Introduction

This document has been produced as a supplement to the first edition of the *Linx 4900 Operating Manual*. It describes new features that are introduced in Version 1.5 System Software.

The software includes the following new functionality:

- 4900DC features (enabled by a configuration code)
  - Dynamic Message Orientation
  - Compatibility with the Mini printhead and its associated message types
  - Stitched message types for the Mini, Ultima and Ultima Plus printheads
  - New Splash Screen, with the characters DC in the lower left corner, to identify the 4900DC software

- Alarm invert

Version 1.5 software is compatible with all IPM PCBs, but the 4900DC configuration can only be used with IPM PCB issue 7 and higher.

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How to Use This Supplement

The supplement complements the Linx 4900 Ink Jet Printer Operating Manual (first edition). It should be read in conjunction with that manual and, most particularly, with regard to all the safety information given in the manual.

The following table shows sections of the supplement that update and extend existing sections of the Operating Manual. These provide information that is additional to that given in the manual.

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<td>Printing Performance Data</td>
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Changing the System Setup

The SETUP menu is described in Chapter 5 of the Linx 4900 Operating Manual. This section describes how the 4900DC Setup options differ from other versions of the printer.

NOTE: The screen displays in Chapter 5 of the operating manual relate to a printer that has not been configured for use as a 4900DC. The SETUP menu in a 4900DC includes a Message Orientation option instead of a Reverse Message option. The Message Orientation option is available to users with Level B or Level C passwords, but the settings cannot be changed while the 4900DC is printing.

Changing Message Orientation

You can change the orientation of the printed message. The options that are available to you depend upon whether the printer is operating as a Linx 4900DC (that is, whether the 4900DC configuration code has been entered).

If the printer is not configured as a 4900DC, the SETUP menu includes an option called Reverse Message. The message can either be printed in the normal forward orientation (as viewed at the CURRENT MESSAGE screen), or it can be reversed. Information on how to use the Reverse Message option are given in sections 4.1.6 and 5.3.6 of the Linx 4900 Operating Manual.
Message Orientation in the 4900DC
If the printer is configured as a 4900DC, you can change the orientation of the printed message from the normal, forward orientation:

- to reverse orientation, where the message is printed right to left:
  ![TEST (6109)]

- or you can invert the image:
  ![TEST (6110)]

- or you can invert and reverse the image:
  ![TEST (6113)]

The message orientation can be either static or dynamic. Static orientation means that the message is always printed in the same direction (which can be any of the four orientations shown in this section). Dynamic orientation means that the orientation of the message can change automatically, in response to a trigger. This is particularly useful when the printer is attached to a traversing arm, and the message must print in a different direction when the arm is on its return journey.

**Static Orientation**
**To set static orientation:**
1. At the **CURRENT MESSAGE** screen, press the [F4] function key. The **SETUP** menu is displayed.
2. Select the **Message Orientation** option. The **MESSAGE ORIENTATION** menu is displayed.
3. Set the **Mode** to **Static**:
   ![MESSAGE ORIENTATION]

   - **Mode**: Static
   - **State 1**: Normal

4. Set **State 1** to the required orientation.
Dynamic Orientation
To set dynamic orientation:

NOTE: To use dynamic orientation, you must first define the event that is to trigger the change in orientation. This must be either a High Level or Low Level trigger. Refer to section 5.4.1 (entitled “To Set the Print Trigger”) in the Linx 4900 Operating Manual for further information on triggers.

1. At the CURRENT MESSAGE screen, press the [F4] function key. The SETUP menu is displayed.
2. Select the Message Orientation option. The MESSAGE ORIENTATION menu is displayed.
3. Set the Mode to Secondary Trigger:

4. Set the State 1 and State 2 options to define the two orientation states that you require. For example, in a traversing application, one orientation is used while the arm is on its outward journey and the other orientation is used while the arm is on its return journey. As described earlier, each orientation state can be any of the following:
   - Normal
   - Reverse
   - Invert
   - Reverse + Invert

The orientation that you choose for State 1 is used while the secondary trigger is inactive. The orientation that you choose for State 2 is used while the trigger is active.

The Active option shows you which of the two orientation states is currently active—this depends on the current state of the secondary trigger signal.

The Sync Error option
If the secondary trigger signal changes during a print, the following warning message is displayed:

“Error 3.33 Synchronisation”

If the Sync Error option is set to No, the warning is not displayed. In Static orientation mode, the Sync Error option is ignored.
Inverting the Alarm

The Linx 4900 can be connected to an external alarm. Generally, when the printer is unable to print, or requires attention, it activates its external alarm output signal. If required, this signal can be used to stop the production line. However, if there is an interruption in the mains power to the printer, or the printer is accidentally switched off, the printer’s alarm output is not energized. This means that the production line would continue to run.

To prevent this, Version 1.5 System Software has an alarm Invert option which allows you to use the alarm output’s unenergized state as the active alarm state. This means that the output is considered to be active while the printer is switched off, as well as when it is unable to print for some other reason.

IMPORTANT: The connector that connects the printer’s alarm output to the external alarm or production line interlock device must be wired correctly to suit the setting of the Invert option—consult your line supervisor before making changes.

The following table shows how the Invert option works with a production line interlock device that is correctly wired to the printer’s alarm output:

<table>
<thead>
<tr>
<th>Power</th>
<th>Fault</th>
<th>Invert</th>
<th>Printing possible?</th>
<th>Output energized</th>
<th>Line stops</th>
</tr>
</thead>
<tbody>
<tr>
<td>ON NO</td>
<td>No</td>
<td>YES</td>
<td>NO</td>
<td>NO</td>
<td>NO</td>
</tr>
<tr>
<td>ON YES</td>
<td>No</td>
<td>NO</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
</tr>
<tr>
<td>OFF N/A</td>
<td>No</td>
<td>NO</td>
<td>NO</td>
<td>NO</td>
<td>NO</td>
</tr>
<tr>
<td>ON NO</td>
<td>Yes</td>
<td>YES</td>
<td>YES</td>
<td>NO</td>
<td>NO</td>
</tr>
<tr>
<td>ON YES</td>
<td>No</td>
<td>NO</td>
<td>NO</td>
<td>YES</td>
<td>YES</td>
</tr>
<tr>
<td>OFF N/A</td>
<td>Yes</td>
<td>NO</td>
<td>NO</td>
<td>NO</td>
<td>YES</td>
</tr>
</tbody>
</table>

To set the alarm options:

NOTE: The printer must be in the “Jet Off” state to do this. To verify this, check the Status in the PRINT STATUS screen.

1. At the CURRENT MESSAGE screen, press the [F4] function key. The SETUP menu is displayed.
2. Select the Alarm option. The ALARM menu is displayed.

3. Set the Invert option and other options as required (refer to the Linx 4900 Operating Manual for more information on the other options).
Printable Line Speeds

The 4900DC offers several new message types. These are in addition to the message types that are listed in sections C.2.1 and C.2.2 of the Linx 4900 Operating Manual. Read this section of the supplement in conjunction with those sections of the manual.

The additional message types that are available with the 4900DC, together with their maximum line speeds, are shown in the following table:

<table>
<thead>
<tr>
<th>Message Type</th>
<th>Maximum Line Speed at Ideal Raster Pitch (m/s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mini Printhead</td>
<td></td>
</tr>
<tr>
<td>4T 1x5 W 6.83</td>
<td>6.83</td>
</tr>
<tr>
<td>8T 1x5 W 6.83</td>
<td>6.83</td>
</tr>
<tr>
<td>4T 1x7 Q 1.95</td>
<td>1.95</td>
</tr>
<tr>
<td>8T 1x7 Q 1.30</td>
<td>1.30</td>
</tr>
<tr>
<td>4T 1x7 S 2.27</td>
<td>2.27</td>
</tr>
<tr>
<td>8T 1x7 S 1.95</td>
<td>1.95</td>
</tr>
<tr>
<td>4T 1x7 S 3.41</td>
<td>3.41</td>
</tr>
<tr>
<td>4T 1x7 W 5.12</td>
<td>5.12</td>
</tr>
<tr>
<td>8T 1x7 W 5.12</td>
<td>5.12</td>
</tr>
<tr>
<td>4T 1x16 Q 0.85</td>
<td>0.85</td>
</tr>
<tr>
<td>8T 1x16 Q 0.85</td>
<td>0.85</td>
</tr>
<tr>
<td>4T 2x7 Q 0.78 (Stitched)</td>
<td>0.78</td>
</tr>
<tr>
<td>8T 2x7 Q 1.24 (Stitched)</td>
<td>1.24</td>
</tr>
<tr>
<td>4T 2x7 S 0.97 (Stitched)</td>
<td>0.97</td>
</tr>
<tr>
<td>4T 2x7 S 1.30 (Stitched)</td>
<td>1.30</td>
</tr>
<tr>
<td>Ultima Printhead</td>
<td></td>
</tr>
<tr>
<td>2x7 Quality (Stitched)</td>
<td>1.34</td>
</tr>
<tr>
<td>Ultima plus Printhead</td>
<td></td>
</tr>
<tr>
<td>2x7 Quality (Stitched)</td>
<td>1.36</td>
</tr>
</tbody>
</table>

Key:

- W: Wide
- Q: Quality
- S: Speed

The first digit in the name of each message type (2, 4 or 8) refers to the recommended throw distance (in millimetres) for that message type. The term ‘Stitched’ refers to the order in which the individual ink drops are placed to form the printed characters.
Technical Data

Printhead
Read this section of the supplement in conjunction with section F1.7, ‘Printhead’, in the Linx 4900 Operating Manual.

4900DC Printheads

<table>
<thead>
<tr>
<th>Types</th>
<th>Construction and Dimensions</th>
<th>Printing Performance Data</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ultima: Mk 7 (62 µm nozzle)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ultima plus: Mk 7 (75 µm nozzle)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mini: Mk 7 (50µm nozzle)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Construction and Dimensions
The construction and dimensions of the printheads are as specified in section F1.7 of the Linx 4900 Operating Manual.

Printing Performance Data
The performance data for the Ultima and Ultima plus printheads are given in section F1.8 of the Linx 4900 Operating Manual. The information given below provides the performance data for the Mini Printhead.

Mini (50 µm)
Number of lines of print: Up to two lines of 7 High characters
Number of message types: Up to 15
Maximum speed: 6.83 m/s (one line of 5 High characters)

Minimum character height: 2.0 mm using the following message types:
- 4T 1x5 W 6.83
- 8T 1x5 W 6.83
- 4T 1x7 Q 1.95
- 8T 1x7 Q 1.30
- 4T 1x7 S 2.27
- 8T 1x7 S 1.95
- 4T 1x7 S 3.41
Maximum character height:  4.56 mm using the following message types:
  4T 1x16 Q 0.85
  8T 1x16 Q 0.85
  4T 2x7 Q  0.78
  8T 2x7 Q 1.24
  4T 2x7 S 0.97
  4T 2x7 S 1.30

**Printhead to Substrate Distance (recommended)**

- Ultima: 12.0 mm
- Ultima *plus*: 12.0 mm
- Mini:
  - 4.0 mm for Message Types with prefix 4T.
  - 8.0 mm for Message Types with prefix 8T.

**Inks**

Currently, the Mini printhead operates with a specific range of ink types:

- Linx Black fast-drying ink 1240
- Linx Black ultra fast-drying ink 1405
- Linx Black wet process ink 1056
Software Release Notes
Linx 4900 v1.5

Version 1.5 System Software
for Linx 4900 Printers

General
This document summarizes the new features and enhancements that are included in 4900 Version 1.5 System Software. It describes the specialized facilities that are provided by the new Linx 4900DC printer, and which are enabled by a configuration code. It also lists other features that are included as standard in version 1.5 software.
This release is compatible with all 4900 hardware. Specialized 4900DC facilities require IPM PCB Revision 7 or higher.

4900DC Features
New features provided by the 4900DC printer include:
• Additional options for changing message orientation
• Compatibility with the Mk7 Mini printhead and its associated message types
• Stitched message types for the Mk 7 Mini, Ultima and Ultima Plus printheads

Message Orientation
The orientation of the printed message can be:
• Normal (forward)
• Reversed
• Inverted
• Inverted and Reversed
The orientation can be either static or dynamic. Static orientation means that the message is always printed in the same direction.
Dynamic orientation means that the orientation of the message can change automatically, in response to a secondary trigger. A warning is displayed if the secondary trigger is activated whilst a message is being printed. (The warning can be disabled if required.)

Mini Printhead
The Mini printhead has been designed to print at speeds of up to 6.83 m/s and is therefore faster than the Ultima or Ultima plus printheads. The Mini printhead has a Mk7, 50 µm nozzle and can print up to 2 lines of 7 High characters. The Mini printhead fitted to the 4900DC printer can print characters as small as 2.0 mm and as large as 4.56 mm.
The Mini printhead can be used with the following ink types:
• Linx Black fast-drying ink 1240
• Linx Black ultra fast-drying ink 1405
• Linx Black wet process ink 1056
Software Release Notes
Linx 4900 v1.5

Additional Message Types
There are 15 message types available for use with the Mini printhead, of which four are stitched message types. The Ultima and Ultima plus printheads each have one new message type, 2 x 7 Quality (Stitched).

Other Features Available in Version 1.5 System Software
The following features are included as standard in Version 1.5 software and therefore do not require an additional configuration code:
- Alarm Invert
- All languages are now built from one common source
- Improvements to Arabic and Farsi fonts

Alarm Invert
The external alarm output on the Linx 4900 can be used as an interlock to drive the production line. However (without Alarm Invert), if the printer is switched off, or the electricity supply to the printer is disrupted, the production line continues to run.
The new Alarm Invert option allows you to use a different external connection, which is fail-safe in the event of loss of power or power-off.

User Documentation
A supplement to the Linx 4900 Operating Manual is now available, giving details about the differences between the 4900DC and other versions of the Linx 4900 printer. It includes instructions on how to use the new message orientation options and the Invert alarm option.