

Command code: 0x1300000D

Send command:

SOC	CHKSUM	EG#	LEN	CMD	DATA PACK	EOC
53 4F 43 30	## ## ## ##	## ## ## ##	########	0x1300000D	Data pack	45 4F 43 30

Data pack:

Name	Length	Description
UserNameLen	4	Length of User Name
PasswordLen	4	Length of password

Index	4	User index, temporarily unused, zero setting
UserName	N	User name, now only contains 3 kinds as below: Administrator, Technician, Operator
Password	N	Password, now the length scope is 0<=N<=16

Return command pack:

SOC	CHKSUM	EG#	LEN	CMD	DATA PACK	EOC
53 4F 43 30	## ## ## ##	## ## ## ##	08 00 00 00	00 00 00 80 or 00 00 00 81	0D 00 00 13	45 4F 43 30

4.5.11 Modify User Power Management

Command code: 0x1300000E

Send command:

SOC	CHKSUM	EG#	LEN	CMD	UserManage(int)	EOC
53 4F 43 30	## ## ## ##	## ## ## ##	08000000	0x1300000E	1=Open user permission management 0=Close user permission management	454F4330

Return command pack

SOC	CHKSUM	EG#	LEN	CMD	DATA PACK	EOC
53 4F 43 30	## ## ## ##	## ## ## ##	0800 0000	00 00 00 80 or 00 00 00 81	0E 00 00 13	45 4F 43 30

4.5.12 Obtain the Registered Information

Command code: 0x13000010

Send command:

SOC	CHKSUM	EG#	LEN	CMD	EOC
53 4F 43 30	## ## ## ##	## ## ## ##	04 00 00 00	10 00 00 13	45 4F 43 30

Successful return:

SOC	CHKSUM	EG#	LEN	CMD	DATA PACK	EOC
53 4F 43 30	## ## ## ##	## ## ## ##	1C 00 00 00	10 00 00 13	Data pack A	45 4F 43 30

Data pack A:

Name	Length	Description
IsRgDays	4	If enable registered days. 0=off;
RgDays	4	Registered days, if not registered, value is 0

IsHalfPrint	4	If register 1/2 print. 0=Off; 1=On
IsQtrPrint	4	If register 1/4 print. 0=Off; 1=On
IsDynData	4	If register dynamic data printing. 0=Off; 1=On;
DynDays	4	Registered dynamic data printing days

Failed return:

SOC	CHKSUM	EG#	LEN	CMD	DATA PACK	EOC
53 4F 43 30	## ## ## ##	## ## ## ##	1C 00 00 00	0x00000081/ 0x10000013	Data pack	45 4F 43 30

While CMD is 0x00000081, the DATAPACK structure is as below:

sendCmd	4	The command which PC send to device(10 00 00 13)
ErrorCode	4	Error code

While CMD is 0x10000013, the DATAPACK structure is as below:

ErrorCode	4	Error code

4.5.13 Registered Functions

Command code: 0x13000011

Send command:

SOC	CHKSUM	EG#	LEN	CMD	DATA PACK	EOC
53 4F 43 30	## ## ## ##	## ## ## ##	## ## ## ##	11 00 00 13	Data pack	45 4F 43 30

Data pack:

Name	Length	Description
RegisterLen	4	1+length of the register code
Register	N	Register code

Register successful return:

SOC	CHKSUM	EG#	LEN	CMD	DATA PACK	EOC
53 4F 43 30	## ## ## ##	## ## ## ##	## ## ## ##	0x00000080	Data pack	45 4F 43 30

DATAPACK structure as below:

SendCmd	4	0x13000011
RegType	4	Register type(See the form 1 below)
RegDay	4	The registered number of days

Form 1

RegType	Type Description	RegType	Type Description
1	Printing validity duration register	6	1/4 function register removed
2	Printing validity duration register removed	7	Dynamic data validity duration register removed
3	1/2 function register	8	Dynamic data validity duration register
4	1/2 function register removed	9	Scanner register removed
5	1/4 function register	10	Scanner register

Register failed return:

SOC	CHKSUM	EG#	LEN	CMD	DATA PACK	EOC
53 4F 43 30	## ## ## ##	## ## ## ##	## ## ## ##	0x00000081	Data pack	45 4F 43 30

DATAPACK structure as below:

SendCmd	4	0x13000011
ErrorCodeType	4	Error code type (see the form 2 below)

Form 2

ErrorCodeType	Error Type Description	ErrorCodeType	Error Type Description
1	Register fail, has been registered	5	Removing 1/2 function register fail
2	Registration code error	6	Removing 1/4 function register fail
3	1/2 function register fail	...	Register fail
4	No need to register		

4.5.14 Special Features Function

Command code: 0x13000012

Send command:

SOC	CHKSUM	EG#	LEN	CMD	DATA PACK	EOC
53 4F 43 30	## ## ## ##	## ## ## ##	2400 0000	0x13000012	Data pack	45 4F 43 30

Data pack:

Name	Length	Description
PrintRepeatCount	4	Printing repeat times
PrintIntever	4	Printing interval(mm)=real value*1000

UvledDelay	4	Delay
SysAlarmType	4	Alarm type
PrintStop	4	Stop printing
DeviceError	4	Device error
InkEmpty	4	Ink used up
InkAlarm	4	Ink alarm
ReTimes;	4	Back and forth printing times
ReDelay	4	Back and forth printing delay(mm)=real value*1000

Return command 包:

SOC	CHKSUM	EG#	LEN	CMD	DATA PACK	EOC
534F 4330	#### ####	#### ####	0800 0000	00 00 00 80 or 00 00 00 81	12 00 00 13	45 4F 43 30

4.6 Data Synchronization Protocol Commands

Note: DV means device (printer), PC means Personal Computer.

4.6.1 Obtain the total number of the directory files (DV->PC)

Command code: 0x14000001

Send command:

SOC	CHKSUM	EG#	LEN	CMD	DATA PACK	EOC
53 4F 43 30	## ## ## ##	## ## ## ##	## ## ## ##	01 00 00 14	Data pack	45 4F 43 30

Data pack:

Name	Length	Description
reserved	4	Reserved. This value is reserved, no use at present.
FilePathLen	4	File path length, (contains end mark+1)
FilePath	N	File path: System setting: SETUP\\ Or message: MSG\\ Or Logo: LOGO\\ Or font: FONT\\ Or language: LANGUAGE\\ Or log: LOG\\ Note: The separator of the characters transmitting is "\\" , not

		"\"

Return command pack:

SOC	CHKSUM	EG#	LEN	CMD	File Count	EOC
53 4F 43 30	## ## ## ##	## ## ## ##	08000000	14000001	While call on the list successful, the number of the corresponding fils in the successful return list. While call on failed, return 0.	45 4F 43 30

4.6.2 Obtain No.i~N file pack information (i=0,N=the total number) DV->PC

Command code: 0x14000002

Send command:

SOC	CHKSUM	EG#	LEN	CMD	DATA PACK	EOC
53 4F 43 30	## ## ## ##	## ## ## ##	## ## ## ##	14000002	Data pack	45 4F 43 30

Data pack:

Name	Length	Description
FileListIndex	4	File list index, No. i (>=0)file under the folder
FilePathLen	4	File path length, (contains end mark+1)
FilePath	N	File path: System setting: SETUP\\ Or message: MSG\\ Or Logo: LOGO\\ Or font: FONT\\ Or language: LANGUAGE\\ Or log: LOG\\ Note: The separator of the characters transmitting is "\\" , not "\"

Obtain Successful Return command pack:

SOC	CHKSUM	EG#	LEN	CMD	DATA PACK	EOC
53 4F 43 30	## ## ## ##	## ## ## ##	## ## ## ##	14000002	Data pack	45 4F 43 30

Data pack:

Name	Length	Description
Type	4	Type
FileNameSize	4	Number of bytes of file name (contains end mark +1)
FileProperty	4	File property
FileContentSize	4	File size, memory size occupied.
MD5Size	4	File MD5 bytes numbers(contains end mark +1)

CreateDate	24	Created date(Value 0, unused)
LastModifyDate	24	Last modified date(Value 0, unused)
LastAccessDate	24	Last accessed date (Value 0, unused)
MD5Content	N	MD5 content, MD5 string
FileName	N	File name, file name strings

Date structure:

Name	Length	Description
Year	4	Year
Month	4	Month
Day	4	Date
hour	4	Hour
Minute	4	Minute
Second	4	Second

Obtain failed Return command pack:

SOC	CHKSUM	EG#	LEN	CMD	DATA PACK	EOC
53 4F 43 30	## ## ## ##	## ## ## ##	## ## ## ##	00000081	Data pack	45 4F 43 30

Data pack:

Name	Length	Description
SendCmd	4	14000002
Error Code	4	E.g.: 20000008=》 File path error

4.6.3 Obtain No. i data pack from directory (DV->PC)

Command code:　0x14000003

Send command:

SOC	CHKSUM	EG#	LEN	CMD	DATA PACK	EOC
53 4F 43 30	## ## ## ##	## ## ## ##	## ## ## ##	14000003	Data pack	45 4F 43 30

Data Pack:

Name	Length	Description
DataPackTotality	4	Total number of data packs
DataPackIndex	4	Data pack index(>=0)
FilePathLen	4	File path length (contains end mark +1)
FilePath	N	File path, file path string

Obtain successful Return command pack:

SOC	CHKSUM	EG#	LEN	CMD	DATA PACK	EOC
53 4F 43 30	## ## ## ##	## ## ## ##	## ## ## ##	14000003	Data pack	45 4F 43 30

Data pack

Name	Length	Description
DataPackIndex	4	Data pack index
FilePathLen	4	File path length
DataPackLen	4	Data pack length
FilePath	N	File path string
DataPackContent	N	Data pack content

Obtain failed Return command pack:

SOC	CHKSUM	EG#	LEN	CMD	DATA PACK	EOC
53 4F 43 30	## ## ## ##	## ## ## ##	## ## ## ##	00000081	Data pack	45 4F 43 30

Data Pack:

Name	Length	Description
SendCmd	4	14000003
ErrorCode	4	Error code, EG.: 20000006= Open file failed

4.7 File Processing Protocol Commands

4.7.1 Delete File

Command code:　0x18000001

Send command:

SOC	CHKSUM	EG#	LEN	CMD	DATA PACK	EOC
53 4F 43 30	## ## ## ##	## ## ## ##	## ## ## ##	18000001	Data pack	45 4F 43 30

Data pack

Name	Length	Description
DeleteType	4	value" 2" : list file
FileType	4	File/Folder type 1: image,　2: message
FilePath Len	4	File path length (including end mark \0)
DeleteRlt	4	This value is 0
FilePath	N	File path (including end mark \0) Logo path example: " LOGO\\logo1.bmp" Message path example: " MSG\\MSG003.msg"

Return command pack:

SOC	CHKSUM	EG#	LEN	CMD	DATA PACK	EOC
53 4F 43 30	## ## ## ##	## ## ## ##	## ## ## ##	18000001	Data pack	45 4F 43 30

Data pack:

Name	Length	Description

DeleteType	4	Delete type
FileType	4	File type
FilePath Len	4	File path length
DeleteRlt	4	Delete result 1: success; 2: failure
FilePath	FilePathLen	File path, contains file name and postfix

4.7.2 Refresh File List of the Device

Command code: 0x20000001

Send command:

SOC	CHKSUM	EG#	LEN	CMD	Type	EOC
53 4F 43 30	## ## ## ##	## ## ## ##	## ## ## ##	20000001	## ## ## ##	45 4F 43 30

Type=1 is Refresh image list; Type=2 is Refresh message list

Return command: ok or Error

SOC	CHKS UM	EG#	LEN	CMD	Data Pack	EOC
53 4F 43 30	## ## ## ##	## ## ## ##	## ## ## ##	success=00000080 failed=00000081	successful=20000001 failed= data pack	45 4F 43 30

Data pack

SendCmd	20000001
Error Code	Error code(e.g.: 31000001)

4.8 System Tools Protocol Commands

4.8.1 Restore Factory Defaults

Command code: 0x16000001

Send command:

SOC	CHKSUM	EG#	LEN	CMD	EOC
53 4F 43 30	## ## ## ##	## ## ## ##	04 00 00 00	0x16000001	45 4F 43 30

Return command pack:

SOC	CHKSUM	EG#	LEN	CMD	EOC
53 4F 43 30	## ## ## ##	## ## ## ##	## ## ## ##	Successful=0x160	45 4F 43 30

				00001	

Note: The response time of the command in the device client is longer (10s~30s)

4.8.2 Request to Reboot the Device (Printer)

Command code: 0x16000005

Send command:

SOC	CHKSUM	EG#	LEN	CMD	EOC
53 4F 43 30	## ## ## ##	## ## ## ##	## ## ## ##	0x16000005	45 4F 43 30

Return command pack:

SOC	CHKSUM	EG#	LEN	CMD	DATA PACK	EOC
53 4F 43 30	## ## ## ##	## ## ## ##	08 00 00 00	Successful=00000080 Fail=00000081	0x16000005	45 4F 43 30