VIDEOJET 1580/1860/1880

PRINTERS

ESI COMMAND CODES ADDENDUM

P/N 463210-01

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1 Introduction

1.1 Description

This document provides necessary information to connect to the 1580/1860/1880 printers using the Enhanced Serial Interface (ESI) protocol. The protocol is not limited to RS-232, it also communicates over Ethernet TCP/IP. ESI protocol gives you remote access to the printer that allows a host PC or PLC to send messages to be printed and request status information from the printer.

The ESI command set is created for the 1580/1860/1880 printers following the existing ESI command set as closely as possible. Not all commands or features are the same. The ESI protocol has many additional features that you may want to take advantage of. These features would require additional commands to be created to your remote PC or PLC control program.

IF YOU ARE AN EXSITING EXCEL ENHANCED SERIAL INTERFACE (ESI) USER PLEASE REFER TO SECTION 9 OF THIS DOCUMENT FOR ANY CHANGES IN THE COMMAND SET.

Note: *All references to 1580 refer to printer models 1580, 1580 + and 1580 C, unless otherwise stated.*

2 Connectors and Cables

Note: *All references to 1580 refer to printer models 1580, 1580 + and 1580 C, unless otherwise stated.*

2.1 Connector Panel

2.1.1 Videojet 1580 Connector Panel

Standard IO

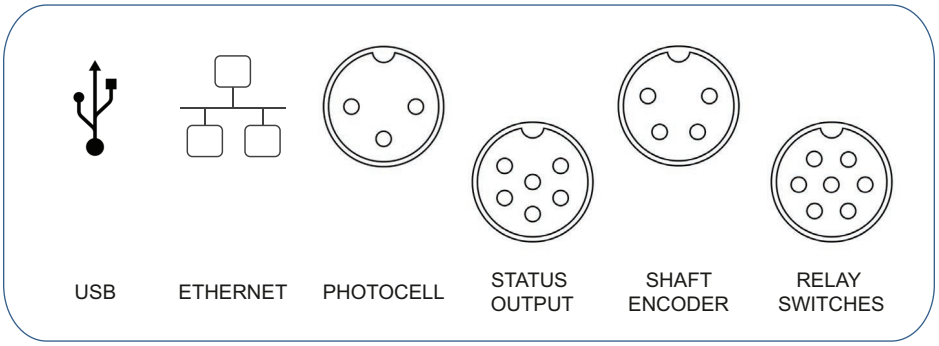


Figure 2-1: Connector Panel (Videojet 1580)

2.1.2 Videojet 1880 Connector Panel

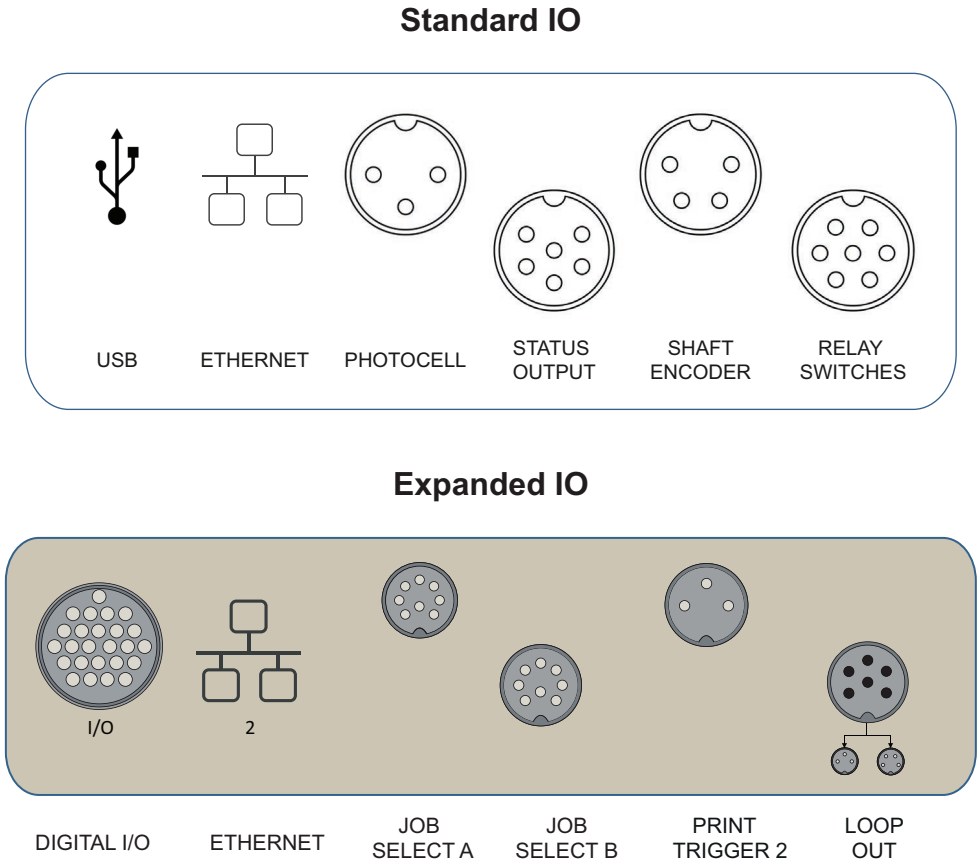
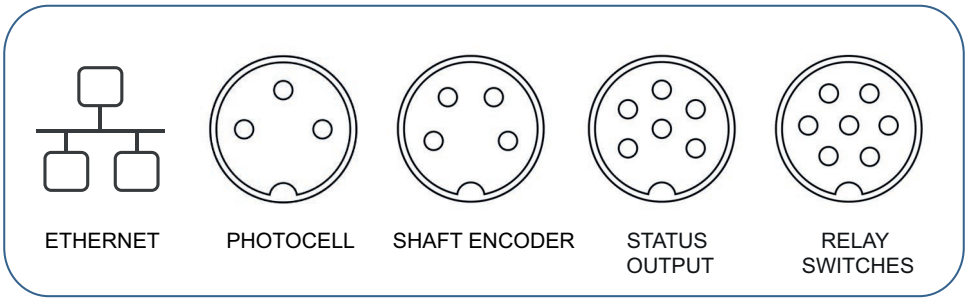


Figure 2-2: Connector Panel (Videojet 1880)

2.1.3 Videojet 1860 Connector Panel

Standard IO



Expanded IO

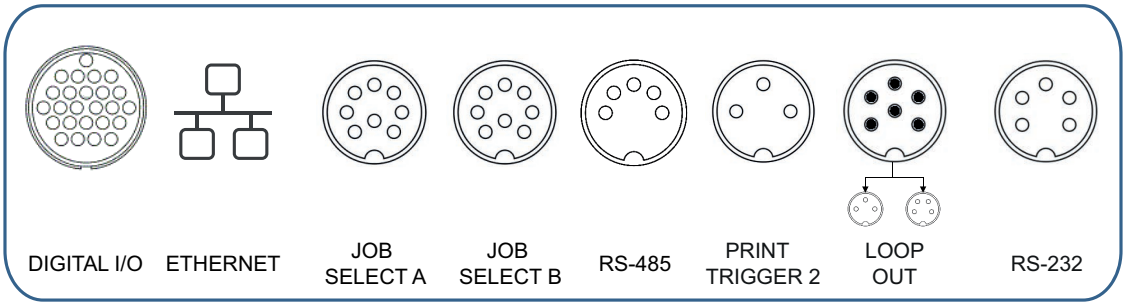


Figure 2-3: Connector Panel (Videojet 1860)

2.2 Ethernet Connector

The Ethernet connector is used to connect the printer to a remote computer or network to import data or control the printer remotely.

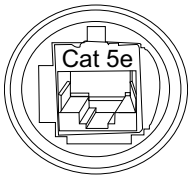


Figure 2-4: Ethernet Connector

The 1580 printer has only one Ethernet port available. The 1860 and 1880 printer have 2 Ethernet ports, one on the standard printer panel and the second on the expanded I/O board (optional).

Part Number	Description
223213	External Ethernet Connector Cable (5 meter)
SP399083	Ethernet Connector Kit

Table 2-1: Spare Parts

2.3 RS-485 Connector

RS-485 Connector for Videojet 1580/1880

The 1580/1880 printer do not have RS-485 connection. It is not available on these printers.

RS-485 Connector for Videojet 1860

The 1860 printer has one RS-485 port, but this port is not available for ESI communications due to the asynchronies of the protocol. RS-485 does not provide proper support to the interface.

2.4 RS-232 Connector

RS-232 Connector for Videojet 1580/1880

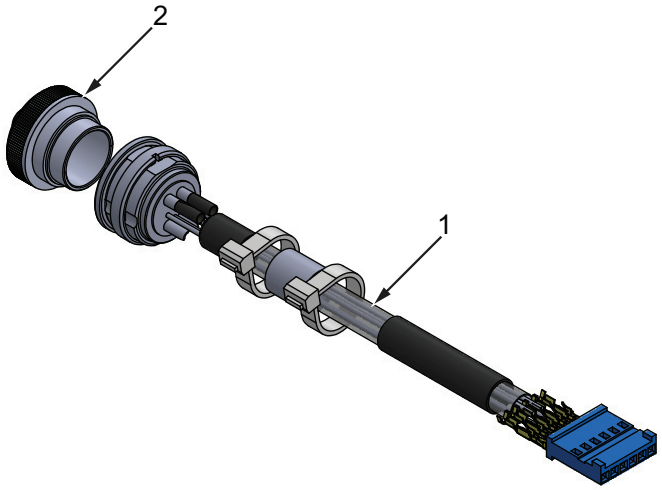
Videojet 1580/1880 requires an additional USB to RS-232 cable kit to add to the printer cabinet. The 1580/1880 printer does not have a dedicated RS-232 port like the 1860 but it has a USB to RS-232 adapter cable. This cable makes a tight connection to printer's USB port.

Part Number	Description
383575	USB to RS-232 Cable

Table 2-2: Spare Parts

RS-232 Connector for Videojet 1860

Videojet 1860 requires a RS-232 connector to add to printer cabinet. This is not standard with the printer and needs to be added. The RS-232 connector can be ordered separately or comes with the expanded IO kit.



1. MCB to RS-232 Cable **2. Binder Protection Cap**

Figure 2-5: RS-232 Connector

Part Number	Description
611197	RS-232 Connector

Table 2-3: Spare Parts

The 1860 printer has a RS-232 communication port linked to the COMM1 connector. The RS-232 connector is a 5-way DIN connector, pin allocation is shown in
Table 2-5 on page 2-6. The connector is not part of the standard printer configuration. It is an accessory and can be added with kit (VJ P/N: 611197).

This will be mounted at the open port on the back wall of printer's cabinet and plugged into the main control board connector.

RS-232 Connector and Cables

Part Number	Description
500-0036-582	RS-232 Male DIN 5 Pin Connector
80200258	3 Meter with DB9 on Host/PC Side Serial Cable
399062	6 Meter Extension Cable

Table 2-4: Spare Parts

COMM1 Connector

The 1860 printer has a RS-232 communication port linked to the COMM1 connector. The pin allocation is as follows:

DIN Pins	Function
1	0 V isolated
2	Transmit data out from the printer
3	Receive data to the printer
4	DTR output from the printer
5	DCD input to the printer

Table 2-5: Pin Function

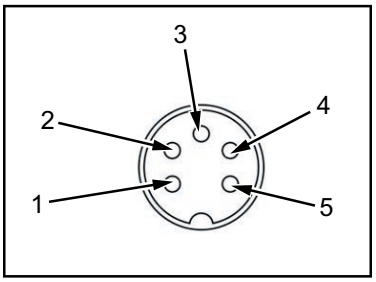


Figure 2-6: COMM1 Connector (Female) - Cabinet Side View

Cabinet Pin DIN Connector (Male Pins)		PC Host Side DB9 RS-232 Connector (Female Pins)	
DIN Pins	**Function**	**DB9 Pins**	**Function**
1	Common	5 (Black Wire)	Common
2	TX	2 (Green Wire)	RX
3	RX	3 (Red Wire)	TX
4	DTR	6 (White Wire)	DSR

Table 2-6: COMM1 Pin Connection Information – DIN to DB9

Cabinet Pin DIN Connector (Male Pins)		PC Host Side DB9 RS-232 Connector (Female Pins)	
DIN Pins	**Function**	**DB9 Pins**	**Function**
5	DCD	1 (Orange Wire)	DCD
		7+8 (connected)	

Table 2-6: COMM1 Pin Connection Information – DIN to DB9

Note: *The connector cables are soldered to the rear of the connector as per the connector pins from the cabinet side view.*

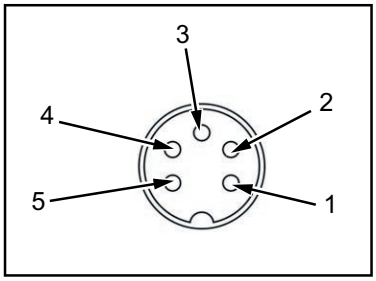


Figure 2-7: COMM1 Connector (Male) - Cabinet Side View

DIN Connector (Male Pins)		DB9 Pin Connector RS-232 (Female Pins)	
DIN Pins	**Function**	**DB9 Pins**	**Function**
1	Common	5 (Black Wire)	Common
2	TX	2 (Green Wire)	RX
3	RX	3 (Red Wire)	TX
4	DTR	6 (White Wire)	DSR
5	DCD	1 (Orange Wire)	DCD
		7+8 (connected)	

Table 2-7: COMM1 Pin Connection Information – DIN to DB9

This view is from male pins DIN to DB9 female pin point to point. It is recommended to perform continuity test for cables.

Part Number	Description
80200258	RS-232 Serial Communication Cable (3M)
399062	RS-232 Extension Cable (6M)

Table 2-8: Spare Parts

The Videojet 6M extension cable (P/N: 399062) connects the printer cabinet to the RS-232 cable (P/N: 80200258).

Note*: It is recommended that maximum length of the RS-232 cable does not exceed 15 m (50 ft).*

2.5 General Information

1. Maximum message length: 6000 strokes or 500 characters (whichever comes first).
2. Input stack buffer first in first out (FIFO) buffer size: 100 messages.
   a. The printer accepts up to 100 messages, the maximum length of each message is up to 500 characters.
3. RS-232 Protocol (These settings are customer configurable)
   a. Only one RS-232 port available for 1580/1860/1880
   b. Baud Rate: 9600, 19200, 38400, 57600, 115200
   c. Word length: 7, 8
   d. Parity: None, Odd, Even, Mark, Space
   e. Stop Bit: 0, 1
   f. XON/XOFF Flow control

2.6 Ethernet Information

Ethernet connection is Ethernet TCP/IP 100 base T. Table 2-9 shows the port number for different ports. These ports are just a suggestion to match the older 1000 series printers that were fixed. For 1580/1860/1880 printers, the port numbers are configurable via the user interface.

Port	Port Number
Ethernet Port (Videojet 1510, Videojet 1610, Videojet 1710 Excel)	3000
ESI Message Mode Port (Videojet 1510, Videojet 1610, Videojet 1710, Videojet 1610DH Head 1)	3000
ESI Message Mode Port (Videojet 1610 DH Head 2)	3002
Remote Data Port (Videojet 1510, Videojet 1610, Videojet 1710, Videojet 1610 DH Head 1)	3001
Remote Data Port (Videojet 1610 DH Head 2)	3003

Table 2-9: Port Number

Setup the following settings for Ethernet connection:

1. Ethernet TCP/IP
2. IP Address
3. Subnet setting
4. Default Gateway setting
5. DHCP setting (DHCP is not currently supported)
6. Protocol

To communicate with the Ethernet TCP/IP, use the same command set and ASCII characters used for RS-232. The printer communicates with full ASCII characters. All the characters sent from the printer are ASCII characters. Your program must be able to send printable ASCII characters and non-printable ASCII characters. The printer can be setup to utilize Unicode. This will be needed if you need to access characters beyond 255.

This document shows many of the commands in hexadecimal from. This is for ease of documentation purposes. All characters are sent and received in ASCII. In this manual the hex value is denoted when characters are placed between “[ ]”. The digits between the brackets are the hex value of the ASCII characters you want to send or that you receive.

Example 1:

Send String: ABCDEFG[0D]

ABCDEFG are the ASCII characters (printable)

[0D] is the hex value of the ASCII carriage return

Example 2:

Send String: [1B][01][01] (Clear buffer command)

[1B]: is the hex value of the escape character in ASCII

[01]: is the hex value of the SOH character in ASCII

[01]: is the hex value of the SOH character in ASCII

Note*: Your program must be able to send non-printable ASCII characters.*

3 Protocol Usage

Note: *All references to 1580 refer to printer models 1580, 1580 + and 1580 C, unless otherwise stated.*

3.1 General

3.1.1 Configuring for ESI

It is necessary to configure the printer to use ESI protocol through the UI. This includes specifying the communications type (e.g., Ethernet TCP/IP, RS-232) and the hardware settings (e.g., baud rate, or IP address).

It is necessary to place the printer into 'Remote Message Mode' or ESI (Main) before the printer can be controlled via ESI. This mode is selected by sending the 'Remote Message Mode' command [1B][01][0D], if this command is successfully received a standard response of [07][08] will be sent from the printer to the host. You can also setup the remote mode via the printer keyboard.

To set the printer up for keyboard message creation, navigate to *Tools* > *Printer Settings* > *Job Select* > *Job Selection* > *ESI Message Remote*.

Note: *While the printer is set to ESI Message Remote mode, the operator will not be able to select or edit jobs. The current mode of the printer is displayed in the status bar.*

In the left of display, it shows *<<1880 EsiInternal>>* (Figure 3-1) which denotes that the printer is in ESI Message Remote Mode and *Under Remote Control* message flashes in the banner.

Figure 3-1: Printer Message Mode

The alternative mode of operation to 'Remote Message Mode' ESI (Main) is 'Insert Mode'. 'Insert Mode' or 'Local' relies on the printer's user interface for configuration and printing. 'Insert Mode' may be selected in 2 ways:

1. Send the 'Insert Mode' command [1B][01][0C] over ESI.
2. To set the printer up for keyboard message creation, navigate to *Tools* > *Printer Settings* > *Job Select* > *Job Selection* > *Local.*

The printer will remain in the customer selected mode - Remote Message ESI (Main) or Insert mode (Local), once set the printer will remember settings. It is recommended that when the printer is powered on, the host send the command to place the printer in the correct message mode for remote communications. This will ensure that the printer is always ready to accept messages from the host.

Many adjustments to Printer Setup mode settings do not take effect until the next message is loaded. The type of adjustments affected include photocell and shaft encoder settings, message orientation, print delay etc.

The 1580 /1860/1880 printer can remember settings and messages when the printer is turned off, this differs from the 1000 series printers. It is still a recommendation to send settings and message on printer power up prior to placing into print mode.

3.1.2 Remote Data Setup

ESI has a facility to modify the text contained in the message remotely. This facility is known as ‘ESI Message Remote’, ‘Remote Data’. A message is configured to have placeholders into which the data may be embedded. These placeholders are called ‘Insert/User Prompt’.

Using the above facility, the data can be processed in two stages:

1. Setup the Insert/User Prompt
2. The data for those Insert/User Prompt are sent.

3.1.2.1 Setup the Insert/User Prompt

The 1580/1860/1880 printer allows the user to create an Insert or User Prompted field. Do the following tasks to create message with fixed and user prompted fields:

1. Navigate to Home screen and login. Touch the *Jobs* button shown in Figure 3-2.

Figure 3-2: Home Screen

2. The Jobs List screen opens as shown in Figure 3-3. Touch the '+' button to create a new job.

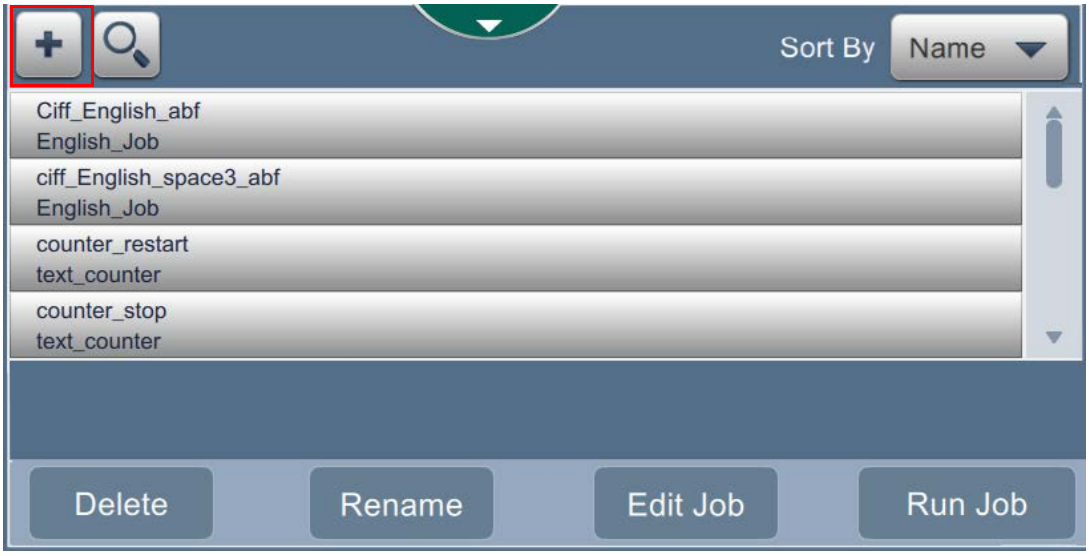


Figure 3-3: Jobs List Screen

3. Touch the *Job Name* field to enter the job name for the new job as shown in Figure 3-4. Enter the required Job Name using utility keypad and touch the *Accept* button. For example, Message 1. Touch the *Done* button on the Jobs Settings screen to save the changes.

   Note: *The user can also provide the job description for the new job.*

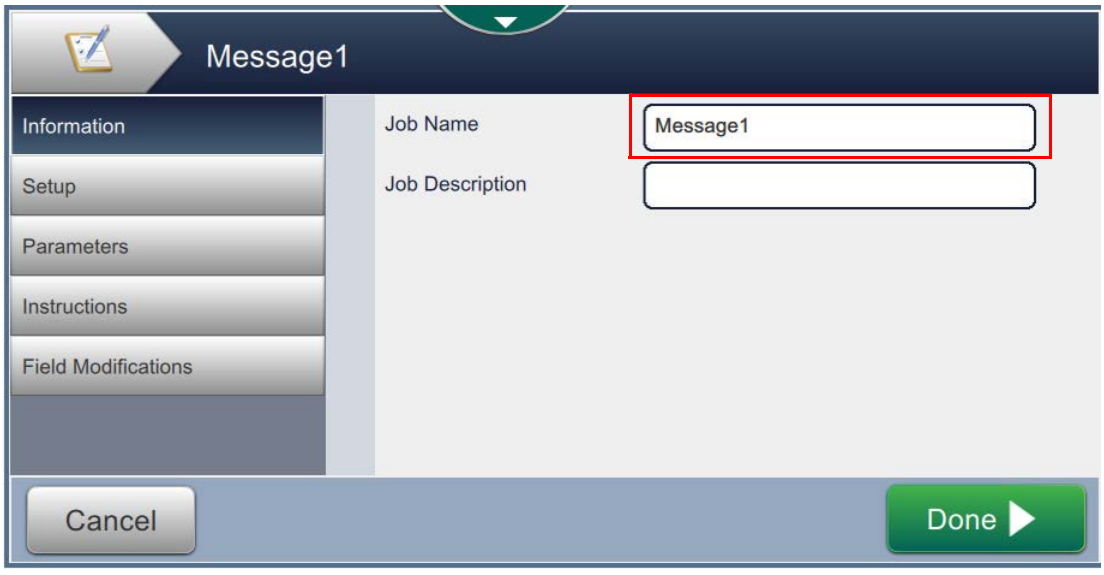


Figure 3-4: Jobs Settings Screen

4. Touch the '+' button on the Job Editor screen and select the required options to insert fields as shown in Figure 3-5.

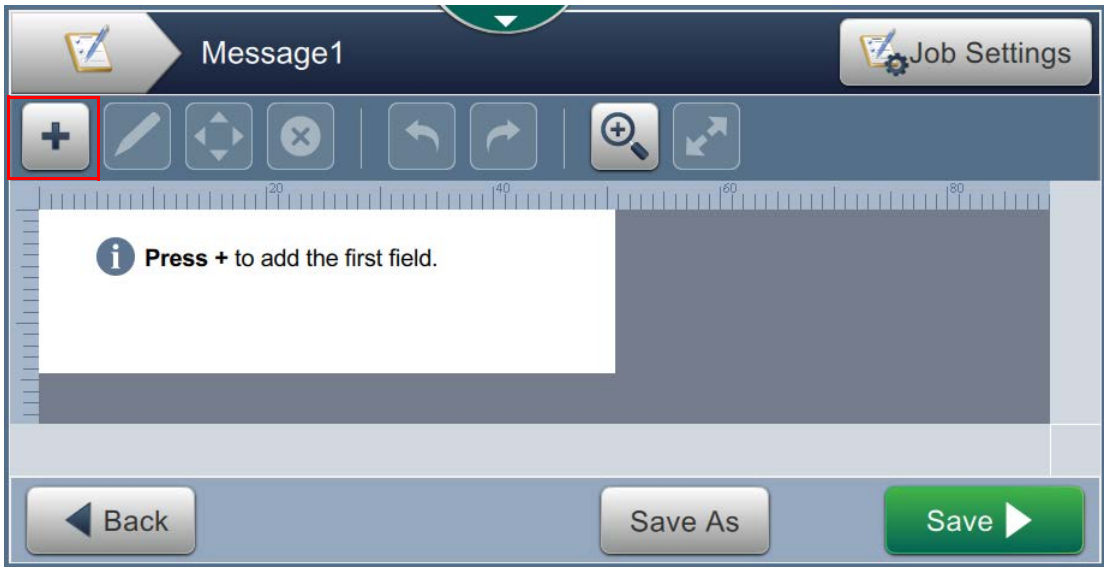


Figure 3-5: Job Editor Screen

5. Touch the *Text* option from the Field Type drop down list to insert a text field and touch the *OK* button as shown in Figure 3-6.

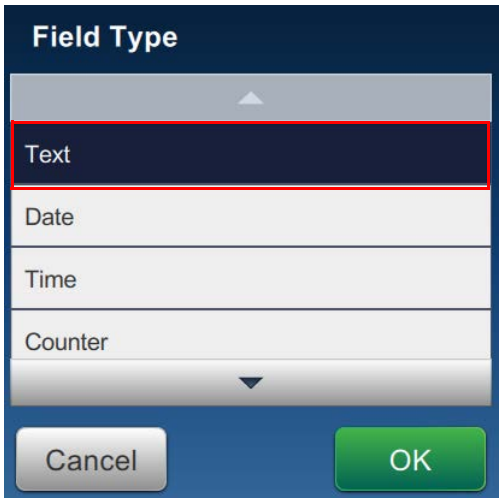


Figure 3-6: Field Type Screen

6. Touch the *Text Type* drop down list on the Text Setup screen shown in Figure 3-7 and select *User Prompted* option. Touch the *OK* button to save the required format of the field.

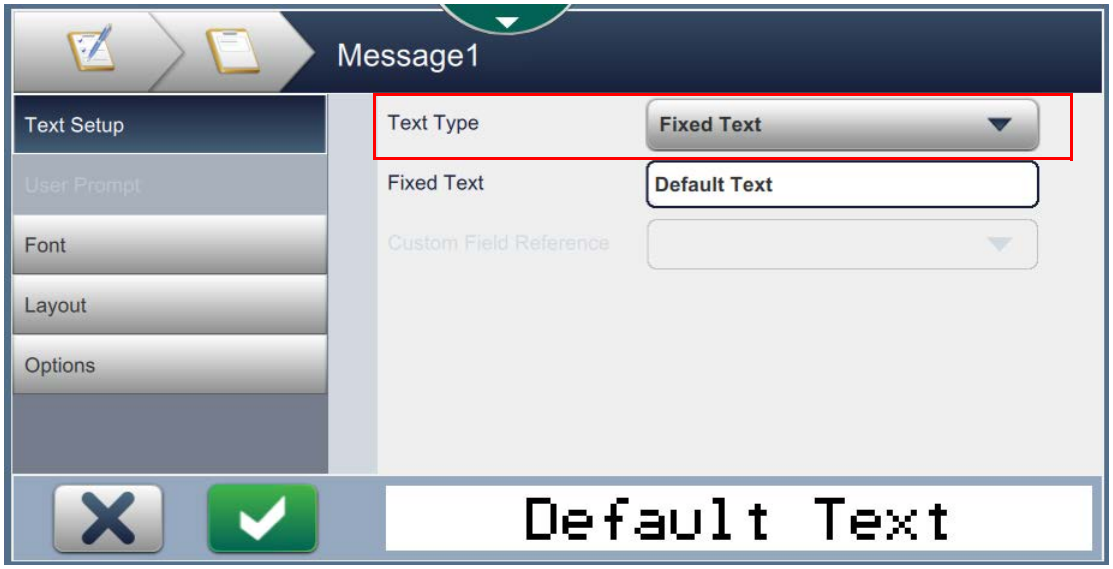


Figure 3-7: Text Setup Screen

7. Once the *User Prompted* option is selected, the *User Prompt* button becomes active.
8. Touch the *User Prompt* button to change the default text as shown in Figure 3-8. For example, Remote1. Touch the green check mark button the save the text settings.

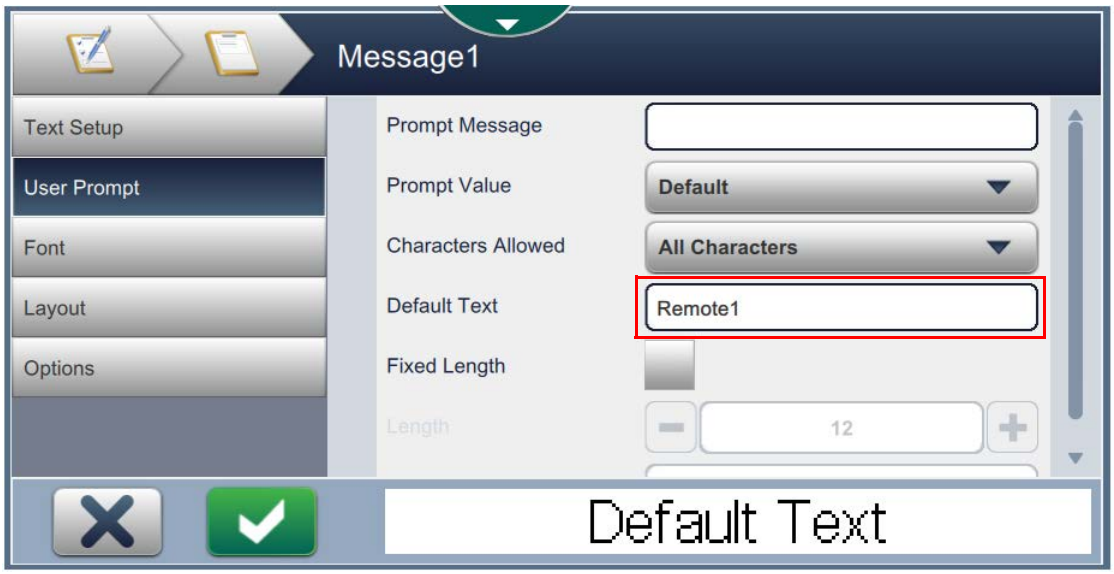


Figure 3-8: User Prompt Option

9. The Job Editor screen appears as shown in Figure 3-9.Touch the '+' button to add the required fields to the existing message.

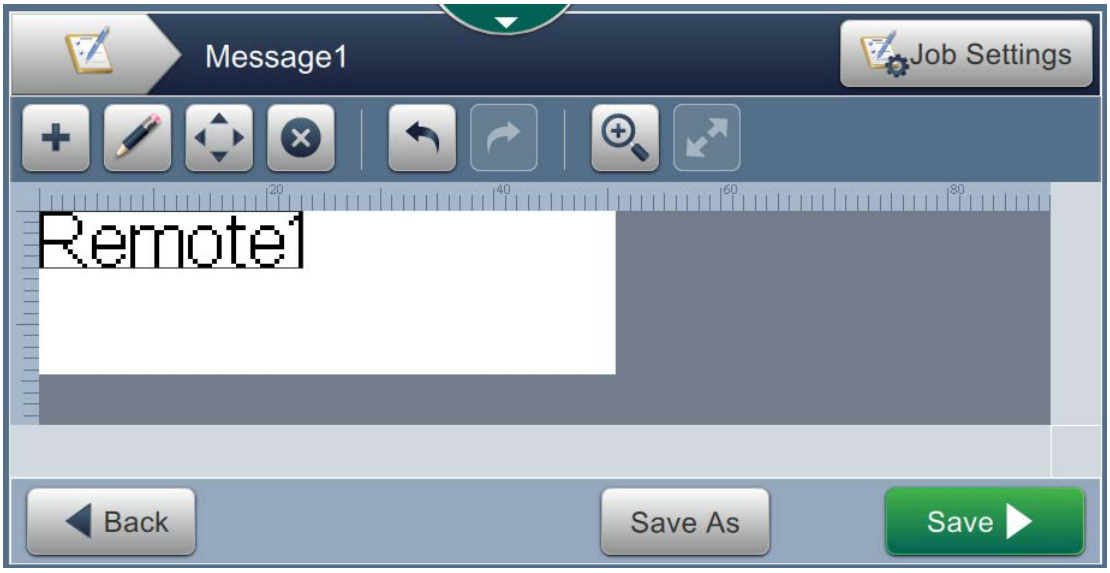


Figure 3-9: Job Editor Screen

Note: *The order of insertion of user fields into the message will be the order in which the message fields get updated remotely.*

10. Once the required fields are inserted and updated, touch the *Save* button to save the message as shown in Figure 3-9 on page 3-6.

11. Touch the *Run Job* button.

12. Touch *Approve All* button and then touch the *Continue* button, since the message contains user prompted field (Figure 3-10).

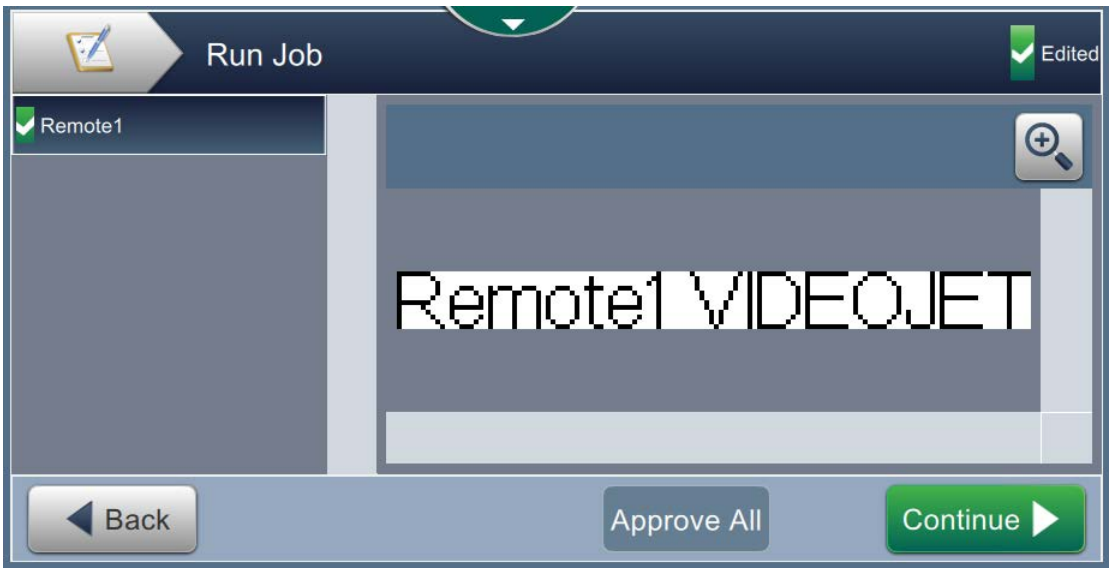


Figure 3-10: Run Job Screen

13. Touch the *Load Job* button to load the job for printing. The user prompted field with default text *Remote1* is followed by fixed text *VIDEOJET* as shown in Figure 3-11.

Figure 3-11: Home Screen - Job Preview

The job is loaded and is ready to accept remote data for the user prompted fields in the message.

3.1.2.2 Send the Data

There are three methods for sending the data to the Videojet 1580/1860/1880 to populate inserts.

The first method uses the dedicated remote data channel on Videojet 1580/1860/1880 UI. The next two methods require the data to be sent via the standard ESI channel.

Setting Up ESI (Remote Data) Channel

Do the following tasks to enable ESI (Remote Data) channel:

1. Navigate to *Tools* > *Communications* > *LAN1* > *Configuration* as shown in Figure 3-12.

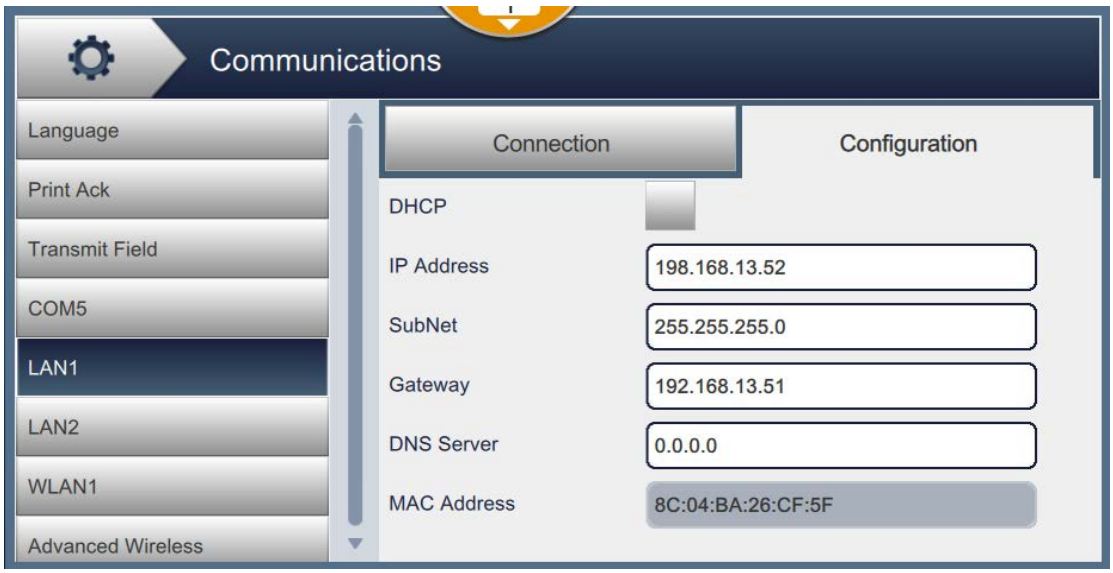


Figure 3-12: Configuration

2. Set the parameters in the following order:
   - IP Address
   - SubNet
   - Gateway (if required)
   - DNS Server (if required)
3. Navigate to *Tools* > *Communications* > *LAN1* > *Connection* and touch the *Add Protocol and Port* button to update the protocol and port number.

4. The *Add Protocol and Port* screen appears as shown in Figure 3-13. Set the Port Number to 3001.

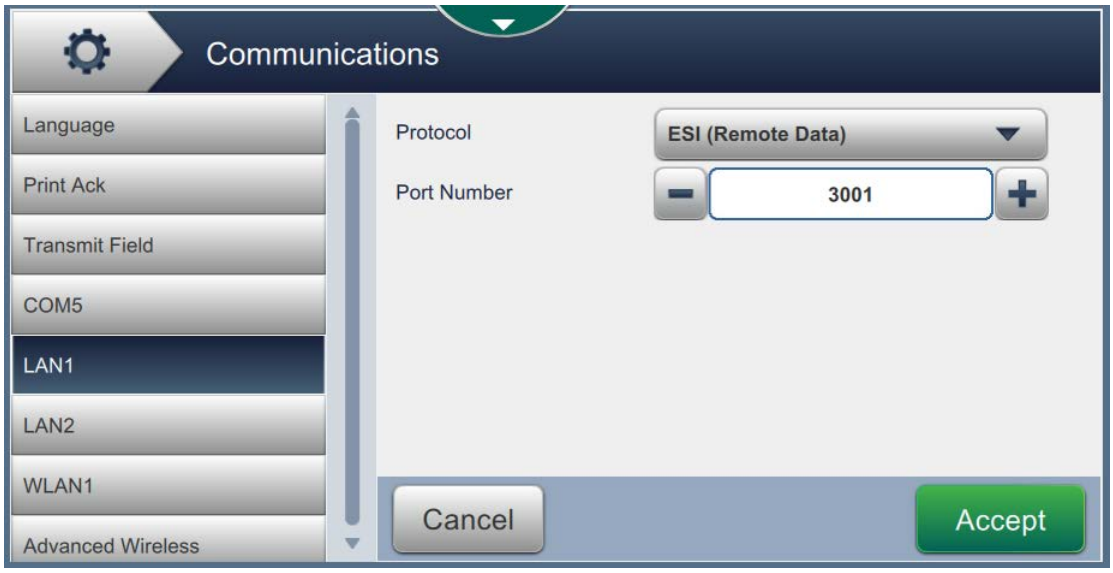


Figure 3-13: Add Protocol and Port Screen

5. Touch the *Protocol* drop down list and select ESI (Remote data). Touch *OK* button to confirm the selection.
6. Touch the *Accept* button to save the updated Protocol and Port settings.

Setup of ESI (Remote Data) channel is complete and is ready to send remote data into the currently loaded message.

Send the Data Using ESI (Remote Data) Channel

The ESI (Remote Data) channel will allow up to 10 inserts or User Prompted field in one message by sending ASCII strings terminated by a carriage return [0D]. Each User Prompted field data will be terminated with a carriage return [0D]. The last User Prompted field data will end in a double carriage return and this will terminate the string of data for that message.

Example: String of data to populate the user prompted field “Remote1”
Data String: 12345[0D][0D]

Since there is only one user prompted field, the string terminates with a double carriage return.

The user prompted text “Remote1” of the job *Message1* has been updated to “12345” as shown in Figure 3-14.

Figure 3-14: Home Screen

The printer will print the job as “12345 VIDEOJET” until a new data string is received.

Send the Data Using ESI (Remote Data) Channel With Remote Data in Barcode

When using the Remote Data channel with the need to place a remote data field into a printed barcode. The remote data field must be a Custom Reference Field. This Field will be create under the Custom Reference Build option. The following example will how to setup the The Customer Reference Field and the message creation with a 128 barcode.

1. Touch the *Tools* button on the Home screen to access the Tools screen and select the Custom Reference Builder option as shown in Figure 3-15.

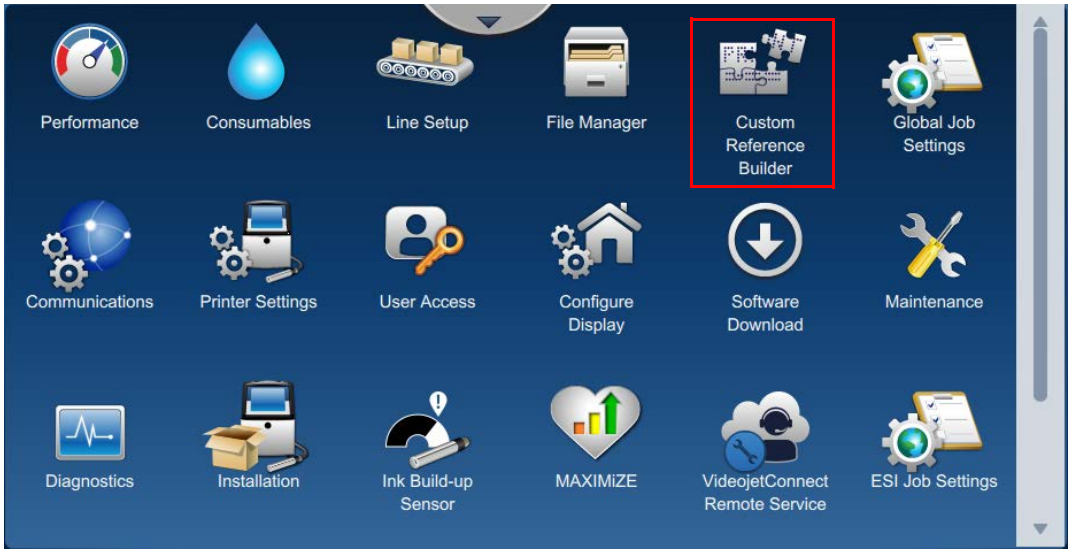


Figure 3-15: Tools Screen

2. The Custom Reference Builder screen opens as shown in Figure 3-3. Touch the '+' button to create an new custom reference.

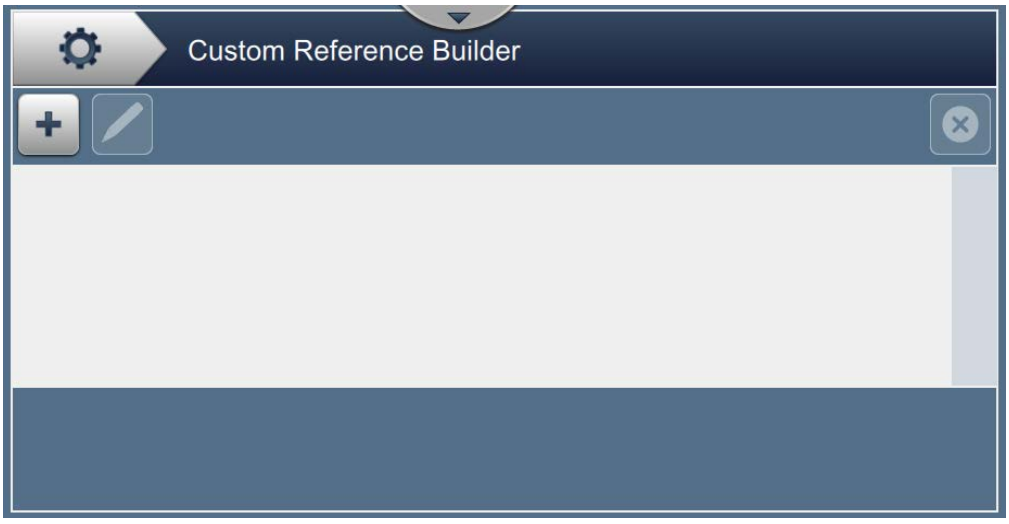


Figure 3-16: Custom Reference Builder Screen

3. Create the name of a remote field, for example, Remote1 and touch the *Accept* button.

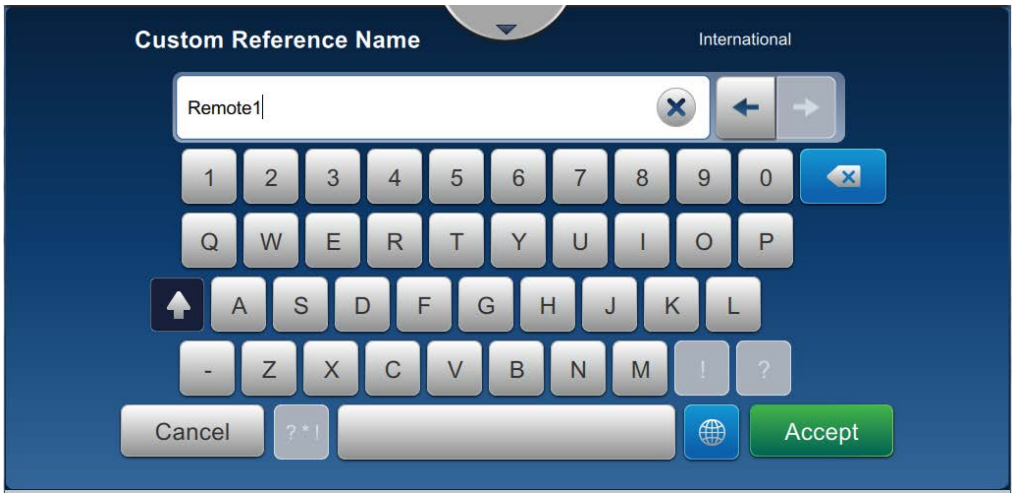


Figure 3-17: Custom Reference Name

4. Touch the *User Prompt Text* tab and press "+" key.

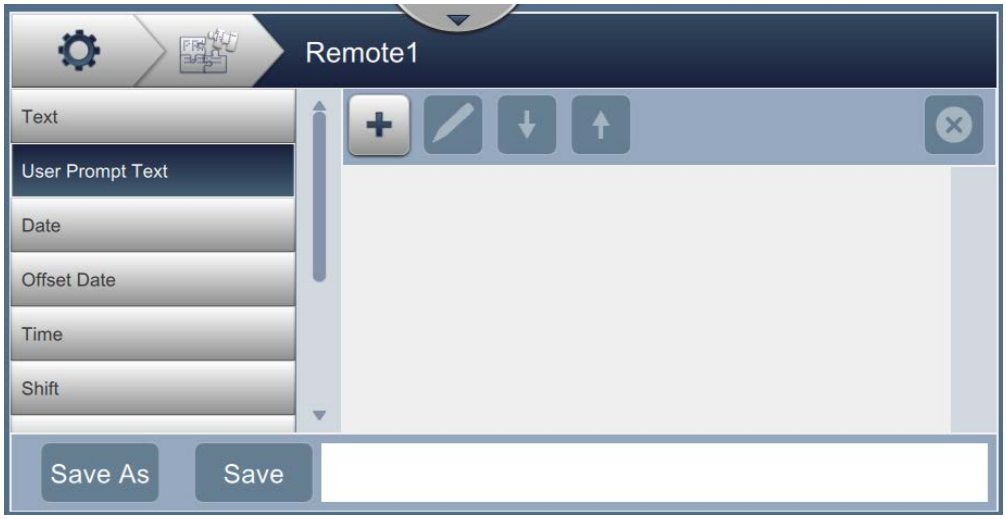


Figure 3-18: User Prompted Text Screen

5. Touch the pencil icon to edit the User Prompted Text field.

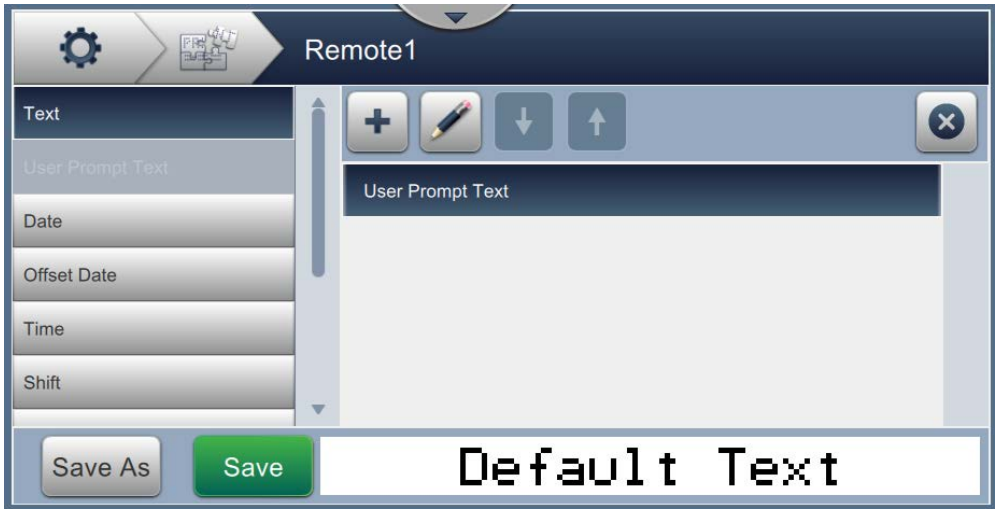


Figure 3-19: User Prompted Text Screen

6. Touch on Default Text text field and set the text, for example Remote1.

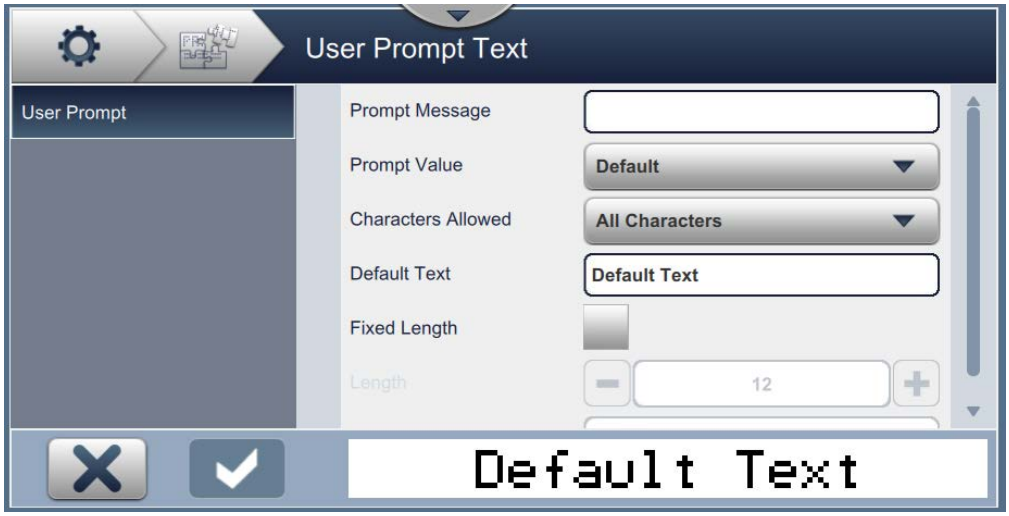


Figure 3-20: Default Text

7. Touch on the check mark button to accept the changes.

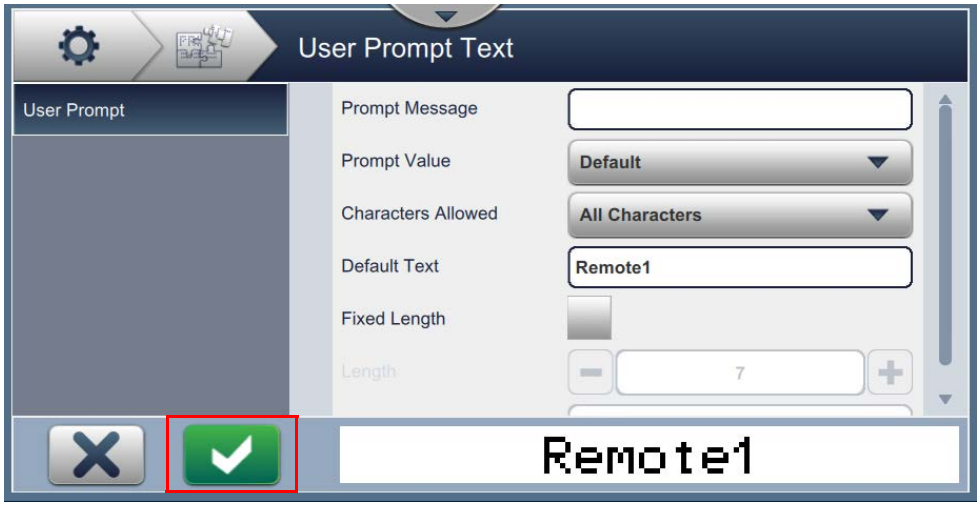


Figure 3-21: Change Default Text

8. Touch on *Save* button to save the changes.

Figure 3-22: Save User Prompted Text

9. Custom Reference is now available.

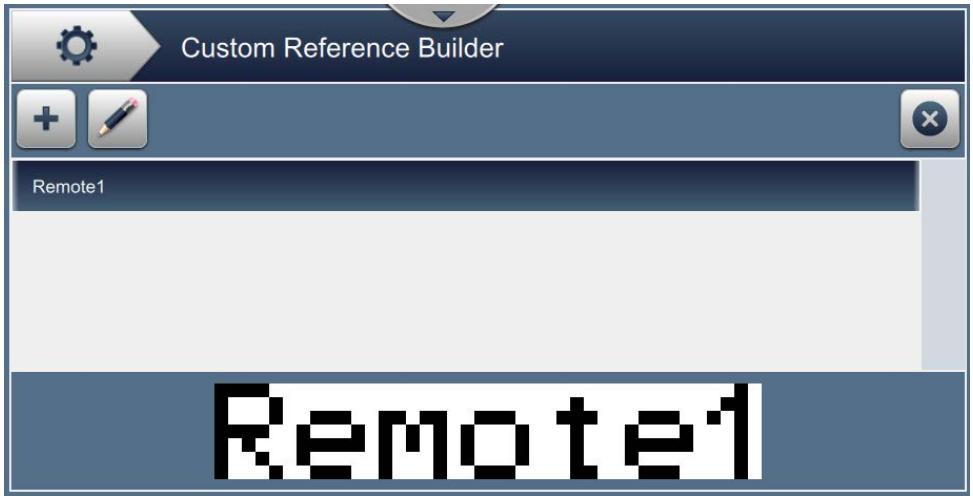


Figure 3-23: Custom Reference

Create Job

Note: *The terminology message refers to jobs.*

1. Navigate to Home screen. Touch the *Jobs* button shown in Figure 3-24.

Figure 3-24: Home Screen

2. The Jobs List screen opens as shown in Figure 3-25. Touch the '+' button to create an new job.

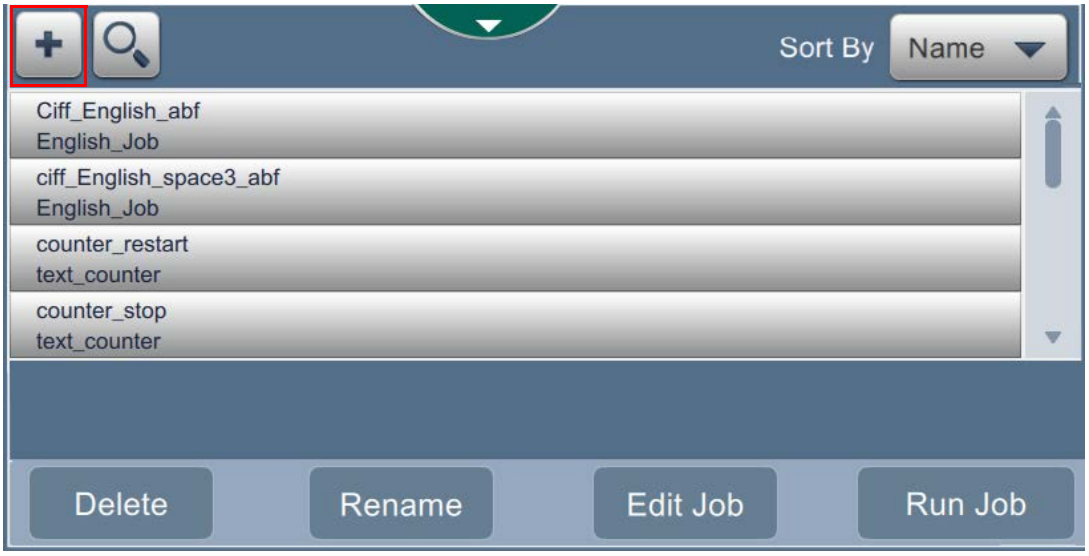


Figure 3-25: Jobs List Screen

3. Touch the *Job Name* field to enter the job name for the new job as shown in Figure 3-26. Enter the required Job Name using utility keypad and touch the *Accept* button. For example, 128 Barcode with Remote Data Insert. Touch the *Done* button on the Jobs Settings screen to save the changes.

   Note: *The user can also provide the job description for the new job.*

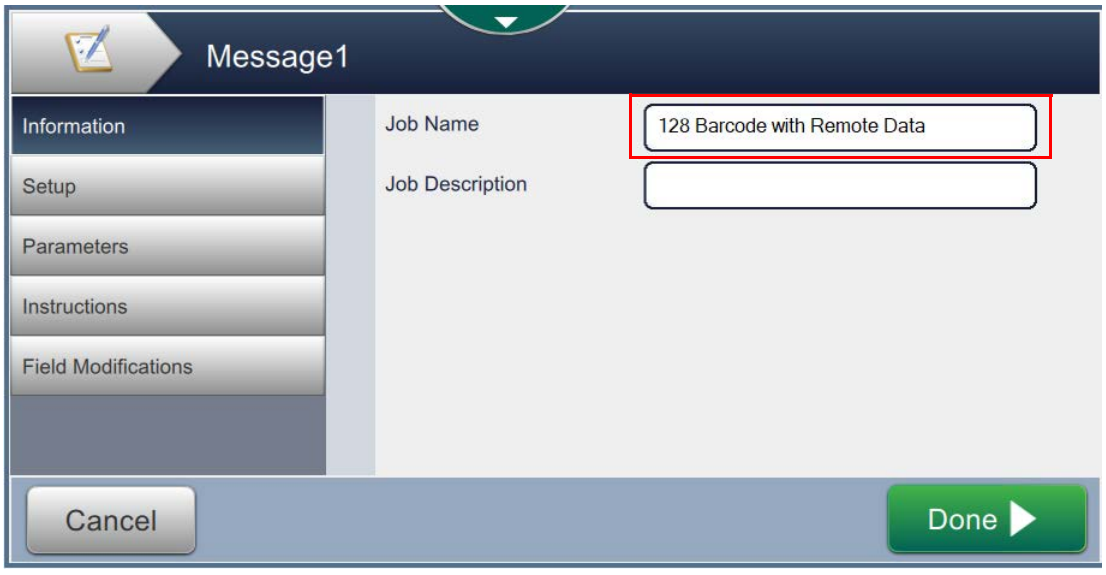


Figure 3-26: Jobs Settings Screen

4. Touch the '+' button on the Job Editor screen and select the required options to insert fields as shown in Figure 3-27.

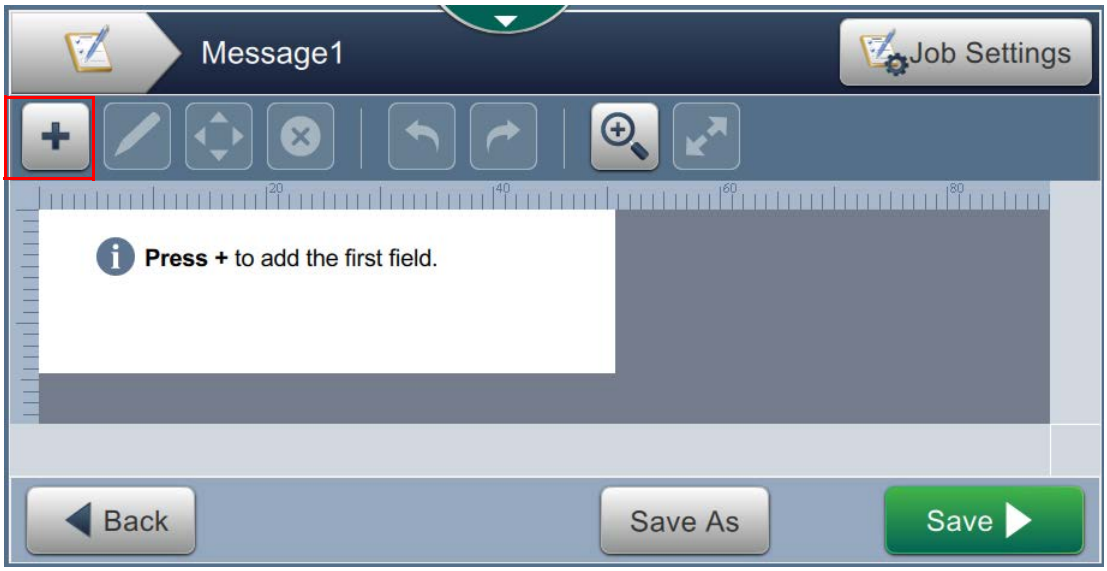


Figure 3-27: Job Editor Screen

5. Touch the *Text* option from the Field Type drop down list to insert a text field and touch the *OK* button as shown in Figure 3-28.

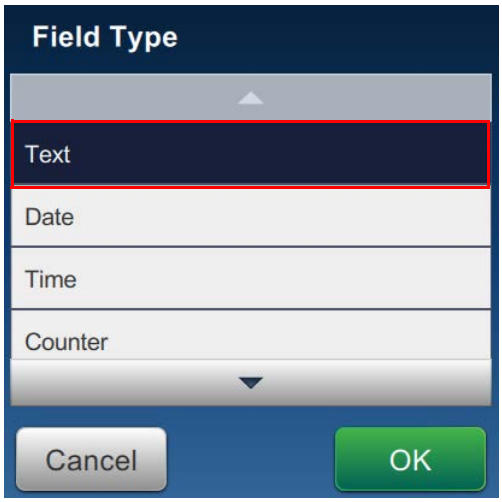


Figure 3-28: Field Type Screen

6. Touch the *Text Type* drop down list on the Text Setup screen shown in Figure 3-29 and select *Fixed Text* option. Touch the *OK* button to save the required format of the field.

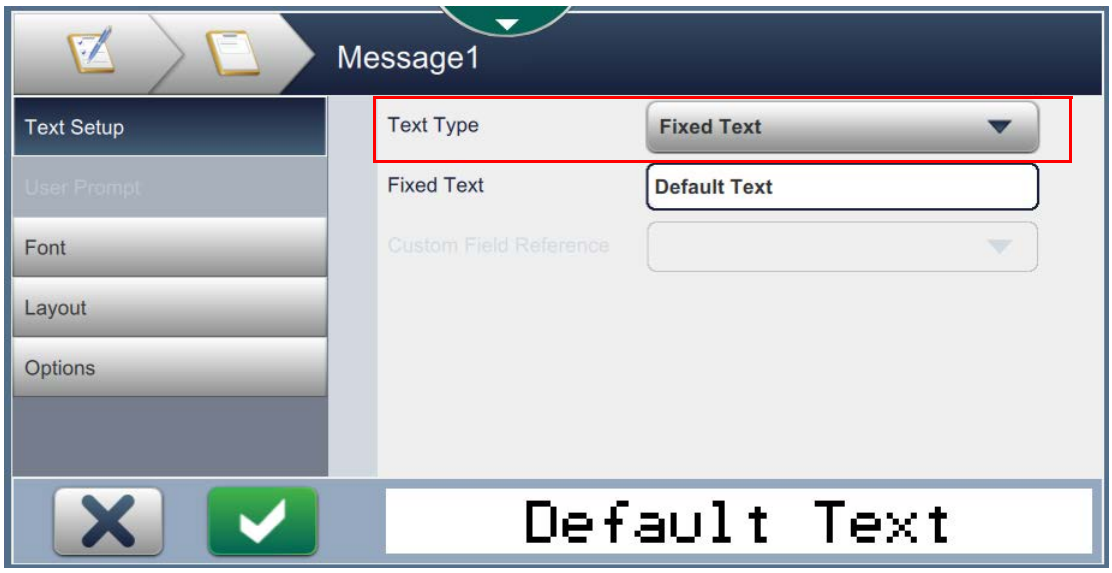


Figure 3-29: Text Setup Screen

7. Touch the *Fixed Text* button to change the default text as shown in Figure 3-30. For example, 128 Barcode with Remote Data. Touch the green check mark button the save the text settings.

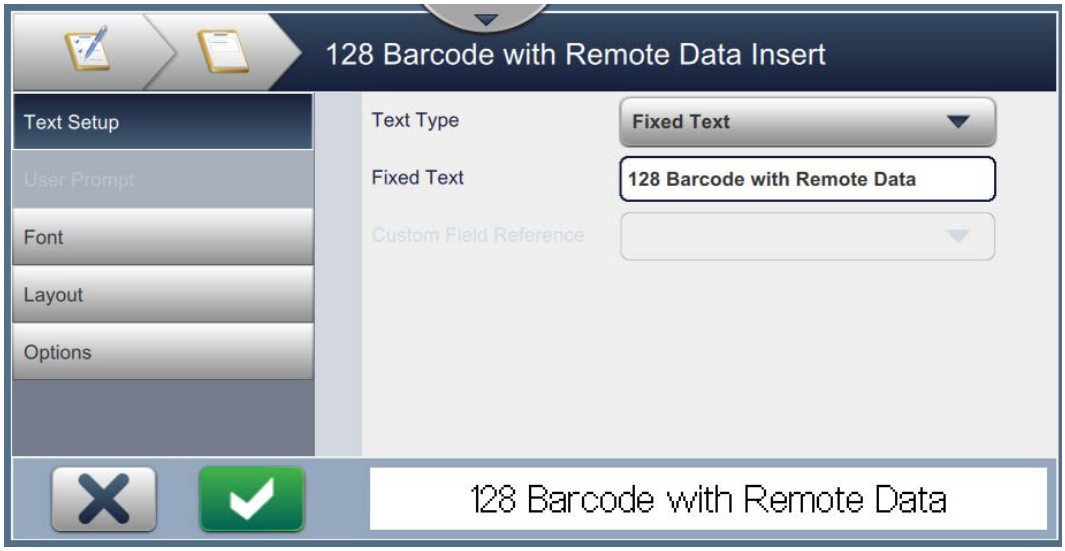


Figure 3-30: Fixed Text Option

8. The Job Editor screen appears as shown in Figure 3-31.

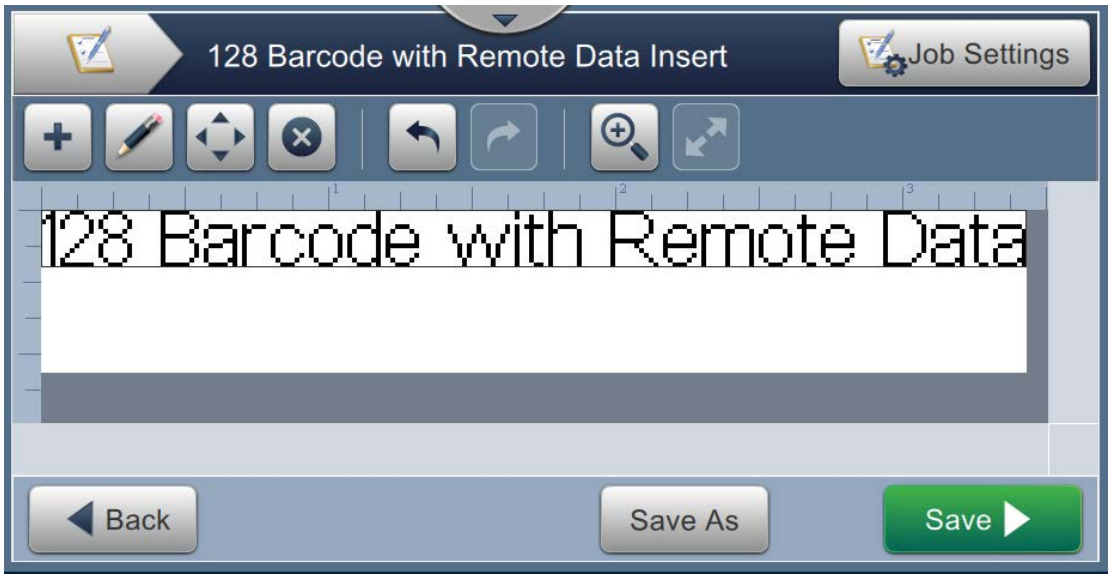


Figure 3-31: Job Editor Screen

9. Touch the '+' button to add the Linear Barcode field.
10. Select *Linear Barcode* and touch on *OK*.

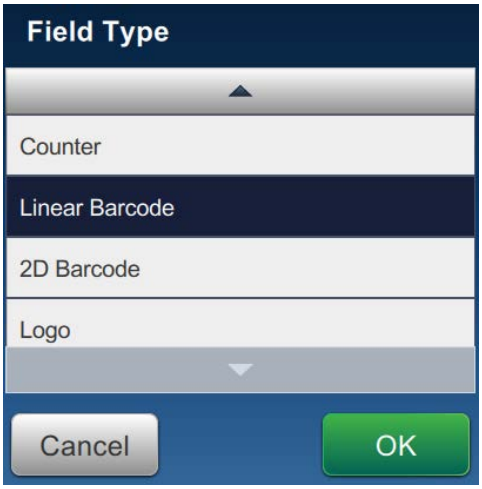


Figure 3-32: Field Type

11. Touch the Barcode Type drop-down list and select Code 128.

12. Touch the *OK* button to save the barcode type.

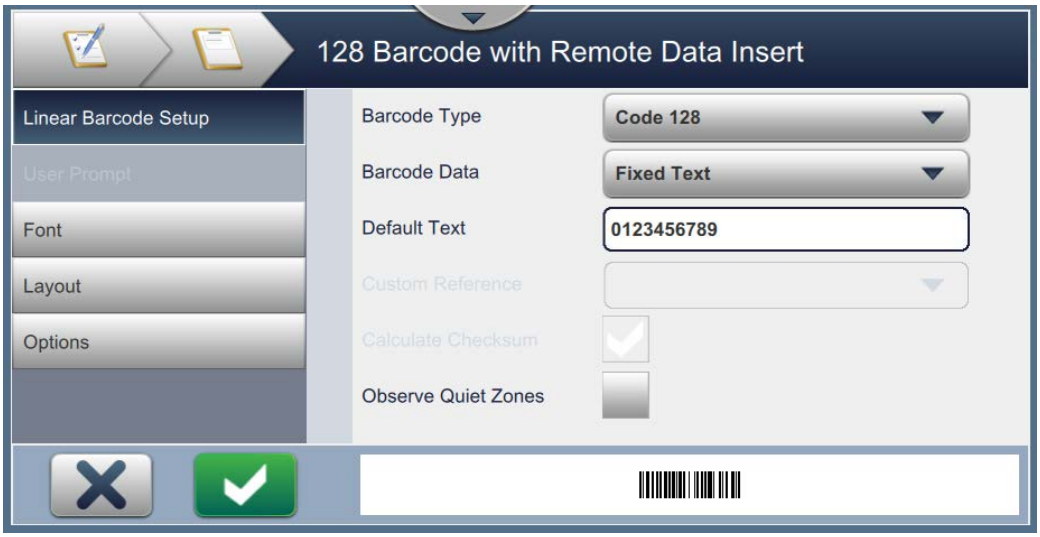


Figure 3-33: Barcode Type

13. Touch the Barcode Data drop-down list and select Custom Reference.

14. Touch the *OK* button to save the barcode data.

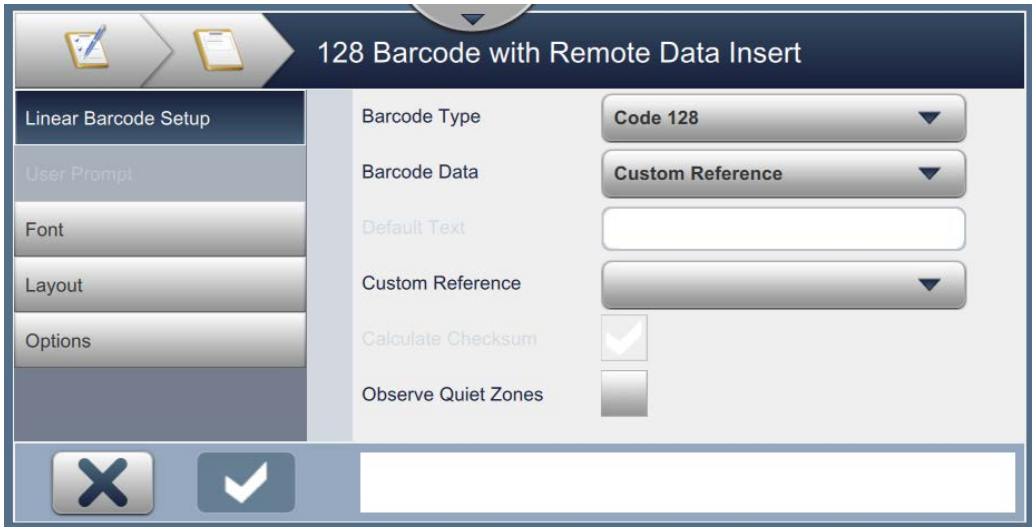


Figure 3-34: Barcode Data

15. Touch the Custom Reference drop-down list and select Remote1.

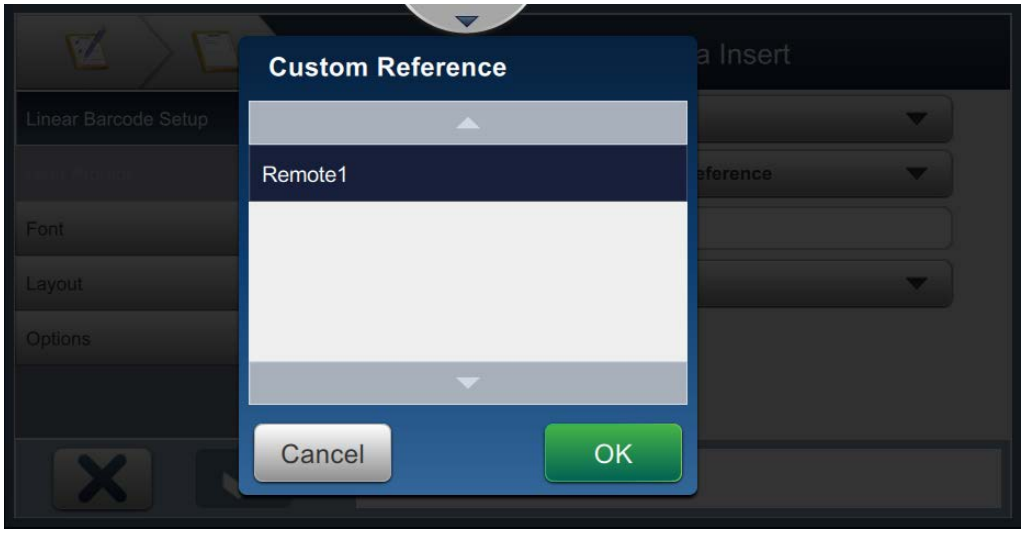


Figure 3-35: Custom Reference

16. Touch the *OK* button to save the custom reference.

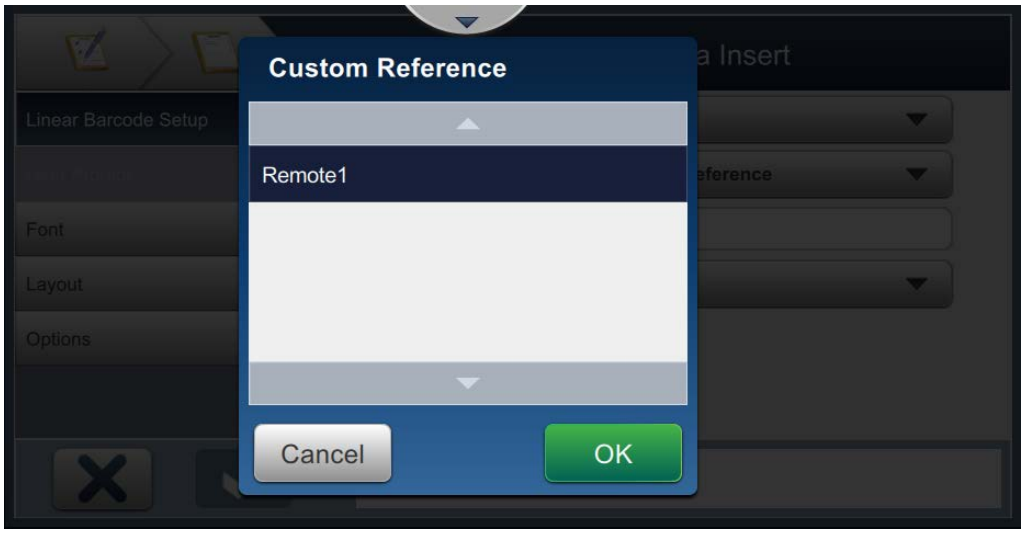


Figure 3-36: Custom Reference

17. Touch the *Font* tab on the left side panel.

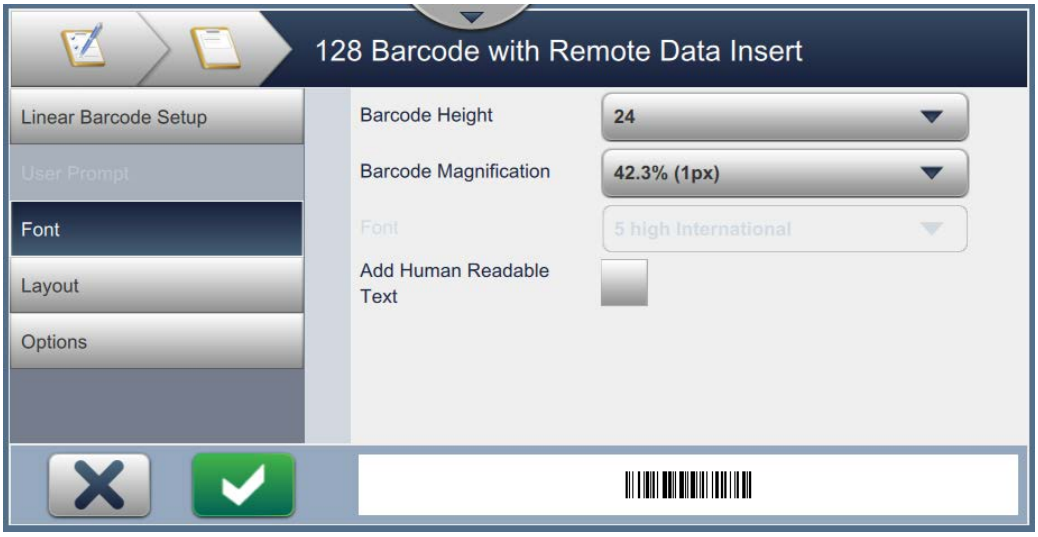


Figure 3-37: Font Tab

18. Set Barcode Height to 24 and enable the Add Human Readable Text. Touch the check mark key to accept changes.

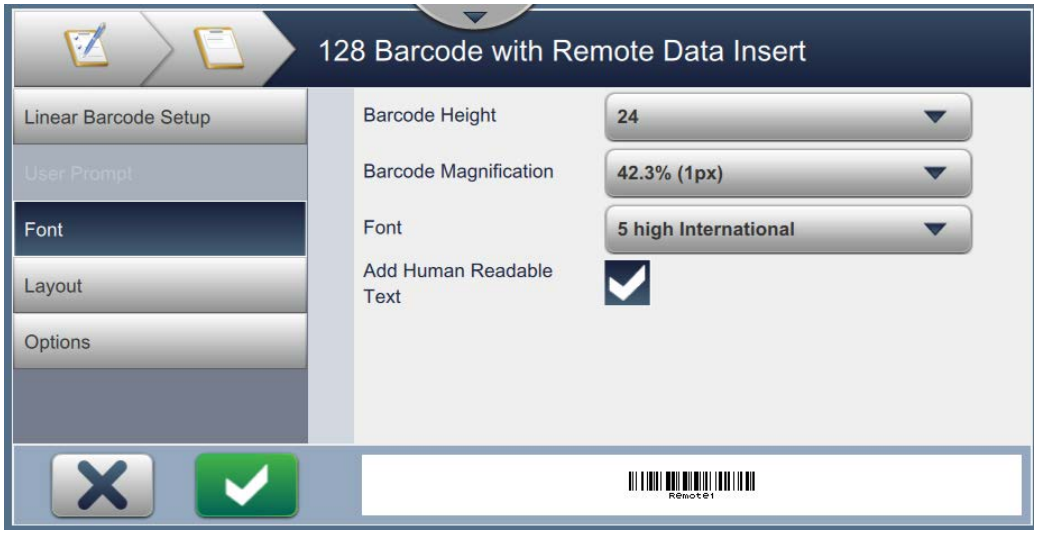


Figure 3-38: Font Tab

19. Once the required fields are inserted and updated, touch the *Save* button to save the job as shown in Figure 3-9 on page 3-6.

20. Touch the *Run Job* button.

21. Touch *Approve All* button and then touch the *Continue* button, since the job contains user prompted field (Figure 3-39).

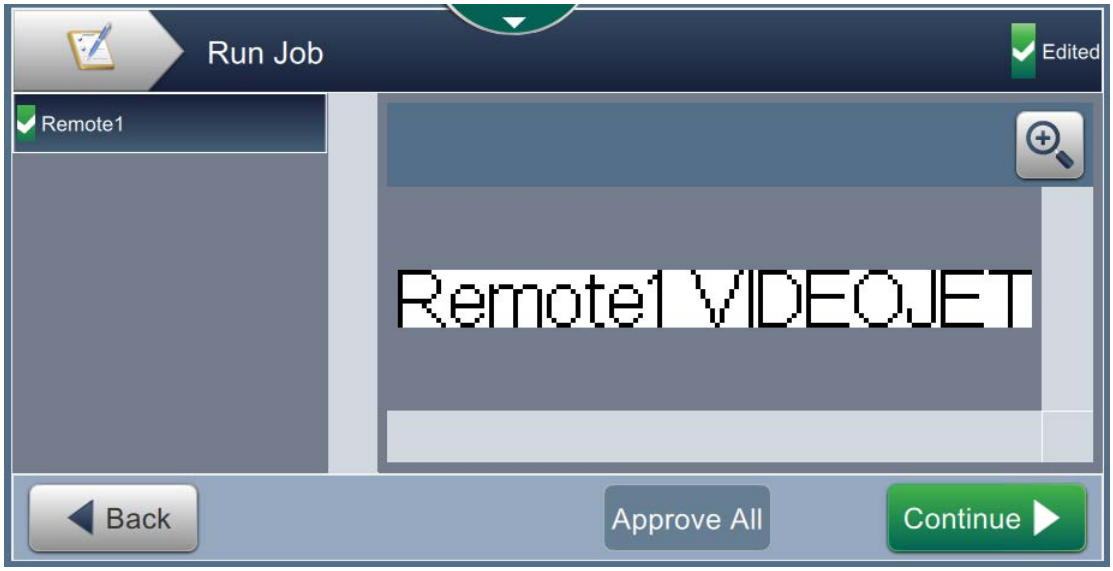


Figure 3-39: Run Job Screen

22. Touch the *Load Job* button to load the job for printing. The job appears on the screen as shown in Figure 3-40.

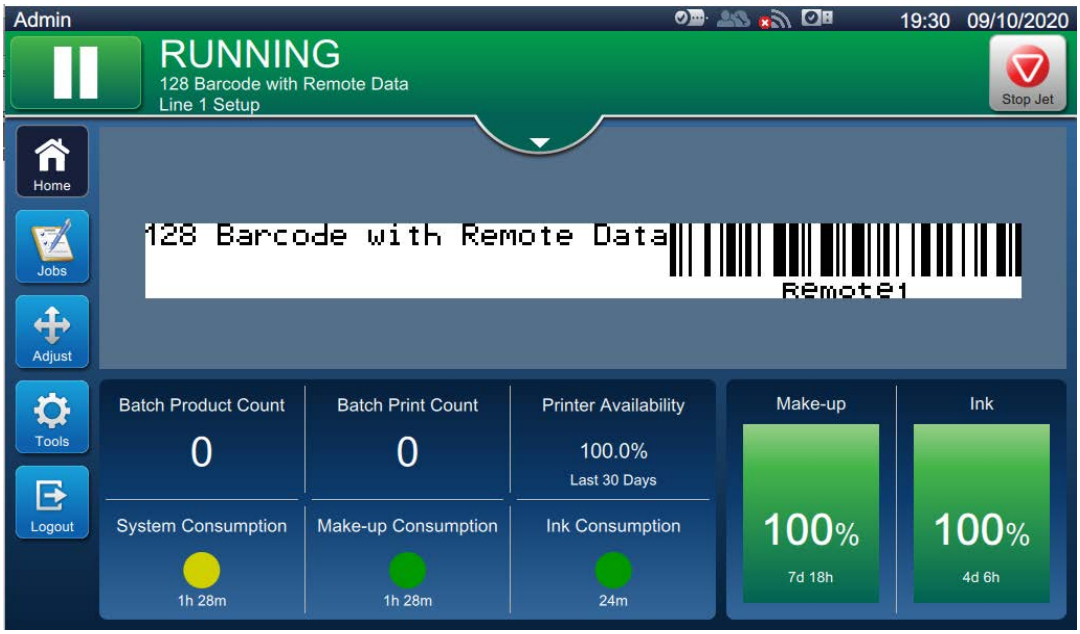


Figure 3-40: Home Screen - Job Preview

23. Send the Remote Data String by sending the command from the host PC/PLC. Command Sent: 12345ABC[0D][0D].

24. Check that the job displayed and the job printed should now shows the remote data added to 128 barcode.

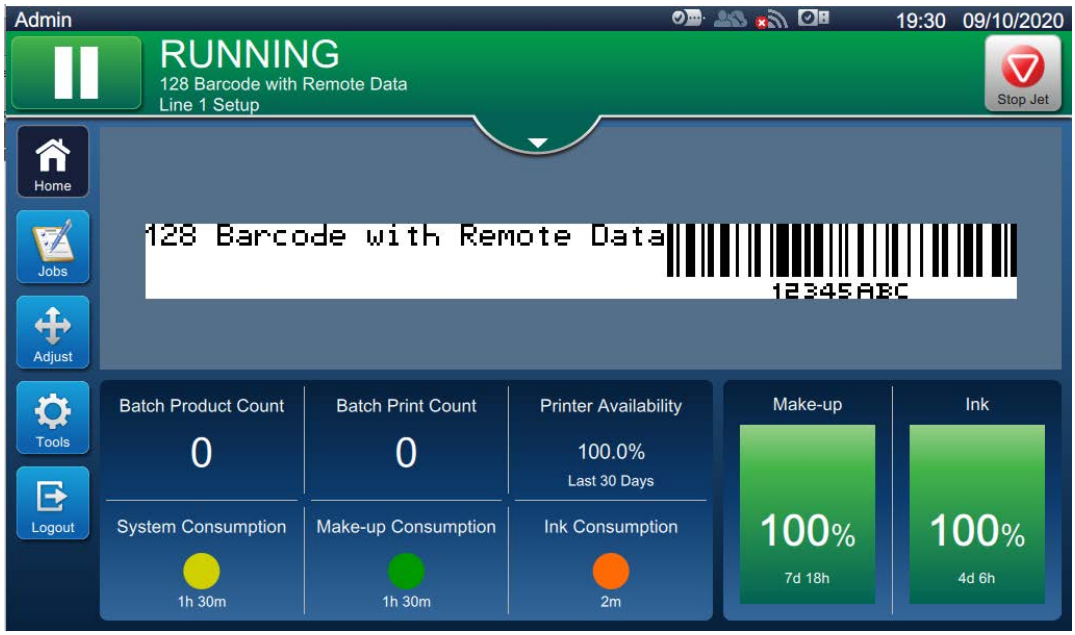


Figure 3-41: Home Screen - Job Preview

Setting Up ESI (Main) Message Mode

Do the following tasks to setup the printer for ESI (Main) Message remote mode communications. This will allow a remote host to be able to send over messages and settings to the printer.

1. Navigate to *Tools* > *Communications* > *LAN1* > *Configuration* as shown in Figure 3-42.

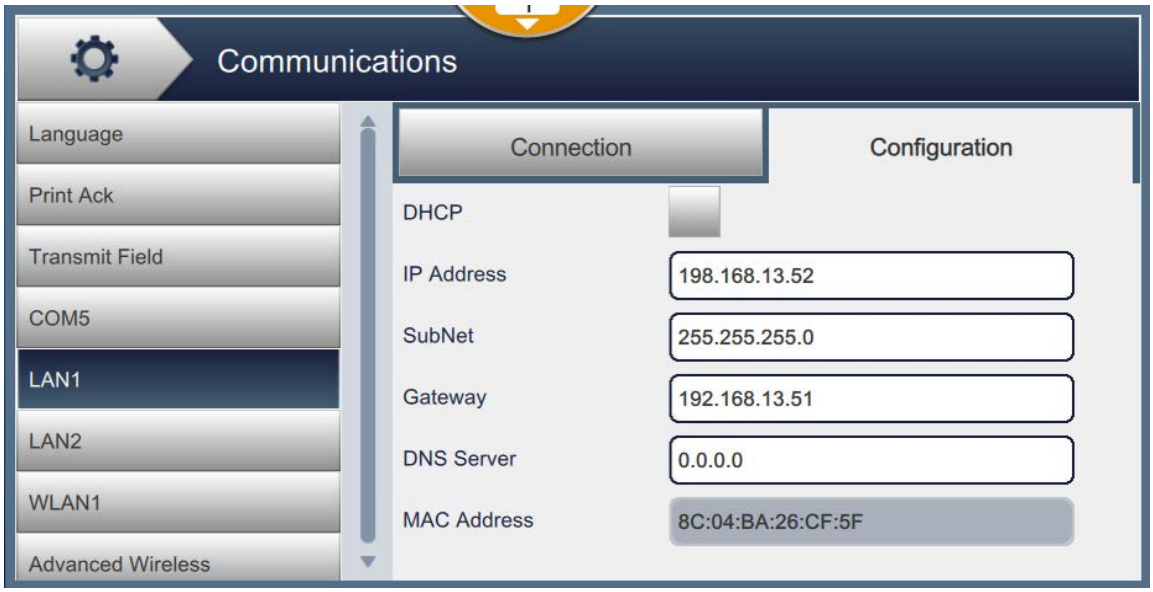


Figure 3-42: LAN1 Screen

2. Set the parameters in the following order:
   - IP Address
   - SubNet
   - Gateway (if required)
   - DNS Server (if required)
3. Select the *Connection* tab and update the port number and protocol.
4. The *Add Protocol and Port* screen appears as shown in Figure 3-43. Set the Port Number to 3000.

5. Touch the *Protocol* drop down list and select ESI (Main). Press *OK* button to confirm the selection.

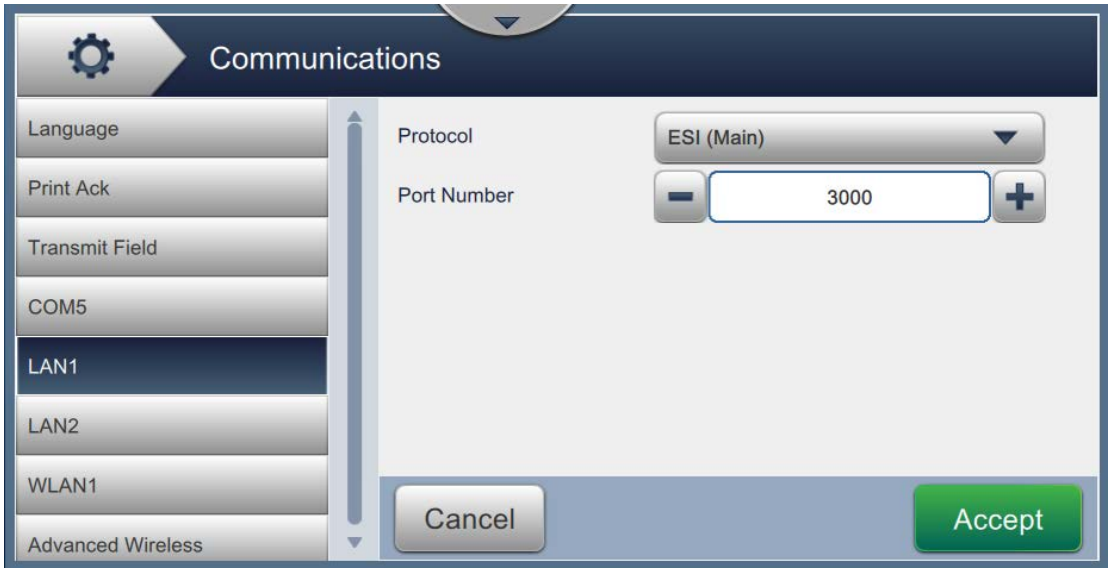


Figure 3-43: Add Protocol and Port Screen

6. Touch the *Accept* button to save the updated Port and Protocol settings.

Setup of ESI (Main) Message mode is complete and is ready to send messages and settings remotely to the printer.

Send the Data Using ESI (Main) Message Mode

Some ESI commands are context sensitive. Because of this the printer will only recognize commands in the right context. The protocol is also able to confirm that all bytes including any data payload were successfully received.

Standard Printer Responses to ESI Commands

Following are the 6 possible responses to the commands:

- [07][29] Out of context - the command header is recognized but cannot be used now.

Note: *This command may be sent to the host PC if the printer is currently in the print mode whereas, the command you are trying to send requires the printer to be out of the print mode for the command to be accepted.*

- [07][28] Unrecognized command
- [07][08] Command Accepted
- [07][09] A Multi-byte Command was accepted
- [07][36] Too many inserts or no response at all for a successful in line command in context
- [07][51] Illegal barcode
- [07][37] Error Serializer (Counter)
- [07][40] Buffer Overfill

There are also commands which have non-standard responses, or their function includes returning data over ESI to the requester. These non-standard responses are detailed in individual cases in the command reference.

Note: *If you send a command and do not get a response when you expect a response - check the command reference to determine if the command requires padding to a specific number of bytes. Several commands require padding.*

3.1.3 Status Reporting

By default, the ESI protocol is synchronous whereby the printer only responds to requests. However, it is possible to configure ‘Status Response’ packets. In this mode, the printer may be configured to inform the ESI host that particular events have occurred as soon as they occur, and without waiting for the host to request the information. The types of events which may be selected for immediate reporting are:

1. Print Ready Status Change (Print ON, [07][06]/Print OFF [07][05])
2. Message Received, ([07][21])
3. Message Print Started, ([07][22])
4. Message Print Completed, ([07][04])
5. Printer Fault, ([07][46][XX])
6. Print Once Error, ([07][23])

Chapter 5 describes how to configure and enable the features, Configure Status Report, Enable Status, Disable Status commands. The printer will turn off these responses at power cycle of printer. If you want to have these responses, you should send command at power on [1B][01][06][XX] and this will turn on the feature. Enable Status command will turn on all features and Disable Status command will turn off all features.

3.1.4 ESI and the UI

It is not possible to load and print messages from the UI while in ‘ESI Remote Message Mode’ or “ESI Message Remote” and it is also not possible to send and print remote messages while in ‘ESI Insert Mode’ with the ESI interface.
It is possible to send a remote data insert while in the ‘Insert Mode’. This insert will be entered via the printer keyboard as a user prompted field. When this user prompted field is loaded with the other contents of the message by pressing the *Load Job* button, this will provide a remote host the ability to download data up to the length of the user prompted field in the message. This external data can be changed and sent to the printer or sent once and printed on every print until new data is sent.

The Home screen will show you the next message to be printed while in ‘ESI (Main), Message Remote Mode’. You will not be able to load messages via the Home screen using the printer’s keyboard (UI) while in ESI (Main), Message Remote Mode.
Line setups can be edited and changed but message data cannot be changed via the UI. You will know the status of the UI if you look into the left corner of the display.

In the left of display, it shows *<<1880 EsiInternal>>* (see Figure 3-44). This informs the operator that the printer is in the ESI (Main), Message Remote Mode. The line below shows the current line setup *Line 1 Setup* used by the printer. The *Under Remote Control* message flashes in the banner, indicating that the printer is being controlled by an external protocol.

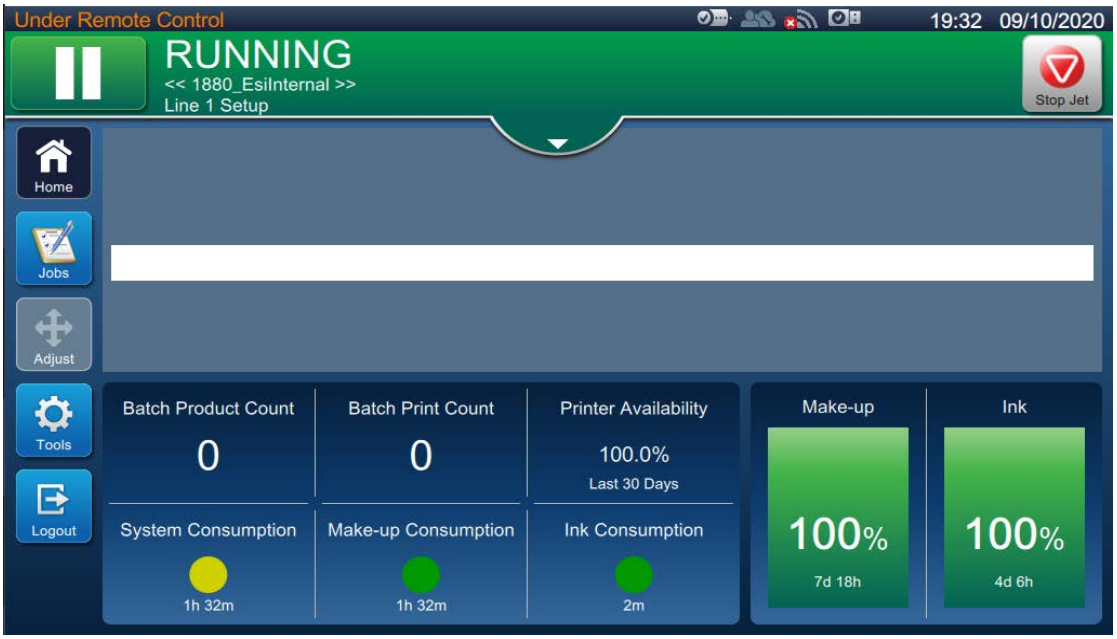


Figure 3-44: Home Screen

It is possible to put the printer in and out of print mode using the UI whilst using ESI.

It is possible to adjust various global printer settings using the UI whilst using ESI. These include such commands as: Message Orientation, Barcode Reverse, Print Delay, Encoder and Photocell settings, etc. However, many of these commands will not affect the current message, they will affect the next message loaded. If it is desired to affect the current message it is necessary to resend the message to the printer.

Global Commands

Global commands are those which will be remembered by the printer, once the matrix command is sent to the printer all messages following will use this matrix. This is the same for orientation command such as; Reverse Message, Invert Message, Reverse all Characters, Multi—Stroke commands. These commands will have a response from the printer to acknowledge they have been activated [07][08].

In-Line Commands

In-line commands are those which specifically build the current message. They include the following types of commands:

1. In-Line fonts (not global fonts)
2. Sub font (Mixed font controls)
3. All inserts (i.e., timers, dates, barcodes etc)
4. Character manipulation (e.g., multistroke, invert, reverse etc)

In-Line commands will not be remembered by the printer to effect the next message to be downloaded. The printer will revert back to the last Global matrix command sent from host or default setting. In-Line commands do not generate a protocol response from the printer, unless they are sent out of context.

3.1.5 Message Stacking

The ESI protocol will operate with Message Stacking as a default setting.

Message Stacking Mode: This mode will receive strings of ASCII characters and will be terminated by a carriage return. These messages sent to printer will stack to the printer input first in first out (FIFO) stack buffer. When the printer received a product detect signal the next message from the input stack buffer will move to the printer buffer and be printed. As long as there are messages in the stack buffer the printer will print a different message for every product detect received. If there are no messages waiting in the input stack buffer, when the next product detect is received the printer will continue to print the last message printed until a new message is received.

The input stack buffer can hold 100 messages. If you exceed the 100 message stack, the printer will send a response of [07][40], this is a buffer overfill. Any message sent after this will be lost.

3.2 Message Structure

The printer communicates with ASCII characters. All characters sent to the printer over RS-232, RS-485, or Ethernet must be sent as ASCII characters. As you will see many commands are written in the hexadecimal form, this is for the ease of presentation for the writing of the documentation, since all the characters in the ASCII table are not printable and may be difficult to represent or write. The “[ ]” denotes that the characters between the brackets are the hexadecimal value of the ASCII character that will be sent to the printer. You will see several control characters. The TAB character [09] is used to separate multi line message it is the character that represents the line terminator. The carriage return “[0D]” represents the message terminator this is added to the end of the entire message string to terminate the message.

[09] = TAB Character (Line Terminator)

[0D] = Carriage Return (Message Terminator)

<FNC1> = Function code 1 used for GS1 barcodes

Examples of Message Structure

Single Line Message:

Message String Sent: ABCD[0D]
Printed Output: ABCD

Twin Line Message:

Message String Sent: TOP LINE[09]BOTTOM LINE[0D]
Printed Output: TOP LINE
BOTTOM LINE

Tri-Line Message:

Message String Sent: TOP LINE[09]MIDDLE LINE[09]BOTTOM LINE[0D]
Printed Output: TOP LINE
MIDDLE LINE
BOTTOM LINE

Quad Line Message:

Message String Sent: FIRST LINE[09]SECOND LINE[09]THIRD LINE[09]FOURTH LINE[0D]
Printed Output: FIRST LINE
SECOND LINE
THIRD LINE
FOURTH LINE

Penta Line Message:

Message String Sent: FIRST LINE[09]SECOND LINE[09]THIRD LINE[09]FOURTH LINE[09]FIFTH LINE[0D]

Printed Output: FIRST LINE
SECOND LINE
THIRD LINE
FOURTH LINE
FIFTH LINE

3.3 Example Messages

Global Message Format 5x5SL Matrix

Command Type: Message String

Command: **[1B][04][00] Data1 [0D]**

This message string starts with the global font command, setting the printer to 5x5SL matrix. Data1 is the message data. The [0D] is a carriage return, which acts as the message terminator.

Printer Response: The printer will respond with [07][08] for the global font command. If “Configure Status Report Command” is set to have [1B][01][06][18] “Message Received Acknowledgment” ON, prior to sending this message string. Then the full printer will respond with [07][08][07][21].

Print Output: Data1

In-Line Message Format 5x5SL Matrix

Command Type: Message String

Command: **[1B][81][00] Data1 [0D]**

This message string starts with the in-line font command, setting the printer to 5x5SL matrix. Data1 is the message data. The [0D] is a carriage return, which acts as the message terminator.

Printer Response: If “Configure Status Report Command” is set to have [1B][01][06][18] “Message Received Acknowledgment” ON, prior to sending this message string. Then the full printer will respond with [07][21].

Print Output: Data1

Message Format 10x16 Mixed Mode Matrix

Command Type: Message String

Command: **[1B][04][03][1B][81][00] Data1 [1B][81][01] Data2 (Top Line) [09] Data3 (Bottom Line) [0D]**

This message string starts with the global font command setting the printer to 10X16 Mixed Mode matrix. The [1B][81][00] ‘Sub Font’ prefix sets Data1 to Full Height. The [1B][81][01] ‘Sub Font’ prefix sets Data2 and Data3 to top and bottom lines respectively of twin line Half Height, note that top and bottom lines are delimited with a [09] TAB character. The [0D] is a carriage return, which acts as the message terminator.

Printer Response: The printer will respond with [07][08] for the global font command. If “Configure Status Report Command” is set to have [1B][01][06][18] “Message Received Acknowledgment” ON, prior to sending this message string. Then the full printer will respond with [07][08][07][21].

Print Output:

Data1 Data2 (Top Line)
Data3 (Bottom Line)

Message Format 5x5 Quad Line Matrix

Command Type: Message String

Command: **[1B][04][16] Data1 (Top Line) [09] Data2 (2nd Line) [09] Data3 (3rd Line) [09] Data4 (Bottom Line) [0D]**

This message string starts with the global font command setting the printer to 5x5 Quad Line matrix. Each line is delimited by the [09] TAB character. The [0D] is a carriage return, which acts as the message terminator.

Printer Response: The printer will respond with [07][08] for the global font command. If “Configure Status Report Command” is set to have [1B][01][06][18] “Message Received Acknowledgment” ON, prior to sending this message string. Then the printer will respond with [07][08][07][21].

Print Output: Data1 (Top line)
Data2 (2nd line)
Data3 (3rd line)
Data4 (Bottom line)

In-Line Message Format 9x12SL Matrix with 128 Barcode Insert

Command Type: Message String

Command: **[1B][81][2A][1B][85][17] Data1[1B][85][19][0D]**

This message string starts with the in-line font command, setting the printer to 9x12SL matrix. The [1B][85][17] represents the in-line data command for 128 without human readable barcode on, Data1 is the content data for the barcode. [1B][85][19] is the in-line command for 128 barcode with human readable off. The final [0D] is a carriage return, which acts as the message terminator.

Printer Response: If “Configure Status Report Command” is set to have [1B][01][06][18] “Message Received Acknowledgment” ON, prior to sending this message string. Then the printer will respond with [07][21].

Print Output: Data1

In-Line Message Format 5x7SL Matrix

Command Type: Message String

Command: Send**: [1B][04][01]**
Response**: [07][08]**
Send**: Data1 [0D]**
Response**: [07][21]**

Send the 5x7SL global matrix command then wait for the printer to respond or allow enough time for the printer to respond. Send the message data, Data1. The [0D] is a carriage return, which acts as the message terminator.

Printer Response: The printer will respond with [07][08] for the global font command. If “Configure Status Report Command” is set to have [1B][01][06][18] “Message Received Acknowledgment” ON, prior to sending this message string. Then the full printer will respond with [07][08][07][21].

Print Output: Data1

In-Line Message Format 5x7TL Matrix

Command Type: Message String

Command: Send**: [1B][04][04]**
Response**: [07][08]**
Send**: Data1 [09]Data2[0D]**
Response**: [07][21]**

Send the 5x7TL global matrix command then wait for the printer to respond or allow enough time for the printer to respond. Send the message data for top line, Data1 [09] tab character then send data for bottom line Data2. The [0D] is a carriage return, which acts as the message terminator.

Printer Response: The printer will respond with [07][08] for the global font command. If “Configure Status Report Command” is set to have [1B][01][06][18] “Message Received Acknowledgment” ON, prior to sending this message string. Then the full printer will respond with [07][08][07][21].

Print Output: Data1
Data2

In-Line Message Format 5x7Tri-line Matrix)

Command Type: Message String

Command: Send**: [1B][04][08]**
Response**: [07][08]**
Send**: Data1[09]Data2[09]Data3[0D]**
Response**: [07][21]**

Send the 5x7TL global matrix command then wait for the printer to respond or allow enough time for the printer to respond. Send the message data for top line, Data1[09] tab character, then send data for middle line Data2 [09]. Then send data for bottom line Data3. The [0D] is a carriage return, which acts as the message terminator.

Printer Response: The printer will respond with [07][08] for the global font command. If “Configure Status Report Command” is set to have [1B][01][06][18] “Message Received Acknowledgment” ON, prior to sending this message string. Then the full printer will respond with [07][08][07][21].

Print Output: Data1
Data2
Data3

In-Line Message Format 5x7 Twin line Matrix with Automated Date Inserts

Command Type: Message String

Command: Send**: [1B][04][08]**
Response**: [07][08]**

Message String Send: **Data1 [09]Data2**

[1B][84][01][1B][84][0E]/[1B][84][03][1B][84][0E]/[1B][84][07][1B][84][0E][1B][84][0E][1B][84][0E] [09]Data3[0D]

Response: **[07][21]**

Send the 5x7TL global matrix command then wait for the printer to respond or allow enough time for the printer to respond. Send the message data for top line, Data1[09] tab character, then send data for middle line and 2-digit month “/” 2-digit day of month “/” 4-digit year for middle line Data2[09]. Then send data for bottom line Data3. The [0D] is a carriage return, which acts as the message terminator.

Printer Response: If “Configure Status Report Command” is set to have [1B][01][06][18] “Message Received Acknowledgment” ON, prior to sending this message string. Then the full printer will respond with [07][21].

Print Output: Data1
Data2 01/21/2009
Data3

Message Format 10x16 Matrix with I 2 of 5 Barcode Insert

Command Type:	Message String
Command:	Send**: [1B][04][03]** Response**: [07][08]**
Message String Send:	**Data1 [09]Data2** **Data1 [1B][85][00]123456[1B][85][01] [1B][81][01] Data2 (Top Line) [09] Data3 (Bottom Line) [0D]** Send the 10x16 global matrix command then wait for the printer to respond or allow enough time for the printer to respond. The Data1 will be full height characters (16 drops tall) text followed by the start command DATA and stop command for a 2 of 5 barcode insert. The [1B][81][01] “Sub Font” prefix sets Data2 and Data3 to top and bottom lines respectively of twin line half height (5x7), note that top and bottom lines are delimited with a [09] TAB character. The [0D] is a carriage return, which acts as the message terminator.
Printer Response:	The printer will respond with [07][08] for the global font command. If “Configure Status Report Command” is set to have [1B][01][06][18] “Message Received Acknowledgment” ON, prior to sending this message string. Then the full printer will respond with [07][08][07][21].
Print Output:	

4 Commands Machine Codes Quick Reference

Note: *All references to 1580 refer to printer models 1580, 1580 + and 1580 C, unless otherwise stated.*

4.1 System Query – 00

Note: *"*" denotes a change from 1000 Series printers. Refer to Chapter 8 for more information.*

Command	Name	Response	Item
[1B][00][00]	Request Print Status	[07][05] Print OFF [07][06] Print ON	5.1.1
[1B][00][01]	Request Product Detect Count	[07][44] XXXXXXXX - 8 Digit ASCII	5.1.2
[1B][00][02]	Request Print Count	[07][50] XXXXXXXX - 8 Digit ASCII	5.1.3
[1B][00][03] [1B][00][1E] [1B][02][2A]	Request Type of Printer	[07][08] - Printer Model	5.1.4
[1B][00][04]	Request Ink Status	[07] [31] - Ink is Low [07] [25] - Ink is not Low [07] [24] - No Ink [07] [34] - Wrong Ink [07] [35] - Ink Expired [07] [32] - Ink empty [07] [33] - Ink insertions	5.1.5
*[1B][00][50]	Request Make-up Status	[07] [31] - Make-up is Low [07] [25] - Make-up is not Low [07] [24] - No Make-up [07] [34] - Wrong Make-up [07] [35] - Make-up Expired [07] [32] - Make-up empty [07] [33] - Make-up insertions	5.1.6
[1B][00][09]	Request System Time	[07][08] HHMM - HH 2-Digit ASCII Hour & MM - 2 Digit ASCII Minute	5.1.7
[1B][00][0A]	Request System Date	[07][08] MMDDYY - MM 2-Digit ASCII Month, DD - 2-Digit ASCII Day, YY 2-Digit ASCII Year	5.1.8
[1B][00][0B]	Request Last Image Printed	[07][08]LINE1[09]LINE2[09]LINE3 [0D]	5.1.9

Command	Name	Response	Item
[1B][00][0C][XX]	Request Message Parameters	[07][08] [XX]….[XX] 91 Bytes	5.1.10
[1B][00][0D][XX]	Request Print Setup Parameters	[07][09] [XX]….[XX] 21Bytes	5.1.11
[1B][00][0E]	Request System Setup Parameters	[07][08] [XX]….[XX] 28 Bytes	5.1.12
[1B][00][11]	Request Last Fault	[07][08] [XX] 1 Byte	5.1.13
[1B][00][12]12] [X1] [X2][X3]	Request List of Raster Names	[07][08] [XX]….[XX] 5 Bytes	5.1.14
[1B][00][1F]	System Error and Warning	[07][08][07][09] [XX] 21 Byte	5.1.15
[1B] [00] [20]	Request System Million Drops Counter	[07] [08] XXXXXXXXXXXXXXXX - where XXXXXXXXXXXXXXXX a 8 byte binary value	5.1.16
[1B] [00] [21] [X1]	Request Serializer Parameters	[07] [08] XX - where XX is 24 bytes of Serializer parameters	5.1.17
[1B] [00] [22]	System Error and Warning 2	[07] [08] [07] [09] XX - Where XX is 26 bytes of data	5.1.18
[1B] [00] [23]	Request MAC Address	[07][08]XX-XX-XX-XX-XX-B9	5.1.19

4.2 System Control – 01

Command	Name	Response	Item
[1B][01][00]	Reinitialize Serial Interface	[07][08][07][01][11]	5.2.1
[1B][01][01]	Clear Internal and External Communication Buffers	[07][08][07][07]	5.2.2
[1B][01][02]	Reset Batch Product Detect Count	[07][08]	5.2.3
[1B][01][03]	Reset Batch Print Count	[07][08]	5.2.4
[1B][01][04]	Enable Status Reports	[07][08]	5.2.5
[1B][01][05]	Disable Status Reports	[07][08]	5.2.6
[1B][01][06][XX]	Configure Status Reports	[07][08][07][09]	5.2.7
*[1B][01][07]	Enable XON/XOFF Transmission	[07][08]	5.2.8
*[1B][01][08]	Disable XON/XOFF Transmission	[07][08]	5.2.9
[1B][01][09]	Enable Print Mode	[07][08][07][06]	5.2.10
[1B][01][0A]	Disable Print Mode	[07][08][07][05]	5.2.11
*[1B][01][10][XX]	Adjust Message Width	[07][08][07][09]	5.2.12
*[1B][01][0F][XX][XX]	External Encoder Rate	[07][08][07][09]	5.2.13
[1B][01][11][XX][XX]	Set Internal Encoding Line Speed	[07][08][07][09]	5.2.14
*[1B][01][12][XX][XX]	Set External Encoding Reduction Value	[07][08][07][09]	5.2.15
*[1B][01][13][XX]	Adjust Message Height	[07][08][07][09]	5.2.16
[1B][01][15]	Printer Shutdown (Jet Off)	[07] [08]	5.2.17
[1B][01][16]	Enable Print Message Once	[07][08]	5.2.18
[1B][01][17]	Disable Print Message Once	[07][08]	5.2.19
[1B][01][19]	Increase Print Delay by 0.01 inch	[07][08]	5.2.20
[1B][01][1A]	Decrease Print Delay by 0.01 inch	[07][08]	5.2.21
[1B][01][1B]	Activate Print Delay	[07][08]	
[1B][01][1C]	Set Insert Remote Mode	[07][08]	5.2.22
[1B][01][1D]	Set Message Remote Mode	[07][08]	5.2.23
[1B] [7E] [00]	Switch to Unicode	[07] [08]	5.2.24

Command	Name	Response	Item
[1B] [7E] [01]	Switch to ASCII	[07] [08]	5.2.25
[1B][01][20][XX] [XX]	Set Print Delay	[07][08][07][09]	5.3
[1B][01][22][XX] [XX]	Set Internal Distance Continuous Mode Spacing	[07][08][07][09]	5.3.1
*[1B][01][23]	Activate Continuous Mode Printing	[07][08]	5.3.2
[1B][01][24]	Deactivate Continuous Mode Printing	[07][08]	5.3.3
[1B][01][28][XX] [XX]	Set Expiry 1 Date Offset	[07][08][07][09]	5.3.4
[1B][01][29][XX] [XX]	Set Expiry 2 Date Offset	[07][08][07][09]	5.3.5
[1B][01][2A]	Clear Internal Buffers Only	[07][08][07][2B]	5.3.6
[1B][01][2C]	Clear Last Print Engine Fault	[07][08]	5.3.7
[1B][01][3F]	Trigger Printer Message	[07][08]	5.3.8
[1B][01][49][XX][XX] [XX]	Set Auto Encoding Detect Value	[07][08][07][09]	5.3.9
[1B][01][21] [XX][XX][XX]	Set Auto Repeat & Repeat Delay (Inches)	[07][08][07][09]	5.3.10
[1B][01][47][XX]	Set Throw Distance	[07][08][07][09]	5.3.11
[1B][01][4A][XX]	Set Digital I/O Configuration	[07] [08]	5.3.12
[1B][01][4B][XX]	Set Week Rollover Day	[07] [08]	5.3.13
[1B][01][4C][XX] [XX] [YY]	Set Expiry 1 Date Offset	[07] [08] [07] [09]	5.3.14
[1B][01][4D][XX] [XX] [YY]	Set Expiry 2 Date Offset	[07] [08] [07] [09]	5.3.15
[1B][01] [4E][XX] [XX] [YY]	Set Expiry 3 Date Offset	[07] [08] [07] [09]	5.3.16
*[1B][01][50][XX][XX]	Reverse Print Delay	[07] [08] [07] [09]	5.3.17
*[1B][01][60][XX][XX]	Reverse Print Delay	[07] [08] [07] [09]	5.3.18
*[1B][02][5B][XX]	Printhead Orientation	[07] [08]	5.3.19
*[1B][02][5F][XX]..... [XX]	External Encoder Parameters	[07][08][07][09]	5.3.20

4.3 System Special – 02

Command	Name	Response	Item
[1B][02][00]	Create Graphics Character	[07][08]	5.4.1
[1B][02][01][X1] … [X25]	Initialize Serializer 1	[07][08][07][09]	5.4.2
[1B][02][02][XX]	Initialize Timer	[07][08][07][09]	5.4.3
[1B][02][03][X1] … [X124]	Initialize Shifts	[07][08][07][09]	5.4.4
[1B][02][04][X1] … [X25]	Initialize Serializer 2	[07][08][07][09]	5.4.5
[1B][02][05][HH][HH] [MM] [MM]	Set System Time	[07][08][07][09]	5.4.6
[1B][02][06][MM][MM] [DD][DD][YY][YY]	Set System Date	[07][08][07][09]	5.4.7
[1B][02][07][X1][X2]	Set Pull Week Settings	[07][08]	5.4.8
[1B][02][08][X1]	Set Pull Week Date Offset	[07][08]	5.4.9
[1B][02][09][X1] … [X25]	Initialize Serializer 3	[07][08][07][09]	5.4.11
[1B][02][15][X1][X2] [X3]	Set Pull Month Settings	[07][08]	5.4.10
[1B][02][29]	Get I/O Status	[07][08][X1][X2][X3]	5.4.12
[1B][02][31]	Reset Serializer 1	[07][08]	5.4.13
[1B][02][32]	Reset Serializer 2	[07][08]	5.4.14
[1B][02][39][XX]	Initialize UCN	[07][08][07][09]	5.4.16
[1B][02][3A]	Select Display Unit Metric	[07][08]	5.4.17
[1B][02][3B]	Select Display Unit Inches	[07][08]	5.4.18
[1B][02][3C]	Select Speed Compensation ON	[07][08][07][09]	5.4.19
[1B][02][3D]	Select Speed Compensation OFF	[07][08][07][09]	5.4.20
[1B][02][40][XX]	Data Record	[07][08] XX - Data Received Ack. XX is free buffer space [07][40] - Buffer overflow.	5.4.21
*[1B][02][41][XX]...	Initialize Encoded Hour	[07][08]	5.4.22
[1B][02][42]	Reset Serializer 3	[07][08]	5.4.22
[1B][02][43][XX]...	Initialize Encoded Day of Week	[07][08]	5.4.23

4.4 Global Attributes – 03

Command	Name	Response	Item
[1B][03][00]	Set Reverse Message On	[07][08]	5.5.1
[1B][03][01]	Set Reverse Message Off	[07][08]	5.5.2
[1B][03][02]	Set Reverse All Characters On	[07][08]	5.5.3
[1B][03][03]	Set Reverse All Characters Off	[07][08]	5.5.4
[1B][03][04]	Set Invert Message On	[07][08]	5.5.5
[1B][03][05]	Set Invert Message Off	[07][08]	5.5.6
[1B][03][06]	Set Message Multi-Stroke to 1	[07][08]	5.5.7
[1B][03][07]	Set Message Multi-Stroke to 2	[07][08]	5.5.8
[1B][03][08]	Set Message Multi-Stroke to 3	[07][08]	5.5.9
[1B][03][09]	Set Message Multi-Stroke to 4	[07][08]	5.5.10
[1B][03][0A][XX]	Set Character Spacing	[07][08][07][09]	5.5.11
[1B][03][0B]	Activate Tower Print for 5x7SL (Only)	[07][08]	5.5.12
[1B][03][0C]	Deactivate Tower Print for 5x7SL (Only)	[07][08]	5.5.13
[1B][03][0D]	Activate Reverse Barcode Image	[07][08]	5.5.14
[1B][03][0E]	Deactivate Reverse Barcode Image	[07][08]	5.5.15
[1B][03][0F][XX] …[XX]	Select Raster	[07][08][07][09]	5.5.16
[1B][03][10][XX]	Select Barcode Font Size	[07][08]	5.5.17
*[1B][03][13][XX][XX]	Set Message Margin	[07][08][07][09]	5.5.18

4.5 Global Font – 04

Command	Name	Response	Item
[1B][04][00]	Select 5x5 Single Line Matrix	[07][08]	5.6.1
[1B][04][01]	Select 5x7 Single Line Matrix	[07][08]	5.6.2
[1B][04][02]	Select 7x9 Single Line Matrix	[07][08]	5.6.3
[1B][04][03]	Select 10x16 Single Line w/5x7 Twin Line Matrix	[07][08]	5.6.4
[1B][04][04]	Select 5x7 Twin Line Matrix	[07][08]	5.6.5
[1B][04][05]	Select 5x7 High Quality Twin Line Matrix	[07][08]	5.6.6
[1B][04][07]	Select 16x24 Single Line w/5x7 and 10x16 Mixed Mode Matrix	[07][08]	5.6.7
[1B][04][08]	Select 5x7 Tri Line Matrix	[07][08]	5.6.8
[1B][04][16]	Select 5x5 Quad Line Matrix	[07][08]	5.6.9
[1B][04][17]	Select 7x9 Tri Line Matrix	[07][08]	5.6.10
*[1B][04][18]	Select 7x9 Twin Line Matrix	[07][08]	5.6.11
[1B][04][1B]	Select 5x5 Twin Line Matrix	[07][08]	5.6.14
[1B][04][20]	Select 30x34 Single Line Matrix	[07][08]	5.6.13
[1B][04][21]	Select 5x5 Tri-Line Matrix	[07] [08]	5.6.14
[1B][04][22]	Select 9x12 Single Line Matrix	[07][08]	5.6.15
[1B][04][23]	Select 5x7 Quad Matrix	[07][08]	5.6.16
[1B][04][24]	Select 9x12 Twin Line Matrix	[07][08]	5.6.17
[1B][04][25]	Select 5x5 Penta Matrix	[07][08]	5.6.18

4.6 Data Attribute – 80

Command	Name	Response	Item
[1B][80][00]	Set Reverse Character On	NONE	5.7.1
[1B][80][01]	Set Reverse Character Off	NONE	5.7.2
[1B][80][02]	Set Invert Character On	NONE	5.7.3
[1B][80][03]	Set Invert Character Off	NONE	5.7.4
[1B][80][04]	Set Character Multi-Stroke to 1	NONE	5.7.5
[1B][80][05]	Set Character Multi-Stroke to 2	NONE	5.7.6
[1B][80][06]	Set Character Multi-Stroke to 3	NONE	5.7.7
[1B][80][07]	Set Character Multi-Stroke to 4	NONE	5.7.8
[1B][80][10]	Select Custom Font ON	[07][08]	5.7.9
[1B][80][11]	Select Custom Font OFF	[07][08]	5.7.10
[1B][80][12]	Select Narrow Font On	[07][08]	5.7.11
[1B][80][13]	Select Narrow Font Off	[07][08]	5.7.12

4.7 Data Font – 81

Command	Name	Response	Item
[1B][81][00]	Select Sub Font 0 (10x16 Double or 16x24 Triple)	NONE	5.8.1
[1B][81][01]	Select Sub Font 1 (10x16 Single or 16x24 Single)	NONE	5.8.2
[1B][81][02]	Select Sub Font 2 (16x24 5x7 over 10x16)	NONE	5.8.3
[1B][81][03]	Select Sub Font 3 (16x24 10x16 over 5x7)	NONE	5.8.4
[1B][81][04]	Select Subsequent 5x5 Single Line Matrix	NONE	5.8.5
[1B][81][05]	Select Subsequent 5x7 Single Line Matrix	NONE	5.8.6
[1B][81][06]	Select Subsequent 7x9 Single Line Matrix	NONE	5.8.7
[1B][81][07]	Select 10x16 Single Line w/5x7 Twin Line Matrix	NONE	5.8.8
[1B][81][08]	Select 5x7 Twin Line Matrix	NONE	5.8.9
[1B][81][09]	Select 5x7 High Quality Twin Line Matrix	NONE	5.8.10
[1B][81][0B]	Select 16x24 Single Line w/5x7 and 10x16 Mixed Mode Matrix	NONE	5.8.11
[1B][81][0C]	Select 5x7 Tri-Line Matrix	NONE	5.8.12
[1B][81][1A]	Select Subsequent 5x5 Quad Line Matrix	NONE	5.8.13

Command	Name	Response	Item
[1B][81][1B]	Select Subsequent 7x9 Tri Line Matrix	NONE	5.8.16
[1B][81][1C]	Select Subsequent 7x9 Twin Line Matrix	NONE	5.8.13
[1B][81][1F]	Select Subsequent 5x5 Twin Line Matrix	NONE	5.8.16
[1B][81][20]	Select Subsequent 30x34 Single Line Matrix	NONE	5.8.17
[1B][81][25]	Select Subsequent 5x5 Tri Line Matrix	NONE	5.8.18
[1B][81][27]	Select Subsequent 5x7 Quad Line Matrix	NONE	5.8.19
[1B][81][28]	Select Subsequent 9x12 Twin Line Matrix	NONE	5.8.20
[1B][81][29]	Select Subsequent 5x5 Penta Line Matrix	NONE	5.8.21
[1B][81][2A]	Select Subsequent 9x12 Single Line Matrix	NONE	5.8.22
[1B][81][2C]	Select Raster Substitution ON	[07][08]	5.8.23
[1B][81][2D]	Select Raster Substitution OFF	[07][08]	5.8.24

4.8 Data Graphic – 82

Command	Name	Response	Item
[1B][82][00]	Include RAM Graphics Character 1 in Message	NONE	5.8.25
[1B][82][01]	Include RAM Graphics Character 2 in Message	NONE	5.8.26

4.9 Data Custom – 83

1580/1860/1880 printer currently does not have Custom Character capability.

4.10 Data Inserts – 84

Note: *Filler bytes are not required for 1580/1860/1880 they are present for backward compatibility. If you are working with new code for 1580/1860/1880, filler bytes are not required after inserts.*

Command	Name	Response	Item
[1B][84][00] X Filler Bytes X = Number of digits	Insert Serializer 1	NONE	5.10.1
[1B][84][01] 1 Filler Byte	Insert 2 Digit Month	NONE	5.10.2
[1B][84][02] 2 Filler Bytes	Insert 3 Character Month	NONE	5.10.3
[1B][84][03] 1 Filler Byte	Insert 2 Digit Day of Month	NONE	5.10.4
[1B][84][04] 2 Filler Bytes	Insert 3 Character Day of Week	NONE	5.10.5
[1B][84][05] 2 Filler Bytes	Insert 3 Digit Day of Year (Julian Day)	NONE	5.10.6
[1B][84][06] 1 Filler Byte	Insert 2 Digit Week of Year	NONE	5.10.7
[1B][84][07] 3 Filler Bytes	Insert 4 Digit Year	NONE	5.10.8
[1B][84][08] 1 Filler Byte	Insert 2 Digit Year	NONE	5.10.9
[1B][84][09] 0 Filler Bytes	Insert 1 Digit Year	NONE	5.10.10
[1B][84][0A] 1 Filler Byte	Insert 2 Digit Hour	NONE	5.10.11
[1B][84][0B] 1 Filler Byte	Insert 2 Digit Minute of Hour	NONE	5.10.12
[1B][84][0C] 2 Filler Bytes	Insert 3 Digit Hour of Week	NONE	5.10.13
[1B][84][0D] X Filler Bytes	Insert Timer	NONE	5.10.14
[1B][84][0E]	Insert Filler Byte	NONE	5.10.15
[1B][84][0F] 1 Filler Byte	Insert Expiry 1 - 2 Digit Month	NONE	5.10.16
[1B][84][10] 2 Filler Bytes	Insert Expiry 1 - 3 Character Month	NONE	5.10.17
[1B][84][11] 1 Filler Byte	Insert Expiry 1 - 2 Digit Day of Month	NONE	5.10.18
[1B][84][12] 2 Filler Bytes	Insert Expiry 1 - 3 Digit Day of Year	NONE	5.10.19
[1B][84][13] 3 Filler Bytes	Insert Expiry 1 - 4 Digit year	NONE	5.10.20
[1B][84][14] 1 Filler Byte	Insert Expiry 1 - 2 Digit Year	NONE	5.10.21
[1B][84][15] 0 Filler Bytes	Insert Expiry 1 - 1 Digit Year	NONE	5.10.22
[1B][84][17] X Filler Bytes	Insert Shift	NONE	5.10.23
*[1B][84][18] X Filler Bytes	Insert Alpha Hour	NONE	5.10.24
[1B][84][1B] X Filler Bytes X = Number of digits	Insert Serializer 2	NONE	5.10.25
[1B][84][1C] 1 Filler Byte	Insert Expiry 2 - 2 Digit Month	NONE	5.10.26

Command	Name	Response	Item
[1B][84][1D] 2 Filler Bytes	Insert Expiry 2 - 3 Character Month	NONE	5.10.27
[1B][84][1E] 1 Filler Byte	Insert Expiry 2 - 2 Digit Day of Month	NONE	5.10.28
[1B][84][1F] 2 Filler Bytes	Insert Expiry 2 - 3 Digit Day of Year	NONE	5.10.29
[1B][84][20] 3 Filler Bytes	Insert Expiry 2 - 4 Digit year	NONE	5.10.30
[1B][84][21] 1 Filler Byte	Insert Expiry 2 - 2 Digit Year	NONE	5.10.31
[1B][84][22] 0 Filler Bytes	Insert Expiry 2 - 1 Digit Year	NONE	5.10.32
[1B][84][23] 1 Filler Byte	Insert Pull Week 2 Digit Month	NONE	5.10.33
[1B][84][24] 1 Filler Byte	Insert Pull Week 2 Digit Day of Month	NONE	5.10.34
[1B][84][25] 1 Filler Byte	Insert Pull Week 2 Digit Year	NONE	5.10.35
[1B][84][27] 2 Filler Bytes	Insert Single Character Alpha Day	NONE	5.10.36
[1B][84][28] 2 Filler Bytes	Insert UCN	[07] [08]	5.10.37
[1B][84][29] 1 Filler Byte	Insert 2-Digit European Week of Year	NONE	5.10.38
[1B][84][2A][XX]	Insert Remote Source	NONE	5.10.39
*[1B][84][2B][XX]	Insert Date	NONE	5.10.40
[1B][84][2C]	Insert Encoded Hour	NONE	5.10.41
[1B][84][2D]	Insert Remote Data 1	NONE	5.10.42
[1B][84][2F]	Insert Remote Data 2	NONE	5.10.43
[1B][84][30]	Insert Remote Data 3	NONE	5.10.44
[1B][84][31]	Insert Remote Data 4	NONE	5.10.45
[1B][84][32] X number of filler by = number of digits -1	Insert Serializer 3	NONE	5.10.46
[1B][84][33] 2 Filler Bytes	Insert Pull Week 3 Character Month	NONE	5.10.47
[1B][84][34] 2 Filler Bytes	Insert Pull Alpha Day	NONE	5.10.48
[1B][84][35] 2 Filler Bytes	Insert Pull 3 Digit Day of Year (Julian Day)	NONE	5.10.49
[1B][84][36] 3 Filler Bytes	Insert Pull 4 Digit Year	NONE	5.10.50
[1B][84][37] 0 Filler Bytes	Insert Pull 1 Digit Year	NONE	5.10.51

Command	Name	Response	Item
[1B][84][3A] 1 Filler Byte	Insert Pull Month 2 Digit Month	NONE	5.10.52
[1B][84][3B] 1 Filler Byte	Insert Pull Month 2 Digit Day of Month	NONE	5.10.53
[1B] [84] [3C] 1 Filler Byte	Insert Pull Month 2 Digit Year	NONE	5.10.54
[1B][84][3D] 2 Filler Bytes	Insert Pull Month 3 Character Month	NONE	5.10.55
[1B][84][3E] 2 Filler Bytes	Insert Pull Month Alpha Day	NONE	5.10.56
[1B][84][3F] 2 Filler Bytes	Insert Pull Month 3 Digit Day of Year (Julian Day)	NONE	5.10.57
[1B][84][40] 3 Filler Bytes	Insert Pull Month 4 Digit Year	NONE	5.10.58
[1B][84][41] 0 Filler Bytes	Insert Pull Month 1 Digit Year	NONE	5.10.59
[1B][84][42] 0 Filler Bytes	Insert 2 Digit Seconds	NONE	5.10.60
[1B][84][43][1X][Name of Logo]	Insert Logo	NONE	5.10.61

4.11 Data Barcodes – 85

Command	Name	Response	Item
[1B][85][00]	Barcode Interleaved 2 of 5 (I 2 of 5) On	NONE	5.11.1
[1B][85][01]	Barcode Interleave 2 of 5 Off	NONE	5.11.2
[1B][85][02]	Barcode Code 39 On	NONE	5.11.3
[1B][85][03]	Barcode Code 39 Off	NONE	5.11.4
[1B][85][04]	Barcode I 2 of 5 with Human Readable On	NONE	5.11.5
[1B][85][05]	Barcode I 2 of 5 with Human Readable Off	NONE	5.11.6
[1B][85][06]	Barcode Code 39 with Human Readable On	NONE	5.11.7
[1B][85][07]	Barcode Code 39 with Human Readable Off	NONE	5.11.8
[1B][85][0C]	Barcode EAN 13 On	NONE	5.11.9
[1B][85][0D]	Barcode EAN 13 Off	NONE	5.11.10
[1B][85][0E]	Barcode EAN 8 On	NONE	5.11.11
[1B][85][0F]	Barcode EAN 8 Off	NONE	5.11.12
[1B][85][13]	Barcode EAN 13 with Human Readable On	NONE	5.11.13
[1B][85][14]	Barcode EAN 13 with Human Readable Off	NONE	5.11.14
[1B][85][15]	Barcode EAN 8 with Human Readable On	NONE	5.11.15
[1B][85][16]	Barcode EAN 8 with Human Readable Off	NONE	5.11.16
[1B][85][17]	Barcode Code 128 Subset B On	NONE	5.11.17
[1B][85][18]	Barcode Code 128 Subset C On	NONE	5.11.18
[1B][85][19]	Barcode Code 128 Off	NONE	5.11.19
[1B][85][1B]	Barcode Code 128 Subset C Switch Control	NONE	5.11.20
[1B][85][1C]	Barcode Code 128 Function 1 Control	NONE	5.11.21
[1B][85][1D]	Barcode Code 128 Function 2 Control	NONE	5.11.22
[1B][85][1E]	Barcode Code 128 Function 3 Control	NONE	5.11.23
[1B][85][1F]	Barcode Code 128 Function 4 Control	NONE	5.11.24
[1B][85][20]	Barcode Code 128 Subset B with Human Readable On	NONE	5.11.25
[1B][85][21]	Barcode Code 128 Subset C with Human Readable On	NONE	5.11.26
[1B][85][22]	Barcode Code 128 with Human Readable Off	NONE	5.11.27

Command	Name	Response	Item
[1B][85][23]	Barcode 2D Data Matrix 10x10 OFF (Legacy Command)	NONE	5.11.47
[1B][85][24]	Barcode 2D Data Matrix 12x12 OFF (Legacy Command)	NONE	5.11.48
[1B][85][25]	Barcode 2D Data Matrix 14x14 OFF (Legacy Command)	NONE	5.11.49
[1B][85][26]	Barcode 2D Data Matrix 16x16 OFF (Legacy Command)	NONE	5.11.50
[1B][85][27]	Barcode 2D Data Matrix 18x18 OFF (Legacy Command)	NONE	5.11.51
[1B][85][28]	Barcode 2D Data Matrix 20x20 OFF (Legacy Command)	NONE	5.11.52
[1B][85][29]	Barcode 2D Data Matrix 22x22 OFF (Legacy Command)	NONE	5.11.53
[1B][85][30]	Barcode 2D Data Matrix 24x24 OFF (Legacy Command)	NONE	5.11.54
[1B][85][31]	Barcode Datamatrix Off	NONE	5.11.57
[1B] [85][32][X0] -[X20]	Barcode 2D Data Matrix Setup	[07] [08]	5.11.46
[1B][85][33]	Barcode 2D Data Matrix 10x10 ON	NONE	5.11.46
[1B][85][34]	Barcode 2D Data Matrix 12x12 ON	NONE	5.11.46
[1B][85][35]	Barcode 2D Data Matrix 14x14 ON	NONE	5.11.46
[1B][85][36]	Barcode 2D Data Matrix 16x16 ON	NONE	5.11.46
[1B][85][37]	Barcode 2D Data Matrix 18x18 ON	NONE	5.11.46
[1B][85][38]	Barcode 2D Data Matrix 20x20 ON	NONE	5.11.46
[1B][85][39]	Barcode 2D Data Matrix 22x22 ON	NONE	5.11.46
[1B][85][3A]	Barcode 2D Data Matrix 24x24 ON	NONE	5.11.46
[1B][85][3B]	Barcode 2D Data Matrix 16x36 ON	NONE	5.11.46
[1B][85][3C]	Barcode 2D Data Matrix 16x48 ON	NONE	5.11.46
[1B][85][45]	Barcode 2D Data Matrix 16x36 OFF (Legacy Command)	NONE	5.11.55
[1B][85][46]	Barcode 2D Data Matrix 16x48 OFF (Legacy Command)	NONE	5.11.56
[1B][85][47]	Reset Barcode Data Matrix	NONE	5.11.58
[1B] [85][48]	Barcode UPC-A On	NONE	5.11.28
[1B] [85][49]	Barcode UPC-A Off	NONE	5.11.29

Command	Name	Response	Item
[1B] [85][4A]	Barcode UPC-A with Human Readable On	NONE	5.11.30
[1B] [85][4B]	Barcode UPC-A with Human Readable Off	NONE	5.11.31
[1B] [85][4C]	Barcode UPC-E On	NONE	5.11.32
[1B] [85][4D]	Barcode UPC-E Off	NONE	5.11.33
[1B][85][4E]	Barcode UPC-E with Human Readable On	NONE	5.11.34
[1B][85][4F]	Barcode UPC-E with Human Readable Off	NONE	5.11.35
[1B][85][50]	Barcode EAN-128 On	NONE	5.11.36
[1B][85][51]	Barcode EAN-128 Off	NONE	5.11.37
[1B][85][52]	Barcode EAN-128 with Human Readable On	NONE	5.11.38
[1B][85][53]	Barcode EAN-128 with Human Readable Off	NONE	5.11.39
[1B][85][54]	Barcode Databar On	NONE	5.11.40
[1B][85][55]	Barcode Databar Off	NONE	5.11.41
[1B][85][56]	Barcode Databar with Human Readable On	NONE	5.11.42
[1B][85][57]	Barcode Databar with Human Readable Off	NONE	5.11.43
[1B][85][58][00]	Barcode 2D GS1 Data Matrix 10x10 On	NONE	5.11.44
[1B][85][58][01]	Barcode 2D GS1 Data Matrix 12x12 On	NONE	5.11.44
[1B][85][58][02]	Barcode 2D GS1 Data Matrix 14x14 On	NONE	5.11.44
[1B][85][58][03]	Barcode 2D GS1 Data Matrix 16x16 On	NONE	5.11.44
[1B][85][58][04]	Barcode 2D GS1 Data Matrix 18x18 On	NONE	5.11.44
[1B][85][58][05]	Barcode 2D GS1 Data Matrix 20x20 On	NONE	5.11.44
[1B][85][58][06]	Barcode 2D GS1 Data Matrix 22x22 On	NONE	5.11.44
[1B][85][58][07]	Barcode 2D GS1 Data Matrix 24x24 On	NONE	5.11.44
[1B][85][58][08]	Barcode 2D GS1 Data Matrix 26x26 On	NONE	5.11.44
[1B][85][58][09]	Barcode 2D GS1 Data Matrix 32x32 On	NONE	5.11.44
[1B][85][58][0A]	Barcode 2D GS1 Data Matrix 8x18 On	NONE	5.11.44
[1B][85][58][0B]	Barcode 2D GS1 Data Matrix 8x32 On	NONE	5.11.44
[1B][85][58][0C]	Barcode 2D GS1 Data Matrix 12x26 On	NONE	5.11.44
[1B][85][58][0D]	Barcode 2D GS1 Data Matrix 12x36 On	NONE	5.11.44
[1B][85][58][0E]	Barcode 2D GS1 Data Matrix 16x36 On	NONE	5.11.44
[1B][85][58][0F]	Barcode 2D GS1 Data Matrix 16x48 On	NONE	5.11.44
[1B][85][59]	Barcode 2D GS1 Data Matrix Off	NONE	5.11.45

Command	Name	Response	Item
[1B][85][5A][X1][X2]	QR Code ON	NONE	5.11.71
[1B][85][5B]	QR Code OFF	NONE	5.11.72
[1B][85][60]	Barcode 2D Data Matrix 8x18 On	NONE	5.11.73
[1B][85][61]	Barcode 2D Data Matrix 8x32 On	NONE	5.11.74
[1B][85][62]	Barcode 2D Data Matrix 12x36 On	NONE	5.11.75
[1B][85][63]	Barcode 2D Data Matrix 12x26 On	NONE	5.11.76
[1B][85][64]	Barcode 2D Data Matrix 26x26 On	NONE	5.11.77
[1B][85][65]	Barcode 2D Data Matrix 32x32 On	NONE	5.11.78
[1B][85][66]	Barcode 2D Data Matrix 8x18 OFF	NONE	5.11.79
[1B][85][67]	Barcode 2D Data Matrix 8x32 OFF	NONE	5.11.80
[1B][85][68]	Barcode 2D Data Matrix 12x36 OFF	NONE	5.11.81
[1B][85][69]	Barcode 2D Data Matrix 12x26 OFF	NONE	5.11.82
[1B][85][6A]	Barcode 2D Data Matrix 26x26 OFF	NONE	5.11.83
[1B][85][6B]	Barcode 2D Data Matrix 32x32 OFF	NONE	5.11.84
[1B] [85] [48]	Barcode UPC-A ON	NONE	5.11.59
[1B] [85] [49]	Barcode UPC-A OFF	NONE	5.11.60
[1B] [85] [4A]	Barcode UPC-A with Human Readable ON	NONE	5.11.61
[1B] [85] [4B]	Barcode UPC-A with Human Readable OFF	NONE	5.11.62
[1B] [85] [4C]	Barcode UPC-E ON	NONE	5.11.63
[1B] [85] [4D]	Barcode UPC-E OFF	NONE	5.11.64
[1B] [85] [4E]	Barcode UPC-E with Human Readable ON	NONE	5.11.65
[1B] [85] [4F]	Barcode UPC-E with Human Readable OFF	NONE	5.11.66
[1B] [85] [50]	Barcode EAN-128 ON	NONE	5.11.67
[1B] [85] [51]	Barcode EAN-128 with Human Readable OFF	NONE	5.11.68
[1B] [85] [52]	Barcode EAN-128 with Human Readable ON	NONE	5.11.69
[1B] [85] [53]	Barcode EAN-128 with Human Readable OFF	NONE	5.11.70

5 Command Reference

Note: *Characters between "[ ]" are the hex values. These are just for notation purposes and the bracket characters should not be used in commands.*

Note: *All references to 1580 refer to printer models 1580, 1580 + and 1580 C, unless otherwise stated.*

5.1 System Query Commands

5.1.1 Request Print Status [1B] [00] [00]

Command Group:	System Query	
Description:	Request the status of the Printer as to whether it is ready to print or not	
Parameters:	None	
Response:	[07] [05]	Not ready to print (Head and/or Print is not enabled)
	[07] [06]	Ready to print

5.1.2 Request Batch Product Count [1B] [00] [01]

Command Group:	System Query	
Description:	Request the current batch product count of the printer. The batch product count includes the following 3 values – Product Count, False Product Detects, and Products Missed While In Stand-By (Head on but not in print Mode). This is the same value shown on the Home screen.	
Parameters:	None	
Response:	[07] [44] XXXXXXXX	Where XXXXXXXX is an 8 Digit ASCII value

5.1.3 Request Batch Print Count [1B] [00] [02]

Command Group:	System Query	
Description:	Request the current batch print count of the printer. This will be the same value show on Home screen.	
Parameters:	None	
Response:	[07] [50] XXXXXXXX	Where XXXXXXXX is an 8 Digit ASCII value

5.1.4 Request Type of Printer [1B] [02] [2A]

Excel ID ***[1B][00][03]***

Request Printer Model ***[1B][00][1E]***

Command Group: System Query

Description: Request the name of the Printer (can then be used to determine the type of commands to send to the printer)

Parameters: None

Response:

[07][08]	'VJ1860' for 1860
[07][08]	'VJ1580' for 1580
[07][08]	'VJ1880' for 1880
[07][08]	'VJ1580 C' for 1580 C
[07][08]	'VJ1580 +' for 1580 +

5.1.5 Request Ink Status [1B] [00] [04]

Command Group: System Query

Description: Request the status of the ink in the printer

Parameters: None

Response:

[07] [31]	Ink is Low
[07] [25]	Ink is not Low
[07] [24]	No Ink
[07] [34]	Wrong Ink
[07] [35]	Ink Expired
[07] [32]	Ink Empty
[07] [33]	Ink Insertions

5.1.6 Request make-up Status [1B] [00] [50]

Command Group: System Query

Description: Request the status of the make-up in the printer

Parameters: None

Response:

[07] [31]	Make-up is Low
[07] [25]	Make-up is not Low
[07] [24]	No Make-up
[07] [34]	Wrong Make-up
[07] [35]	Make-up Expired
[07] [32]	Make-up Empty
[07] [33]	Make-up Insertions

5.1.7 Request System Time [1B] [00] [09]

Command Group:	System Query	
Description:	Request the current time on the printer	
Parameters:	None	
Response:	[07] [08] HHMM	Where HH is a 2-Digit ASCII Hour and MM is a 2-Digit ASCII Minute. Time is in 24-hour clock format.

5.1.8 Request System Date [1B] [00] [0A]

Command Group:	System Query	
Description:	Request the current date on the printer	
Parameters:	None	
Response:	[07] [08] MMDDYY	Where MM is a 2-Digit ASCII Month, DD is a 2-Digit ASCII Day of Month and YY is a 2-Digit Year

5.1.9 Request Last Message/Image Printed [1B] [00] [0B]

Command Group:	System Query
Description:	Request the data used in printing the last image
Parameters:	None
Response:	[07] [08] LINE1 [09] LINE2 [09] LINE3 [0D] Message Sent to Printer: LINE1 [09] LINE2 [09] LINE3 [0D] Printed Output: LINE 1 LINE 2 LINE 3 [09] = Tab Character line separator [0D] = Message Terminator

5.1.10 Request Message Parameters [1B] [00] [0C] [XX]

Command Group: System Query

Description: Request the job (message) parameters or the current edited job settings

Parameters: Where [XX] is a job index [01] to [FF] (1 to 100) or
Message Number - [00] To request current edited job parameters

Response: [07][08][XX] Where XX is 91 Bytes of Message Parameters

Byte 1 The current font:

Font	Value
5x5_SINGLE_LINE_MATRIX	00
5x7_SINGLE_LINE_MATRIX	01
7x9_SINGLE_LINE_MATRIX	02
10x16_SINGLE_LINE	03
5x5_TWIN_LINE_MATRIX	04
5x7_TWIN_LINE_MATRIX	05
16x24_SINGLE_LINE_MATRIX	07
5x7_TRI_LINE_MATRIX	08
5x5_TRI_LINE_MATRIX	1B
7x9_TRI_LINE_MATRIX	00
9x12 SINGLE LINE MATRIX	1C
25x34 SINGLE LINE MATRIX	1D
5x7 Quad matrix	1E
9x12 Twin Line Matrix	1F
5x5 Penta Matrix	20

Note: *Both 5x5 Single Line and 7x9 Tri-line matrixes return 00 value.*

Byte 2 The append mode

Byte 3 The timer control

Byte 4 Serializer 1 wrap around

Byte 5 Number of digits in serializer 1

Byte 6 Serializer 1 increment size

Byte 7-11 Serializer 1 repeat count (5 ASCII characters)

Byte 12-19 Serializer 1 max count (8 ASCII characters)

Byte 20-27 Serializer 1 start count (8 ASCII characters)

Byte 28 Unused (Length of multi-space insert)

Byte 29 Serial interface mode

Byte 30	Length of remote insert buffer
Byte 31	Unused
Byte 32	Unused (Number of times serializer 1 inserted into the message)
Byte 33	Unused (Number of times a date and time insert is inserted into the message)
Byte 34	Unused (Number of times the remote data insert inserted into the message)
Byte 35	Unused (Number of times the multi space insert inserted into the message)
Byte 36	Unused (Number of times the expiration date inserts inserted into the message)
Byte 37-38	Expiration offset value
Byte 39-40	Expiration 2 offset value
Byte 41	Wrap serializer 2
Byte 42	Number of digits in serializer 2
Byte 43	Serializer 2 increment size
Byte 44-48	Serializer 2 repeat count (5 ASCII characters)
Byte 49-56	Serializer 2 max count (8 ASCII characters)
Byte 57-64	Serializer 2 start count (8 ASCII characters)
Byte 65	Unused (Number of times serializer 2 inserted into the message)
Byte 66	0 - Increment on Product Detect 1 - Increment on Serializer 1 Rollover
Byte 67	Wrap serializer 3
Byte 68	Number of digits in serializer 3
Byte 69	Serializer 3 increment size
Byte 70-74	Serializer 3 repeat count (5 ASCII characters)
Byte 75-82	Serializer 3 max count (8 ASCII characters)
Byte 83-90	Serializer 3 start count (8 ASCII characters)
Byte 91	Unused (number of times serializer 3 inserted into the message)

5.1.11 Request Print Setup Parameters [1B] [00] [0D] [XX]

Command Group: System Query

Description: Request the setup for printing of a particular job (message) or the current default settings

Parameters: Where [XX] is a job index [01] to [FF] (1 to 255) or
Message Number – [00] To request current edited job parameters

Response: [07][08][07] [09] XX Where XX is 21 Bytes of Printer Setup Parameters

Byte 1 and 2	EHT voltage (higher byte first)
Byte 3	Message parameters:
	Bit 7: Internal encoder
	Bit 6: External encoder
	Bit 5: Multistroke 4
	Bit 4: Multistroke 3
	Bit 3: Multistroke 2
	Bit 2: Multistroke 1
	Bit 1: Reverse
	Bit 0: Reverse Barcode
Byte 4	Message width
Byte 5	Compensation matrix (not applicable to 1000 series, 0 is send for this byte)
Byte 6 and 7	Line speed (in feet per min or meters per min) (higher byte first)
Byte 8 and 9	Reduction Factor (higher byte first)
Byte 10 and 11	Print Delay (higher byte first)
Byte 12 and 13	Encoder PPI
Byte 14	Bit 0: Auto encoder
Byte 15	Bit 0: Speed compensation
Byte 16 and 19	Auto Encoder Detect area
Byte 20	Throw Distance
Byte 21	Message height

5.1.12 Request System Setup Parameters [1B] [00] [0E]

Command Group: System Query

Description: Request the status of the ink system

Parameters: None

Response: [07] [08] XX Where XX is 28 Bytes of System Setup Parameters

Values:

Byte 1 and 2	High Voltage; MSB, LSB
Byte 3 to Byte14	Service Password This is encoded as a set of 6 characters, each 2-bytes wide. If password is shorter than 6 characters, the remaining bytes should be filled with zero (Byte 3 - 14)
Byte 15, 16, 17	Baud rate (MSB first) When TCP/IP is in use, this value will be zero.
Byte 18 and 19	Ink Pressure
Byte 20	Head Temperature
Byte 21	Ink Temperature
Byte 22 and 23	Pump RPM (higher byte first)
Byte 24	Ink status 1

Bit 7: Panic fault

Bit 6: Normal fault

Bit 5: Unused

Bit 4: Peltier on

Bit 3: Head on

Bit 2: High voltage on

Bit 1: Ink on

Bit 0: Ink adding

Byte 25 Ink status 2

Bit 7: Print mode on

Bit 6: Ink shutdown run flag

Bit 5: Ink startup run flag

Bit 4:

Bit 3:

Bit 2:

Bit 1:

Bit 0:

Byte 26 Valves

Bit 7: Head Feed

Bit 6: Head purge

Bit 5: Head flush

Bit 4: flush pump vacuum

Bit 3: flush pump pressure

Bit 2: ink add

Bit 1: makeup add

Bit 0: gutter

Byte 27 Switches 1

Bit 1: Cabinet temperature fault

Bit 0:

Byte 28 Valves

Bit 1: Solvent Recovery

Bit 0: Commissioning

5.1.13 Request Last Fault [1B] [00] [11]

Command Group: System Query

Description: Request the last fault which occurred on the printer

Parameters: None

Response: [07] [08] XX Where XX is 1 byte of data:

Byte 1 **ALARMS**

Bit 7: CHARGE ERROR

Bit 6: EHT TRIP

Bit 5: GUTTER FAULT

Bit 4: MIXER EMPTY

Bit 3: PUMP FAULT

Bit 2: ELECTRONICS TOO HOT

Bit 1: INK SYSTEM SERVICE OVERDUE

Bit 0: NO CODE NO RUN

5.1.14 Request List of Raster names [1B] [00] [12] [X1] [X2] [X3]

Command Group: System Query

Description: List of raster names

Parameters: Byte 1 Raster substitution mode (0-OFF,1-ON)

Byte 2 No. of printed dots, (5 - 34)

Byte 3 Set number.
Incremented for each subsequent response. In case of list character manes containing 5 or less names Byte 3 =1 and one response contains the whole list. In case of a longer list the first response contains only 5 first names and can be followed by the second request with Byte 3 = 2. The response will contain the continuation of the list. If this continuation doses not complete the list. It can be followed by the third request with Byte 3 = 3 and so on.

Response: [07][08] XX

Where XX as follows

Byte 1	Raster substitution mode (0-OFF, 1-ON),
Byte 2	No. of printed dots,
Byte 3	Set number,
Byte 4	No. of rasters in the packet
Byte 5	End flag 0-OFF 1-ON
Byte 6	Raster string length

Bytes Raster name

Up to 5 Raster names

Byte Raster string length

Bytes Raster name

Example: of string returned:

Command:	[1B][00][12][00][05][01]
Response:	[07][08][00][05][01][05][00]<09>H5h12d60A[08]H5h7d60B<09>H7h21d60A[08]H7h8d60D<09>H9h18d60C
Command:	[1B][00][12][00][05][02]
Response:	[07][08][00][05][02][05][00]<0A>H12h25d60A<0A>H12h37d60A[0B]H2X7h24d60A<0A>H16h33d60B<0A>H16h37d60A
Command:	[1B][00][12][00][05][03]
Response:	[07][08][00][05][03][05][00]<0A>H16h53d60A<0A>H20h51d60A<0A>H24h67d60A<0A>H25h71d60A<0A>H26h75d60A
Command:	[1B][00][12][00][05][04]
Response:	[07][08][00][05][04][01][01][0B]H34h115d60B

Raster separators:

<0A> = Line feed characters

<09> = Tab character

5.1.15 System Error and Warning [1B] [00] [1F]

Command Group: System Query

Description: Set the system error and warning.

Parameters: None

Response: [07] [08] [07] [09] XX Where XX is 21 bytes of data as follows:

Bit	Byte 1	Byte 2	Byte 3	Byte 4	Byte 5	Byte 6	Byte 7	Byte 8	Byte 9	Byte 10	Byte 11
0	CHARGE_ERROR	BAD_NOZZLE	RASTER_MEMORY_OVERFLOW	HTEMP_TOO_HIGH	VISC_TOO_LOW	INK_INSERTIONS	MIXER_LOW	NO_TIME_TO_PHASE	TANK_NOT_FILLING	WRONG_RASTER_TABLE_NAME	LEVEL ERROR_HIGH
1	EHT_TRIP	MODDRIVER_OVERTEMP	VALVE_ERROR	HTEMP_TOO_LOW	PRESSURE_HIGH	NO_MAKEUP	PUMP_FAULT	NO_TIME_FOR_TOF	DAC_OVERFLOW	GUTTER_PUMP_FAULT	GUTTERERROR
2	GUTTER_FAULT	NO_PHASE_DATA_FROM_PE	SYS_FILL_FAILED	TOF_TOO_HIGH	PRESSURE_LOW	WRONG_MAKEUP	INKSYS_SERVICE_SOONP5	OVER SPEED	DAC_COMMS_ERROR	CHARGE_ERROR	PROD_DELAY_TOO_SHORT_LATCHED
3	MIXER_EMPTY	NO_PHASE_PASS_AT_LOW_TH	SYS_FILL_AGAIN	TOF_TOO_LOW	NO_INK	MAKEUP_EXPIRED	PUMP_NEAR_MAX	TOO_OFTEN	CHARGE_NOT_TRIMMED	GUTTER_FAULT	LINE_TOO_FAST_LATCHED
4	PUMP_FAULT	NO_PHASE_PASS_AT_HI_TH	RTC_INVALID	GUTT_DETECT_DISABLED	WRONG_INK	MAKEUP_LOW	COMPARTMENT_HOT	NO_INK_PARAMETERS	THROW_ERROR	COVER_DETECT_DISABLED	PRINT_OVERLAP_LATCHED
5	ELECT_TOO_HOT	BAD_PHASE_NO_FREQ_ADJ	INK_CORE_CHANGE	HEAD_COVER_REMOVED	INK_EXPIRED	MAKEUP_EMPTY	PROD_DELAY_TOO_SHORT	COEF_UPDATE	FW_TABLE_INDEX_NOT_FOUND	CHARGE_NOT_TRIMMABLE	TOO_OFTEN_LATCHED
6	INKSYS_SERVICE_OVERDUE	NO_GOOD_PHASE_START	EHT_NOT_CALIBRATED	PHASE_THRESHOLD	INK_LOW	MAKEUP_INSERTIONS,	LINE_TOO_FAST	USB_OVER_CURRENT	FW_COMP_HAS_NO_RASTERS	LEVEL ERROR_LOW	ERROR_OPENING_LOG
7	NO_VISCOSITY_CONTROL	MOD_READBACK_ERROR	Not used	VISC_TOO_HIGH	INK_EMPTY	MIXER_HIGH	PRINT_OVERLAP	HEATER_FAILURE	RASTER_CATALOG_PROCESSING	LEVEL ERROR_MID	NO_USB_STICK,

Bit	Byte 12	Byte 13	Byte 14	Byte 15	Byte 16	Byte 17	Byte 18	Byte 19
0	ERROR_WRITING_TO_LOG	Green Light	CONFIGS_READY	TEMP_STABLE	SYS_FILL	INKSYS_SERVICE_SOON5	MAKEUP_READY_FOR_EMPTY	ABORT_SYS_FILL
1	Not used	Amber Light	PRINTHEAD_ON	CLEAN_START	SYS_EMPTY_FROM_FULL	*INKSYS_SERVICE_SOON2*	PRINTHEAD_OFF	SYS_FLUSH
2	Not used	Red Light	PRINTHEAD_READY	CLEAN_STOP	SYS_EMPTY_FROM_LOW	MOD_LOW	GUARD_SECTION	PRODUCTION_FLUSH
3	Not used	Not used	PRINTING	QUICK_START	*VALVE_TEST*	*MOD_HIGH*	*ALL_THREAD_SUSPEND*	*SEQ_ALL_STOP*
4	Not used	Not used	SERVICE_MODE	QUICK_STOP	Not used	VISC_TOO_HIGH	MIXER_EMPTY	NO_TIME_TO_PHASE
5	Not used	Not used	TESTPRINT_MODE	SYS_FLUSH_PURGE	GOOD_PHASE	VISC_TOO_LOW	MISSED_PRINT_TURN_JET_ON	NO_TIME_FOR_TOF
6	Not used	Not used	DEFAULT_MODE	NOZZLE_FLUSH	GOOD_TOF	REQUIRES_TUNE	MISSED_PRINT_ENABLE_PRINT	Not used
7	Not used	Not used	PRESSURE_STABLE	UMBILICAL_PURGE	INKSYS_SERVICE_SOON10	INK_READY_FOR_EMPTY	EHT_INHIBITED	Not used

Bit	Byte 20	Byte 21
0	Nand flash error	Recovering makeup
1	Valve monitor error	Ok to recover makeup
2	Unused	Unused
3	Unused	Unused
4	Unused	Unused
5	Unused	Unused
6	Unused	Unused
7		

5.1.16 Request System Million Drops Counter [1B] [00] [20]

Command Group: System Query

Description: Request System Million Drops Counter value

Parameters: None

Response: [07] [08] XXXXXXXX Where XX is 8 bytes binary value

5.1.17 Request Serializer Parameters [1B] [00] [21] [X1]

Command Group:	System Query	
Description:	Request Serializer Parameters	
Parameters:	X1 – Requested Serializer (0 – Serializer 1, 1 – Serializer 2, 2 – Serializer 3)	
Response:	[07] [08] XX	Where XX is a 24 bytes of Serializer parameters:
	Byte 1	Serializer wrap around
	Byte 2	Number of digits in serializer
	Byte 3	Serializer increment size
	Byte 4-8	Serializer repeat count (5 ASCII characters)
	Byte 9-16	Serializer max count (8 ASCII characters)
	Byte 17-24	Serializer start count (8 ASCII characters)
Error:	[07] [51]	If Request Serializer value is out of range

5.1.18 System Error and Warning 2 [1B] [00] [22]

Command Group:	System Query	
Description:	Get the system error and warning.	
Parameters:	None	
Note:	*This parameter is for Videojet 1610 DH and Videojet 1710 only*	
Response:	[07] [08] [07] [09] XX	Where XX is 26 bytes of data as follows:

Byte 1	Byte 2	Byte 3	Byte 4	Byte 5	Byte 6	Byte 7	Byte 8	Byte 9	Byte 10	Byte 11
CHARGE_ERROR	BAD_NOZZLE	RASTER_MEMORY_OVERFLOW	HTEMP_TOO_HIGH	VISC_TOO_LOW	INK_INSERTIONS	MIXER_LOW	NO_TIME_TO_PHASE	TANK_NOT_FILLING	WRONG_RASTER_TABLE_NAME	LEVEL ERROR_HIGH
EHT_TRIP	MODDRIVER_OVERTEMP	VALVE_ERROR	HTEMP_TOO_LOW	PRESSURE_HIGH	NO_MAKEUP	PUMP_FAULT	NO_TIME_FOR_TOF	DAC_OVERFLOW	GUTTER_PUMP_FAULT	GUTTERERROR
GUTTER_FAULT	NO_PHASE_DATA_FROM_PE	SYS_FILL_FAILED	TOF_TOO_HIGH	PRESSURE_LOW	WRONG_MAKEUP	INKSYS_SERVICE_SOONP5	OVERSPEED	DAC_COMMS_ERROR	CHARGE_ERROR	PROD_DELAY_TOO_SHORT_LATCHED
MIXER_EMPTY	NO_PHASE_PASS_AT_LOW_TH	SYS_FILL_AGAIN	TOF_TOO_LOW	NO_INK	MAKEUP_EXPIRED	PUMP_NEAR_MAX	TOO_OFTEN	CHARGE_NOT_TRIMMED	GUTTER_FAULT	LINE_TOO_FAST_LATCHED
PUMP_FAULT	NO_PHASE_PASS_AT_HI_TH	RTC_INVALID	GUTT_DETECT_DISABLED	WRONG_INK	MAKEUP_LOW	COMPARTMENT_HOT	NO_INK_PARAMETERS	THROW_ERROR	COVER_DETECT_DISABLED	PRINT_OVERLAP_LATCHED
ELECT_TOO_HOT	BAD_PHASE_NO_FREQ_ADJ	INK_CORE_CHANGE	HEAD_COVER_REMOVED	INK_EXPIRED	MAKEUP_EMPTY	PROD_DELAY_TOO_SHORT	COEF_UPDATE	FW_TABLE_INDEX_NOT_FOUND	CHARGE_NOT_TRIMMABLE	TOO_OFTEN_LATCHED
INKSYS_SERVICE_OVERDUE	NO_GOOD_PHASE_START	EHT_NOT_CALIBRATED	PHASE_THRESHOLD	INK_LOW	MAKEUP_INSERTIONS,	LINE_TOO_FAST	USB_OVER_CURRENT	FW_COMP_HAS_NO_RASTERS	LEVEL ERROR_LOW	ERROR_OPENING_LOG
NO_VISCOSITY_CONTROL	MOD_READBACK_ERROR	Not used	VISC_TOO_HIGH	INK_EMPTY	MIXER_HIGH	PRINT_OVERLAP	HEATER_FAILURE	RASTER_CATALOG_PROCESSING	LEVEL ERROR_MID	NO_USB_STICK,

Byte 12	Byte 13	Byte 14	Byte 15	Byte 16	Byte 17	Byte 18	Byte 19
ERROR_WRITING_TO_LOG	Green Light	CONFIGS_READY	TEMP_STABLE	SYS_FILL	INKSYS_SERVICE_SOON5	MAKEUP_READY_FOR_EMPTY	ABORT_SYS_FILL
SCAN_PARSE_ERROR	Amber Light	PRINTHEAD_ON	CLEAN_START	SYS_EMPTY_FROM_FULL	*INKSYS_SERVICE_SOON2*	PRINTHEAD_OFF	SYS_FLUSH
SCAN_QUEUE_ERROR	Red Light	PRINTHEAD_READY	CLEAN_STOP	SYS_EMPTY_FROM_LOW	MOD_LOW	GUARD_SECTION	PRODUCTION_FLUSH
NEED_MIX_CORE	Not used	PRINTING	QUICK_START	*VALVE_TEST*	*MOD_HIGH*	*ALL_THREAD_SUSPEND*	*SEQ_ALL_STOP*
VALVE_BLOCK_NEEDS_RESET_SOON	Not used	SERVICE_MODE	QUICK_STOP	Not used	VISC_TOO_HIGH	MIXER_EMPTY	NO_TIME_TO_PHASE
VALVE_BLOCK_NEEDS_RESET	Not used	TESTPRINT_MODE	SYS_FLUSH_PURGE	GOOD_PHASE	VISC_TOO_LOW	MISSED_PRINT_TURN_JET_ON	NO_TIME_FOR_TOF
LOW_RAM	Not used	DEFAULT_MODE	NOZZLE_FLUSH	GOOD_TOF	REQUIRES_TUNE	MISSED_PRINT_ENABLE_PRINT	Not used
FIT_INK_CARTRIDGE	Not used	PRESSURE_STABLE	UMBILICAL_PURGE	INKSYS_SERVICE_SOON10	INK_READY_FOR_EMPTY	EHT_INHIBITED	Not used

Byte 20	Byte 21	Byte 22	Byte 23
Nand flash error	Recovering makeup	Add ink	Compilation failed
Valve monitor error	Controlling head stable	Unexpected interrupt	
Raster version incompatible	Velocity unknown	Image queue overflow	
Barcode engine not running	Velocity too low	Ink hand shake	
Invalid configuration	Velocity correct	Ink machine shake	
Interrupted fill core	Velocity too high	PEC trigger suppressed	
Message too long	Viscosity unknown	Serialiser overrun	
No code no run	Viscosity too low	Viscosity not calibrated	

Byte 24	Byte 25
Viscosity low	Cover stable
Viscosity correct	Not pump controller
Viscosity high	New pump controller
Viscosity too high	Now pump controller
Automod prev settings	Phase stable
Mix core short	
Mix core long	

5.1.19 Request MAC Address [1B] [00] [23]

Command Group:	System Query	
Description:	Request MAC Address of the Calypso On board Ethernet device	
Parameters:	None	
Response:	[07] [08] XX	Where XX is 17 bytes of ASCII characters is the following format: NN-NN-NN-NN-NN-NN Where N represents of an ASCII character from the following range ‘0’-‘9’, ‘A’-‘F’.
Error:	[07] [08] 00-00-00-00-00-00	if no MAC Address was found.

5.2 System Control Commands

5.2.1 Reinitialize Serial interface [1B] [01] [00]

Command Group: System Control

Description: Reset the Serial/Ethernet interface

Parameters: None

Response: [07] [08] [07] [01] [11]

5.2.2 Clear Internal and External Communication Buffers [1B] [01] [01]

Command Group: System Control

Description: Clears current message and input stack buffers.

Parameters: None

Response: [07] [08] [07] [07]

Note: *This command clears any remote data elements which have been received either via the remote data channel, or via ESI.*
If message remote mode is set to MESSAGE, this command clears all queued messages that have been received via ESI, clears the current message (I.e. the one that was most recently sent to the FPGA), and providing a print is not in progress, clears any messages that have been sent to the FPGA which are ready for printing. It also clears the copy of the last message which has been sent to the FPGA which is in the normal ESI queue. See "clear internal buffers only" for more information about this copy. If a print is in progress when this command is received, that print will be finished.

5.2.3 Reset Batch Product Count [1B] [01] [02]

Command Group: System Control

Description: Reset the batch product counter to zero. The batch product count includes the following 3 values – Product Count, False Product Detects, and Products Missed While In Stand-By (Head on but not in print mode).

Parameters: None

Response: [07] [08]

5.2.4 Reset Batch Print Count [1B] [01] [03]

Command Group: System Control

Description: Reset the batch print count to zero.

Scope: There is one batch print counter, which is shared between the UI and ESI.

Parameters: [07] [08]

Response: [07] [08]

5.2.5 Enable Status Reports [1B] [01] [04]

Command Group: System Control

Description: Enable the printer to report all status report features.
This is functionally equivalent to sending [1B][01][06][FF]

Parameters: None

Response: [07] [08]

5.2.6 Disable Status Reports [1B] [01] [05]

Command Group: System Control

Description: Disable the printer from reporting any status reports
This is functionally equivalent to sending [1B][01][06][00].

Parameters: None

Response: [07] [08]

5.2.7 Configure Status Reports [1B] [01] [06] [XX]

Command Group: System Control

Description: Configure the type of data included in the status report. Printer should send the respective bytes to the host, when any of the below condition occurs. These will be unsolicited responses.

Parameters: Mask used to enable reporting –

Bit 0: Print State Change

Bit 1: Printer Fault

Bit 2: Message Received Ack

Bit 3: Message Printed Ack

Bit 4: Start of Message Print Ack

Bit 5: Print Once Error

Response: [07] [08] [07] [09]

Note: *When setting the configure status report a "1" in the bit position will disable the response a "0" in the bit position will enable the response.*

Example if you would like to have the follow response on set back by printer:

Bit 0: Print State Change = 0

Bit 1: Printer fault = 0

Bit 2: Message Received Ack = 0

Bit 3: Message Printed Ack = 1

Bit 4: Start of Message Print Ack = 1

Bit 5: Print Once Error = 0

Command Sent: 1B, 01, 06, 18

Print State Change - [07][06] - ON, [07][05] - OFF

RESPSONES SENT BACK BY PRINTER

Printer Fault - [07][46][X1][X2] (See Fault Codes)

Message Received Ack - [07][21]

Message Printed Ack - [07][04]

Start of Message Print Ack - [07][22]

Print Once Error - [07][23]

Fault Has Occurred at EXCEL (See Fault Codes Table Below) 07, 46, X1, X2

Fault Code	Fault Description
30, 32	Fluid levels too low
30, 34	Core High
30, 36	Ink out fault
30, 37	300 volt power supply fault
30, 38	EHT fault
30, 41	Real time clock fault
30, 42	No phase time fault
30, 43	Phasing fault
30, 44	No signal fault
31, 32	Flow time too short fault
31, 33	Flow time too long fault

5.2.8 Enable XON/XOFF Transmission [1B] [01] [07]

Command Group:	System Control
Description:	Enable the use of XON and XOFF flow control for transmission of data.
Scope:	This command affects all messages downloaded following this command, including any message currently being downloaded. It does not affect previously downloaded messages.
Parameters:	None
Response:	[07] [08]

5.2.9 Disable XON/XOFF Transmission [1B] [01] [08]

Command Group:	System Control
Description:	Disable the use of XON and XOFF flow control for transmission of data.
Scope:	This command affects all messages downloaded following this command, including any message currently being downloaded. It does not affect previously downloaded messages.
Parameters:	None
Response:	[07] [08]

5.2.10 Enable Print Mode [1B] [01] [09]

Command Group:	System Control
Description:	Enable print mode on the printer (equivalent to pressing the Print button when the ink is on).
Parameters:	None
Response:	[07] [08] [07] [06]
	[07] [08] [07] [06] Print has been enabled (Print ON)
	[07] [08] [07] [05] Print is not enabled (Print OFF)
Note:	*If the ink system is not on, the printer will return a [07] [08][07][05]. The printer will not allow the printer to be placed into print without the ink being on.*

5.2.11 Disable Print Mode [1B] [01] [0A]

Command Group:	System Control
Description:	Disable print mode on the printer.
Parameters:	None
Response:	[07] [08] [07] [05] Print is not enabled (Print OFF)

5.2.12 Adjust Message Width [1B] [01] [10] [XX]

Command Group:	System Control
Description:	Set the Message Width parameter. For 1580/1860/1880 printers, the Adjust Message Width command does not work as before in legacy and 1000 series. This command should not be used.
Parameters:	X – Where X is a value from [00] to [FF]. X denotes the message width which is the dividing factor for the pulses coming from shaft encoder. If the value is not valid then it will be rounded to nearest least integer. Valid values are 0,10,20,30,40,50,60,70,80,90,100 (all in decimal) This command in 1580/1860/1880 is used to return the encoder pitch back to 10 cpi. Sending a command of [1B][01][10][28] will return pitch to 10 cpi in 5x7 matrix.
Scope:	There is one message width control
Response:	[07] [08] [07] [09]

5.2.13 External Encoder Rate [1B] [01] [0F] [XX][XX]

Command Group:	System Control
Command Replaced:	1580/1860/1880 printers this command does not work the same as legacy and 1000 series since the encoder setup is completely different. This command will not work as before. It can reduce the number of pulses to the printer. This command has been replaced by External Encoder Parameters [1B][02][5F][X1] - [X6]
Description:	Set the external encoder resolution parameter. Enter the pulses per inch for the shaft encoder. This value will take the current printer encoder PPR value divide by the PPI value sent in from the host. This will give you the circumference size of wheel value.
Parameters:	XX – Where XX is a 2 Byte value indicating the new encoder rate you wish on the printer decimal value.
Scope:	There is one encoder rate in the Videojet 1610 which is shared between the UI and ESI.
Response:	[07] [08] [07] [09]
Range:	1 to 5000 Decimal or 1 to 1388 hex in inches
Example:	Printer has an encoder value of 1800 PPR. A PPI value of 800 is sent from host pc command: [1B][01][0F][03][20]] The printer will display 2.25 inches for the wheel size circumference. Command sent to printer: [1B][01][0F][03][20] Printer's PPR value: 1800 PPI value sent from host PC: 800 Wheel size circumference (inches): 2.25 1800 PPR / 800 PPI = 2.25 inches Wheel Circumference (inches)

5.2.14 Set Internal Encoding Line Speed [1B] [01] [11] [XX] [XX]

Command Group:	System Control
Description:	Set the Line Speed when using internal encoding.
Parameters:	XX – Where XX is a hexadecimal value
Scope:	This value will set the line speed Manually under Tools > Line Speed > Line Speed Manually Line Speed value. When sending command remotely you will see code pitch change and Line Setup Value change on display.
Response:	[07] [08] [07] [09]
Range:	1 to 1181.1 Decimal or 01 to 049D hex in Feet per Minute (FPM)
Example:	Line Speed value of 100 decimal that will be displayed on printer. Command sent to printer: [1B][01][11][00][64]

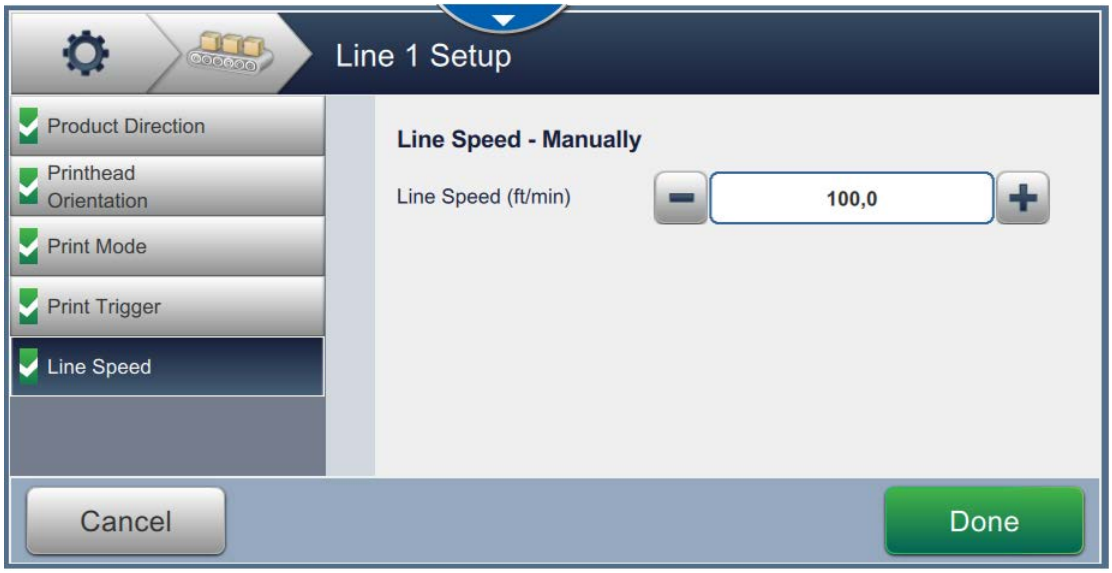


Figure 5-1: Current Line Setup

5.2.15 Set External Encoding Reduction Value [1B] [01] [12] [XX] [XX]

Command Group:	System Control
Command Replaced:	1580/1860/1880 printers this command does not work the same as legacy and 1000 series since the encoder setup is completely different. This command will not work as before. It can reduce the number of pulses to the printer. This command has been replaced by External Encoder Parameters [1B][02][5F][X1] - [X6]
Description:	Set the External Encoding Reduction Value.
Parameters:	XX – Where XX is a value used as the reduction factor
Scope:	There is one encoding reduction value in the Videojet 1610 which is shared between the UI and ESI.
Response:	[07] [08] [07] [09]
Range:	2 to 9999 Decimal or 02 to 03E7 hex
Example:	Reduction factor value of 8 decimal that will be displayed on printer. Command sent to printer: [1B][01][12][00][08]

5.2.16 Adjust Message Height [1B] [01] [13] [XX]

Command Group:	System Control
Description:	Sets the message height on the nozzle
Note:	*This command has no effect on printer operation or print output. This command will only send acknowledgement to the host.*
Parameters:	This will just send back response
Response:	[07] [08] [07] [09]
Range:	None

5.2.17 Printer Shutdown [1B] [01] [15]

Command Group:	System Control
Description:	Turns off Jet, puts jet cycle into Clean or Quick Shutdown depending on what printer calls for.
Parameters:	None
Response:	[07] [08]

5.2.18 Enable Print Message Once [1B] [01] [16]

Command Group:	System Control
Description:	Enable the Print Once feature to print ESI messages only once. This turns off the latching printer buffer of the printer, so the messages are printed only once and discarded. If the print once configuration status or enable status is on the printer will return 07, 23 every time the printer is triggered without an active message. Printer will transmit 07, 23 back to host.
Scope	This affects all subsequent prints of ESI messages regardless if the message was downloaded before or after this command is received.
Parameter	None
Response:	[07] [08]

5.2.19 Disable Print Message Once [1B] [01] [17]

Command Group:	System Control
Description:	Disable the Print Once feature to print ESI messages only once.
Scope:	This affects all subsequent prints of ESI messages regardless of if the message was downloaded before or after this command is received.
Parameter	None
Response:	[07] [08]

5.2.20 Increase Print Delay by 0.01 inch [1B] [01] [19]

Command Group:	System Control
Description:	Increase the Print Delay by 0.01 inch.
Scope:	This will adjust the print delay value under line setup. Distance from product detector (PD) to printhead (PH) slot.
Parameters:	None
Response:	[07] [08]

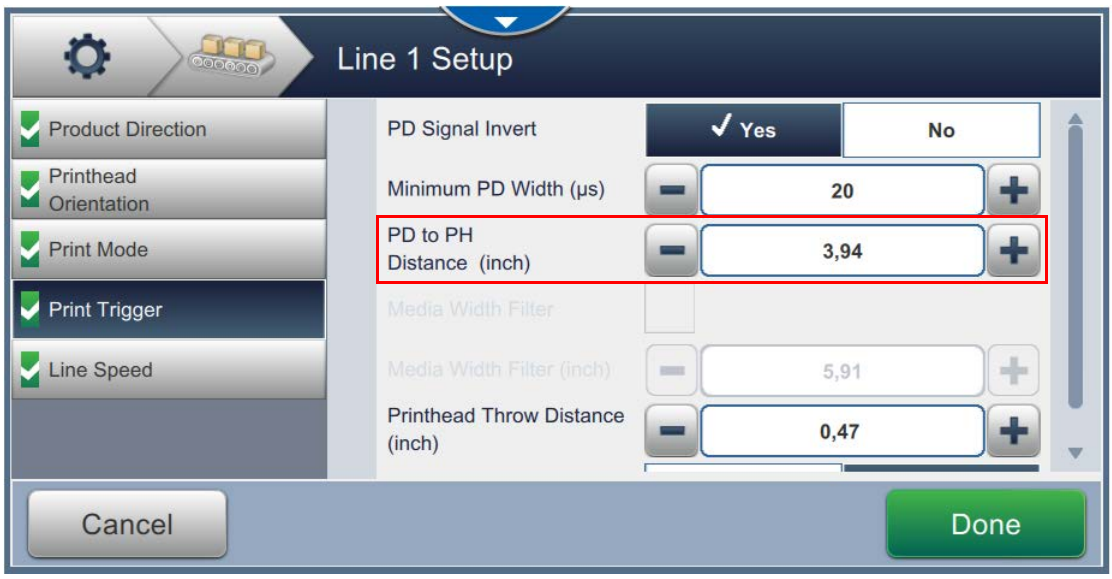


Figure 5-2: PD to PH Distance

5.2.21 Decrease Print Delay by 0.01 inch [1B] [01] [1A]

Command Group:	System Control
Description:	Decrease the Print Delay by 0.01 inch.
Scope:	There is one print delay in the Videojet 1610 which is shared between the UI and ESI.
Parameters:	None
Response:	[07] [08]

5.2.22 Set Insert Remote Mode [1B] [01] [1C]

Command Group:	System Control
Description:	Place the printer into Insert Remote Mode (Local) to allow message creation from the printer's keyboard or message editor. This mode is also used for remote data inserts to place data into printer's existing message. All messages to be printed following this command will be taken from the UI.
Parameters:	None
Response:	[07] [08]

5.2.23 Set Message Remote Mode [1B] [01] [1D]

Command Group:	System Control
Description:	Place the printer into ESI Message Remote Mode to allow external message creation-via host PC.
Scope:	This command will allow the printer to receive remote message data from host. Without this command the printer will not except message data but will except requests and setting commands from host.
Note:	*It is recommended that this command should be sent prior to message downloads to ensure printer is in the proper state.*
Parameters:	None
Response:	[07] [08]

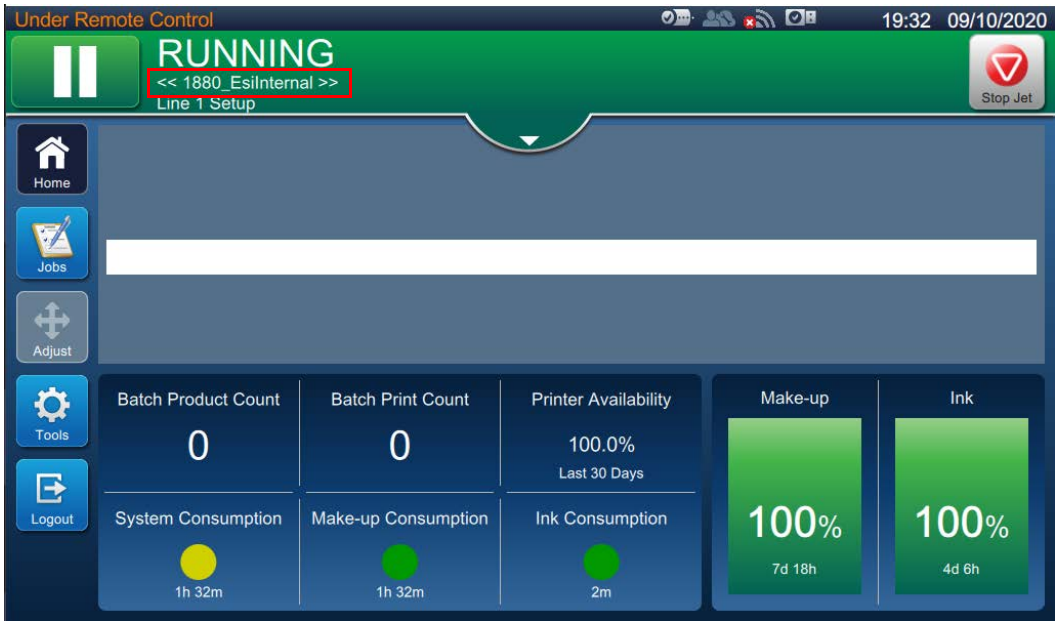


Figure 5-3: External Message

In Message Remote mode, <<EsiInternal>> will be seen in left of display as shown in above figure.

5.2.24 Switch to Unicode [1B] [7E] [00]

Command Group:	System Control
Description:	The printer will treat the text input as Unicode after this command. All character are now 2-bytes long including the carriage return. Insert command are not affected just printed text Message terminator will be 00 0D.
Scope:	Affects text input in ESI Message Remote Mode (message data) and Insert Remote Mode (remote insert data).
Parameters:	None
Response:	[07] [08]

5.2.25 Switch to ASCII [1B] [7E] [01]

Command Group:	System Control
Description:	The printer will treat the text input as ASCII after this command. Message terminator will be 0D.
Scope:	Affects text input in ESI Message Remote Mode (message data) and Insert Remote Mode (remote insert data).
Parameters:	None
Response:	[07] [08]

5.3 Set Print Delay [1B] [01] [20] [XX] [XX]

Command Group:	System Control
Description:	Set the Print Delay in 0.01 inch increments.
Scope:	This print delay sets the distance value from product detector (PD) to printhead slot (PH) distance.
Parameters:	XX – Where XX is the print delay in 0.01 inches value in hexadecimal of the decimal value you want to see on the printers display. The print delay is in 1/100th (0.01) inch increments.
Response:	[07] [08] [07] [09]
Range:	1 to 3937 Decimal or 1 to 0F61 hex inches (inches)
Example:	Print delay value of 150 decimal or 1.50 inches that will be displayed on printer. Command sent to printer: [1B][01][20][00][96]

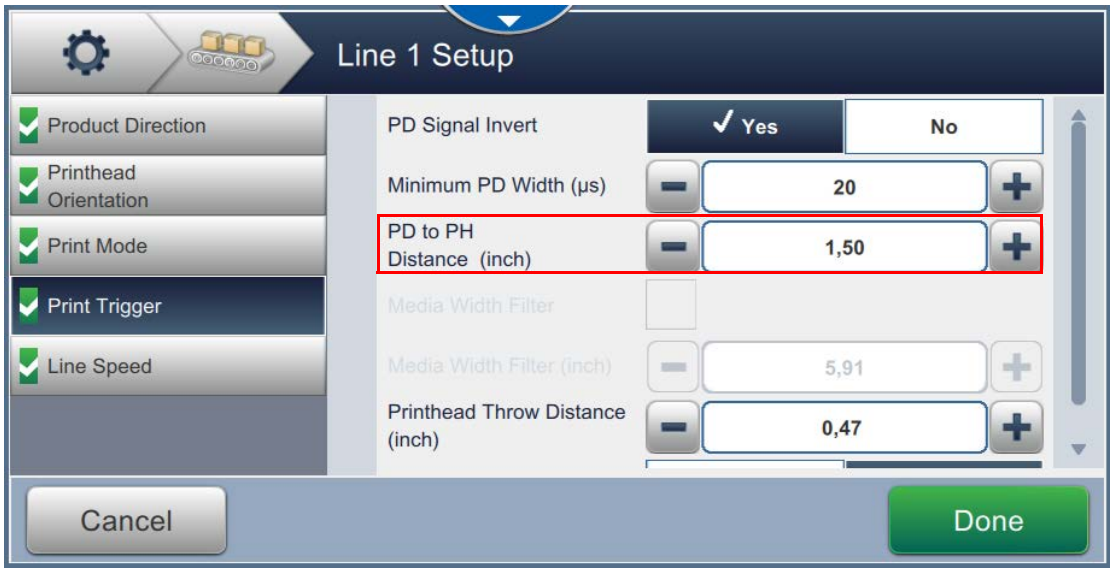


Figure 5-4: PD to PH Distance

5.3.1 Set Internal Distance Continuous Mode Spacing [1B] [01] [22] [XX] [XX]

Command Group:	System Control
Description:	When using Continuous Mode, set the total length of message plus space between first print and second print in 1/100th (0.01) inches. Set the spacing between prints in .01 inches.
Scope:	The continuous print setting must be set on the printer prior to sending the command. This will be found under CURRENT Line Setup - Tools > Print Mode > Continuous > Print Mode - Continuous. Print Interval has been set to Distance.
Parameters:	XX – Where XX is the Distance between prints in 1/100th (0.01) inches. Print Interval must be set to Distance.
Response:	[07] [08] [07] [09]
Note:	*Must calculate total length of message plus space between first and second print. This will be the decimal value. Convert to hex value place in XX, XX position.*
Range:	1 - 94 inches
Error:	If printer is not setup prior to continuous print mode and print interval set to distance, printer will return [07][29].
Example:	Continuous Spacing value of 325 decimal that will be displayed on printer. Command sent to printer: [1B][01][22][01][45]

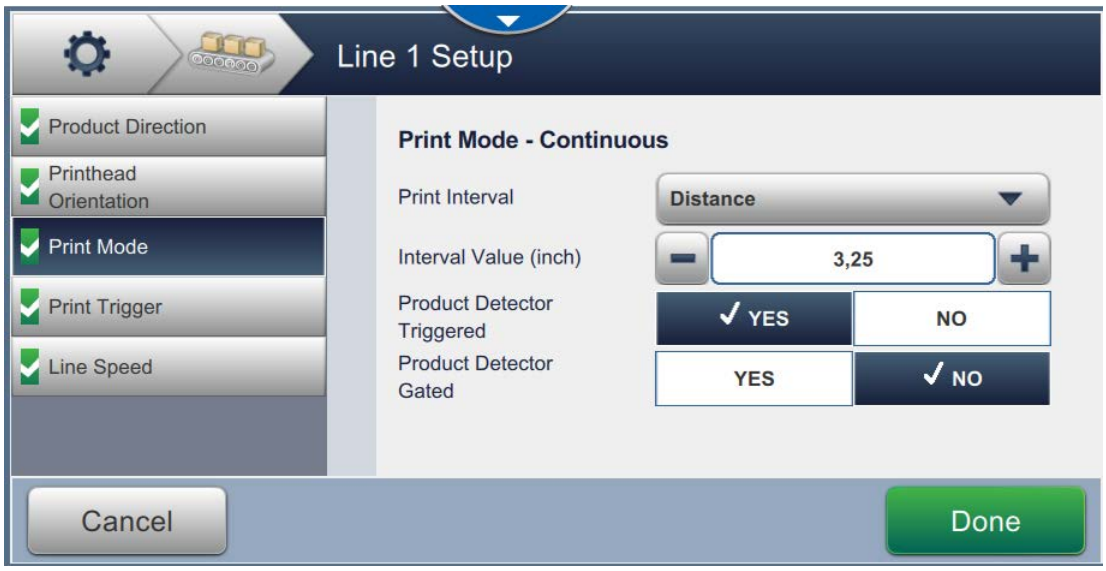


Figure 5-5: Line Setup Print Mode - Continuous

5.3.2 Activate Continuous Mode Printing [1B] [01] [23]

Command Group:	System Control
Description:	Activate the Continuous Mode printing feature.
Scope:	This setting will be found on printer display under Tools > Current Line Setup > Print Mode > Continuous. When sending this command, the Continuous radio button will be highlighted.
Parameters:	None
Response:	[07] [08]

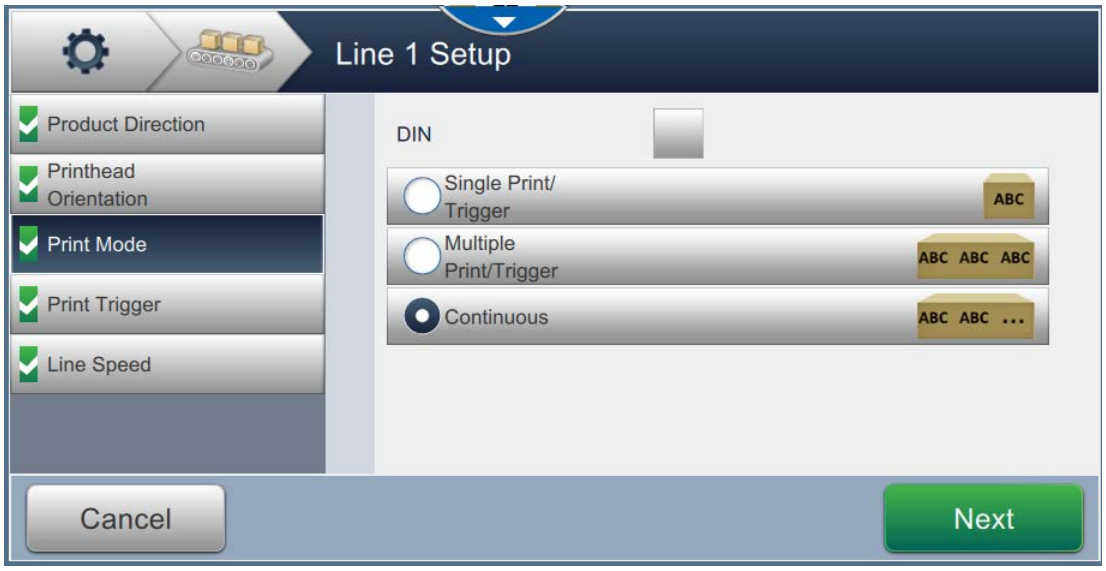


Figure 5-6: Line Setup Print Mode - Continuous

5.3.3 Deactivate Continuous Mode Printing [1B] [01] [24]

Command Group:	System Control
Description:	Deactivate the Continuous Mode printing feature.
Parameters:	None
Response:	[07] [08]

5.3.4 Set Expiry 1 Date Offset [1B] [01] [28] [XX] [CC]

Command Group:	System Control
Description:	Set the amount of days to use for expiration date offset 1.
Scope:	This command affects all messages downloaded after this command is received. It does not affect previously downloaded messages. It does not affect any message currently being downloaded.
Parameters:	XX - Where XX is a 2-Digit BCD value CC - Where CC is D = Days, M = Months, Y= Years
Range:	The offset value is limited to 00 - 99 For longer range a new version of this command may be used [1B][01][4C] Set Expiry 1 Date offset.
Response:	[07] [08] [07] [09]
Example:	10 day offset Command: [1B][01][28][10]D

5.3.5 Set Expiry 2 Date Offset [1B] [01] [29] [XX] [XX]

Command Group:	System Control
Description:	Set the amount of days to use for expiration date offset 2.
Scope:	This command affects all messages downloaded after this command is received. It does not affect previously downloaded messages. It does not affect any message currently being downloaded.
Parameters:	XX - Where XX is a 2-Digit BCD value CC - Where CC is D = Days, M = Months, Y= Years
Range:	The offset value is limited to 00 - 99 For longer range a new version of this command may be used [1B][01][4D] Set Expiry 2 Date Offset.
Response:	[07] [08] [07] [09]
Example:	1 month offset Command: [1B][01][29][01]M

5.3.6 Clear Internal Buffers Only [1B] [01] [2A]

Command Group:	System Control
Description:	This command should clear the internal stack buffer only. The message that is currently printing in print buffer will be unaffected, will continue to printer.
Parameters:	None
Response:	[07] [08] [07] [2B]
Note:	*This command clears all queued messages that have been received via ESI.* *If no prints have been performed since either the last power cycle, or the last clear external and internal buffers command (whichever was most recent), then no message will be left in the ESI queue.* *If a print is in progress of printing, when this command is received, that print will be completed, and a copy of that message will remain as the only message in the ESI queue.* *If one or more prints has been performed and no print is in progress, a copy of the last message printed will remain as the only message in the ESI queue.* *Where a message is left as the only entry in the queue, it may be printed if no other message is received before the next print is started (this will depend on the setting of print once at the time the next print is started). If a new message is downloaded before the next print is started, then this new message will be printed instead.*

5.3.7 Clear Last Print Engine Fault [1B] [01] [2C]

Command Group:	System Control
Description:	Clear the last fault on the Print Engine
Parameters:	None
Response:	[07] [08]
Note:	*This command can be used to clear printer warnings remotely.*

5.3.8 Trigger Printer Message [1B] [01] [3F]

Command Group:	System Control
Description:	Generates one product detect signal. This causes the printer to fire the message. Generate one Print.
Parameters:	None
Response:	[07] [08]
Note:	*This command is not recommended to be used for production coding. This is not an interrupt driven input. Using the command for product detect will not provide the positive placement of code onto the product. This command is for testing and special applications.*

5.3.9 Set Auto Encoding Detect Value [1B] [01] [49] [XX] [XX] [XX]

Command Group:	System Control
Description:	Set the detect area value when using auto encoding.
Parameters:	XX – Where XX is a hexadecimal value that you want to appear on the printer. The decimal value will be in tenths of a mm or tenths of an inch.
Range:	Allowable values are 1-118 inches
Response:	[07] [08] [07] [09]

5.3.10 Set Auto Repeat & Repeat Delay [1B][01][21][XX][XX][XX]

Command Group:	System Control
Description:	Set the repeat count value and repeat delay value.
Parameters:	X1 – Where is a hexadecimal value for the number of repeat counts, X2-X3 are the distance or delay between prints. This distance is from leading edge of message to leading edge on next message. Print Interval must be set to Distance. Product Detector Triggered and Product Detect Gated must be set on printer. These settings cannot be set remotely. Byte 0 Repeat count Byte 1 to 2 Delay between prints (Leading edge of first message to leading edge of next message
Range:	2 – 255 Repeat 0 – 94 inches Delay
Note:	*Printer must be removed from the print mode to send this command. If printer is not removed from print mode and command is sent you will receive a 07, 29 acknowledgement out of context response from printer.*
Response:	[07] [08] [07] [09]
Error:	[07] [29]
Example:	This will have a repeat to 2 and a repeat delay of 4.00 inches. Command: [1B][01][21][02][01][90]

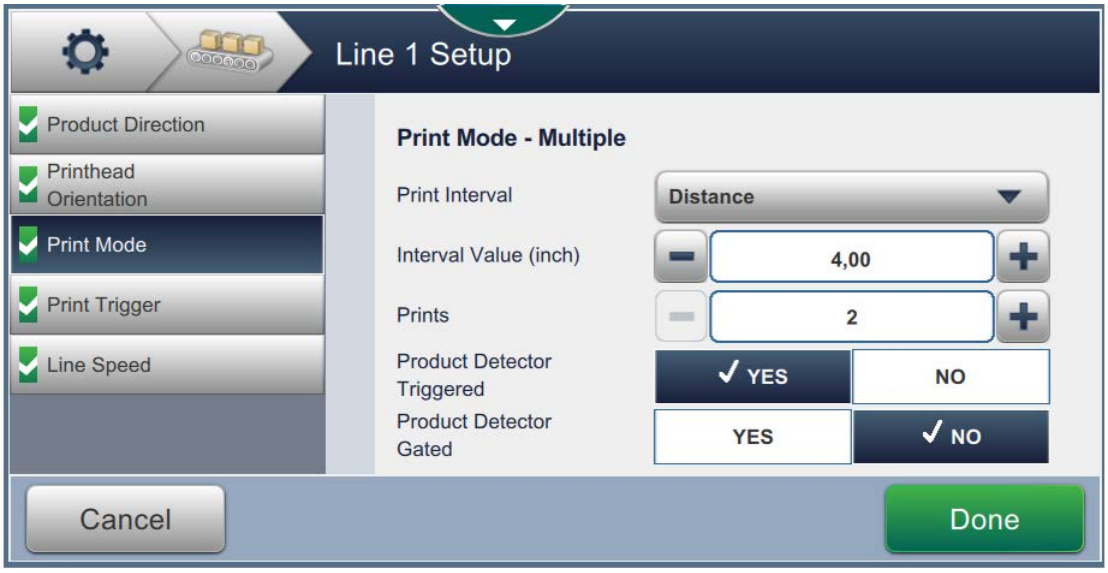


Figure 5-7: Multiple Print/Trigger Screen

5.3.11 Set Throw Distance [1B] [01] [47] [XX]

Command Group:	System Control
Description:	Set the throw distance
Parameters:	XX– Where XX is a hexadecimal value for throw distance
	Byte 0 Throw distance
Scope:	This setting is used to calculate the speed compensation value for high speed printing applications.
Range:	5 – 30 mm
Response:	[07] [08] [07] [09]
Error:	[07] [29]

5.3.12 Set Digital I/O Configuration [1B] [01] [4A] [XX]

Command Group:	System Control	
Note:	*This feature is not available on 1580 printer*	
Description:	Setup the Digital I/O input channels	
Scope:	There is one set of values for Digital I/O in the 1610 which are shared between the UI and ESI.	
Restrictions:	Requires printer to be at access level 2 or greater	
Parameters:	XX	Where XX is a binary value
	Bit 0:	“INPUT 1” input line active level invert (1 – Invert, 0 – Normal)
	Bit 1:	“INPUT 2” input line active level invert (1 – Invert, 0 – Normal)
	Bit 2:	“INPUT 3” input line active level invert (1 – Invert, 0 – Normal)
	Bit 3:	“INPUT 4” input line active level invert (1 – Invert, 0 – Normal)
	Bit 4:	“INPUT 5” input line active level invert (1 – Invert, 0 – Normal)
Response:	[07] [08]	
Error:	[07] [29]	

5.3.13 Set Week Rollover Day [1B] [01] [4B] [XX]

Command Group:	System Control
Description:	Set week rollover day. Rollover day is the first day of the week.
Parameters:	XX – Where XX is a week rollover day *(1=Sunday, 2=Monday..., 7=Saturday)*
Response:	[07] [08]
Error:	[07] [51]

5.3.14 Set Expiry 1 Date Offset 2 [1B] [01] [4C] [XX] [XX] [YY]

Command Group:	System Control
Description:	Set the amount of offset value to use for expiration date offset 1.
Scope:	This command affects all messages downloaded after this command is received. It does not affect previously downloaded messages. It does not affect any message currently being downloaded.
Parameters:	XX Where XX is a 4-Digit BCD value YY Where YY is an ASCII value: 'D' Offset in days (max offset value 9125), 'W' Offset in weeks (max offset value 1300), 'M' Offset in months (max offset value 300), 'Y' Offset in years (max offset value 25)
Response:	[07] [08] [07] [09]
Error:	[07][29]
Example:	[1B][01][4C][03][56]D (365 Days) [1B][01][4C][00][24]M (24 Months)

5.3.15 Set Expiry 2 Date Offset 2 [1B] [01] [4D] [XX] [XX] [YY]

Command Group: System Control

Description: Set the amount of offset value to use for expiration date offset 2.

Scope: This command affects all messages downloaded after this command is received. It does not affect previously downloaded messages. It does not affect any message currently being downloaded.

Parameters:
XX Where XX is a 4-Digit BCD value
YY Where YY is an ASCII value:
'D' Offset in days (max offset value 9125),
'W' Offset in weeks (max offset value 1300),
'M' Offset in months (max offset value 300),
'Y' Offset in years (max offset value 25)

Response: [07] [08] [07] [09]

Error: [07][29]

Example:
[1B][01][4D][00][21]D (21 Days)
[1B][01][4D][00][12]M (12 Months)

5.3.16 Set Expiry 3 Date Offset [1B] [01] [4E] [XX] [XX] [YY]

Command Group: System Control

Description: Set the amount of offset value to use for expiration date offset 3.

Scope: This command affects all messages downloaded after this command is received. It does not affect previously downloaded messages. It does not affect any message currently being downloaded.

Parameters:
XX Where XX is a 4-Digit BCD value
YY Where YY is an ASCII value:
'D' Offset in days (max offset value 9125),
'W' Offset in weeks (max offset value 1300),
'M' Offset in months (max offset value 300),
'Y' Offset in years (max offset value 25)

Response: [07] [08] [07] [09]

Error: [07][29]

Example:
[1B][01][4E][03][65]D (365 Days)
[1B][01][4E][00][02]M (2 Months)

5.3.17 Set Reverse Print Delay [1B] [01] [50] [XX] [XX]

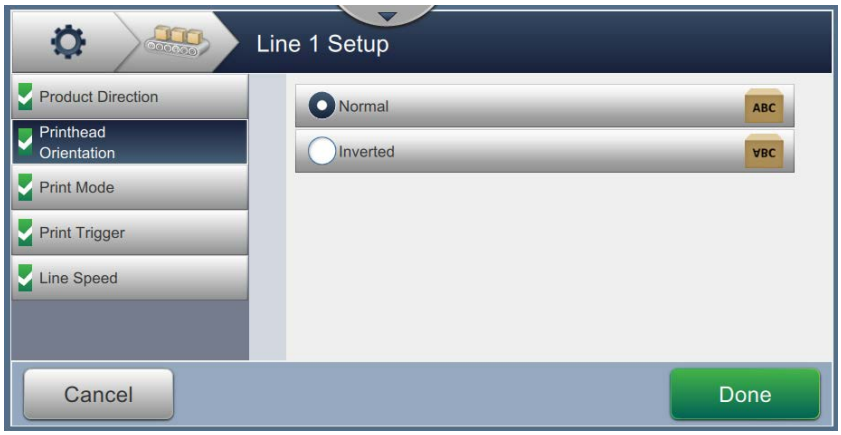
Command Group:	System Control
Description:	Set the Print Delay in 0.01 inch increments.
Scope:	This print delay sets the reverse print delay or known as reverse margin value used in traversing applications. This is the legacy command used with 1000 series printer models.
Parameters:	XX - Where XX is the print delay in 0.01 inches value in hexadecimal of the decimal value you want to see on the printer's display. The reverse print delay is in 1/100th (0.01) inch increments.
Response:	[07] [08] [07] [09]
Range:	1 to 3937 Decimal or 1 to 0F61 hex inches (inches)

5.3.18 Set Reverse Print Delay [1B] [01] [60] [XX] [XX]

Command Group:	System Control
Description:	Set the Print Delay in 0.01 inch increments.
Scope:	This print delay sets the reverse print delay or known as reverse margin value used in traversing applications.
Parameters:	XX - Where XX is the print delay in 0.01 inches value in hexadecimal of the decimal value you want to see on the printer's display. The reverse print delay is in 1/100th (0.01) inch increments.
Response:	[07] [08] [07] [09]
Range:	Range:1 to 3937 Decimal or 1 to 0F61 hex inches (inches)

5.3.19 Set Printhead Orientation [1B] [01] [5B] [XX]

Command Group:	System Control	
Description:	Set the active Line Setup parameter This will set the print message to Normal or Inverted.	
Scope:	This command affects all messages downloaded after this command is received. It does not affect previously downloaded messages. It does not affect any message currently being downloaded.	
Note:	*The parameter change will be seen on the printer keyboard. Under current line setup Printhead Orientation screen.*	
Parameters:	[XX] = [00] Print is Normal [XX] = [01] Print is Inverted	
Response:	[07] [08]	
Error:	[07][29]	Parameters out of range
Example:	[1B][01][5B][00] [1B][01][5B][01]	Print is normal Print is inverted



5.3.20 Set External Encoder Parameters

[1B] [01] [5F] [X1] – [X6]

Command Group: System Control

Description: This command is used to setup the external shaft encoder setting within the current line setup. This will allow the remote host to set the printer's Line Speed - By Shaft Encoder Settings; Pulses per revolution (PPR), Wheel Circumference, Encoder Type, Encoder Direction values. These values will be seen on the current line set Line Speed - By Shaft Encoder screen. This screen will host values change on screen.

Note: *This is a new command for the 1580/1860/1880 printers since the setup of shaft encoder varies from Legacy and 1000 series printers. This command will replace the Set Reduction Factor command [1B][01][12][XX][XX] and the set PPI value [1B][01][0F][XX][XX].*

Scope: This command affects all messages downloaded after this command is received. It does not affect previously downloaded messages. It does not affect any message currently being downloaded.

Parameters: [X1][X2] = Encoder PPR value This value will be the decimal value of the encoders pules per revolution (PPR) converted to hexadecimal value [MSB][LSB].

[X3][X4] = Encoder Wheel Circumference value. This value can be in inches or millimeters depending on printer setup. Circumference in 1/100 of an inch. This is the decimal value you would like converted to hexadecimal value [MSB][LSB].

Note: *The common stroke rate value of printer is 60 pulses per inch or 10 characters per inch (CPI) with a 5x7 matrix. The settings within the Line Setup Line Speed - By Shaft Encoder should produce this output.*

[X5] = Encoder Type:

[00] = Non-Quadrature

[01] = Quadrature

[X6] = Encoder Direction:

[00] = Not Used

[01] = A Leads B

[02] = B Leads A

The encoder pulses per revolution (PPR) value. The Wheel Circumference can be in inches or millimeters depending on the setup of printer. This value will be 1/100 of an inch

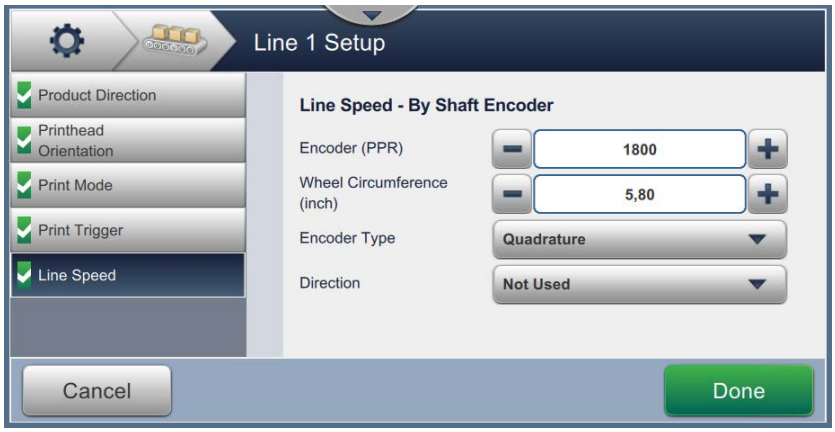
Response: [07] [08]

Error: [07][29] Parameters out of range or parameters are incompatible

Example:

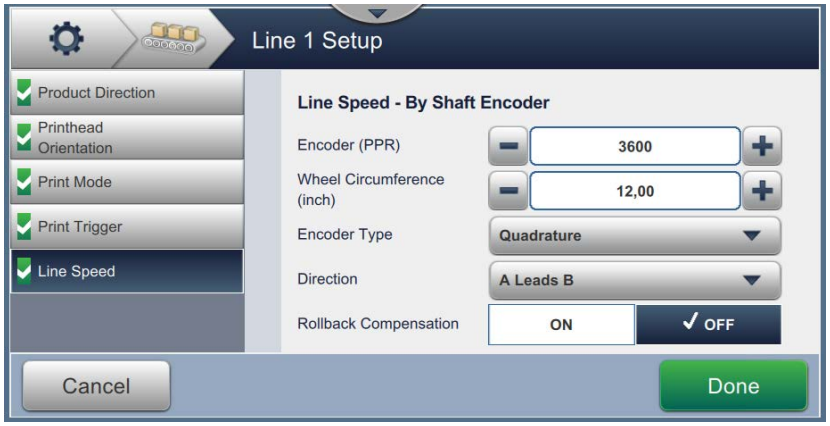
1800 PPR encoder, 5.8-inch Wheel Circumference, Encoder Type Quadrature, Encoder Direction Not Used

Command: [1B][01][5F][07][08][02][44][01][00]



3600 PPR encoder, 12-inch Wheel Circumference, Encoder Type Quadrature, Encoder Direction A Leads B

Command: [1B][01][5F][0E][10][04][B0][01][01]



5.4 System Special Commands

5.4.1 Create Graphics Character [1B] [02] [00]

Command Group: System Special

Description: Begin the creation of a 16-high or 24-high graphics to insert into a message. This functionality is achieved by a series of the following packets for 16-high graphics:

Successful transmission of a 16-high graphics character requires 20 transactions (i.e. send/receives).

command_packet	data_packet (with header)
command_packet	data_packet
command_packet	data_packet
command_packet	data_packet
command_packet	data_packet
command_packet	data_packet (inverted) (with header)
command_packet	data_packet (inverted)
command_packet	data_packet (inverted)
command_packet	data_packet (inverted)
command_packet	data_packet (inverted)

For the 24-high graphics characters, the following transmissions (28 transactions) are required:

command_packet	data_packet (with header)
command_packet	data_packet
command_packet	data_packet
command_packet	data_packet
command_packet	data_packet
command_packet	data_packet
command_packet	data_packet
command_packet	data_packet (inverted) (with header)
command_packet	data_packet (inverted)
command_packet	data_packet (inverted)
command_packet	data_packet (inverted)
command_packet	data_packet (inverted)

	command_packet	data_packet (inverted)
	command_packet	data_packet (inverted)

The packets are sent until all graphic data has been transmitted; transmission of each subsequent packet being delayed until a response for the previous packet is received.
All numbers portrayed in the description below are in hexadecimal format.

Parameters: None

Response: [07] [0B]

5.4.1.1 Graphics Character Command_Packet

Command_Packet Format: 1B 02 00

Response:	[07] [0B]	The command was processed and the printer is ready to receive the next graphic packet.
	[07] [0C]	The printer is not ready to receive the next graphic packet.

Note: *If 07 0B is received, send the next graphics packet.*

5.4.1.2 Graphics character data_packet

Data_Packet: 241 Bytes

Note: *The first data_packet, in a group contains a header and the final byte of all data_packets is a checksum. Graphic data is present in between first and final byte of data packet.*

5.4.1.2.1 The Header (6 bytes) for a 16-high Graphics Packet

Packet ID (1Byte):	C4
Character ID (1Byte):	06 for Character 1 07 for Character 2
Width or the number of strokes in the image (2 Bytes):	MSB = width divided by 16 LSB = the remainder of width divided by 16
Dummy Bytes (2 Bytes)	2 zero Bytes

5.4.1.2.2 The Header (8 bytes) for a 24-high Graphics Packet

Packet ID (1Byte):	C4
Character ID (1Byte):	46 for Character 1 47 for Character 2
Width or the number of strokes in the image" (2 Bytes)	MSB = width divided by 16 LSB = the remainder of width divided by 16
Dummy Bytes (4 Bytes)	4 zero Bytes

5.4.1.2.3 Graphics Data

For graphics data, two buffers are allocated, the first buffer is for the normal (not inverted) image, the second buffer is for inverted image. The buffers are 1020 bytes in size for 16-high images and 1538 for 24-high images. After allocation the buffers should be zero-filled.

The graphics data is built by processing each a stroke starting from the left side of the image in turn. A 16-high stroke requires 4 bytes, a 24-high stroke requires 6 bytes. For clarity, the constant 4 (for 16-high) and 6 (for 24-high) will be known henceforth as STROKE_BYTES.

To encode a 16-high stroke, it is necessary to consider the stroke as an array of drops where each drop has a row number (0-15), a byte_offset, and a bit_shift:

Calculate the byte offset as follows:

Row Number	Byte_offset
0-3	2
4-7	3
8-11	0
12-15	1

The bit_shift is calculated as follows: bit_shift = 3 - (remainder of row number divided by 4)

For each drop in a stroke the bit (given by the bit_shift) in the byte given by byte_offset is set if that drop is inked and clear if the drop is not inked.

(For each successive stroke add STROKE_BYTES to the byte offset).

Row Number	Byte_offset
0-3	4
4-7	5
8-11	2
12-15	3
16-19	0
20-23	1

To encode a 24-high stroke similar logic is employed, but a different mapping is required for the byte_offset:

Inverted data is encoded similarly, but the byte_offset is inverted as follows:

(STROKE_BYTES – 1) - byte_offset;

The bit_shift is as follows: bit_shift = 3 – (remainder of row number divided by 4)

5.4.1.3 Building the Graphics Character Data_Packet

Initially the non-inverted data is sent. In the first data_packet the first 6 or 8 bytes are occupied by the header (depending on whether it is a 16- or 24-high graphic) as described in 6.3.1.2.1-6.3.1.2.2. The next 234 (16-high graphic) or 232 (24-high graphic) bytes are filled by non inverted graphic data described by 6.3.1.2.3. In subsequent data_packets, no header is written and 240 bytes of graphic data is output. The final byte is always a checksum.

The checksum is generated by initializing a 8-bit accumulator to zero, then iterating each byte in the 240 byte string and adding it's value to the accumulator. Once complete the value of the accumulator is used as the checksum.

There should be 241 bytes of data which should be transmitted in one chunk.

The printer should respond with 07 09 07 0B (success) or 07 09 07 0C (error). After a successful response send another command_packet.

When all the non-inverted data is consumed, pack the remainder of the 240 bytes as zero bytes, terminating with a checksum.

Once all the non-inverted data is sent to the packet and a response to the subsequent command_packet has been received the inverted data is sent. The above procedure (6.3.1.3) should be repeated with inverted graphic data with the following exception: when all the graphics data bytes have been exhausted write the next 2 bytes as 9F 03, pad up to 240 bytes as zeroes. The last byte is the checksum. This packet is the last request packet in the graphic character download.

5.4.2 Initialize Serializer 1 [1B] [02] [01] [X1] .....[X25]

Command Group: System Special

Description: Setup the operation of Serializer 1

Parameters: 25 Bytes of data as defined below:

Byte 1 Direction and Wrap (Value hex)

(00h) – Count Down Wrap Around OFF
Bit 0 (0x01): Wrap Serializer On

(01h) – Count Down Wrap Around ON
Bit 1 (0x02): Not Used

(40h) – Count Up Wrap Around OFF
Bit 2 (0x04): Enable External Reset

(41h) – Count Up Wrap Around OFF
Bit 3 (0x08): No-Code-No-Run

Bit 6 (0x40): Count Up

Byte 2 Number of Digits in Serializer in Hex (1-8 Characters) Zero value means variable length serializer

Byte 3 Increment value convert decimals value to in hex (1-255 dec or 01-FFhex)

Byte 4 to Byte 8 Number of Repeats –5-Digit ASCII (Range 1-65000)

Byte 9 to Byte 16 End Value in ASCII (1-8 Characters)

Byte 17 to Byte 24 Start Value in ASCII (1-8 Characters)

Byte 25

Bit 0 (0x01): Serializer padding character is space

Bit 0 (0x00): Serializer padding character is Zero

Bit 1 - Bit 2: Control serializer update

	Bit 1 = 0	Bit 1 = 1
Bit 2 = 0	On print	On Serializer 2 Rollover
Bit 2 = 1	On Serializer 3 Rollover	On Digital IO External signal

Bit 3: Used only if “On Digital IO External signal”.
0 means External Line A, 1 – B.

Bit 4: Used only if “Enable External Reset” (Bit 2 of Byte 1).
0 means External Line A, 1 – B.

Response: [07] [08] [07] [09]

Error: [07] [37]

Example: 8 Digit Serializer, Wrap Around = ON, Count UP, Start number = 001, End Count = 999, Pad with zeros, Increment by 1, Repeat = 1, Increment on print

Command:
[1B][02][01][41][08][01][30][30][30][30][31][30][30][30][30][30][39][39][39][30][30][30][30][30][30][30][31][00]

5.4.3 Initialize Timer [1B] [02] [02] [XX]

Command Group: System Special

Description: Setup the operation of the Timer

Parameters: [XX] – where [XX] sets up based on the following parameters

Bit 0 to Bit 3: 0x00 – 1 Minute 4 Digit Value

0x01 – 15 Minute 4 Digit Value

0x02 – 30 Minute 4 Digit Value

0x03 – 60 Minute 4 Digit Value

0x04 – 1 Minute 2 Digit Value
(This is not a valid setting)

0x05 – 15 Minute 2 Digit Value

0x06 – 30 Minute 2 Digit Value

0x07 – 60 Minute 2 Digit Value

Bit 4: Character Code 0 – Set for Alpha – Clear for Numeric

Bit 5: Character Code 1 – Set for Alpha – Clear for Numeric

Bit 6: Character Code 2 – Set for Alpha – Clear for Numeric

Bit 7: Character Code 3 – Set for Alpha – Clear for Numeric

Response: [07] [08] [07] [09]

Parameters: The timer setup will be for 2-digit timer, with ¼ hour increment.

Example: COMMAND: [1B][02][02][05]

5.4.4 Initialize Shifts [1B] [02] [03] [X1] .. [X121]

Command Group:	System Special	
Description:	Setup the shift timer inserts. Shift can be 1 - 24	
Parameters:	Variable amount of data based on the number of shifts to setup	
	Byte 0	Number of Shift Codes in Hex
	Byte 1 to Byte 5	Data for Shift 1
	Byte 1 to Byte 2	2-Digit Hour in ASCII
	Byte 3 to Byte 4	2-Digit Minute in ASCII
	Byte 5	Character to Print when in Shift Time
	Byte 6 to Byte 10	Data for Shift 2
	…Continue till bytes 121 is reached	
Note:	*The command must be exactly 124 bytes long, including header. Any unused bytes should be padded with space [20] or zero characters [30].*	
Response:	[07] [08] [07] [09]	
Error:	[07] [51]	If parameters are wrong
	[07] [29]	If trying to initialize not in message mode

5.4.5 Initialize Serializer 2 [1B] [02] [04] [X1] .. [X25]

Command Group: System Special

Description: Setup the operation of Serializer 2

Parameters: 25 Bytes of data as defined below

Byte 1

Bit 0 (0x01): Wrap Serializer On

Bit 1 (0x02): Not Used

Bit 2 (0x04): Enable External Reset

Bit 3 (0x08): No-Code-No-Run

Bit 6 (0x40): Count Up

Byte 2	Number of Digits in Serializer in Hex (1-8 Characters)
Byte 3	Increment value convert decimals value to hex (1-255 dec or 01-FFhex)
Byte 4 to Byte 8	Number of Repeats –5-Digit ASCII (Range 1-65000)
Byte 9 to Byte 16	End Value in ASCII (1-8 Characters)
Byte 17 to Byte 24	Start Value in ASCII (1-8 Characters)

Byte 25

Bit 0 (0x01): Serializer padding character is Space

Bit 0 (0x00): Serializer padding character is Zero

Bit1 (0): Increment on Product Detect

Bit 1 - Bit 3: Control serializer update

	Bit 1 = 0	Bit 1 = 1
Bit 2 = 0	On print	On Serializer 1 Rollover
Bit 2 = 1	On Serializer 3 Rollover	On Digital IO External signal

Bit 3: Used only if “On Digital IO External signal”.
0 means External Line A, 1 – B.

Bit 4: Used only if “Enable External Reset” (Bit 2 of Byte 1).
0 means External Line A, 1 – B.

Response: [07] [08] [07] [09]

Error: [07] [37] Invalid Serializer Values

5.4.6 Set System Time [1B] [02] [05] [HH] [HH] [MM] [MM]

Command Group:	System Special
Description:	Set the System Time on the Printer
Scope:	There is one setting for current time in the Videojet 1610 which is shared between the UI and ESI.
Parameters:	[HH] [HH] [MM] [MM] – Where HH is the 2-Digit ASCII Hour Value and MM is the 2-Digit ASCII Minute Value
Response:	[07] [08] [07] [09]

5.4.7 Set System Date [1B] [02] [06] [MM] [MM] [DD] [DD] [YY] [YY]

Command Group:	System Special
Description:	Set the System Date on the Printer
Scope:	There is one setting for current date in the Videojet 1610 which is shared between the UI and ESI.
Parameters:	[MM] [MM] [DD] [DD] [YY] [YY] – Where MM is the 2-Digit ASCII Month Value, DD is the 2-Digit ASCII Day of Month, and YY is the 2-Digit ASCII Year
Response:	[07] [08] [07] [09]

5.4.8 Set Pull Week Settings [1B] [02] [07] [X1] [X2]

Command Group:	System Special	
Description:	Set Pull Week Roll Day and Pull Week Mode.	
Parameters:	[X1]	BCD Roll Day (00-06) in the selected format of the numeric week day
	[X2]	ASCII (B for Back, F for Forward and N for Nearest)
Response:	[07] [08]	
Error:	[07][51]	Parameter error
Example:	[1B][02][07][01]B	Roll Monday, Back

5.4.9 Set Pull Week Date Offset [1B] [02] [08] [X1]

Command Group:	System Special	
Description:	Set Pull Week date offset in weeks.	
Parameters:	[X1]	BCD Offset (00-99 weeks)
Response:	[07] [08][07][09]	Confirmation Acknowledgement
Error:	[07][29]	Parameter error
Example:	[1B][02][08][17]	17Week

5.4.10 Set Pull Month Settings [1B] [02] [15] [X1] [X2] [X3]

Command Group:	System Special	
Description:	Set Pull Month Roll Day, Pull Month Mode and Offset.	
Parameters:	[X1]	BCD Roll Day (01-31) day of month
	[X2]	ASCII (B for Back, F for Forward and N for Nearest)
	[X3]	BCD Offset (00-99 in month)
Response:	[07] [08]	Confirmation Acknowledgement
Error:	[07][51]	Parameter error

5.4.11 Initialize Serializer 3 [1B] [02] [09] [X1] [X25]

Command Group: System Special

Description: Setup the operation of Serializer 3

Parameters: 25 Bytes of data as defined below

Byte 1

Bit 0 (0x01): Wrap Serializer On

Bit 1 (0x02): Not Used

Bit 2 (0x04): Enable External Reset

Bit 3 (0x08): No-Code-No-Run

Bit 6 (0x40): Count Up

Byte 2	Number of Digits in Serializer in Hex
Byte 3	Increment value convert decimals value to hex (1-255 dec or 01-FFhex)
Byte 4 to Byte 8	Number of Repeats – 5-Digit ASCII (Range 1-65000)
Byte 9 to Byte 16	End Value in ASCII
Byte 17 to Byte 24	Start Value in ASCII

Byte 25

Bit 0 (0x01): Serializer padding character is Space

Bit 0 (0x00): Serializer padding character is Zero

Bit 1 - Bit 3: Control serializer update

	Bit 1 = 0	Bit 1 = 1
Bit 2 = 0	On print	On Serializer 1 Rollover
Bit 2 = 1	On Serializer 3 Rollover	On Digital IO External signal

Bit 3: Used only if “On Digital IO External signal”.
0 means External Line A, 1 – B.

Bit 4: Used only if “Enable External Reset” (Bit 2 of Byte 1).
0 means External Line A, 1 – B.

Response: [07] [08] [07] [09]

Error: [07][37] Invalid Serializer Values

5.4.12 Get I/O Status [1B] [02] [29]

Command Group: System Special

Description: Get the status of the I/O on the printer (Expanded I/O board)

Note: *This command is not available on 1580 since it has no expanded I/O capability*

Parameters: None

Response: [07] [08] [X1] [X2] [X3] – Defined as follows

Byte 1 [X1]

Bit 0: Set if Input 0 is active

Bit 1: Set if Input 1 is active

Bit 2: Set if Input 2 is active

Bit 3: Set if Input 3 is active

Bit 4: Set if Input 4 is active

Bit 5: Set if Input 5 is active

Bit 6: Set if Input 6 is active

Bit 7: Set if Input 7 is active

Byte 2 [X2]

Bit 0: Set if Input 8 is active

Bit 1: Set if Input 9 is active

Bit 2: Set if Output 0 is active

Bit 3: Set if Output 1 is active

Bit 4: Set if Output 2 is active

Bit 5: Set if Output 3 is active

Bit 6: Set if Output 4 is active

Bit 7: Set if Output 5 is active

Byte 3 [X1]

Bit 0: Set if Red Alert Light is on

Bit 1: Set if Yellow Alert Light is on

Bit 2: Set if Green Alert Light is on

Example Response: [07][08][00][00][04] All inputs and outputs off, Green light on

5.4.13 Reset Serializer 1 [1B] [02] [31]

Command Group:	System Special
Description:	Reset Serializer 1 to programmed start value.
Parameters:	None
Response:	[07] [08]

5.4.14 Reset Serializer 2 [1B] [02] [32]

Command Group:	System Special
Description:	Reset Serializer 2 to programmed start value.
Parameters:	None
Response:	[07] [08]

5.4.15 Reset Serializer 3 [1B] [02] [42]

Command Group:	System Special
Description:	Reset Serializer 3
Parameters:	None
Response:	[07] [08]

5.4.16 Initialize UCN [1B] [02] [39] [X1]-[X4]

Command Group:	System Special	
Description:	Setup the operation of UCN. UCN is an insert type, which could be used with command [1B][84][28] - Insert UCN	
Parameters:	[XX] - [X4]	The 4 bytes are in hexadecimal value of UCN Length
Response:	[07] [08] [07] [09]	
Error:	[07][28]	Command not implemented

5.4.17 Select Display Unit Metric [1B] [02] [3A]

Command Group: System Special

Description: Select display units in metric.

Scope: The remote host can change the display units to metric. You can see this setting change on printer's display Tools > Printer Settings > Localization.

Parameters: None

Response: [07] [08]

Note: *Should be changed with print mode OFF*

5.4.18 Select Display Unit Inches/Imperial [1B] [02] [3B]

Command Group: System Special

Description: Select display units in Inches

Scope: The remote host can change the display units to inches (Imperial). You can see this setting change on printer's display Tools > Printer Settings > Localization

Parameters: None

Response: [07] [08]

Note: *Should be changed with print mode OFF*

5.4.19 Select Speed compensation ON [1B] [02] [3C]

Command Group: System Special

Description: Select speed compensation On. Speed compensation also known as Time of Flight Compensation. When this is set to ON, then the Throw Distance should be the value set in the current line setup. Default value is ON. This setting is specific to the current line setup and persisted to the line setup.

Parameters: None

Response: [07] [08] [07] [09]

Note: *Should be changed with print mode OFF*

5.4.20 Select Speed compensation OFF [1B] [02] [3D]

Command Group:	System Special
Description:	Select speed compensation Off
Parameters:	None
Response:	[07] [08] [07] [09]
Note:	*Should be changed with print mode OFF*

5.4.21 Data Record [1B][02][40][XX]

Command Group:	System Special	
Description:	Current specification of the remote data inserts. Places for 10 strings are available: each string is encoded as a single length byte (between 0 and 50) and that number of double byte UNICODE characters representing the string. A blank or empty insert is encoded as a single zero byte.	
Parameters:	Field 1 length	1 Byte (value 0..50)
	Field 1 data	Field 1 length Unicode Characters
	Field 2 length	1 Byte (value 0..50)
	Field 2 data	Field 2 length Unicode Characters
	…	
	Field 10 length	1 byte (value 0..50)
	Field 10 data	Field 10 length Unicode Characters
Response:	[07] [08] XX	Data Received Ack. XX is free buffer space.
	[07] [40]	Buffer overflow.
	[07][29]	If any of the fields have more than 50 characters. Indicates that the record was rejected.

5.4.22 Initialize Encoded Hour [1B][02][41][XX]...

Command Group:	System Special	
Description:	Initialize Encoded Hour Insert	
Note:	*The Encoded hour and Alpha hour cannot be used in the same message.*	
Parameters:	0 Hour String Length	1 Byte
	0 Hour String	
	1 Hour String Length	1 Byte
	1 Hour String	
	…	
	23 Hour String Length	1 Byte
	23 Hour String	
Response:	[07] [08]	
Error:	[07] [29]	If in Remote Insert Mode

5.4.23 Initialize Encoded Day of Week [1B][02][43][XX]

Command Group:	System Special	
Description:	Initialize Encoded Day of Week Insert. This allow you to set the current ASCII character to be printed for the day of week Sunday - Monday.	
Parameters:	Byte 1	1 Day of Week Code (1 Character)
	Byte 2	3 Day of Week Code (1 Character)
	…	
	Byte 7	7 Day of Week Code (1 Character)
Response:	[07] [08]	
Error:	[07] [29]	If trying to initialize not in message mode

5.5 Global Attributes Commands

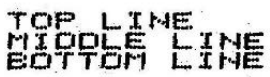
5.5.1 Set Reverse Message On [1B] [03] [00]

Command Group:	Global Attributes
Description:	Set Reverse Message to ON.This will print the message in reverse or back to front.
Scope:	This command affects all messages downloaded after this command is received. It does not affect messages already downloaded, and it does not affect a message which is currently being downloaded.
Parameters:	Printer must be out of print mode to change settings.
Response:	[07] [08]

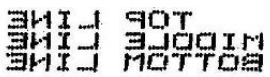
5.5.2 Set Reverse Message Off [1B] [03] [01]

Command Group:	Global Attributes	
Description:	Set Reverse Message to OFF. This will print message normal back to front.	
Scope:	This command affects all messages down loaded after this command is received. It does not affect messages already downloaded, and it does not affect a message which is currently being downloaded.	
Parameters:	Printer must be out of print mode to change settings.	
Response:	[07] [08]	
Example:	Command:	[1B][03][01]
	Response:	[07][08]
	Message:	TOP LINE[09]MIDDLE LINE[09]BOTTOM LINE[0D]

Print Sample:



5.5.3 Set Reverse All Characters On [1B] [03] [02]

Command Group:	Global Attributes
Description:	Set Reverse All Characters to On. This will print the characters backward.
Scope:	This command affects all messages down loaded after this command is received. It does not affect messages already downloaded, and it does not affect a message which is currently being downloaded.
Parameters:	Printer must be out of print mode to change settings.
Response:	[07] [08]
Example:	TOP LINE[09]MIDDLE LINE[09]BOTTOM LINE[0D]
Print Sample:	

5.5.4 Set Reverse All Characters Off [1B] [03] [03]

Command Group:	Global Attributes
Description:	Set Reverse All Characters to OFF. This will print character in normal orientation.
Scope:	This command affects all messages down loaded after this command is received. It does not affect messages already downloaded, and it does not affect a message which is currently being downloaded.
Parameters:	Printer must be out of print mode to change settings.
Response:	[07] [08]

5.5.5 Set Invert Message On [1B] [03] [04]

Command Group:	Global Attributes
Description:	Set Invert Message to On. This will print characters upside down.
Scope:	This command affects all messages downloaded after this command is received. It does not affect messages already downloaded, and it does not affect a message which is currently being downloaded.
Parameters:	Printer must be out of print mode to change settings.
Response:	[07] [08]
Example:	TOP LINE[09]MIDDLE LINE[09]BOTTOM LINE[0D]
Print Sample:	

5.5.6 Set Invert Message Off [1B] [03] [05]

Command Group:	Global Attributes
Description:	Set Invert Message to OFF. This will print characters in normal orientation.
Scope:	This command affects all messages downloaded after this command is received. It does not affect messages already downloaded, and it does not affect a message which is currently being downloaded.
Parameters:	Printer must be out of print mode to change settings.
Response:	[07] [08]

5.5.7 Set Message Multi-Stroke to 1 [1B] [03] [06]

Command Group: Global Attributes

Description: Set the Message Multi-Stroke to 1. Depending on matrix selected this will printer each vertical stroke of character just once.

Scope: This command affects all messages down loaded after this command is received. It does not affect messages already downloaded, and it does not affect a message which is currently being downloaded.

Parameters: Printer must be out of print mode to change settings.

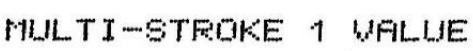
Note: *When increasing multi-stroke value, you usually have to increase strokes per inch to line speed of printer to keep the code at 10 cpi. This will affect your top end line speeds.*

Response: [07] [08]

Example:

Command:	[1B][03][06]
Get Response:	[07][08]
Send Message:	MULTI-STROKE 1 VALUE[0D]

Print Sample:



5.5.8 Set Message Multi-Stroke to 2 [1B] [03] [07]

Command Group: Global Attributes

Description: Set the Message Multi-Stroke to 2. Depending on matrix selected this will printer each vertical stroke of character twice. This will make the characters look darker.

Scope: This command affects all messages downloaded after this command is received. It does not affect messages already downloaded, and it does not affect a message which is currently being downloaded.

Parameters: Printer must be out of print mode to change settings.

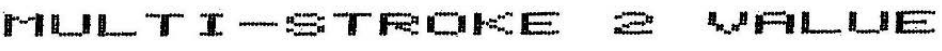
Response: [07] [08]

Note: *When increasing multi-stroke value, you usually must increase strokes per inch or line speed of printer to keep the code at 10 cpi. This will affect your top end line speeds.*

Example:

Command:	[1B][03][07]
Get Response:	[07][08]
Send Message:	MULTI-STROKE 2 VALUE[0D]

Print Sample:



5.5.9 Set Message Multi-Stroke to 3 [1B] [03] [08]

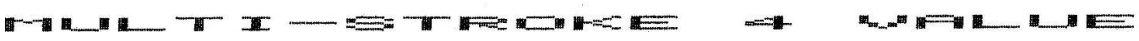
Command Group:	Global Attributes	
Description:	Set the Message Multi-Stroke to 3. Depending on matrix selected this will printer each vertical stroke of character three times. This will make the characters look darker.	
Scope:	This command affects all messages downloaded after this command is received. It does not affect messages already downloaded, and it does not affect a message which is currently being downloaded.	
Parameters:	Printer must be out of print mode to change settings.	
Response:	[07] [08]	
Note:	*When increasing multi-stroke value, you usually must increase strokes per inch or line speed of printer to keep the code at 10 cpi. This will affect your top end line speeds.*	
Example:	Command:	[1B][03][08]
	Get Response:	[07][08]
	Send Message:	MULTI-STROKE 3 VALUE[0D]

Print Sample:

5.5.10 Set Message Multi-Stroke to 4 [1B] [03] [09]

Command Group:	Global Attributes	
Description:	Set the Message Multi-Stroke to 4. Depending on matrix selected this will printer each vertical stroke of character four times. This will make the characters look darker.	
Scope:	This command affects all messages downloaded after this command is received. It does not affect messages already downloaded, and it does not affect a message which is currently being downloaded.	
Parameters:	Printer must be out of print mode to change settings.	
Response:	[07] [08]	
Note:	*When increasing multi-stroke value, you usually must increase strokes per inch or line speed of printer to keep the code at 10 cpi. This will affect your top end line speeds.*	
Example:	Command:	[1B][03][09]
	Get Response:	[07][08]
	Send Message:	MULTI-STROKE 4 VALUE[0D]

Print Sample:



5.5.11 Set Character Spacing [1B] [03] [0A] [XX]

Command Group: Global Attributes

Description: Set the inter character spacing. This will change the space between the characters allowing the host to specify the number of strokes between characters.

Scope: This command affects all messages down loaded after this command is received. It does not affect messages already downloaded, and it does not affect a message which is currently being downloaded.

Parameters: [XX] – Where [XX] is a hexadecimal value from 1 to 9

Response: [07] [08] [07] [09]

Example 1:

Command:	[1B][03][0A][03]
Get Response:	[07][08]
Send Message:	CHARACTER SPACING VALUE 3[0D]

Print Sample:

CHARACTER SPACING VALUE 3

Example 2:

Command:	[1B][03][0A][01]
Get Response:	[07][08]
Send Message:	CHARACTER SPACING VALUE 1[0D]

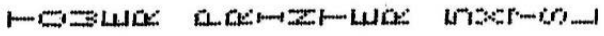
Print Sample:

CHARACTER SPACING VALUE 1

5.5.12 Activate Tower Print for 5x7 Single Line [1B] [03] [0B]

Command Group:	Global Attributes	
Description:	Activate the Tower Print in the 5x7 Single Line matrix (only). This will print characters at 90 degrees	
Scope:	This command affects all messages down loaded after this command is received. It does not affect messages already downloaded, and it does not affect a message which is currently being downloaded.	
Parameters:	None	
Response:	[07] [08]	
Example:	Command:	[1B][04][01] - 5x7SL Matrix
	Get Response:	[07][08]
	Command:	[1B][03][0B] - Activate Tower Print
	Get Response:	[07][08]
	Send Message:	TOWER PRINTER 5X7SL[0D]

Print Sample:



5.5.13 Deactivate Tower Print for 5x7 Single Line [1B] [03] [0C]

Command Group:	Global Attributes
Description:	Deactivate the Tower Print in the 5x7 Single Line mode. This will return characters to normal orientation.
Scope:	This command affects all messages down loaded after this command is received. It does not affect messages already downloaded, and it does not affect a message which is currently being downloaded.
Parameters:	None
Response:	[07] [08]

5.5.14 Activate Reverse Barcode Image [1B] [03] [0D]

Command Group:	Global Attributes	
Description:	Activate the printing of barcodes as white on black (reverse image). This command will print barcodes in reverse printing the spaces and not the bars.	
Scope:	This command affects all messages down loaded after this command is received. It does not affect messages already downloaded, and it does not affect a message which is currently being downloaded.	
Parameters:	None	
Response:	[07] [08]	
Example:	Command:	[1B][03][0D]
	Response:	[07][08]
	Command:	[1B][85][20]1234567890ABC[1B][85][22][0D]
	Response:	[07][21]

Print Sample:

5.5.15 Deactivate Reverse Barcode Image [1B] [03] [0E]

Command Group:	Global Attributes
Description:	Deactivate the printing of barcodes as white on black (reverse image). This will return the printer to print the bars of a barcode.
Scope:	This command affects all messages down loaded after this command is received. It does not affect messages already downloaded, and it does not affect a message which is currently being downloaded.
Parameters:	None
Response:	[07] [08]

5.5.16 Select Raster [1B] [03] [0F] [XX]…[XX]

Command Group: Global Attributes

Description: Select raster as per raster substitution On or Off. The total length of the command including parameters should be equal to 50 bytes. If its size is less than 50 bytes then padding bytes should be added at the end to equal 50...

Scope: This command affects all messages down loaded after this command is received. It does not affect messages already downloaded, and it does not affect a message which is currently being downloaded.

Parameters: ***Note:*** *Printer must be out of the print mode when setting this command.*

Byte 0 Length of File name

Byte 1 …Up to Length of File name: File name

Response: [07] [08] [07][09]

Example: Select raster to 5x7SL command sent to printer:
[1B][03][0F][06][37][2D][68][69][67][68][20][20][20][20][20][20][20]
[20][20][20][20][20][20][20][20][20][20][20][20][20][20][20][20][20]
[20][20][20][20][20][20][20][20][20][20][20][20][20][20][20][20][20]

Must also set raster substitution command On: [1B][81][2C] or raster substitution Off: [1B][81][2D]
/Off
Also send the 5x7SL global command: [1B][04][01]

5.5.17 Select Barcode Font Size [1B] [03] [10] [XX]

Command Group: Global Attributes

Description: Set human readable font size for barcodes

Scope: This command affects all messages down loaded after this command is received. It does not affect messages already downloaded, and it does not affect a message which is currently being downloaded.

Parameters: XX is a human readable font size (0 – Small, 1 – Large, 2 – Huge)

Response: [07] [08]

Example:

[1B][03][10][01]	Large Human readable (5x7SL)
[1B][03][10][02]	Huge Human readable (7x9SL[1B][03][10][01] - Large Human readable)

5.5.18 Set Message Margin [1B] [03] [13] [XX] [XX]

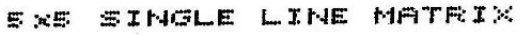
Command Group:	Global Attributes	
Description:	Set message margin. This is the delay from the edge of product to the print position. This is an additional print delay value that allow the host PC to center the code on the product. It is use with the product detector to printhead delay. This value is added to this physical distance to all messages to be centered on different size products.	
Scope:	This command affects all messages down loaded after this command is received. It does not affect messages already downloaded, and it does not affect a message which is currently being downloaded.	
Range:	1 - 39 inches	
Parameters:	[XX][XX] - Where [XX][XX] is the decimal value of margin value converted to a hexadecimal value	
Response:	[07] [08] [07] [09]	
Error:	[07][29]	Not in ESI Message Remote mode or parameters out of range
Example:	[1B]03][13][00][64]	Margin value is 100 decimal

5.6 Global Font Commands

5.6.1 Select 5x5 Single Line Matrix [1B] [04] [00]

Command Group:	Global Font	
Description:	Select the 5x5 Single Line Matrix for use when creating a message	
Scope:	This command affects all messages downloaded after this command is received. It does not affect messages already downloaded, and it does not affect a message which is currently being downloaded.	
Parameters	None	
Response:	[07] [08]	
Example:	Command:	[1B][04][00]
	Response:	[07][08]
	Message:	5x5 SINGLE LINE MATRIX[0D]

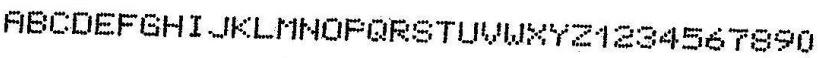
Print Sample:



5.6.2 Select 5x7 Single Line Matrix [1B] [04] [01]

Command Group:	Global Font
Description:	Select the 5x7 Single Line Matrix for use when creating a message
Scope:	This command affects all messages downloaded after this command is received. It does not affect messages already downloaded, and it does not affect a message which is currently being downloaded.
Parameters:	None
Response:	[07] [08]
Example:	ABCDEFGHIJKLMNOPQRSTUVWXYZ1234567890[0D]

Print Sample:



5.6.3 Select 7x9 Single Line Matrix [1B] [04] [02]

Command Group: Global Font

Description: Select the 7x9 Single Line Matrix for use when creating a message

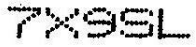
Scope: This command affects all messages downloaded after this command is received. It does not affect messages already downloaded, and it does not affect a message which is currently being downloaded.

Parameters: None

Response: [07] [08]

Example: 7X9SL[0D]

Print Sample:



5.6.4 Select 10x16 Single Line w/5x7 Twin Line Matrix [1B] [04] [03]

Command Group: Global Font

Description: Select the 10x16 Single Line w/5x7 Twin Line Matrix for use when creating a message, this matrix is a mixed font matrix meaning you will be able to combine 16 high characters and two lines of 5x7 characters in to one message you would use the sub font commands to switch back and forth between 16 high (Double character) or 2 lines of 5x7 (single). This command will select the 16 drop tall font.

Scope: This command affects all messages down loaded after this command is received. It does not affect messages already downloaded, and it does not affect a message which is currently being downloaded.

Parameters: None

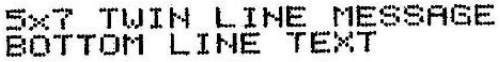
Response: [07] [08]

Example: 16 HIGH END[0D]

Print Sample:

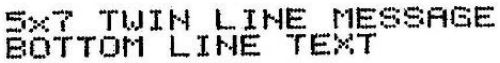
5.6.5 Select 5x7 Twin Line Matrix [1B] [04] [04]

Command Group:	Global Font
Description:	Select the 5x7 Twin Line Matrix for use when creating a message.
Scope:	This command affects all messages down loaded after this command is received. It does not affect messages already downloaded, and it does not affect a message which is currently being downloaded.
Parameters:	None
Response:	[07] [08]
Example:	5x7 TWIN LINE MESSAGE[09]BOTTOM LINE TEXT[0D]
Print Sample:	



5.6.6 Select 5x7 High Quality Twin Line Matrix [1B] [04] [05]

Command Group:	Global Font
Description:	Select the 5x7 High Quality Twin Line Matrix for use when creating a message
Scope:	This command affects all messages down loaded after this command is received. It does not affect messages already downloaded, and it does not affect a message which is currently being downloaded.
Parameters:	None
Note:	*This matrix print with the same raster settings at the 5x7TL this command is present to provide backward compatibility.*
Response:	[07] [08]
Example:	5x7 TWIN LINE MESSAGE[09]BOTTOM LINE TEXT[0D]
Print Sample:	



5.6.7 Select 16x24 Single Line w/5x7 and 10x16 Mixed Mode Matrix [1B] [04] [07]

Command Group: Global Font

Description: Select the 16x24 Single Line w/5x7 and 10x16 Mixed Mode Matrix for use when creating a message. This command will select the 24 drop high font. You will have to use sub font command to utilize the mixed font capabilities.

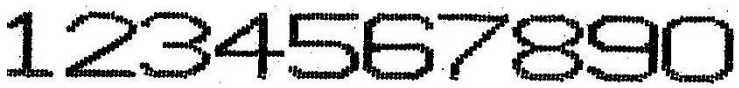
Scope: This command affects all messages downloaded after this command is received. It does not affect messages already downloaded, and it does not affect a message which is currently being downloaded.

Parameters: None

Response: [07] [08]

Example: 1234567890[0D]

Print Sample:



5.6.8 Select 5x7 Tri Line Matrix [1B] [04] [08]

Command Group: Global Font

Description: Select the 5x7 Tri Line Matrix for use when creating a message

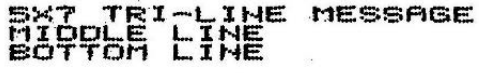
Scope: This command affects all messages down loaded after this command is received. It does not affect messages already downloaded, and it does not affect a message which is currently being downloaded.

Parameters: None

Response: [07] [08]

Example: 5X7 TRI-LINE MESSAGE[09]MIDDLE LINE[09]BOTTOM LINE[0D]

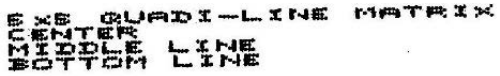
Print Sample:



5.6.9 Select 5x5 Quad Matrix [1B] [04] [16]

Command Group:	Global Font	
Description:	Select the 5x5 Quad Matrix for use when creating a message	
Scope:	This command affects all messages downloaded after this command is received. It does not affect messages already downloaded, and it does not affect a message which is currently being downloaded.	
Parameters:	None	
Response:	[07] [08]	
Example:	Command:	[1B][04][16]
	Response:	[07][08]
	Message:	5x5 QUAD-LINE MATRIX[09]CENTER[09] MIDDLE LINE[09]BOTOM LINE[0D]

Print Sample:



5.6.10 Select 7x9 Tri Line Matrix [1B] [04] [17]

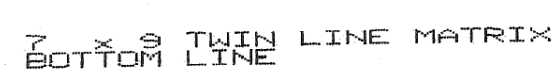
Command Group:	Global Font	
Description:	Select the 7x9 Tri Line Matrix for use when creating a message	
Scope:	This command affects all messages downloaded after this command is received. It does not affect messages already downloaded, and it does not affect a message which is currently being downloaded.	
Parameters:	None	
Response:	[07] [08]	
Example:	Command:	[1B][04][17]
	Response:	[07][08]
	Message:	7 x 9 TRI-LINE MATRIX[09]MIDDLE LINE[09]BOTOM LINE[0D]

Print Sample:

5.6.11 Select 7x9 Twin Line Matrix [1B] [04] [18]

Command Group:	Global Font	
Description:	Select the 7x9 Twin Line Matrix for use when creating a message	
Scope:	This command affects all messages downloaded after this command is received. It does not affect messages already downloaded, and it does not affect a message which is currently being downloaded.	
Parameters:	None	
Response:	[07] [08]	
Example:	Command:	[1B][04][18]
	Response:	[07][08]
	Message:	7 x 9 TWIN LINE MATRIX[09]BOTOM LINE[0D]

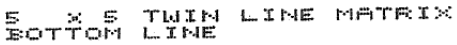
Print Sample:



5.6.12 Select 5x5 Twin Line Matrix [1B] [04] [1B]

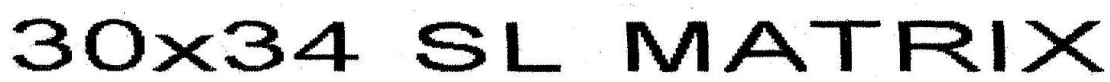
Command Group:	Global Font	
Description:	Select the 5x5 Twin Line Matrix for use when creating a message	
Scope:	This command affects all messages down loaded after this command is received. It does not affect messages already downloaded, and it does not affect a message which is currently being downloaded.	
Parameters:	None	
Response:	[07] [08]	
Example:	Command:	[1B][04][1B]
	Response:	[07][08]
	Message:	5 x 5 TWIN LINE MATRIX[09]BOTOM LINE[0D]

Print Sample:



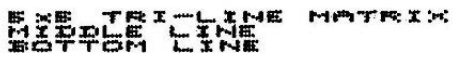
5.6.13 Select 30x34 Single Line Matrix [1B] [04] [20]

Command Group:	Global Font
Description:	Select the 30x34 Single Line Matrix for use when creating a message
Scope:	This command affects all messages down loaded after this command is received. It does not affect messages already downloaded, and it does not affect a message which is currently being downloaded.
Parameters:	None
Response:	[07] [08]
Example:	30x34 SL MATRIX[0D]
Print Sample:	



5.6.14 Select 5x5 Tri Line Matrix [1B] [04] [21]

Command Group:	Global Font	
Description:	Select the 5x5 Tri Line Matrix for use when creating a message	
Scope:	This command affects all messages down loaded after this command is received. It does not affect messages already downloaded, and it does not affect a message which is currently being downloaded.	
Parameters:	None	
Response:	[07] [08]	
Example:	Command:	[1B][04][21]
	Response:	[07][08]
	Message:	5 x5 TRI-LINE MATRIX[09]MIDDLE LINE[09]BOTOM LINE[0D]
Print Sample:		



5.6.15 Select 9x12 Single Line Matrix [1B] [04] [22]

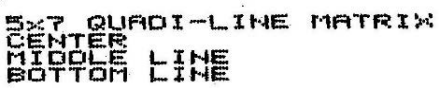
Command Group:	Global Font	
Description:	Select the 9x12 Single Line Matrix for use when creating a message	
Scope:	This command affects all messages downloaded after this command is received. It does not affect messages already downloaded, and it does not affect a message which is currently being downloaded.	
Parameters:	None	
Response:	[07] [08]	
Example:	Command:	[1B][04][22]
	Response:	[07][08]
	Message:	9x12 SINGLE LINE MATRIX[0D]

Print Sample:

5.6.16 Select 5x7 Quad Matrix [1B] [04] [23]

Command Group:	Global Font	
Description:	Select the 5x7 Quad Matrix for use when creating a message	
Scope:	This command affects all messages down loaded after this command is received. It does not affect messages already downloaded, and it does not affect a message which is currently being downloaded.	
Parameters:	None	
Response:	[07] [08]	
Example:	Command:	[1B][04][23]
	Response:	[07][08]
	Message:	5x7 QUAD-LINE MATRIX[09]CENTER[09] MIDDLE LINE[09]BOTOM LINE[0D]

Print Sample:



5.6.17 Select 9x12 Twin Line Matrix [1B] [04] [24]

Command Group: Global Font

Description: Select the 9x12 Twin Line Matrix for use when creating a message

Scope: This command affects all messages down loaded after this command is received. It does not affect messages already downloaded, and it does not affect a message which is currently being downloaded.

Parameters: None

Response: [07] [08]

Example: 9x12TL MESSAGE FONT[09]BOTTOM LINE OF TEXT[0D]

Print Sample:

5.6.18 Select 5x5 Penta Matrix [1B] [04] [25]

Command Group: Global Font

Description: Select the 5x5 Penta Matrix for use when creating a message

Scope: This command affects all messages downloaded after this command is received. It does not affect messages already downloaded, and it does not affect a message which is currently being downloaded.

Parameters: None

Response: [07] [08]

Example:

Command: [1B][04][25]

Response: [07][08]

Message: 5 x5 PENTA -LINE MATRIX[09]LINE # 2[09]LINE # 3[09]LINE #4[09]LINE # 5[0D]

Print Sample:

5.7 Data Attribute Commands

5.7.1 Set Reverse Characters On [1B] [80] [00]

Command Group: Data Attribute

Description: Set Reverse Characters to ON. This will print the characters backward will off command is reached or end of message. This command different from 1000 series which reserve each individual character of each field, but not the fields. The behavior will be the same in case each field has one character only.

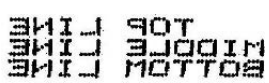
Scope: This command affects the remainder of the message currently being downloaded. It does not affect messages already downloaded, and it does not affect any message downloaded after the current message.

Parameters: None

Response: None

Example: [1B][80][00]TOP LINE[09]MIDDLE LINE[09]BOTTOM LINE[0D]

Print Sample:



5.7.2 Set Reverse Characters Off [1B] [80] [01]

Command Group: Data Attribute

Description: Set Reverse Characters to OFF. This will return the characters to normal orientation.

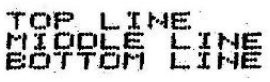
Scope: This command affects the remainder of the message currently being downloaded. It does not affect messages already downloaded, and it does not affect any message downloaded after the current message.

Parameters: None

Response: None

Example: [1B][80][01]TOP LINE[09]MIDDLE LINE[09]BOTTOM LINE[0D]

Print Sample:



5.7.3 Set Invert Character On [1B] [80] [02]

Command Group:	Data Attribute
Description:	Set Invert Character to ON. This will print characters upside down. This will print the characters upside down till off command is reached or end of message.
Scope:	This command affects the remainder of the message currently being downloaded. It does not affect messages already downloaded, and it does not affect any message downloaded after the current message.
Parameters:	None
Response:	None
Example:	[1B][80][02]TOP LINE[09]MIDDLE LINE[09]BOTTOM LINE[0D]
Print Sample:	

5.7.4 Set Invert Character Off [1B] [80] [03]

Command Group:	Data Attribute
Description:	Set Invert Character to OFF. This will return the characters to normal orientation.
Scope:	This command affects the remainder of the message currently being downloaded. It does not affect messages already downloaded, and it does not affect any message downloaded after the current message.
Parameters:	None
Response:	None

5.7.5 Set Character Multi-Stroke to 1 [1B] [80] [04]

Command Group: Data Attribute

Description: Set the Character Multi-Stroke to 1. This will print each vertical stroke of the code only once.

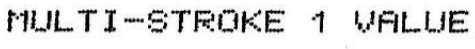
Scope: This command affects the remainder of the message currently being downloaded. It does not affect messages already downloaded, and it does not affect any message downloaded after the current message.

Parameters: None

Response: None

Example: [1B][80][04]MULTI-STROKE 1 VALUE[0D]

Print Sample:



5.7.6 Set Character Multi-Stroke to 2 [1B] [80] [05]

Command Group: Data Attribute

Description: Set the Character Multi-Stroke to 2. This will print each vertical stroke of the character twice. Making the message darker or bolder.

Scope: This command affects the remainder of the message currently being downloaded. It does not affect messages already downloaded, and it does not affect any message downloaded after the current message.

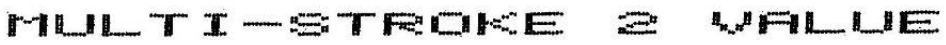
Note: *When increasing multi-stroke value, you usually have to increase strokes per inch or line speed of printer to keep the code at 10 cpi. This will affect your top end line speeds.*

Parameters: None

Response: None

Example: [1B][80][05]MULTI-STROKE 2 VALUE[0D]

Print Sample:

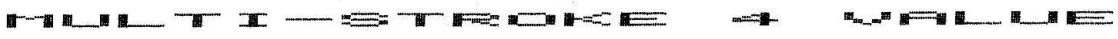


5.7.7 Set Character Multi-Stroke to 3 [1B] [80] [06]

Command Group:	Data Attribute
Description:	Set the Character Multi-Stroke to 3. This will print each vertical stroke of the character three times. Making the message darker or bolder.
Scope:	This command affects the remainder of the message currently being downloaded. It does not affect messages already downloaded, and it does not affect any message downloaded after the current message.
Note:	*When increasing multi-stroke value, you usually have to increase strokes per inch to line speed of printer to keep the code at 10 cpi. This will affect your top end line speeds.*
Parameters:	None
Response:	None
Example:	[1B][80][06]MULTI-STROKE 3 VALUE[0D]
Print Sample:	

5.7.8 Set Character Multi-Stroke to 4 [1B] [80] [07]

Command Group:	Data Attribute
Description:	Set the Character Multi-Stroke to 4. This will print each vertical stroke of the character four times. Making the message darker or bolder.
Scope:	This command affects the remainder of the message currently being downloaded. It does not affect messages already downloaded, and it does not affect any message downloaded after the current message.
Note:	*When increasing multi-stroke value, you usually have to increase strokes per inch to line speed of printer to keep the code at 10 cpi. This will affect your top end line speeds.*
Parameters:	None
Response:	None
Example:	[1B][80][07]MULTI-STROKE 4 VALUE[0D]
Print Sample:	



5.7.9 Select Custom Font ON [1B] [80] [10]

Command Group: Data Font

Description: Select Custom Font ON. This will use special fonts that can be downloaded in to the printer. This can be done with USB stick. Once custom fonts or matrixes are present in the printer this command tells the printer to use the custom font for the matrix selected. Custom fonts should be named as follows:

5High_customer.bdf2
7High_customer.bdf2
9High_customer.bdf2
12High_customer.bdf2
16High_customer.bdf2
24High_customer.bdf2
34High_customer.bdf2

They will be loaded onto printer prior to uses. Tools > File Manager > Import Files. Bitmaps (bmp) should be in a directory call Fonts on root of USB stick

Scope: This command affects the remainder of the message currently being downloaded. It does not affect messages already downloaded, and it does not affect any message downloaded after the current message.

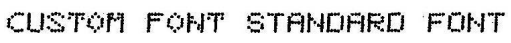
Parameters: None

Response: [07] [08]

Error: [07][29] Font not found, Error in parameters

Example: [1B][80][10]CUSTOM FONT [1B][80][11]STANARD FONT[0D]

Print Sample: This shows an OCR-A font as the custom font and the standard font is the typical 5x7SL matrix.



5.7.10 Select Custom Font OFF [1B] [80] [11]

Command Group: Data Font

Description: Select Custom Font OFF. This will return the printer to use it standard fonts or matrixes for printing.

Scope: This command affects the remainder of the message currently being downloaded. It does not affect messages already downloaded, and it does not affect any message downloaded after the current message.

Parameters: None

Response: [07] [08]

5.7.11 Select Narrow Font ON [1B] [80] [12]

Command Group: Data Font

Description: Select Custom Font ON. This command only affects 7 high matrixes. This command is not supported for matrixes other than 7 high.

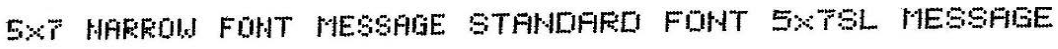
Scope: This command affects the remainder of the message currently being downloaded. It does not affect messages already downloaded, and it does not affect any message downloaded after the current message.

Parameters: None

Response: [07] [08]

Example: [1B][80][12]5x7 NARROW FONT MESSAGE
[1B][80][13]STANDARD FONT 5X7SL MESSAGE[0D]

Print Sample:



5.7.12 Select Narrow Font OFF [1B] [80] [13]

Command Group: Data Font

Description: Select Custom Font OFF.

Scope: This command affects the remainder of the message currently being downloaded. It does not affect messages already downloaded, and it does not affect any message downloaded after the current message.

Parameters: None

Response: [07] [08]

5.8 Data Font Commands

5.8.1 Select Sub Font 0 [1B] [81] [00]

Command Group: Data Font

Description: Select Sub Font 0. This command is used for mixed matrixes. (Equivalent to 10x16 Double Char Size and 16x24 Triple Char Size modes). This will print the tallest character in the matrix.

Parameters None

Response: None

Example: [1B][81][07]10 x 16 MIXED FONT MATRIX [1B][81][01]5 x 7 TOP LINE[09]BOTTOM LINE[1B][81][00] 10 x 16SL[0D]

Print Sample:

5.8.2 Select Sub Font 1 [1B] [81] [01]

Command Group: Data Font

Description: Select Sub Font 1. This command is used for mixed matrixes. (Equivalent to 10x16 Single Char Size and 16x24 Single Char Size modes). This command will printer the 5x7 characters either 2 lines (10x16) or 5x7 or 3 lines (16x24)

Parameters None

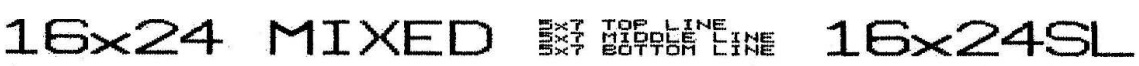
Response: None

Example 1: [1B][81][07]10 x 16 MIXED FONT MATRIX [1B][81][01]5 x 7 TOP LINE[09]BOTTOM LINE[1B][81][00] 10 x 16SL[0D]

Print Sample 1 (10x16):

Example 2: [1B][81][0B]16 x 24 MIXED [1B][81][01]5 x 7 TOP LINE[09]5 x 7 MIDDLE LINE[09]5 x 7 BOTTOM LINE[1B][81][00] 16 x 24SL[0D]

Print Sample 2 (16x24):



5.8.3 Select Sub Font 2 [1B] [81] [02]

Command Group: Data Font

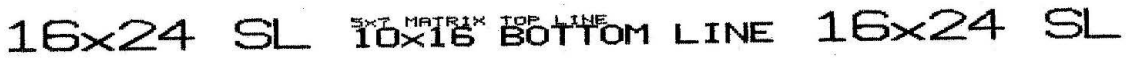
Description: Select Sub Font 2. This command is used for mixed matrixes. (Equivalent to 16x24 mode with 5x7 characters over 10x16 characters)

Parameters None

Response: None

Example: [1B][81][0B]16x24 SL [1B][81][02]5x7 MATRIX TOP LINE[09]10x16 BOTTOM LINE[1B][81][00] 16x24 SL[0D]

Print Sample:



5.8.4 Select Sub Font 3 [1B] [81] [03]

Command Group: Data Font

Description: Select Sub Font 3 (Equivalent to 16x24 mode with 10x16 characters over 5x7 characters)

Parameters None

Response: None

Example: [1B][81][0B]16x24 SL [1B][81][03]10x16 TOP LINE[09]5x7 MATRIX BOTTOM LINE[0D]

Print Sample:

5.8.5 Select Subsequent 5x5 Single Line Matrix [1B] [81] [04]

Command Group: Data Font

Description: Select the 5x5 Single Line Matrix for use in the current message

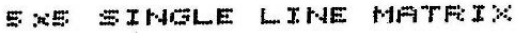
Scope: This command affects the remainder of the message currently being downloaded. It does not affect messages already downloaded, and it does not affect any message downloaded after the current message.

Parameters None

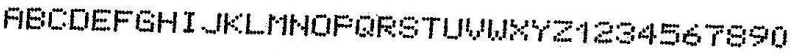
Response: None

Example: [1B][81][05]Message: 5x5 SINGLE LINE MATRIX[0D]

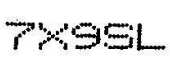
Print Sample:



5.8.6 Select Subsequent 5x7 Single Line Matrix [1B] [81] [05]

Command Group:	Data Font
Description:	Select the 5x7 Single Line Matrix for use in the current message
Scope:	This command affects the remainder of the message currently being downloaded. It does not affect messages already downloaded, and it does not affect any message downloaded after the current message.
Parameters	None
Response:	None
Example:	[1B][81][05]ABCDEFGHIJKLMNOPQRSTUVWXYZ1234567890[0D]
Print Sample:	

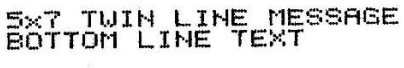
5.8.7 Select Subsequent 7x9 Single Line Matrix [1B] [81] [06]

Command Group:	Data Font
Description:	Select the 7x9 Single Line Matrix for use in the current message
Scope:	This command affects the remainder of the message currently being downloaded. It does not affect messages already downloaded, and it does not affect any message downloaded after the current message.
Parameters	None
Response:	None
Example:	[1B][81][06]7X9SL[0D]
Print Sample:	

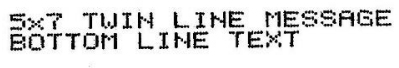
5.8.8 Select 10x16 Single Line w/5x7 Twin Line Matrix [1B] [81] [07]

Command Group:	Data Font
Description:	Select the 10x16 Single Line w/5x7 Twin Line Matrix for use in the current message
Scope:	This command affects the remainder of the message currently being downloaded. It does not affect messages already downloaded, and it does not affect any message downloaded after the current message.
Parameters	None
Response:	None
Example:	[1B][81][07]16 HIGH END[0D]
Print Sample:	

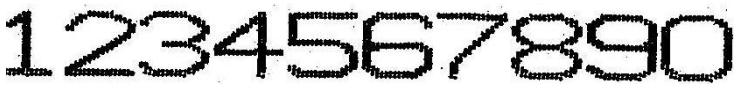
5.8.9 Select 5x7 Twin Line Matrix [1B] [81] [08]

Command Group:	Data Font
Description:	Select the 5x7 Twin Line Matrix for use in the current message
Scope:	This command affects the remainder of the message currently being downloaded. It does not affect messages already downloaded, and it does not affect any message downloaded after the current message.
Parameters	None
Response:	None
Example:	[1B][81][08]5x7 TWIN LINE MESSAGE[09]BOTTOM LINE TEXT[0D]
Print Sample:	

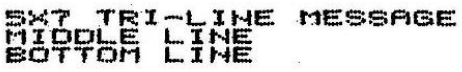
5.8.10 Select 5x7 High Quality Twin Line Matrix [1B] [81] [09]

Command Group:	Data Font
Description:	Select the 5x7 High Quality Twin Line Matrix for use in the current message
Scope:	This command affects the remainder of the message currently being downloaded. It does not affect messages already downloaded, and it does not affect any message downloaded after the current message.
Parameters	None
Response:	None
Example:	[1B][81][09]5x7 TWIN LINE MESSAGE[09]BOTTOM LINE TEXT[0D]
Print Sample:	

5.8.11 Select 16x24 Single Line w/5x7 and 10x16 Mixed Mode Matrix [1B] [81] [0B]

Command Group:	Data Font
Description:	Select the 16x24 Single Line w/5x7 and 10x16 Mixed Mode Matrix for use in the current message
Parameters	None
Response:	None
Example:	[1B][81][0B]1234567890[0D]
Print Sample:	

5.8.12 Select 5x7 Tri Line Matrix [1B] [81] [0C]

Command Group:	Data Font
Description:	5x7 Tri Line Matrix for use in the current message
Parameters	None
Response:	None
Example:	[1B][81][0C]5X7 TRI-LINE MESSAGE[09]MIDDLE LINE[09]BOTTOM LINE[0D]
Print Sample:	

5.8.13 Select 5x5 Quad Matrix [1B] [81] [1A]

Command Group:	Data Font
Description:	5x5 Quad Line Matrix for use in the current message
Parameters:	None
Response:	None

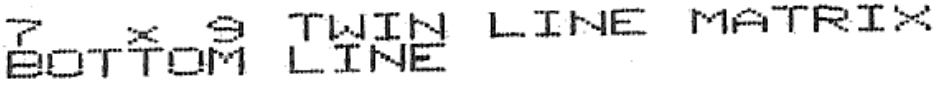
5.8.14 Select Subsequent 7x9 Tri Line Matrix [1B] [81] [1B]

Command Group:	Data Font
Description:	Select the subsequent 7x9 Tri Line matrix for the current message. Use tab [09] between each line of text with a carriage return [0D] at the end of the message.
Scope:	This command affects the remainder of the message currently being downloaded. It does not affect messages already downloaded, and it does not affect any message downloaded after the current message.
Parameters	None
Response:	None
Example:	[1B][81][1B]7x9TRI-LINE MATRIX[09]MIDDLE LINE[09]BOTTOM LINE[0D]

5.8.15 Select Subsequent 7x9 Twin Line Matrix [1B] [81] [1C]

Command Group:	Data Font
Description:	Select the subsequent 7x9 Twin Line matrix for the current message. Use tab [09] between each line of text with a carriage return [0D] at the end of the message.
Scope:	This command affects the remainder of the message currently being downloaded. It does not affect messages already downloaded, and it does not affect any message downloaded after the current message.
Parameters	None
Response:	None
Example:	[1B][81][1C]7 x 9 TWIN LINE MATRIX[09]BOTTOM LINE[0D]

Print Sample:



5.8.16 Select Subsequent 5x5 Twin Line Matrix [1B] [81] [1F]

Command Group:	Data Font
Description:	Select the subsequent 5x5 Twin Line matrix for the current message. Use tab [09] between each line of text with a carriage return [0D] at the end of the message.
Scope:	This command affects the remainder of the message currently being downloaded. It does not affect messages already downloaded, and it does not affect any message downloaded after the current message.
Parameters	None
Response:	None
Example:	[1B][81][1F]5x5 TWIN LINE MATRIX[09]BOTTOM LINE[0D]
Print Sample:	

5 x 5 TWIN LINE MATRIX
BOTTOM LINE

5.8.17 Select Subsequent 30x34 Single Line Matrix [1B] [81] [20]

Command Group:	Data Font
Description:	Select the subsequent 30x34 single line matrix for the current message.
Scope:	This command affects the remainder of the message currently being downloaded. It does not affect messages already downloaded, and it does not affect any message downloaded after the current message.
Parameters	None
Response:	None
Example:	[1B][81][20]25x34 SL MATRIX[0D]
Print Sample:	

30x34 SL MATRIX

5.8.18 Select Subsequent 5x5 Tri Line Matrix [1B] [81] [25]

Command Group: Data Font

Description: Select the subsequent 5x5 Tri Line matrix for the current message. Use tab [09] between each line of text with a carriage return [0D] at the end of the message.

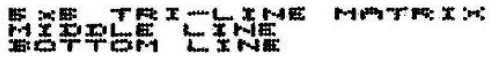
Scope: This command affects the remainder of the message currently being downloaded. It does not affect messages already downloaded, and it does not affect any message downloaded after the current message.

Parameters None

Response: None

Example: [1B][81][25]5 x5 TRI-LINE MATRIX[09]MIDDLE LINE[09]BOTTOM LINE[0D]

Print Sample:



5.8.19 Select Subsequent 5x7 Quad Line Matrix [1B] [81] [27]

Command Group: Data Font

Description: Select the subsequent 5x7 Quad Line matrix for the current message. Use tab [09] between each line of text with a carriage return [0D] at the end of the message.

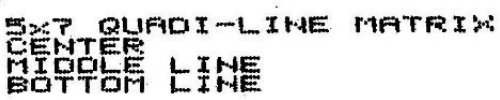
Scope: This command affects the remainder of the message currently being downloaded. It does not affect messages already downloaded, and it does not affect any message downloaded after the current message.

Parameters None

Response: None

Example: [1B][81][27]5x7 QUAD-LINE MATRIX[09]CENTER[09]MIDDLE LINE[09]BOTTOM LINE[0D]

Print Sample:



5.8.20 Select Subsequent 9x12 Twin Line Matrix [1B] [81] [28]

Command Group: Data Font

Description: Select the subsequent 9x12 Twin Line matrix for the current message. Use tab [09] between each line of text with a carriage return [0D] at the end of the message.

Scope: This command affects the remainder of the message currently being downloaded. It does not affect messages already downloaded, and it does not affect any message downloaded after the current message.

Parameters None

Response: None

Example: [1B][81][28]9x12TL MESSAGE FONT[09]BOTTOM LINE OF TEXT[0D]

Print Sample:

5.8.21 Select Subsequent 5x5 Penta Line Matrix [1B] [81] [29]

Command Group: Data Font

Description: Select the subsequent 5x5 Penta Line matrix for the current message. Use tab [09] between each line of text with a carriage return [0D] at the end of the message.

Scope: This command affects the remainder of the message currently being downloaded. It does not affect messages already downloaded, and it does not affect any message downloaded after the current message.

Parameters None

Response: None

Example: [1B][81][29]5x5 PENTA -LINE MATRIX[09]LINE # 2[09]LINE # 3 [09] LINE #4[09]LINE # 5[0D]

Print Sample:

5.8.22 Select Subsequent 9x12 Single Line Matrix [1B] [81] [2A]

Command Group:	Data Font
Description:	Select the subsequent 9x12 single line matrix for the current message.
Scope:	This command affects the remainder of the message currently being downloaded. It does not affect messages already downloaded, and it does not affect any message downloaded after the current message.
Parameters	None
Response:	None
Example:	[1B][81][2A]9x12 SINGLE LINE MATRIX[0D]
Print Sample:	

5.8.23 Select Raster substitution ON [1B] [81] [2C]

Command Group:	Data Font
Description:	Select Raster substitution ON. This command is used with select raster command.
Parameters	None
Response:	[07] [08]

5.8.24 Select Raster substitution OFF [1B] [81] [2D]

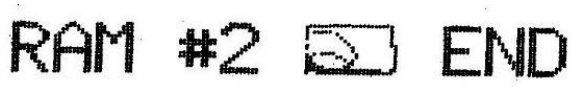
Command Group:	Data Font
Description:	Select Raster substitution OFF.
Parameters	None
Response:	[07] [08]

Data Graphics Commands

5.8.25 Include RAM Graphics Character 1 in Message [1B] [82] [00]

Command Group:	Data Graphic
Description:	Include RAM Graphics Character 1 into the Message at the current location with in the message.
Parameters	None
Response:	None
Example:	[1B][81][07]RAM # 1 [1B][82][[00][0D]
Print Sample:	

5.8.26 Include RAM Graphics Character 2 in Message [1B] [82] [01]

Command Group:	Data Graphic
Description:	Include RAM Graphics Character 2 in Message at the current location
Parameters	None
Response:	None
Example:	[1B][81][07]RAM # 2 [1B][82][[01][0D]
Print Sample:	

5.9 Data Custom [1B][83][00]

1580/1860/1880 currently does not have Custom Character Capability.

5.10 Data Inserts Commands

5.10.1 Insert Serializer 1 [1B] [84] [00]

Command Group:	Data Inserts
Description:	Insert Serializer 1 into the current message at the current location
Parameters:	X Filler Bytes needed depending on length of serializer. Take the total number of characters for serializer minus 1 for the command. This will tell you the number of filler bytes required. Filler bytes are not needed for 1580/1860/1880.
Response:	None

5.10.2 Insert 2 Digit Month [1B] [84] [01]

Command Group:	Data Inserts
Description:	Insert 2 Digit Month into the current message at the current location
Parameters:	1 Filler Byte Needed for legacy printer not for 1580/1860/1880.
Response:	None
Note:	*This command only exists for backwards compatibility. It has been superseded by [1B][84][2B] which contains additional functionality.*

5.10.3 Insert 3 Character Month [1B] [84] [02]

Command Group:	Data Inserts
Description:	Insert 3 Character Month into the current message at the current location. JAN, FEB, MAR, APR, MAY, JUN, JUL, AUG, SEP, OCT, NOV, DEC.
Parameters:	2 Filler Bytes Needed for legacy printer not for 1580/1860/1880.
Response:	None
Note:	*This command only exists for backwards compatibility. It has been superseded by [1B][84][2B] which contains additional functionality.*

5.10.4 Insert 2 Digit Day of Month [1B] [84] [03]

Command Group:	Data Inserts
Description:	Insert 2 Digit Day of Month into the current message at the current location
Parameters:	1 Filler Bytes Needed for legacy printer not for 1580/1860/1880.
Response:	None
Note:	*This command only exists for backwards compatibility. It has been superseded by [1B][84][2B] which contains additional functionality.*

5.10.5 Insert 3 Character Day of Week [1B] [84] [04]

Command Group:	Data Inserts
Description:	Insert 3 Character Day of Week into the current message at the current location. SUN, MON, TUE, WED, THR, FRI, SAT
Parameters:	2 Filler Bytes Needed for legacy printer not for 1580/1860/1880.
Response:	None
Note:	*This command only exists for backwards compatibility. It has been superseded by [1B][84][2B] which contains additional functionality.*

5.10.6 Insert 3 Digit Day of Year (Julian Day) [1B] [84] [05]

Command Group:	Data Inserts
Description:	Insert 3 Digit day of Year into the current message at the current location
Parameters:	2 Filler Bytes Needed for legacy printer not for 1580/1860/1880.
Response:	None
Note:	*This command only exists for backwards compatibility. It has been superseded by [1B][84][2B] which contains additional functionality.*

5.10.7 Insert 2 Digit Week of Year [1B] [84] [06]

Command Group:	Data Inserts
Description:	Insert 2 Digit Week of Year into the current message at the current location
Parameters:	1 Filler Byte Needed for legacy printer not for 1580/1860/1880.
Response:	None
Note:	*This command only exists for backwards compatibility. It has been superseded by [1B][84][2B] which contains additional functionality.*

5.10.8 Insert 4 Digit Year [1B] [84] [07]

Command Group:	Data Inserts
Description:	Insert 4 Digit Year into the current message at the current location. Filler bytes not needed for 1580/1860/1880.
Parameters:	3 Filler Bytes Needed for legacy printer not for 1580/1860/1880.
Response:	None
Note:	*This command only exists for backwards compatibility. It has been superseded by [1B][84][2B] which contains additional functionality.*

5.10.9 Insert 2 Digit Year [1B] [84] [08]

Command Group:	Data Inserts
Description:	Insert 2 Digit Year into the current message at the current location
Parameters:	1 Filler Byte Needed for legacy printer not for 1580/1860/1880.
Response:	None
Note:	*This command only exists for backwards compatibility. It has been superseded by [1B][84][2B] which contains additional functionality.*

5.10.10 Insert 1 Digit Year [1B] [84] [09]

Command Group:	Data Inserts
Description:	Insert 1 Digit Year into the current message at the current location
Parameters:	0 Filler Bytes Needed. No filler bytes needed to 1580/1860/1880.
Response:	None
Note:	*This command only exists for backwards compatibility. It has been superseded by [1B][84][2B] which contains additional functionality.*

5.10.11 Insert 2 Digit Hour [1B] [84] [0A]

Command Group:	Data Inserts
Description:	Insert 2 Digit Hour into the current message at the current location
Parameters:	1 Filler Byte Needed for legacy printer not for 1580/1860/1880.
Response:	None

5.10.12 Insert 2 Digit Minute of Hour [1B] [84] [0B]

Command Group:	Data Inserts
Description:	Insert 2 Digit Minute of Hour into the current message at the current location
Parameters:	1 Filler Byte Needed. Filler bytes not needed for 1580/1860/1880.
Response:	None

5.10.13 Insert 3 Digit Hour of Week [1B] [84] [0C]

Command Group:	Data Inserts
Description:	Insert 3 Digit Hour of Week into the current message at the current location
Parameters:	2 Filler Bytes Needed for legacy printer not for 1580/1860/1880.
Response:	None

5.10.14 Insert Timer [1B] [84] [0D]

Command Group:	Data Inserts
Description:	Insert Timer into the current message at the current location
Parameters:	X Filler Bytes needed depending on length of Timer selected. Filler bytes not required for 1580/1860/1880 printers
Note:	*The timer setting must me initialized before it can be entered into the message. See initialize Timer command [1B][02][02].*
Response:	None

5.10.15 Insert Filler Byte [1B] [84] [0E]

Command Group:	Data Inserts
Description:	Insert Filler Byte into the current message at the current location. Filler bytes not required for 1580/1860/1880 but printer will except them if you are running legacy code.
Parameters:	None
Response:	None

5.10.16 Insert Expiry 1 – 2 Digit Month [1B] [84] [0F]

Command Group:	Data Inserts
Description:	Insert Expiry 1 - 2 Digit Month into the current message at the current location
Parameters:	1 Filler Byte Needed. Filler bytes are not required for 1580/1860/ 1880.
Response:	None
Note:	*This command only exists for backwards compatibility. It has been superseded by [1B][84][2B] which contains additional functionality.*

5.10.17 Insert Expiry 1 – 3 Character Month [1B] [84] [10]

Command Group:	Data Inserts
Description:	Insert Expiry 1 - 3 Character Month into the current message at the current location
Parameters:	2 Filler Bytes Needed. Filler Bytes are not required for 1580/1860/1880 printers.
Response:	None
Note:	*This command only exists for backwards compatibility. It has been superseded by [1B][84][2B] which contains additional functionality.*

5.10.18 Insert Expiry 1 – 2 Digit Day of Month [1B] [84] [11]

Command Group:	Data Inserts
Description:	Insert Expiry 1 - 2 Digit Day of Month into the current message at the current location
Parameters:	1 Filler Byte Needed. Filler bytes are not required for 1580/1860/1880.
Response:	None
Note:	*This command only exists for backwards compatibility. It has been superseded by [1B][84][2B] which contains additional functionality.*

5.10.19 Insert Expiry 1 – 3 Digit Day of Year [1B] [84] [12]

Command Group:	Data Inserts
Description:	Insert Expiry 1 - 3 Digit Day of Year into the current message at the current location
Parameters:	2 Filler Bytes, Filler bytes are not required for 1580/1860/1880.
Response:	None
Note:	*This command only exists for backwards compatibility. It has been superseded by [1B][84][2B] which contains additional functionality.*

5.10.20 Insert Expiry 1 – 4 Digit Year [1B] [84] [13]

Command Group:	Data Inserts
Description:	Insert Expiry 1 - 4 Digit Year into the current message at the current location
Parameters:	3 Filler Bytes, Filler bytes are not required for 1580/1860/1880.
Response:	None

5.10.21 Insert Expiry 1 – 2 Digit Year [1B] [84] [14]

Command Group:	Data Inserts
Description:	Insert Expiry 1 - 2 Digit Year into the current message at the current location
Parameters:	1 Filler Byte, Filler bytes are not required for 1580/1860/1880.
Response:	None
Note:	*This command only exists for backwards compatibility. It has been superseded by [1B][84][2B] which contains additional functionality.*

5.10.22 Insert Expiry 1 – 1 Digit Year [1B] [84] [15]

Command Group:	Data Inserts
Description:	Insert Expiry 1 - 1 Digit Year into the current message at the current location
Parameters:	0 Filler Byte, Filler bytes are not required for 1580/1860/1880.
Response:	None
Note:	*This command only exists for backwards compatibility. It has been superseded by [1B][84][2B] which contains additional functionality.*

5.10.23 Insert Shift [1B] [84] [17]

Command Group:	Data Inserts
Description:	Insert Shift into the current message at the current location
Parameters:	X Filler Bytes, Filler bytes are not required for 1580/1860/1880.
Note:	*Shift must be initialized prior to uses. See Shift initialization command*
Response:	None

5.10.24 Insert Alpha Hour [1B] [84] [18]

Command Group:	Data Inserts
Description:	Insert Alpha Hour into the current message at the current location
Note:	*The Alpha hour and Encoded hour cannot be used together in one message.*
Parameters:	X Filler Bytes, Filler bytes are not required for 1580/1860/1880.
Response:	None

5.10.25 Insert Serializer 2 [1B] [84] [1B]

Command Group:	Data Inserts
Description:	Insert Serializer 2 into the current message at the current location
Parameters:	X Filler Bytes needed depending on length of serializer # 2 Filler bytes are not required for 1580/1860/1880 printers.
Note:	*Serializer must be initializer prior to uses. See initialization serializer # 2.*
Response:	None

5.10.26 Insert Expiry 2 – 2 Digit Month [1B] [84] [1C]

Command Group:	Data Inserts
Description:	Insert Expiry 2 - 2 Digit Month into the current message at the current location
Parameters:	1 Filler Byte, Filler bytes not required for 1580/1860/1880.
Response:	None

Note:	*This command only exists for backwards compatibility. It has been superseded by [1B][84][2B] which contains additional functionality.*

5.10.27 Insert Expiry 2 – 3 Character Month [1B] [84] [1D]

Command Group:	Data Inserts
Description:	Insert Expiry 2 – 3 Character Month into the current message at the current location
Parameters:	2 Filler Bytes, Filler bytes not required for 1580/1860/1880.
Response:	None
Note:	*This command only exists for backwards compatibility. It has been superseded by [1B][84][2B] which contains additional functionality.*

5.10.28 Insert Expiry 2 – 2 Digit Day of Month [1B] [84] [1E]

Command Group:	Data Inserts
Description:	Insert Expiry 2 - 2 Digit Day of Month into the current message at the current location
Parameters:	1 Filler Byte, Filler bytes not required for 1580/1860/1880.
Response:	None
Note:	*This command only exists for backwards compatibility. It has been superseded by [1B][84][2B] which contains additional functionality.*

5.10.29 Insert Expiry 2 – 3 Digit Day of Year [1B] [84] [1F]

Command Group:	Data Inserts
Description:	Insert Expiry 2 – 3 Digit Day of Year into the current message at the current location
Parameters:	2 Filler Bytes, Filler bytes not required for 1580/1860/1880.
Response:	None
Note:	*This command only exists for backwards compatibility. It has been superseded by [1B][84][2B] which contains additional functionality.*

5.10.30 Insert Expiry 2 – 4 Digit Year [1B] [84] [20]

Command Group:	Data Inserts
Description:	Insert Expiry 2 – 4 Digit Year into the current message at the current location
Parameters:	3 Filler Bytes, Filler bytes not required for 1580/1860/1880.
Response:	None
Note:	*This command only exists for backwards compatibility. It has been superseded by [1B][84][2B] which contains additional functionality.*

5.10.31 Insert Expiry 2 – 2 Digit Year [1B] [84] [21]

Command Group:	Data Inserts
Description:	Insert Expiry 2 – 2 Digit Year into the current message at the current location
Parameters:	1 Filler Byte, Filler bytes not required for 1580/1860/1880.
Response:	None
Note:	*This command only exists for backwards compatibility. It has been superseded by [1B][84][2B] which contains additional functionality.*

5.10.32 Insert Expiry 2 – 1 Digit Year [1B] [84] [22]

Command Group:	Data Inserts
Description:	Insert Expiry 2 – 1 Digit Year into the current message at the current location
Parameters:	0 Filler Byte, Filler bytes not required for 1580/1860/1880.
Response:	None
Note:	*This command only exists for backwards compatibility. It has been superseded by [1B][84][2B] which contains additional functionality.*

5.10.33 Insert Pull 2 Digit Month [1B] [84] [23]

Command Group:	Data Inserts
Description:	Insert Pull Week 2 Digit Month into the current message at the current location. This will keep the first day of week date for the entire week and rollover on programed roll day.
Parameters:	1 Filler Byte, Filler bytes not required for 1580/1860/1880.

5.10.34 Insert Pull 2 Digit Day of Month [1B] [84] [24]

Command Group:	Data Inserts
Description:	Insert Pull Week 2 Digit Day of Month into the current message at the current location. This will keep the first day of week date for the entire week and rollover on programed roll day.
Parameters:	1 Filler Byte, Filler bytes not required for 1580/1860/1880.

5.10.35 Insert Pull 2 Digit Year [1B] [84] [25]

Command Group:	Data Inserts
Description:	Insert Pull Week 2 Digit Year into the current message at the current location. This will keep the first day of week date for the entire week and rollover on programed roll day.
Parameters:	1 Filler Byte, Filler bytes not required for 1580/1860/1880.

5.10.36 Insert Alpha Day [1B] [84] [27]

Command Group:	Data Inserts
Description:	Insert Alpha Day into the current message at the current location. This is a single alpha character used to designate the day of week.
Parameters:	0 Filler Bytes, Filler bytes not required for 1580/1860/1880.
Response:	None

5.10.37 Insert UCN [1B] [84] [28]

Command Group:	Data Inserts
Description:	Insert UCN into the current message at the current location
Parameters:	2 Filler Bytes, Filler bytes not required for 1580/1860/1880
Response:	[07] [08]

5.10.38 Insert 2 Digit European Week of Year [1B] [84] [29]

Command Group:	Data Inserts
Description:	Insert 2 digit European week of year into the current message at the current location
Parameters:	1 Filler Byte, Filler bytes not required for 1580/1860/1880.
Response:	None

5.10.39 Insert Remote Source [1B][84][2A][XX]

Command Group:	Data Inserts
Description:	Insert Remote Source, this command is used while in ESI message mode to create a message. The insert remote source can be placed into a message as a place holder for remote data source from ESI Remote Data port 3001. This allow another device communicating on this port to send data into this insert location
Parameters:	XX – Remote Source number (1..10)
Response:	None
Note:	*This command is a replacement for Insert Remote Data 1 - 4. It allows for insert field 1 - 10.*
Example:	Printer set to ESI Main, Port 3000, Message remote mode. Message: REMOTE1 [1B][84][2A][01] REMOTE1 [1B][84][2A][02] END[0D]
Print Output:	This print output will be when no remote data is send

REMOTE1 Default Text END

Example:	Printer set to ESI Remote Data, Port 3001, ESI (Message Remote) mode. Remote Data: 11111[0D]22222[0D][0D]

Print Output:

REMOTE1 11111 REMOTE1 22222 END

5.10.40 Insert Date [1B][84][2B][XX]

Command Group: Data Inserts

Description: Insert Date. This command is used for replacement of many legacy commands and it allows the inserts to be built that are required for date insertion.

Parameters: Byte 1 Date Source:

0	Current
1	Expiry 1
2	Expiry 2
3	Expiry 3

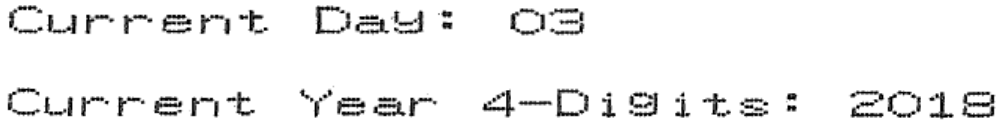
Byte 2 Date Format:

01	2 Digit Month
02	3 Characters Month
03	Alpha Day
04	2 Digit Day of Month
05	3 Digit Day of Year
06	1 Digit Year
07	2 Digit Year
08	4 Digit Year
09	Short Day (1 or 2 Digit)
0A	Short Month (1 or 2 Digit)
0B	1 Character Encoded Day of Week

Note: *'Short Day', 'Short Month', '1 Character Encoded Day Of Week' are invalid parameters for Expiry Data Sources.*

Response:	[0x07][0x51]	For invalid parameters
Example:	[1B][84]2B][00][04]	Current Day
	[1B][84]2B][00][08]	Current Year 4-Digits

Print Sample:



5.10.41 Insert Encoded Hour [1B][84][2C]

Command Group:	Data Inserts
Description:	Insert Encoded Hour. The characters that represent the hours of the day are found under Tools > Global Job Setting > Hour of Day Code. In this table you can set the number or letters to represent the hours of the day.
Parameters:	None
Response:	None

5.10.42 Insert Remote Data 1 [1B][84][2D]

Command Group:	Data Inserts
Description:	Insert Remote Source 1, This command is used while in ESI message mode to create a message. The insert remote source 1 can be placed into a message as a place holder for remote data source from ESI Remote Data port 3001. This allow another device communicating on this port to send data into this insert location.
Parameters:	None
Response:	None
Note:	*This command only exists for backwards compatibility. It has been superseded by [1B][84][2A][X1] which contains additional functionality.*
Example:	Printer set to ESI Main, Port 3000, Message remote mode. Message: The weight of product is [1B][84][2D][0D] Printer set to ESI Remote Data, Port 3001, Message remote mode. Remote Data: 59 LB[0D][0D]
Print Output:	The weight of product is 59 LB

5.10.43 Insert Remote Data 2 [1B][84][2F]

Command Group:	Data Inserts
Description:	Insert Remote Source 2, This command is used while in ESI message mode to create a message. The insert remote source 2 can be placed into a message as a place holder for remote data source from ESI Remote Data port 3001. This allow another device communicating on this port to send data into this insert location.
Parameters:	None
Response:	None
Note:	*This command only exists for backwards compatibility. It has been superseded by [1B][84][2A][X1] which contains additional functionality.*
Example:	Printer set to ESI Main, Port 3000, Message remote mode. Message: The weight of product is [1B][84][2F][0D] Printer set to ESI Remote Data, Port 3001, Message remote mode. Remote Data: 100 LB[0D][0D]
Print Output:	The weight of product is 100 LB

5.10.44 Insert Remote Data 3 [1B][84][30]

Command Group:	Data Inserts
Description:	Insert Remote Source 3, This command is used while in ESI message mode to create a message. The insert remote source 3 can be placed into a message as a place holder for remote data source from ESI Remote Data port 3001. This allow another device communicating on this port to send data into this insert location.
Parameters:	None
Response:	None
Note:	*This command only exists for backwards compatibility. It has been superseded by [1B][84][2A][X1] which contains additional functionality.*
Example:	Printer set to ESI Main, Port 3000, Message remote mode. Message: The weight of product is [1B][84][30][0D] Printer set to ESI Remote Data, Port 3001, Message remote mode. Remote Data: 59 LB[0D][0D]
Print Output:	The weight of product is 59 LB

5.10.45 Insert Remote Data 4 [1B][84][31]

Command Group:	Data Inserts
Description:	Insert Remote Source 4, This command is used while in ESI message mode to create a message. The insert remote source 4 can be placed into a message as a place holder for remote data source from ESI Remote Data port 3001. This allow another device communicating on this port to send data into this insert location
Parameters:	None
Response:	None
Note:	*This command only exists for backwards compatibility. It has been superseded by [1B][84][2A] which contains additional functionality.*
Example:	Printer set to ESI Main, Port 3000, Message remote mode. Message: The weight of product is [1B][84][31][0D] Printer set to ESI Remote Data, Port 3001, Message remote mode. Remote Data: 59 LB[0D][0D]
Print Output:	The weight of product is 59 LB

5.10.46 Insert Serializer 3 [1B] [84] [32]

Command Group:	Data Inserts
Description:	Insert Serializer 3 into the current message at the current location
Parameters:	X number of filler by = number of digits -1. Filler bytes not required for 1580/1860/1880
Note:	The serializer # 3 must be initialized prior to insertion into message. See initializer serializer # 2 command.

5.10.47 Insert Pull Week 3 Character Month [1B] [84] [33]

Command Group:	Data Inserts
Description:	Insert Pull Week 3 Character Month into the current message at the current location. This will keep the first day of week date for the entire week and rollover on programed roll day.
Parameters:	2 Filler Bytes, Filler bytes not required for 1580/1860/1880

5.10.48 Insert Pull Week Alpha Day [1B] [84] [34]

Command Group: Data Inserts

Description: Insert Pull Week Day into the current message at the current location. This will be SUN, MON, TUE, WED, THU, FRI, SAT. This will keep the first day of week date for the entire week and rollover on programed roll day.

Parameters: 2 Filler Bytes, Filler bytes not required for 1580/1860/1880

5.10.49 Insert Pull Week 3 Digit Day of Year (Julian Day) [1B] [84] [35]

Command Group: Data Inserts

Description: Insert Pull week Julian Date into the current message at the current location. This will keep the first day of week date for the entire week and rollover on programed roll day.

Parameters: 2 Filler Bytes, Filler bytes not required for 1580/1860/1880

5.10.50 Insert Pull Week 4 Digit Year [1B] [84] [36]

Command Group: Data Inserts

Description: Insert Pull week 4 Digit Year into the current message at the current location. This will keep the first day of week date for the entire week and rollover on programed roll day.

Parameters: 3 Filler Bytes, Filler bytes not required for 1580/1860/1880

5.10.51 Insert Pull Week 1 Digit Year [1B] [84] [37]

Command Group: Data Inserts

Description: Insert Pull week 1 Digit Year into the current message at the current location. This will keep the first day of week date for the entire week and rollover on programed roll day.

Parameters: 0 Filler Bytes, Filler bytes not required for 1580/1860/1880

5.10.52 Insert Pull Month 2 Digit Month [1B] [84] [3A]

Command Group:	Data Inserts
Description:	Insert Pull Month 2 Digit Month into the current message at the current location
Parameters:	1 Filler Byte, Filler bytes not required for 1580/1860/1880

5.10.53 Insert Pull Month 2 Digit Day of Month [1B] [84] [3B]

Command Group:	Data Inserts
Description:	Insert Pull Month 2 Digit Day of Month into the current message at the current location
Parameters:	1 Filler Byte, Filler bytes not required for 1580/1860/1880

5.10.54 Insert Pull Month 2 Digit Year [1B] [84] [3C]

Command Group:	Data Inserts
Description:	Insert Pull Month 2 Digit Year into the current message at the current location
Parameters:	1 Filler Byte, Filler bytes not required for 1580/1860/1880

5.10.55 Insert Pull Month 3 Character Month [1B] [84] [3D]

Command Group:	Data Inserts
Description:	Insert Pull Month 3 Character Month into the current message at the current location
Parameters:	2 Filler Bytes, Filler bytes not required for 1580/1860/1880

5.10.56 Insert Pull Month Alpha Day [1B] [84] [3E]

Command Group:	Data Inserts
Description:	Insert Pull Month Alpha Day into the current message at the current location
Parameters:	2 Filler Bytes, Filler bytes not required for 1580/1860/1880

5.10.57 Insert Pull Month 3 Digit Day of Year (Julian Day) [1B] [84] [3F]

Command Group:	Data Inserts
Description:	Insert Pull Month Julian Date into the current message at the current location
Parameters:	2 Filler Bytes, Filler bytes not required for 1580/1860/1880

5.10.58 Insert Pull Month 4 Digit Year [1B] [84] [40]

Command Group:	Data Inserts
Description:	Insert Pull Month 4 Digit Year into the current message at the current location
Parameters:	3 Filler Bytes, Filler bytes not required for 1580/1860/1880

5.10.59 Insert Pull Month 1 Digit Year [1B] [84] [41]

Command Group:	Data Inserts
Description:	Insert Pull Month 1 Digit Year into the current message at the current location
Parameters:	0 Filler Byte, Filler bytes not required for 1580/1860/1880

5.10.60 Insert Seconds [1B] [84] [42]

Command Group:	Data Inserts
Description:	Insert time seconds
Parameters:	0 Filler Byte, Filler bytes not required for 1580/1860/1880

5.10.61 Insert LOGO [1B] [84] [43] [X1] [Logo Name]

Command Group:	Data Inserts	
Description:	Insert logo command allow the insertion of .bmp logo loaded via the USB stick. This logo is loaded by this command.	
Parameters	X1 - Is the length of logo name in hexadecimal value [Logo Name] is the name of logo. This is the name of logo the printer see, logo may be with or without extension. The extension name may be BMP or .bmp	
Response:	None	
Note:	*The logos are loaded to the printer via USB stick. Using the File Manager. Tools > File Manager > Import Files.*	
Error:	[07][29]	If printer not in Message mode
	If logo cannot be fount will see "Image not found"	

Example:	Command:	[1B][04][07]
	Response:	[07][08]
	Message:	LOGO [1B][84][43][02]VJ[0D]

Print Output:

5.11 Data Barcode Commands

5.11.1 Barcode Interleaved 2 of 5 (I 2 of 5) ON [1B] [85] [00]

Command Group:	Barcodes
Description:	Set the subsequent message data to encode as a I 2of 5 Barcode start.
Note:	*The data must be numerals only and must be entered in an even number of number of characters. The barcode will calculate checksum and add to barcode if number of digits is odd, the printer will add zero character to code to make the total number of digits even.*
Scope:	This command affects the remainder of the message currently being downloaded. It does not affect messages already downloaded, and it does not affect any message downloaded after the current message.
Parameters	None
Response:	None

5.11.2 Barcode I 2 of 5 OFF [1B] [85] [01]

Command Group:	Barcodes
Description:	End the use of I 2of 5 Barcode in the message
Scope:	This command affects the remainder of the message currently being downloaded. It does not affect messages already downloaded, and it does not affect any message downloaded after the current message.
Parameters:	None
Response:	None

5.11.3 Barcode Code 3 of 9 (Code 39) ON [1B] [85] [02]

Command Group:	Barcodes
Description:	Set the subsequent message data to encode as a Code 39 Barcode start.
Scope:	This command affects the remainder of the message currently being downloaded. It does not affect messages already downloaded, and it does not affect any message downloaded after the current message.
Note:	*This barcode will accept alpha or numeric characters. They can be entered in odd or even set of characters. The barcode will calculate checksum and add to barcode if number of digits is odd the printer will add zero character to code to make the total number of digits even.*
Parameters:	None
Response:	None

5.11.4 Barcode Code 39 OFF [1B] [85] [03]

Command Group:	Barcodes
Description:	End the use of Code 39 Barcode in the message
Scope:	This command affects the remainder of the message currently being downloaded. It does not affect messages already downloaded, and it does not affect any message downloaded after the current message.
Parameters:	None
Response:	None

5.11.5 Barcode I 2 of 5 with Human Readable ON [1B] [85] [04]

Command Group:	Barcodes
Description:	Set the subsequent message data to encode as an I 2of 5 with Human Readable Barcode.
Scope:	This command affects the remainder of the message currently being downloaded. It does not affect messages already downloaded, and it does not affect any message downloaded after the current message.
Note 1:	*The data must be numerals only and must be entered in an even number of number of characters. The barcode will calculate checksum and add to barcode if number of digits are odd the printer will add zero character to code to make the total number of digits even.*
Note 2:	*To change the text height for the human readable use command [1B][03][10][XX] prior to sending barcode message this will change the text height in barcode. Ensure you have a large enough matrix to support the text and barcode height.*
Parameters:	None
Response:	None

5.11.6 Barcode I 2 of 5 with Human Readable OFF [1B] [85] [05]

Command Group:	Barcodes
Description:	End the use of I 2of 5 with Human Readable Barcode in the message
Scope:	This command affects the remainder of the message currently being downloaded. It does not affect messages already downloaded, and it does not affect any message downloaded after the current message.
Parameters:	None
Response:	None

5.11.7 Barcode Code 39 with Human Readable ON [1B] [85] [06]

Command Group: Barcodes

Description: Set the subsequent message data to encode as a Code 39 with Human Readable Barcode

Note 1: *This barcode will accept alpha or numeric characters. They can be entered in odd or even set of characters. The barcode will calculate checksum and add to barcode if number of digit is odd the printer will add zero character to code to make the total number of digits even.*

Note 2: *To change the text height for the human readable use command [1B][03][10][XX] prior to sending barcode message this will change the text height in barcode. Ensure you have a large enough matrix to support the text and barcode height.*

Scope: This command affects the remainder of the message currently being downloaded. It does not affect messages already downloaded, and it does not affect any message downloaded after the current message.

Parameters: None

Response: None

5.11.8 Barcode Code 39 with Human Readable OFF [1B] [85] [07]

Command Group: Barcodes

Description: End the use of Code 39 with Human Readable Barcode in the message.

Parameters: None

Scope: This command affects the remainder of the message currently being downloaded. It does not affect messages already downloaded, and it does not affect any message downloaded after the current message.

Response: None

5.11.9 Barcode EAN 13 ON [1B] [85] [0C]

Command Group: Barcodes

Description: Set the subsequent message data to encode as an EAN 13 Barcode.

Scope: This command affects the remainder of the message currently being downloaded. It does not affect messages already downloaded, and it does not affect any message downloaded after the current message.

Parameters: None

Response: None

5.11.10 Barcode EAN 13 OFF [1B] [85] [0D]

Command Group:	Barcodes
Description:	End the use of EAN 13 Barcode in the message
Scope:	This command affects the remainder of the message currently being downloaded. It does not affect messages already downloaded, and it does not affect any message downloaded after the current message.
Parameters:	None
Response:	None

5.11.11 Barcode EAN 8 ON [1B] [85] [0E]

Command Group:	Barcodes
Description:	Set the subsequent message data to encode as an EAN 8 Barcode
Scope:	This command affects the remainder of the message currently being downloaded. It does not affect messages already downloaded, and it does not affect any message downloaded after the current message.
Parameters:	None
Response:	None

5.11.12 Barcode EAN 8 OFF [1B] [85] [0F]

Command Group:	Barcodes
Description:	End the use of EAN 8 Barcode in the message.
Scope:	This command affects the remainder of the message currently being downloaded. It does not affect messages already downloaded, and it does not affect any message downloaded after the current message.
Parameters:	None
Response:	None

5.11.13 Barcode EAN 13 with Human Readable ON [1B] [85] [13]

Command Group:	Barcodes
Description:	Set the subsequent message data to encode as an EAN 13 with Human Readable Barcode
Scope:	This command affects the remainder of the message currently being downloaded. It does not affect messages already downloaded, and it does not affect any message downloaded after the current message.
Note:	*To change the text height for the human readable use command [1B][03][10][XX] prior to sending barcode message this will change the text height in barcode. Ensure you have a large enough matrix to support the text and barcode height.*
Parameters:	None
Response:	None

5.11.14 Barcode EAN 13 with Human Readable OFF [1B] [85] [14]

Command Group:	Barcodes
Description:	End the use of EAN 13 with Human Readable Barcode in the message.
Scope:	This command affects the remainder of the message currently being downloaded. It does not affect messages already downloaded, and it does not affect any message downloaded after the current message.
Parameters:	None
Response:	None

5.11.15 Barcode EAN 8 with Human Readable ON [1B] [85] [15]

Command Group:	Barcodes
Description:	Set the subsequent message data to encode as an EAN 8 with Human Readable Barcode
Scope:	This command affects all messages downloaded after this command is received. It does not affect messages already downloaded, and it does not affect a message which is currently being downloaded.
Note:	*To change the text height for the human readable use command [1B][03][10][XX] prior to sending barcode message this will change the text height in barcode. Ensure you have a large enough matrix to support the text and barcode height.*
Parameters:	None
Response:	None

5.11.16 Barcode EAN 8 with Human Readable OFF [1B] [85] [16]

Command Group: Barcodes

Description: End the use of EAN 8 with Human Readable Barcode in the message.

Scope: This command affects the remainder of the message currently being downloaded. It does not affect messages already downloaded, and it does not affect any message downloaded after the current message.

Parameters: None

Response: None

5.11.17 Barcode Code 128 Subset B ON [1B] [85] [17]

Command Group: Barcodes

Description: Set the subsequent message data to encode as a Code 128 Subset B Barcode. This code will print alpha numeric data within the barcode.

Scope: This command affects the remainder of the message currently being downloaded. It does not affect messages already downloaded, and it does not affect any message downloaded after the current message.

Parameters: None

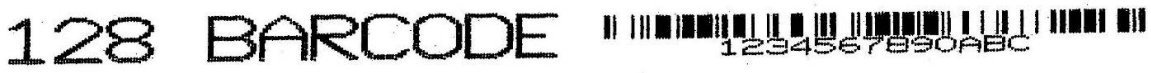
Response: None

Example: [1B][04][07] Global Matrix 16x24

[1B][03][10][02] Adjust barcode with text height

[1B][85][17]1234567890ABC[1B][85][22][0D]

Print Sample:



5.11.18 Barcode Code 128 Subset C On [1B] [85] [18]

Command Group: Barcodes

Description: Set the subsequent message data to encode as a Code 128 Subset C Barcode.

Scope: This command affects the remainder of the message currently being downloaded. It does not affect messages already downloaded, and it does not affect any message downloaded after the current message.

Parameters: None

Response: None

5.11.19 Barcode Code 128 Off [1B] [85] [19]

Command Group:	Barcodes
Description:	End the use of Code 128 Barcode in the message
Scope:	This command affects the remainder of the message currently being downloaded. It does not affect messages already downloaded, and it does not affect any message downloaded after the current message.
Parameters:	None
Response:	None

5.11.20 Barcode Code 128 Subset C Switch Control [1B] [85] [1B]

Command Group:	Barcodes
Description:	Set the subsequent message data to encode as a Code 128 Subset C switch control Barcode.
Scope:	This command affects the remainder of the message currently being downloaded. It does not affect messages already downloaded, and it does not affect any message downloaded after the current message.
Parameters:	None
Response:	None

5.11.21 Barcode Code 128 Function 1 Control [1B] [85] [1C]

Command Group:	Barcodes
Description:	Set the subsequent message data to encode as a Code 128 function 1 control barcode.
Scope:	This command affects the remainder of the message currently being downloaded. It does not affect messages already downloaded, and it does not affect any message downloaded after the current message.
Parameters:	None
Response:	None

5.11.22 Barcode Code 128 Function 2 Control [1B] [85] [1D]

Command Group:	Barcodes
Description:	Set the subsequent message data to encode as a Code 128 function 2 control barcode.
Scope:	This command affects the remainder of the message currently being downloaded. It does not affect messages already downloaded, and it does not affect any message downloaded after the current message.
Parameters:	None
Response:	None

5.11.23 Barcode Code 128 Function 3 Control [1B] [85] [1E]

Command Group:	Barcodes
Description:	Set the subsequent message data to encode as a Code 128 function 3 control barcode.
Scope:	This command affects the remainder of the message currently being downloaded. It does not affect messages already downloaded, and it does not affect any message downloaded after the current message.
Parameters:	None
Response:	None

5.11.24 Barcode Code 128 Function 4 Control [1B] [85] [1F]

Command Group:	Barcodes
Description:	Set the subsequent message data to encode as a Code 128 function 4 control barcode.
Scope:	This command affects the remainder of the message currently being downloaded. It does not affect messages already downloaded, and it does not affect any message downloaded after the current message.
Parameters:	None
Response:	None

5.11.25 Barcode Code 128 Subset B with Human Readable ON [1B] [85] [20]

Command Group:	Barcodes
Description:	Set the subsequent message data to encode as a Code 128 Subset B with Human Readable Barcode. The B will accept alphanumeric characters.
Scope:	This command affects the remainder of the message currently being downloaded. It does not affect messages already downloaded, and it does not affect any message downloaded after the current message.
Note:	*To change the text height for the human readable use command [1B][03][10][XX] prior to sending barcode message this will change the text height in barcode. Ensure you have a large enough matrix to support the text and barcode height.*
Parameters:	None
Response:	None

5.11.26 Barcode Code 128 Subset C with Human Readable ON [1B] [85] [21]

Command Group:	Barcodes
Description:	Set the subsequent message data to encode as a Code 128 Subset C with Human Readable Barcode. This is the compressed mode and uses only numbers.
Scope:	This command affects the remainder of the message currently being downloaded. It does not affect messages already downloaded, and it does not affect any message downloaded after the current message.
Note:	*To change the text height for the human readable use command [1B][03][10][XX] prior to sending barcode message this will change the text height in barcode. Ensure you have a large enough matrix to support the text and barcode height.*
Parameters:	None
Response:	None

5.11.27 Barcode Code 128 with Human Readable OFF [1B] [85] [22]

Command Group:	Barcodes
Description:	End the use of Code 128 with Human Readable Barcode in the message.
Scope:	This command affects the remainder of the message currently being downloaded. It does not affect messages already downloaded, and it does not affect any message downloaded after the current message.
Parameters:	None
Response:	None

5.11.28 Barcode UPC-A On [1B] [85] [48]

Command Group:	Barcodes
Description:	Set the subsequent message data to encode as an UPC-A Barcode.
Scope:	This command affects the remainder of the message currently being downloaded. It does not affect messages already downloaded, and it does not affect any message downloaded after the current message.
Note:	*To change the text height for the human readable use command [1B][03][10][XX] prior to sending barcode message this will change the text height in barcode. Ensure you have a large enough matrix to support the text and barcode height.*
Parameters:	None

5.11.29 Barcode UPC-A Off [1B] [85] [49]

Command Group:	Barcodes
Description:	End the use of UPC-A Barcode in the message.
Scope:	This command affects the remainder of the message currently being downloaded. It does not affect messages already downloaded, and it does not affect any message downloaded after the current message.
Parameters:	None

5.11.30 Barcode UPC-A with Human Readable On [1B] [85] [4A]

Command Group: Barcodes

Description: Set the subsequent message data to encode as an UPC-A with Human Readable Barcode.

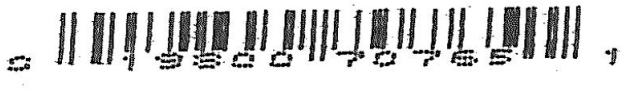
Scope: This command affects the remainder of the message currently being downloaded. It does not affect messages already downloaded, and it does not affect any message downloaded after the current message.

Note: *To change the text height for the human readable use command [1B][03][10][XX] prior to sending barcode message this will change the text height in barcode. Ensure you have a large enough matrix to support the text and barcode height.*

Parameters: None

Response: None

Print Sample:



5.11.31 Barcode UPC-A with Human Readable Off [1B] [85] [4B]

Command Group: Barcodes

Description: End the use of UPC-A with Human Readable Barcode in the message.

Scope: This command affects the remainder of the message currently being downloaded. It does not affect messages already downloaded, and it does not affect any message downloaded after the current message.

Parameters: None

5.11.32 Barcode UPC-E On [1B] [85] [4C]

Command Group: Barcodes

Description: Set the subsequent message data to encode as an UPC-E Barcode

Scope: This command affects the remainder of the message currently being downloaded. It does not affect messages already downloaded, and it does not affect any message downloaded after the current message.

Parameters: None

5.11.33 Barcode UPC-E Off [1B] [85] [4D]

Command Group: Barcodes

Description: End the use of UPC-E Barcode in the message.

Scope: This command affects the remainder of the message currently being downloaded. It does not affect messages already downloaded, and it does not affect any message downloaded after the current message.

Parameters: None

5.11.34 Barcode UPC-E with Human Readable On [1B] [85] [4E]

Command Group: Barcodes

Description: Set the subsequent message data to encode as an UPC-E with Human Readable Barcode.

Scope: This command affects the remainder of the message currently being downloaded. It does not affect messages already downloaded, and it does not affect any message downloaded after the current message.

Note: *To change the text height for the human readable use command [1B][03][10][XX] prior to sending barcode message this will change the text height in barcode. Ensure you have a large enough matrix to support the text and barcode height.*

Parameters: None

5.11.35 Barcode UPC-E with Human Readable Off [1B] [85] [4F]

Command Group: Barcodes

Description: End the use of UPC-E with Human Readable Barcode in the message.

Scope: This command affects the remainder of the message currently being downloaded. It does not affect messages already downloaded, and it does not affect any message downloaded after the current message.

Parameters: None

5.11.36 Barcode EAN-128 On [1B] [85] [50]

Command Group:	Barcodes
Description:	Set the subsequent message data to encode as an EAN-128 Barcode. Application Identifiers can be in round brackets, though this is not necessary; FNC1 symbol where necessary is presented as <FNC1>. No FNC1 or other special symbol at start up is required. Example: (21)SN001<FNC1>(11)010109
Scope:	This command affects the remainder of the message currently being downloaded. It does not affect messages already downloaded, and it does not affect any message downloaded after the current message.
Parameters:	None

5.11.37 Barcode EAN-128 Off [1B] [85] [51]

Command Group:	Barcodes
Description:	End the use of EAN-128 Barcode in the message.
Scope:	This command affects the remainder of the message currently being downloaded. It does not affect messages already downloaded, and it does not affect any message downloaded after the current message.
Parameters:	None

5.11.38 Barcode EAN-128 with Human Readable On [1B] [85] [52]

Command Group:	Barcodes
Description:	Set the subsequent message data to encode as an EAN-128 with Human Readable Barcode Application Identifiers can be in round brackets, though this is not necessary; FNC1 symbol where necessary is presented as <FNC1>. No FNC1 or other special symbol at start up is required. Example: (21)SN001<FNC1>(11)010109
Scope:	This command affects the remainder of the message currently being downloaded. It does not affect messages already downloaded, and it does not affect any message downloaded after the current message.
Note:	*To change the text height for the human readable use command [1B][03][10][XX] prior to sending barcode message this will change the text height in barcode. Ensure you have a large enough matrix to support the text and barcode height.*
Parameters:	None

5.11.39 Barcode EAN-128 with Human Readable Off [1B] [85] [53]

Command Group:	Barcodes
Description:	End the use of EAN-128 with Human Readable Barcode in the message.
Scope:	This command affects the remainder of the message currently being downloaded. It does not affect messages already downloaded, and it does not affect any message downloaded after the current message.
Parameters:	None

5.11.40 Barcode Databar On [1B] [85] [54]

Command Group:	Barcodes
Description:	Set the subsequent message data to encode as GS1 Databar Barcode Application Identifiers can be in round brackets, though this is not necessary; FNC1 symbol where necessary is presented as <FNC1>. No FNC1 or other special symbol at start up is required. Example: (21)SN001<FNC1>(11)010109.
Scope:	This command affects the remainder of the message currently being downloaded. It does not affect messages already downloaded, and it does not affect any message downloaded after the current message.
Parameters:	None

5.11.41 Barcode Databar Off [1B] [85] [55]

Command Group:	Barcodes
Description:	End the use of GS1 Databar Barcode in the message.
Scope:	This command affects the remainder of the message currently being downloaded. It does not affect messages already downloaded, and it does not affect any message downloaded after the current message.
Parameters:	None

5.11.42 Barcode Databar with Human Readable On [1B] [85] [56]

Command Group:	Barcodes
Description:	Set the subsequent message data to encode as GS1 Databar Barcode with Human Readable. Application Identifiers can be in round brackets, though this is not necessary; FNC1 symbol where necessary is presented as <FNC1>. No FNC1 or other special symbol at start up is required. Example: (21)SN001<FNC1>(11)010109.
Scope:	This command affects the remainder of the message currently being downloaded. It does not affect messages already downloaded, and it does not affect any message downloaded after the current message.
Note:	*To change the text height for the human readable use command [1B][03][10][XX] prior to sending barcode message this will change the text height in barcode. Ensure you have a large enough matrix to support the text and barcode height.*
Parameters:	None

5.11.43 Barcode Databar with Human Readable Off [1B] [85] [57]

Command Group:	Barcodes
Description:	End the use of GS1 Databar Barcode in the message.
Scope:	This command affects the remainder of the message currently being downloaded. It does not affect messages already downloaded, and it does not affect any message downloaded after the current message.
Parameters:	None

5.11.44 Barcode GS1 DataMatrix On [1B] [85] [58]

Command Group: Barcodes

Description: Set the subsequent message data to encode as GS1 DataMatrix Barcode Application Identifiers can be in round brackets, though this is not necessary; FNC1 symbol where necessary is presented as <FNC1>. No FNC1 or other special symbol at start up is required. Example: (21)SN001<FNC1>(11)010109

Scope: This command affects the remainder of the message currently being downloaded. It does not affect messages already downloaded, and it does not affect any message downloaded after the current message.

Parameters:

Byte [XX] = Datamatrix Density

Value	Data Matrix Density
0	10x10
1	12x12
2	14x14
3	16x16
4	18x18
5	20x20
6	22x22
7	24x24
8	26x26
9	32x32
10	8x18
11	8x32
12	12x26
13	12x36
14	16x36
15	16x48

5.11.45 Barcode GS1 DataMatrix Off [1B] [85] [59]

Command Group:	Barcodes
Description:	End the use of GS1 DataMatrix Barcode in the message.
Scope:	This command affects the remainder of the message currently being downloaded. It does not affect messages already downloaded, and it does not affect any message downloaded after the current message.
Parameters:	None

5.11.46 Barcode 2D Data Matrix Setup [1B] [85] [32]

Command Group: Barcodes

Description: Initialize the parameters for Datamatrix Barcode

Parameters: Variable amount of data based on the number of data elements

Byte 0	HR Font
Bit [0]: 5 high	
Bit [1]: 7 high	
Byte 1	Number of Quiet Zone (Range 1 to 3)
Byte 2	Date Format
Bit[0]: DDMMYY	
Bit[1]: DD.MM.YY	
Bit[2]: DD.MMM.YYYY	
Byte 3	Number of data elements (Range 0 to 9)
Byte 4 to Byte 12	Data for Data Element 1
Byte 4 to 5	Application Identifier (max 4 digit)
Byte 6	AI Length
Byte 7 to 11	AI Text (max 10 char)
Byte 12	Max data Length (Range 1 to 20)
Byte 13 to Byte 20	Data for Data Element 2
Byte 13 to 14	Application Identifier
Byte 15	AI Length
Byte 16 to 19	AI Text
Byte 20	Max data Length
	So on

Max data length set to 250 byte including command id length. Remaining data length pad [00].

Response: [07] [08]

5.11.47 Barcode 2D Data Matrix 10x10 OFF [1B] [85] [23]

Command Group:	Barcodes
Description:	End the use of Barcode 2D Data Matrix 10x10 Barcode in the message.
Scope:	This command affects the remainder of the message currently being downloaded. It does not affect messages already downloaded, and it does not affect any message downloaded after the current message.
Parameters:	None
Response:	None

5.11.48 Barcode 2D Data Matrix 12x12 OFF [1B] [85] [24]

Command Group:	Barcodes
Description:	End the use of Barcode 2D Data Matrix 12x12 Barcode in the message.
Scope:	This command affects the remainder of the message currently being downloaded. It does not affect messages already downloaded, and it does not affect any message downloaded after the current message.
Parameters:	None
Response:	None

5.11.49 Barcode 2D Data Matrix 14x14 OFF [1B] [85] [25]

Command Group:	Barcodes
Description:	End the use of Barcode 2D Data Matrix 14x14 Barcode in the message.
Scope:	This command affects the remainder of the message currently being downloaded. It does not affect messages already downloaded, and it does not affect any message downloaded after the current message.
Parameters:	None
Response:	None

5.11.50 Barcode 2D Data Matrix 16x16 OFF [1B] [85] [26]

Command Group:	Barcodes
Description:	End the use of Barcode 2D Data Matrix 16x16 Barcode in the message.
Scope:	This command affects the remainder of the message currently being downloaded. It does not affect messages already downloaded, and it does not affect any message downloaded after the current message.
Parameters:	None
Response:	None

5.11.51 Barcode 2D Data Matrix 18x18 OFF [1B] [85] [27]

Command Group:	Barcodes
Description:	End the use of Barcode 2D Data Matrix 18x18 Barcode in the message.
Scope:	This command affects the remainder of the message currently being downloaded. It does not affect messages already downloaded, and it does not affect any message downloaded after the current message.
Parameters:	None
Response:	None

5.11.52 Barcode 2D Data Matrix 20x20 OFF [1B] [85] [28]

Command Group:	Barcodes
Description:	End the use of Barcode 2D Data Matrix 20x20 Barcode in the message.
Scope:	This command affects the remainder of the message currently being downloaded. It does not affect messages already downloaded, and it does not affect any message downloaded after the current message.
Parameters:	None
Response:	None

5.11.53 Barcode 2D Data Matrix 22x22 OFF [1B] [85] [29]

Command Group:	Barcodes
Description:	End the use of Barcode 2D Data Matrix 22x22 Barcode in the message.
Scope:	This command affects the remainder of the message currently being downloaded. It does not affect messages already downloaded, and it does not affect any message downloaded after the current message.
Parameters:	None
Response:	None

5.11.54 Barcode 2D Data Matrix 24x24 OFF [1B] [85] [30]

Command Group:	Barcodes
Description:	End the use of Barcode 2D Data Matrix 24x24 Barcode in the message.
Scope:	This command affects the remainder of the message currently being downloaded. It does not affect messages already downloaded, and it does not affect any message downloaded after the current message.
Parameters:	None
Response:	None

5.11.55 Barcode 2D Data Matrix 16x36 OFF [1B] [85] [45]

Command Group:	Barcodes
Description:	End the use of Barcode 2D Data Matrix 16x36 Barcode in the message.
Scope:	This command affects the remainder of the message currently being downloaded. It does not affect messages already downloaded, and it does not affect any message downloaded after the current message.
Parameters:	None
Response:	None

5.11.56 Barcode 2D Data Matrix 16x48 OFF [1B] [85] [46]

Command Group:	Barcodes
Description:	End the use of Barcode 2D Data Matrix 16x48 Barcode in the message.
Scope:	This command affects the remainder of the message currently being downloaded. It does not affect messages already downloaded, and it does not affect any message downloaded after the current message.
Parameters:	None
Response:	None

5.11.57 Barcode Datamatrix Off [1B] [85] [31]

Command Group:	Barcodes
Description:	End the use of Data matrix Barcode in the message. This command can be used to terminal all Data matrix codes.
Scope:	This command affects the remainder of the message currently being downloaded. It does not affect messages already downloaded, and it does not affect any message downloaded after the current message.
Parameters:	None
Response:	None

5.11.58 Reset Barcode Datamatrix [1B] [85] [47]

Command Group:	Barcodes
Description:	End the use of Datamatrix Barcode by settings data elements count to zero.
Parameters:	None
Response:	None

5.11.59 Barcode UPC-A ON [1B] [85] [48]

Command Group:	Barcodes
Description:	Set the subsequent message data to encode as an UPC-A Barcode.
Scope:	The command affects the remainder of the message currently being downloaded. It does not affect message already downloaded. It does not affect any message.
Parameters:	None
Response:	None

5.11.60 Barcode UPC-A OFF [1B] [85] [49]

Command Group:	Barcodes
Description:	End the use of UPC-A Barcode in message.
Scope:	The command affects the remainder of the message currently being downloaded. It does not affect message already downloaded. It does not affect any message downloaded after the current message.
Parameters:	None
Response:	None

5.11.61 Barcode UPC-A with Human Readable ON [1B] [85] [4A]

Command Group:	Barcodes
Description:	Set the subsequent message data to encode as an UPC-A with human readable barcode.
Scope:	The command affects the remainder of the message currently being downloaded. It does not affect message already downloaded. It does not affect any message downloaded after the current message.
Note:	*You can use command [1B][03][10][XX] to adjust the human readable test size this will be dependent on the print matrix selected. Small (5x5), medium (5x7), Large (7x9).*
Parameters:	None
Response:	None

5.11.62 Barcode UPC-A with Human Readable OFF [1B] [85] [4B]

Command Group:	Barcodes
Description:	End the use of UPC-A with human readable barcode in message.
Scope:	The command affects the remainder of the message currently being downloaded. It does not affect message already downloaded. It does not affect any message downloaded after the current message.
Parameters:	None
Response:	None

5.11.63 Barcode UPC-E ON [1B] [85] [4C]

Command Group:	Barcodes
Description:	Set the subsequent message data to encode as an UPC-E with human readable barcode.
Scope:	The command affects the remainder of the message currently being downloaded. It does not affect message already downloaded. It does not affect any message downloaded after the current message.
Parameters:	None
Response:	None

5.11.64 Barcode UPC-E OFF [1B] [85] [4D]

Command Group:	Barcodes
Description:	End the use of UPC-E barcode in message.
Scope:	The command affects the remainder of the message currently being downloaded. It does not affect message already downloaded. It does not affect any message downloaded after the current message.
Parameters:	None
Response:	None

5.11.65 Barcode UPC-E with Human Readable ON [1B] [85] [4E]

Command Group:	Barcodes
Description:	End the use of UPC-E with human readable barcode in message.
Scope:	The command affects the remainder of the message currently being downloaded. It does not affect message already downloaded. It does not affect any message downloaded after the current message.
Note:	*You can use command [1B][03][10][XX] to adjust the human readable test size this will be dependent on the print matrix selected. Small (5x5), medium (5x7), Large (7x9).*
Parameters:	None
Response:	None

5.11.66 Barcode UPC-E with Human Readable OFF [1B] [85] [4F]

Command Group:	Barcodes
Description:	End the use of UPC-E with human readable barcode in message.
Scope:	The command affects the remainder of the message currently being downloaded. It does not affect message already downloaded. It does not affect any message downloaded after the current message.
Parameters:	None
Response:	None

5.11.67 Barcode EAN-128 ON [1B] [85] [50]

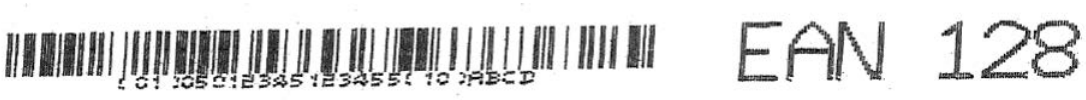
Command Group:	Barcodes
Description:	End the use of EAN-128 barcode in message. Set the subsequent message data to encode as an EAN-128 Barcode. Application identifiers can be in round brackets, thought this is not necessary; FNC1 symbol where necessary is presented as <FNC1>. No FNC1 or other special symbol at start up is required. Example: (21)SN001<FNC1>(11)010109
Scope:	The command affects the remainder of the message currently being downloaded. It does not affect message already downloaded. It does not affect any message downloaded after the current message.
Note:	*You can use command [1B][03][10][XX] to adjust the human readable test size this will be dependent on the print matrix selected. Small (5x5), medium (5x7), Large (7x9).*
Parameters:	None
Response:	None

5.11.68 Barcode EAN-128 with Human Readable OFF [1B] [85] [51]

Command Group:	Barcodes
Description:	End the use of EAN-128 barcode in message.
Scope:	The command affects the remainder of the message currently being downloaded. It does not affect message already downloaded. It does not affect any message downloaded after the current message.
Parameters:	None
Response:	None

5.11.69 Barcode EAN-128 with Human Readable ON [1B] [85] [52]

Command Group:	Barcodes
Description:	End the use of EAN-128 with human readable barcode in message. Set the subsequent message data to encode as an EAN-128 Barcode. Application identifiers can be in round brackets, thought this is not necessary; FNC1 symbol where necessary is presented as <FNC1>. No FNC1 or other special symbol at start up is required. Example: (21)SN001<FNC1>(11)010109
Scope:	The command affects the remainder of the message currently being downloaded. It does not affect message already downloaded. It does not affect any message downloaded after the current message.
Note:	*You can use command [1B][03][10][XX] to adjust the human readable test size this will be dependent on the print matrix selected. Small (5x5), medium (5x7), Large (7x9).*
Parameters:	None
Response:	None
Print Sample:	[1B][04][07] – Global Font 16x24SL [1B][85][82](01)05012345123455(10)ABC[1B][85][83] EAN 128



5.11.70 Barcode EAN-128 with Human Readable OFF [1B] [85] [53]

Command Group:	Barcodes
Description:	End the use of EAN-128 with human readable barcode in message.
Scope:	The command affects the remainder of the message currently being downloaded. It does not affect message already downloaded. It does not affect any message downloaded after the current message.
Parameters:	None
Response:	None

5.11.71 Barcode QR Code On [1B] [85] [5A]

Command Group:	Barcodes
Description:	Set the subsequent message data to encode as a QR Code.
Scope:	This command affects the remainder of the message currently being downloaded. It does not affect messages already downloaded, and it does not affect any message downloaded after the current message.
Parameters:	Byte 0: Error Correction Level 0 - Lowest level. Data recovery capacity is up to 7% 1 - Medium level. Up to 15% 2 - Quartil level. Up to 25% 3 - Highest level. Up to 30% Byte 1: Barcode Size 0 - Compute size of QR-Code symbol automatically 1 - Fixed symbol-size 21 x 21 squares (Version 1) 2 - Fixed symbol-size 25 x 25 squares (Version 2) 3 - Fixed symbol-size 29 x 29 squares (Version 3) 4 - Fixed symbol-size 33 x 33 squares (Version 4)
Response:	None

5.11.72 Barcode QR Code Off [1B] [85] [5B]

Command Group:	Barcodes
Description:	End the use of QR Code in the message.
Scope:	This command affects the remainder of the message currently being downloaded. It does not affect messages already downloaded, and it does not affect any message downloaded after the current message.
Parameters:	None
Response:	None

5.11.73 Barcode 2D Data Matrix 8x18 ON [1B] [85] [60]

Command Group:	Barcodes
Description:	Barcode 2D Data Matrix 8x18 barcode start into the message.
Scope:	This command affects the remainder of the message currently being downloaded. It does not affect messages already downloaded, and it does not affect any message downloaded after the current message.
Parameters:	None
Response:	None

5.11.74 Barcode 2D Data Matrix 8x32 ON [1B] [85] [61]

Command Group:	Barcodes
Description:	Barcode 2D Data Matrix 8x32 barcode start into the message.
Scope:	This command affects the remainder of the message currently being downloaded. It does not affect messages already downloaded, and it does not affect any message downloaded after the current message.
Parameters:	None
Response:	None

5.11.75 Barcode 2D Data Matrix 12x36 ON [1B] [85] [62]

Command Group:	Barcodes
Description:	Barcode 2D Data Matrix 12x36 barcode start into the message.
Scope:	This command affects the remainder of the message currently being downloaded. It does not affect messages already downloaded, and it does not affect any message downloaded after the current message.
Parameters:	None
Response:	None

5.11.76 Barcode 2D Data Matrix 12x26 ON [1B] [85] [63]

Command Group:	Barcodes
Description:	Barcode 2D Data Matrix 12x26 barcode start into the message.
Scope:	This command affects the remainder of the message currently being downloaded. It does not affect messages already downloaded, and it does not affect any message downloaded after the current message.
Parameters:	None
Response:	None

5.11.77 Barcode 2D Data Matrix 26x26 ON [1B] [85] [64]

Command Group:	Barcodes
Description:	Barcode 2D Data Matrix 26x26 barcode start into the message.
Scope:	This command affects the remainder of the message currently being downloaded. It does not affect messages already downloaded, and it does not affect any message downloaded after the current message.
Parameters:	None
Response:	None

5.11.78 Barcode 2D Data Matrix 32x32 ON [1B] [85] [65]

Command Group:	Barcodes
Description:	Barcode 2D Data Matrix 32x32 barcode start into the message.
Scope:	This command affects the remainder of the message currently being downloaded. It does not affect messages already downloaded, and it does not affect any message downloaded after the current message.
Parameters:	None
Response:	None

5.11.79 Barcode 2D Data Matrix 8x18 OFF [1B] [85] [66]

Command Group:	Barcodes
Description:	End the use of Barcode 2D Data Matrix 8x18 Barcode into the message.
Scope:	This command affects the remainder of the message currently being downloaded. It does not affect messages already downloaded, and it does not affect any message downloaded after the current message.
Parameters:	None
Response:	None

5.11.80 Barcode 2D Data Matrix 8x32 OFF [1B] [85] [67]

Command Group:	Barcodes
Description:	End the use of Barcode 2D Data Matrix 8x32 Barcode into the message.
Scope:	This command affects the remainder of the message currently being downloaded. It does not affect messages already downloaded, and it does not affect any message downloaded after the current message.
Parameters:	None
Response:	None

5.11.81 Barcode 2D Data Matrix 12x36 OFF [1B] [85] [68]

Command Group:	Barcodes
Description:	End the use of Barcode 2D Data Matrix 12x36 Barcode into the message.
Scope:	This command affects the remainder of the message currently being downloaded. It does not affect messages already downloaded, and it does not affect any message downloaded after the current message.
Parameters:	None
Response:	None

5.11.82 Barcode 2D Data Matrix 12x26 OFF [1B] [85] [69]

Command Group:	Barcodes
Description:	End the use of Barcode 2D Data Matrix 12x26 Barcode into the message.
Scope:	This command affects the remainder of the message currently being downloaded. It does not affect messages already downloaded, and it does not affect any message downloaded after the current message.
Parameters:	None
Response:	None

5.11.83 Barcode 2D Data Matrix 26x26 OFF [1B] [85] [6A]

Command Group:	Barcodes
Description:	End the use of Barcode 2D Data Matrix 26x26 Barcode into the message.
Scope:	This command affects the remainder of the message currently being downloaded. It does not affect messages already downloaded, and it does not affect any message downloaded after the current message.
Parameters:	None
Response:	None

5.11.84 Barcode 2D Data Matrix 32x32 OFF [1B] [85] [6B]

Command Group:	Barcodes
Description:	End the use of Barcode 2D Data Matrix 32x32 Barcode into the message.
Scope:	This command affects the remainder of the message currently being downloaded. It does not affect messages already downloaded, and it does not affect any message downloaded after the current message.
Parameters:	None
Response:	None

6 Responses from the Printer

Fixed Message Data	HEX
Include Alpha/Numeric Character in the Message	X1
Message Terminator	0D
Line Terminator (TAB Character)	09

Messages Related to the External Buffer	HEX
XON (Buffer Ready)	11
XOFF (Buffer Full)	13
External Buffer has Overflowed	07, 03
Message Contained too Many Characters	07, 1C
Successful Transmission of Message	07, 21

Specific Responses to Host Commands	HEX
Rs-232 Port and Buffers are Initialized	07, 01
Print Mode Off	07, 05
Print Mode On	07, 06
Confirm Buffers Cleared	07, 07
Generic Acknowledgment Response	07, 08
Multiple Byte Download Acknowledgment	07, 09
Low Ink Warning	07, 24
Low Ink Warning Cleared	07, 25
Product Detect Count	07, 44, X1, …X8
Unknown Command	07, 28
Out of Context Command	07, 29
Print Count	07, 50, X1…X8
End of Print Acknowledgment	07, 04
Start of Print Acknowledgment	07, 22
Print Once Error	07, 23

Specific Responses to Host Commands	HEX
Illegal Serializer Value	07, 37
Illegal Barcode or Data	07, 51
Stack Buffer Overfill	07, 40
Too Many Inserts	07, 36
Error Serializer (Counter)	07, 37
Batch Product Count	07, 44
Batch Print Count	07, 50

Messages Related to Special Functions	HEX
240 byte Graphics Transfer Acknowledged	07, 09
OK to Proceed with Graphics Character Data	07, 0B
Checksum Match for Graphics Character	07, 0B
Do Not Proceed with Graphics Character	07, 0C
Checksum Do Not Match for Graphics Character Block	07, 0C
Illegal Barcode Character Detected	07, 0D
Serializer Overflow	07, 0F
Graphics Character Transmission Aborted	07, 1F

7 Getting Started

7.1 Setup Communication with RS-232 (1000 Series Printers)

Do the following tasks to setup the printer for ESI communications with RS-232 port:

1. Navigate to Home screen of the printer. Touch the *Login* button as shown in Figure 7-1.

Figure 7-1: Home Screen

2. The Login to System screen appears as shown in Figure 7-2.

Figure 7-2: Login to System Screen

3. Touch the *Role* drop down list and select Admin role. Enter the password in the Password field (default password for Admin role: 3333).

4. Touch the *Tools* button on the Home screen to access the Tools screen and select the *Communications* button as shown in Figure 7-3.

Figure 7-3: Tools Screen

5. Touch the *Communications* button from the Tools screen to access the Communications screen as shown in Figure 7-3.
6. The Communications screen appears as shown in Figure 7-4.

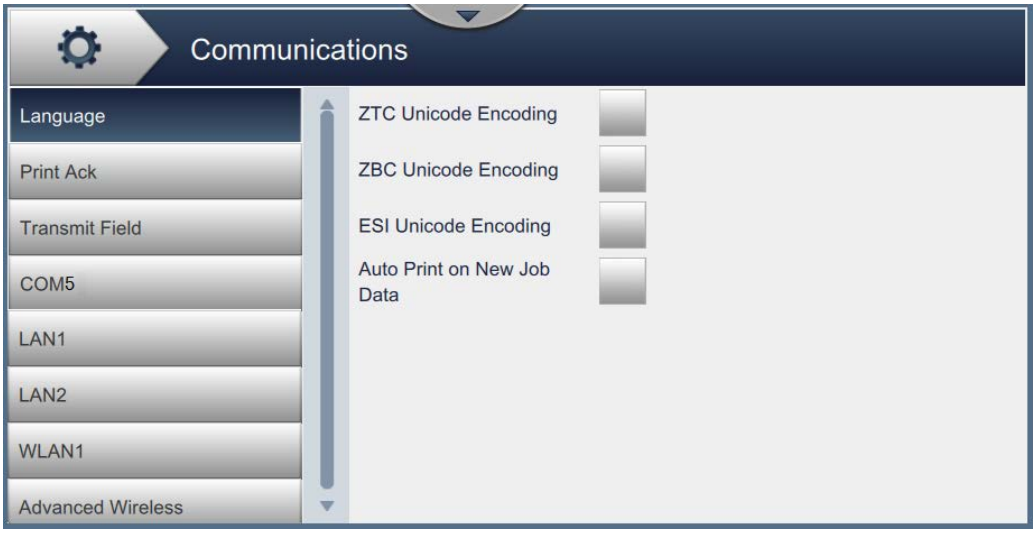


Figure 7-4: Communications Screen

7. Select any open COM port and click on *Configuration* tab available in the Communications screen as shown in Figure 7-5.

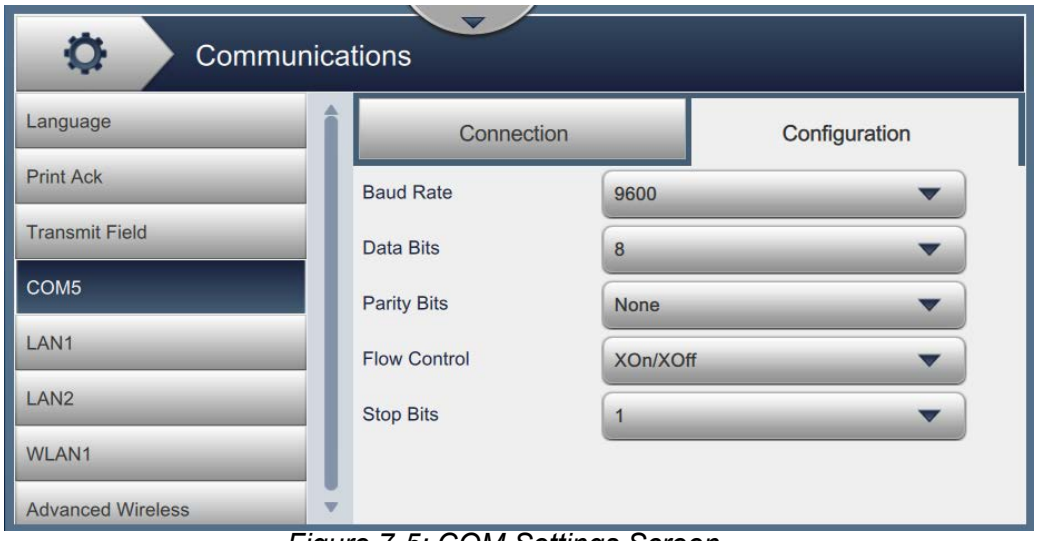


Figure 7-5: COM Settings Screen

8. Set the following parameters to setup the selected COM port:
   - Baud Rate
   - Data Bits
   - Parity Bits
   - Flow Control
   - Stop Bits
9. Navigate to *Connection* tab and touch the *Protocol* drop down list to select the required communication protocol.
10. Select *ESI (Main)* option from the Protocol screen as shown in Figure 7-6. Touch the *OK* button to confirm the selection. The *Under Remote Control* message in the banner will appear when protocol is selected.

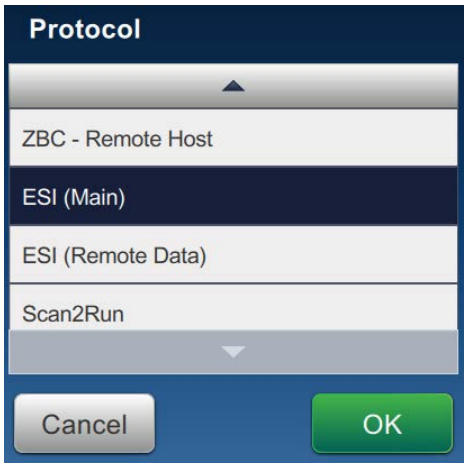


Figure 7-6: Protocol Options Screen

11. The COM screen with updated parameters appears as shown in Figure 7-7.

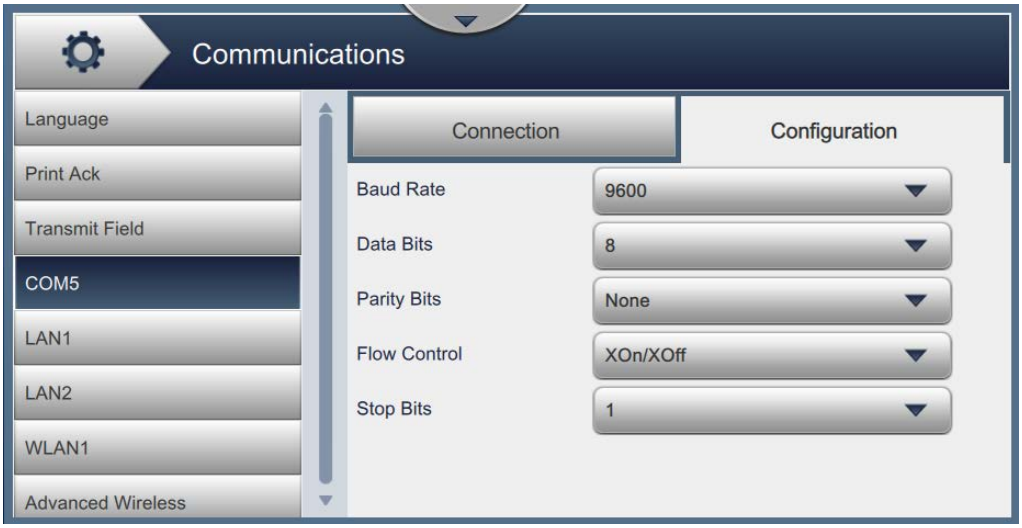


Figure 7-7: COM5 Screen

Communicate with the Printer via ESI (Main)

It is necessary to place the printer into Message Remote mode before the printer can accept messages via ESI. This mode is selected by sending the ESI command [1B][01][0D]. If the printer is not set to ESI Message Remote mode, it will accept ESI commands such as Request Printer Status, Request Count etc. If the command is successfully received a standard response will be sent by the printer.

Do the following tasks to set the printer to ESI Message Remote mode:

1. Navigate to Tools screen and touch *Printer Settings* button as shown in Figure 7-8.

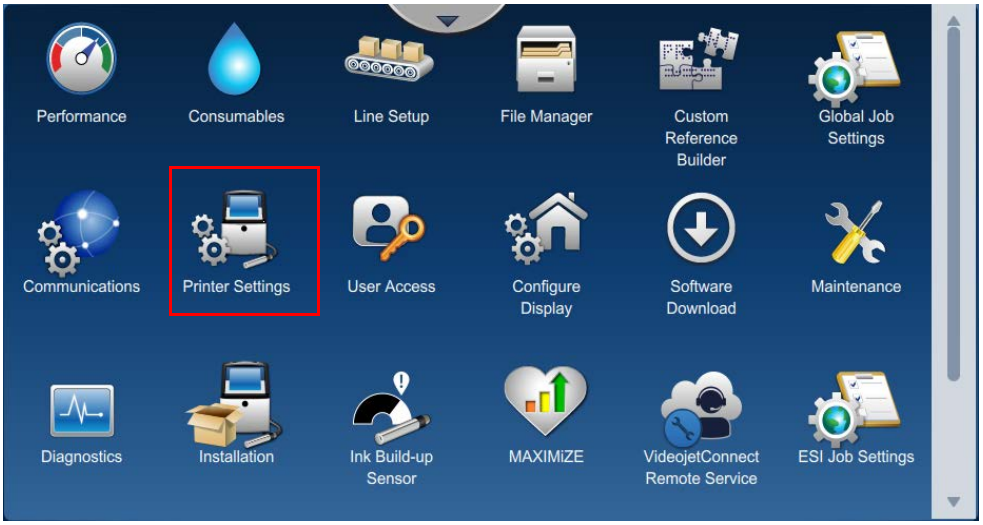


Figure 7-8: Tools Screen

2. The Printer Settings screen appears as shown in Figure 7-9.

Figure 7-9: Printer Settings Screen

3. Touch *Job Select* option from the Printer Settings screen as shown in Figure 7-10.

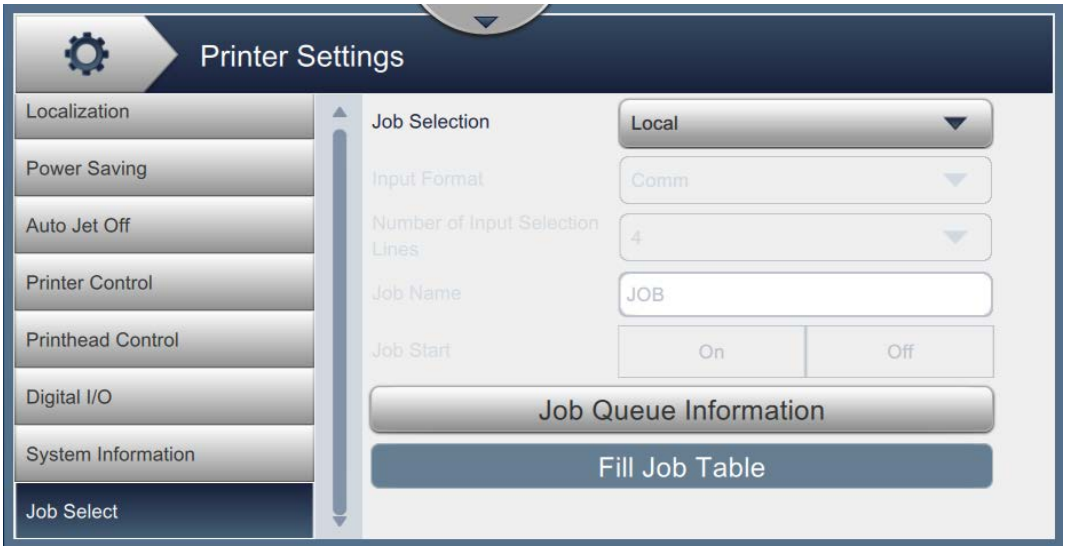


Figure 7-10: Job Select Screen

4. Touch the *Job Selection* drop down list from the Job Select screen. The Job Selection screen is shown in Figure 7-11.

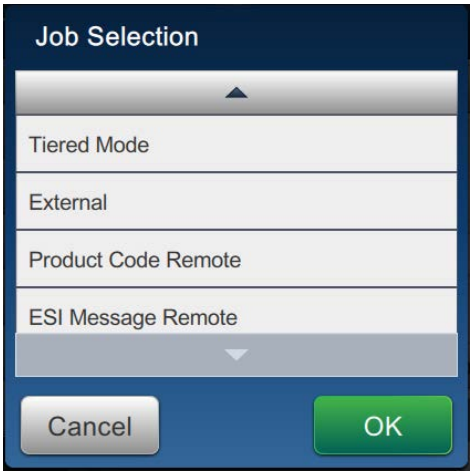


Figure 7-11: Job Selection Screen

5. Select *ESI Message Remote* option from the Job Selection screen as shown in Figure 7-11. Touch the *OK* button to confirm the selection.
6. The updated Job Select screen will appear as shown in Figure 7-12.

Figure 7-12: Job Select Screen

7. The printer can also be set to ESI Message Remote mode via ESI command [1B][01][1D].

Now the user can communicate to the printer via ESI.

Note: *It is necessary to place the printer into ESI Message Remote before the printer can accept messages via ESI. If the printer is not set to ESI Message Remote mode, it will accept ESI commands such as Request Printer Status, Request Product Count etc. However, it will not accept a text message to print.*

7.2 Setup Communication with Network (Ethernet-TCP/IP)

Do the following tasks to setup the printer for ESI communications with Ethernet- TCP/IP port:

1. Navigate to Home screen of the printer. Touch the *Login* button as shown in Figure 7-13.

Figure 7-13: Home Screen

2. The Login to System screen appears as shown in Figure 7-14.

Figure 7-14: Login to System Screen

3. Touch the *Role* drop down button and select Admin role. Enter the password in the Password field (default password for Admin role: 3333).

4. Touch the *Tools* button on the Home screen to access the Tools screen and select the *Communications* button as shown in Figure 7-15.

Figure 7-15: Tools Screen

5. The Communications screen appears as shown in Figure 7-16.

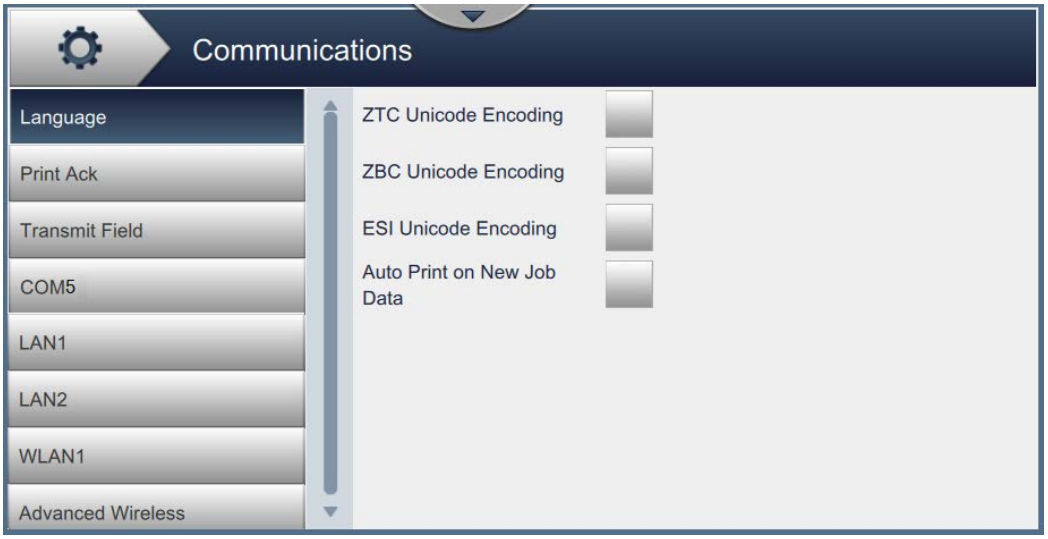


Figure 7-16: Communications Screen

6. Touch *LAN1* option and click on *Configuration* tab from the Communications screen as shown in Figure 7-17.

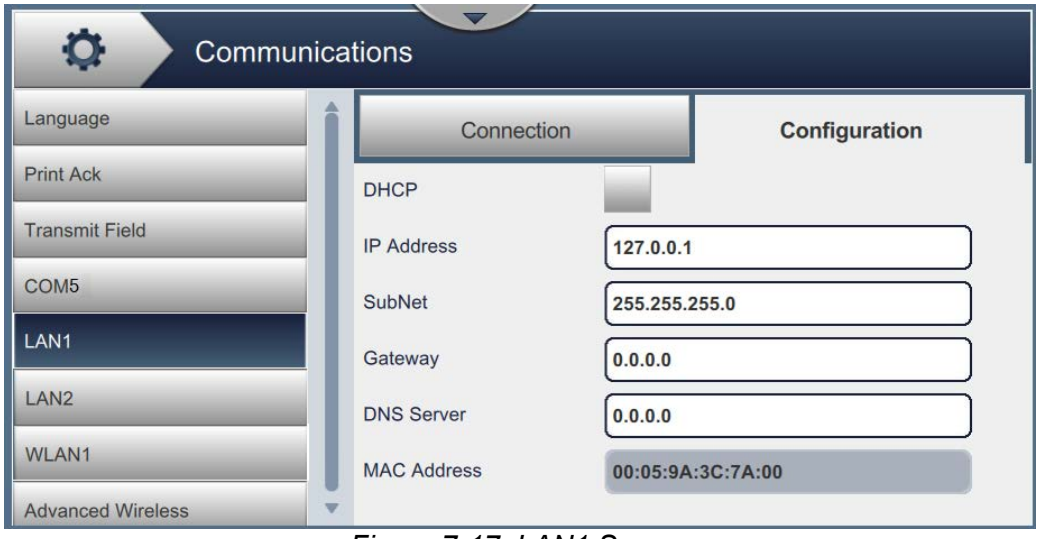


Figure 7-17: LAN1 Screen

7. Set the parameters in the following order:
   - IP Address
   - SubNet
   - Gateway
   - DNS Server
   - MAC Address (is fixed)
8. Navigate to *Connection* tab and touch the *Add Protocol and Port* button to update the protocol and port number.
9. The Add Protocol and Port screen appears as shown in Figure 7-18.

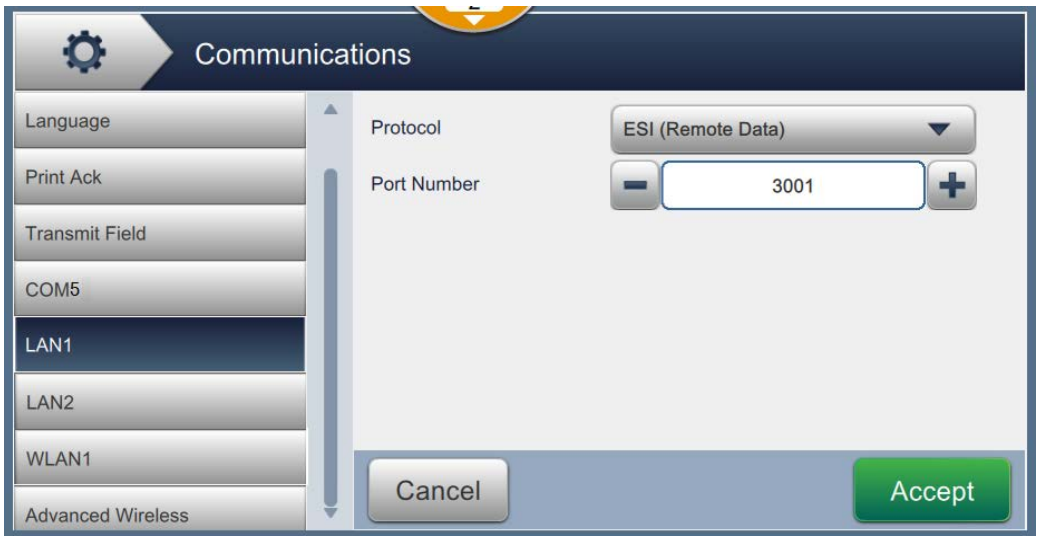


Figure 7-18: Add Protocol and Port Screen

10. Set the Port Number to 3000 if replacing 1000 Series Excel ESI printer.

    Note: *It is recommended to select the Port Number prior to Protocol.*

11. Touch the *Protocol* drop down list. The Protocol screen opens as shown in Figure 7-19.

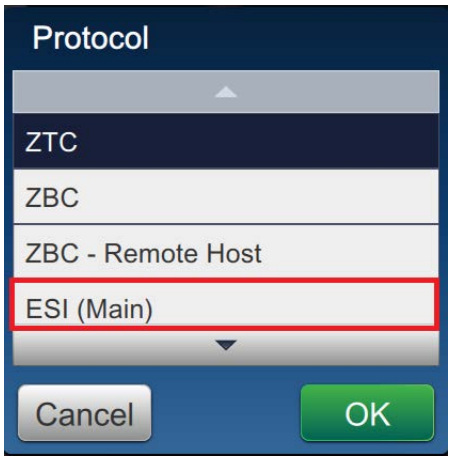


Figure 7-19: Protocol Screen

12. Select *ESI (Main)* option from Protocol screen as shown in Figure 7-19. Touch the *OK* button to confirm the selection.

13. The Add Protocol and Port screen with updated parameters is shown in Figure 7-20. Touch the *Accept* button to save the changes. The *Under Remote Control* message in the banner will appear when the Protocol is selected and LAN connection is open.

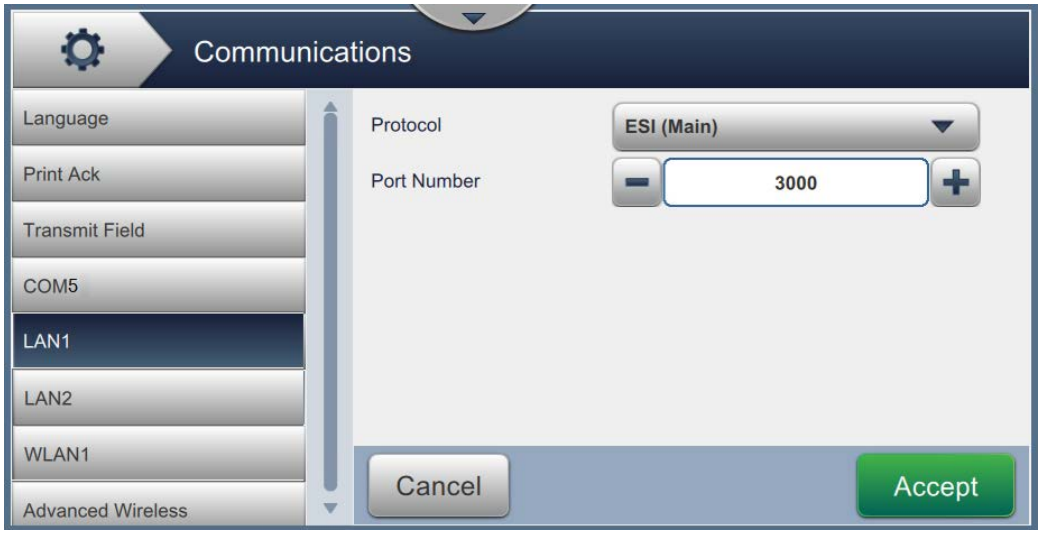


Figure 7-20: Add Protocol and Port Screen

14. The LAN1 screen with updated parameters is shown in Figure 7-21.

Figure 7-21: LAN1 Screen

Communicate with the Printer via ESI (Main)

The printer must be placed into ESI Message Remote before the printer can accept messages via ESI. If the printer is not set to ESI Message Remote mode, it will accept ESI commands such as Request Printer Status, Request Product Count etc. If the command is successfully received a standard response will be sent from the printer to the host.

Do the following tasks to set the printer to ESI Message Remote mode:

1. Navigate to Tools screen and touch *Printer Settings* button as shown in Figure 7-22.

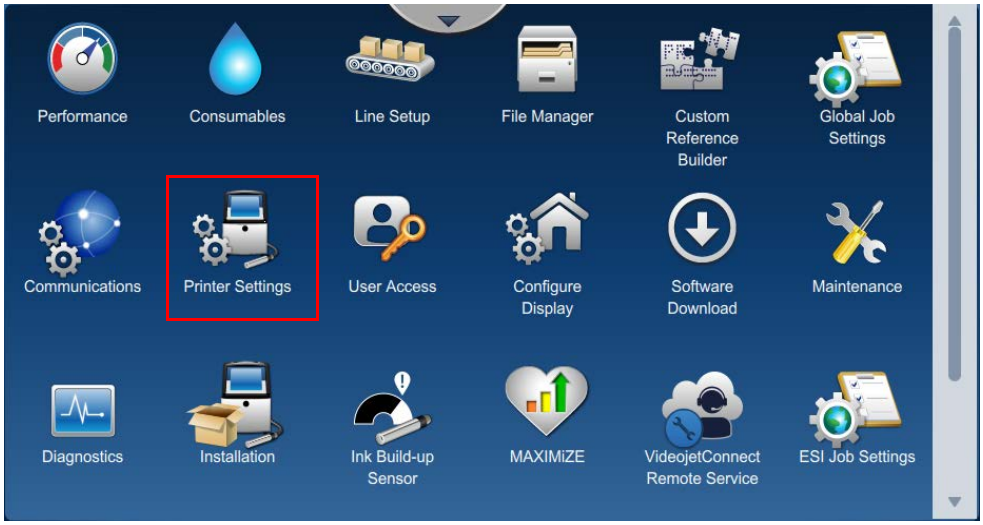


Figure 7-22: Tools Screen

2. The Printer Settings screen appears as shown in Figure 7-23.

Figure 7-23: Printer Settings Screen

3. Touch *Job Select* option from the Printer Settings screen as shown in Figure 7-24.

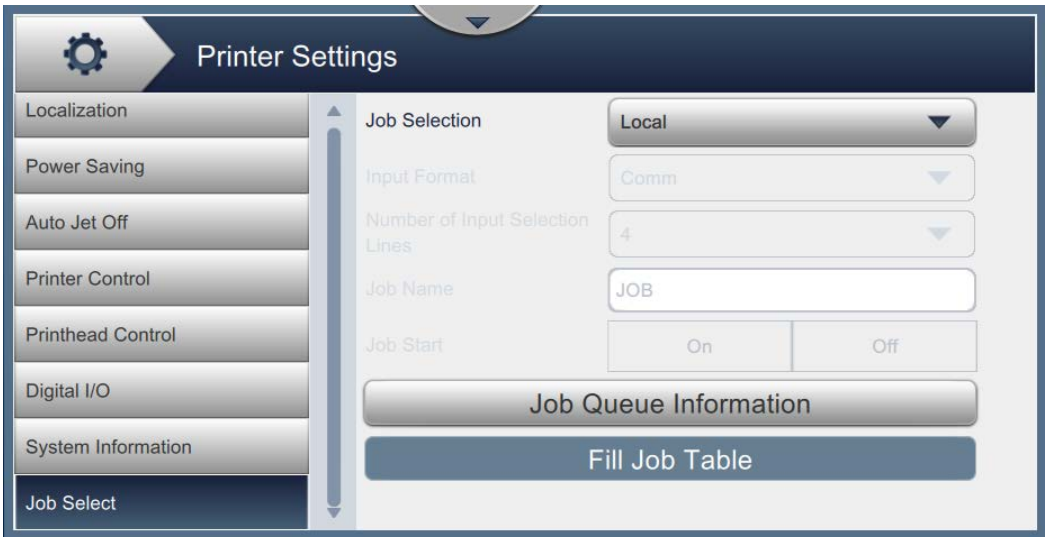


Figure 7-24: Job Select Screen

4. Touch the *Job Selection* drop down list from the Job Select screen. The Job Selection screen is shown in Figure 7-25.

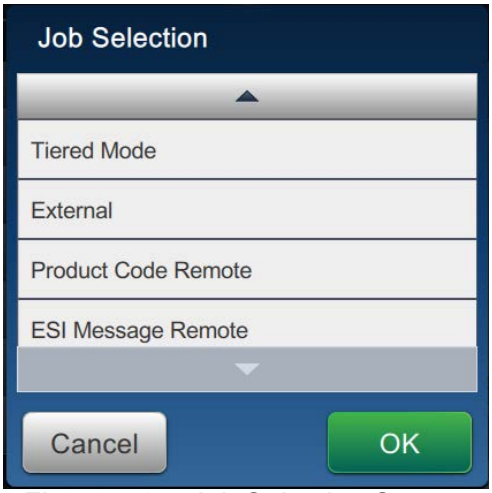


Figure 7-25: Job Selection Screen

5. Select *ESI Message Remote* option from the Job Selection screen as shown in Figure 7-25. Touch the *OK* button to confirm the selection.

6. The Job Select screen with updated parameters is shown in Figure 7-26.

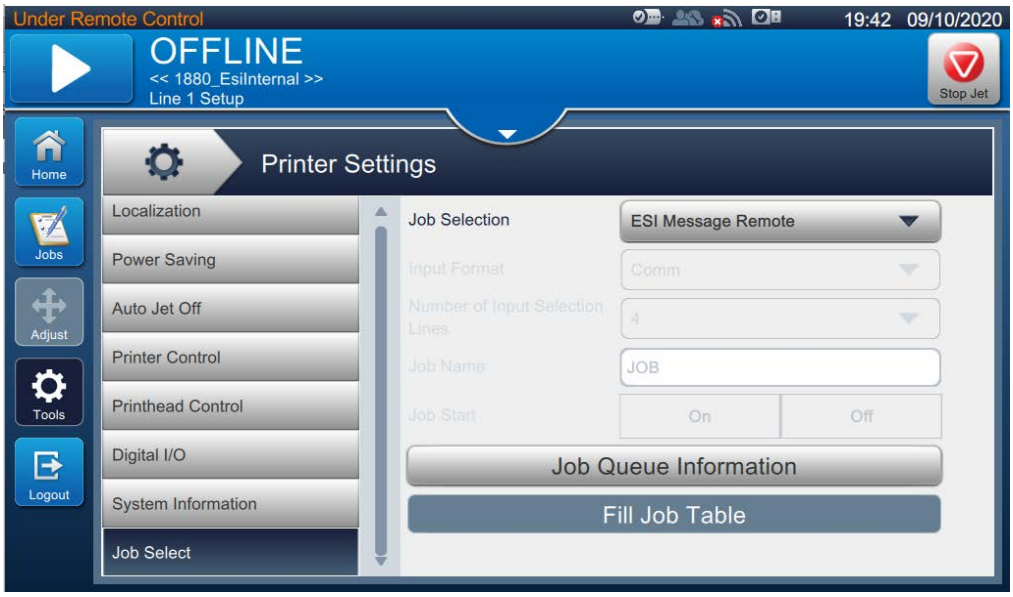


Figure 7-26: Job Select Screen

7. The printer can also be set to ESI Message Remote mode via ESI command [1B][01][1D].

Now the user can communicate to the printer via ESI.

Note: *It is necessary to place the printer into ESI Message Remote before the printer can accept messages via ESI. If the printer is not set to ESI Message Remote mode, it will accept ESI commands such as Request Printer Status, Request Product Count etc.*

7.3 Suggested Commands to send to Printer on Startup

These commands are suggested to be sent to the printer upon startup of the printer or any time the protocol is changed from its current setting OR anytime the ESI protocol setting is changed.

ESI Commands to send to printer:

1.	Set Message Remote Mode:	[1B][01][1D]
2.	Configure Status Reports:	[1B][01][06][X1]
3.	Global Matrix Command:	[1B][04][XX]
4.	Reverse Message Global:	[1B][03][XX]
5.	Reverse All Characters:	[1B][03][XX]
6.	Invert Message:	[1B][03][XX]
7.	Send Message to Printer:	Message Data[0D]
8.	Enable Print Mode:	[1B][01][09]

These suggestions are examples of codes that can be sent to the printer to get certain responses or to affect the print position on the production line. These commands can be used to reduce or eliminate operator setup of printer on production line for product changes.

Note: *The "[ ]" are there just to denote the hex value of the ASCII character that is being sent to the printer. They do not need to be sent to printer they are just to make commands easier to read.*

7.3.1 Problems with Communications

These suggestions are if you are having problems getting the printer to communicate. Try to follow suggestions to return the printer to remote communicating.

If you are communicating RS-232 check the following:

1. Check to ensure Baud rate matches host PC.
2. Check to see if you protocol is correct
   - Baud Rate: 9600 (Suggested)
   - Data Bits (word) length: 8 (Suggested)
   - Stop Bits: 1 (Suggested)
   - Parity Bits: None (Suggested)
   - Flow Control: None
   - Protocol: ESI (Main)

3. If you are using Ethernet TCP/IP communications, ensure the following are set correctly:
   - DHCP
   - IP address
   - Ensure host PC is using the correct port number.
   - Ensure host PC is in the same IP range.
   - Subnet address is correct
   - Gateway is set correctly if using one.
   - Try to ping printers IP address to see if you have a response.
   - Ensure LAN1 is set for proper IP address and ESI (Main) is setup with port number (see Figure 7-27).

Figure 7-27: LAN1 Screen

   - To reset communications, select ESI (Main) and delete the protocol. Then add protocol back in. This will reset Ethernet communication and force a reconnect.
   - It is recommended to communicate from host PC through Switch.

4. Ensure printer's remote mode is set to MESSAGE remote mode. *<<1880_EsiInternal>>* will be seen in the left of display (see Figure 7-27).
5. Toggle printer key on and off resend message. Ensure that the printer has printed the message correctly.
6. Remove printer from print mode (print off). Send clear buffer command [1B][01][01]. Ensure you get response [07][08][07][01]. Send command [1B][01][06][18] you will get response [07][08][07][09]. Send printer a new message (TEST[0D]). Host should receive response of [07][21]. Place printer back into the print mode (print on). Make print sample, printer should print message just sent down.

7.4 Videojet 1580/1860/1880 Remote Testing

The ESI Tester Program can be used to test the 1580/1860/1880 printer. This can be used as a test tool for all the Videojet CIJ printers. This program has all command as a button. This can communicate RS-232 and Ethernet TCP/IP. It can be used to send all commands and see all response. It is highly recommended to use the tester program to work with printer prior to writing your own PC program or PLC program. This will allow you to see the capabilities, commands and responses.

Note: *If you need a copy of the ESI Tester program, please contact Videojet Technical Support 1-800-843-3610. You can use this program to test all the features on the Videojet CIJ printers, Legacy Excel, 1000 series, 1860, 1580 and 1880 printers.*

7.5 Videojet 1580/1860/1880 Debug Tool

The 1580/1860/1880 printer has a built-in debug screen that can be used to see command sent to printer form host device. This debug tool will show all characters in their hexadecimal values. This debug screen will show commands sent from host to printer. All responses from printer to host. To access this screen, it will require the Videojet high level password. This password can be obtained from Videojet Technical Support or Videojet website:

Phone: 1-800-843-3610

Web: www.videojet.com/us/homepage/resources/password-generator.html

Note: *All references to 1580 refer to printer models 1580, 1580 + and 1580 C, unless otherwise stated.*

7.5.1 Videojet 1580/1860/1880 Debug Screen

Do the following tasks to access the printer debug screen:

1. Touch and hold *Login/Logout* button for 10 seconds (see Figure 7-28).

Figure 7-28: Login/Logout Button

2. The printer will prompt for an elevated login password as shown in Figure 7-29.The elevated password can be obtained from Videojet technical support or Videojet website.

Figure 7-29: Elevated Login Status Screen

3. Enter the elevated login password using the utility keypad and touch *Accept* button to confirm the entry.

4. After logging in to the printer using elevated password, navigate to Tools screen and touch *Engineering* button as shown in Figure 7-30.

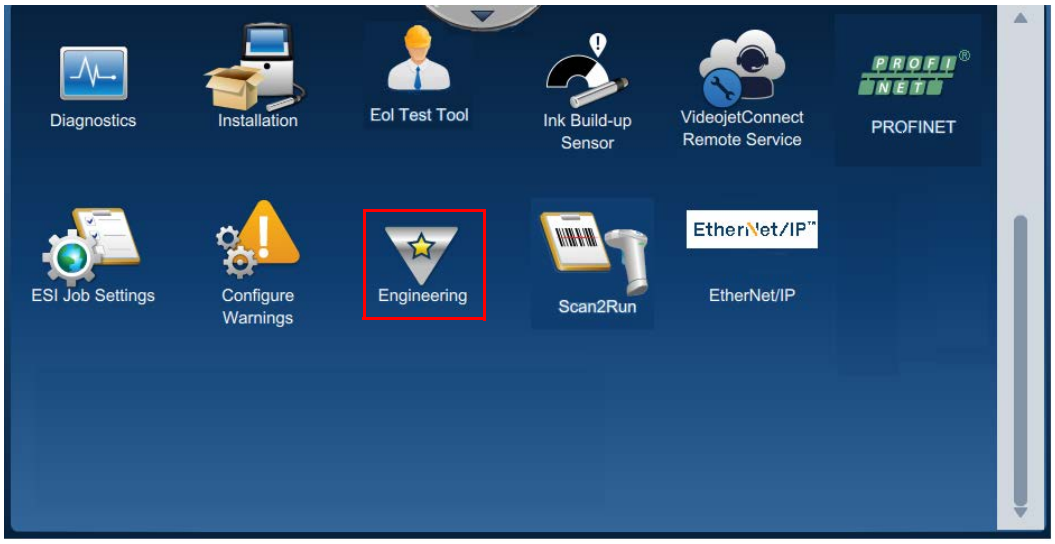


Figure 7-30: Tools Screen

5. Touch the *ESI Log* button from the Engineering screen as shown in Figure 7-31.

Figure 7-31: Engineering Screen

6. The ESI Log screen opens as shown in Figure 7-32.

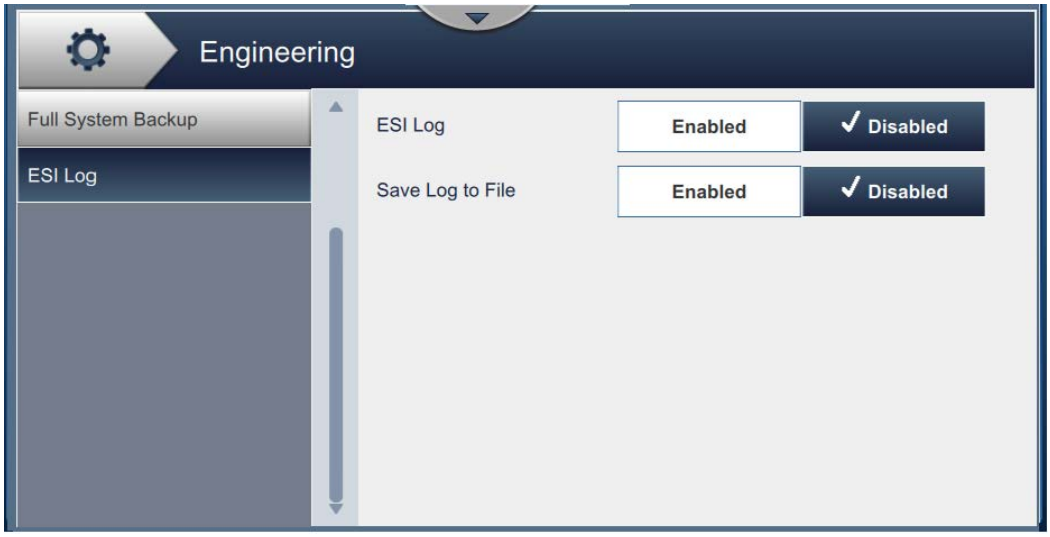


Figure 7-32: ESI Log Screen

7. Touch *Enabled* button to enable ESI Log as shown in Figure 7-33.

   Note: *Save log to file available if USB fitted.*

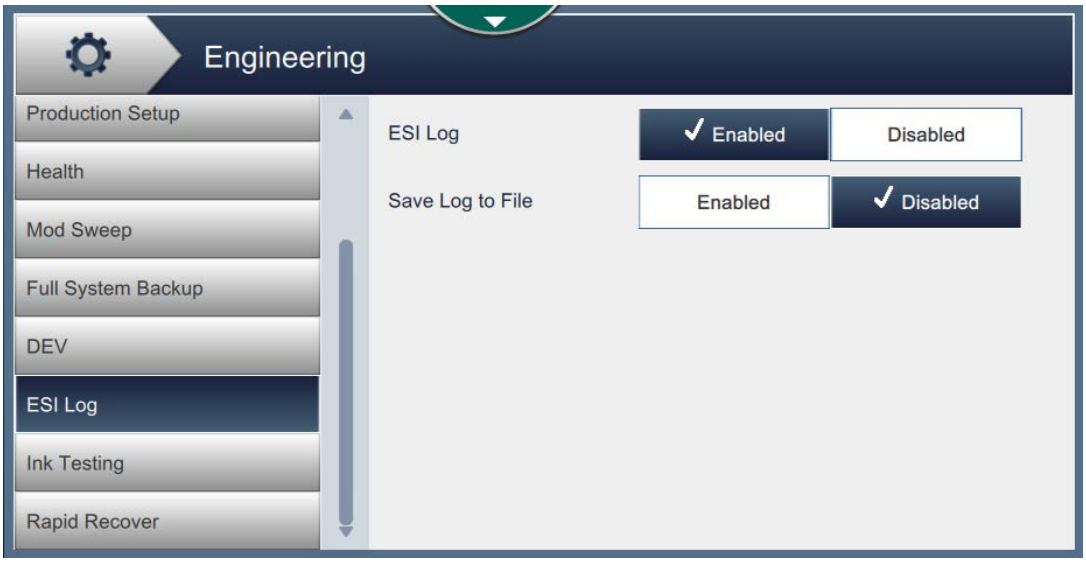


Figure 7-33: Enable ESI Log

Now the user can see the communication data between the host and printer. The following sample commands can be sent using ESI tester, with PLC or PC program.

Note: *Ensure that the jet is running and the printer status is OFFLINE on the status bar as shown in Figure 7-33.*

Sample Commands:

[1B][01][1D]

[1B][01][06][18]

[1B][04][01]

[1B][03][01]

[1B][03][03]

[1B][03][05]

THIS IS A TEST MESSAGE FOR 1580/1860/1880 PRINTER[0D]

[1B][01][09]

[1B][01][3F]

The communication data on the ESI Log screen for the input sample commands is shown in Figure 7-34. The sample commands from the host appear in white boxes while responses from the printer appear in blue boxes.

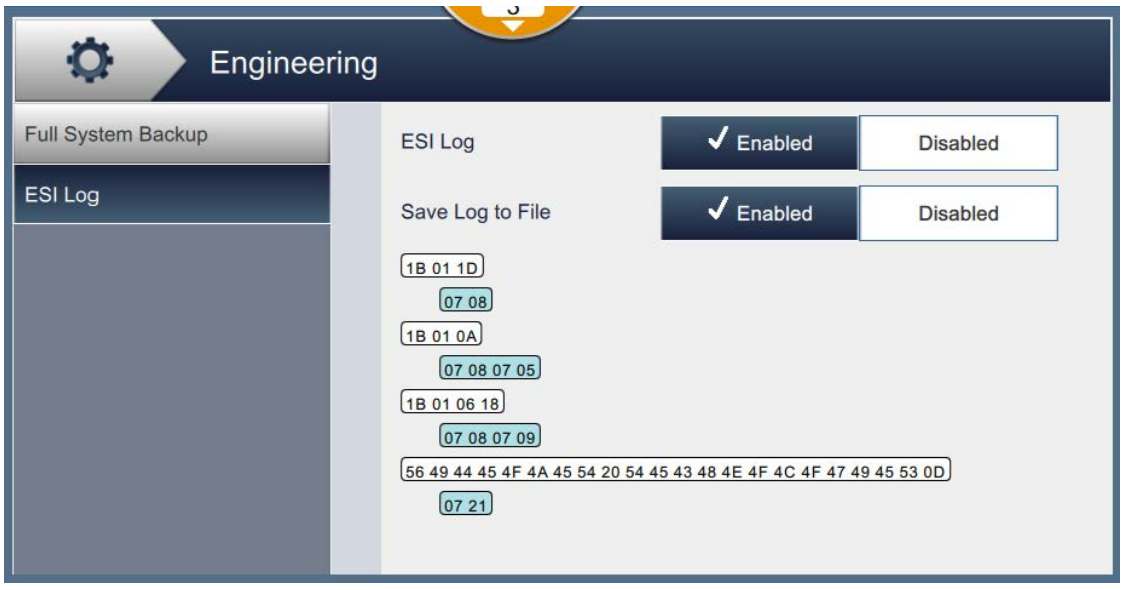


Figure 7-34: Command and Response Data

The two way communication between host and printer is shown below:

Sl. No	Command/Response		Description
1	Command	[1B][01][1D]	Set to Message Remote Mode
2	Response	[07][08]	Command Acknowledgment
3	Command	[1B][01][06][18]	Configure Status Mask
4	Response	[07][08][07][09]	Command Acknowledgment
5	Command	[1B][04][01]	Global Matrix Command 5x7SL Matrix
6	Response	[07][08]	Command Acknowledgment
7	Command	[1B][03][01]	Global Reverse Message OFF
8	Response	[07][08]	Command Acknowledgment
9	Command	[1B][03][03]	Global Reverse All Characters OFF
10	Response	[07][08]	Command Acknowledgment
11	Command	[1B][03][05]	Global Invert Message OFF
12	Response	[07][08]	Command Acknowledgment
13	Command	THIS IS A TEST MESSAGE FOR 1580/1680 PRINTER[0D]	Message Data
14	Response	[07][21]	Message Received Acknowledgment
15	Command	[1B][01][09]	Printer Mode ON
16	Response	[07][08][07][06]	Print is ON Acknowledgment
17	Command	[1B][01][3F]	Trigger Product Detect Simulated
18	Response	[07][08]	Command Acknowledgment

Do the following tasks to see the printing of message:

1. Touch the *Home* button to navigate to Home screen.

Figure 7-35: Home Screen

2. The Home screen appears as shown in Figure 7-35.The Home screen displays the following information:

   - The printer is currently in RUNNING mode.
   - The message sent by the host appears on the Home screen message preview area. The printer will print this message next.
   - The Batch Product Count and Batch Print Count have incremented by 1.

8 Differences between 1000 Series and 1580/1860/1880 Printers

Note: *All references to 1580 refer to printer models 1580, 1580 + and 1580 C, unless otherwise stated.*

1. Printer Setup Parameters Setting: All settings under the Printer setup menu such as Reverse Message, Reverse Character, Invert Message, Multi-Stroke setting must be removed from the print mode prior to sending the ESI command to change them. The printer's display will show the change of the setting but will not affect the printed message. Once the command has been sent to the printer the message to be printed must be sent again for the setting to take effect. The new settings will affect all message following the commands sent.
2. The Clear Internal & External Buffer Command: [1B][01][01] when sending this command to a 1000 series printer, this will not clear the View Print Screen when the command is received by the printer. The 1580/1860/1880 printers will clear the View Print Screen on the printer.
3. The printer has three types of font commands.
4. The 1580/1860/1880 printers do not support RS-232 Hardware flow control. Only XON/XOFF flow control is supported.

   Note: *XON/XOFF flow control is currently not available on 1580/1860/1880 printers.*
5. 1580/1860/1880 printers will accept commands such as request command and setup command while not being in the Message Remote mode. This is not recommended and is different from the 1000 series printers as they will not communicate remotely without being in the Message Remote mode.
6. 1580/1860/1880 printers must be in the message remote mode to receive message data. If the printer is not in message mode, all message data will be lost.
7. Make-up Status Command [1B][00][50] is available on 1580/1860/1880 printers. This feature is not present on 1000 series printers:
   - Make-up is low
   - Make-up is not low
   - No Make-up
   - Wrong Make-up
   - Make-up Expired
   - Make-up Empty
   - Make-up Insertion

8. Request Last Image/Message Printed [1B][00][0B]. This command will allow the host to request the last message printed. The response from the printer will be as follows for the different message formats:

   Note: *The [ ] denote the hex value of the character.*

   - Single line message: [07][08]Single line Message[0D]
   - Twin line message: [07][08]Top line[09]Bottom line[0D]
   - Tri-line message: [07][08]Top line[09]Middle line[09]Bottom line[0D]
   - Quad-line message: [07][08]line1[09]line2[09]line3[09]line4[0D]
   - Penta-line message: [07][08]line1[09]line2[09]line3[09]line4[09]line5 [0D]

9. When using the global orientation command [1B][03][XX]. These commands will not take effect immediately, they will take effect on next message sent to printer.

10. When using multi-stroke command either global [1B][03][XX] or multi-stroke in-line commands [1B][80][XX]. If used together they will sum together. To multi-stroke something more than 4 times use commands together to increase multi-stroking. Once sending the command, send the message again for the settings to take effect. This feature is not present on 1580 or 1860 as the multi-stroke maximum is 4.

11. Setting External Encoding Reduction Value [1B][01][12][XX][XX]. On the 1580/1860/1880 printers, this command is not used in the same way. The 1580/1860/1880 printer Shaft Encoder setup is different, so the reduction factor command does not work like in Legacy or 1000 series printers. This command has been replaced with External Encoder Parameters command [1B][01][5F][X1]–[X6]. It is still recommended to remove the printer from print mode prior to sending this command.

12. Setting Internal Encoding Line Speed [1B][01][11][XX][XX]. On the 1580/1860/1880 printers, it is recommended to remove the printer from print mode prior to sending this command.

13. Set Message Remote Mode [1B][01][1D]. This command must be sent to the printer for the printer to receive messages from host.

14. Set Insert Remote Mode [1B][01][1C]. This command is used to return the printer to the insert remote mode (local) so message can be created on the printer's keyboard. This turns off the ESI Message Remote.

15. Print Delay Command [1B][01][20][XX][XX] the print delay value is 1/100th of an inch increments. The 1580/1860/1880 does not need to use the activate print delay command [1B] [01] [1B]. Just by sending the print delay value the new delay will take effect on the next message printed.

16. Print Delay Command [1B][01][20][XX][XX] This print delay in the 1580/1860/1880 printers will set the delay value from the product detector to the slot in the printhead. This print delay can be seen by navigating to the *current Line Setup* > *Print Trigger* > *PD to PH Distance (Inches/mm)*.

17. The 1580/1860/1880 printers have an additional print delay that allows you to set a delay from the edge of product to the print position. This is known as Print Margin. This is set by command [1B][03][13][XX][XX].
18. Set Auto Repeat 1000 series or Multiple Print/Trigger 1580/1860/1880 printer command: [1B][01][21][XX][XX][XX]. The auto repeat delay must be the total length of the message and the space between the next print. This is from leading edge of first message to leading edge of second message. If this value is not correct you may not printer your total number of repeat messages.
19. Adjust Message Height command: [1B][01][13][XX]. This command has no effect on printed message or printer settings in the 1580/1860/1880 printers. This command will just send back a response to make it backward compatible. The 1580/1860/1880 does not have operator settable message height settings.
20. The printer can print mixed mode messages using the 16 or 24 high matrixes only.
21. The ability to insert logos loaded onto the printer via USB stick and mono-chrome bmp files. Command [1B] [84] [43] [X1] [Logo Name] command is not supported.
22. The ability to insert logos loaded onto the printer via USB stick and monochrome bmp files. Command [1B] [84] [43] [X1] [Logo Name] is used to insert logos from USB loading.
23. RS-485 is not supported with ESI protocol due to its asynchronous communications. RS-485 is not suited for this type of communications.
24. Set Digital I/O Configuration [1B][01][4A][XX] is only available in 1860/1880 printer with expanded I/O board. This feature is not available in 1580 printers.
25. Get I/O Status [1B][02][29] is only available in 1860/1880 printers with expanded I/O boards. This feature is not available in 1580 printers.
26. The alpha hour command [1B][84][18] and the encoded hour command [1B][02][41][XX] cannot be in the same message. These commands utilize the same feature, so they cannot be used together.

27. When the printer is in ESI (Remote Data) mode, you can send query commands to printer such as:
    - Printer Status
    - System Time
    - System Date
    - Printer Model
    - Ink and Make-up status
    - Batch Product and Batch Print Counts
    - Message Parameters
    - System Parameters
    - Million Drop Counter
    - MAC Address
    - Request printer's last fault
28. When the printer is in ESI (Remote Data) mode, while sending query commands to printer, the following commands do not work:
    - Request last message printed
    - Print ON/Print off commands, do not sent back a response

8.1 The Following are the Differences in Commands between Printers

Command	Description	170i	EXCEL 2000	1610 EXCEL	1580/ 1860/ 1880
[1B][01][18][XX]	Print Delay Strokes	X			
[1B][01][00] Sent [11][07][08][07][01] Response	Re-initialize RS-232 Command and response differences	X	X		
[1B][01][00] Sent [07][08][07][01][11] Response	Re-initialize RS-232 Command and response differences			X	X
[1B][01][0F][X1] [X2] [X3]	Auto Repeat Message & Delay Strokes	X			
[1B][01][20][XX]	Print Delay Inches		X	X	X
[1B][01][21][XX]	Auto Repeat Message & Delay Inches		X	X	X

Command	Description	170i	EXCEL 2000	1610 EXCEL	1580/ 1860/ 1880
[1B][00][04]	Request Ink Status will have same return but 1610 Excel will return more information			X	X
[1B][00][50]	Request Make-up				X
[1B][00][09]	Request System Time		X	X	X
[1B][00][0A]	Request System Date		X	X	X
[1B][00][0B]	Request Last Message Printed, The return for 1510 will be different from 2000, 1310 and EDN		X	X	X
[1B][00][0C]	Request Message Parameters will be different for 1610. Each printer has different return.		X	X	X
[1B][00][0D]	Request Print Set up Parameters, Each printer have different returns		X	X	X
[1B][00][0E]	Request System Set up Parameters,		X	X	X
[1B][00][0F]	Request Printer I/O Status, will be different for each printer			X	X
[1B][01][00]	Reinitialize Interface, Legacy printer will lead with [11]. 1610, 1580/1860/1880 will trail [11]		X	X	X
[1B][03][13][XX][XX]	Set Margin Delay				X
[1B][01][1D]	Select Remote Mode - Message		X	X	X
[1B][01][1C]	Select Remote Mode - Insert		X	X	X
[1B][01][2A]	Clear Internal Buffer		X	X	X
[1B][01][1B]	Activate Print Delay, Not used in 1610, 1580/1860/1880 but command will be excepted.		X	X	X
[1B][01][5B]	Printhead Orientation, this is a new command to adjust normal and invert of message				X
[1B][01][5F]	External Encoder Parameters, this is a new command to adjust encoder settings				X

Command	Description	170i	EXCEL 2000	1610 EXCEL	1580/ 1860/ 1880
[1B][02][01]X1…X24	Initialize Serializer # 1, This will be different for 1610, 1580/ 1860/1880 there is an additional byte added to leading spaces or zeros			X	X
[1B][02][04]X1…X24	Initialize Serializer # 2, This will be different for 1610, 1580/ 1860/1880 there is an additional byte added to leading spaces or zeros			X	X
[1B][02][03]X1…X23	Initialize Shift Code Timer, Is different for 1610, 1580/1860/ 1880			X	X
[1B][02][05]HHMM	Set System Time Hour Minute		X	X	X
[1B][02][06]MM DD YY	Set System Time Hour Minute		X	X	X
[1B][02][03][X1] … [X124]	Initialize Shifts, will be different for 1610, 1580/1860/ 1880			X	X
[1B][04][1B]	Select 5x5 Tri Line Matrix Global			X	X
[1B][04][21]	Select 5x5 Twin Line Matrix Global			X	X
[1B][04][1B]	Select 5x5 Twin Line Matrix Global		X	X	X
[1B][81][2B]	Select 5x5 Twin Line Matrix In-line			VJ 1510 only	
[1B][81][1F]	Select 5x5 Twin Line Matrix In-line		X	X	X
[1B][81][0C]	Select 5x7 Tri-Line Matrix In-Line		X	X	X
[1B][84][2D]	Insert Remote Data 1			X	X
[1B][84][2F]	Insert Remote Data 2			X	X
[1B][84][30]	Insert Remote Data 3			X	X
[1B][84][31]	Insert Remote Data 4			X	X
[1B][84][2A][XX]	Insert Remote Data Source			X	X
[1B][01][0B]	Activate External Output # 1	X	X		N/A
[1B][01][0C]	Deactivate External Output # 1	X	X		N/A

Command	Description	170i	EXCEL 2000	1610 EXCEL	1580/ 1860/ 1880
[1B][01][0D]	Activate External Output # 2	X	X		N/A
[1B][01][0E]	Deactivate External Output # 2	X	X		N/A
[1B][01][0F][XX][XX]	External Encoder Rate PPI			X	Not the same
[1B][01][44][XX][XX]	Adjust Input Buffer Size			X	N/A
[1B][02][10][XX]	Select Message Assign Mode			X	N/A
[1B][02][11][XX]	Clear Message Assign Mode			X	N/A
[1B][02][12]	Assign Mode ON			X	N/A
[1B][02][13]	Assign Mode OFF			X	N/A
[1B][02][14][XX]	Set Message Number for Next Created Message			X	N/A
[1B][84][38][X1] - [X8]	Insert Logo			X	N/A
[1B][84][43][XX][X1] - [XX]	Insert Logo			X	X
[1B][01][12][XX][XX]	Set External Encoding Reduction Factor			X	Not the same
[1B][01][5F][X1] -[X6]	External Encoder Parameters			N/A	X
[1B][01][5B][X1]	Printhead Orientation			N/A	X

9 Twin Line Code Differences between Excel 2000 and Videojet 1580/1860/1880, 1610 Printers

Description	EXCEL 2000	1610, 1580/1860/1880
Message Printed	ABCDEFG 1234567	ABCDEFG 1234567
Message Sent	A1B2C3D4E5F6G7[0D]	ABCDEFG[09]1234567[0D]
Message Printed	ABCDEFG 1234567 HIJK	ABCDEFG 1234567 HIJK
Message Sent	A1HB2IC3JD4KE5F6G7[0D]	ABDEFG[09]1234567[09]HIJK[0D]

Note: *All references to 1580 refer to printer models 1580, 1580 + and 1580 C, unless otherwise stated.*