

Calibrate the Printer

Calibrate the printer when it is first put into service. Calibration allows the printer to establish the proper settings for the specific media and ribbon used in your application. You may calibrate the printer at other times as needed. [Table 7](#) shows the different methods for calibration.



Important • To retain calibration settings in the printer’s memory when the printer is power cycled, you must save the changes permanently. See [Exit Setup Mode on page 87](#).

Table 7 • Types of Calibration

Type of Calibration	Description	When/How It Occurs
Auto-calibration	The printer automatically sets the value it detects for the spaces between labels.	Occurs at the following times: <ul style="list-style-type: none"> • When the printer is first turned on if CALIBRATION is selected for MEDIA POWER UP (see Select Media Power-Up Option on page 105). • When the printer feeds media after the printhead is closed if CALIBRATION is selected for HEAD CLOSE (see Select Head Close Option on page 106). • As part of both the sensor profile and media and ribbon sensor calibration procedures.
Manual Calibration	The printer does the following: <ul style="list-style-type: none"> • feeds media and ribbon • sets the values it detects for media length, media type (continuous or non-continuous), and print mode (thermal transfer or direct thermal) • updates the sensor values 	To perform a long calibration, do one of the following: <ul style="list-style-type: none"> • Press PAUSE on the control panel to pause the printer, and then press CALIBRATE. • Select CALIBRATION for the MEDIA POWER UP or HEAD CLOSE parameter (see Select Media Power-Up Option on page 105 or Select Head Close Option on page 106).
Short Calibration	The printer calibrates using the current sensor values rather than detecting the spaces between labels and resetting the sensors. This calibration sequence uses fewer labels than the long calibration sequence, but it is less reliable because the values that are stored in the sensors could be incorrect.	Select SHORT CAL for the MEDIA POWER UP or HEAD CLOSE parameter (see Select Media Power-Up Option on page 105 or Select Head Close Option on page 106).

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Language/Parameter	Action/Explanation
<div style="border: 1px solid black; padding: 10px; text-align: center;">  MEDIA AND RIBBON CALIBRATE+ </div>	<p>Manual Calibration (Media and Ribbon Sensor Sensitivity)</p> <p>Use this procedure to adjust sensitivity of media and ribbon sensors.</p> <p> Important • Follow this procedure exactly as presented. All of the steps must be performed even if only one of the sensors requires adjustment. You may press MINUS (-) at any step in this procedure to cancel the process.</p> <p>To perform a media and ribbon sensor calibration:</p> <ol style="list-style-type: none"> 1. Press PLUS (+) to start the calibration procedure. The LOAD BACKING prompt displays. 2. Open the printhead. 3. Remove approximately 8 in. (203 mm) of labels from the backing, and pull the media into the printer so that only the backing is between the media sensors. 4. Leave the printhead open. 5. Press PLUS (+) to continue. The REMOVE RIBBON prompt displays. 6. Remove the ribbon (if used). 7. Close the printhead. 8. Press PLUS (+) to continue. The message CALIBRATING PLEASE WAIT displays. The printer adjusts the scale (gain) of the signals that it receives from the media and ribbon sensors based on the specific media and ribbon combination being used. On the sensor profile, this essentially corresponds to moving the peak of the graph up or down to optimize the readings for your application. When calibration is complete, RELOAD ALL displays. 9. Open the printhead and pull the media forward until a label is positioned under the media sensor. 10. Reload the ribbon (if used). 11. Close the printhead. 12. Press PLUS (+) to continue. The printer performs an auto-calibration. During this process, the printer checks the readings for the media and ribbon based on the new scale established, determines the label length, and determines the print mode. To see the new readings on the new scale, print a sensor profile.
<div style="border: 1px solid black; padding: 10px; text-align: center;">  PARALLEL COMM. -BIDIRECTIONAL + </div>	<p>Set Parallel Communications</p> <p>Select the communications port that matches the one being used by the host computer.</p> <p><i>Default Value:</i> BIDIRECTIONAL <i>Selections:</i> BIDIRECTIONAL, TWINAX/COAX, UNIDIRECTIONAL</p> <p>To change the value shown:</p> <ol style="list-style-type: none"> 1. Press PLUS (+) or MINUS (-) to scroll through the options.

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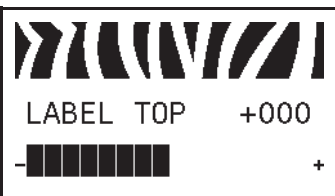
Language/Parameter	Action/Explanation
 <p>ZPL MODE -ZPL II +</p>	<p>Select ZPL Mode</p> <p>The printer remains in the selected mode until it is changed by this parameter or by using a ZPL/ZPL II command. The printer accepts label formats written in either ZPL or ZPL II, eliminating the need to rewrite any ZPL formats that already exist. See the <i>Programming Guide for ZPL, ZBI, Set-Get-Do, Mirror, and WML</i> for more information on the differences between ZPL and ZPL II.</p> <p><i>Default Value:</i> ZPL II <i>Range:</i> ZPL II, ZPL</p> <p>To change the value shown:</p> <ol style="list-style-type: none"> 1. Press PLUS (+) or MINUS (-) to toggle between the options.
 <p>MEDIA POWER UP -CALIBRATION +</p>	<p>Select Media Power-Up Option</p> <p>This parameter sets the action of the media when you turn on the printer.</p> <p><i>Default Value (non-RFID printers):</i> CALIBRATION <i>Default Value (RFID printers):</i> FEED</p> <p><i>Selections:</i> CALIBRATION, LENGTH, SHORT CAL, NO MOTION, FEED</p> <ul style="list-style-type: none"> • Calibration adjusts sensor levels and thresholds, determines length, and feeds the media to the next web. • Short Cal sets media and web thresholds without adjusting sensor gain, determines length, and feeds the media to the next web. • Length determines label length using current sensor values, and feeds the media to the next web. • No Motion tells the printer not to move the media. You must manually ensure that the web is positioned correctly, or press feed to position the next web. • Feed—feeds the labels to the first registration point. <p>To change the value shown:</p> <ol style="list-style-type: none"> 1. Press PLUS (+) or MINUS (-) to scroll through the options.

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Language/Parameter	Action/Explanation
 <p>HEAD CLOSE -CALIBRATION +</p>	<p>Select Head Close Option This parameter sets the action of the media when you close the printhead.</p> <p><i>Default Value (non-RFID printers): CALIBRATION</i> <i>Default Value (RFID printers): FEED</i></p> <p><i>Selections: CALIBRATION, LENGTH, SHORT CAL, NO MOTION, FEED</i></p> <ul style="list-style-type: none"> • Calibration adjusts sensor levels and thresholds, determines length, and feeds the media to the next web. • Short Cal sets media and web thresholds without adjusting sensor gain, determines length, and feeds the media to the next web. • Length determines label length using current sensor values, and feeds the media to the next web. • No Motion tells the printer not to move the media. You must manually ensure that the web is positioned correctly, or press feed to position the next web. • Feed—feeds the labels to the first registration point. <p>To change the value shown:</p> <ol style="list-style-type: none"> 1. Press PLUS (+) or MINUS (-) to scroll through the options.
 <p>BACKFEED -DEFAULT +</p>	<p>Select Backfeed Sequence This parameter sets when label backfeed occurs after a label is removed in some print modes. It has no effect in Rewind mode. This setting is superseded by ~JS when received as part of a label format (see the <i>Programming Guide for ZPL, ZBI, Set-Get-Do, Mirror, and WML</i> for more information).</p> <p><i>Default Value: DEFAULT (90%)</i> <i>Selections: DEFAULT, AFTER, OFF, BEFORE, 10%, 20%, 30%, 40%, 50%, 60%, 70%, 80%</i></p> <p>To change the value shown:</p> <ol style="list-style-type: none"> 1. Press PLUS (+) or MINUS (-) to scroll through the options.
 <p>LABEL TOP +000 - +</p>	<p>Adjust Label Top Position This parameter adjusts the print position vertically on the label. Positive numbers adjust the label top position farther down the label (away from the printhead) by the specified number of dots. Negative numbers adjust the position up the label (toward the printhead).</p> <p><i>Default Value: +000</i> <i>Range: -120 to +120</i></p> <p>To change the value shown:</p> <ol style="list-style-type: none"> 1. Press PLUS (+) to increase the value. 2. Press MINUS (-) to decrease the value.