Linx 5900 & 7900

How To Use the Communications Options

LINX

THINKING ALONG YOUR LINES

Linx 5900 & 7900

Contents

Linx 5900 & 7900

1 Introduction

This document describes how to set up the 5900 and 7900 printers for remote communications.

NOTE: Ethernet and Linx Insight® are configurable options on the 5900 printer and are not fitted as standard.

You need a User Level C password to perform all the tasks that are described in this document.

1.1 Health and Safety

Make sure that you read and understand the Health and Safety information in the 'Safety' section of the *Linx 5900 & 7900 Quick Start Guide*.

2 Remote communications

The 5900 and 7900 printers uses protocol to enable communications with remote devices like bar code scanners, programmable logic controllers (PLCs), and PCs.

The protocols used are as follows:

- **Remote Communication Interface (RCI)** protocol—a standard feature on the 5900 and 7900 printers for communication with RS232 compatible devices. This protocol enables communication with remote devices that allow you to control the printer and to download messages and data for printing. For example, you can download data into buffered remote fields. Refer to the *Linx Remote Communications Interface Reference Manual (MP65969)* for more information about the RCI protocol.

- **QuickSwitch**— a simple ASCII protocol for either message selection or to download data into remote fields from RS232 compatible devices. QuickSwitch is a standard feature on the 7900 printer and a configurable option on the 5900 printer.

- **Remote Procedure Calls (RPC)** protocol—a default protocol for the 7900 printer. This protocol enables communication with remote devices that allow you to control the printer and to download messages and data for printing. For example, you can use this protocol with the Message Saver program that allows you to save and restore printer messages.

  NOTE: The RPC protocol is not available on the 5900 printer.

You can configure remote communication in a network with the RCI protocol through an Ethernet connection.

NOTE: You cannot download messages that contain unsupported field types to the 5900 printer. Refer to the *Linx 5900 & 7900 Quick Start Guide* for more information about unsupported field types.

2.1 Select communications protocol

The **Communications** page allows you to select available protocols, and configure the RS232 and Ethernet parameters.

1. At the **Print Monitor** page, select **Menu > Setup > Communications**. The printer displays the **Communications** page.
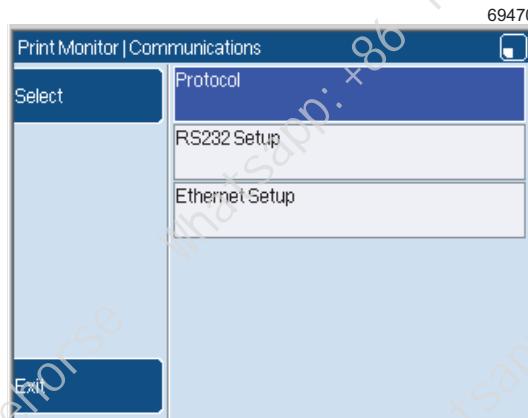

Figure 1. Communications page

Linx 5900 & 7900

See page 16 for a description of the **RS232 Setup** option and page 17 for a description of the **Ethernet Setup** option.

**2**   Select the **Protocol** option to display the **Protocol** page.
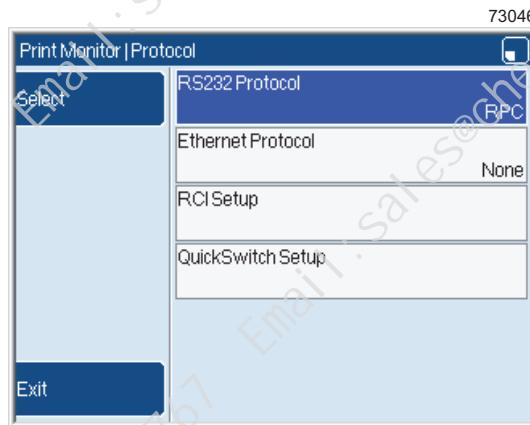
Figure 2. Protocol page

2.1.1 Configure the RS232 Protocol

The **RS232 Protocol** option allows you to select the following protocols. To select the required protocol:

**1**   Select the **RS232 Protocol** option to display the **RS232 Protocol** page.
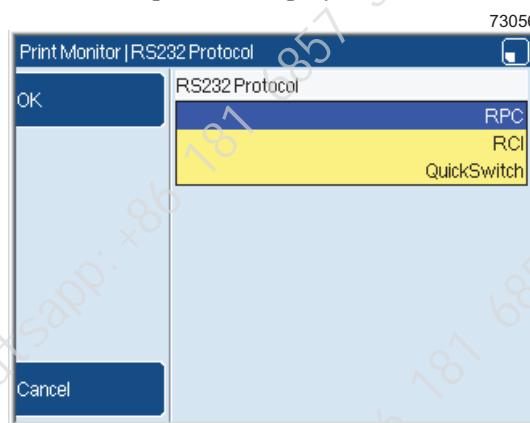
Figure 3. RS232 Protocol page

The three protocol options are as follows. See page 3 for more information about each option:

- RPC (Remote Procedure Calls) (7900 only)

- RCI (Remote Communications Interface)

- QuickSwitch

2   Highlight the required protocol and press the **OK** key to return to the **Protocol** page.

Linx 5900 & 7900

2.1.2 Configure the Ethernet Protocol

NOTE: To use the **Ethernet Protocol** option, the **RS232 Protocol** option must be set to 'RPC'. Only the RCI protocol is available through an Ethernet connection.

To use the Ethernet protocol for remote network communications:

1 Select the **Ethernet Protocol** option on the **Protocol** page to display the **Ethernet Protocol** page.
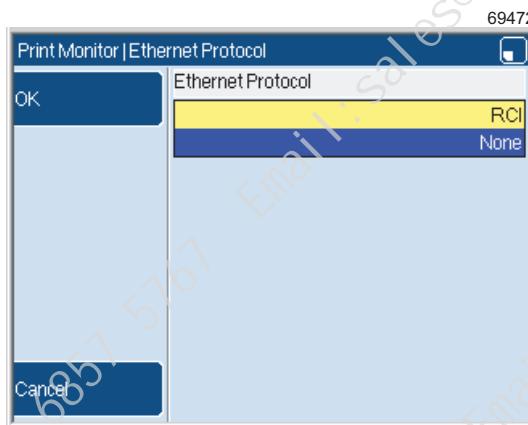

Figure 4. Ethernet Protocol page

2 Highlight the required protocol ('RCI' or 'None') and press the **OK** key to return to the **Protocol** page.

For information on how to configure the parameters for communication over an Ethernet connection, see 'Configure the Ethernet setup' on page 17.

2.1.3 Configure RCI Setup

To configure Remote Communication Interface parameters for remote communications that use buffered remote fields:

1   Select the **RCI Setup** option on the **Protocol** page to display the **RCI Setup** page. The **RCI Setup** page contains the following options.
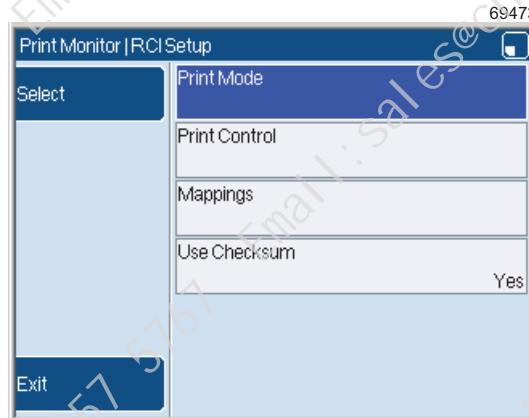

Figure 5. RCI Setup page

2   Highlight the required option and press the **Select** key to display the list of options for your selection.

Print Mode option
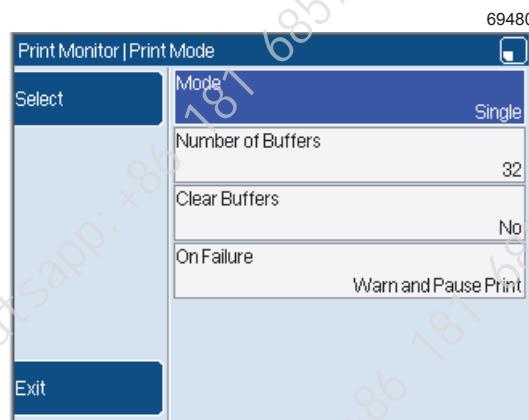
Figure 6. Print Mode page

The **Print Mode** page contains the following parameters:

Linx 5900 & 7900

Mode

Select either 'Single' or 'Continuous':

- **Continuous**—printing occurs if any remote data is received or if no remote data is received. If a set of remote data is received, this data is printed until another set of remote data is received.

- **Single**—printing occurs one time for each set of remote data that is received. If there is no more data received, any print triggers that occur are controlled according to the configuration of the **On Failure** option (see below).

If there is no remote data used, set the **Mode** option to Continuous. Use the Single print mode only with messages that use remote data.

Number of Buffers

This parameter sets the number of buffers that are assigned to each remote field in the message (1, 2, 4, 8, 16, or 32).

Clear Buffers

Select 'Yes' or 'No'. If set to 'Yes' when printing stops, the printer clears all remote field buffers in the current message. This option makes sure that the synchronisation of remote fields is maintained.

NOTE: If remote messages are downloaded, configure the number of buffers before the RCI protocol is used. When the number of buffers is changed, you must open and save each message that contains buffered remote fields in the Message Editor. The buffered remote field value is updated to the value that was set at the **Print Mode** page. If all fields in a message are not the same buffer length, a loss of synchronisation between fields can occur when the smallest buffer fills.

A confirmation message is displayed to tell you that the changes do not become active unless the messages are edited and saved in the Message Editor.

On Failure

For Single print mode this parameter sets the correct failure condition if no remote data is received ready for the next print. Select either 'Warn and Ignore' or 'Warn and Pause Print':

- If 'Warn and Ignore' is selected, the error "3.29 Overspeed (No remote data)" is displayed, and the Print Go command (see below) is ignored. No print occurs.

- If 'Warn and Pause Print' is selected, the error "3.29 Overspeed (No remote data)" is displayed. The printer status is set to Jet Running.

Print Control option

69477
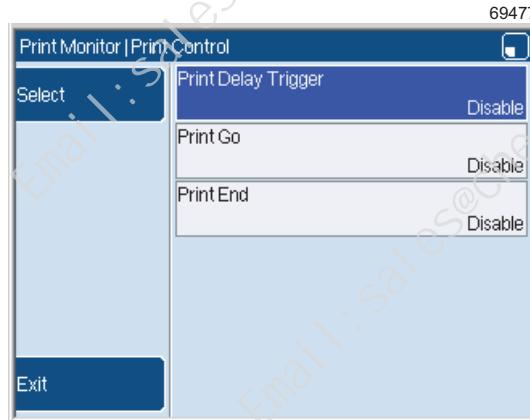
Figure 7. Print Control page

The **Print Control** page allows you to enable and disable the print control characters, and control the values used by these characters.

The **Print Delay Trigger**, **Print Go**, and **Print End** options are set to 'Disable' by default. You can enable the options in any combination as required. Highlight each option and press the **Select** key to set the required value from the list of available values.

Mappings option

59010
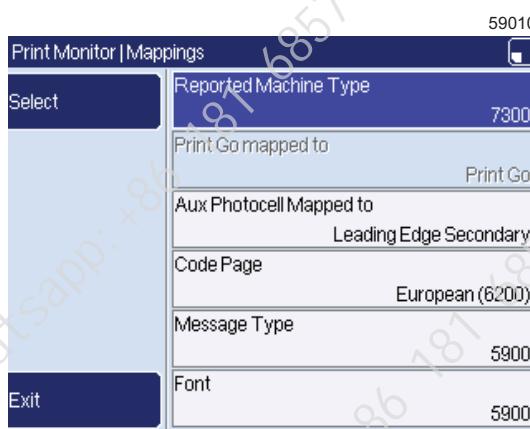
Figure 8. Mappings page

The **Mappings** page allows you to set options that improve the compatibility between the 5900 or 7900 and previous models of Linx printer.

The following options are available:

Reported Machine Type

For printer emulation, this option tells the RCI Request System Configuration command (Command 51) which type of printer is in use. Refer to the *Linx Remote Communications Interface Reference Manual (MP65969)* for more information about Command 51 settings.

Print Go Mapped To/Aux Photocell Mapped To

This option controls how the standard 5900 or 7900 trigger conditions are linked to the Print Go and Aux Photocell triggers used by the RCI protocol. The default settings for the 5900 and 7900 printers are:

- **Print Go Mapped To**: Print Go

- **Aux Photocell Mapped to**: Leading Edge Secondary (the other options are False, Trailing Edge Secondary, High Level Secondary Trigger, and Low Level Secondary Trigger)

Code Page

The 5900 and 7900 printers use the Unicode character set, but the RCI protocol uses ASCII. The **Code Page** option controls how the printer performs the ASCII to Unicode translation. The available options are:

- European (4900)

- European (6200)

- European

- Japanese

- Greek

- Russian

- Polish

Select the 'European (4900)' option for compatibility with the 4900 printer and the 'European (6200)' option for compatibility with the 6200 printer. This option contains the characters used by the 6200 printer that are not in the standard 'European' option.

Message Type

5900 only. This option maps the message type names used in RCI commands to the message type names used by the printer. Select either 4900 or 5900 for compatibility with the relevant printer.

Font

5900 only. This option maps the font information in RCI commands to the font information used by the printer. Select either 4900 or 5900 for compatibility with the relevant printer.

Use Checksum option

The 5900 and 7900 printers use checksums by default. To disable checksums, set this option to 'No'.

If checksums are disabled, the printer does not look for checksums at the end of received data, and the accuracy of transferred data is not checked. The data can become damaged and can cause problems in the printer and the remote host.

NOTE: The 5900 and 7900 printers do not allow changes to the settings for the start, stop, and parity bits—they are set by default to 8 data bits, 1 start bit, 1 stop bit, and no parity.

3 Press the **Exit** key to return to the **Protocol** page.

2.1.4 Configure the QuickSwitch setup

The 5900 and 7900 printers use QuickSwitch for message selection or remote field selection.

NOTE: To use the Message Saver program, set the **RS232 Protocol** option (see page 3) to 'RPC' to configure the program settings. Reset the protocol option to 'QuickSwitch' for remote communications.

To configure the QuickSwitch parameters:

Select the **QuickSwitch Setup** option on the **Protocol** page to display the **QuickSwitch Setup** page.


73047
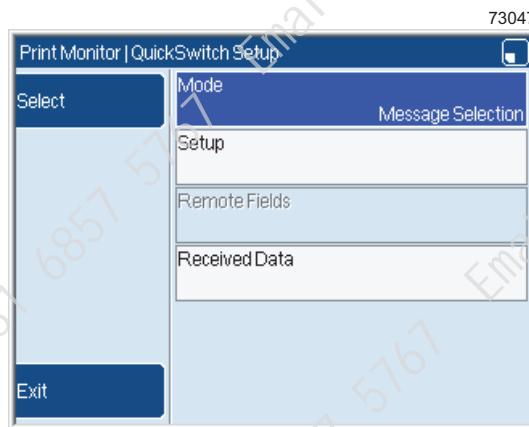
Figure 9. QuickSwitch Setup page

Mode option

1 To configure the 5900 and 7900 printers for either message selection or remote field selection, select the **Mode** option to display the **Mode** page. The options are as follows:

- **Message Selection**—the printer uses the incoming data to select a message. For example if the incoming data is 'ABC', the printer selects a message with the name 'ABC'. If there is no message name that matches the incoming data in the Message Store, the data is ignored.

- **Remote Fields**—the printer uses the incoming data to set the remote fields. The incoming data is allocated to remote fields according to the field name and the number of characters in that field. Refer to *How to Create a Remote Field* for more information on how to use remote fields.

2 Highlight either 'Message Selection' or 'Remote Fields', then press the **OK** key to return to the **QuickSwitch Setup** page.

The default is 'Message Selection' and the **Remote Fields** option on the **QuickSwitch Setup** page is not available. If 'Remote Fields' is selected the **Remote Fields** option is available.

If 'Message Selection' is selected go to page 12 where the **Setup** option is described.

LINX

Linx 5900 & 7900

Remote Fields option

3   To configure the remote fields to which data is downloaded, select the **Remote Fields** option on the **QuickSwitch Setup** page to display the **Remote Fields** page.

   NOTE: QuickSwitch does not allow you to use buffered remote fields. To use buffered remote fields use the RCI protocol (see 'Configure RCI Setup' on page 6.)

69482
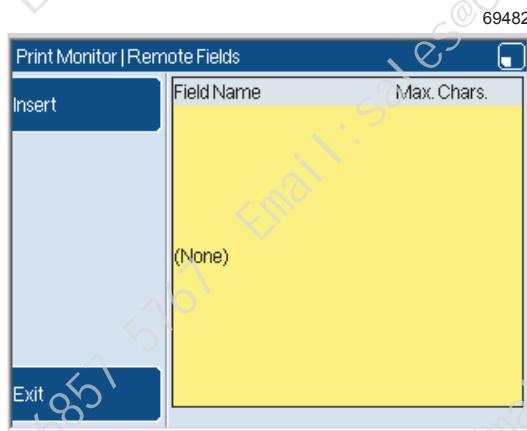
Figure 10. Remote Fields page

4   Press the **Insert** key to display the **Insert** page.

69483
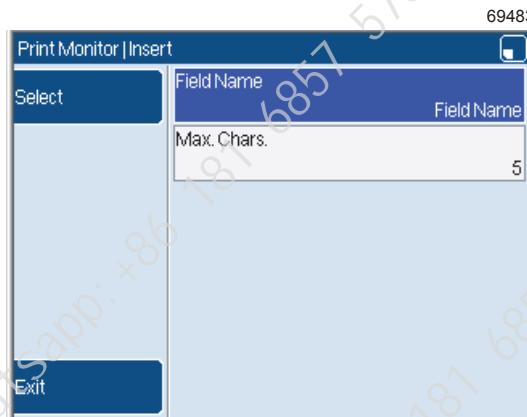
Figure 11. Remote Fields: Insert page

5   Select the **Field Name** option to enter the name of the remote field. The remote device uses this name to identify the destination field for the data.

   NOTE: The field names must match the names of any remote fields that are created in the Message Editor.

6   Select the **Max. Chars.** option to set the maximum number of characters that the remote device can download into this field.

LINX

7   Repeat steps **4** to **6** on page 11 to enter the information about all required remote fields and press the **Exit** key to return to the **Remote Fields** page.

69484
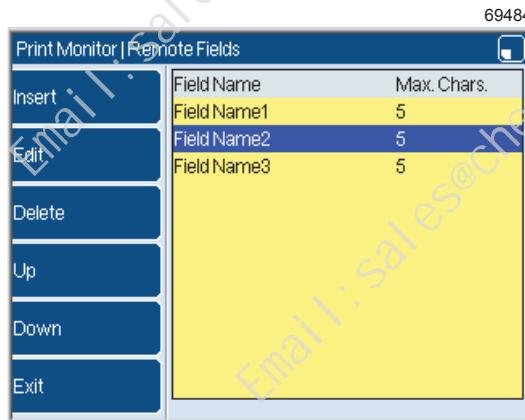
Figure 12. Remote Fields page: populated

8   The following options become available on the **Remote Fields** page. Highlight the required field name and press one of the following keys:

Edit—displays the **Insert** page where you can edit the name and maximum number of characters of the selected remote field.

Delete—deletes the selected remote field. There is no confirmation message displayed.

Up—moves the remote field name up the list by one entry.

Down—moves the remote field name down the list by one entry.

9   Press the **Exit** key to return to the **QuickSwitch Setup** page.

Setup option

1   To configure the **Setup** options for QuickSwitch, select the **Setup** option to display the **Setup** page.

69485
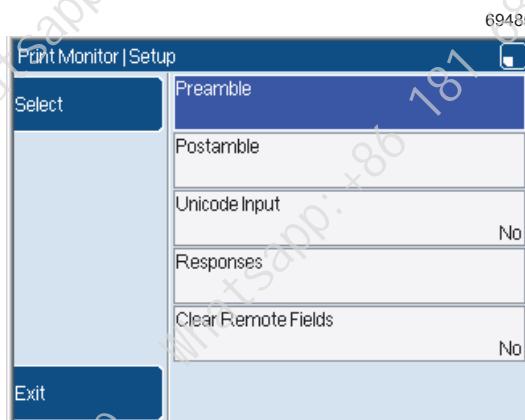
Figure 13. Setup page

Linx 5900 & 7900

Linx 5900 & 7900

Preamble and Postamble

The **Preamble** and **Postamble** options configure the format of incoming data that the 5900 and 7900 printers receive from different remote devices. The format of the incoming data is shown below:

P1	P2	Data	P3	P4

Figure 14. Incoming packet data format

Key:

P1	Preamble1	1 byte (optional)
P2	Preamble2	1 byte (optional)
Data	Data	Up to 256 bytes in a remote field
P3	Postamble1	1 byte
P4	Postamble2	1 byte (optional)

The default format of incoming data for QuickSwitch does not contain preamble bytes, and the postamble bytes are a CR/LF pair:

Data	CR	LF

Figure 15. Default 5900/7900 data packet format

Where the printer uses STX/ETX to define a a packet boundary, the printer can be set up to accept data in the following format:

STX	Data	ETX

Figure 16. Example data packet format

LINX

2 To configure the preamble settings, select the **Preamble** option to display the **Preamble** page.

69486
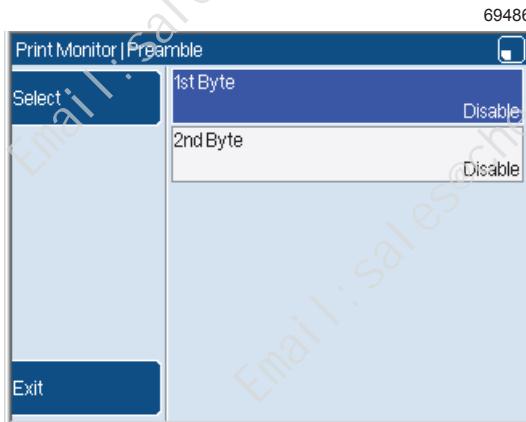
Figure 17. Preamble page

Highlight '1st Byte' or '2nd Byte' and press the **Select** key to see the list of available preamble byte characters. Highlight the required option and press the **OK Key** to return to the **Preamble** page. Press the **Exit** key to return to the **Setup** page.

3 To configure the postamble settings, select the **Postamble** option to display the **Postamble** page. This page is like the **Preamble** page and you select the options as shown above in step 2.

NOTE: If you use Unicode transmission (see below) the preamble and postamble values must not match the character set values. If necessary, change the values to prevent any problem.

Unicode Input

4 To receive data in Unicode (2-byte) character format, select this option, highlight 'Yes' and press the **OK** key to return to the **Setup** page. This format only contains the data segment of the incoming data packet.

NOTE: Unicode characters must be transmitted in high byte/low byte format.

Responses

The **Responses** option allows you to enable or disable any combination of response types for incoming data and set the values for these responses.

Linx 5900 & 7900

**5** Select the **Responses** option to display the **Responses** page.

69487
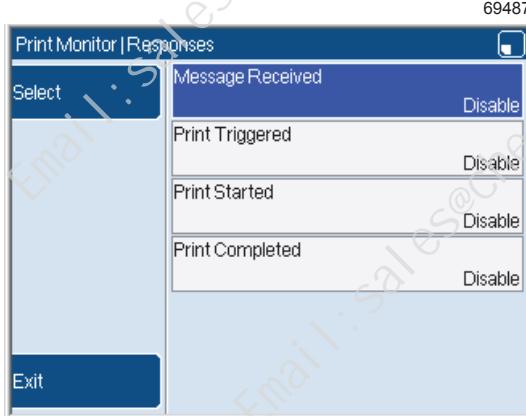
Figure 18. Responses page

The following options are available. Select the required option to see the list of available values:

- **Message Received**—this allows you to select the character that is used to acknowledge that a message is received. The standard setting is 'Disable'.

- **Print Triggered**—this allows you to select the character that is used to acknowledge a print trigger. The standard setting is 'Disable'.

- **Print Started**—this allows you to select the character that is used to acknowledge the start of a print. The standard setting is 'Disable'.

- **Print Completed**—this allows you to select the character that is used to acknowledge the end of a print. The standard setting is 'Disable'.

Clear Remote Fields

6 Clears all remote fields entered for QuickSwitch after the next print is completed. To clear all remote fields, select this option, highlight 'Yes' and press the **OK** key to return to the **Setup** page.

7 Press the **Exit** key three times to return to the **Communications** page.

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2.2 Configure the RS232 setup

The **RS232 Setup** page allows you to configure the communication parameters for all protocols. To configure the RS232 settings:

1   Select **Menu > Setup > Communications** at the **Print Monitor** page. The printer displays the **Communications** page (see Figure 1 on page 3).

**2**   Select the **RS232 Setup** option to display the **RS232 Setup** page.

69474
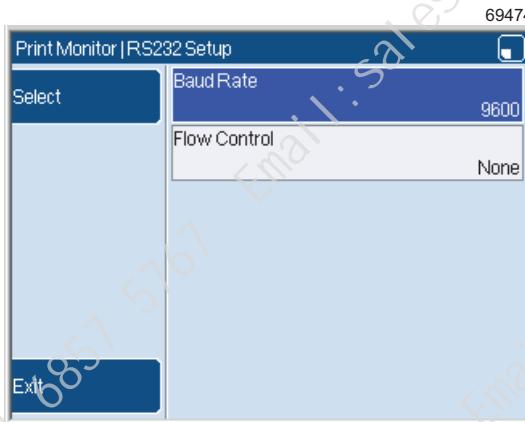
Figure 19. RS232 Setup page

3   To set the transmission speed of the data, highlight the **Baud Rate** option and press the **Select** key:

The 5900 and 7900 printers allow data transmission at baud rates of 4800, 9600, 19200, 38400, 57600, or 115200 baud.

4   Highlight the required baud rate and press the **OK** key to return to the **RS232 Setup** page.

5   To configure how the flow of data is controlled, highlight the **Flow Control** option and press the **Select** key to display the available settings. The three options are:

- **None**—there is no control of the flow of data between the printer and the remote host.

- **Software**—the special characters 'Xon' and 'Xoff' control the flow of data between the printer and the remote host. An escape character identifies the special characters in the data stream.

- **Hardware**—the flow of data is controlled by hardware hand shakes between the printer and remote host.

6   Highlight the required option and press the **OK** key to return the **RS232 Setup** page. Press the **Exit** key to return to the **Communications** page.

Linx 5900 & 7900

2.3 Configure the Ethernet setup

The **Ethernet Setup** page allows you to configure the parameters for Ethernet communications. To configure Ethernet settings:

1 Select **Menu > Setup > Communications** at the **Print Monitor** page. The printer displays the **Communications** page (see Figure 1 on page 3).

**2** Select the **Ethernet Setup** option to display the **Ethernet Setup** page.
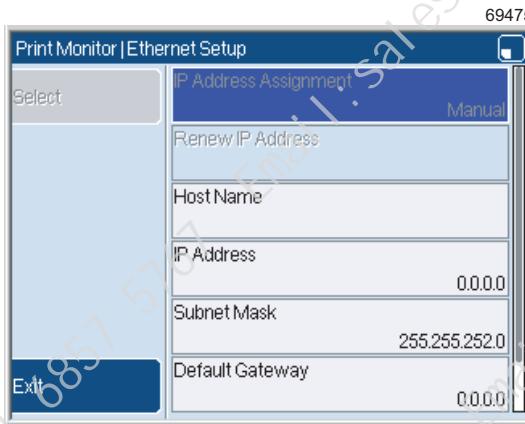
Figure 20. Ethernet Setup page

3 Highlight the required option and press the **Select** key to display the configuration options. Use the scroll bar to display the **MAC Address** option.

IP Address Assignment

- **Manual**—this allows you to assign a static IP address for the printer. Your network administrator supplies this IP address.

- **DHCP** (Dynamic Host Configuration Protocol)—the printer requests an IP address from the host device during the printer power-up sequence.

If you select the 'DHCP' option, the **Renew IP Address** option becomes available.

Renew IP Address

This option causes the printer to select a new IP address from the server during the power-up sequence.

NOTE: The 'DHCP' option for **IP Address Assignment** and the **Renew IP Address** options are not in use on the 5900 and 7900 printers.

Host Name

You can assign an optional name to the printer. Enter the name in the field.

IP Address

This option is shown if the **IP Address Assignment** option is set to 'Manual'. Your network administrator assigns the IP address.

Linx 5900 & 7900

Subnet Mask

The subnet mask is a mask that assigns an IP address to a given subnet. An IP address has two components—the network address and the host address. The format depends on the type of IP address assigned. Contact your network administrator for more information.

Default Gateway

A default gateway is a node on the network that allows connection to another network. Contact your network administrator for more information.

MAC Address

A Media Access Control (MAC) address is an address that identifies network hardware. The printer software automatically detects the MAC address.

Re-connect

If there are problems with the network connection, this option allows you to reconnect to the network without restarting the printer.

NOTE: When you configure the Ethernet setup, your host application must address TCP/IP port 29043.

2.4 Linx Insight

Linx Insight® is a remote web interface for message download and control that uses the Ethernet connection of the printer. It is a standard feature on the 7900 printer and a configurable option on the 5900 printer.

The functionality allows you to remotely monitor and control the printer through a web browser from a PC or a web-enabled phone.

To set up Linx Insight®:

1 Assign a static IP address to the printer (see 'Configure the Ethernet setup' on page 17 for more information). Navigate to the **IP Address** page (**Menu > Setup > Communications > Ethernet Setup > IP Address**) and enter a static IP address. Contact your network administrator if you are unsure of the address to enter.

2 Use the Ethernet connection on the rear of the printer to connect the printer to your network.

To use Linx Insight® with a PC:

NOTE: The following PC web browsers are supported: Internet Explorer®, Firefox® FF8 and FF9, Chrome™ 14 and 15, and Safari® 5.[1]

1 On your PC, enter the printer IP address in the address bar of your web browser.

2 When prompted, enter the following information:

Username: linx

1.Linx and Linx Insight are registered trademarks of Linx Printing Technologies Ltd.
Firefox is a registered trademark of Mozilla Foundation.
Chrome is a trademark of Google Inc.
Safari is a registered trademark of Apple Inc.

Linx 5900 & 7900

Password: insight

3   Follow the on-screen instructions to allow you to remotely control the printer.

To use Linx Insight® with a web-enabled phone:

NOTE: The following mobile web browsers are supported: iPhone® 3GS, 4, and 4S browsers, Android™ browsers for Android 2.2 and 2.3 Gingerbread, and BlackBerry® 6 and 7.[1]

1   Make sure that your phone is able to access the same network as the printer.

2   On your phone, enter the printer IP address in the address bar of your web browser.

3   When prompted, enter the following information:

Username: linx

Password: insight

4   Follow the on-screen instructions to allow you to remotely view status information about the printer.

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BlackBerry is a registered trademark of Research in Motion Limited.