Contents

Contents ........................................................................................................................................................................2
How to Switch from Run Mode to Teach Mode ................................................................. 3
How to Make a Dot .................................................................................................................. 4
How to Make a Line ............................................................................................................. 5
How to Make an Arc ............................................................................................................ 7
How to Make a Circle .......................................................................................................... 9
How to Fill an Area ............................................................................................................... 10
How to Make an Array of Dots (Step & Repeat) ................................................................. 12
Calibrating the Tip Height ................................................................................................. 14
  Systems without a Tip Aligner ......................................................................................... 14
  Systems with a Tip Aligner ............................................................................................. 16
How to Open and Edit a Program ....................................................................................... 18
How to Name a Program .................................................................................................... 19
How to Clear or Copy a Program ......................................................................................... 20
## How to Switch from Run Mode to Teach Mode

<table>
<thead>
<tr>
<th>#</th>
<th>Key Press</th>
<th>Step</th>
<th>Teach Pendant Display</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>F1</td>
<td>• Press F1.</td>
<td><img src="#" alt="Program Menu" /></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• MOVE UP / DOWN to TEACH/RUN.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Press ENTER.</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>HOME</td>
<td>• Press HOME. If prompted, enter a password.</td>
<td><img src="#" alt="Teach Mode" /></td>
</tr>
</tbody>
</table>

[PROGRAM MENU]  
01*Teach/Run  
02 Program List  
03 Reset Counter  
04 Program Offset  
05 Needle Adjust  
06 Auto Needle Adjust

[ TEACH MODE ]  
PRESS [HOME] TO INITIALIZE SYSTEM
How to Make a Dot

PREREQUISITES

The system is in the Teach Mode. Refer to “How to Switch from Run Mode to Teach Mode” on page 3.

<table>
<thead>
<tr>
<th>#</th>
<th>Key Press</th>
<th>Step</th>
<th>Teach Pendant Display</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
<td>• Jog the dispensing tip to the desired XYZ location for the dispense dot.</td>
<td></td>
</tr>
</tbody>
</table>
| 2  | Shift > Type | • Press SHIFT > TYPE to open the Dispense Dot screen.  
• Make XYZ coordinate changes as needed. |
| 3  | F2 > F1  | • Press F2 to move through the Dispense Dot parameter screens.  
• Press F1 to save and exit. |
| 4  | Shift > End | • Press SHIFT > END to register the end of the program. |
| 5  |           | • Press START to run the program. |
How to Make a Line

PREREQUISITES

The system is in the Teach Mode. Refer to “How to Switch from Run Mode to Teach Mode” on page 3.

<table>
<thead>
<tr>
<th>#</th>
<th>Key Press</th>
<th>Step</th>
<th>Teach Pendant Display</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>• Jog the dispensing tip to an XYZ location for the first dispense point (Line Start).</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
| 2 | • Press SHIFT > 1 to register the location as a Line Start point.  
  • Make XYZ coordinate changes as needed. |
| 3 | • Press F2 to move to the Line Start parameter screen.  
  • Press F1 to save and exit. |
| 4 | • Jog the tip to the XYZ location of the second point (Line Passing). |
| 5 | • Press SHIFT > 2 to register the location as a Line Passing point.  
  • Make XYZ coordinate changes as needed. |
| 6 | • Press F2 to move to the Line Passing parameter screen.  
  • Press F1 to save and exit. |

Continued on next page
How to Make a Line (continued)

<table>
<thead>
<tr>
<th>#</th>
<th>Key Press</th>
<th>Step</th>
<th>Teach Pendant Display</th>
</tr>
</thead>
<tbody>
<tr>
<td>7</td>
<td>• Jog the tip to the XYZ location of the last dispense point (Line End).</td>
<td><img src="image" alt="Key Press 7" /></td>
<td></td>
</tr>
</tbody>
</table>
| 8  | • Press SHIFT > 3 to register the location as a Line End point.  
• Make XYZ coordinate changes as needed. | ![Key Press 8](image) |
| 9  | • Press F2 to move through the Line End parameter screens.  
• Press F1 to save and exit. | ![Key Press 9](image) |
| 10 | • Press SHIFT > END to register the end of the program. | ![Key Press 10](image) |
| 11 | • Press START to run the program. | ![Key Press 11](image) |
# How to Make an Arc

## PREREQUISITES
- The system is in the Teach Mode. Refer to “How to Switch from Run Mode to Teach Mode” on page 3.

<table>
<thead>
<tr>
<th>#</th>
<th>Key Press</th>
<th>Step</th>
<th>Teach Pendant Display</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
<td>Jog the dispensing tip to an XYZ location for the first dispense point (Line Start).</td>
<td></td>
</tr>
</tbody>
</table>
| 2 | Shift > | Press SHIFT > 1 to register the location as a Line Start point.  
- Make XYZ coordinate changes as needed. | Line Start 1/2  
X: 130.93 mm  
Y: 37.39 mm  
Z: 45.54 mm  
| 3 | F2 > F1 | Press F2 to move to the Line Start parameter screen.  
- Press F1 to save and exit. | Line Start 2/2  
Line Speed: 10.0 mm/s  
Pre-move Delay: 0.00 s  
Settling Distance: 0.00 mm  
Dispenser Off(0)/On(1): 1  
[F1] OK [F2] Next |
| 4 | | Jog the tip to the XYZ location of where the top of the arc should be (Arc Point). | |
| 5 | Shift > Menu > | Press SHIFT > MENU1 to register the location as an Arc Point.  
- Make XYZ coordinate changes as needed.  
- Press F1 to save and exit. | Arc Point  
X: 130.93 mm  
Y: 37.39 mm  
Z: 45.54 mm  
[F1] OK [F3] Current |
| 6 | | Jog the tip to the XYZ location where the arc should end (Line End). | |

Continued on next page
# How to Make an Arc (continued)

<table>
<thead>
<tr>
<th>#</th>
<th>Key Press</th>
<th>Step</th>
<th>Teach Pendant Display</th>
</tr>
</thead>
<tbody>
<tr>
<td>7</td>
<td>Shift &gt; 3</td>
<td>• Press SHIFT &gt; 3 to register the location as a Line End point.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Make XYZ coordinate changes as needed.</td>
<td>Line End 1/4</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>X: 130.93 mm</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Y: 37.39 mm</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Z: 45.54 mm</td>
</tr>
<tr>
<td>8</td>
<td>F2</td>
<td>• Press F2 to move through the Line End parameter screens.</td>
<td>Line End 4/4</td>
</tr>
<tr>
<td></td>
<td>F1</td>
<td>• Press F1 to save and exit.</td>
<td>Retract Distance: 0.00 mm</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Retract Low: 20.0 mm/s</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Retract High: 80.0 mm/s</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>[F1] OK [F2] Next</td>
</tr>
<tr>
<td>9</td>
<td>Shift &gt; End</td>
<td>• Press SHIFT &gt; END to register the end of the program.</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td></td>
<td>• Press START to run the program.</td>
<td></td>
</tr>
</tbody>
</table>
# How to Make a Circle

## PREREQUISITES

- The system is in the Teach Mode. Refer to “How to Switch from Run Mode to Teach Mode” on page 3.

<table>
<thead>
<tr>
<th>#</th>
<th>Key Press</th>
<th>Step</th>
<th>Teach Pendant Display</th>
</tr>
</thead>
</table>
| 1 | Shift > 4 > | • Press SHIFT > 4 to open the Circle menu.  
• Press F1 to make a circle by selecting three points on the diameter of the circle.  
• Press F2 to make a circle by entering the center point of the circle. | Circle  | [F1] 3-Point [F2] Center Point |
| 2 | F1 or F2 | • Follow the directions on the display to enter the XYZ coordinates. | | |
| 3 | F2 > F1 | • Press F2 to move through the Circle parameter screens.  
• Press F1 to save and exit. | Circle  | 5/5  
Retract Distance: 0.00 mm  
Retract Low: 10.0 mm/s  
Retract High: 80.0 mm/s  
[F1] OK [F2] Next |
| 4 | Shift > End | • Press SHIFT > END to register the end of the program. | | |
| 5 | | • Press START to run the program. | | |
How to Fill an Area

PREREQUISITES

The system is in the Teach Mode. Refer to “How to Switch from Run Mode to Teach Mode” on page 3.

<table>
<thead>
<tr>
<th>#</th>
<th>Key Press</th>
<th>Step</th>
<th>Teach Pendant Display</th>
</tr>
</thead>
</table>
| 1 | Shift > 9 > 1 | • Press SHIFT > 9 to open the Fill Area menu, then select the Fill Type.  
• Press 1 RECTANGLE.  
**NOTE:** This procedure shows how to fill a rectangle. | Fill Area 1/2  
Fill Type:  
2  
1 Rectangle 5 Circle Out  
2 Rectangle In 6 Polygon In  
3 Rectangle Out 7 Polygon Out  
4 Circle In  
[F1] OK [F2] Next |
| 2 | F2 > xx.xx > F1 | • Press F2 to move to the Fill Area parameter screen.  
• Enter the Width and Band settings for the area to be filled, then press F1 to save the setting and return to the program. | Fill Area 2/2  
Width: 0.00 mm  
Band: 0.00 mm  
[F1] OK [F2] Next |
| 3 |  | • Jog the dispensing tip to the top left corner of the area to be filled. |  |
| 4 | Shift > 1 | • Press SHIFT > 1 to register the location as a Line Start point. | Line Start 1/2  
X: 130.93 mm  
Y: 37.39 mm  
Z: 45.54 mm  
| 5 | F2 > F1 | • Press F2 to move to the Line Start parameter screen.  
• Press F1 to save and exit. | Line Start 2/2  
Line Speed: 10.0 mm/s  
Pre-move Delay: 0.00 s  
Settling Distance: 0.00 mm  
Dispenser Off(0)/On(1): 1  
[F1] OK [F2] Next |
| 6 |  | • Jog the dispensing tip to the bottom right corner of the area to be filled. |  |

Continued on next page
## How to Fill an Area (continued)

<table>
<thead>
<tr>
<th>#</th>
<th>Key Press</th>
<th>Step</th>
<th>Teach Pendant Display</th>
</tr>
</thead>
<tbody>
<tr>
<td>7</td>
<td>Shift &gt; 3</td>
<td>• Press SHIFT &gt; 3 to register the location as a Line End point.</td>
<td>Line End 1/4</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>X: 130.93 mm</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Y: 37.39 mm</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Z: 45.54 mm</td>
</tr>
<tr>
<td>8</td>
<td>F2 &gt; F1</td>
<td>• Press F2 to move through the Line End parameter screens.</td>
<td>Line End 4/4</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Press F1 to save and exit.</td>
<td>Retract Distance: 0.00 mm</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Retract Low: 20.0 mm/s</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Retract High: 80.0 mm/s</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>[F1] OK [F2] Next</td>
</tr>
<tr>
<td>9</td>
<td>Shift &gt; End</td>
<td>• Press SHIFT &gt; END to register the end of the program.</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td></td>
<td>• Press START to run the program.</td>
<td></td>
</tr>
</tbody>
</table>
How to Make an Array of Dots (Step & Repeat)

Use Step & Repeat to dispense the same pattern on multiple workpieces in an array.

PREREQUISITES

- The system is in the Teach Mode. Refer to “How to Switch from Run Mode to Teach Mode” on page 3.
- Multiple workpieces are properly positioned on the fixture plate.

### Key Press Step Teach Pendant Display

<table>
<thead>
<tr>
<th>#</th>
<th>Key Press</th>
<th>Step</th>
<th>Teach Pendant Display</th>
</tr>
</thead>
</table>
| 1 | Shift > 8 > 2 > F1 | • Press SHIFT > 8 to open the Label screen.  
• Enter a Label number (in this example, the number 2).  
• Press F1 to save and exit. | Label: 2  
[F1] OK |
| 2 | [ ] | • Jog the dispensing tip to the desired XYZ location for the first dispense dot. | |
| 3 | Shift > TYPE | • Press SHIFT > TYPE to open the Dispense Dot screen.  
• Make XYZ coordinate changes as needed. | X: 130.93 mm  
Y: 37.39 mm  
Z: 45.54 mm  
| 4 | F2 > F1 | • Press F2 to move through the Dispense Dot parameter screens.  
• Press F1 to save and exit. | Dispense Dot 3/3  
Retract Distance: 100.00 mm  
Retract Low: 10.0 mm/s  
Retract High: 10.0 mm/s  
[F1] OK [F2] Next |
| 5 | Shift > 5 > F1 | • Press SHIFT > 5 to open the Step & Repeat menu.  
• Press F1. | Step & Repeat  
[F1] Step & Repeat 2D  
[F2] Step & Repeat 3D |

Continued on next page
How to Make an Array of Dots (Step & Repeat) (continued)

<table>
<thead>
<tr>
<th>#</th>
<th>Key Press</th>
<th>Step</th>
<th>Teach Pendant Display</th>
</tr>
</thead>
<tbody>
<tr>
<td>6</td>
<td>F2</td>
<td>• Press F2 to move to the next screen.</td>
<td>[F1] OK [F2] Next</td>
</tr>
<tr>
<td></td>
<td></td>
<td><img src="attachment" alt="Step &amp; Repeat 2D" /></td>
<td><img src="attachment" alt="Step &amp; Repeat 2D" /></td>
</tr>
</tbody>
</table>
| 7  | 2>F1     | • Enter 2 in the Column field.  
• Enter 2 in the Row field.  
• Enter the label number from step 1 for Goto Label (in this example, 2).  
• Press F1 to save and exit. | ![Step & Repeat 2D](attachment) |
|    |          | ![Step & Repeat 2D](attachment) | ![Step & Repeat 2D](attachment) |
| 8  | Shift>End| • Press SHIFT > END to register the end of the program. | ![Step & Repeat 2D](attachment) |
| 9  |          | • Press START to test the program. | ![Step & Repeat 2D](attachment) |
Calibrating the Tip Height

Systems without a Tip Aligner

Set a Calibration Point (Initial Setup for Needle Adjust)

PREREQUISITES

- The system is in the Teach Mode. Refer to “How to Switch from Run Mode to Teach Mode” on page 3.

<table>
<thead>
<tr>
<th>#</th>
<th>Key Press</th>
<th>Step</th>
<th>Teach Pendant Display</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Press SETUP. • MOVE UP / DOWN to CALIBRATION POINT. • Press ENTER.</td>
<td>[SETUP] 1/3 01 XY Move Speed 02 Z Move Speed 03 Point to Point Arc Jump 04 Park Position 05*Calibration Point 06 Mark Points 07 Program Output Status</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>Jog the tip down until it is as close to the fixture plate surface as possible.</strong> • Press F1 to save the setting.</td>
<td>Calibration Point Jog to position [F1] OK</td>
</tr>
</tbody>
</table>

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Calibrating the Tip Height (continued)

Systems without a Tip Aligner (continued)

Recalibrate the Tip (Needle Adjust)

PREREQUISITES

The tip height is calibrated. Refer to “Set a Calibration Point (Initial Setup for Needle Adjust)” on page 14.

<table>
<thead>
<tr>
<th>#</th>
<th>Key Press</th>
<th>Step</th>
<th>Teach Pendant Display</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>F1</td>
<td>• Press F1.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• MOVE UP / DOWN to NEEDLE ADJUST.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Press ENTER.</td>
<td></td>
</tr>
</tbody>
</table>

2

• Press ENTER.

The dispensing tip moves to the user-defined calibration point.

**NOTE:** The tip will be 5 mm (0.2") higher than the calibrated point to prevent possible crushing of the tip.

3

• Jog the tip until it is centered over the calibration point.

• Press ENTER.

The system adjusts the dispense program to the recalibrated tip height.
# Calibrating the Tip Height (continued)

## Systems with a Tip Aligner

### Set a Calibration Point (Initial Setup for Auto Needle Adjust)

**PREREQUISITES**
- The system is in the Teach Mode. Refer to “How to Switch from Run Mode to Teach Mode” on page 3.

<table>
<thead>
<tr>
<th>#</th>
<th>Key Press</th>
<th>Step</th>
<th>Teach Pendant Display</th>
</tr>
</thead>
</table>
| 1 | ![Set Up](image) | - Press SETUP.  
- MOVE UP / DOWN to NEEDLE DETECT SETUP.  
- Press ENTER. | ![Teach Pendant Display](image) |
| 2 | ![Jog Tip to Needle Detect](image) | - Jog the tip to the tip aligner and lower the tip until it is as close to the crosshairs (cross point) as possible  
- Press F1.  
  The Needle Detect Setup screen appears. | ![Teach Pendant Display](image) |
| 3 | ![Press F1](image) | - Press F1.  
  The system begins the calibration. | ![Teach Pendant Display](image) |
| 4 | ![Press F1](image) | - Press F1 to accept the calibration.  
  **NOTE:** Press F2 to cancel the calibration. | ![Teach Pendant Display](image) |
Calibrating the Tip Height (continued)

Systems with a Tip Aligner (continued)

Recalibrate the Tip (Auto Needle Adjust)

PREREQUISITES

The needle detect position is calibrated. Refer to “Set a Calibration Point (Initial Setup for Auto Needle Adjust)” on page 16.

<table>
<thead>
<tr>
<th>#</th>
<th>Key Press</th>
<th>Step</th>
<th>Teach Pendant Display</th>
</tr>
</thead>
</table>
| 1 | 1         | • Press F1.  
• MOVE UP / DOWN to AUTO NEEDLE ADJUST.  
• Press ENTER. | [PROGRAM MENU] 1/1  
01 Teach/Run  
02 Program List  
03 Reset Counter  
04 Program Offset  
05 Needle Adjust  
06*Auto Needle Adjust |
| 2 | 2         | • Press ENTER.  
The system automatically checks the tip height using the tip aligner and displays the offset updates needed to calibrate the tip height. | Auto Needle Adjust  
Press [ENTER] to begin |
| 3 | 3         | • After the search is complete, press F1 to accept the calibration. | Auto Needle Adjust  
Searching for tip... |
# How to Open and Edit a Program

## PREREQUISITES
- The system is in the Teach Mode. Refer to “How to Switch from Run Mode to Teach Mode” on page 3.

<table>
<thead>
<tr>
<th>#</th>
<th>Key Press</th>
<th>Step</th>
<th>Teach Pendant Display</th>
</tr>
</thead>
</table>
| 1 | • Press F1.  
  • MOVE UP / DOWN to PROGRAM LIST.  
  • Press ENTER. | ![Teach Pendant Display](image) | ![Teach Pendant Display](image) |
| 2 | • MOVE UP / DOWN to select the desired program.  
  • Press ENTER.  
  The selected program becomes the current program and remains open until another program number is selected. | ![Teach Pendant Display](image) | ![Teach Pendant Display](image) |
| 3 | • MOVE UP / DOWN to select the command line to edit.  
  • Press ENTER. | ![Teach Pendant Display](image) | ![Teach Pendant Display](image) |
| 4 | • Enter the new coordinates manually. or  
  • Press F3 to update the XYZ values to the current tip location.  
  • Press F1 to save and exit or ESC to cancel the changes. | ![Teach Pendant Display](image) | ![Teach Pendant Display](image) |
| 5 | • Make other changes as needed.  
  • Press F1 to save and exit. | ![Teach Pendant Display](image) | ![Teach Pendant Display](image) |
# How to Name a Program

## PREREQUISITES

- The system is in the Teach Mode. Refer to “How to Switch from Run Mode to Teach Mode” on page 3.

<table>
<thead>
<tr>
<th>#</th>
<th>Key Press</th>
<th>Step</th>
<th>Teach Pendant Display</th>
</tr>
</thead>
</table>
| 1 | Press MENU1. | • Press MENU1.  
• MOVE UP / DOWN to PROGRAM NAME.  
• Press ENTER. | ![Menu 1](image) |
| 2 | Press the X jog buttons to move left / right and the Y jog buttons to move up / down through the characters.  
• Press ENTER to select characters.  
• Press CLEAR to delete characters.  
• Press F1 to save and exit. | ![Program Name](image) |
# How to Clear or Copy a Program

## PREREQUISITES
- The system is in the Teach Mode. Refer to “How to Switch from Run Mode to Teach Mode” on page 3.
- The program you want to clear or copy is currently open. Refer to “How to Open and Edit a Program” on page 18.

<table>
<thead>
<tr>
<th>#</th>
<th>Key Press</th>
<th>Step</th>
<th>Teach Pendant Display</th>
</tr>
</thead>
</table>
| 1 | ![Menu](image1) | • Press MENU1.  
• MOVE UP / DOWN to UTILITY MENU.  
• Press ENTER. | ![Menu Display](image2) |
| 2 | ![Program](image3) | • MOVE UP / DOWN to PROGRAM.  
• Press ENTER. | ![Program Display](image4) |
| 3 | ![Clear](image5) or ![Copy](image6) > ![F1](image7) | • Press 1 CLEAR to empty all addresses in the current program.  
• Press 2 COPY to copy the current program.  
• Press F1 to continue. | ![Program Utility Display](image8) |
| 4 | ![F1](image7) or ![F2](image8) | • If you pressed 1 (Clear), the system prompts for confirmation.  
• Press F1 to accept the clear or F2 to cancel the clear. | ![Program Utility Display](image9) |
| 5 | ![XX](image10) > ![F1](image11) | • If you pressed 2 (Copy), the system prompts for the program number to copy to (program number 1–99).  
• Press F1 to copy all program contents to the selected program number.  
**NOTE:** If the destination program is not empty, the program contents are overwritten by the copied program. | ![Program Utility Display](image12) |