
# Zebra® KR203

Kiosk Receipt Printer

# Windows® CE Software Integrator Guide

P1028251-001 Rev. A

# Contents

# 1 Introduction

## Who Should Use This Document

This guide is intended for use by any person who needs to setup the KR203 printer for use with a Windows CE device.

## How This Document Is Organized

The manual is set up as follows:

| | |
|---|---|
| Introduction | Contact information, document conventions. |
| Windows CE Driver | Installation, updates, preferences, and properties. |
| Troubleshooting | Status light description, user interface, error handling, and fixes to common printing problems. |
| Appendix A | KR203 status codes. |
| Appendix B | Programming samples |

This manual will be updated from time to time as printer functions and features may be added or amended. You will always find the latest edition on our web site (http://www.zebra.com). If you require information for functions not found in this manual edition, please contact Technical Support for your region or the Zebra partner the printer was purchased from.

# Contacts

Technical Support via the Internet is available 24 hours per day, 365 days per year.

**Web Site:** www.zebra.com

E-mail Back Technical Library:

- **E-mail address:** emb@zebra.com
- **Subject line:** Emaillist

**Self Service Knowledge Base:** www.zebra.com/knowledgebase

**Online Case Registration:** www.zebra.com/techrequest

| Which Department Do You Need? | The Americas | Europe, Africa, Middle East, India | Asia Pacific |
|---|---|---|---|
| **Regional Headquarters** | Zebra Technologies International, LLC<br>475 Half Day Road, Suite 500<br>Lincolnshire, IL 60069 USA<br>T: +1 847 634 6700<br>Toll-free +1 866 230 9494<br>F: +1 847 913 8766 | Zebra Technologies Europe Limited<br>Dukes Meadow<br>Millboard Road<br>Bourne End<br>Buckinghamshire, SL8 5XF<br>United Kingdom<br>T: +44 (0) 1628 556000<br>F: +44 (0) 1628 556001 | Zebra Technologies Asia Pacific Pte. Ltd.<br>120 Robinson Road<br>#06-01 Parakou Building<br>Singapore 068913<br>T: + 65 6858 0722<br>F: +65 6885 0838 |
| **Technical Support**<br>For questions on the operation of Zebra equipment and software, please call your distributor. For additional assistance, contact us.<br>*Please have your model and serial numbers available.* | T: +1 877 ASK ZEBRA (275 9327)<br>F: +1 847 913 2578<br>Hardware: ts1@zebra.com<br>Software: ts3@zebra.com<br><br>*Kiosk Printers:*<br>T: +1 866 322 5202<br>kiosksupport@zebra.com | T: +44 (0) 1628 556039<br>F: +44 (0) 1628 556003<br>E: Tseurope@zebra.com | T: +65 6858 0722<br>F: +65 6885 0838<br>E: *China:* tschina@zebra.com<br>*All other areas:*<br>tsasiapacific@zebra.com |
| **Repair Service Department**<br>For back-to-base service and repair. | T: +1 877 ASK ZEBRA (275 9327)<br>F: +1 847 821 1797<br>E: repair@zebra.com<br>To request a repair in the U.S., go to www.zebra.com/repair. | T: +44 (0) 1772 693069<br>F: +44 (0) 1772 693046<br>New requests: ukrma@zebra.com<br>Status updates:<br>repairupdate@zebra.com | T: +65 6858 0722<br>F: +65 6885 0838<br>E: *China:* tschina@zebra.com<br>*All other areas:*<br>tsasiapacific@zebra.com |
| **Technical Training Department**<br>For Zebra product training courses. | T: +1 847 793 6868<br>T: +1 847 793 6864<br>F: +1 847 913 2578<br>E: ttamerica@zebra.com | T: +44 (0) 1628 556000<br>F: +44 (0) 1628 556001<br>E: Eurtraining@zebra.com | T: + 65 6858 0722<br>F: +65 6885 0838<br>E: *China:* tschina@zebra.com<br>*All other areas:*<br>tsasiapacific@zebra.com |
| **Inquiry Department**<br>For product literature and distributor and dealer information. | T: +1 877 ASK ZEBRA (275 9327)<br>E: inquiry4@zebra.com | T: +44 (0) 1628 556037<br>F: +44 (0) 1628 556005<br>E: mseurope@zebra.com | E: *China:*<br>GCmarketing@zebra.com<br>*All other areas:*<br>APACChannelmarketing@zebra.com |
| **Customer Service Department (US)**<br>**Internal Sales Department (UK)**<br>For printers, parts, media, and ribbon, please call your distributor or contact us. | T: +1 877 ASK ZEBRA (275 9327)<br>E: clientcare@zebra.com | T: +44 (0) 1628 556032<br>F: +44 (0) 1628 556001<br>E: cseurope@zebra.com | T: +65 6858 0722<br>F: +65 6885 0836<br>E: *China*: order-csr@zebra.com<br>*All other areas:*<br>csasiapacific@zebra.com |

**Key:** T: Telephone
F: Facsimile
E: E-mail

# Document Conventions

The following conventions are used in this document to convey certain information:

**Alternate Color** – Cross-references contain links to other sections in this guide. If you are viewing this guide online, click the blue text to jump to its location.

**Note** • Indicates information that emphasizes or supplements important points of the main text.

# 2

# Windows CE Driver

## Description

### Windows CE Driver

The following description applies to CE 5.0 and CE 6.0.

The illustration shows the relationship between the various system components involved in printing.

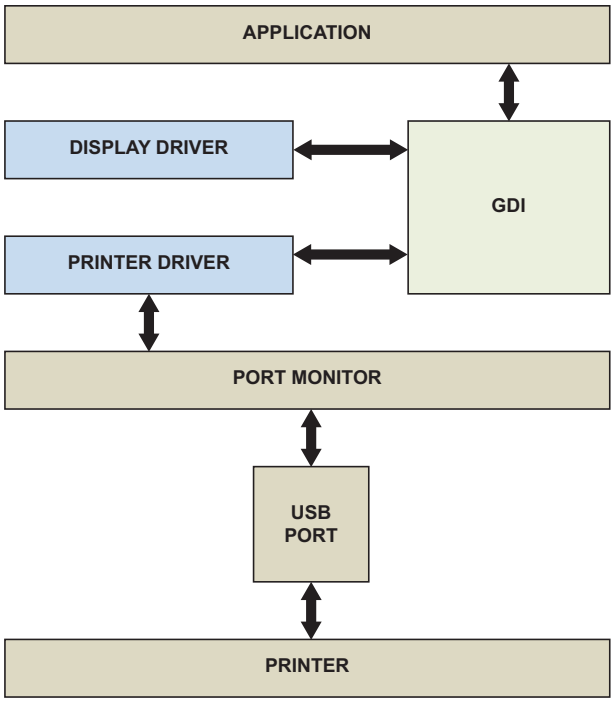


Figure 2-1 • System Flowchart

## Printer Driver

The printer driver for the KR203 is named KR203.DLL. The Windows CE graphics device interface (GDI) and display driver perform most of the work involved in printing. At the beginning of the printing process, GDI creates a device context with attributes that are retrieved from the printer driver during a call to DrvEnablePDEV. The display driver, not the printer driver, is used to render subsequent drawing commands that are issued from the application into the device context. Therefore, some drawing functions that are present in a printer driver, such as DrvStrokePath, are never called because the printer driver only renders the document internally.

The printer driver converts the bitmap data from a GDI bitmap format into the format that is recognized by the printer. This can include such operations as color reduction to the color space of the printer, data compression, and data conversion into the format that is used by the printer – a format sometimes known as a page-description language (PDL). Then, the printer driver calls the port monitor to send the rendered image to the printer.

Only a small number of the graphics driver functions defined for printer drivers are required in printer drivers for Windows CE. Printer drivers are required to implement only those graphics driver functions that are necessary for gathering printer metrics, setting up the printer, starting and ending print jobs, and preparing content for printing.

The following table shows the functions implemented in the driver:

**Table 2-1** • Driver Functions

| Function | Description |
|---|---|
| DrvCopyBits | Translates between device-managed raster surfaces and graphics device interface (GDI) standard format bitmaps. |
| DrvDisablePDEV | Used by MGDI to notify a driver that the specified PDEV structure is no longer needed. |
| DrvDisableSurface | Used by the GDI to notify a driver that the surface created by the DrvEnableSurface function for the current device is no longer needed. |
| DrvEnableDriver | Specifies the initial driver entry point exported by the driver DLL for devices that link directly to GWES, such as display drivers and printer drivers. It fills a DRVENABLEDATA structure with the driver version number and calling addresses of functions supported by the driver |
| DrvEnablePDEV | Enables a device context for drawing and returns device metrics for the target printer or display device in a GDIINFO structure. Printer drivers call a display driver's DrvEnablePDEV function to create and initialize the device context, and then substitute the printer's device metrics before returning the device context to the GDI for bitmap rendering. |
| DrvEnableSurface | Sets up a surface to be drawn on and associates it with a specified PDEV. |
| DrvEndDoc | Called by the GDI to finish or abort a print job. |

**Table 2-1** • Driver Functions

| Function | Description |
|---|---|
| DrvGetModes | Lists the modes supported by a specified device. |
| DrvStartDoc | Called by the GDI to start a print job. |
| DrvStartPage | Called by the GDI to start printing the next page of a print job. |
| GetPrinterInfo | Obtains information about printers, such as the name of the printer or whether the printer can print in color. |
| PrinterClose | Closes a printer handle previously opened by a call to the PrinterOpen function. |
| PrinterOpen | Opens a specified printer port and returns a handle to the printer. |
| PrinterSend | Sends a block of data to a printer. |
| ReportPrinterStatus | Returns the status of a printer or printing operation that is in progress. |
| GetPrinterStatus | Returns a specific KR203 status. |

**Note** • The table includes links to descriptions of the driver functions.

## Port Monitor

The port monitor for the KR203 is called KRPort.DLL. Printing is supported over universal serial bus (USB) port only. The printing architecture provides application programming interfaces (APIs) that are exposed by the Graphics, Windowing, and Events Subsystem (GWES) to communicate with the printer driver. The printer driver communicates with the port driver that sends the print data over the supported bus. Therefore, the printer driver is independent of the bus and the corresponding bus driver.

## Print Spooling

No separate printer spooler component exists in Windows CE, unlike the desktop versions of the Windows OS. With Windows CE, spooling or background printing is implemented in the printer driver itself. However, because print spooling typically consumes a lot of memory, limited memory might be a problem. A practical print spooler usually has to implement a complicated compression scheme to store spooled documents before printing.

## Status Monitoring

In order to allow applications to get status from the printer, there are two functions implemented: 1) the default ReportPrinterStatus function described in the MSDN documentation, and; 2) a new function GetPrinterStatus that returns the actual printer status (see Table 2-2, Printer Status Codes on page 8).

## GetPrinterStatus

This function gets the specific Printer status for the KR203.

```
Syntax DWORD WINAPI GetPrinterStatus(HANDLE hPrinter,
LPPRINTERSTATUS status)
   Parm
   hPrinter - HANDLE          - Handle to the printer
   status - LPPRINTERSTATUS - The status to be set.
Return DWORD - Returns
   ERROR_SUCCESS if everything went Ok, else :
   ERROR_UNKNOWN_PORT  - If hPrinter is
   INVALID_HANDLE_VALUE
   ERROR_READ_FAULT    - If read fail
   ERROR_WRITE_FAULT   - If write fail
   ERROR_NOT_SUPPORTED - If hPrinter is not supported
```

The following table contains all status codes that can be reported by the KR203 printer from the application.

**Table 2-2 •** Printer Status Codes

| Number | Name | Type | Group | LED Reporting |
|---|---|---|---|---|
| 0 | Ok | Normal | Informational | Solid green |
| 1 | Paper jam in presenter | Normal | Severe | 1 red flash |
| 2 | Cutter Jam | Normal | Severe | 2 red flashes |
| 4 | Print head lifted | Normal | Severe | 4 red flashes |
| 3 | Out of paper | Normal | Severe | 3 red flashes |
| 5 | Paper feed error | Normal | Severe | 5 red flashes |
| 6 | Head temperature error | Normal | Severe auto-clear | Yellow flashing |
| 10 | Black mark not found | One-time | Informational | Not signaled |
| 11 | Black mark calibration error | One-time | Informational | Not signaled |
| 12 | Index error | One-time | Informational | Not signaled |
| 16 | Timeout Occurred | One-time | Informational | Not signaled |
| 18 | Out of range | One-time | Informational | Not signaled |
| 19 | Paper low | Normal | Warning | Not signaled |
| 20 | Media in presenter | Normal | Informational | Not signaled |
| 24 | Invalid operation | One-time | Informational | Not signaled |
| 26 | Target is read only | One-time | Informational | Not signaled |
| 40 | Printer entered USB bus | One-time | Informational | Not signaled |

**Table 2-2** • Printer Status Codes

| Number | Name | Type | Group | LED Reporting |
|---|---|---|---|---|
| 41 | System calibration error | One-time | Informational | Not signaled |
| 42 | System calibration success | One-time | Informational | Not signaled |

## Control Panel Extension

In order to open the control panel and double click the program icon, a control panel extension is supplied with the driver.

## KR203CPL

This component enables users to change settings for the printer and printer driver.

You can access the Control Panel through Start->Settings->Control Panel

## Printer and Driver Parameter Setting and Maintenance

To provide an easy interface to set printer and driver parameters on the CE device, an application is provided that handles device settings, and offers a Tools tab (see “Tools” on page 17) to perform certain maintenance functions and print a printer configuration sheet.

The driver settings are done via the KR203 Settings application that can be found in the Control Panel.

# Installation

## Driver Installation

The Zebra CE driver ZIP package includes the following files:

- Control Panel extension
- KR203CPL.CPL - This component enables users to change settings for the printer and printer driver.
- KR203.DLL - The Printer Driver.
- KRPort.DLL - The Port Monitor.
- KRErr.DLL - The error handler.
- KR203.CPY - A sample copy file.
- KRDevice.EXE - The Parameter setup application.
- KRConfig.DLL - A helper DLL for the parameter setup application.
- FWDownload.EXE - The firmware update application

Extract the Zebra CE driver files for the KR203 from the ZIP file and deploy the driver files (KR203, KRPort, KRErr and KR203CPL) to the Windows directory. The sample copy file (KR203.CPY) is included as a template for writing a copy file. This file is used during each restart to copy files from permanent storage to their respective directories.

# Update Firmware

## UI Option

Check the firmware version installed on the printer by printing a configuration label (see “Tools” on page 17), the firmware version will be shown.

Go to the Zebra Website at www.zebra.com and follow the instructions to download the latest version to your computer.

Copy the firmware package to the device to which the printer is connected and that runs the driver. Select the port the target printer is connected to and then click “Select FW”. Navigate to the firmware file and click “Download Firmware”. Confirm the installation by clicking “Yes”. The status light on the printer will flash intermittently between green and red indicating that a firmware update is in progress. The printer will reset when it has finished the upload.

## Command Line Option

The download application also offers a command line option to allow for remote deployment of the firmware file and application and execution via a short cut link.

The following shows a sample command line:

```
\Application\Zebra\FWDownload.exe /P LPT1: /F
\Application\Zebra\K69_1_1.bin
```

Where /P is the port used to send data to the printer and /F is the firmware file including directory location where the file is stored.

The following is a sample short cut link:

```
78#\Application\Zebra\FWDownload.exe /P LPT1: /F
\Application\Zebra\K69_1_1.bin
```

After the program has finished, a log file (KR203FWDownload.log) showing the actions and results during the update process will be saved to the system root directory.

# Printer Settings

## Device Setting

This dialog is used to control the Printer and driver settings:

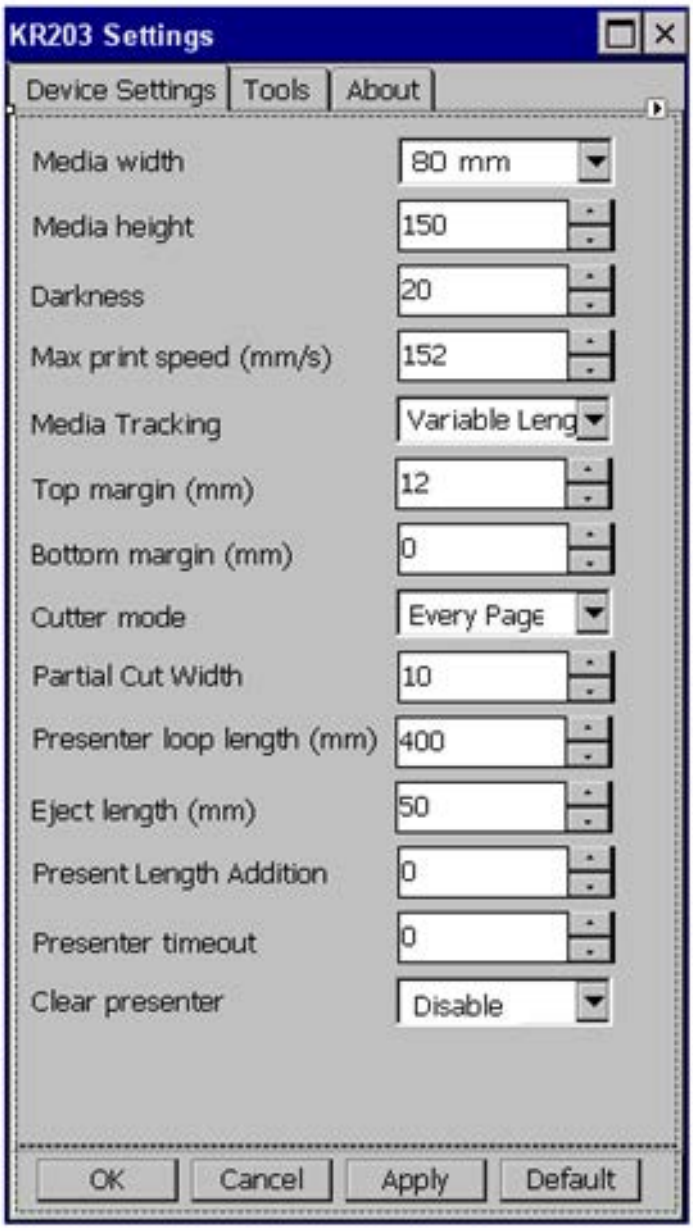


Figure 2-2 • Device Settings Tab

The following table describes the values and defaults of the parameters:

**Table 2-3** • Parameter Settings and Defaults

| Parameter | Value Range | Default Value |
|---|---|---|
| Media Width | 58mm, 60mm, 80mm, 82mm | 80mm |
| Media Height | 100mm to 600mm | 100mm |
| Darkness | 0 to 30 | 20 |
| Max Print Speed | 75mm to 152mm | 152mm |
| Media Tracking | Continuous, Variable Length, Mark Sensing | Variable Length |
| Top Margin | 2mm to 12mm | 12mm |
| Bottom Margin | 0 to 9mm | 0 |
| Cutter Mode | None, Every Page, End of Document | Every Page |
| Partial Cut Width | 0, 10mm to 60mm | 0 |
| Presenter Loop Length | 0 to 600mm | 400mm |
| Eject Length | 20mm to 600mm | 50mm |
| Present Length Addition | 0 to 255mm | 0 |
| Presenter Timeout | 0 to 300 seconds | 0 |
| Clear Presenter | Disable, Enable | Disable |

The OK button will apply the parameter and exit the program.

The Cancel button will not apply the parameter and exit the program.

The Apply button will apply the parameter but not exit the program.

The Default button with set all parameters to factory default.

After the settings application has saved all the parameters these will be used during print jobs.

The following settings will be sent to the printer during each print job:

## Media Width

The media width can be set to 58 mm, 60 mm, 80 mm and 82.5 mm. The default setting is 80 mm

## Media Height

The media height can be set between the minimum page length of 100 mm and the maximum page length of 600 mm. The default setting is 100 mm

## Darkness

The Darkness can be set between 0 and 30 with zero being the lightest. The default setting is 20.


Figure 2-3 • Darkness set to 20 (default)


Figure 2-4 • Darkness set to 0 (zero)

## Max Print Speed

The max print speed can be set between 75 mm and 152 mm per second (mm/s). The default setting is 152 mm/s. The actual print speed may vary depending on the darkness and the content printed.

## Media Tracking

Media Tracking sets Continuous, Variable Length, or Mark Sensing with the default set to Variable Length. When media tracking is set to *Continuous*, the driver sends the full page size to the printer (Page Mode), the page length will always be the same as the selected paper size (e.g. if 58mm x 200mm Media is selected, the print will be 200mm long in Page Mode). When media tracking is set to *Variable Length*, the driver will shorten the print to the length of the page. The driver will end the print after the last printed element (text, barcode, or graphic) then send a feed, cut, and eject command. The page length may vary from page to page but will always be a minimum of 92mm. When *Mark Sensing* is set, the driver will send the page size to the printer, the printer will restrict the print to the area between the black marks. If the printed area is larger than the space between the black marks, it will print additional pages (receipts). The margin values in the receipt application must be corrected after setting the driver values. If the margin in the application is set to 9mm and the driver is set to 2mm, the application setting will be enforced unless the driver is changed accordingly.

Compression sets whether the data is sent to the printer compressed or uncompressed. If the data is sent uncompressed, this may result in longer print times.

## Top Margin

The Top Margin is the equivalent to the distance between the cutter and the print head and is by default 12 mm. If it is set between the minimum of 2 mm or 11 mm it will reverse the paper.

## Bottom Margin

The Bottom margin can be set between 0 and 9 mm and will be added to the bottom of the page in *Variable Mode* and will limit the printable area in *Continuous Mode* and *Mark Sensing*. The default is 0.

## Cutter Mode

Cutter Mode can be set to None, Every Page and Cut at the document end. The default is Every Page. When set to Every Page and a multi-page document is printed each page will be cut. If set to *Cut at document end* and a multi-page document is printed all pages will print and only one cut at the end of the document will be issued. Partial Cut Width is used with *Cut at document end*.

## Partial Cut Width

Partial cut leaves multi-page receipts attached at the specified width. The partial cut width can be set to 0 and between 10 and 60 mm; the default is 0 and it disables partial cut (full cut). Partial cut can only be used with the *Cut at document end*selection in Cutter Mode.

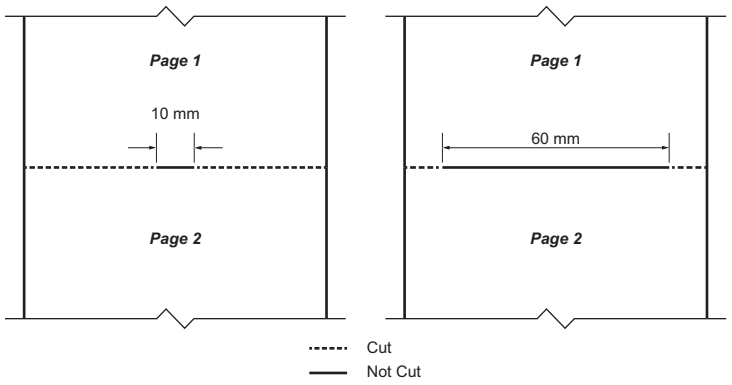


Figure 2-5 • Partial Cut Diagram

## Presenter Loop Length

Presenter Loop Length determines how much paper is held in the presenter loop. The presenter loop length can be set between 0 and 600 mm and the default value is 400 mm. A setting of 0 disables the presenter loop and media feed directly through the presenter.

## Eject Length

Eject Length determines how much paper is exposed for the customer. The range is from 20mm to 600mm with the default set to 50mm. If the eject length is set larger than the length of the receipt, the printer will retain a portion of the receipt in the presenter unless the “Clear Presenter” option is set to “Enable”.

## Present Length Addition

Presenter Length Addition is an additional length to compensate for the thickness of the kiosk wall. The range is from 0 to 255mm with the default set to 0.

## Presenter Timeout

Presenter Timeout determines how long the presenter will hold the receipt before ejecting it. The range for the timeout is from 0 to 300 seconds with the default set at 0.

## Clear Presenter

Clear Presenter determines if a receipt is retained, or if it is ejected from the presenter after the timeout. Clear Presenter should not be used with Page Hold and will be set to “Disable” if Page Hold is selected.

## Tools

The Tools tab enables printer maintenance functions.

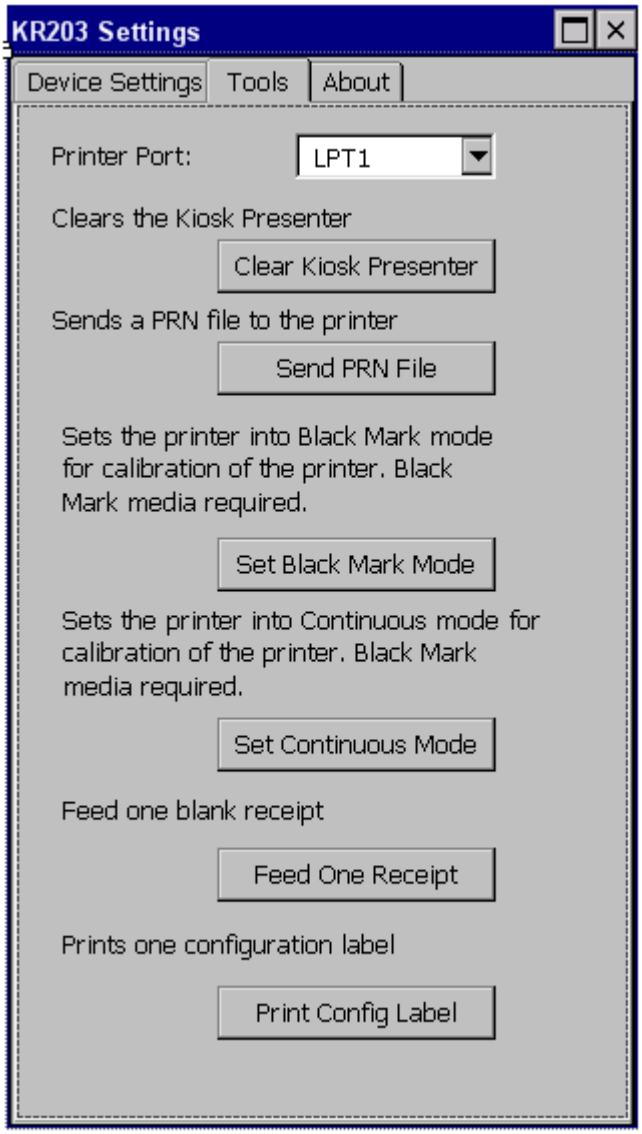


Figure 2-6 • Tools Tab

Printer Port setting – Tells the driver which port the printer is connected to.

Clear Kiosk Presenter – Ejects any media in the presenter.

Send PRN File – Sends a saved PRN file to the printer.

Set Black Mark Mode – Sets the printer to use black mark media.

Set Continuous Mode – Set the printer to print continuous pages.

Feed One Receipt – Feeds a single blank receipt.

Print Config Label – Prints a page with the printer configuration information.

## About

The About Tab shows the current driver version.

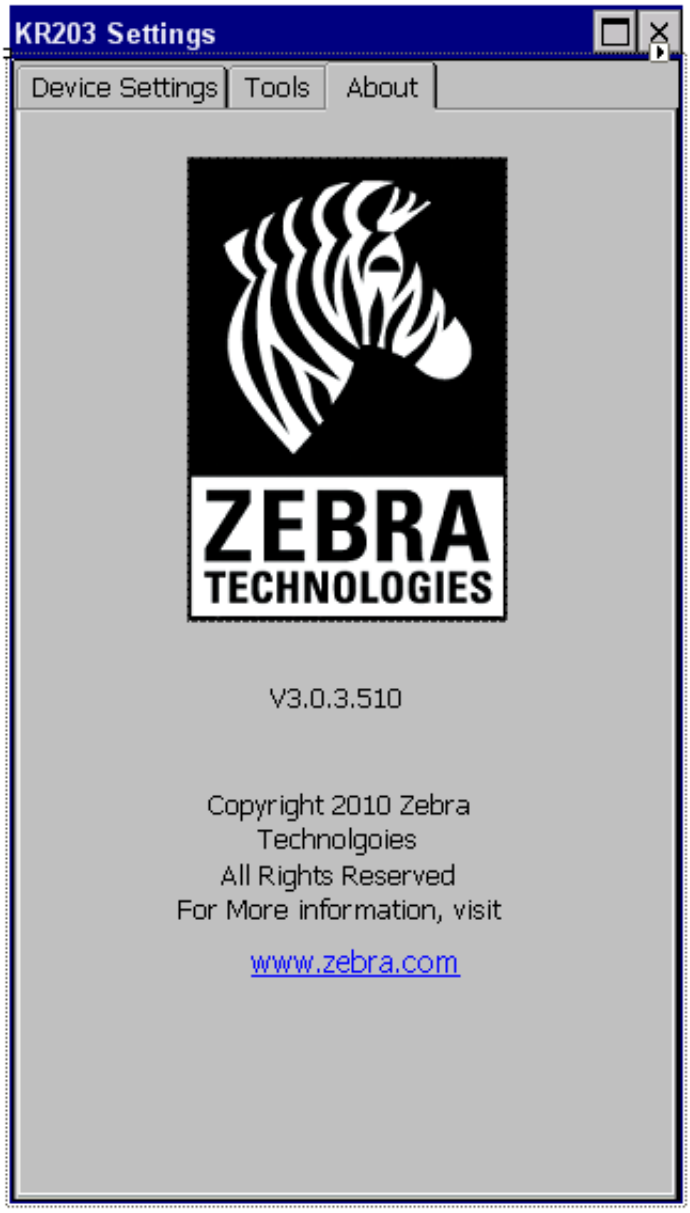


Figure 2-7 • About Tab

# Setting Black Mark Mode

The printer is optimized to detect black marks printed with IR sensitive ink and ignore preprint in IR blind ink. For information on black mark media requirements, refer to the Hardware Integrator Guide (P1028247).

For 80 and 82.5mm media, the black marks will be centered 30mm to the right of the paper center when viewing the imaged side of the receipt and print direction is downward; for 58 and 60mm media, the black marks will be centered 22mm to the left of the paper when viewing the imaged side of the receipt and the print direction is downward.The printer will support media with black mark thickness in printing direction of 2.5 -9.0mm, and a width of 5.0 - 10.0mm when the black mark is centered on the sensor.

Refer to the Hardware Integrator Guide (P1028247) for black mark media requirements.

1. Choose the correct media guide for the desired media width. Refer to the Hardware Integrator Guide (P1028247) for media guide installation instructions.

2. Perform a media guide calibration. Refer to "Application User Interface" on page 21.

3. Load the desired media.

4. In the Tools tab of the Windows driver, click “Set Black Mark Mode”. A dialog box will appear asking to confirm your selection, click “Yes”.

5. The printer will feed media, detect the black marks, and eject the media. Press the Feed button on the printer several times to confirm the printer is cutting directly in the center of the black marks.

6. In the device settings tab of the Windows driver, set the media tracking to “Mark Sensing”. If you revert back to Continuous mode, set the media tracking back to Continuous or Variable.

# 3 Troubleshooting

## Status Light Descriptions

### Application LED States

Immediately after power is applied to the printer, a brief self test is performed and the status light will report the following conditions:

**Table 3-1** • Application LED States

| | | |
|---|---|---|
| Solid Green | 0 - OK | This code is reported when no other codes are active. It indicates the printer is functioning normally. |
| One Red Flash | 1 - Paper Jam in Presenter | This code indicates that media is stuck in the presenter. This error is set when the printer attempts to eject the media but cannot complete the operation. This error is cleared by removing the media from the presenter sensor. |
| Two Red Flashes | 2 - Cutter Jam | This code indicates that the printer could not find the cutter blade or could not properly manage its position. The error is set when the printer attempts to cut but fails after three retries. This error is cleared by cycling the power off and on. |

**Table 3-1 •** Application LED States

| | | |
|---|---|---|
| Three Red Flashes | 3 - Out of Paper | This code indicates that the selected EOP sensor has detected no media present. This value is signaled wither when the mark engine has detected a mark larger than "TOF marker length" plus 5mm, or when the A/D reading of the EOP sensor drops below the “End of paper threshold”. This error is cleared after successful media load (either via calibration of via regular media load). |
| Four Red Flashes | 4 - Print Head Lifted | This code indicates that the print head has been lifted. This error is cleared by returning the print head to its locked position. |
| Five Red Flashes | 5 - Paper Feed Error | This code indicates that the paper failed to reach the presenter sensor within the expected amount of time. The error is signaled if the media does not reach the presenter sensor after feeding the length from the cuter to the sensor plus 15mm. This error is cleared by opening and closing the print head, or by cycling power off and on. |
| Yellow Flashing | 6 - Head Temperature Error | This code indicates that the print head has exceeded the maximum permitted temperature. This status code is set when the print head temperature exceeds 65° C (149° F). When this condition occurs, the printer feeds 100mm (4 inches) of blank media, cuts, and presents. This error is cleared automatically when the print head temperature falls below 55° C (131° F). |
| Rapid Amber Flashing | Firmware missing or corrupt | This code indicates that the bootware has detected an incorrect or missing checksum in the firmware. This error is cleared when the firmware is reloaded or updated. Refer to the Software Integrator Guide for firmware upload procedure. |

## Application User Interface

With the printer power on, press and hold the feed button. Continue holding the feed button until the status indicator flash sequence occurs. The next flash sequence occurs after completion of the previous flash sequence. The flash sequences perform the following functions:

**Table 3-2 •** Application User Interface

| Status Flash Sequence | Action |
|---|---|
| One Flash, then Solid Green | Appears for one second. This will print an internal self-test page. |
| Two Flash, then Solid Green | Appears for one second. Performs system calibration – must be started with paper out of presenter and from under printhead, and with no error signaled. |
| Three Flash, then Solid Green | Appears for one second. Performs a simulated USB cable connect and reconnect causing a USB plug-and-play event to occur. |
| Four Flash, then Solid Green | Appears for one second. Sets all printer settings to the default with the exception of media guide calibration, then it will perform the media guide calibration. |
| Five Flash, then Solid Green | Appears for one second. Prints a 50% gray pattern, ejects it and then prints a diagonal line pattern and ejects it. |
| If the feed button remains pressed after the five flash sequence, the status light goes off. | |

Printer status is also reported during normal operation when an error occurs, or a status request can be sent to the printer via the Windows driver.  for error codes reported by the Windows driver.

# Print Quality Problems

## No print on the label.

- The media may not be direct thermal media, or the thermal media coating is not facing upward.
- Is the media loaded correctly? Is the thermal media coating facing upward?
- The printhead may be dirty or damaged.
  - The printhead is dirty. Clean the printhead. Refer to the Service Manual (P1028249) for instructions.
  - The printhead is damaged. Replace the printhead. Refer to the Service Manual (P1028249) for instructions.
- The printhead wiring may be damaged or not connected properly.
  - Check the wiring connections at the printhead and the main logic board.
  - Check for damage to the wiring. Replace the wiring if damaged.

## The printed image does not look right.

- The printhead is dirty. Clean the printhead. Refer to the Service Manual (P1028249) for instructions.
- The printhead has worn out. The printhead is a consumable item and will wear out due to friction between the media and printhead. Using unapproved media may shorten life or damage your printhead. Replace the printhead. Refer to the Service Manual (P1028249) for instructions.
- Adjust the print darkness and/or print speed. See "Device Setting" on page 12.
  - The Windows printer driver or application software may change these settings and may require a change to optimize print quality.
- The media being used is incompatible with the printer. Be sure to use the recommended media for your application, and always use Zebra-approved media.
- The platen (driver) roller maybe losing traction due to:
  - Foreign objects attached to its surface.
  - The rubbery smooth surface has become polished and slippery.
- The platen may need cleaning or replacement. Refer to the Service Manual (P1028249) for instructions.

## There are long tracks of missing print (blank vertical lines) on several labels.

- The printhead may be dirty or damaged.
  - The printhead is dirty. Clean the printhead. Refer to the Service Manual (P1028249) for instructions.
  - The printhead is damaged. Replace the printhead. Refer to the Service Manual (P1028249) for instructions.
- The printhead has worn out. The printhead is a consumable item and will wear out due to friction between the media and printhead. Using unapproved media may shorten life or damage your printhead. Replace the printhead. Refer to the Service Manual (P1028249) for instructions.

## The printing does not start at the top of the receipt or misprinting of one to three receipts.

- The printer needs to be calibrated (refer to the two-flash sequence of "Application User Interface" on page 21).
- Reload the media. Refer to the Hardware Integrator Guide (P1028247) for instructions.

# Media Sensing Problems

The KR203 printer default media mode is Continuous. The printer will remain in this mode until it is changed by the Windows Driver.

The KR203 printer has automatic media calibration capability for black mark media. Once the printer is printing or feeding media, the printer continually checks and adjusts the media sensing to accommodate for minor changes in media parameters from page to page on a roll, and from roll to roll of media. The printer will automatically initiate a media length calibration if the expected media length or the page to page gap distance has exceeded the acceptable variation range when starting a print job or feeding media.

If the printer does not detect blacklines (or notches with black mark sensing) after feeding the media the default maximum label length distance of 24 inches (610mm), then the printer will report a media error.

Optionally, the printer can be set to do a short media calibration after loading media or when closing the printhead with power on. The printer will then feed up to three labels while calibrating.

## The printer will not load the media.

- The media has changed, or a different media guide has been installed.
    - Make sure the appropriate media guide is installed for the media being used. Refer to the Hardware Integrator Guide (P1028247) for instructions.
    - Perform the two-flash procedure to recalibrate the printer and then perform the four-flash procedure to reset the printer default settings. Refer to "Application LED States" on page 19. Reload the media (refer to the Hardware Integrator Guide (P1028247) for media loading procedures).
    - Load the media manually. Refer to the Hardware Integrator Guide (P1028247) for instructions.
- The platen (driver) roller maybe losing traction due to:
    - Foreign objects attached to its surface.
    - The rubbery smooth surface has become polished and slippery.
- The platen may need cleaning or replacement. Refer to the Service Manual (P1028249) for instructions.
- The media sensor may be dirty or damaged. Refer to the Service Manual (P1028249) for instructions.
- The printhead assembly is not closed.
    - Check the status light on either side of the printer. If the status light is showing four red flashes then the printhead is not closed. Push down on the printhead assembly until it locks into place.

- There is a jam under the printhead. Refer to the Service Manual (P1028249) for instructions.
- The large media roll may be over torquing the feed motor. Install the large media roll adapter. Refer to the Hardware Integrator Guide (P1028247) for instructions.

### The printer will not eject the media.

- The presenter rollers are dirty or damaged.
  - The presenter rollers are dirty. Refer to the Service Manual (P1028249) for instructions.
  - The presenter rollers are damaged. Refer to the Service Manual (P1028249) for instructions.
- There is a jam under the presenter. Refer to the Service Manual (P1028249) for instructions.
- The presenter sensor may be dirty or damaged.
  - The presenter sensor is dirty. Refer to the Service Manual (P1028249) for instructions.
  - The presenter sensor is damaged. Refer to the Service Manual (P1028249) for instructions.
- The presenter has not cleared the previous receipt.
  - Check the status light on either side of the printer. If the status light is showing one red flash then the printer is reporting media in the presenter. Remove any media that may be in the presenter.
- The presenter motor may need to be replaced. Refer to the Service Manual (P1028249) for instructions.
- The presenter drive gears may be damaged or worn. Refer to the Service Manual (P1028249) for instructions.

## Other Problems

### The receipts are not cutting properly.

- The cutter blade may be worn. Replace the cutter blades. Refer to the Service Manual (P1028249) for instructions.
- The cutter tensioner may be worn or damaged. Replace the cover plate assembly. Refer to the Service Manual (P1028249) for instructions.
- Check the Cutter Mode setting, and the Partial Cut Width setting in the Windows driver.See"Device Setting" on page 12.

- The cutter motor may need to be replaced. Refer to the Service Manual (P1028249) for instructions.
- The cutter drive gear, drive pin, or cutter actuator may be damaged or worn. Refer to the Service Manual (P1028249) for instructions.
- Check for the latest firmware and driver version.

## There are no lights on the printer.

- Make sure there is power applied to the printer.
- The control panel may be dirty or damaged. Refer to the Service Manual (P1028249) for instructions.
- The main logic board may be damaged. Refer to the Service Manual (P1028249) for instructions.
- Check for the latest firmware and driver version.

## A receipt format was sent to, but not recognized by, the printer.

- If the status LED is on or flashing, refer to "Application LED States" on page 19.
- Make sure the USB cable is correctly installed. Refer to the Hardware Integrator Guide (P1028247) for instructions.
- A communications problem has occurred. Perform a USB detect (refer to the three-flash sequence of "Application User Interface" on page 21).

## The receipts are not cutting at the black mark.

- Make sure you are using the appropriate media guide for the desired media width. Refer to the Hardware Integrator Guide (P1028247) for media guide installation instructions.
- Perform a media guide calibration. Refer to the two-flash sequence of "Application User Interface" on page 21.
- Make sure you are using the appropriate media. Refer to the Hardware Integrator Guide (P1028247) for black mark media requirements.
- Use the Windows driver to set the printer to black mark mode. See "Setting Black Mark Mode" on page 19.
- Reload the media. Refer to the Hardware Integrator Guide (P1028247) for instructions.

# Resetting the Factory Default Values

Sometimes, resetting the printer to the factory defaults may solve some problems. Refer to the four-flash sequence of "Application User Interface" on page 21.

# Contact Technical Support

Technical Support via the Internet is available 24 hours per day, 365 days per year.

www.zebra.com

For questions on the operation of Zebra equipment and software, please call your distributor. For additional assistance, contact us.

Please have your model and serial numbers available.

# Appendix A

## KR203 Status codes

**Table A-1** • Status Codes

| Number | Name | Type | Group | LED Reporting |
|---|---|---|---|---|
| 0 | Ok | Normal | Informational | Solid green |
| 1 | Paper jam in presenter | Normal | Severe | 1 red flash |
| 2 | Cutter Jam | Normal | Severe | 2 red flashes |
| 4 | Print head lifted | Normal | Severe | 4 red flashes |
| 3 | Out of paper | Normal | Severe | 3 red flashes |
| 5 | Paper feed error | Normal | Severe | 5 red flashes |
| 6 | Head temperature error | Normal | Severe auto-clear | Yellow flashing |
| 10 | Black mark not found | One-time | Informational | Not signaled |
| 11 | Black mark calibration error | One-time | Informational | Not signaled |
| 12 | Index error | One-time | Informational | Not signaled |
| 16 | Timeout Occurred | One-time | Informational | Not signaled |
| 18 | Out of range | One-time | Informational | Not signaled |
| 19 | Paper low | Normal | Warning | Not signaled |
| 20 | Media in presenter | Normal | Informational | Not signaled |
| 24 | Invalid operation | One-time | Informational | Not signaled |
| 26 | Target is read only | One-time | Informational | Not signaled |
| 40 | Printer entered USB bus | One-time | Informational | Not signaled |
| 41 | System calibration error | One-time | Informational | Not signaled |
| 42 | System calibration success | One-time | Informational | Not signaled |

# Appendix B

## Programming Example

### Background

In order to incorporate the way status monitoring works for the KR203 printer setup, it is important to understand what happens in a kiosk when you print, and when status monitoring should take place.

Status monitoring can be handled in two ways:

- Monitoring in the printing application.
- Monitoring in a separate application.

When monitoring takes place in the printing application, normally the printer is observed before sending a print job to see if the printer is "OK" and then send the print job. After the print job is signaled as being printed, the status is checked again to see if the printer has any errors or if the paper has been taken, etc.

Monitoring in a separate application usually doesn't allow direct interaction with the printed job so the printer is polled as often as possible to get most accurate information on what the printer is doing. This is usually very time consuming and care must be taken to achieve synchronization and control over the current print job.

### Monitoring While Printing

Status monitoring has been implemented in the internal printing structure of the driver. When a document is opened, printed, and closed, the driver will check the printer status before and after printing and will also react to write errors if any occur. It will then set the printer status and raise the error event.

## Monitoring While Idle

In order to get status any time a status thread has to be implemented which reads printer status and provides changed status information in the same manner. The following code snippet in C# may be used as a guide to develop such an application. The code is using the KRConfig DLL.

```
KRConfig config = new KRConfig();
config.Load();//Load settings from registry

string msg = "";
try
{
   config.open("LPT1:");
   //getStatus is not synchronized with other read/write
   functions
   byte status = config.getStatus();
   msg = "Status : " + status;
   config.close("LPT1:");
}
catch (Exception ex)
{
   msg = ex.Message;

MessageBox.Show("Status : " + msg);
```