

# ZD421 and ZD621 Series

Link-OS<sup>®</sup> Printers



## User Guide

(Short version)

The complete manual and further information can be found directly from the manufacturer:

<https://www.zebra.com/de/de/support-downloads/printers/desktop/zd421.html>

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## Printer Features



For more details on printer controls, go to [Controls and Indicators on page 37](#).

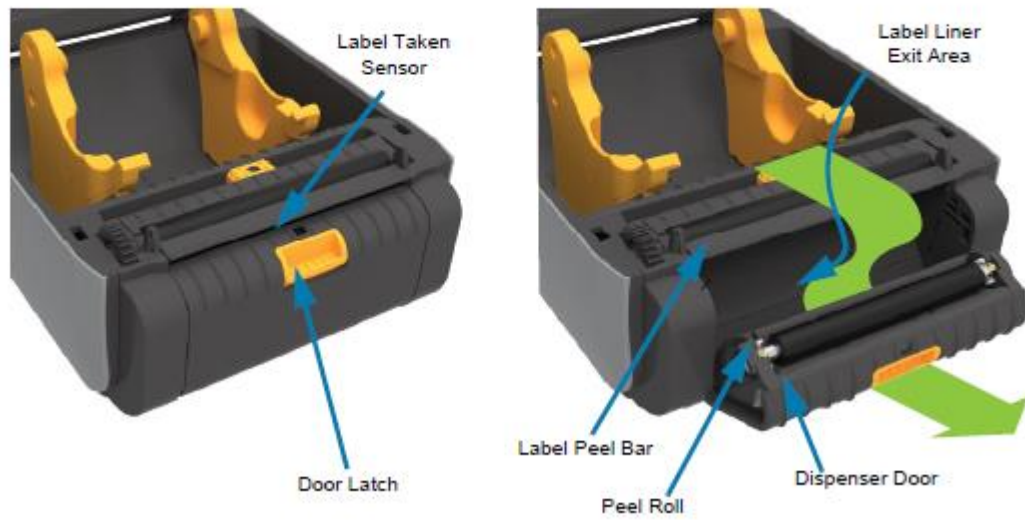


Inside the ZD421 Direct Thermal Printers



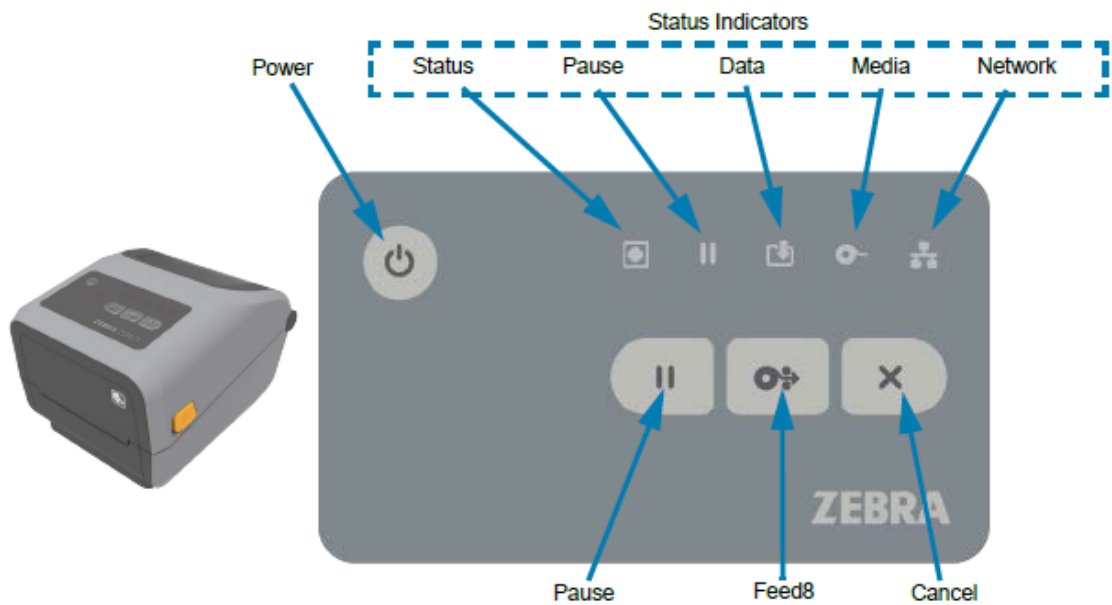
## Printer Features

### Label Dispenser Option (field installable) - All Models



## Controls and Indicators

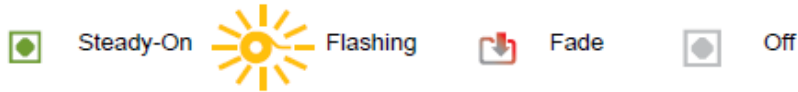
### Standard Interface Controls



## Meaning of the Indicator Light Patterns

All of the Link-OS 4 inch printers have status indicators. The indicators may be off or on in a variety of lighting patterns of red, green, or amber (orange/yellow). The status indicators can flash (blink), fade (bright to off), alternate between colors, or just remain on. The status information that these lighting patterns represent is detailed in this section.

### Indicator States



## Status - Typical Operating Conditions

### Printer Ready



The printer is powered on and ready to print.

### Pause



The printer is paused. The operator must press the Pause button to resume print operations.

### Media Out



The media (labels, receipts, tags, tickets, etc.) supply is out. The printer needs attention and cannot continue without user intervention.

### Ribbon Out



Detected end of ribbon roll (reflective end on ribbon rolls), a missing ribbon cartridge, or the ribbon cartridge needs replaced to continue printing when the printer is in thermal transfer mode.

### Ribbon Low (Ribbon Cartridge Printers Only)



Default value is 10% of ribbon remaining. The Media indicator flashes red and yellow while the Status indicator is solid yellow.

## Status - Printhead Operation



Hot Surface Caution • The printhead may be hot and could cause severe burns. Allow the printhead to cool.

### Printhead Over Temp



The printhead is over temperature and paused to allow the printhead to cool. The print operation will resume after the printhead has cooled.

### Printhead Under Temp



The printhead is under temperature. Typically, the operating environment is below the printer's minimum operational temperature.

### Printhead Shutdown



The printhead is over temperature. Turn the printer OFF. After several minutes to allow the printer to completely cool, turn the printer ON.

### Printhead Resolution Error



The printer is unable to read the printhead resolution type (dpi). The printhead has been replaced incorrectly or with non-Zebra printhead.

### Unauthorized Printhead Error



The printhead was replaced with one that is not a genuine Zebra printhead. Install a genuine Zebra printhead to continue.



## Controls and Indicators



1. Power Button — Turns power ON and OFF in the printer. It is also used to initiate low-power sleep and wake states.

- Initial Power ON — Press the Power button until the printer's indicator lights flash on. The indicator lights will flash on and off in various combinations while the printer does self diagnostics, configuration checks, and integrate optional components which will take several seconds to complete.

The Status indicator will turn solid GREEN indicating the printer is ready for normal print operations.

- Energy Star (Low Power Mode) — Pressing and releasing the button once will cause the printer to enter Energy Star low power mode. The printer will minimize power use. All the indicators will be off except the Status Indicator will slowly change between On and Off to indicate Energy Star Mode.
- Power OFF with Energy Star Delayed — Press and Hold the button for 4-9 seconds. The operator can start a batch print job and put the printer into the low power consumption state of Sleep mode — after the job has finished.
- Power OFF / Shutdown — Press and Hold the button for 4-9 seconds. The printer will turn OFF.
- Power Failure Recovery Mode — This printer feature is activated by a hardware jumper setting on one of the optional Printer Connectivity Modules installed in the printer. Go to [Setting the Power Failure Recovery Mode Jumper on page 224](#).
  - The printer will automatically Power ON when plugged into an active (ON) AC power source.
  - Supports Sleep Mode and Power OFF with Sleep mode Delayed.
  - A Power OFF/Shutdown will reset the printer and then runs the Initial Power ON sequence.



NOTE: The Power Failure Recovery Mode is only available on printers with a Printer Connectivity Module installed in the printer.



2. Status Indicator — Primary status indicator for overall printer health and operational status. This indicator is also known as the Power indicator.

- Green: Ready for print and data activity.
- Green, Slowly Changing between ON and OFF: Printer is in Sleep Mode.
- Red: Media out, media detection error, head (cover/printhead) open, cut error, printhead authentication failure.
- Amber: Printhead Over Temp (temperature), printhead element failure, out of memory while storing content (formats, graphics, fonts, etc.), and interface power fault for USB Host or Serial ports.
- Blinking Amber: Printhead Under Temp (temperature)
- Blinking Red: Printhead Over Temp (temperature) — this status is coupled with blinking red Pause indicator. Requires cooling and printer restart.



3. Pause Indicator — The printer is in Pause mode when the Pause indicator light is on. A label (print form) or all labels (print forms) in the print buffer's queue can be canceled when the Pause indicator is on using the Cancel button.

- Amber: The printer is paused. Print, label FEED (advance), and other label routines are suspended until the pause state is removed by pressing the Pause button.
- Blinking Red: Printhead Over Temp (temperature) — this status is coupled with blinking red Status indicator. Requires cooling and printer restart.



4. Data Indicator — Indicates the status of data transfer activity.

- Off: Data is not being transferred.

- Green: A data communication operation has not finished, but is not actively being transferred.
- Blinking Green: Data communications are in process.
- Blinking Amber: Out of memory while storing content (formats, graphics, fonts, etc.).



### 5. Supplies Indicator — Indicates media (label, receipt, tags, transfer ribbon, ribbon cartridge, etc.) status.

- Red: There is a media out condition.
- Blinking Red: Ribbon Out.
- Blinking Red and Amber: Ribbon Cartridge Low (ZD421 Cartridge printers only).
- Blinking Amber: Ribbon In (ZD421 Cartridge printers only) detected while the printer is attempting to print in direct thermal mode.



### 6. Network Indicator — Indicates network activity and status.

- Amber: 10 base Ethernet (LAN) connection detected.
- Green: 10/100 Ethernet (LAN) connection detected or when Wi-Fi (WLAN) has a strong signal and is connected.
- Red: when an Ethernet (LAN) or Wi-Fi (WLAN) fault occurs.
- Blinking Red: during Wi-Fi (WLAN) association.
- Blinking Amber: during Wi-Fi (WLAN) authentication.
- Blinking Green: when Wi-Fi (WLAN) has completed, but has a weak signal.



### 7. Cancel Button — Cancels print jobs.

- Only functional when the printer is in the Pause state.
- Pressing the Cancel button once causes the printer to cancel printing the next format in the print buffer.
- Pressing and holding the button for two seconds cancels printing of ALL pending formats.



### 8. FEED (Advance) Button — Advance a label (print form/format).

- Feed One Label - Pressing (and releasing) the FEED button when the printer is not printing, causes the printer to advance media one (1) blank form/format length (label, receipt, tag, ticket, etc.).
- Advance Multiple Labels - Pressing and Holding the FEED button when the printer is not printing, causes the printer to advance labels until released. It finishes advancing to the beginning position of the next label.
- Reprint Last Label (activated via a SGD command: `ezpl.reprint_mode`) - The intended purpose of this feature is to allow reprint of a failed media print. If the printer runs out of media (paper, labels, transfer ribbon, etc.), then the printer can re-print the last label (print form/format). The print buffer that stores the print image available for reprint is cleared when the printer gets turned off or is reset.



### 9. Pause Button — Pauses print and media movement actions.

- Pressing the Pause button will stop print activities and place the printer into a 'Pause' state. The printer will complete printing a label that is printing before it pauses.
- The Pause indicator will display Amber (orange/yellow) to indicate the Pause state.
- Pressing the Pause button while in Pause state will return the printer to normal operation. If printing a multi label (form/format) job or another print job is waiting to print in the print queue, then printing will resume print jobs.



## Attaching Power



**CAUTION:** Never operate the printer and power supply in an area where they can get wet. Serious personal injury could result!



**NOTE:** Set up your printer so that you can handle the power cord easily if needed. Some processes for setup or troubleshooting issues may ask you to remove power. Separate the power cord from the power supply receptacle or AC electrical outlet to make certain the printer cannot carry electrical current.

1. Plug the power supply into the printer's DC power receptacle.
2. Insert the AC power cord into the power supply.
3. Plug the other end of the AC power cord into an appropriate AC electrical outlet. Note that AC outlet end of the power cord's plug type can vary by region.
4. The active power light will turn on green if power is on at the AC outlet.



**IMPORTANT:** Ensure the appropriate power cord with a three (3) prong plug and an IEC 60320-C13 connector are used at all times. These power cords must bear the relevant certification mark of the country in which the product is being used.

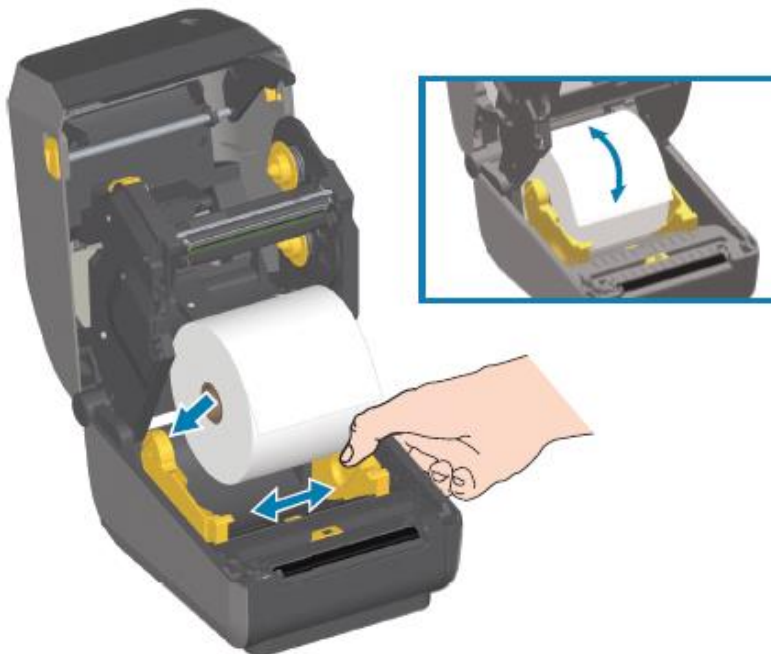
### Instructions for media loading:

This procedure works for Tear-Off (standard bezel), Label Dispense and Media Cutting printer options.

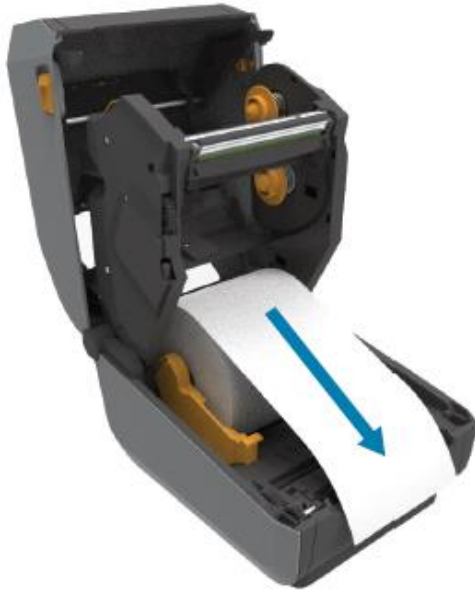
1. Open the printer. Pull the release latch levers toward the front of the printer.



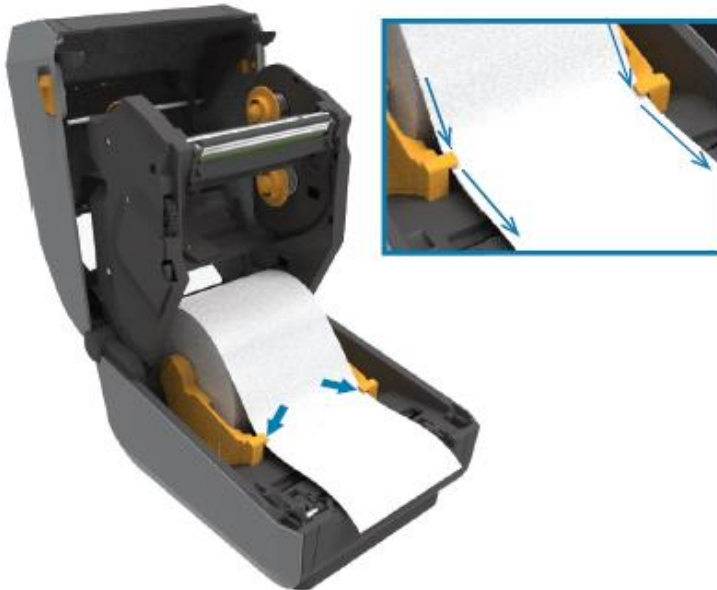
2. Open the media roll holders. Orient the media roll so that its printing surface will face up as it passes over the platen (drive) roller. Pull the media guides open with your free hand and place the media roll on the roll holders and release the guides. Verify the roll turns freely. The roll must not sit in the bottom of the media compartment.



3. Pull the media so that it extends out of the front of the printer.



4. Push the media under both of the media guides.



## Run a SmartCal Media Calibration

The printer needs to set the media parameters for prior to printing optimal operation. The printer will automatically determine media type (web/gap, black mark/notch, or continuous) and measure media characteristics.



**IMPORTANT:** After the initial calibration to a specific media is completed, it is not required to perform additional calibrations each time the media is replaced. The printer automatically measures the media to adjust for small changes in the media characteristics while printing. Pressing the FEED (Advance) once or twice after a new roll of media (same batch) has been installed will synchronize the labels. It is then ready to continue printing.

### SmartCal Procedure

1. Make sure the media and ribbon cartridge (if you are thermal transfer printing) are loaded properly in the printer and the top cover of the printer is closed.
2. Press the POWER button to turn the printer on.
3. Once the printer is in the ready state (Status indicator is solid green), press and hold the PAUSE and CANCEL button for two (2) seconds and release.
4. The printer will measure a few labels and adjust media sensing levels.
5. When the printer stops, the Status indicator will turn solid green.



## Test Printing with the Configuration Report

Before you connect the printer to a computer, make sure that the printer is in proper working order. You can do this by printing a configuration report. The information on the Configuration reports printout that may be helpful with printer installation and with troubleshooting your printer.

1. Make sure the media and ribbon cartridge (if you are thermal transfer printing) are loaded properly in the printer and the top cover of the printer is closed.
2. Turn the printer ON.
3. Once the printer is in the ready state (Status indicator is solid green), press and hold the FEED and CANCEL buttons for two (2) seconds and release.
4. The Printer and Network Configuration Reports (shown below) will be printed.
5. When the printer stops, the Status indicator will turn solid green.



## Using the Label Dispenser Option

The label dispenser option allows you to print a label and have the backing material (liner/web) automatically removed. When printing multiple labels, removing the dispensed (peeled) label triggers the printer to print and dispense the next label.

To use dispense-mode, set 'Media Handling' to 'Peel-Off' in the printer driver or with the Zebra Setup Utility using the 'Configure Printer Settings' wizard. Otherwise, you must send the ZPL programming commands to the printer.

When programming in ZPL, you can use the command sequences shown below to configure the printer to use the dispenser option:

```
^XA ^MMP ^XZ  
^XA ^JUS ^XZ
```

1. Load your labels into the printer. Close the printer and press the FEED button until a minimum of 100 millimeters or 4 inches of exposed labels exit the printer. You can leave the labels on the liner.





## Print Operations

2. Lift the liner over the top of the printer. Pull the gold latch in the center of dispenser door away from the printer and the door will open.



## Print Operations

3. Insert the label liner between the dispenser door and the printer body.



4. Close the dispenser door while pulling the end of the label liner tight.



## Print Operations

5. Press and release the FEED (Advance) button one or more times until a label gets presented for removal.



6. During the print job, the printer will peel off the backing and present a single label. Take the label from the printer to allow the printer to print the next label.



**NOTE:** If you did not activate the label taken sensor to detect the removal of the dispensed (peeled) label with software commands, the printed labels will stack and may bind the mechanism.

### Cleaning the Printhead

Always use a new cleaning pen on the printhead (an old pen carries contaminants from its previous use that may damage the printhead).

When you load new media, you should clean the printhead for optimal print operations.



**CAUTION—HOT SURFACE:** The printhead becomes hot while printing. To protect from damaging the printhead and risk of personal injury, avoid touching the printhead. Only use the cleaning pen to perform printhead maintenance.



**CAUTION—ESD:** The discharge of electrostatic energy that accumulates on the surface of the human body or other surfaces can damage or destroy the printhead and other electronic components used in this device. You must observe static-safe procedures when working with the printhead or the electronic components under the top cover.

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When you load new media, you can also clean the printhead.

1. Rub the cleaning pen across the dark area of the printhead. Clean from the middle to the outside. This will move adhesive transferred from the edges of media to the outside of media path.
2. Wait one minute before closing the printer to allow the components to dry.

