

Installation Instructions for the ZT231 Printer

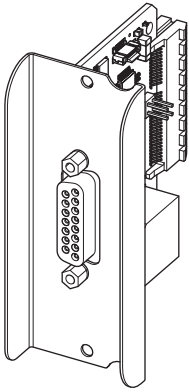
Read these instructions thoroughly before installing this kit.



IMPORTANT: A qualified service technician must perform this installation. Retain all parts removed during disassembly, unless otherwise directed.

Parts List

Before proceeding, verify that your kit contains the following items. To reorder specific parts, navigate to zebra.com/parts, and select your printer model.

Applicator interface board		Qty 1
Screw, M3x6 hexalobular pan washer mach	 T10	Qty 2

Tools Needed

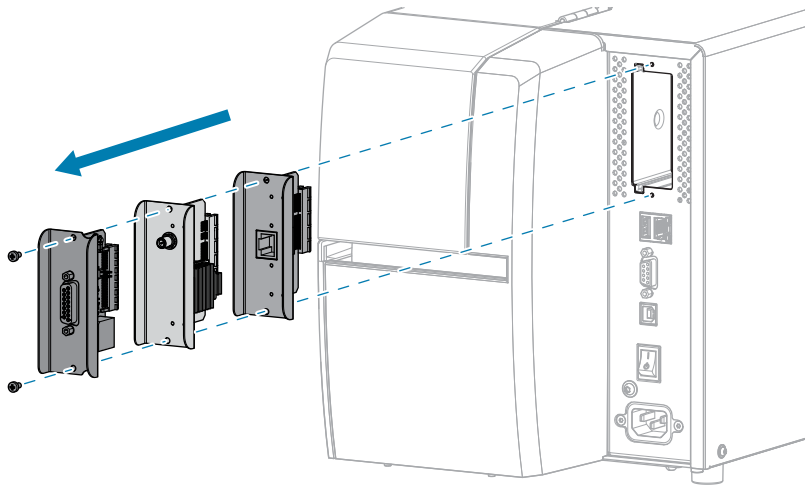
-  Hexalobular (6-lobe, star) keys, drivers, or bits
- Sorting bin for screws and small parts (optional)

Remove the Option Card or Option Cover

The option card slot either contains an existing option card or is covered by a plastic cover. Remove whichever is in that slot.

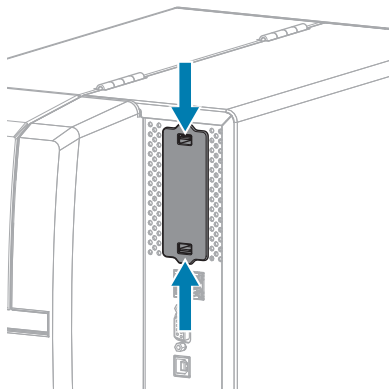
1. Remove the option card (if applicable). If the slot is covered with a blank slot cover, this cover does not need to be removed.

- a) Remove the two  T10 screws that secure the card to the printer.
- b) Slide the card out of the option slot.



2. Remove the plastic cover (if applicable).

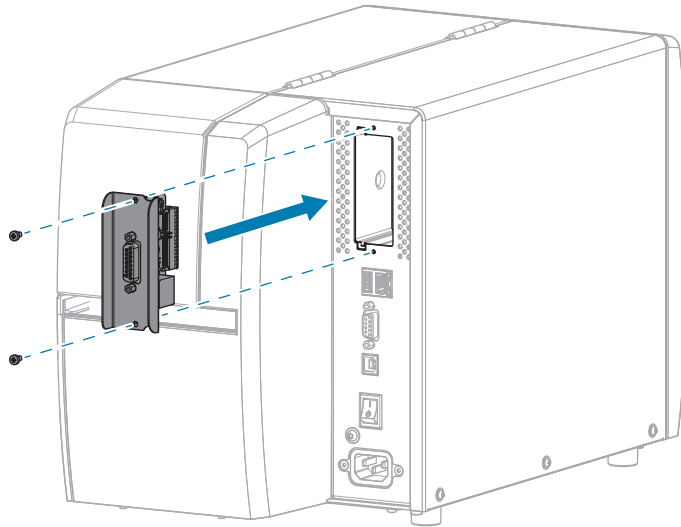
- a) Squeeze in the tabs on either end of the cover.



- b) Remove the cover from the printer.

Install the Applicator Board

1. Slide the applicator board into the option slot.



2. Install two  T10 screws to secure the card to the printer.

Applicator Interface Board Overview

The applicator interface board provides a robust electrical signal interface between the printer and the outside world via a standard DB15 connector. The applicator **input** signals allow an external device to control when the printer prints. The applicator **output** signals provide handshaking and status information to the external host.

The applicator output voltage can be set to three levels (0V, 5V, 24V) through the Set-Get-Do (SGD) command shown in Table 1. The applicator provides 5V or 24V power to run the I/O interface and to power small external loads. All output signals are open collector with a light pull-up resistor built in. All signals and power are galvanically isolated from the host printer. The applicator provides a jumper to connect printer and applicator grounds, if required, but the default setting is isolation.



IMPORTANT:

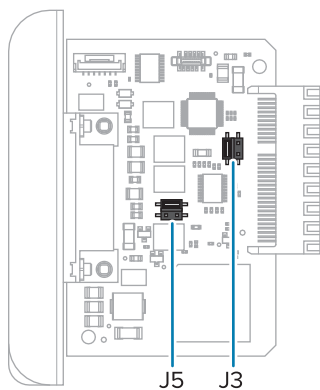
- The 0V setting must be used when an external voltage is provided.
- The applicator output power supply can sustain momentary short circuits but may be damaged with long-term shorts. There are no user-replaceable fuses on the applicator interface board.

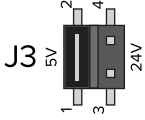
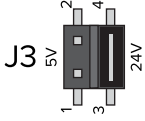
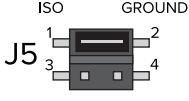
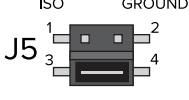
Table 1 Applicator Interface Board Specifications

Output voltage selections	• 0V (required setting when voltage is supplied externally) • 5VDC (+/- 10%) <= 1.0 A • 24VDC (+/- 10%) <= 0.4 A Set by the following SGD command: ! U1 setvar "device.applicator.voltage" "X" where X is 0, 5, or 24 to indicate the desired voltage. The printer must be power cycled before the setting takes effect.  NOTE: A high-voltage lockout jumper installed on the applicator interface PCBA prevents the output from going above 5V, even if the SGD is sent for 24V output. This precaution prevents accidental damage to external equipment. The jumper must be repositioned to allow for 24V operation. The default setting is for 5V operation.
Pull-up resistor on output	10K +/- 5%
Pull-up resistor on input	4.7K +/- 5%
Output signal current sink	<= 7 mA
User-supplied voltage range when output voltage set to 0V	0–24 Volts

Jumper Configuration

Figure 1 Jumper Configuration on the Applicator Board



Jumper J3 — High-Voltage Lockout	J3 Pins 1 and 2 connected V out = 5V max (default)	
	J3 Pins 3 and 4 connected V out = 0V, 5V, 24V	
Jumper J5 — Ground Isolation Jumper	J5 Pins 1 and 2 connected isolated (default)	
	J5 Pins 3 and 4 connected not isolated	

Applicator Interface Pin Configuration

Figure 2 DB15 Connector

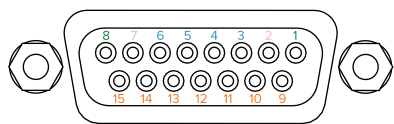


Figure 3 External Pinouts

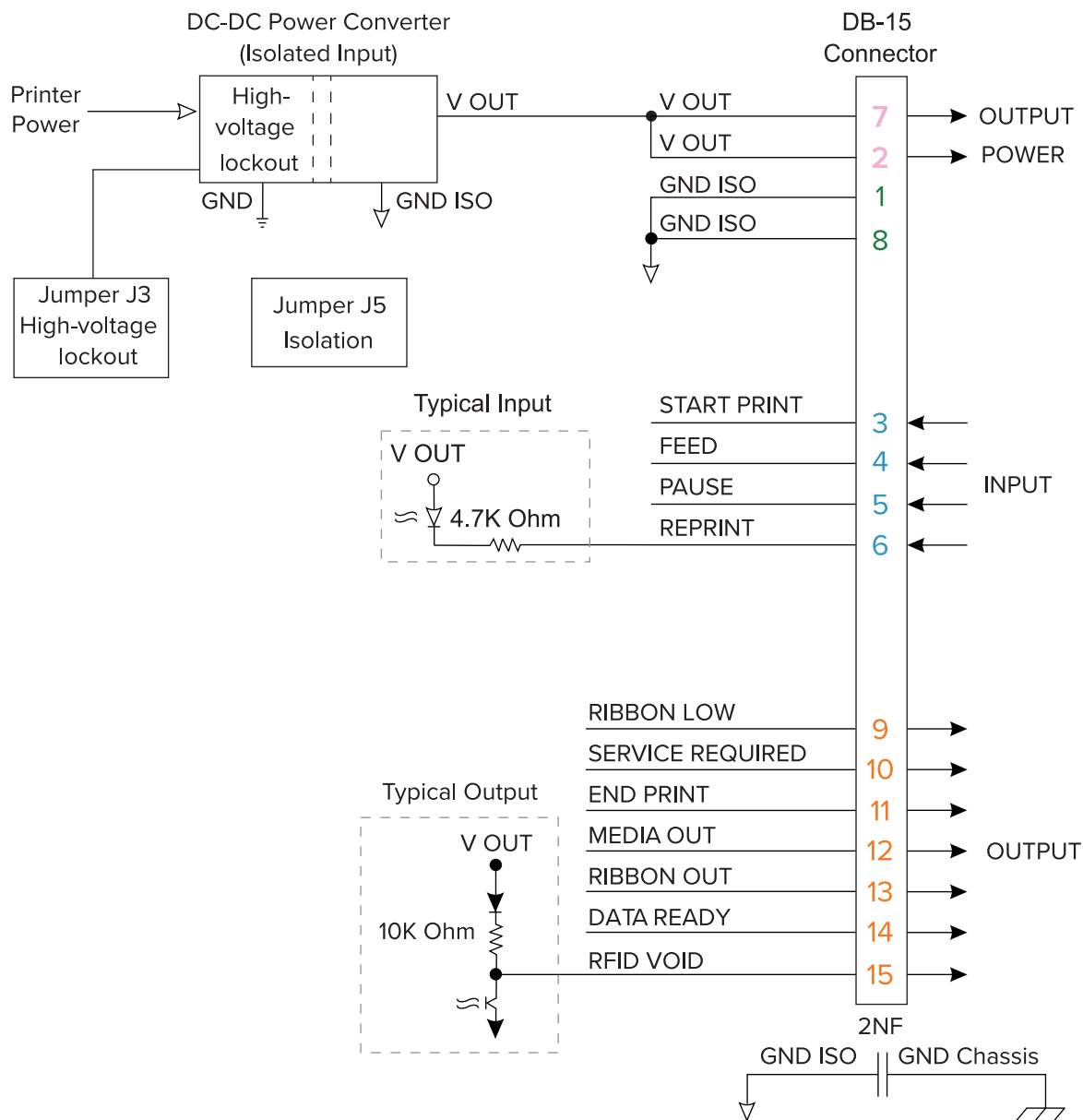


Table 2 Applicator Interface Connector Pin Configuration

Pin No.	Signal Name	Signal Type	Description
1	GROUND ISOLATED	Ground	Using jumper J5, this pin can be configured as isolated or non-isolated from the printer circuit ground (see Jumper Configuration on page 5). Default position is set to isolation.
2	VOUT	Power	Programmable output voltage of 0V, 5VDC, 24VDC. Voltage selection done by SGD command. Depending on configuration, jumper J3 locks out 24V operation (see Jumper Configuration on page 5). If set in 5V position, only 0V and 5V are available. If set to 24V position, 0V, 5V and 24V are available, depending on the SGD command. The default configuration is 5V.
3	START PRINT	Input	See Applicator Signals on page 10 for more information about the start and end print signals. • Pulse Mode—The label printing process begins on the HIGH to LOW transition of this signal if a format is ready. Deassert this signal HIGH to inhibit printing of a new label. • Level Mode—Assert LOW to enable the printer to print if a label format is ready. When deasserted HIGH, the printer completes the label that is printing then stops and waits for this input to be reasserted LOW.
4	FEED	Input	When the printer is idle or has been paused, assert this input LOW to trigger repeated feeding of blank labels. Deassert HIGH to stop feeding blank labels and register to the top of the next label.
5	PAUSE	Input	To toggle the current Pause state, this input must be asserted LOW for 200 milliseconds, or until the SERVICE REQUIRED output (pin 10) changes state.
6	REPRINT	Input	• If the Reprint feature is enabled, this input must be asserted LOW to cause the printer to reprint the last label. • If the Reprint feature is disabled, this input is ignored.

Table 2 Applicator Interface Connector Pin Configuration (Continued)

Pin No.	Signal Name	Signal Type	Description
7	VOUT	Power	Programmable output voltage of 0V, 5VDC, 24VDC. Voltage selection done by SGD command. Depending on configuration, jumper J3 locks out 24V operation (see Jumper Configuration on page 5). If set in 5V position, only 0V and 5V are available. If set to 24V position, 0V, 5V and 24V are available, depending on the SGD command. The default configuration is 5V.
8	GROUND ISOLATED	Ground	Using jumper J5, this pin can be configured as isolated or non-isolated from the printer circuit ground (see Jumper Configuration on page 5). Default position is set to isolation.
9	RIBBON LOW	Output	Asserted LOW if the Supplies Warning feature is enabled and the amount of ribbon remaining on the supply spindle is below the threshold level.
10	SERVICE REQUIRED	Output	Asserted LOW in the following circumstances: • the printhead is open • the ribbon or media is out • the printer is paused • an operational fault occurs • a Resynch error occurs while the applicator Resynch mode is set to Error mode

Table 2 Applicator Interface Connector Pin Configuration (Continued)

Pin No.	Signal Name	Signal Type	Description
11	END PRINT	Output	See Applicator Signals on page 10 for more information about the start and end print signals.  NOTE: A format (^XA ... ^XZ) that does not print will signal that it is being processed. However, it will not trigger an End Print signal because no motion/printing is required. • MODE 0—The applicator port is OFF. • MODE 1—Asserted LOW only while the printer is moving the label forward; otherwise deasserted HIGH. • MODE 2—Asserted HIGH only while the printer is moving the label forward; otherwise deasserted LOW. • MODE 3—(Default) Asserted LOW for 20 milliseconds when a label is completed and positioned. Not asserted during continuous printing. • MODE 4—Asserted HIGH for 20 milliseconds when a label is completed and positioned. Not asserted during continuous printing.
12	MEDIA OUT	Output	Asserted LOW when there is no media in the printer.
13	RIBBON OUT	Output	Asserted LOW when there is no ribbon in the printer.
14	DATA READY	Output	See Applicator Signals on page 10 for more information about this signal. • Asserted LOW when sufficient data has been received to begin processing the next label format. • Deasserted HIGH when printing/processing stops after the current label format, either due to a pause condition or the absence of a label format.
15	RFID VOID	Output	• Asserted LOW when the RFID transponder over the antenna is “voided.” • Deasserted HIGH when the end print signal is asserted.

Applicator Signals

The following timing diagrams show how applicator signals function in each applicator mode during the stages of printing a non-RFID label. For more information about applicator signals during RFID operation, see the RFID Programming Guide 3.

Figure 4 Applicator Signals (Mode 1)

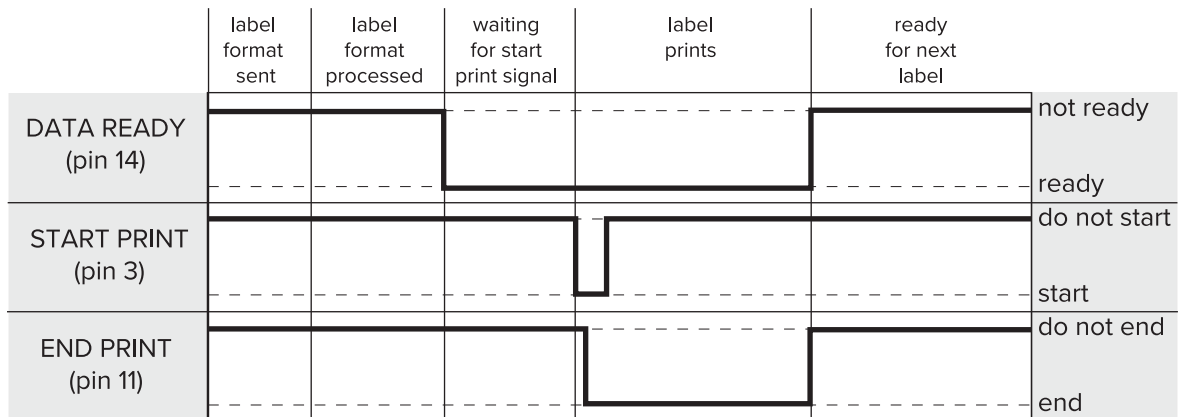


Figure 5 Applicator Signals (Mode 2)

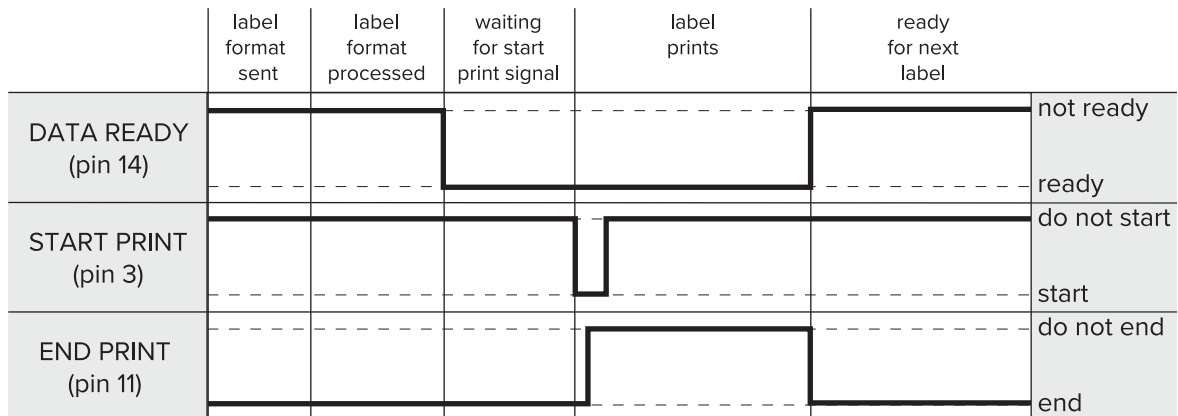


Figure 6 Applicator Signals (Mode 3)

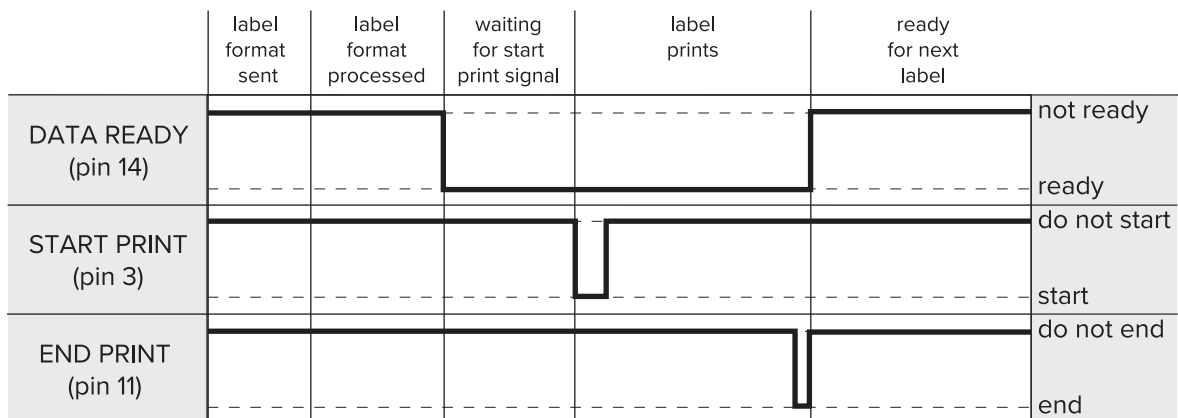


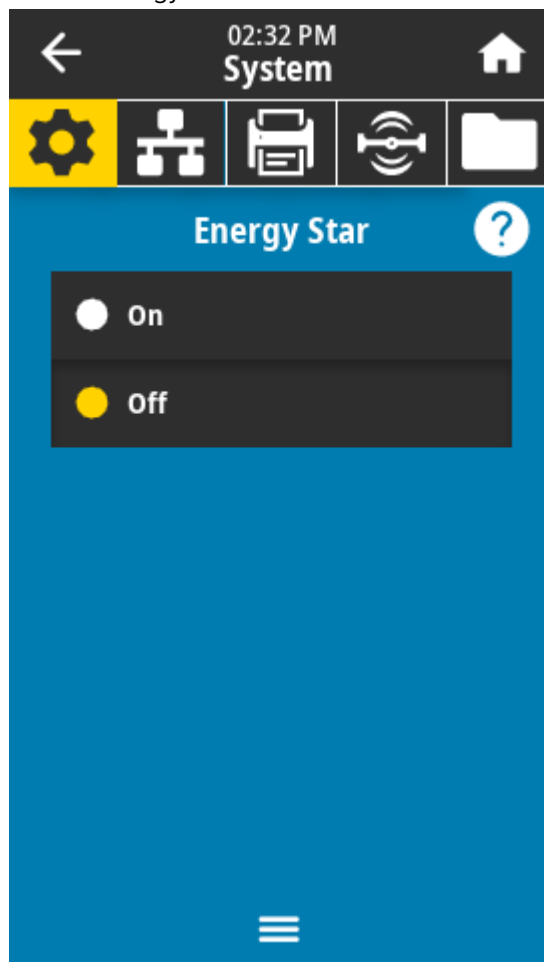
Figure 7 Applicator Signals (Mode 4)

	label format sent	label format processed	waiting for start print signal	label prints	ready for next label	
DATA READY (pin 14)						not ready
						ready
START PRINT (pin 3)						do not start
						start
END PRINT (pin 11)						do not end
						end

Energy Star Effect on the Applicator Interface Board

If the Energy Star feature is enabled and the printer goes to sleep, the applicator interface board shuts down. If the applicator interface board needs to remain on at all times, disable the Energy Star feature in one of the following ways:

- Set the Energy Star user menu item to OFF:



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- Send the SGD command to disable Energy Star:

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! U1 setvar "power.energy_star.enable" "off"
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To reenble Energy Star, send the SGD command with the value "on".