Operations Manual

LITTLE DAVID™

MicroJet HRP
Serial Controller

Manual Part
Number:
MJHRP-CTRL-OM
Revision A

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MicroJet HRP
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Serial Controller

Warranty:

The MicroJet HRP Serial Controller, (henceforth “Serial Controller”) including all components unless otherwise specified, carries a limited warranty.

For all warranty terms and conditions, contact LOVESHAW for a complete copy of the Limited Warranty Statement. A copy of this can be found at www.loveshaw.com.
# Serial Controller

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Section 1: Safety

Following is a list of safety symbols and their meanings, which are found throughout this manual. Pay attention to these symbols where they appear in the manual.

⚠️ Caution or Warning! Denotes possible personal injury and/or damage to the equipment.

⚠️ Caution or Warning! Denotes possible personal injury and/or equipment damage due to electrical hazard.

⚠️ NOTE: (Will be followed by a brief comment or explanation.)

ESD protection should be worn when servicing internal printed circuit boards. After service to the equipment is completed, replace all protective devices such as grounding cables and covers before operating the equipment.
Section 2: Quick Start

The Serial Controller may be integrated into a variety of printing applications. This manual will show applications involving the (Thermal Jet “TJ” / MicroJet HRP) serial print heads.

Contents:

**Print Head Components:**
- Print Head with Power Supply, 15V, includes power cord and power supply bracket.
- Software (PC Version)
- Print Head “L” Bracket & Mounting Block Kit

**Controller Components:**
- Controller *(Hand Held or Optional Stainless Steel version)*
- Power Supply, 15V, includes power cord and power supply bracket *(Provided with Stainless Steel version only)*
- Controller Mounting Bracket Kit (Optional)
Step 1: Assemble Bracketry
Step 2: Assemble Bracketry to Conveyor

Power Supply and Power Supply Bracket Mounting (To Power Stainless Steel Controller)
Step 3: Connect controller to Print Head

Optional Stainless Steel Serial Controller to HRP Print Heads

See HRP Print Head Manual for detailed HRP Print Head setup.
See HRP Print Head Manual for detailed HRP Print Head setup.
Step 4: Setup Print Head Via Controller

MicroJet HRP

On the Home Screen, press the Menu Button, then the Apps Button. On the Apps Screen press the Ports Button.

On the Ports Setting Screen press the COM1 Function Button, select **Serial Print Head - HP** and press OK. Press OK again to exit the Ports Setting Screen. Press the **Home Button** to return to the Home Screen.

On the home screen press the **Menu Button**, then press the **System Setup Button**. On the **Print Head** page select **Redo Print Head Setup**.
Select print direction, then specify number of print heads and their placement on the conveyor. Select **Next**.

Select the Print head connected to controller, then define print head type and set the product sensor offset for each print head. Select **Ok**.

Select the **Encoder** page and select External encoder, Auto Speed Detect, or Fixed Line Speed. Auto Speed Detect is not available with the external product sensor option (see below).

Select **Task Options** page to define print and then select **Ok**.
Step 5: Creating a Message

From the Home screen press the Message Button, then select the New Message Button.

Create and Save the message, and then exit the message editor.
Creating a message cont...

X & Y Input Box

Available Fonts (Thermal Jet fonts shown)

Message Info Box

On-screen Keyboard

Block Field
Step 6: Print a Message

From the Home screen, press the Print Button.

Select the desired message to print, and press the Print button.

The message will print on the next Photo cell trigger.
Section 3: Controller Functions

Home Screen

Message Window:
- Displays the current print message
- Updated approximately every seven seconds, so it likely will not show each print.
- White or Beige bars represent the print heads in the daisy chain and are identified by their respective numbering.
- The Header displays the task number and file name of the message being printed, if no message is loaded to print, "None" is displayed.

Task Select Button:
- Places focus on the selected task. This allows one to view what is being printed on either task in the home screen. Additional menu items will vary from one task to the other, depending on print technology.

Task Print / Pause Button:
- Start and Stops print after an operator response to a confirmation dialog popup box.
- If a message is currently printing, pressing the pause button will discontinue printing after the message finishes printing.
- If the Play button is pushed, print will resume on the next product detected.
Quick Print Button:
- Allows access to the Print dialog box.
- Simply select the desired message and press the Printer button. The message will print at the next photocell trigger.

Purge Button:
- Fires all jets for a short period of time on the selected print head.

Connectivity Button:
- Connect or disconnect from the Print Head. When disconnected, the controller halts all communications with the print head(s).

Status Button:
- Version of controller firmware is located in the upper right corner.
- Fonts and Logos loaded onto Print Heads.
- Displays Product detect.
- Displays Printing or Paused status.
- Ink Type if applicable
- Current Date and Time, as reported by the print head’s clock.
- Version of print head firmware.
Message Editor

Message Button:
- Press the Message Button on the Home Screen to bring up the message screen.
- To create a new message press the New Message button.
- To edit an existing message, select the message and then press the Open button.
- Both editing a message and creating a new message will bring up the message editor.
Time, Date, and Count Codes

Must have a text field select to make active

Expands and collapses Count Options

Current date
1st day of fortnight
Monday's date
User Defined Time Codes

When User Defined is selected, Define Time Code button appears.

Tabular format: codes printed taken from table. Use default codes (default Hour codes shown) or edit table to suit your requirements.

Sequential format: minute code shown. Minute 00 = AA, 01 = AB, 02 = AC, etc.

Periodic format: example above illustrates a shift code implemented by using a periodic quarter hour code. 'A' prints from 23:30 - 06:59, 'B' from 07:00 - 15:29, and 'C' from 15:30 - 23:29.
User Defined Date Codes

When User Defined is selected, Define Time Code button appears.

Sequential format: minute code shown. Day 1 = A, Day 2 = B, Day 3 = C, etc.

The Fortnight code type is available for the Tabular format only.

Tabular format: codes printed taken from table. Use default codes (default Day codes shown) or edit table to suit your requirements.

Periodic format: example above illustrates a quarter year code implemented by using a periodic month code. 'Q1' prints from Jan 1 - Mar 31, 'Q2' from Apr 1 - Jun 30, etc.
Product Counts, Variable Fields, Logos

Incrementing Count
Count increments when the 'Start at' value is less than the 'Stop at' value.

Decrementing Count
Count decrements when the 'Start at' value is greater than the 'Stop at' value.

Maximum 9-digit count

Variable Field Data Source
User: Print data entered when print message containing the variable field is selected to print.

COM1, COM2: Data is received through COM1 or COM2 serial port. Data must be received before the message is selected to print.

Data 1-10: Data is retrieved from corresponding system variable. User has the option to change the data when the message is selected to print.

Scroll through logo images or select from list
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Barcodes, Product setup, & Menu

Reverts message to the last saved
Cleans contents of message editor
Calculates estimated ink usage for the contents of the editor
Exits the editor to the home screen
Prints the contents of the editor on the next screen
Quick save of current message

Product Setup
- Length
- Left margin
- Right margin
- Print properties
- Print options

Barcode settings
- Increase or decrease barcode width
- Increase or decrease barcode height
- Increase or decrease value of selected field

Ink Usage
- Calculates estimated ink usage
- Clears contents of message editor
- Reverts message to the last saved

Menu
- Exit
- Print
- Close Menu

Section 3: Controller Functions
Message Info Box

Task number & message name

Estimated prints per ink cartridge

Product length & left margin settings

Direct Entry of Cursor or Field Position

Direct Entry Box

Field: selecting the Direct Entry Box while having a field selected will allow the user to manually input the X & Y location of the selected field

Cursor: When no fields are selected the Direct Entry Box will allow the user to manually input the X & Y location of the cursor

Print Head Number
The Apps Screen

Apps Button

Return to the Home Screen
Time, Date, and Rollover Time Screen

Set the controller's time and time format

Press "Ok" to return to the Apps Screen

User Access

Controls within this box set the user access level. Buttons outside the box mirror the Home Screen and indicate which functions are password protected and which are open.

The factory set password is Manager.
Passwords are case sensitive.

Note: Users can either select a pre-defined access level from the list or they can select "User Defined" and customize their Access settings by selecting icons on the User Access screen.
Appendix A: Specifications

Stainless Steel Serial Controller (Optional)

Size
Weight: 2.18kg [4.6lb]
Height: 196.1mm [7.72in]
Width: 330.7mm [13.02in]
Depth: 41.3mm [1.62in]

Enclosure
Stainless Steel

User Interface
Graphical User Interface
with on screen keyboard

Fonts
Unicode

Display
10.2in [259.08mm] LCD with touch screen, 800 x 480 pixels

Storage
512 MB flash memory

Ports
(2) RS-232 ports, 1 USB port,
(1) 100 Base-T Ethernet port

Electrical
15 VDC from power supply to controller.
power supply: 90-260 VAC, 50/0 Hz, 1.5A max.

Environment
Ambient operating temperature: 40°F to 104°F (5°C to 40°C)
Operating humidity: 10% - 90%, non condensing
Handheld Serial Controller

Size
Weight: .50kg [1.1lb]
Height: 133.4mm [5.25in]
Width: 240.0mm [9.45in]
Depth: 39.4mm [1.55in]

Enclosure
Black ABS Plastic

User Interface
Type: Graphical User Interface
keyboard: on screen QWERTY

Display
7in [178mm] LCD with touch screen,
800 X 480 pixels

Fonts
Unicode

Storage
512 MB flash memory

Ports
(2) RS-232 Ports, (1) USB Port
(1) 100 base-T Ethernet Port

Electrical
15 VDC Supplied from print head power supply: 90-260 VAC, 50/0 Hz, 1.5A max.

Environment
Ambient operating temperature: 40°F to 104°F (5°C to 40°C)
Operating humidity: 10% - 90%, non-condensing
Appendix A: Specifications

Handheld Controller CPU Board

Stainless Steel Controller CPU Board

System Interconnect Diagram
Appendix B: File System Backup and Restore

**Backup**

1. Insert a USB jump drive into the USB port on the controller.
2. From the home screen touch **Apps Button** then **Utilities**.
3. From the **Utilities** screen select **Backup**.
4. Enter a file name at the **Backup** dialog popup. "backup" is the default name.
5. From the **System Utilities** screen select **Safely remove USB memory**.

**Restore**

6. Insert a USB jump drive into the USB port on the controller.
7. From the home screen touch **Apps Panel** then **Utilities**.
8. From the **Utilities** screen select **Restore**.
9. Select the appropriate backup file from the **Restore** dialog popup.
10. From the **System Utilities** screen select **Safely remove USB memory**.
Appendix C: Configuring a PC to Serial Controller.

Window 7®

1. Open the Start menu; select Control Panel; then Network and Sharing Center.

2. Click Local Area Connection, then click Properties button.


4. Click Use the following IP address radio button. Enter an IP address of 10.1.2.4, a subnet mask of 255.255.255.0, and click the OK button.
Appendix D: Creating Logo Files

Open Paint from a PC by selecting Start, All Programs, Accessories, and then Paint.

Navigate to the Image Properties dialog box via the drop down menu.

HRP Head: Enter the Width and Height of the logo in Pixels. For practical purposes the maximum height of a logo is 150 pixels if the logo is printed with a 1/2" print head, and 300 pixels if printed with a 1" print head. The absolute maximum logo height is 1200 pixels, but logos that cross print head boundaries will likely exhibit registration problems when printed. Maximum logo width is 32,767 pixels, or print columns (109.22 in / 2.77 n when printed at 300 dpi.)

Select Black and White for the Colors.

Next, click the Rotate button; Rotate Left 90° (CCW 90°).

From the File Menu, select Save As and save the logo with a convenient name and directory location.

NOTE: If this logo is imported from another document or software, make sure that the first step taken is to Save As a Monochrome Bitmap (bmp), and then Resize to the appropriate height.
Appendix E: Controller and Print Head File Management

File Manager

NOTE: A .bmp (logo) or .fnt (font) file must reside on both the controller and print head(s) to be correctly selected, displayed, and printed. Ensure the file names are **less than 15 characters long**.

1. If logo or font files are to be transferred, place them on a portable USB storage device in a convenient location and insert it into the controller USB port.
2. Touch the **Apps** button on the **Home** screen menu, and then select the **Utilities** button.

3. Scroll to the bottom of the **Select Function** list and select **File manager**. Press the **Do Function** button; the **File manager** screen is displayed.

The **home** folder contains all folders and files related to controller operation.
The **Task:1** and / or **Task:2** folders contain all font and logo files resident on the print head(s) in that daisy chain.
The **usb0** folder contains all folders and files resident on the USB storage device.

**NOTE:** Cut, Copy, Paste, and Delete function the same way as any software. Navigate to any file in any of the folders and perform the desired function. In addition, however, files are **not allowed** to be copied from any task (the print heads).
Transferring Logo and Font Files

**NOTE:** Files cannot be transferred to the print head while printing. Pause print first.

1. As shown in the “File Manager” section, make sure USB storage device is installed and the File manager selection screen is present on the controller.
2. Select the **usb0** folder and press the Open Folder icon button.
3. Navigate to a previously saved file, highlight the file and press the Copy button. The file is now stored in temporary memory. In this example, a logo file will be transferred.
4. Press the Close Folder, then the Go Up One Level button until the File manager selection screen is present.
5. Select the home folder, press the Open Folder button, and select the **bmps** folder. Store logos in the **bmps** folder.

6. Press the Paste button. The logo (bmp) file will appear in the **bmps** folder.
7. Because the file is still resident in memory, it can be easily transferred to the print head(s). Navigate back to the file manager home screen. Highlight the Task:1 or Task:2 folder and press the Open Folder button.
8. Finally, press the Paste button, and the file appears on Task:1 or Task:2. If the file is desired on the opposite task (daisy chain), navigate back and repeat the process. Note that the available fonts are listed in the Task folder too.
9. When all desired file transfers are complete, press the Exit button.
10. From the System Utilities menu, press the Safely remove USB memory button, and the Done.
11. The file is now available for message creation in the message editor.
Appendix F: Part Numbers

**System**

<table>
<thead>
<tr>
<th>Item</th>
<th>Kit No.</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>MJHRP-035/SS</td>
<td>Stainless Steel Controller</td>
</tr>
<tr>
<td>2</td>
<td>MJHRP-035</td>
<td>Hand Held Controller Assembly Kit Complete</td>
</tr>
<tr>
<td>3</td>
<td>MJHRP-005</td>
<td>Power Supply and Bracketry</td>
</tr>
<tr>
<td>4</td>
<td>MJHRP-013/HH</td>
<td>Bracket, Mounting, Controller</td>
</tr>
</tbody>
</table>

**Service Parts**

<table>
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<th>Item</th>
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<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>MJHRP-007/F</td>
<td>Cable, Controller to Serial HRP Print Head, 6', F-F</td>
</tr>
<tr>
<td>2</td>
<td>MJHRP-007</td>
<td>Cable, Print Head to Print Head, (Daisy Chain Cable) 10', M-F</td>
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Replacement Kits

*Display and PCB

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<tr>
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<th>Description</th>
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</thead>
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<tr>
<td>1</td>
<td>*Consult Factory</td>
<td>Kit, Replacement Display, Stainless Steel, 10.2&quot;</td>
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<tr>
<td>2</td>
<td>*Consult Factory</td>
<td>Kit, Replacement, CPU, HRP Serial Stainless Steel Controller</td>
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<tr>
<td>3</td>
<td>*Consult Factory</td>
<td>Kit, Replacement Display, HRP Hand Held, 7&quot;</td>
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<tr>
<td>4</td>
<td>*Consult Factory</td>
<td>Kit, Replacement, CPU, HRP Serial Hand Held Controller</td>
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</tbody>
</table>

* Note: LOVESHAW strongly recommends returning the Handset / Controller for a Service Evaluation on the Handset Display and or Board Replacements as to avoid any unnecessary additional damage to the case standoffs, the sensitive electronics and the electronic board assemblies.
Optional Equipment

**Encoder & Photocell**

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<th>Description</th>
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<tr>
<td>1</td>
<td>MJHRP-001</td>
<td>Encoder Assembly with Mounting Bracket &amp; 25’ Cable</td>
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<tr>
<td>2</td>
<td>5765206</td>
<td>Encoder O-Ring Replacement</td>
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<tr>
<td>3</td>
<td>MJHRP-003</td>
<td>Photocell</td>
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