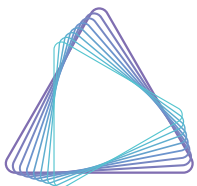


TubeMarker™2

Operation Manual



AZENTA
LIFE SCIENCES

Azenta, Inc.

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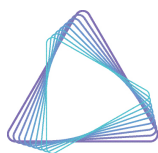
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This technology is subject to United States export Administration Regulations and authorized to the destination only; diversion contrary to U.S. law is prohibited.

Original manual printed in English.

These are the original instructions for the Direct Tube Marker.



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1. Safety Information



DANGER

Read the Safety Chapter

Failure to review the Safety chapter and follow the safety warnings can result in death or serious injury.

- All personnel involved with the operation or maintenance of this product must read and understand the information in this safety chapter.
- Follow all applicable safety codes of the facility as well as national and international safety codes.
- Know the facility safety procedures, safety equipment, and contact information.
- Read and understand each procedure before performing it.



This operation manual contains important operating and maintenance instructions which must be read, understood, and followed by the product user. Failure to use this product according to this operation manual may degrade or defeat the protection normally provided by this product. Read this manual prior to product use and keep it for future reference.

Safety Instructions

NOTE: This product has been tested to meet the requirements of IEC/EN 61010-1:2010, UL 61010-1 (2012) and CAN/ CSA-C22.2 No. 61010 (2012).


If the equipment is used in a manner not specified by the manufacturer, the protection provided by the equipment may be impaired.

Reference the following list of safety instructions:

- Keep the device away from humidity.
- Check the voltage of the power source before you connect the equipment to the power outlet.
- Take care not to spill any liquid on the printer.
- Only qualified service personnel should unscrew the base of the instrument or touch the back the LCD display.
- Turn off the power and unplug the device before maintenance.
- Do not touch any moving parts.
- Only use the Direct Tube Marker with the AC/DC adapter provided with the equipment.
- If the power supply is damaged please do not attempt to use the Direct Tube Marker.
- Do not position the Direct Tube Marker so that it is difficult to operate the disconnecting device (detachable plug).

Regulatory Compliance and Declaration of Conformity

The Direct Tube Marker meets the requirements of the European Union's Machinery Directive 2006/42/EC and 2014/30/EU as a completed machine. In accordance with the Directive, Azenta Life Sciences has issued a Declaration of Conformity and the Direct Tube Marker has a CE mark affixed.

DOCUMENT NUMBER: 364106	TITLE: Declaration of Conformity, Low Voltage Directive	
REVISION: B	DOCUMENT CLASSIFICATION:	
ECO# EC132455	04-Form, Template or Other	

DECLARATION OF CONFORMITY

Description: Direct Tube Marker

Function: The device allows, depending on the size of the tube, several lines of printing directly onto the surface of centrifuge and cryogenic tubes from 0.2ml to 50ml in volume. The instrument also prints linear barcodes (standard and wide), 2D codes (standard and small) and graphic files (monochrome .bmp, .gif, .tiff) such as logos. Print orientation can be vertical or horizontal (except for barcodes which print vertically only).

Product code: 4ti-0680-1, 4ti-0681, 4ti-0683, and 4ti-0684

Business name and full address of the manufacturer of the machinery:

Azenta Life Sciences, Northbank, Irlam, Manchester M44 5AY, United Kingdom

Name and address of the person, established in the Community, authorized to compile the relevant technical documentation:

Azenta Life Sciences (Germany) GmbH, Im Leuschnerpark 1B, 64347 Griesheim, Germany

The manufacturer declares:

- That this equipment fulfills all the relevant provisions of Low Voltage Directive 2014/35/EU.
 - EN 61010-1:2010+A1:2019. Safety requirements for electrical equipment for measurement, control, and laboratory use. General requirements
- That this machinery fulfills all the relevant provisions of Directive 2014/30/EU (EMC Directive)
 - EN 61326-1:2021. Electrical equipment for measurement, control and laboratory use. EMC requirements. General requirements
- That this machinery is in conformity with Directive 2011/65/EU of the European Parliament and of the Council of 8 June 2011 on the restriction of the use of certain hazardous substances in electrical and electronic equipment and amendment 2015/863/EU.
 - BS EN IEC 63000:2018. Technical documentation for the assessment of electrical and electronic products with respect to the restriction of hazardous substances.

Year CE Marking Affixed to Product: 2017

Signed for and on the behalf of Azenta Life Sciences:

Rob Woodward

Rob Woodward (Oct 25, 2021 05:58 GMT+1)

Print name: Rob Woodward

Position: Senior Vice President, Global Quality Executive Management

Place: Irlam, Manchester

Confidential: The information is confidential and is to be used only in connection with matters authorized by Azenta and no part of it is to be disclosed to others without prior written permission from Azenta.

Date Printed: Saturday, October 23, 2021

This is uncontrolled when printed

PAGE **1** OF **1**

2. Introduction

The following chapter details the external and internal parts of the Direct Tube Marker and includes a list of all contents within the product's package.

The Instrument

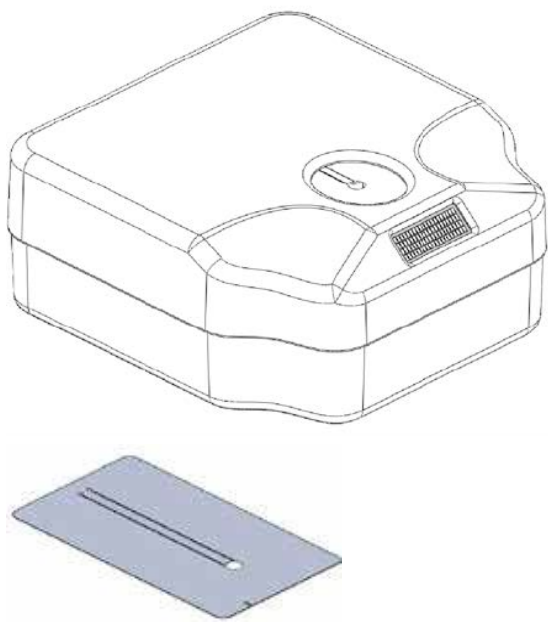
The Direct Tube Marker allows printing directly onto the surface of a wide range of tubes including centrifuge and cryogenic vials from 0.5 – 50 ml in volume, limiting need and use of sticky labels or marker pens. Markings are resistant to ethanol, isopropanol, water, DMSO, liquid nitrogen and mechanical stress. The prints are also stable over a wide temperature range (-196 °C to 100 °C). Markings do not stain your hands when touching the tubes.

NOTE: Resistance varies between ribbon colors. Please refer to the Direct Tube Marker website on www.azenta.com for an overview chart of ribbon resistance & compatibility.

Our label design software gives the user complete flexibility when creating their label layout. Each piece of data, be it text, barcodes or graphic files can be placed independently of one another. Depending on the printing needs, this ensures the correct data is called upon for each cell or emphasis is given to the most important information.

The instrument also prints linear barcodes and 2D codes in various module sizes and graphic files (.bmp, .jpg, .gif, .png) such as company logos. Print orientation can be set within 360°.

Package Contents

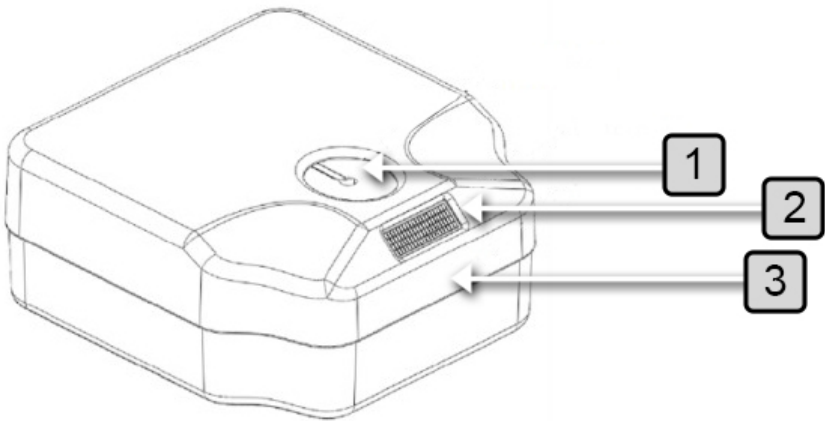


Package Contents		
Direct Tube Marker		
3 X Tube Adapters		
Tube Adapter	Hole Diameter	Product Code
Tube Adapter for 1.5 ml/2 ml tubes	11.5 mm	4ti-0681
Tube Adapter for 2D cluster tubes	8.5 mm	4ti-0683
Tube Adapter for cryo tubes	12.7 mm	4ti-0684
AC adapter 30W 18VDC (input 100-240VAC)		
7 mm magnetic pole adapter		
USB A-B cable		
2.5 mm hex key for Pivot Point adjustment		
USB Flash Drive		

Direct Tube Marker Parts

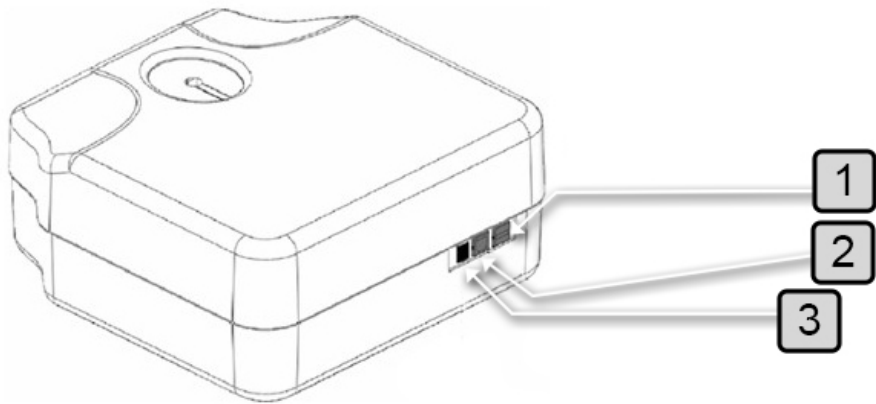
Direct Tube Marker External Parts

Direct Tube Marker Front



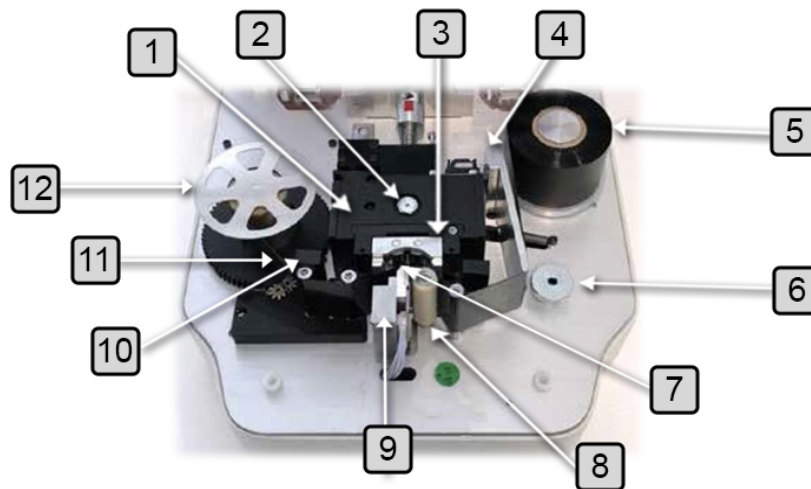
Number	Description
1	Tube Adapter
2	LCD Display
3	Top Cover

Direct Tube Marker Back



Number	Description
1	Keyboard Connector (USB/A)
2	PC Connector (USB/B)
3	DC Power Connector

Direct Tube Marker Internal Parts



Number	Description
1	Sled
2	Solenoid
3	Adjustable Pivot Point
4	Ribbon Tensioner
5	Un-printed Ink Ribbon
6	Adjustable Support Base Knob
7	Printhead
8	Dust Collector
9	Adapter Guide Pin
10	Tube Sensor
11	Printed Ink Ribbon
12	Spool Locking Cap

3. Software Installation

A decorative graphic consisting of multiple thin, overlapping wavy lines in a light purple color, located on the right side of the purple header section.

The following chapter details the installation process for the Direct Tube Marker software.

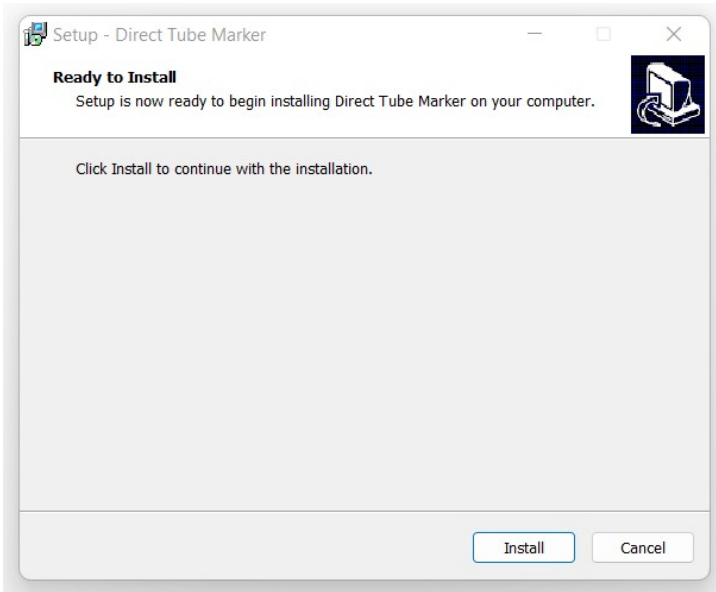
Installing Direct Tube Marker Software

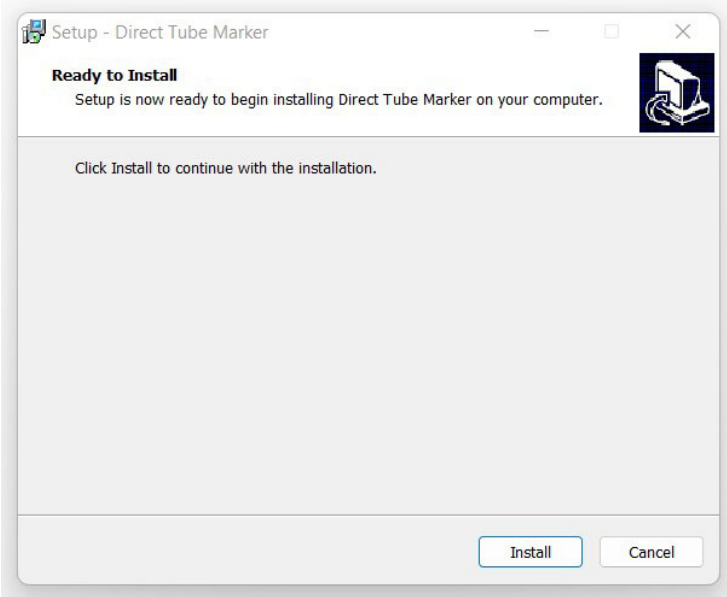
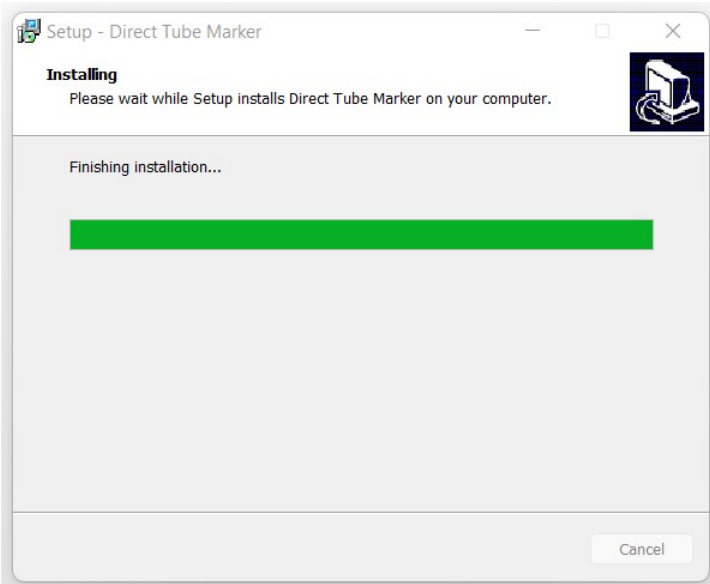
Supplied with the Direct Tube Marker is a USB stick containing a folder to the software installer. Within this folder is the following file:


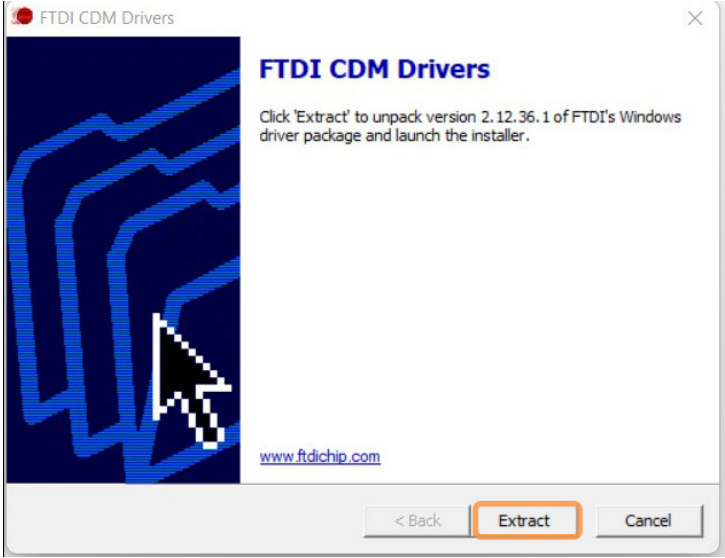
- Direct Tube Marker Installer file: `Direct_Tube_Marker_Setup_3_4_1_160.exe`

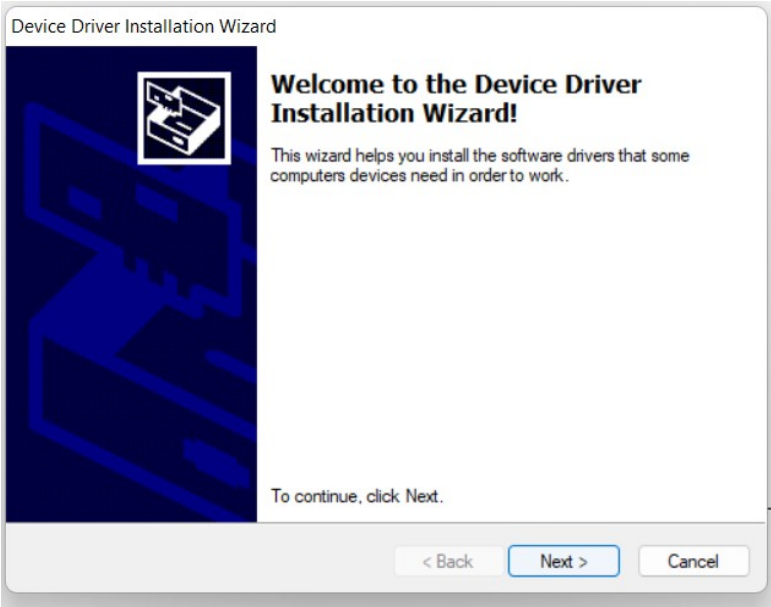
To install the software, you must execute the installer file. Follow the steps below to install your new Direct Tube Marker software.

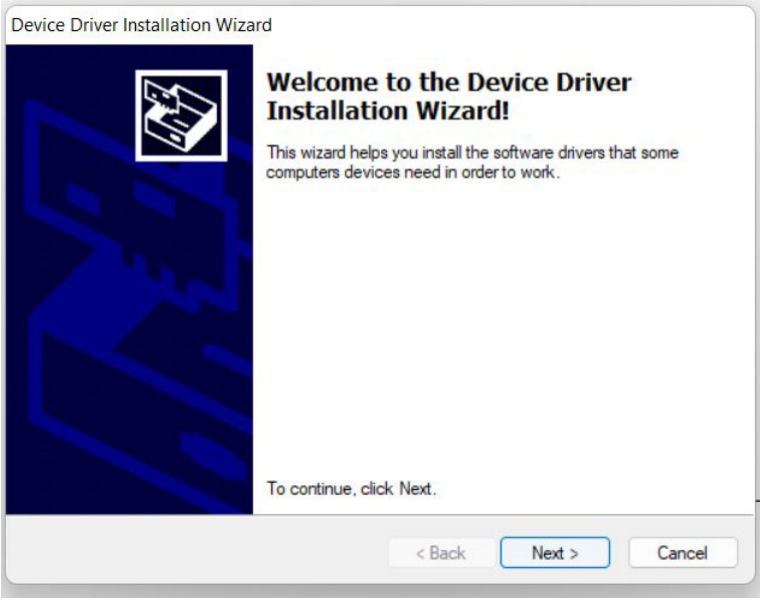
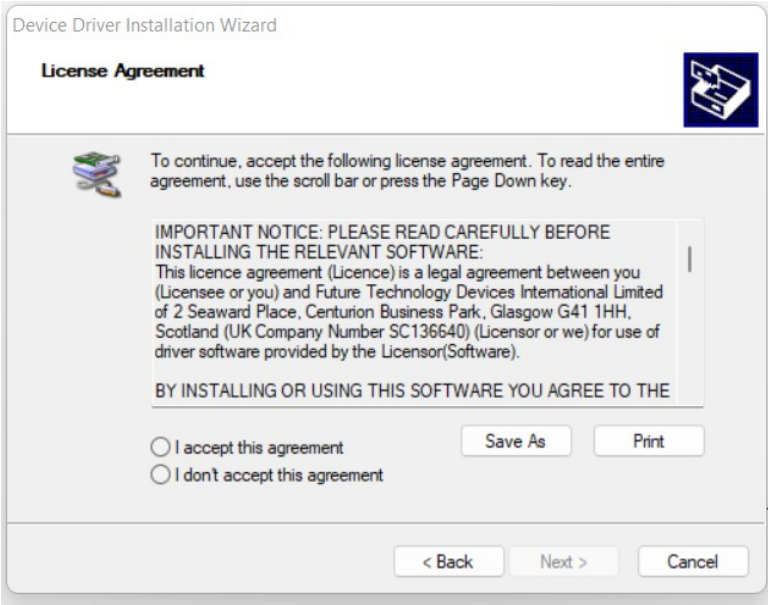
NOTE: Both the installer and set-up files must be located in the same file space for installation to be successful. Azenta recommends you run the installer directly from the USB stick provided within the product package.

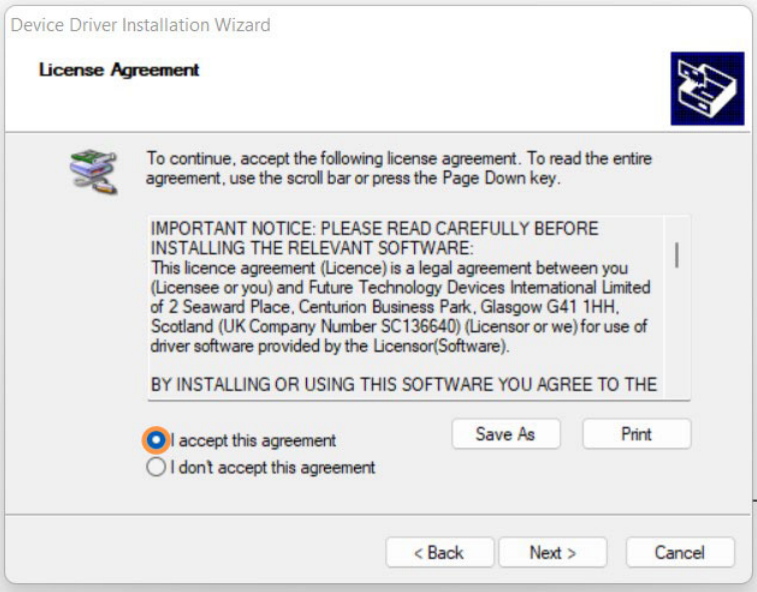
Step	Action
1.	Plug the provided USB stick into your computer to access the <i>Direct Tube Marker</i> software.
2.	<p>Locate the <code>Direct_Tube_Marker_Setup_3_4_1_160.exe</code> file and double-click it. The <i>Install</i> window opens.</p> 

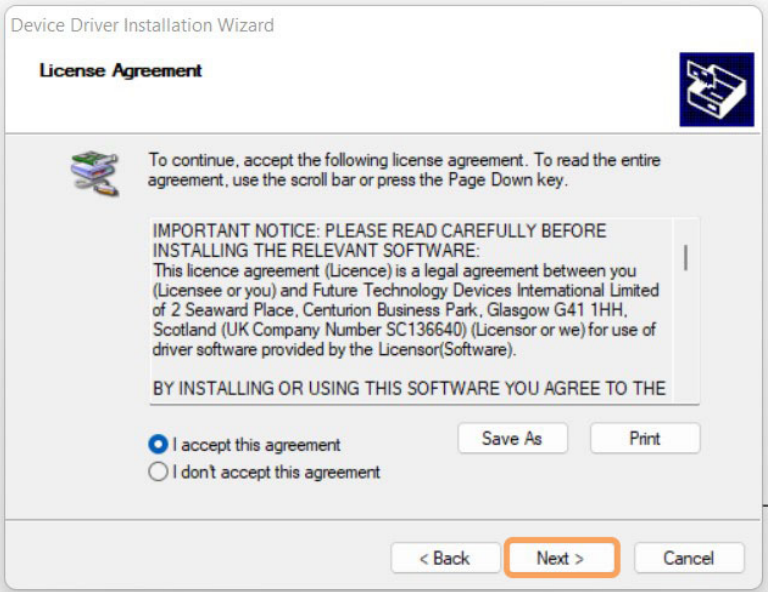
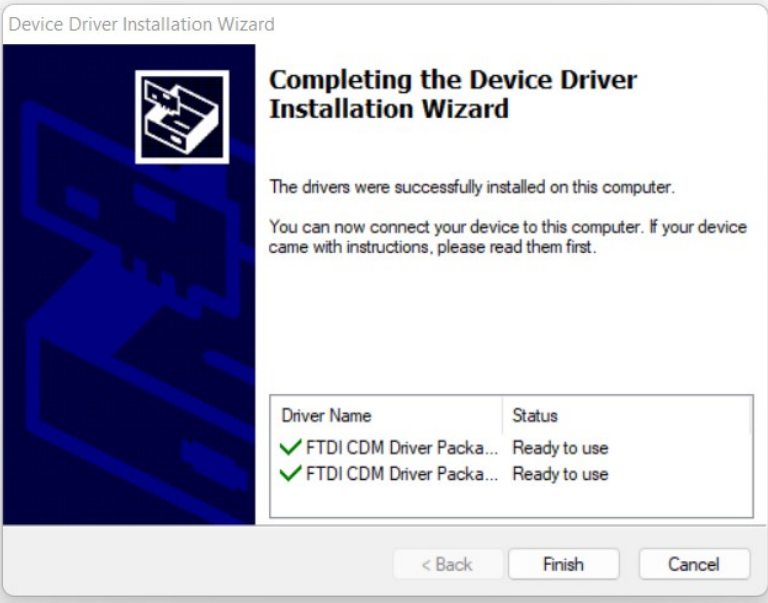
Step	Action
	<p>Select the Install button.</p> 
3.	<p>The <i>Install Loading</i> window appears.</p> 

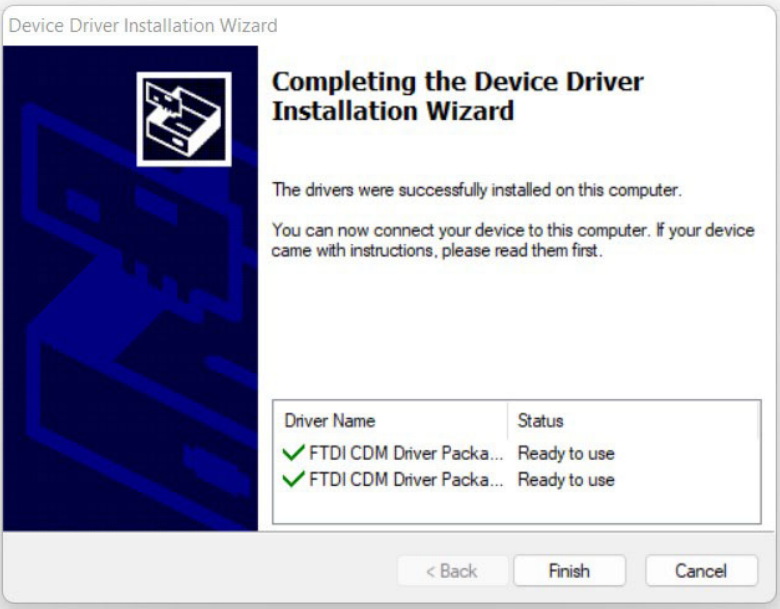
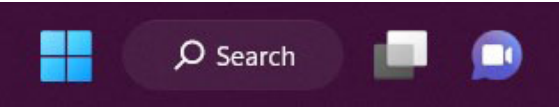
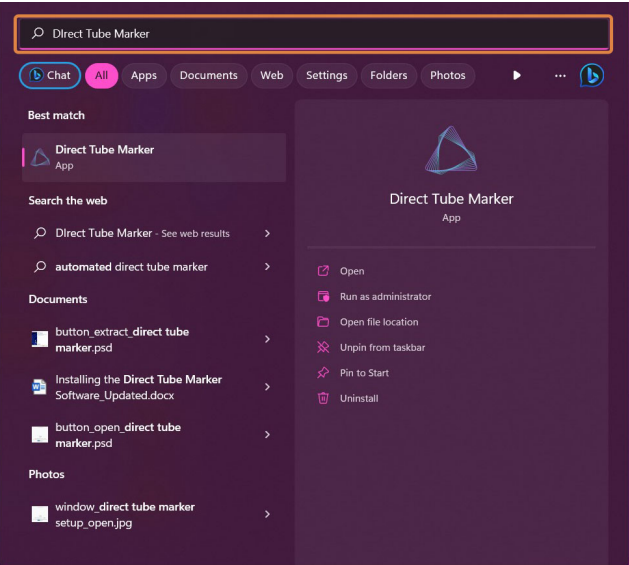
Step	Action
	<p>The <i>FTDI CDM Drivers</i> window opens.</p> 
4.	<p>Select the Extract button.</p>  <p>The <i>Welcome Device Drive Installation</i> window opens.</p>

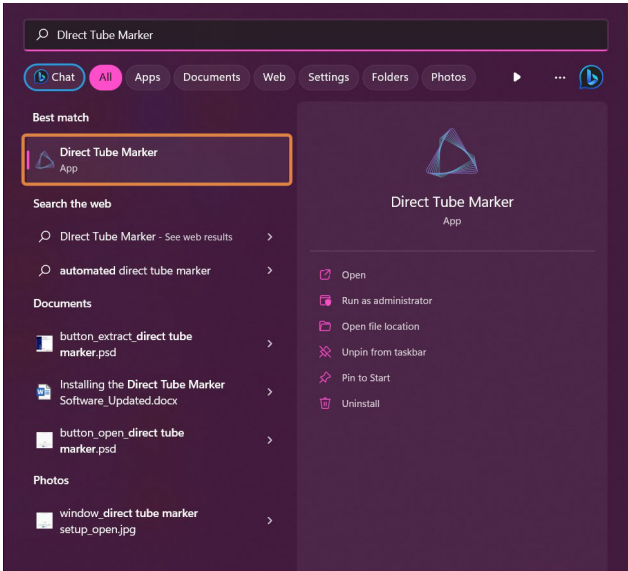
Step	Action
	 <p>The screenshot shows a window titled "Device Driver Installation Wizard". On the left is a blue graphic with a white USB icon. The main text reads: "Welcome to the Device Driver Installation Wizard! This wizard helps you install the software drivers that some computers devices need in order to work." Below this, it says "To continue, click Next." At the bottom are three buttons: "< Back", "Next >" (highlighted with a blue border), and "Cancel".</p>

Step	Action
	<p>Select the Next button.</p> 
5.	<p>The <i>License Agreement</i> window opens.</p> 

Step	Action
6.	<p>Select the radio button next to the <i>I accept this agreement</i> option.</p> 

Step	Action						
	<p>Select the Next button.</p> 						
7.	<p>The <i>Completing Device Driver Installation</i> window opens.</p>  <table border="1"> <thead> <tr> <th>Driver Name</th><th>Status</th></tr> </thead> <tbody> <tr> <td>✓ FTDI CDM Driver Packa...</td><td>Ready to use</td></tr> <tr> <td>✓ FTDI CDM Driver Packa...</td><td>Ready to use</td></tr> </tbody> </table> <p>At the bottom are '< Back', 'Finish', and 'Cancel' buttons.</p>	Driver Name	Status	✓ FTDI CDM Driver Packa...	Ready to use	✓ FTDI CDM Driver Packa...	Ready to use
Driver Name	Status						
✓ FTDI CDM Driver Packa...	Ready to use						
✓ FTDI CDM Driver Packa...	Ready to use						

Step	Action
8.	<p>Select the Finish button.</p>  <p>The <i>Installation</i> application automatically closes.</p>
9.	<p>Locate your computer's <i>Search</i> function.</p>  <p>Type <i>Direct Tube Marker</i> into the <i>Search</i> function.</p> 

Step	Action
10.	<div>Double-click the Direct Tube Marker application to open the software.</div> <div>A screenshot of the Windows Search interface. The search bar at the top contains the text 'Direct Tube Marker'. Below the search bar, there are tabs for 'Chat', 'All', 'Apps', 'Documents', 'Web', 'Settings', 'Folders', and 'Photos'. The 'All' tab is selected. Under the 'Best match' section, the 'Direct Tube Marker' app is listed with a blue icon and the word 'App' below it. This result is highlighted with a red rectangular box. To the right of this list, a larger preview card for the 'Direct Tube Marker' app is shown, featuring the same blue icon and the text 'Direct Tube Marker App'. Below the app name on the preview card, there are several action buttons: 'Open', 'Run as administrator', 'Open file location', 'Unpin from taskbar', 'Pin to Start', and 'Uninstall'. The 'Open' button is highlighted with a red rectangular box. The left sidebar of the search window shows various search results categorized by 'Search the web', 'Documents', and 'Photos'.</div>

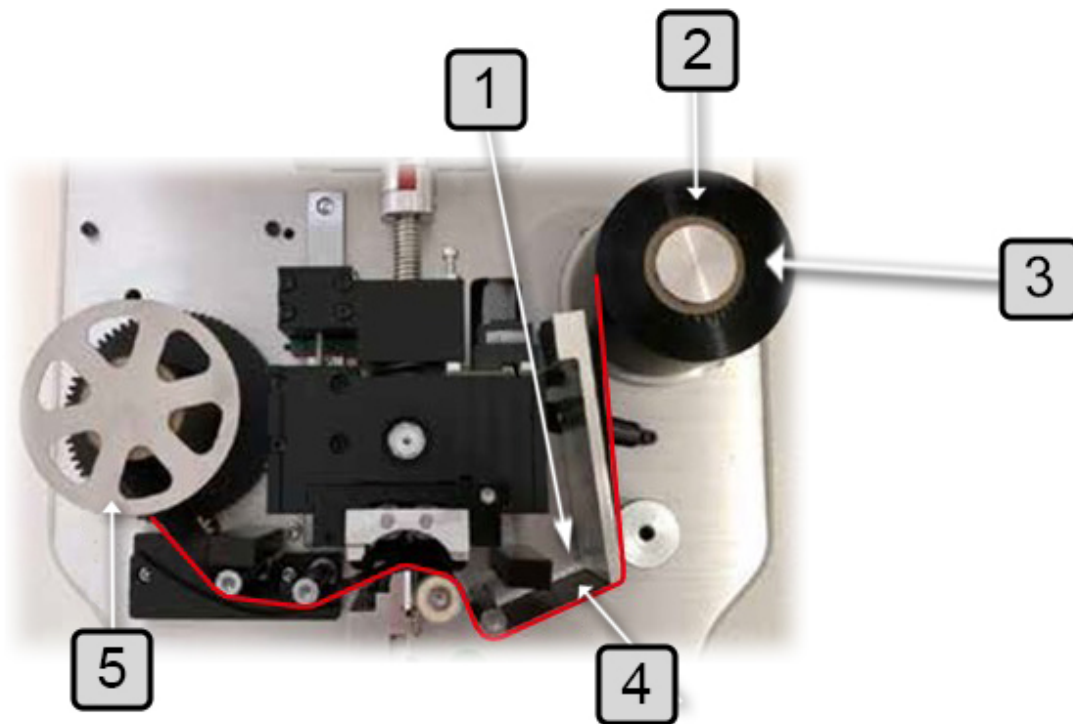
4. Hardware Installation

A decorative graphic consisting of several thin, overlapping, wavy lines in a light purple color, positioned on the right side of the page, extending from the top edge down to the horizontal line separating the header from the main content area.

The following chapter details how to install the Direct Tube Marker hardware.

How to Install a Ribbon for Printing

NOTE: Where possible, gloves should be worn when installing the ribbon. This ensures the ink is not stained by the grease from your fingers.



Number	Description
1	Ink Ribbon, Ink Side
2	Drive Shaft
3	Ink Ribbon
4	Ink Ribbon, Glossy Side
5	Spool Locking Cap

Step	Action
1.	Open the top cover of the printer.
2.	Remove the spool locking cap.
3.	Insert the ink ribbon on the right-hand drive shaft. NOTE: Ensure that the pin at the base of the drive mechanism shaft goes into the slot on the ink ribbon core. Check that the core goes all the way down and there is no gap between the bottom of the ribbon and the base of the drive mechanism.
4.	Thread the ink ribbon through the path highlighted by the red line in the picture above.
5.	Insert the empty ink ribbon core onto the left-hand drive shaft. Ensure the slot in the core is flush over the pin at the base of the shaft.
6.	Attach the ribbon to the empty ink ribbon core using thin adhesive tape. NOTE: Make sure that the lower edge of the ink ribbon is as close to the black drive mechanism as possible and that it is not wrinkled.
7.	Lock the spool and ribbon in place by screwing the spool locking cap down, this will help to align the ribbon.
8.	Turn the drive mechanism and core clockwise until the start of the ink ribbon is on the core. If necessary, turn the right hand side ink ribbon roll clockwise to tighten the ribbon.
9.	Close the top cover and proceed to "How to Connect Printer to a PC" on page 35. The Direct Tube Marker will carry out a calibration procedure at start-up.
10.	If start-up is interrupted the unit will auto-calibrate before the first print. NOTE: The glossy side of the ink ribbon should be against the printhead, otherwise the printhead might be damaged when used. Avoid touching the unused area (between the printhead and right-hand side roll holder) of the ink ribbon with bare hands. Any dirt or grease on the ink ribbon will reduce the print quality.

How to Set-up Tube Support

Selecting and Installing Tube Adapter

The Direct Tube Marker delivery package contains tube adapters for 1.5 ml / 2 ml tubes (4ti-0681, hole diameter 11.5 mm), 0.5 ml PCR and 96 racked 2D storage tubes (4ti-0683, hole diameter 8.5 mm) and cryo tubes (4ti-0684, hole diameter 12.7 mm).


To print on tubes that are not supported by the standard adapters please refer to our website www.azenta.com to see the latest additions to the Direct Tube Marker portfolio. The tube adapter is selected according to the tube diameter.

Direct Tube Marker Tube Adapter	Hole Diameter	Product Code
Tube Adapter for 1.5 ml / 2 ml Tubes	11.5 mm	4ti-0681*
Tube Adapter for 2D Cluster Tubes	8.5 mm	4ti-0683*
Tube Adapter for Cryo Tubes	12.7 mm	4ti-0684*
Tube Adapter for 2 ml Screw Cap Tubes (10 mm Diameter)	10.4 mm	4ti-0685-1
Tube Adapter for 15 ml Tubes	18 mm	4ti-0685-2
Tube Adapter for 50 ml Tubes	30 mm	4ti-0685-3
Tube Adapter for Matrix Tubes	8.2 mm	4ti-0685-4
Tube Adapter for 0.2 ml Tubes	6.4 mm	4ti-0685-5

NOTE: These items are included with the Direct Tube Marker (Code 4ti-0680-1)

Tubes without a collar will be supported from the bottom via an adjustable adapter. They will also be aligned with the print head from the top via an adapter plate.

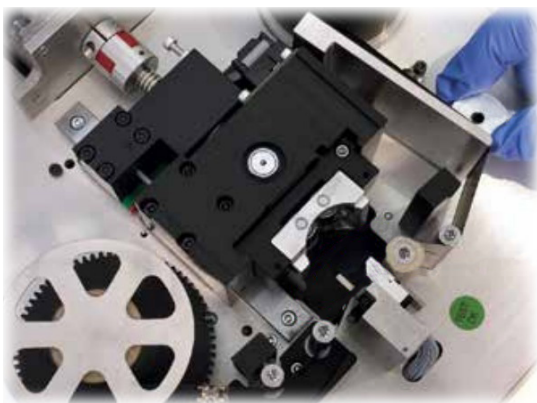
Tube adapters for tubes not fitting to any of the existing adapters are available on request. Please contact Azenta at www.azenta.com.

Step	Action				
1.	Insert the tube adapter on the sled.				
2.	<p>Check that the plate guide pin slots into the small hole in the tube adapter.</p>  <table border="1"> <thead> <tr> <th>Number</th><th>Description</th></tr> </thead> <tbody> <tr> <td>1</td><td>Tube Adapter Guide Pin</td></tr> </tbody> </table>	Number	Description	1	Tube Adapter Guide Pin
Number	Description				
1	Tube Adapter Guide Pin				

Setting Adjustable Support Platform

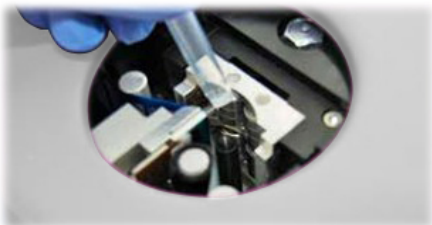
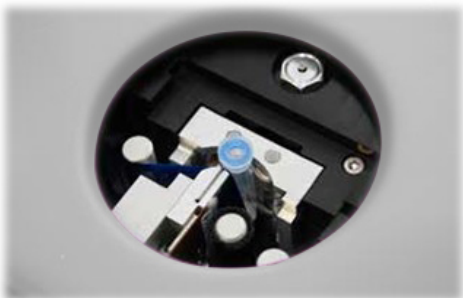
Housed within the Direct Tube Marker unit is an adjustable support platform from which tubes without a lip or collar can be fully supported. Integrated within the support platform is a magnet which attracts and stabilizes the magnetic pole attachment used to support tubes of less than 65 mm in length and do not have a collar or lip.


The magnet within the support platform has been designed and positioned in such a way to help users perfectly locate the pole attachment and eliminate misalignment against the printhead and sled; which could potentially damage these components.

Step	Action
1.	Open the top cover and remove the adapter if applicable.
2.	<p>Turn the knob clockwise to raise the support platform. Turning anti-clockwise will lower the platform.</p> 

NOTE: To perfectly optimize print results for your tube(s), you may need to adjust the pivot point of the sled to even out pressure across the whole tube surface area, "[Setting the Sled Pivot Point](#)" on [page 32](#). Additionally, you may also require the use of the 7 mm magnetic pole attachment. See below for details how to correctly position the attachment.

Using Magnetic Pole Adapter

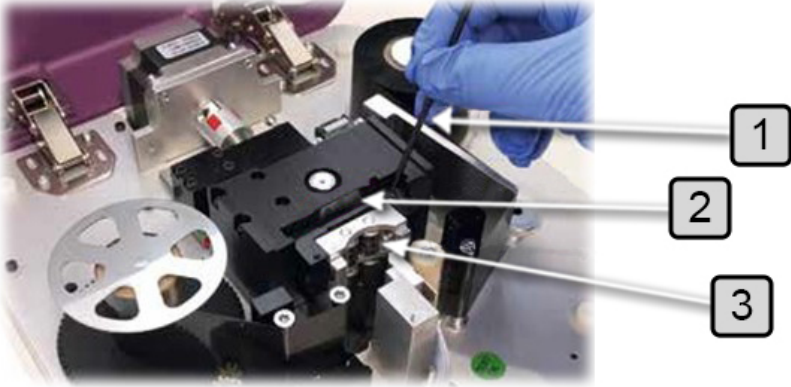

Step	Action
1.	While connected to the software with the cover closed, go to <i>Printer</i> settings manager in bottom left corner of home screen.
2.	Select the Sled tab and use the up-arrow to open up the sled. NOTE: This gives you extra room to maneuver the pole attachment.
3.	Open the cover of the unit and remove the tube adapter to place the pole attachment.
4.	<p>The attachment should be placed in such a way that is fully supportive to the tube you wish to print onto.</p>  <p>Once positioned, shut the cover and close the sled by using the down-arrow within the sled tab; leaving enough room to insert the tube for printing onto.</p>
5.	<p>Insert the tube and close the sled further so the tube is locked in position.</p>  <p>NOTE: You may need to make fine adjustments to tube platform height and pole attachment to optimize the printed label position. Ensure there is no pressure coming from the sled when making these adjustments.</p>
6.	<p>In other instances where the tubes are larger and more susceptible to falling over, Azenta recommends the use of an adapter plate to align the tube against the printhead and sled.</p> <p>NOTE: This will alleviate any possibility of the tube dropping into the unit after a print has been made.</p>

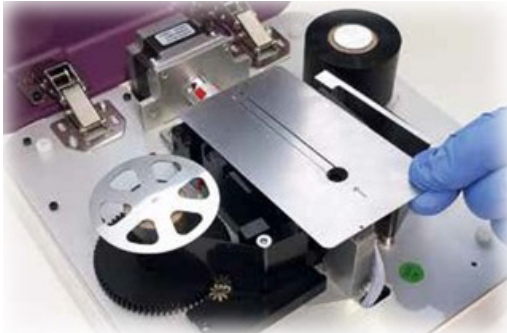
Step	Action
7.	<p>If the tube is over 65 mm in length, there is no need for the pole attachment.</p>  <p>NOTE: Switch tube lift OFF in the Direct Tube Marker printer settings tab for adapters without a lift design or for tubes without a cap or collar.</p>

Setting the Sled Pivot Point

To improve the overall print quality, users have the ability to adjust the position of the sled's pivot point, increasing the surface area of the tube in which pressure is applied. This is particularly useful for larger tubes or those which are not printing fully near the base of the tube. The pivot point can only be lowered to a maximum of 14 mm below the default position. Follow the step-by-step guide below for how to effectively utilize the adjustable pivot point.

Step	Action
1.	Open the top cover and remove the adapter (if applicable).
2.	Take the 2.5 mm hex key provided and adjust the height of the pivot point. NOTE: To lower the pivot point turn the hex key clockwise; turning anti-clockwise will raise the pivot point.

Step	Action								
	<p>For best results, you want to adjust the pivot point so it is applying pressure to the center or just below the center of the tube you are printing on. The pivot point is located in the middle roller bearing of the top set of 3 roller bearings, as shown in the photo below.</p>  <table border="1"> <thead> <tr> <th>Number</th><th>Description</th></tr> </thead> <tbody> <tr> <td>1</td><td>Hex Key</td></tr> <tr> <td>2</td><td>Pivot Point Ruler</td></tr> <tr> <td>3</td><td>Pivot Point</td></tr> </tbody> </table>	Number	Description	1	Hex Key	2	Pivot Point Ruler	3	Pivot Point
Number	Description								
1	Hex Key								
2	Pivot Point Ruler								
3	Pivot Point								
3.	 <table border="1"> <thead> <tr> <th>Number</th><th>Description</th></tr> </thead> <tbody> <tr> <td>1</td><td>Pivot Point Ruler</td></tr> </tbody> </table> <p>NOTE: DO NOT raise the pivot point above the default position. Default position is flush with the top of the sled.</p>	Number	Description	1	Pivot Point Ruler				
Number	Description								
1	Pivot Point Ruler								
4.	<p>Once the pivot point is in position, replace the adapter suitable for the tube(s) you wish to print onto and close the top cover. Make a note of the pivot point position by referencing the sled ruler.</p>								

Step	Action
5.	<p>For tubes that do not have a lip or collar, please refer to "Setting Adjustable Support Platform" on page 29.</p> 

Below are examples of prints which were printed with the pivot point at default position and again with the pivot point adjusted to the center of the tube. The print quality has drastically improved and important label data hasn't been lost as a result of the lowered pivot point.

Pivot point default:



Pivot point 10 mm lower:



How to Connect Printer to a PC

Please check the following items before connecting the power source:

- There is no tube inside the Direct Tube Marker
- The ink ribbon is inserted correctly
- The tube adapter is inserted correctly
- The Direct Tube Marker top cover is closed

Connect the DC power source plug to the connector shown in ["Direct Tube Marker External Parts" on page 12](#).

The Direct Tube Marker will carry out a calibration procedure at start-up. Wait for calibration to finish before proceeding. If calibration is interrupted it will auto-calibrate once the first print is triggered. Alternatively, you can restart the Direct Tube Marker by disconnecting and reconnecting the power supply.

Execute Direct Tube Marker software.

5. Preparation for Printing



The following chapter details how to prepare the Direct Tube Marker for printing.

How to Create Label Content

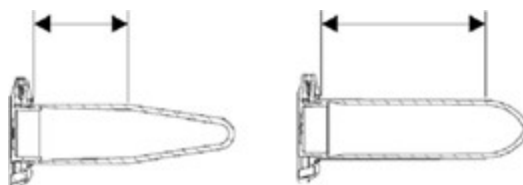
How to Set the Tube Label Dimensions

In order to set the optimum tube label dimensions, ensuring all label content is printed onto the tube being used, you must first measure your tube to find the height and diameter parameters.

The max label height is specified according to the measurement of the straight part of the tube. This is between the cap and the conical part of the tube, as shown below. The maximum printing height is 40 mm. For tubes that exceed 40 mm in length, label heights should be set to 40 mm.

The max label width is specified according to the diameter of the tube being used. Whatever the diameter is of the tube, this will be converted in to its measurement as a circumference. This ensures the end of the label will not overlap the beginning of the label.

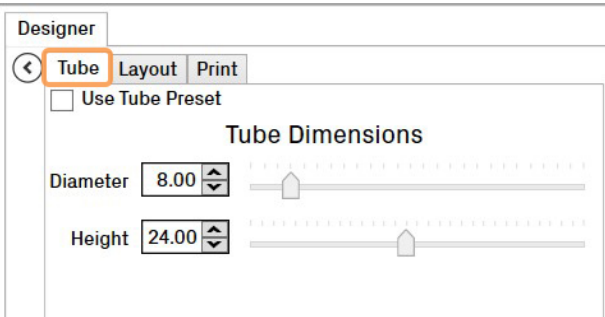
NOTE: The actual tube dimensions specify the MAX label dimensions.

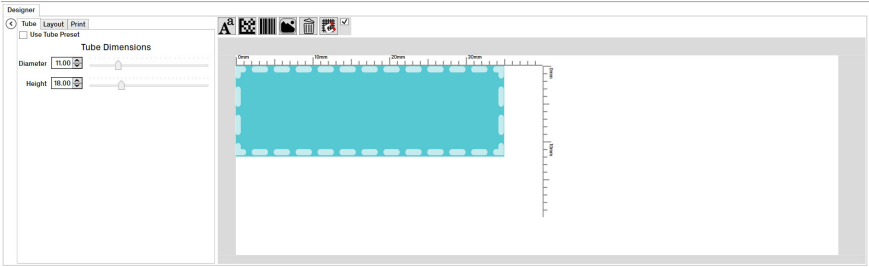
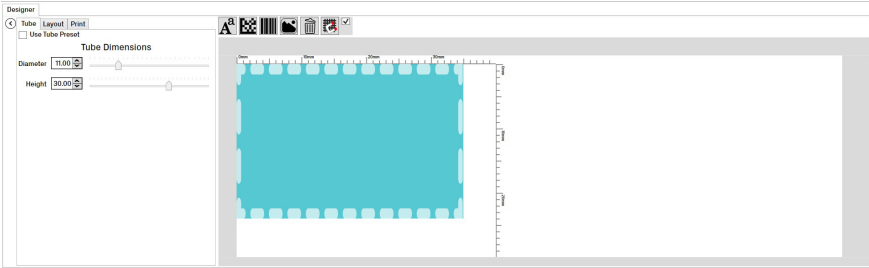
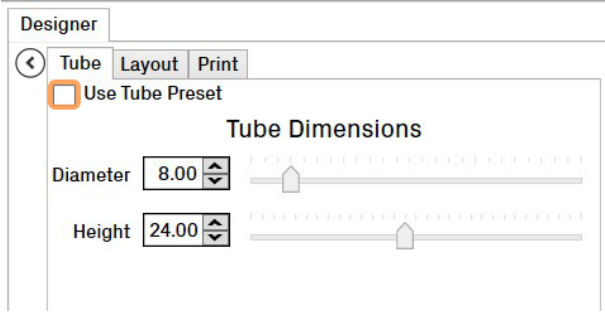


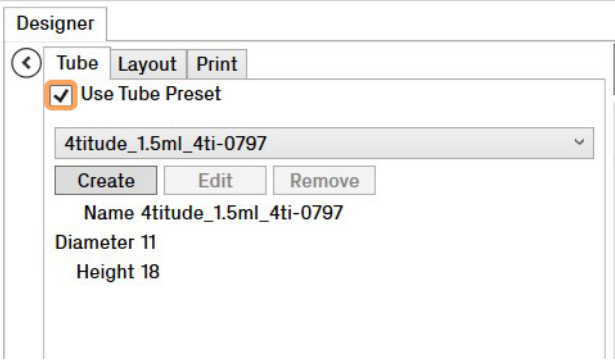
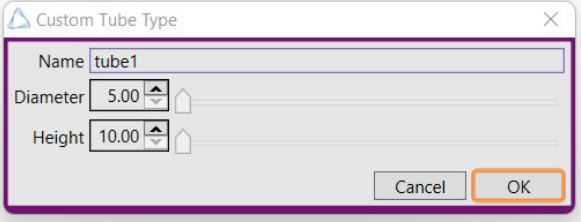
Example Tube Dimensions

Tube Type and Volume	Tube Height	Tube Diameter
0.5 ml PCR Tube	14 mm	8 mm
1.4 ml 96 Racked Storage Tube	35 mm	8 mm
1.5 ml Microcentrifuge Tube	18 mm	11 mm
2.0 ml Microcentrifuge Tube	30 mm	11 mm
1.8 ml Cryo Tube	25 mm	12 mm
15 ml Centrifuge Tube	40 mm	16 mm
50 ml Centrifuge Tube	40 mm	28 mm

Inputting these values into the software, is done according to the following:

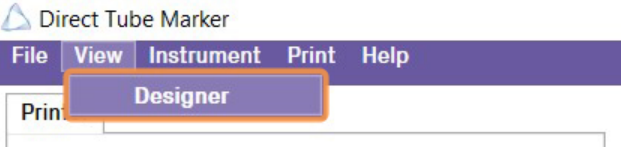
Step	Action
1.	Start by accessing the Designer tab on the main software screen and collapse the <i>cell properties</i> by clicking the Arrow icon.
2.	This reveals the <i>Tube</i> , <i>Layout</i> , and <i>Print</i> tabs.
3.	For enhanced accessibility, select the View tab and then select the Designer button. NOTE: This will open the <i>Designer</i> tab in a separate pop-out window making placement of cells and overall label design easier to manage.
4.	To set the tube label dimensions, select the <i>Tube</i> tab. 
5.	Highlight and type the <i>Height</i> and <i>Diameter</i> values in the provided text boxes.

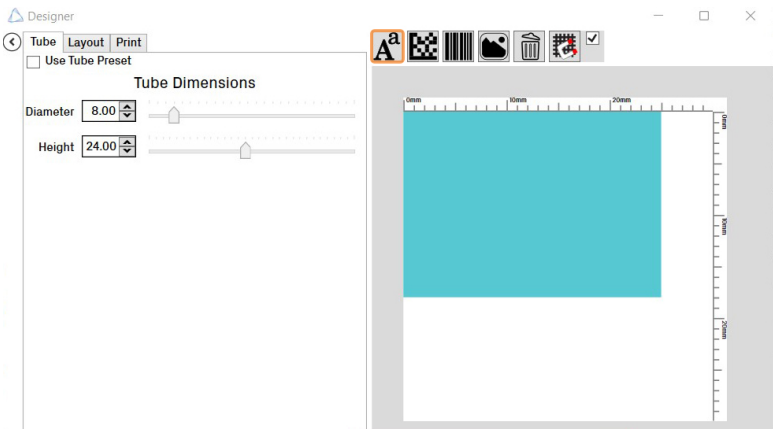
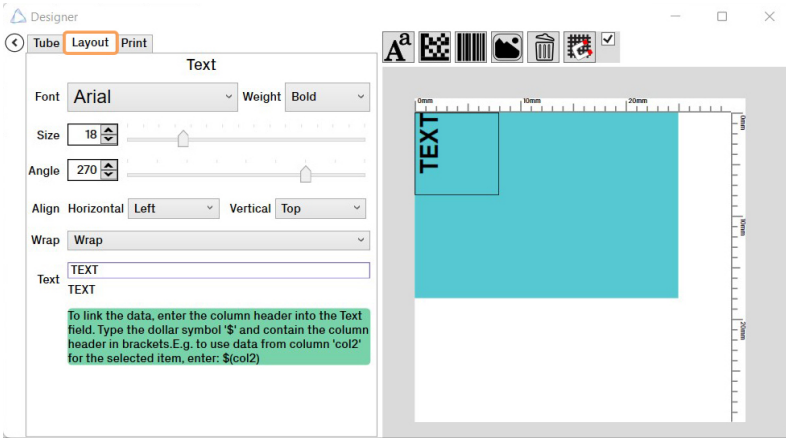
Step	Action
6.	<p>Once the tube parameters have been set, your label format changes to represent these. Two examples are shown below:</p> <p><i>Example - Label format for 1.5 ml Microcentrifuge Tube (4ti-0797)</i></p>  <p><i>Example - Label format for 2.0 ml Microcentrifuge Tube (4ti-0798)</i></p> 
7.	<p>You can create tube preset profiles and save them to a drop-down menu for easy access.</p>
8.	<p>To access the tube preset profiles, tick the Use Tube Preset box.</p> 

Step	Action
9.	<p>The following menu appears.</p> 
10.	Added as defaults to the Tube Preset menu are 8 compatible Azenta tubes.
11.	You can add to this list by selecting the Create button.
12.	You can set the <i>Diameter</i> and <i>Height</i> parameters and edit the tube profile <i>Name</i> .
13.	<p>Select OK to confirm and save settings.</p> 
14.	Once a tube profile is created, you are able to <i>Edit</i> or <i>Remove</i> it from the list.

How to Create Text Cells

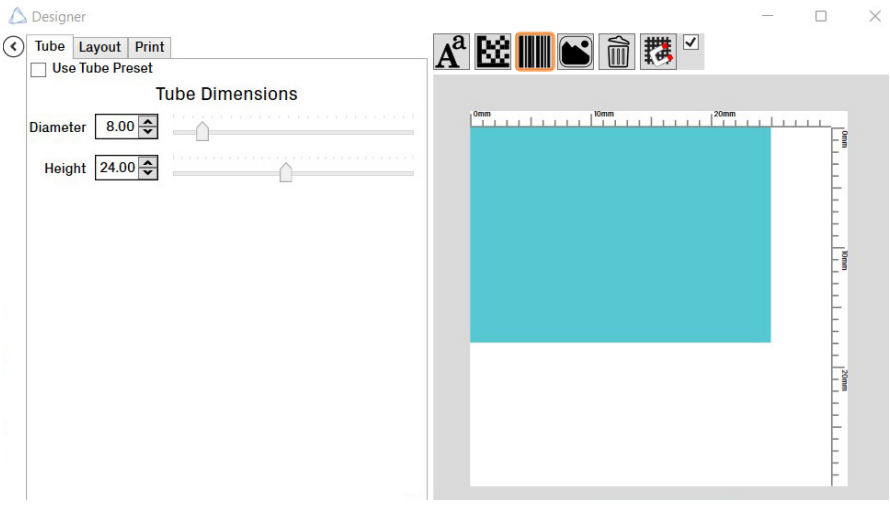
Once your label layout has been set you can begin filling it with data.

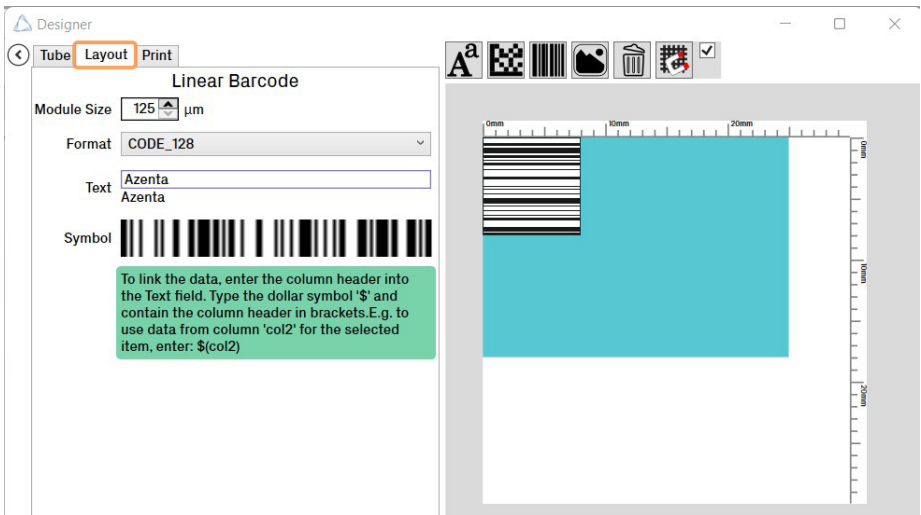
Step	Action
1.	<p>If you wish to make your design area larger, select the View tab and then select the Designer button. This pops the screen out to a separate window, allowing you to maximize the view.</p> 

Step	Action
2.	<p>Within the <i>Designer</i> window, select the AddText button.</p> <p>NOTE: This places an 8 x 8 mm Cell in the top left corner of the label.</p> 
3.	<p>Go to the <i>Layout</i> tab, here you are able to set the following parameters:</p> <ul style="list-style-type: none"> • Font (all TrueType fonts) • Weight (Regular, Bold and Heavy) • Text size (4 to 64) • Angle of text (360°) • Alignment of text (horizontal and vertical placement) • Wrap (NoWrap, Wrap, and WrapWithOverflow) • Text (Cell content entry)  <p>NOTE: A visual representation of the cell size and placement is shown via the X and Y axis.</p>
4.	<p>To alter the width, length or position of the cell, "How to Edit Cell Size and Placement" on page 54</p>
5.	<p>To edit the text in the cell you can do so in two ways:</p> <ol style="list-style-type: none"> 1. By manually typing in text via the text cell within the <i>Layout</i> tab. "How to Edit Cell Content Manually" on page 48. Or 2. By linking the cell to a specified column in the Data Spreadsheet. "How to Bind Cell Content to Data Spreadsheet .CSV" on page 51.

How to Create Linear Barcode Cells

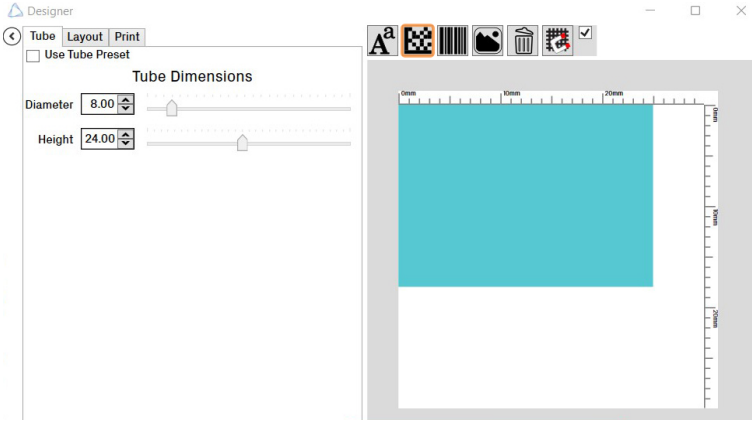
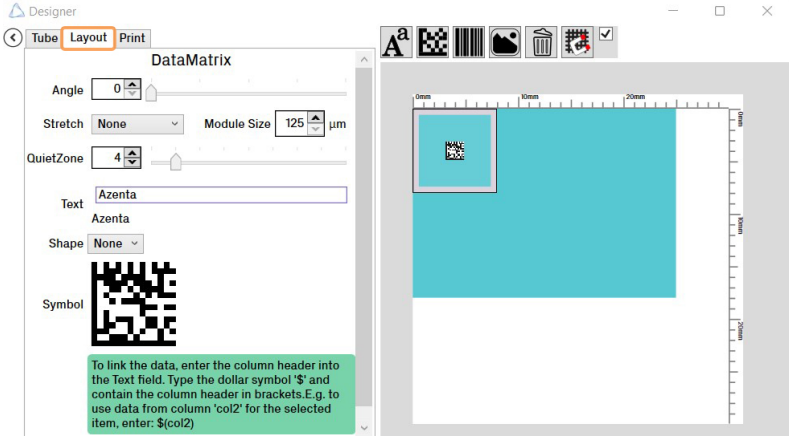
There are four variations of linear barcode to choose from: Code_128, Code_93, Code_39 and EAN_8 with module sizes ranging from 125 µm to 375 µm.

Step	Action
1.	<p>Within the <i>Designer</i> window, select the AddLbc button. This places an 8 x 8 mm cell in the top left corner of the label.</p>  <p>The screenshot shows the 'Designer' application window. On the left, the 'Tube' tab is selected, displaying 'Tube Dimensions' with a Diameter of 8.00 and a Height of 24.00. The 'Layout' tab is also visible. In the center, a grid represents the label layout, with a blue square indicating the position of the 8x8 mm cell. On the right, a toolbar contains various icons, with the 'AddLbc' button (represented by a barcode icon) highlighted.</p>

Step	Action
	<p>Go to the <i>Layout</i> tab, here you can set the following parameters:</p> <ul style="list-style-type: none"> • Angle of barcode (360°) • Alignment of barcode (horizontal and vertical placement) • Stretch (Fill, Uniform, None and UniformToFill) • Module Size (125 µm, 250 µm and 375 µm) <p>NOTE: For 250 µm and above, expand the 1D barcode image in order to ensure that the 1D barcode is fully printed onto the tube.</p> <ul style="list-style-type: none"> • Format (Code_128, Code_93, Code_39 and EAN_8) • Text (code content entry) <p>NOTE: A visual representation of the cell size and placement is shown via the X and Y axis.</p> <p>NOTE: For 250 µm and above the user will need to expand the 1D barcode image in order to ensure that the 1D barcode.</p>
2.	 <p>The screenshot shows the 'Designer' window with the 'Layout' tab selected. On the left, the 'Linear Barcode' settings are visible: 'Module Size' is 125 µm, 'Format' is CODE_128, and 'Text' is 'Azenta'. Below these is a 'Symbol' preview. A green callout box states: 'To link the data, enter the column header into the Text field. Type the dollar symbol '\$' and contain the column header in brackets. E.g. to use data from column 'col2' for the selected item, enter: \$(col2)'. On the right, a preview of the barcode is shown on a light blue rectangular background, with a grid overlay indicating dimensions (0mm to 20mm on the X-axis and 0mm to 20mm on the Y-axis).</p>
3.	To alter the width, length or position of the cell "How to Edit Cell Size and Placement" on page 54.
4.	To edit the barcode type, select from the <i>Format</i> drop-down menu.
5.	To edit the module size, select from the <i>Module Size</i> menu.
6.	<p>To edit the text in the cell you can do so in two ways:</p> <ol style="list-style-type: none"> 1. By manually typing in text via the text cell within the <i>Layout</i> tab. See "How to Edit Cell Content Manually" on page 48. Or 2. By linking the cell to a specified column in the Data Spreadsheet. "How to Bind Cell Content to Data Spreadsheet .CSV" on page 51.

How to Create Datamatrix Cells

There are two variations of Datamatrix ECC200 to choose from: Square and Rectangular. Module sizes range from 125 μm to 375 μm .

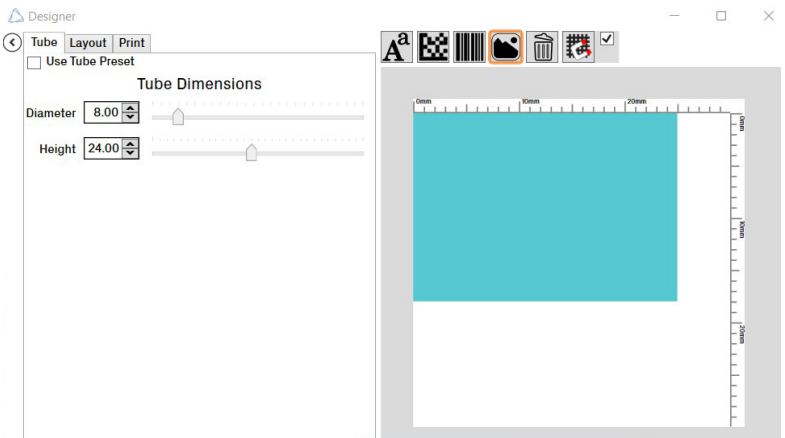
Step	Action
1.	<p>Within the Designer tab, select the AddGfx button.</p> <p>NOTE: This places an 8 x 8 mm cell in the top left corner of the label.</p> 
2.	<p>Go to the Layout tab, here you can set the following parameters:</p> <ul style="list-style-type: none"> • Angle of Barcode (360°) • Alignment of barcode (horizontal and vertical placement) • Stretch (Fill, Uniform, None and UniformToFill) • Module Size (125 μm, 250 μm and 375 μm) • Quiet Zone (0-32) • Text (code content entry) • Shape (Square and Rectangle) <p>NOTE: A visual representation of the cell size and placement is shown via the X and Y axis.</p> 
3.	To alter the width, length or position of the cell, "How to Edit Cell Size and Placement" on page 54.

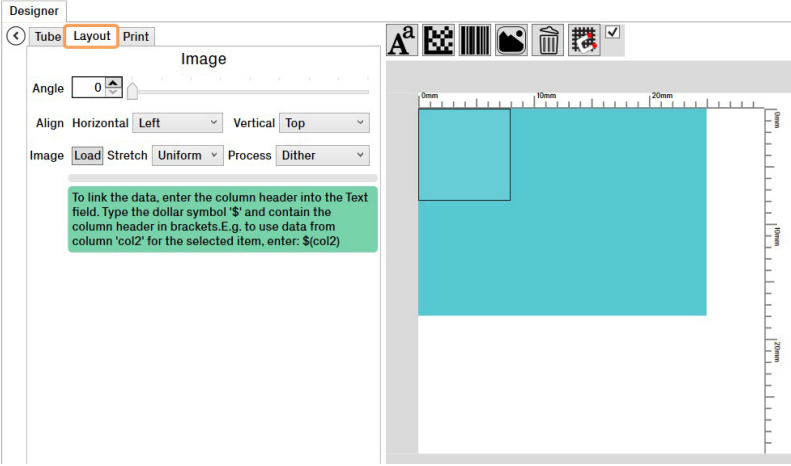
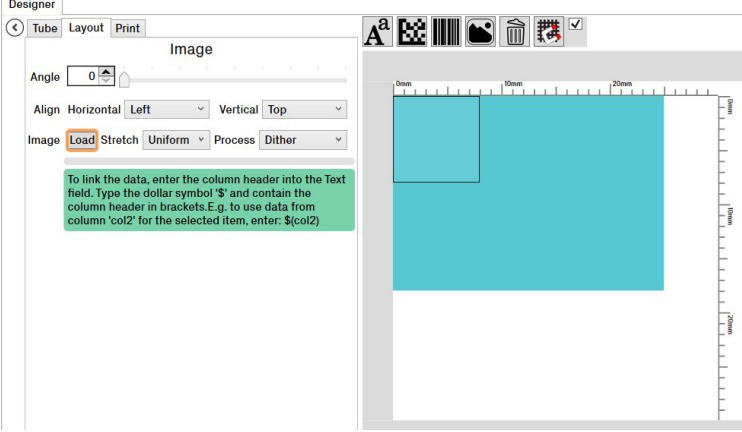
Step	Action
4.	To edit the barcode shape, select the Square or Rectangle from the <i>Shape</i> drop-down menu.
5.	To edit the module size, select from the <i>Module Size</i> menu.
6.	<p>To edit the text in the cell you can do so in two ways:</p> <ol style="list-style-type: none">1. By manually typing in text via the text cell within the <i>Layout</i> tab. "How to Edit Cell Content Manually" on page 48.Or2. By linking the cell to a specified column in the Data Spreadsheet. "How to Bind Cell Content to Data Spreadsheet .CSV" on page 51.

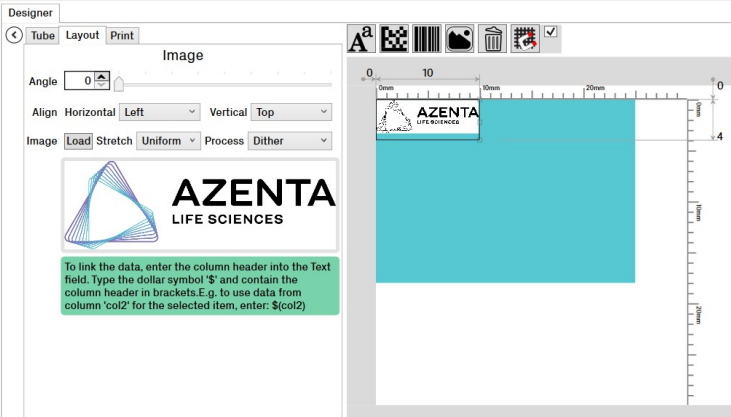
How to Create Graphic Files

There are four graphic file types that can be imported into the software: .bmp, .jpg, .gif and .png. Optimization of the graphic files should be done prior to importing.

You should aim to get your graphic as small as possible, without pixelating the content. If the graphic size needs to be reduced, keep in mind that 1 pixel corresponds to 0.125 mm. For example, a picture of 100 x 100 pixels is 12.5 mm in width. Re-sizing of the graphic file needs to be done in an external program.

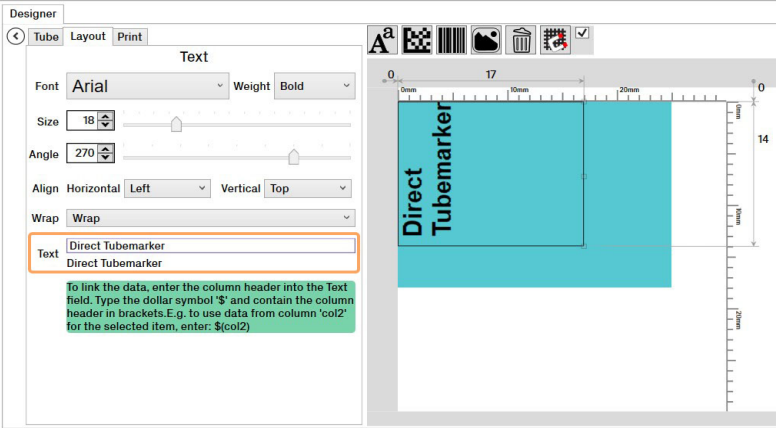
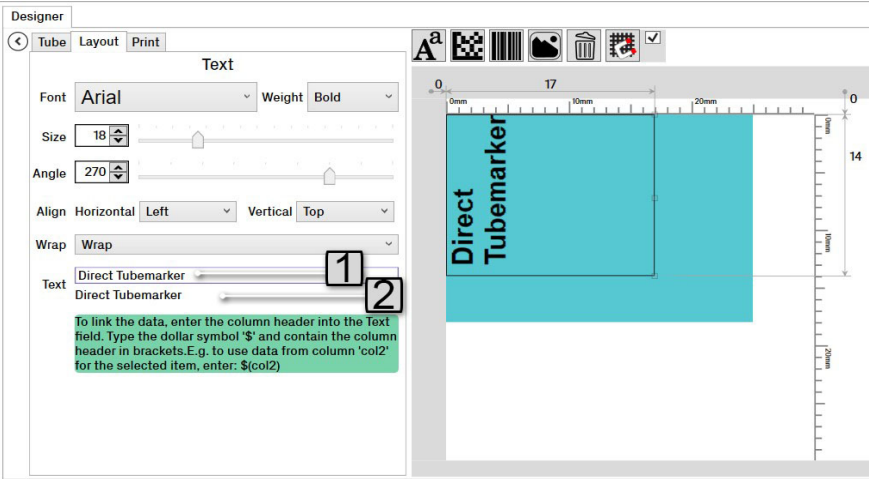
Step	Action
1.	<p>Within the <i>Designer</i> window, select the Add Image button.</p> <p>NOTE: This places an 8 x 8 mm cell in the top left corner of the label.</p>  <p>The screenshot shows the 'Designer' window with three tabs: 'Tube', 'Layout', and 'Print'. The 'Tube' tab is active, showing a 'Use Tube Preset' checkbox and a 'Tube Dimensions' section. The 'Diameter' is set to 8.00 and the 'Height' is set to 24.00. To the right of these settings is a visual representation of the tube with a blue rectangular area in the top-left corner. Above this representation is a toolbar with icons for text, barcode, image, and other functions. The image icon is highlighted with an orange border.</p>

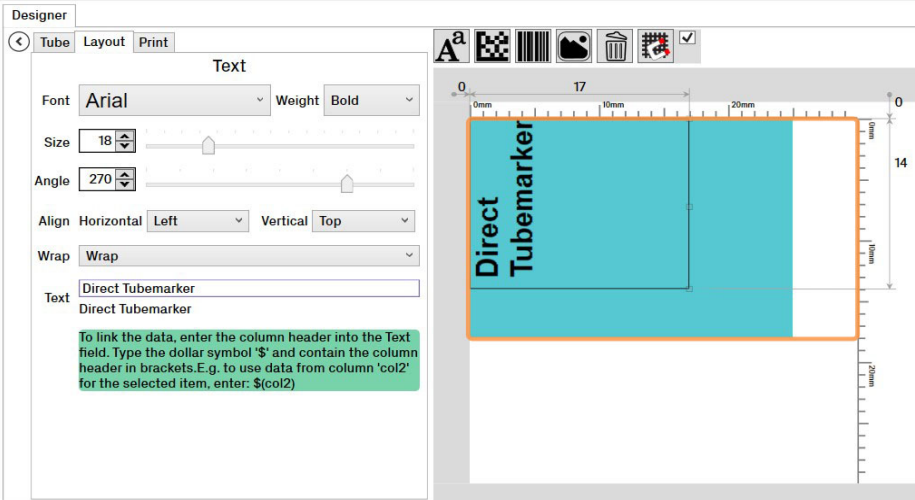
Step	Action
2.	<p>Go to the <i>Layout</i> tab, here you can set the following parameters:</p> <ul style="list-style-type: none"> • Angle of Graphic (360 °) • Alignment of Graphic (horizontal and vertical placement) • Image (Load) • Stretch (Fill, Uniform, None and UniformToFill) • Process (Dither, Threshold) <p>NOTE: A visual representation of the cell size and placement is shown via the X and Y axis.</p> 
3.	<p>Select the Load button under the image header, <i>File Explorer</i> opens.</p> 

Step	Action
4.	<p>Locate your graphic file within the <i>File Explorer</i>, and click OK.</p> 
5.	To alter the width, length or position of the cell, "How to Edit Cell Size and Placement" on page 54.
6.	To enhance the graphic process, select Threshold from the <i>Process</i> drop-down menu.

How to Edit Cell Content Manually

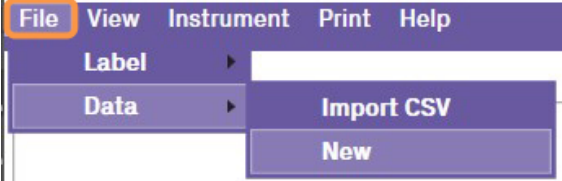
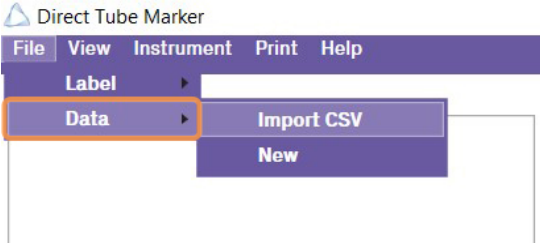
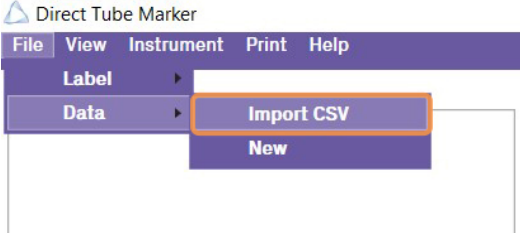
Step	Action
1.	Select the cell you would like to edit, this includes Text, Linear Barcode, and Datamatrix cells.

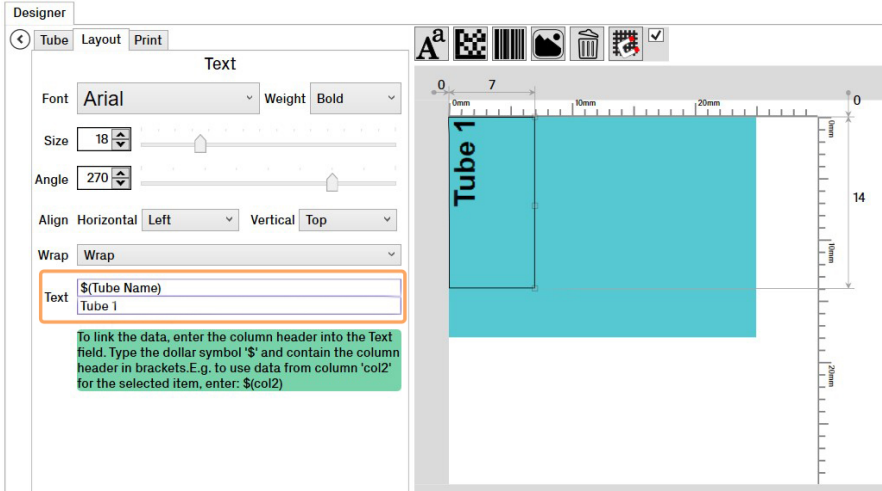
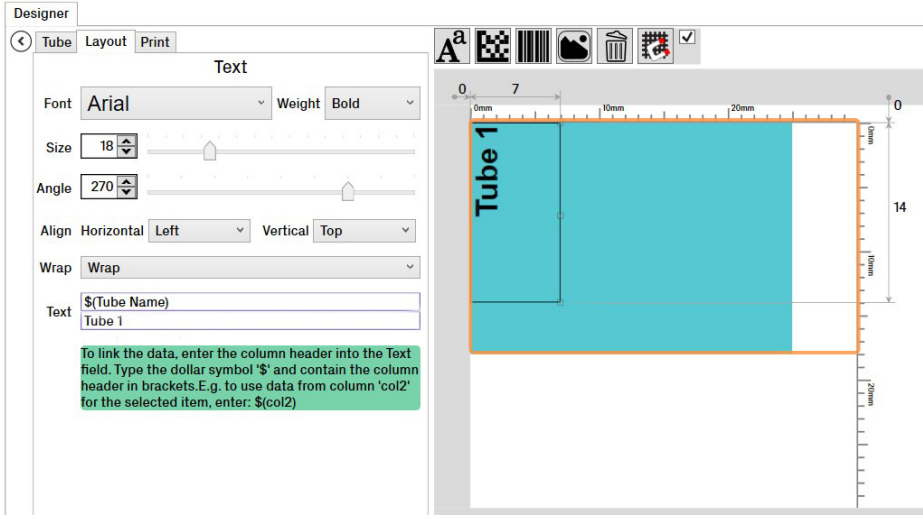
Step	Action						
	<p>Select the Layout tab.</p> <p>Type in the new data into the provided text boxes of the <i>Text</i> function.</p> 						
2.	<p>NOTE: The image below describes the different text boxes within the <i>Text</i> feature and their differing properties.</p> 						
	<table border="1"><thead><tr><th>Number</th><th>Description</th></tr></thead><tbody><tr><td>1</td><td>This is the data binding box. If linked to the database it contains a data binding command.</td></tr><tr><td>2</td><td>This box shows how a text cell is displayed or what a Linear or Datamatrix cell is made up of.</td></tr></tbody></table>	Number	Description	1	This is the data binding box. If linked to the database it contains a data binding command.	2	This box shows how a text cell is displayed or what a Linear or Datamatrix cell is made up of.
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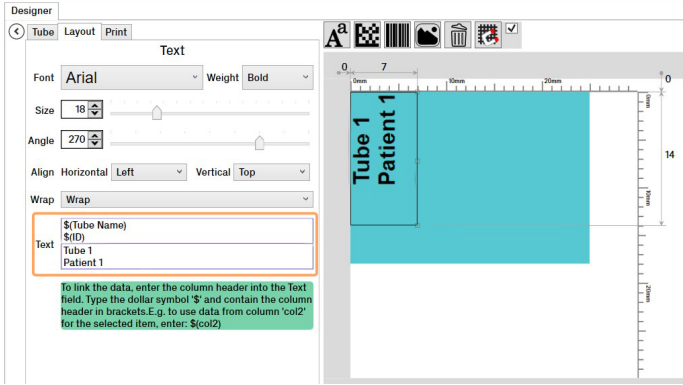
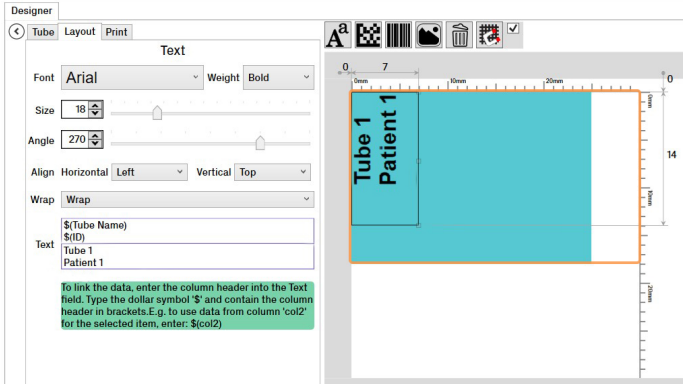
Step	Action
3.	<p>Shows on the label as:</p> 

How to Bind Cell Content to Data Spreadsheet .CSV

To link cell content to the data spreadsheet you must first have it populated with information. Please see ["How to Enter Data into the Direct Tube Marker Spreadsheet .CSV"](#) on page 60.

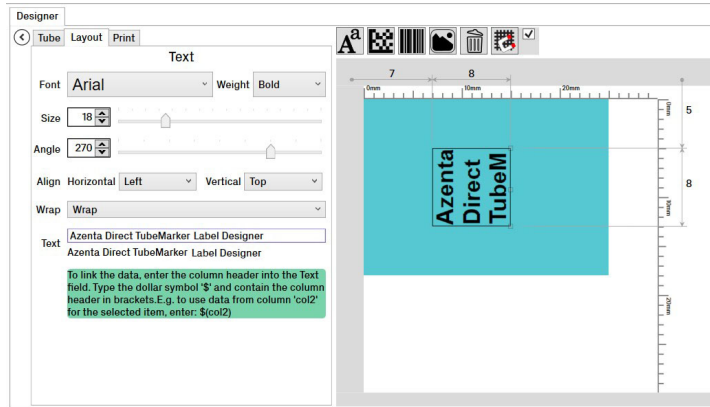
Step	Action
1.	<p>Import a .CSV file by selecting the File tab.</p> 
2.	<p>Select Data.</p>  <p>Then select Import CSV.</p>  <p>NOTE: Once the file is imported the will appear in the table within the software</p>
3.	<p>Click on the cell you would like to edit, this includes Text, Linear Barcode, and Datamatrix cells.</p>

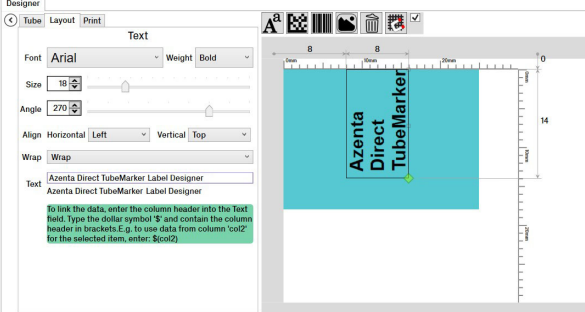
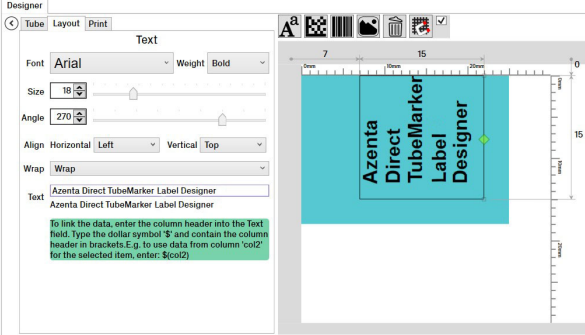
Step	Action
4.	<p>Go to the text box within the <i>Layout</i> tab of the cell you would like to edit. Write in the column header preceded by "\$(" and ended by ")".</p>  <p><i>Example: If the column you wish to extract data from is headed Tube Name you must write "\$(Tube Name)" in the Text box within the Layout tab.</i></p>
5.	<p>Shows on the label as:</p> 
6.	<p>You can repeat this process for other cells that require alternative or the same information or formatting.</p>

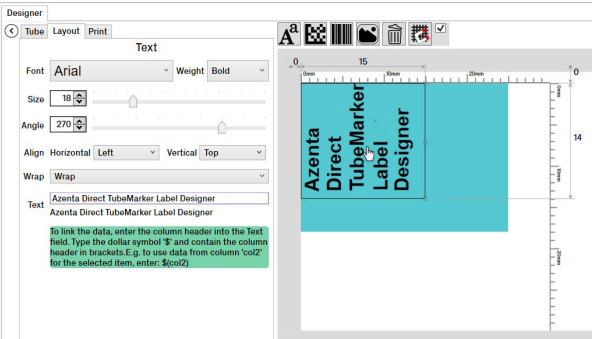
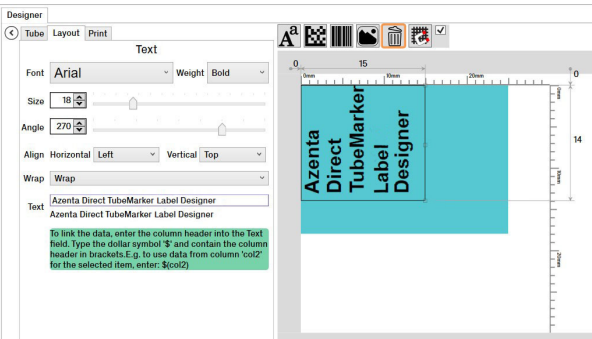
Step	Action
7.	<p>You can also link other sections of the Data Spreadsheet.CSV by entering other data binding codes, within the same cell if unique formatting is not essential.</p> <p>NOTE: This works for Text cells only.</p>   <p>Example: If you wish to populate one Text Cell from two or more columns, you must write the data binding codes to both columns on separate lines in the same Text Cell.</p>

How to Edit Cell Size and Placement

All cells are loaded into the label, defaulted to 8 x 8 mm. This means that depending on the size of Text or Barcodes, the content may be “squashed” within the cell and need adjusting to suit.




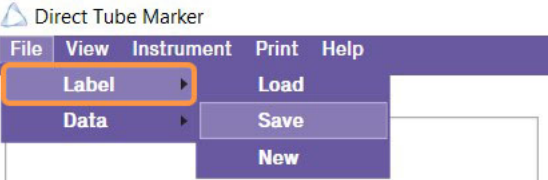
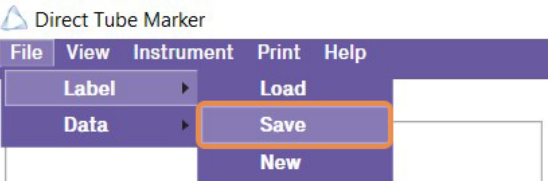
Step	Action
1.	<p>To lengthen and/or widen the cell, you can click and drag on the cell corner diamonds.</p> 
2.	<p>To widen the cell, click and drag on the center diamond.</p> 

Step	Action
3.	<p>To alter the position of the cell, select in the center of the cell and drag to your chosen location.</p> 
4.	<p>To delete a cell within a label, select the cell and click the Delete button.</p> 
5.	<p>Alternatively, you can clear the label contents by going to the <i>File</i> tab, selecting the Label button, and then selecting the New button.</p>

How to Save and Load Labels

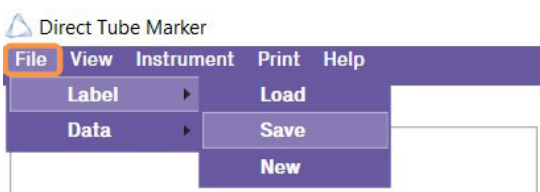
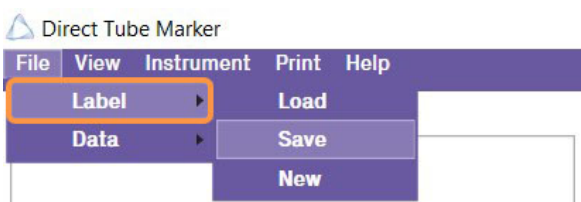
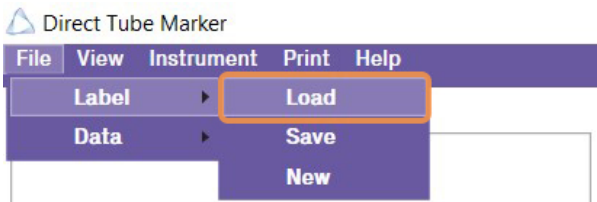
Saving a Label

Once you have fully designed your label for production, you can save it for future use.

Step	Action
1.	<p>Select the File tab.</p> 
2.	<p>Select the Label button.</p> 
3.	<p>Select the Save button.</p> 
4.	<p><i>File Explorer</i> opens. From here, decide where to save the optimized label and select Save.</p>
5.	<p>Your label is saved and ready for the next time you need to load it.</p>

Loading a Label

Should your label have already been designed, you can load a previously saved file.

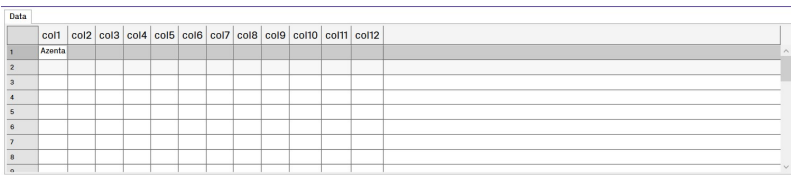
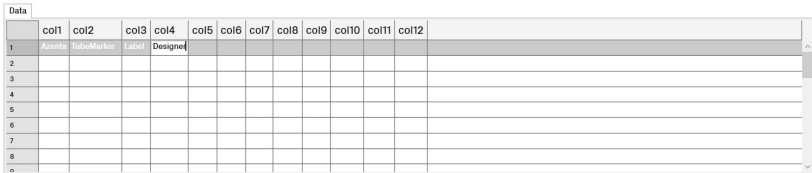
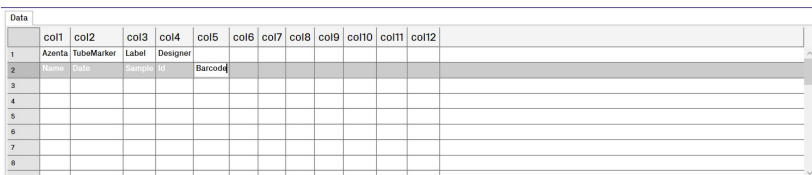
Step	Action
1.	<p>Select the File tab.</p> 
2.	<p>Select the Label button.</p> 
3.	<p>Select the Load button.</p> 
4.	<p><i>File Explorer</i> opens. From here, locate the label you wish to load.</p>
5.	<p>Once located, double-click on the file to load it.</p>

How to Manually Enter Data into Direct Tube Marker Spreadsheet .CSV

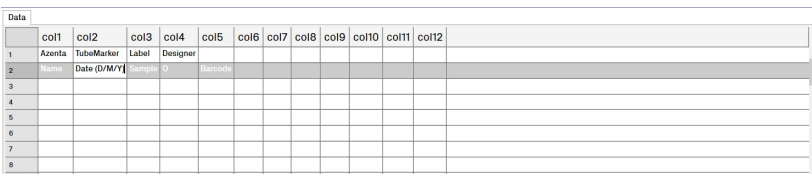
Data Entry

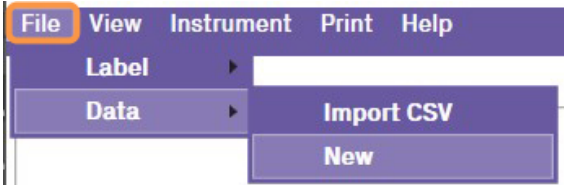
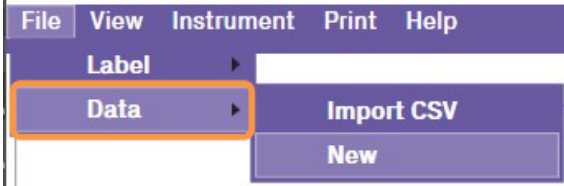

NOTE: If multiple tubes need to be printed with the same information, you only need to fill one row of information. You can bind the data to a label ["How to Bind Cell Content to Data Spreadsheet .CSV" on page 51](#) and print multiple copies of that one label ["How to Use Print Mode – Single" on page 72](#).

Step	Action
1.	Double-click row 1, column 1 in the <i>Data</i> cell.

Step	Action
2.	<p>Type in the information you wish to print on to your tube.</p> 
3.	<p>Navigate to the next Data cell on the same row using the Tab key on your PC keyboard. Continue this for all information.</p> 
4.	To enter Data for a new tube, click on row 2.
5.	<p>Continue by typing information you wish to print onto the new tube.</p> 
6.	Repeat the process to fill the Data Spreadsheet .CSV for all tubes that need labeling.

Editing Data

Step	Action
1.	<p>To edit a particular piece of information, double-click on the Data Cell and re-type the new information. NOTE: The inclusion of (D/M/Y) in row 2, col 2.</p> 
2.	<p>To delete a piece of information, simply double-click on the Data cell, highlight the text and press the Delete or Backspace button on your PC keyboard.</p>

Step	Action
3.	<p>To clear the whole Data Spreadsheet .CSV, select the File tab.</p> 
4.	<p>Select the Data button.</p> 
5.	<p>Select the New button.</p> 

How to Enter Data into the Direct Tube Marker Spreadsheet .CSV

There are two ways in which the Direct Tube Marker Data Spreadsheet .CSV can be filled: manual entry or imported from a .CSV file.

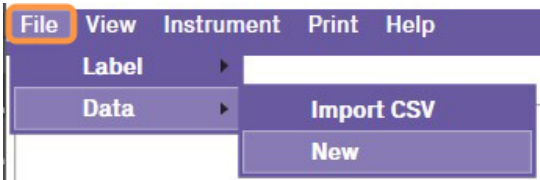
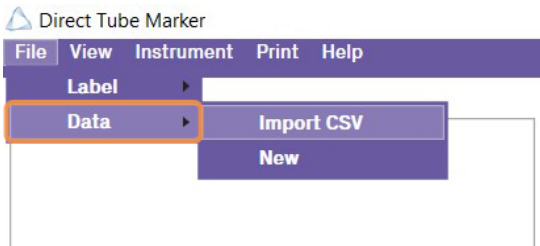
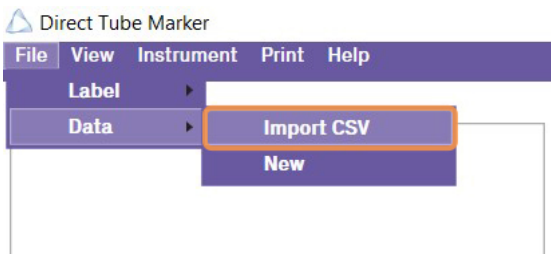
Each row represents an individual tube and is numbered; starting from 1.


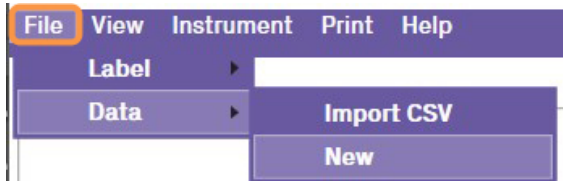
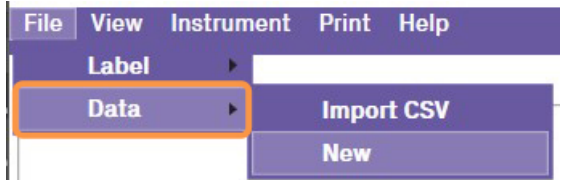


Each column represents individual pieces of information relating to the tube sample and is headed; starting with **col1**.

How to Import Data from Microsoft® Excel into Direct Tube Marker Spreadsheet .CSV

Direct Tube Marker software only accepts Microsoft® Excel .CSV files. You must first save any spreadsheet as a .CSV file before importing into Direct Tube Marker.

Data Entry

Step	Action
1.	<p>Select the File tab.</p> 
2.	<p>Select the Data button.</p> 
3.	<p>Select the Import CSV button.</p> 
4.	<p>File Explorer opens. From here, locate the .CSV file you wish to load.</p>
5.	<p>Once located, double-click on the file to load it.</p>
6.	<p>Before completing the Import, a message asking if .CSV file uses headers appears.</p>

Step	Action																														
7.	<p>If your .CSV file uses headers, select Yes.</p> <p>Use CSV Headers </p> <p>Does this CSV file use headers? Example 1 Patient 1 Blood 12/9/2018...</p> <div><div>Yes</div><div>No</div></div>																														
8.	<p>The column headers change to represent those of the .CSV file. In this case Name, Patient ID, Sample Type and Date.</p> <table><tr><th></th><th>Name</th><th>Patient ID</th><th>Sample Type</th><th>Date</th><th></th></tr><tr><td>1</td><td>Example 1</td><td>Patient 1</td><td>Urine</td><td>12/10/2018</td><td></td></tr><tr><td>2</td><td>Example 2</td><td>Patient 2</td><td>Blood</td><td>12/11/2018</td><td></td></tr><tr><td>3</td><td>Example 3</td><td>Patient 3</td><td>Hair</td><td>12/12/2018</td><td></td></tr><tr><td>4</td><td></td><td></td><td></td><td></td><td></td></tr></table>		Name	Patient ID	Sample Type	Date		1	Example 1	Patient 1	Urine	12/10/2018		2	Example 2	Patient 2	Blood	12/11/2018		3	Example 3	Patient 3	Hair	12/12/2018		4					
	Name	Patient ID	Sample Type	Date																											
1	Example 1	Patient 1	Urine	12/10/2018																											
2	Example 2	Patient 2	Blood	12/11/2018																											
3	Example 3	Patient 3	Hair	12/12/2018																											
4																															
9.	To replace this information with another .CSV file, repeat the steps above.																														
10.	<p>Select the File tab.</p> 																														
11.	<p>Select the Data button.</p> 																														
12.	<p>Select the Newtab.</p> <p> Direct Tube Marker</p> 																														

How to Set the Printer Settings

Within the Direct Tube Marker printer tab, are three sub tabs: **Settings**, **Firmware**, and **Sled**.

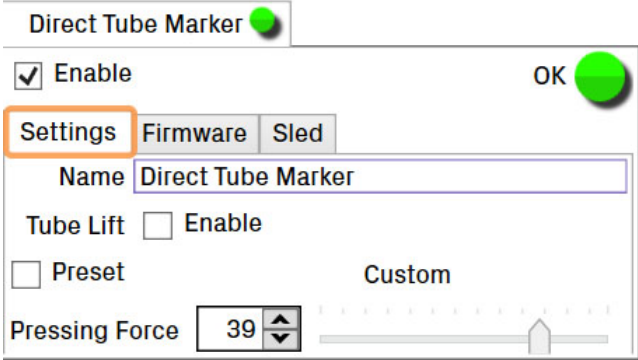
These control the settings which directly affect the hardware performance. Subtle changes can be made depending on the application to enhance productivity.

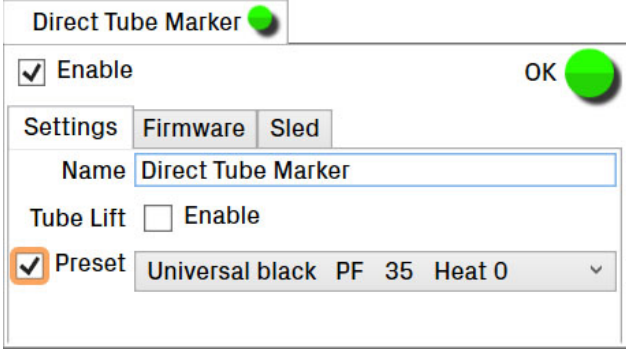
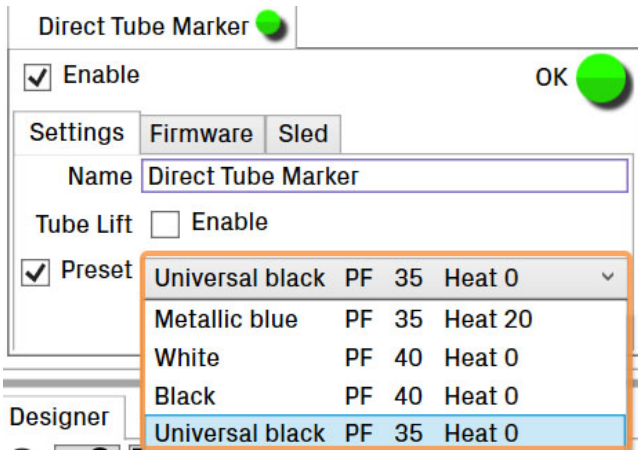
How to Set Printer Settings

To ensure clear and legible print quality, there are two parameters that need to be optimized for printing: pressing force and pre-heat.



Pressing force increases or decreases the amount of pressure the sled applies to the tube during printing.

Pre-heat increases or decreases the amount of heat applied to the tube via the printhead.

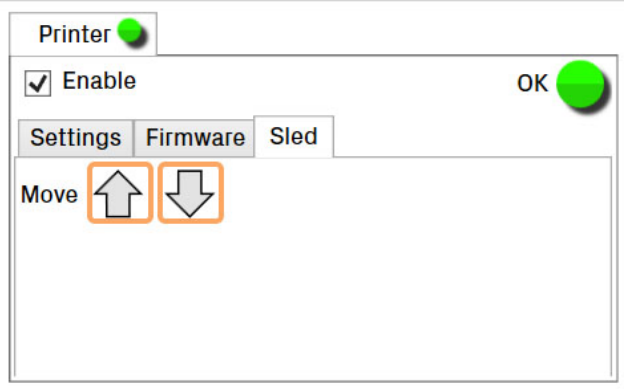
Step	Action
1.	<div><p>To change these settings, select the <i>Settings</i> tab. Type the values of the Pressing Force and Pre-Heat in the provided text boxes.</p></div>

Step	Action
	<p>You can choose to use the default settings, as recommended by Azenta. To do so, tick the Preset box.</p> 
2.	<p>Select the drop-down menu to choose from 4 options: 4ti-0686 (blue), 4ti-0688 (white), 4ti-0689 (black) and 4ti-0689-1 (black, universal).</p> 

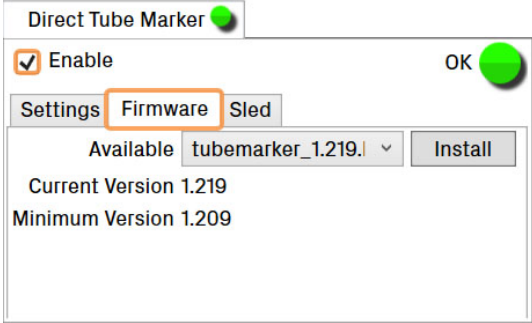
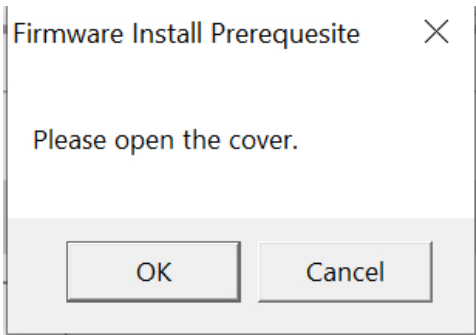
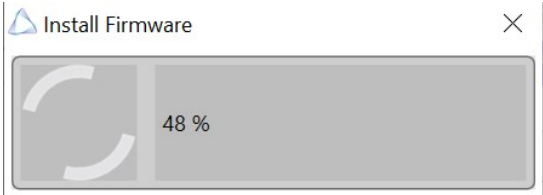
How to Enable Tube Lift (On/Off)

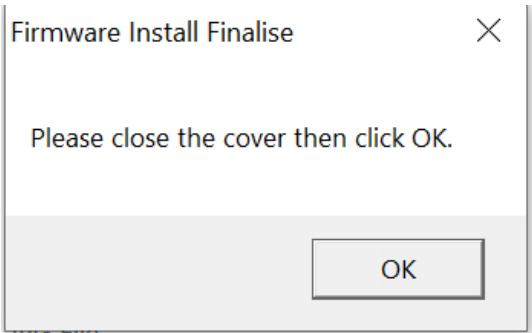
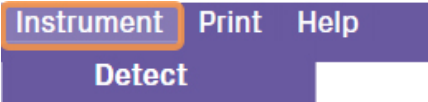

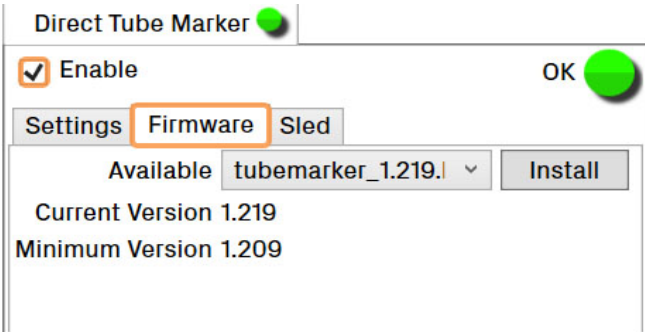
Step	Action
1.	To enable/disable the tube lift, select the <i>Settings</i> tab.
2.	To enable Tube Lift , tick the Tube Lift box. 
3.	To disable Tube Lift , un-tick the Tube Lift box. 

How to Control the Sled Movement

Step	Action
1.	To manually control the sled, select the <i>Sled</i> tab.
2.	Ensure the top cover is closed.
3.	<p>Select the Move arrows to move the sled forward or backwards. NOTE: The ↑ moves the sled back and the ↓ to move the sled forward.</p> 

How to Perform a Firmware Update

Step	Action
1.	To upload the latest version of firmware, select the <i>Firmware</i> tab.
2.	<p>The current, minimum, and available firmware versions for the software are displayed.</p> 
3.	To load the latest version of firmware, select the drop-down menu and select the latest version number.
4.	Select Install .
5.	<p>Open the cover and select OK.</p> 
6.	<p>Wait for the firmware to load.</p> 

Step	Action
7.	<p>Close the cover and select OK.</p> 
8.	<p>Select the <i>Instrument</i> tab.</p> 
9.	<p>Select the Detect button.</p> 
10.	<p>The Direct Tube Marker re-connects to the PC and appears on the left-hand side of the screen.</p>
11.	<p>Select the <i>Firmware</i> tab to ensure the firmware has updated properly NOTE: If the firmware updated properly it is listed as the latest version.</p> 

6. Printing Modes

There are three printing modes to print your tube labels.

If the whole spreadsheet needs to be printed onto multiple tubes where the data varies from tube to tube, go to the *Print* tab, and select the **All** button.

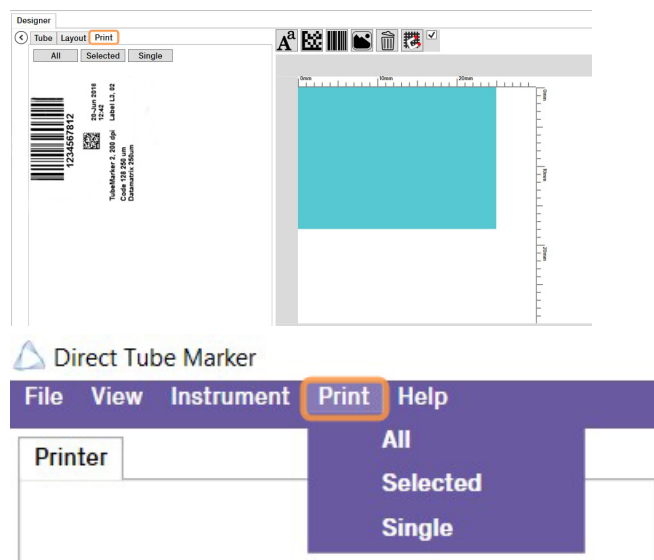
If only selected data is needed to print onto several tubes, go to the *Print* tab, then click the **Selected** button.

If only one variation of label needs to be printed onto several tubes, go to the *Print* tab, then select the **Single** button.

Reference ["Preparation for Printing" on page 36](#) to create your label.

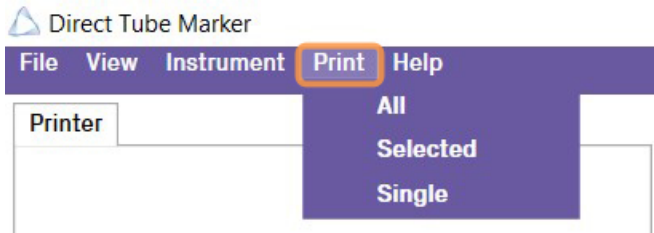
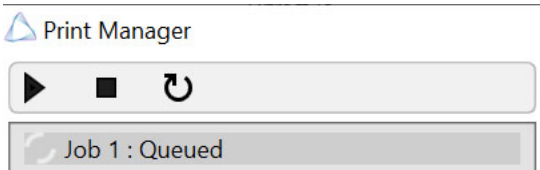
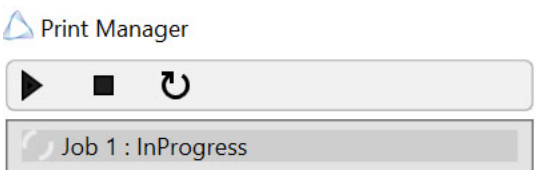
Go to the *Print* tab, found in the *Designer* window or on the Navigation Bar.

NOTE: Choosing to print via the *Designer* window, gives you access to the *Print Preview*.





How to Use Print Mode – All

NOTE: To improve and speed up throughput, you can connect multiple printers to one PC and control them all through one piece of software. ["How to Print using Multiple Printers"](#) on page 74.


Step	Action
1.	<p>Go to the <i>Print</i> tab, found in the Navigation Bar.</p> <p>NOTE: This same function can be found in the <i>Designer</i> window.</p> 
2.	Select the All button, printing starts from data found in row 1.
3.	<p>The <i>Print Manager</i> window appears and provides a live and visual representation of the label data it is waiting to print.</p> 
4.	<p>Insert a blank tube, Direct Tube Marker automatically begins to print. The <i>Print Manager</i> confirms this.</p> 
5.	<p>Continue this process for the whole spreadsheet. Printing automatically finishes once the last tube has been printed onto.</p>

How to Use Print Mode – Selected

NOTE: If for any reason a label(s) hasn't printed properly, this feature is particularly useful, so you can print them again without having to select and print the data one by one.

Step	Action
1.	Go to the <i>Print</i> tab, found in the Navigation Bar. NOTE: This same function can be found in the Designer window.
2.	<p>Highlight the rows of data you wish to print by clicking and dragging over them, or, by holding down the Ctrl key and selecting individual rows of data within the spreadsheet.</p> <p>Example - Only Rows 3 – 5 that have been highlighted, are printed when using the Selected print mode.</p>  <p>Example - Only Rows 2, 4, and 6 that have been highlighted, are printed when using the Selected print mode.</p> 
3.	Select the Selected button.
4.	The <i>Print Manager</i> window appears and provides a live and visual representation of the label data it is waiting to print. Printing starts from the lowest numbered row.
5.	Insert a blank tube, Direct Tube Marker automatically begins to print. The <i>Print Manager</i> confirms this.
6.	Continue this process until the last tube is printed. Printing automatically finishes once the last tube has been printed onto.

How to Use Print Mode – Single

Step	Action
1.	Go to the <i>Print</i> tab, found in the <i>Navigation Bar</i> . NOTE: This same function can be found in the <i>Designer</i> window.
2.	Highlight the row of data you would like to print. 
3.	Select the Single button.
4.	The <i>Print Manager</i> window appears and provides a live and visual representation of the label data it is waiting to print.
5.	Insert a blank tube, Direct Tube Marker automatically begins to print. The <i>Print Manager</i> confirms this.
6.	Continue this process until you are done printing.
7.	When you are finished printing on your tubes, press Done .


How to Adjust the Ribbon during Print Mode

In the event the ink ribbon needs changing OR in the unlikely event the ribbon becomes snagged or tears during a print, you can immediately open the cover of the instrument to repair or replace it.

Being able to adjust the ribbon ensures no loss of data is experienced or your position in the print queue compromised. Follow the steps below:

Step	Action
1.	Leave the <i>Print Manager</i> open.
2.	Remove tube.
3.	Open cover. NOTE: Upon opening the cover, the green light turns red and shows the instrument is disconnected, the <i>Print Manager's</i> job status goes blank.
4.	Remove the tube adapter.
5.	Repair or replace the ink ribbon.
6.	Reposition the tube adapter.
7.	Close the cover and wait for calibration to complete.
8.	Wait an additional 2 seconds for the <i>Print Manager's</i> job status to update to "Waiting for blank tube."
9.	Insert tube and continue printing.

7. How to Print using Multiple Printers

A decorative graphic consisting of several thin, overlapping wavy lines in a light purple color, positioned on the right side of the page, extending from the top edge down towards the middle.

The Direct Tube Marker software can control and send label data up to 16 printers. This increases throughput and productivity whilst ensuring labels are not duplicated.

How to Connect a Printer to Software

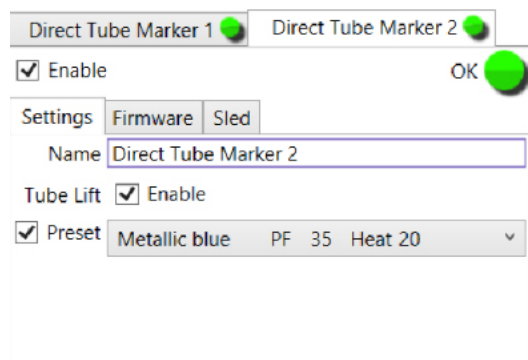
Connect the required amount of Direct Tube Marker printers to your PC following ["How to Connect Printer to a PC" on page 35](#)

Once the hardware is connected, you need to connect to the software. Upon execution of the software, all printers connected to the PC will Enumerate and connect automatically.

Connected printers are displayed in the bottom left corner of the main screen, each printer will have its own individual Tab.

Each printer tab is unique to one another, meaning completely different settings can be used from printer to another. For example, you may load different settings depending on if some labels require printing in blue ink and some require printing in black ink.

Below you will see that the first printer (Direct Tube Marker) is loaded with the 4ti-0689-1 (universal black) ribbon, whereas, the second printer (Direct Tube Marker) is loaded with 4ti-0686 (blue) ribbon.

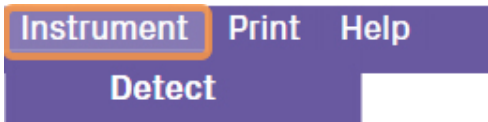

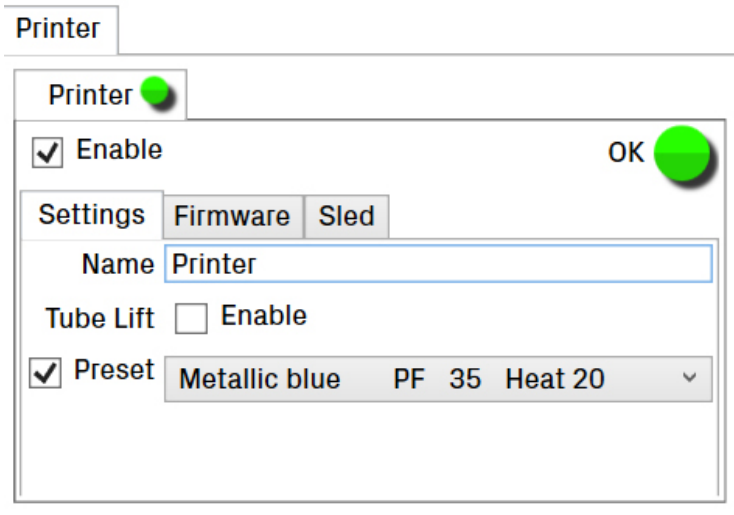
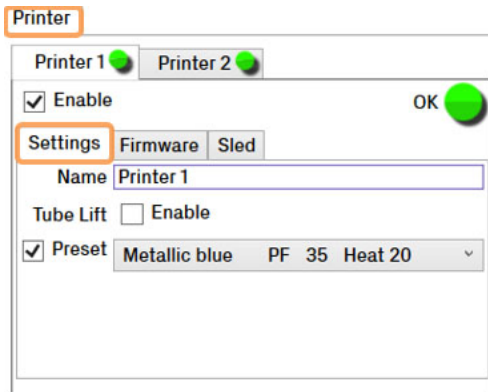


You can also re-name each printer. For example the printers have been re-named to show the ink ribbon they have been loaded with.



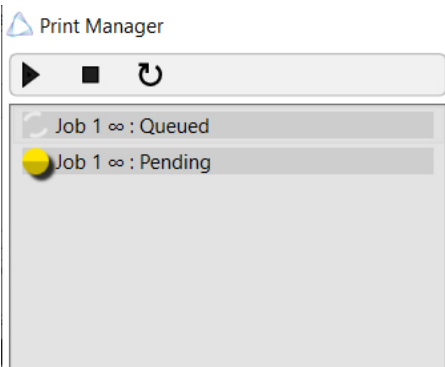
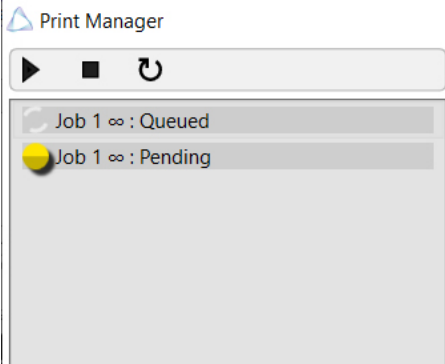
If connecting a printer with the software open and connected to a printer already you must follow the instructions below:

Step	Action
1.	Connect the printer and PC following "How to Connect Printer to a PC" on page 35 .

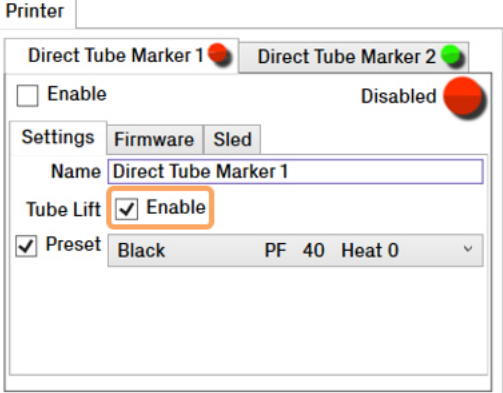
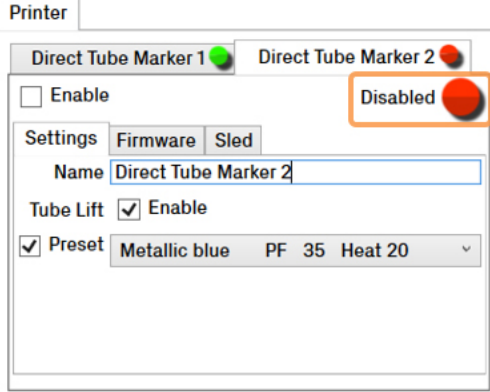
Step	Action
2.	<p>Select the Instrument tab.</p> 
3.	<p>Select the Detect button.</p> 
4.	<p>A pop-up window opens, displaying the connected printers.</p> 
5.	<p>To connect a printer(s) to the software that are not connected to the software already, select the Enumerate button.</p>
6.	<p>Previously connected printers appear with the last known name and settings. New printers appear with their default names and settings.</p> 

How to Print using Multiple Printers

Once all printers have been connected and settings for each printer have been established, you can begin printing your tubes.

Step	Action
1.	Depending on the amount of labels you need to print, choose from the three print modes available. NOTE: See "Printing Modes" on page 69 .
2.	Upon selecting your chosen print method, the <i>Print Manager</i> appears and displays a label per connected printer.  The screenshot shows the 'Print Manager' window. At the top, there are three icons: a play button, a square, and a refresh button. Below these, there is a list of jobs. The first job is 'Job 1 ∞ : Queued' with a grey circle icon. The second job is 'Job 1 ∞ : Pending' with a yellow circle icon.
3.	Insert blank tubes, each Direct Tube Marker automatically begins to print. The <i>Print Manager</i> confirms this.  This screenshot is identical to the one in Step 2, showing the 'Print Manager' window with the same job queue: 'Job 1 ∞ : Queued' and 'Job 1 ∞ : Pending'.
4.	Once those tubes have been printed onto, the Direct Tube Marker printers wait to print the next labels in queue.
5.	To end printing early, select the Done button.

How to Disconnect a Printer from Software

Step	Action
1.	Select the printer you would like to disconnect, by selecting the <i>Applicable</i> tab.
2.	<p>Select Enable, to deselect the box.</p> 
3.	Remove the power supply.
4.	<p>The selected printer is now disabled. Printing starts from the connected printers.</p> 

8. Error Messages/Troubleshooting

A decorative graphic consisting of several thin, overlapping, wavy lines in a light purple color, located on the right side of the purple header area.

The following chapter details possible error messages and problems that require troubleshooting on the Direct Tube Marker instrument.

Error Messages

Message	Reason
Insert new tube	Insert new tube; printing is ready but the tube has not been changed before printing the next tube.
No tube	No tube inserted and trying to print.
Cover open	The top cover is open or not completely closed. When in automatic printing mode, if the top cover is opened the data sent to the printer is erased.
Text field empty	The text field is empty and numbering is not in use.
Force sensor fault	The pressing force sensor might be damaged. Contact Azenta at www.azenta.com/contact-us .
Ribbon fault	The ink ribbon is loose, broken or not inserted. Check that the ribbon is inserted correctly. If the problem persists, contact Azenta at www.azenta.com/contact-us .
Tube detector fault	Tube detection components might be damaged. Contact Azenta at www.azenta.com/contact-us .
Power supply fault	<p>Incorrect DC power supply connected to the device. Check that the device is connected to the power supply which came with the device. The operating voltage is marked on the label on the back of the Direct Tube Marker.</p> <p>NOTE: The device might be damaged if incorrect power supply is used.</p>
Hardware error	Some of the electric components might have a fault. Contact Azenta at www.azenta.com/contact-us .
Memory error	Some of the electric components might have a fault. Contact Azenta at www.azenta.com/contact-us .

Troubleshooting

Troubleshooting - General

If the problems persist, contact Azenta at azenta.com/contact-us.

Problem	Solution
Power supply connected but the display is not on	<p>The Direct Tube Marker is in power save mode.</p> <p>Execute software if closed, this will wake the Direct Tube Marker up and connect to the PC.</p> <p>Enter printing mode to end the power saving mode.</p> <p>Alternatively, press OK in the Settings menu to end power saving mode.</p> <p>Press the space bar when using the Direct Tube Marker with the keyboard.</p>
There is an error message on the display	<p>Check the message in "Error Messages" on page 80 and act according to the instructions.</p> <p>The message disappears by pressing Space on the keyboard use or press OK on the pop-up message in software.</p>
How to replace/install the ink ribbon	<p>Open cover and close software down first to send Direct Tube Marker to sleep mode. Shutdown in keyboard use.</p> <p>Insert the ink ribbon according to the instructions in See "How to Install a Ribbon for Printing" on page 25.</p> <p>Once inserted, close the cover, wait for auto-calibration to finish, and re-execute the software or press the space bar when in keyboard use.</p> <p>Make sure that the chosen tube type is correct before continuing printing.</p>

Problem	Solution
How to replace/install a ribbon	<p>Open cover and close software down first to send Direct Tube Marker to sleep mode. Shutdown in keyboard use.</p> <p>Check that the ink ribbon is set correctly (See "How to Install a Ribbon for Printing" on page 25).</p> <p>Make sure that the ribbon core sits firmly on the shaft and the pin at the base of the drive mechanism shaft goes into the slot on the ink ribbon core to allow for correct movement of the ribbon core.</p>
The Direct Tube Marker appears to be working, but no text can be seen on the tube surface	<p>Check that the settings are optimized for the tube chosen (See "How to Create Label Content" on page 37) and that the ink ribbon is set correctly (See "How to Install a Ribbon for Printing" on page 25).</p>
Bad quality printing	<p>Check that the settings are optimized for the tube chosen (See "How to Create Label Content" on page 37).</p> <p>Check that the ink ribbon is set correctly (See "How to Install a Ribbon for Printing" on page 25).</p> <p>Please also refer to "Troubleshooting – Insufficient Printing Quality" on page 83.</p> <p>NOTE: The surface of the tubes must be flat. The use of tubes with embossed scale should be avoided.</p>

Troubleshooting – Insufficient Printing Quality

Problem	Example	Solution
Bad quality printing at top edge		<p>Check that the ribbon is flat and not wrinkled.</p> <p>If necessary, correct the position of the ribbon but remember to switch unit off first.</p>
Patchy print image		<p>As the print head in the Direct Tube Marker is flat, it is very sensitive to surface changes.</p> <p>Try to ensure tubes are as flat as possible.</p> <p>Additionally, you can increase pressing force, clean the print head and ribbon tensioner. Ensure the ribbon is set correctly and is clean.</p>
Distorted/stretched print image		<p>Contact Azenta at www.azenta.com/contact-us.</p>
Print correct, but faint print image		<p>Increase pressing force and additional heating time, for more details See "How to Set Printer Settings" on page 63.</p> <p>Please contact Azenta at www.azenta.com/contact-us should the problem persist.</p>
Print is not complete		<p>Check that the settings are optimized for the tube chosen (See "How to Create Label Content" on page 37).</p> <p>The preview box shows what the print outcome looks like. You may have to adjust font type, size, and text orientation to fit it within the tube area.</p> <p>Adjust the pivot point of the sled so that the pressure is centralized in the middle of the printing area.</p>
Print correct, but not lasting (scratches off)	N/A	<p>Add additional heating time (See "How to Set the Printer Settings" on page 63).</p>

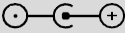
9. Appendices



The following chapter contains information regarding technical specifications for the Direct Tube Marker instrument, Direct Tube Marker accessories and ordering information, the instrument's warranty, the Direct Tube Marker shipping instruction procedures, and the Waste Electrical and the Electronic Equipment statement.

Appendix A: Technical Specifications

NOTE: Technical specifications are subject to change without prior notice.

Dimensions (W x L x H)	270 x 280 x 122 mm
Weight	Weight 4.8 kg
Printing Area Height	6 - 40 mm
Power Supply	18V = 1670 mA 
Operating Temperature	18° to 26°C
Operating Humidity	20% to 70% relative humidity, non-condensing
Storage Temperature	10° to 40°C
Fuses	Non customer-replaceable fuses in system
Computer Interface	USB 2.0

Appendix B: Accessories - Ordering Information

Accessories

Tube Adapter

Different sized tube adapters are available on request. For details please see "Ordering Information" on page 86, refer to our web page www.azenta.com or contact Azenta at www.azenta.com/contact-us.

Delivery package contains tube adapters with hole diameters of 8.5 mm, 11.5 mm, and 12.7 mm. These sizes are compatible with the most common 0.5 ml, 1.5 ml, and 2.0 ml centrifuge tubes as well as cryo tubes.

Ink Ribbon

Metallic blue, black, and white ink ribbons are available to print on all kind of tube colors and tubes with dark colored content. Choose the ribbon color that gives the best contrast to the tube color and the color of the tube content respectively.

For details please See "Ordering Information" on page 86, refer to our web page www.azenta.com or contact Azenta at www.azenta.com/contact-us.

Ordering Information

NOTE: These items are included with the Direct Tube Marker (Code 4ti-0680-1).

Code	Description	Quantity
4ti-0680-1	Direct Tube Marker Includes: 3 x tube adapters (4ti-0681, 4ti-0683 and 4ti-0684); power supply; power adapters for UK, EU and USA; magnetic support pole adapter (4ti-0680-084); allen key (4ti-0680-088); USB A-B cable, manual, Direct Tube Marker software (on USB-Stick), 12 months warranty	1
4ti-0686	Direct Tube Marker Ribbon, Metallic Blue; roll (300 m x 40 mm)	1 roll
4ti-0688	Direct Tube Marker Ribbon, White; roll (300 m x 40 mm)	1 roll
4ti-0689	Direct Tube Marker Ribbon, Black; roll (300 m x 40 mm)	1 roll
4ti-0689-1	Direct Tube Marker Ribbon, Black, Universal; roll (300 m x 40 mm)	1 roll
4ti-0681*	Tube Adapter for 1.5 ml/2 ml Tubes; hole diameter 11.5 mm	1 adapter
4ti-0683*	Table Cell Outside Table: Tube Adapter for 2D Cluster Tubes; hole diameter 8.5 mm	1 adapter
4ti-0684*	Tube Adapter for Cryo Tubes; hole diameter 12.7 mm	1 adapter
4ti-0685-1	Tube Adapter for 2 ml Screw Cap Tubes (10 mm Diameter); hole diameter 10.4 mm	1 adapter

Code	Description	Quantity
4ti-0685-2	Tube Adapter for 15 ml Tubes; hole diameter 18 mm	1 adapter
4ti-0685-3	Tube Adapter for 50 ml Tubes; hole diameter 30 mm	1 adapter
4ti-0685-4	Tube Adapter for Matrix Tubes; hole diameter 8.2 mm	1 adapter
4ti-0685-5	Tube Adapter for 0.2 ml Tubes; hole diameter 6.4 mm	1 adapter

Appendix C: Warranty

Azenta warrants that the Direct Tube Marker (4ti-0680-1) should be free from defects in materials and workmanship for a period of twelve months from the date of purchase. The purchase date is determined by the invoice date from Azenta to the customer. If the instrument is being incorporated into an automated system by a third party, the warranty period may be extended by a maximum of six months or the date the system is commissioned, whichever is the shorter. For this automation extension to be valid, Azenta must be notified of this requirement along with the details of the integrator at the point of purchase.

Each Direct Tube Marker is tested and documented by the manufacturer before shipping. Azenta Ltd's Quality Control System guarantees that the performance of the Direct Tube Marker you have purchased is within its specifications.

The warranty covers all parts and labor costs associated with a repair of the unit within the first twelve months. The need for returning a unit for service must first be agreed with Azenta via telephone support. Once it is established a return is necessary, Azenta will issue a returns number, details of which must be returned with the unit.

The warranty does not cover defects caused by excessive wear and tear or damage due to shipping, accident, abuse, misuse, problems with electrical power, or usage not in accordance with product instructions or if other than original spare parts supplied by the manufacturer have been used.

The warranty does not automatically cover shipping charges. Shipping costs (both ways) will be covered by Azenta where a returns number is issued within eight weeks of the original delivery date (as confirmed by the invoice date). Shipping costs after this period will need to be covered by the customer.

Once returned to a Azenta designated service center, the unit will be inspected and repaired accordingly and a report provided to the customer. Azenta would expect to carry out this work and return the unit within ten working days of receiving the unit.

On site service or a swap out service (where a loaner instrument is shipped to the customer whilst theirs is repaired) can be arranged at extra cost. Please contact Azenta if you are interested in this service.

This standard warranty can be extended to twenty four or thirty six months respectively.

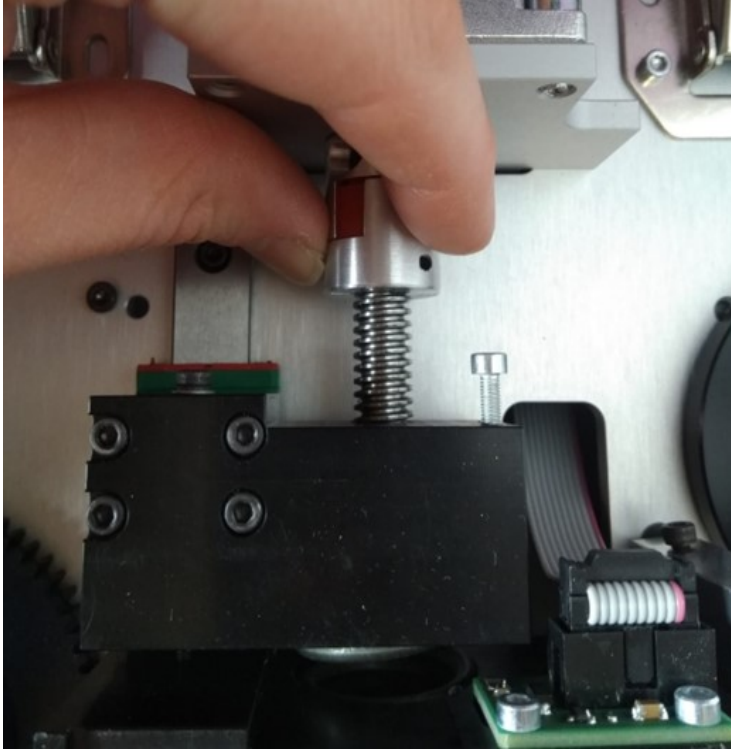
Extended warranty must be purchased within four weeks of the original invoice address.

Code	Description
4ti-0680-10	12 months parts and labour warranty for 4ti-0680-1 Direct Tube Marker
4ti-0680-11	12 month warranty extension to 4ti-0680-10 for Direct Tube Marker, second year
4ti-0680-12	24 month warranty extension to 4ti-0680-10 for Direct Tube Marker, second and third year
4ti-0680-113	12 month warranty extension to 4ti-0680-11 for Direct Tube Marker, third year

NOTE: Please contact Azenta at www.azenta.com/contact-us or your local distributor for pricing details.

The warranty does not cover damage caused to the unit in shipping due to unsuitable or insufficient packaging being used. Wherever possible, the original shipping box should be retained by the customer and used for returning the unit. Please also refer to "[Shipping Instruction](#)" on page 90.

Appendix D: Shipping Instruction

Step	Action
1.	When packing the Direct Tube Marker for shipping, ensure that the sled is in the front position.
2.	<p>When the power is on, you can drive the sled with the arrow buttons toward the printhead until it stops moving.</p> <p>NOTE: If the power is off, you can manually rotate the sled drive screw so that the sled touches the front limiter. Do not tighten it. Please refer to the picture below.</p> 

Step	Action						
3.	<p>The correct shipping position can be seen from the interconnection screw position.</p> <table><tr><th>Position</th><th>Picture</th></tr><tr><td>Correct</td><td></td></tr><tr><td>Incorrect</td><td></td></tr></table>	Position	Picture	Correct		Incorrect	
	Position	Picture					
Correct							
Incorrect							

NOTE: After shipping, the sled automatically moves backwards during calibration which happens straight after supplying power. There is no need to unlock the sled manually.

If the sled does not move after supplying power, loosening the nut by turning it once can resolve the problem.

Appendix E: WEEE Statement (European Union)



The symbol above indicates that Waste Electrical and Electronic Equipment (WEEE) is not to be disposed of as unsorted municipal waste. Equipment marked with this symbol is to be collected separately.

The objectives of this program are to preserve, protect and improve the quality of the environment, protect human health and utilize natural resources prudently and rationally. Specific treatment of WEEE is indispensable in order to avoid the dispersion of pollutants into the recycled material or waste stream. Such treatment is the most effective means of protecting the customer's environment.

The waste collection, reuse, recycling, and recovery programs available to Azenta Life Sciences customers vary by customer location. Please contact the responsible body (e.g., your laboratory manager) for information about local requirements.

10. Maintenance

A series of thin, dark purple wavy lines that originate from the right edge of the page and curve upwards and to the left, creating a sense of motion and depth against the solid purple background.

The following chapter details how to perform maintenance on the Direct Tube Marker instrument.

Cleaning the Printhead

To ensure high quality printing, the ceramic surface of the printhead should be cleaned at a regular interval to remove any dirt or dust that might accumulate. This also applies to the ribbon tensioner surface.

NOTE: Touching the printhead with bare fingers should be avoided. Any dirt or grease might cause corrosion and damage the printhead.

To clean the printhead utilize the following procedure:

Step	Action
1.	Go to the <i>Printer Settings</i> menu and drive the sled farther away from the printhead by pressing the up-arrow button.
2.	Open the top cover.
3.	Remove the tube adapter.
4.	Loosen the ink ribbon by twisting the right-hand side ink ribbon roll counter-clockwise until the ink ribbon is loose enough to be moved a few centimeters away from the printhead.
5.	Twist the dust collector (See "Direct Tube Marker Parts" on page 12) a little until the cleaner area is located towards the ink ribbon. NOTE: If the dust collector is dirty, remove it, clean it and put it back again. Pressurized air can be used to remove the dust.
6.	Wipe the ceramic area of the printhead (the area which is against the ink ribbon in normal use) with a lint-free cloth moistened with alcohol.
7.	Wait until the alcohol evaporates from the surface of the printhead.
8.	Tighten the ink ribbon by turning the right-hand side ink ribbon roll clockwise until the ink ribbon is according to the picture in "How to Install a Ribbon for Printing" on page 25 .
9.	Check that the upper edge of the ink ribbon is on the same level with the ceramic (white) part of the printhead.
10.	Close the top cover.