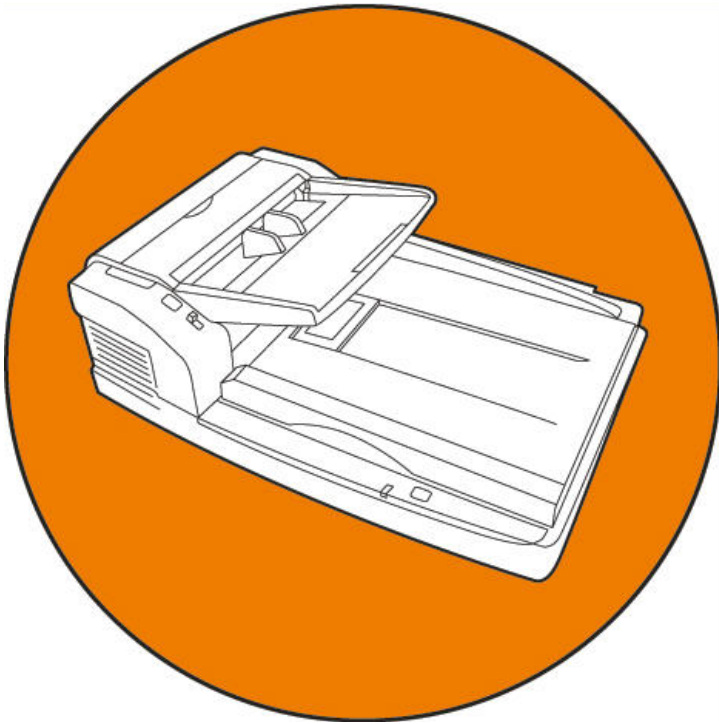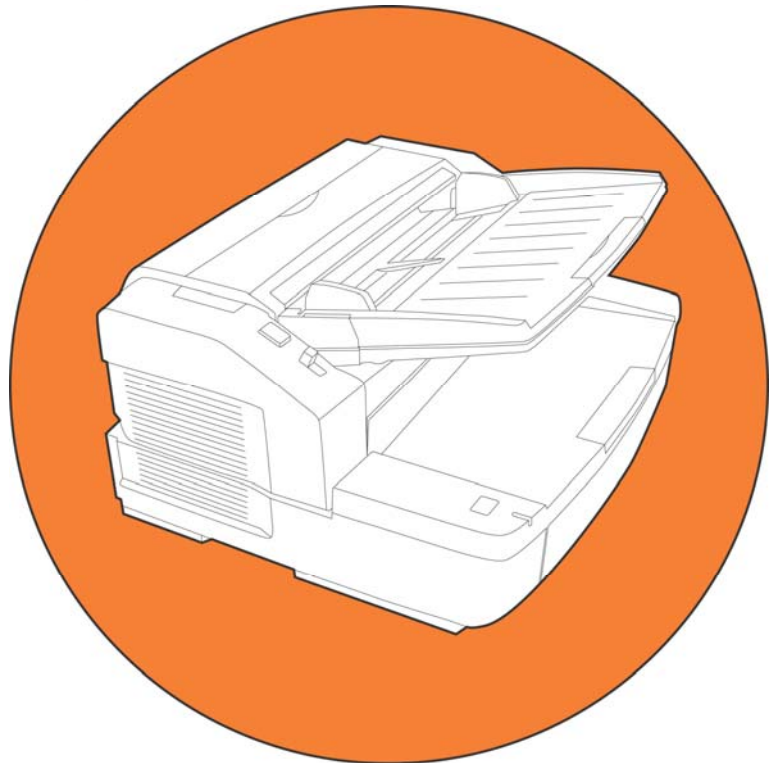**BÖWE BELL+HOWELL**

# TWAIN Driver Interface Specification



trūper 3200

trūper™ 3600

# Contact Information

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**The information given in this Guide is subject to change without notice. Please go to www.bbhscanners.com to download the most current Guide.**

# Table of Contents

# 1   Introduction

## 1.1   Purpose

The purpose of this document is to define and describe the graphical user interface (GUI) of an imaging scanner TWAIN driver.

## 1.2   Scope

This document applies to the TWAIN drivers developed for the following document imaging scanner(s):

- Bowe Bell+Howell 3200
- Bowe Bell+Howell 3600

## 1.3   Specification

This driver was developed for use with the Microsoft Windows ("Windows") family of operating systems. Its user interface ("UI") consists of multiple standard Windows dialog boxes ("dialogs") each of which is described in detail below.

## 1.4   Dialog Descriptions

The controls used to operate the scanner are grouped into dialogs as follows:

| | |
|---|---|
| Main Dialog | This dialog contains controls for "standard" scanner functionality such as resolution, page size, contrast/threshold, simple/duplex, etc. |
| More Settings Dialog | This dialog contains controls that are specific to the scanner for which it was designed. In this instance, this dialog contains Drop Out, Feeding Features, Manual Feed Mode and more. |
| | Access to the other settings dialogs are through this dialog. |
| Other Settings Dialog | This dialog contains controls that affect the operation of the scanner. Types of controls contained in this dialog are Extra Features, Image Processing, Image Features and Feeding Features. |

2

| Imprinter Dialog | This dialog contains controls that manipulate and configure the imprinter device attached to the scanner (if available). |
| --- | --- |
| Sub Area Dialog | This dialog contains controls to save area region settings as defined selection. Also 3 defined areas are saved as profiling. |

# 1.5    Hierarchy

There is a dialog tree employed within this driver.

- With an entry point into the Main dialog.
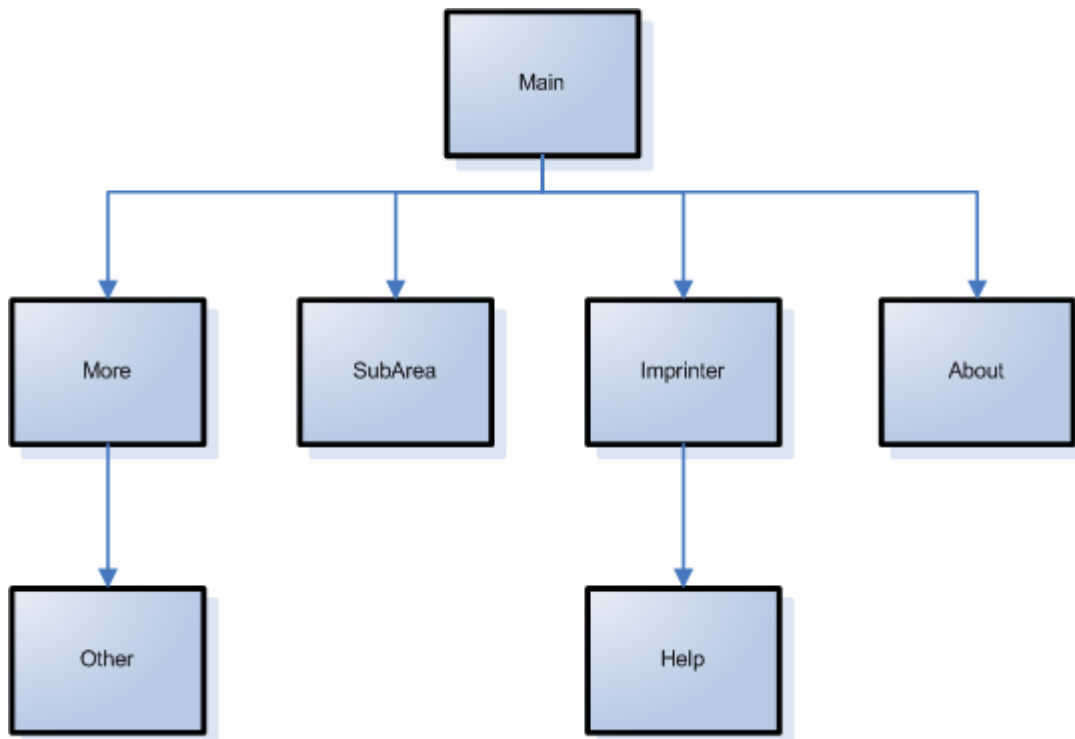
# 2   Initialization

## 2.1   Model Detection

When loading, the driver shall detect the device model. This information shall be used to verify that the driver matches the device and, if a match is found, configure the driver based on feature support of that model. If the device does not match the driver, the driver shall not finalize the load.

The driver shall use the INQUIRY command to recognize the device by checking the 16-byte value stored in the Product Identification member of the inquiry data block and comparing it to the following table of known devices:

| Product Identification | Device Model |
|---|---|
| BBH 3200 | Bowe Bell+Howell 3200 |
| BBH 3600 | Bowe Bell+Howell 3600 |

\* Bowe Bell+Howell 3600FDX scanner works as BBH3600 product identification.

## 2.2   TWAIN driver file

Each models have separated TWAIN Data Source Files as follows.

| Product Identification | TWAIN driver file |
|---|---|
| BBH 3200 | BBH3200.DS |
| BBH 3600 | BBH3600.DS |

\* Bowe Bell+Howell 3600FDX scanner works as BBH3600.DS TWAIN file.

# 3   Main Dialog
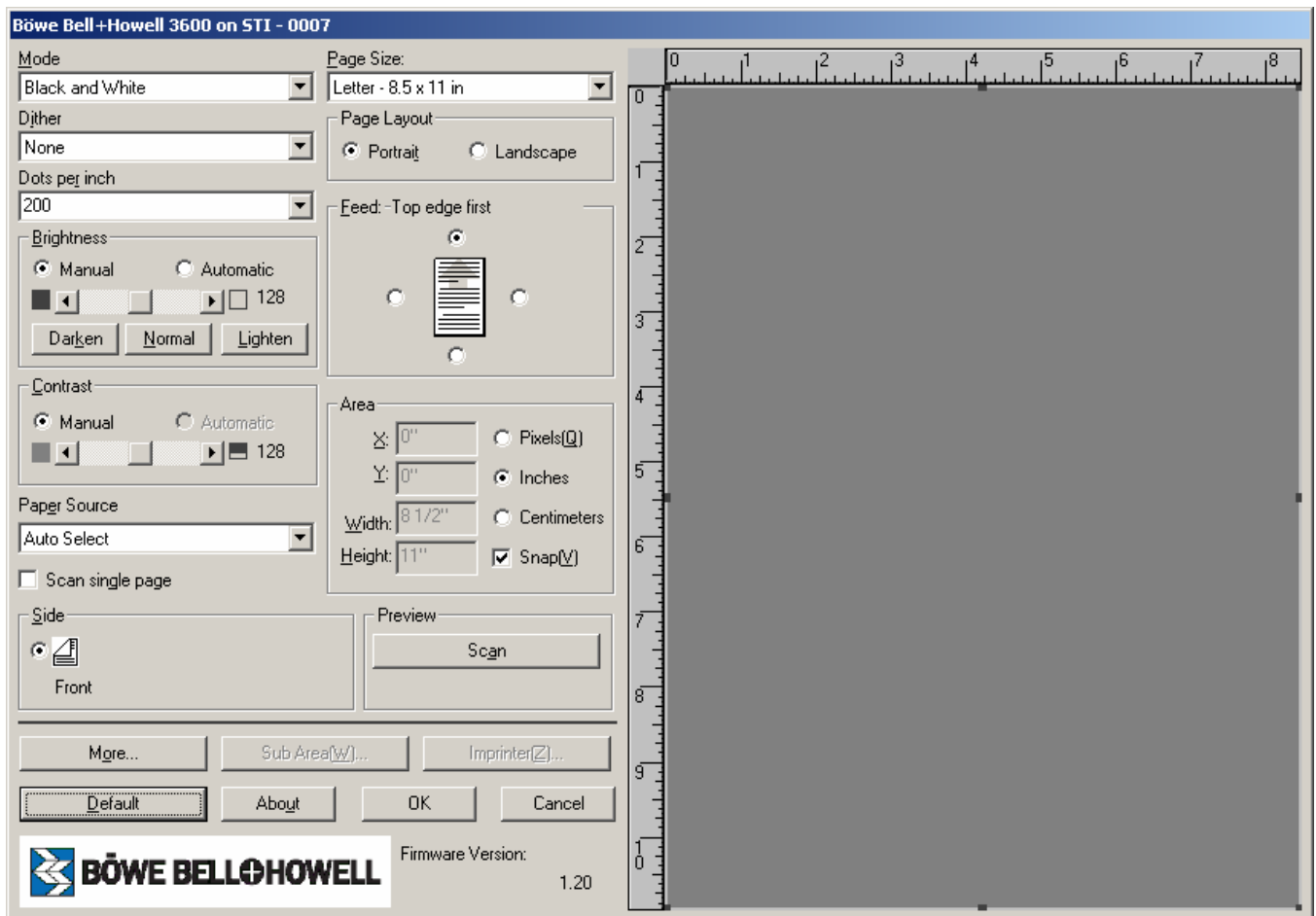


Figure 1

# 3.1  Mode

| | |
|---|---|
| *Description:* | Used to choose image mode to scan with either binary, grayscale, color or multistream. |
| *Values:* | Black and White<br>256-Level Gray<br>24-bit Color<br>Binary&Color<br>Binary&Gray |
| *Default:* | Black and White |
| **Dependencies:** | Disabled when Front or Back is set in Side setting |

# 3.2  Dither

| | |
|---|---|
| *Description:* | Selects from available dither patterns. |
| *Values:* | "None"<br>"Bayer Dither 64"<br>"Bayer Dither 16"<br>"45 Deg. Halftone"<br>"0 deg. Halftone"<br>"Error Diffusion"<br>"User Downloaded" [1] |
| *Default:* | "None" |
| *Dependencies:* | Only available in binary mode. If multistream is selected, it is also available for binary scanning mode.<br>Brightness needs to be set to manual.<br>[1] Need to download dither pattern in ISIS driver UI. [Dither Download] button is in Other Settings dialog. Otherwise error message occurs. "Dither file is not downloaded. ISIS driver Version (60791)". |

# 3.3  Dots per inch

| | | |
|---|---|---|
| *Description:* | Sets scan resolution. | |
| *Values:* | Minimum | 100 dpi |
| | Maximum | 600 dpi |
| | Step | 1dpi |
| *Default:* | 200 | |
| *Dependencies:* | Single stream & multi stream, both support same range of resolution. Each Mode needs to be the same when multi stream is selected. For example, when "Binary&Color" and 200dpi is selected the output (BW and Color) is 200 dpi. | |

# 3.4  Brightness

| | | |
|---|---|---|
| *Description:* | Selects mode of brightness control in binary mode. | |
| *Values:* | 0 | "Manual" |
| | 1 | "Automatic" |
| *Default:* | 0 | "Manual" |
| *Dependencies:* | [Automatic] is available when Black and White or Multistream is selected. It works for only binary data.<br>If Automatic is selected in binary or multistream, Dither setting changes to None and disabled | |

| Description: | Sets threshold value. | |
|---|---|---|
| Values: | Minimum | 1 |
| | Maximum | 255 |
| | Step | 1 |
| Default: | 128 | |
| Dependencies: | None. | |
| Description: | Used as quick-sets to adjust the brightness. | |
| Values: | 205 | "Lighten" |
| | 128 | "Normal" |
| | 51 | "Darken" |
| Default: | N/A | |
| Dependencies: | None | |

# 3.5    Contrast

| Description: | Selects mode of contrast control in binary mode. | |
|---|---|---|
| Values: | 0 | "Manual" |
| Default: | 0 | "Manual" |
| Dependencies: | Automatic is to be permanently disabled since this device does not support auto-contrast. | |
| Description: | Sets contrast value. | |
| Values: | Minimum | 1 |
| | Maximum | 255 |
| | Step | 1 |
| Default: | 128 | |
| Dependencies: | None. | |

# 3.6    Paper Source

| escription: | Selects the scan source. Make back side cameras available for selection/configuration. |
|---|---|
| Values: | "Auto Select" |
| | "Flatbed" |
| | "ADF Simplex" |
| | "ADF Duplex" |
| Default: | "Auto Select" |
| Dependencies: | Flatbed is available only for BBH 3200 scanner. BBH 3600 does not support FB selection. |
| Description: | Sets if scan only a page or not. |
| Values: | "Off" |
| | "On" |
| Default: | "Off" |
| Dependencies: | None. |

# 3.7    Side

| | |
|---|---|
| *Description:* | Selects side to setup driver settings independently. |
| *Values:* | Both<br>Front primary<br>Front secondary<br>Back primary<br>Back secondary |
| *Default:* | Both |
| *Dependencies:* | Default is "Both" when the UI is opened. However, following can be applied side dependently even multistrem too.<br>[Main Dialog]<br>       Dither, Brightness, Contrast<br>[More Dialog]<br>       Dropout<br>[Other Dialog]<br>       Gamma, Image Emphasis |

# 3.8    Page Size, Page Layout, Feed

| | |
|---|---|
| *Description:* | Page size. Selects from a predefined set of page sizes. Used to define the scan area. |
| *Values:* | A3 - 297 x 420 mm<br>A4 - 210 x 297 mm<br>A5 - 148 x 210 mm<br>A6 - 105 x 148 mm<br>B4 (ISO) - 250 x 353 mm<br>B4 (JIS) - 257 x 364 mm<br>B5 (ISO) - 176 x 250 mm<br>B5 (JIS) - 182 x 257 mm<br>B6 (ISO) - 125 x 176 mm<br>B6 (JIS) - 128 x 182 mm<br>Business Card - 55 x 91 mm<br>Double Letter - 11 x 17 in<br>Legal - 8.5 x 14 in<br>Letter - 8.5 x 11 in<br>Scanner's Maximum |
| *Default:* | Regional dependent: Letter for US, A4 for metric |
| *Dependencies:* | The maximum scan size is as follows.<br>       11.89 x 25 inches.<br>If [Length Control] is enabled in Other Settings dialog, scan size depends on actual paper length. |
| *Description:* | Selects the orientation of the image after the page is scanned. |
| *Values:* | "Portrait"<br>"Landscape" |
| *Default:* | "Portrait" |
| *Dependencies:* | None. |

| Description: | This collection of radio buttons determines the orthogonal rotation of the image. Used in conjunction with the page graphic, it indicates to the user which edge of the page should be fed to achieve the orientation of the image. When any of these radio buttons are selected, the arrow contained within the page graphic shall point to the edge to be fed. |
| --- | --- |
| | Used in conjunction with Page Layout to define rotation based on the orientation of the page. |
| Values: | "Top edge first" |
| | "Right edge first" |
| | "Bottom edge first" |
| | "Left edge first" |
| Default: | "Top edge first" |
| Dependencies: | Two static controls shall be used to textually indicate the feed edge and rotation angle. |
| | Tooltips shall be used to indicate to the user the purpose of each of the radio buttons. |
| Description: | Sets if scan only a page or not. |
| Values: | "Off" |
| | "On" |
| Default: | "Off" |
| Dependencies: | None. |

## 3.9    X, Y, Width, and Height

| Description: | Defines the area to read from the scanner. |
| --- | --- |
| Values: | Limits are based on the currently selected page size. Values larger than the page size will be modified to match the page size. |
| Default: | N/A |
| Dependencies: | This function is not available when Length Control is checked in Other Settings dialog. |
| | When margin is enabled, this function is ignored.. |

## 3.10  Pixels, Inches, and Centimeters

| Description: | Defines units for settings in Area. |
| --- | --- |
| Values: | "Pixels" |
| | "Inches" |
| | "Centimeters" |
| Default: | "Inches" |
| Dependencies: | None. |

## 3.11  Snap

| | |
|---|---|
| *Description:* | Enables/disables the snap feature when modifying the image size. When enabled, image coordinates are automatically set to the nearest 1/8". |
| *Values:* | Cleared<br>Checked |
| *Default:* | Checked |
| *Dependencies:* | Disabled if Units is set to Pixels. |

## 3.12  Preview

| | |
|---|---|
| *Description:* | Scanning a page and displays in the dialog. |
| *Values:* | N/A |
| *Default:* | N/A |
| *Dependencies:* | This function can not be used when Multistream is selected. It will be disabled. Instead, It scans with first stream mode. |

## 3.13  More…

| | |
|---|---|
| *Description:* | Opens the More Dialog. |
| *Values:* | N/A |
| *Default:* | N/A |
| *Dependencies:* | None. |

## 3.14  Sub Area…

| | |
|---|---|
| *Description:* | Opens the Sub Area dialog box. |
| *Values:* | N/A |
| *Default:* | N/A |
| *Dependencies:* | Sub Area dialog is available when Black and White is selected, plus Margin and Length Control is OFF in Other Settings dialog. |

## 3.15  Imprinter…

| | |
|---|---|
| *Description:* | Opens the Imprinter dialog box. |
| *Values:* | N/A |
| *Default:* | N/A |
| *Dependencies:* | Needs to attach actual imprinter kit to scanner to enable this button. |

## 3.16  Default

| | |
|---|---|
| *Description:* | Resets all to their default values. **This affects on all other dialogs.** |
| *Values:* | N/A |
| *Default:* | N/A |
| *Dependencies:* | None. |

# 3.17  About

| | |
|---|---|
| *Description:* | Opens the About box. |
| *Values:* | N/A |
| *Default:* | N/A |
| *Dependencies:* | None. |

# 3.18  OK

| | |
|---|---|
| *Description:* | Closes the dialog and notifies caller that the user accepts the changes made within the dialog. |
| *Values:* | N/A |
| *Default:* | N/A |
| *Dependencies:* | None. |

# 3.19  Cancel

| | |
|---|---|
| *Description:* | Closes the dialog and notifies caller that the user does not accept the changes made within the dialog. |
| *Values:* | N/A |
| *Default:* | N/A |
| *Dependencies:* | None. |

# 4   More Settings Dialog
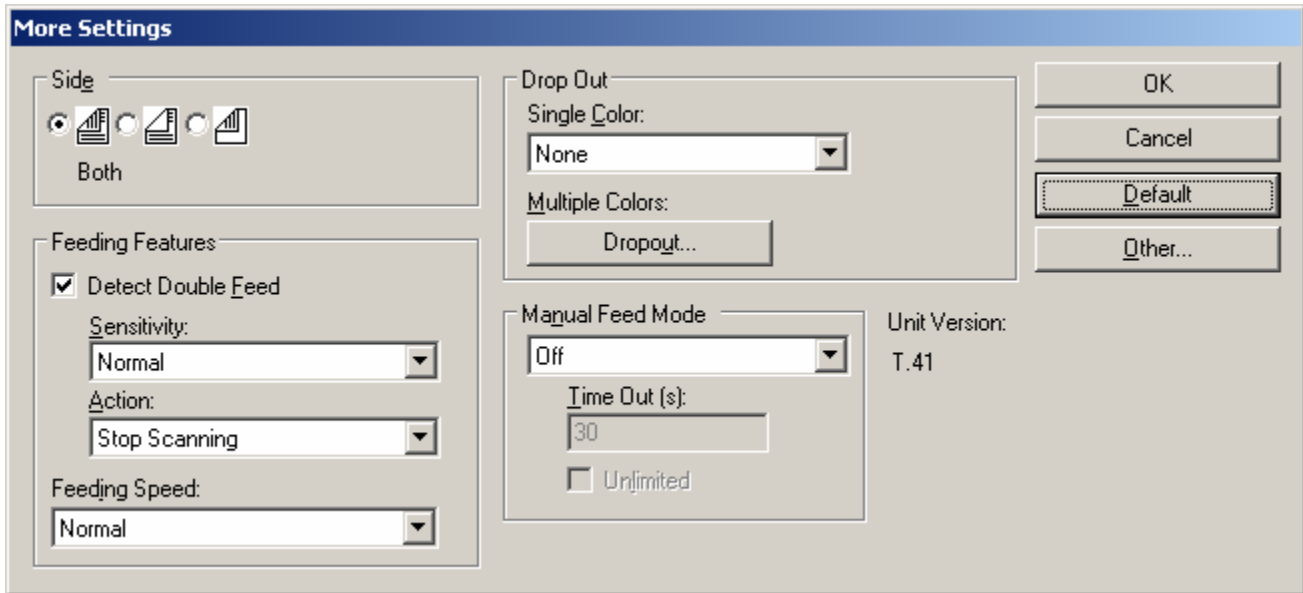


**Figure 2**

# 4.1  Side

| Description: | Selects side to setup driver settings independently. |
|---|---|
| Values: | Both<br>Front primary<br>Front secondary<br>Back primary<br>Back secondary |
| Default: | Both |
| Dependencies: | Default is "Both" when the UI is opened. However, following can be applied side dependently even multistrem too.<br>[Main Dialog]<br>    Dither, Brightness, Contrast<br>[More Dialog]<br>    Dropout<br>[Other Dialog]<br>    Gamma, Image Emphasis |

# 4.2  Feeding Features, Detect Double Feed

| Description: | Check to enable double feed detection ON or OFF. |
|---|---|
| Values: | OFF<br>ON |
| Default: | ON |
| Dependencies: | This function enables [Sensitivity] and [Action] in Feeding Features. |

# 4.3  Feeding Features, Sensitivity

| Description: | Select sensitivity for Double Feed. |
|---|---|
| Values: | "Low"<br>"Normal"<br>"High" |
| Default: | "Normal" |
| Dependencies: | This function is available if [Detect Double Feed] is enabled. |

# 4.4  Feeding Features, Action

| Description: | Select Action for Double Feed. |
|---|---|
| Values: | "Beep"<br>"Stop Scanning" |
| Default: | "Stop Scanning" |
| Dependencies: | This function is available if [Detect Double Feed] is enabled. |

## 4.5    Feeding Speed

| | |
|---|---|
| *Description:* | Select feeding speed for ADF. |
| *Values:* | "Slow"<br>"Normal" |
| *Default:* | "Normal" |
| *Dependencies:* | None |

## 4.6    Drop Out, Single Color

| | |
|---|---|
| *Description:* | Select single dropout color |
| *Values:* | "None"<br>"Red"<br>"Green"<br>"Blue" |
| *Default:* | "None" |
| *Dependencies:* | This function is available for Black and White and Gray even multistream selected. If multistream(Binary&Gray) is selected, dropout color value should be same as side dependent, not as image mode dependent. |

## 4.7    Drop Out, Multiple Colors, Dropout…

| | |
|---|---|
| *Description:* | Display Multicolor Dropout dialog box to select colors. |
| *Values:* | OFF<br>ON |
| *Default:* | OFF |
| *Dependencies:* | See dependencies in Drop Out, Single Color. |

## 4.8    Manual Feed Mode

| | |
|---|---|
| *Description:* | Sets manual feed ON or off. |
| *Values:* | "Off"<br>"On"<br>"Start Button"<br>"Automatic" |
| *Default:* | "Off" |
| *Dependencies:* | It can be used if manual feed required. |

## 4.9    Time Out

| | | |
|---|---|---|
| *Description:* | Sets timeout for manual feed. | |
| *Values:* | Minimum | 1 |
| | Maximum | 300 |
| | Step | 1 |
| *Default:* | 30 | |
| *Dependencies:* | This function is available when Manual Feed Mode is either On, Start Button or Automatic selected. If Unlimited check is ON, it will be also disabled. | |

# 4.10  Unlimited

| | |
|---|---|
| *Description:* | Select if unlimited timeout required. |
| *Values:* | "Check box OFF"<br>"Check box ON" |
| *Default:* | "Check box OFF |
| *Dependencies:* | This function is available when Start Button or Automatic is selected in Manual Feed Mode. |

# 4.11  Ok

| | |
|---|---|
| *Description:* | Closes the dialog and notifies caller that the user accepts the changes made within the dialog. |
| *Values:* | N/A |
| *Default:* | N/A |
| *Dependencies:* | None. |

# 4.12  Cancel

| | |
|---|---|
| *Description:* | Closes the dialog and notifies caller that the user does not accept the changes made within the dialog. |
| *Values:* | N/A |
| *Default:* | N/A |
| *Dependencies:* | None. |

# 4.13  Default

| | |
|---|---|
| *Description:* | Resets all to their default values. **This affects on More Settings dialog.** |
| *Values:* | N/A |
| *Default:* | N/A |
| *Dependencies:* | None. |

# 4.14  Other…

| | |
|---|---|
| *Description:* | Opens the Other dialog box. |
| *Values:* | N/A |
| *Default:* | N/A |
| *Dependencies:* | None. |

# 5   Other Settings Dialog
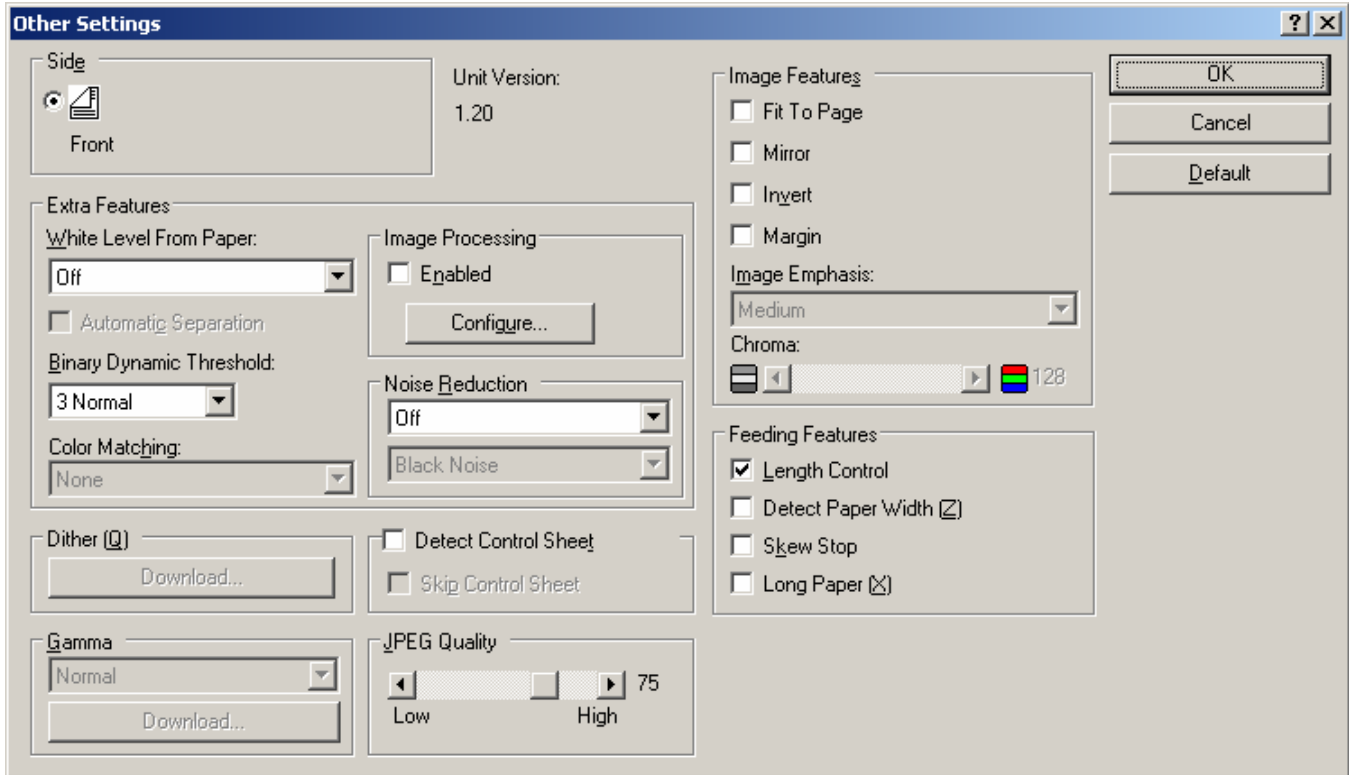


**Figure 3**

# 5.1    Side

| | |
|---|---|
| *Description:* | Selects side to setup driver settings independently. |
| *Values:* | Both<br>Front primary<br>Front secondary<br>Back primary<br>Back secondary |
| *Default:* | Both |
| *Dependencies:* | Default is "Both" when the UI is opened. However, following can be applied side dependently even multistrem too.<br>[Main Dialog]<br>　　　　　Dither, Brightness, Contrast<br>[More Dialog]<br>　　　　　Dropout<br>[Other Dialog]<br>　　　　　Gamma, Image Emphasis |

# 5.2    Extra Features, While Level From Paper

| | |
|---|---|
| *Description:* | Choose white follow settings. |
| *Values:* | "Off"<br>"On"<br>"Automatic" |
| *Default:* | "Off" |
| *Dependencies:* | This function is available in [Black and White] or [256-level Gray] with Margin is disabled in Other Settings dialog. |

# 5.3    Extra Features, Automatic Separation

| | |
|---|---|
| *Description:* | Check if Automatic Separation support or not. |
| *Values:* | "OFF"<br>"ON" |
| *Default:* | "OFF" |
| *Dependencies:* | This function is available only when Noise Reduction is Off in Other Settings dialog. |

# 5.4    Extra Features, Binary Dynamic Threshold

| | |
|---|---|
| *Description:* | Select Dynamic Threshold value. |
| *Values:* | 1 Light<br>2<br>3 Normal<br>4<br>　　　　　　　　　　　　　　　　　　　　　　　　　5 Dark |
| *Default:* | 3 Normal |
| *Dependencies:* | This function is available only when Black and White in single or multistream selected with brightness Automatic. |

## 5.5    Extra Features, Color Matching

| | |
|---|---|
| *Description:* | Select Color matching for color ouput. |
| *Values:* | "None"<br>"sRGB" |
| *Default:* | "None" |
| *Dependencies:* | This function is available only when Color in single or multistream selected. |

# 5.6    Extra Features, Image Processing, Enabled – Configure…

| | |
|---|---|
| *Description:* | Select Image Processing in IP Configure Dialog. |
| *Values:* | "OFF"<br>"ON" |
| *Default:* | "OFF" |
| *Dependencies:* | This function is available only when Black and White in single or multistream selected. Image Processing selections are as follows.<br><br>        Barcode Detection, Border Removal, Dilation, Erosion, Halftone Removal, Hole Removal, Invert Image, Line Removal, Noise Removal, Patchcode Detection, Skeleton, Smoothing |

## 5.7    Extra Features, Noise Reduction

| | |
|---|---|
| *Description:* | Select Noise Reduction size. |
| *Values:* | "Off"<br>"1x1"<br>"2x2"<br>"3x3"<br>"4x4"<br>"5x5"<br>"6x6" |
| *Default:* | "Off" |
| *Dependencies:* | This function is available only when Black and White in single or multistream selected with none as dither pattern. |
| *Description:* | Select dot type to be reduced. |
| *Values:* | "Black Noise"<br>"White Noise" |
| *Default:* | "Black Noise" |
| *Dependencies:* | This function is disabled if none is selected in Noise Reduction. |

## 5.8    Dither, Download

| | |
|---|---|
| *Description:* | Download dither pattern. |
| *Values:* | None |
| *Default:* | None |
| *Dependencies:* | This function is available only when Black and White in single or multistream selected, plus brightness set to manual. |

# 5.9   Gamma

| | |
|---|---|
| *Description:* | Select Gamma Pattern or download user gamma pattern. |
| *Values:* | "Normal"<br>"For CRT"<br>"User Download"<br>"Linear" |
| *Default:* | "Normal" |
| *Dependencies:* | This function is available only when Gray or Color selected in single or multistream. |

# 5.10   Detect Control Sheet, Skip Control Sheet

| | | |
|---|---|---|
| *Description:* | Enable control sheet detected or not. | |
| *Values:* | Detect Control Sheet | "OFF" |
| | Detect Control Sheet | "ON" |
| |     Skip Control Sheet | "OFF" |
| |     Skip Control Sheet | "ON" |
| *Default:* | Detect Control Sheet | "OFF" |
| *Dependencies:* | This function is available when Margin is disabled in Other Settings dialog. | |

# 5.11   JPEG Quality

| | | |
|---|---|---|
| *Description:* | Choose JPEG quality. | |
| *Values:* | Minimum: | 1 |
| | Maximum: | 100 |
| | Step: | 1 |
| *Default:* | 75 | |
| *Dependencies:* | It works for gray and color data. | |

# 5.12   Image Features, Fit To Page

| | |
|---|---|
| *Description:* | Enable "fit to page" function. |
| *Values:* | "OFF"<br>"ON" |
| *Default:* | None |
| *Dependencies:* | None. |

# 5.13   Image Features, Mirror

| | |
|---|---|
| *Description:* | Enable "Mirror" function. |
| *Values:* | "OFF"<br>"ON" |
| *Default:* | "OFF" |
| *Dependencies:* | None. |

## 5.14 Image Features, Invert

| | |
|---|---|
| *Description:* | Enable "Invert" function. |
| *Values:* | "OFF"<br>"ON" |
| *Default:* | "OFF" |
| *Dependencies:* | This function is available when Black and White selected in single or multistream. |

## 5.15 Image Features, Margin

| | |
|---|---|
| *Description:* | Enable "Margin" function. |
| *Values:* | "OFF"<br>"ON" |
| *Default:* | "OFF" |
| *Dependencies:* | This function makes Sub Area button disabled, also X, Y, Width and Height settings in Area section will be ignored. |

## 5.16 Image Features, Image Emphasis

| | |
|---|---|
| *Description:* | Selects image emphasis. |
| *Values:* | "None"<br>"Low"<br>"Medium"<br>"High"<br>"Smooth" |
| *Default:* | "None" |
| *Dependencies:* | This function is side dependent for all of image mode. Different value can be set for each side settings. |

## 5.17 Image Features, Chroma

| | |
|---|---|
| *Description:* | Selects hue value. |
| *Values:* | Minimum: 1<br>Maximum: 255<br>Step: 1 |
| *Default:* | 128 |
| *Dependencies:* | This function is side dependent for color image mode in single or multistream. |

## 5.18 Feeding Features, Length Control

| | |
|---|---|
| *Description:* | Enable detect page length function. |
| *Values:* | "OFF"<br>"ON" |
| *Default:* | "ON" |
| *Dependencies:* | None. |

## 5.19  Feeding Features, Detect Page Width

| | |
|---|---|
| *Description:* | Enable detect page width function. |
| *Values:* | "OFF"<br>"ON" |
| *Default:* | "OFF" |
| *Dependencies:* | None. |

## 5.20  Feeding Features, Skew Stop

| | |
|---|---|
| *Description:* | Enable skew stop function. |
| *Values:* | "OFF"<br>"ON" |
| *Default:* | "OFF" |
| *Dependencies:* | None. |

## 5.21  Feeding Features, Long Paper

| | |
|---|---|
| *Description:* | Enable splitting long page into selected length. |
| *Values:* | "OFF"<br>"ON" |
| *Default:* | "OFF" |
| *Dependencies:* | None. |

## 5.22  Ok

| | |
|---|---|
| *Description:* | Closes the dialog and notifies caller that the user accepts the changes made within the dialog. |
| *Values:* | N/A |
| *Default:* | N/A |
| *Dependencies:* | None. |

## 5.23  Cancel

| | |
|---|---|
| *Description:* | Closes the dialog and notifies caller that the user does not accept the changes made within the dialog. |
| *Values:* | N/A |
| *Default:* | N/A |
| *Dependencies:* | None. |

## 5.24  Default

| | |
|---|---|
| *Description:* | Resets all to their default values. **This affects on Other Settings dialog.** |
| *Values:* | N/A |
| *Default:* | N/A |
| *Dependencies:* | None. |

# 6   Imprinter Dialog
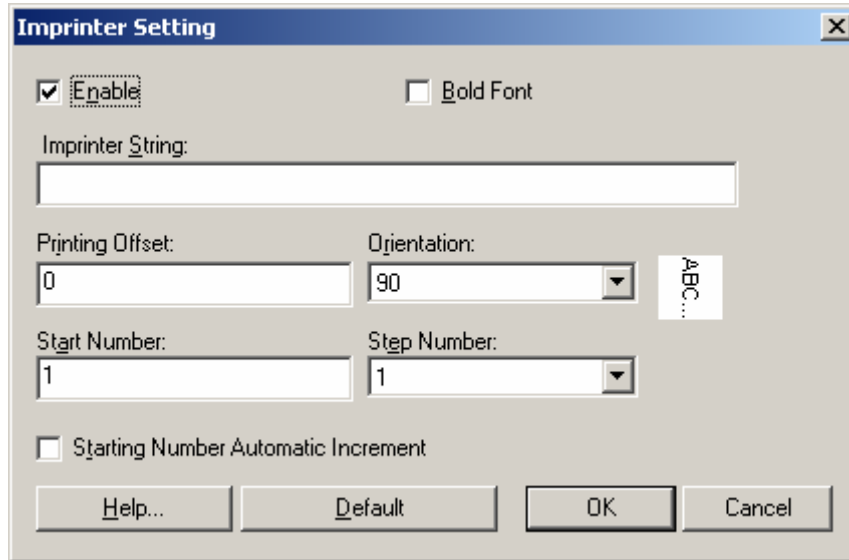


**Figure 4**

# 6.1    Enable

| Description: | Enable imprinter functions. |
| --- | --- |
| Values: | "OFF"<br>"ON" |
| Default: | "OFF" |
| Dependencies: | None. |

# 6.2    Bold Font

| Description: | Print bold font. |
| --- | --- |
| Values: | "OFF"<br>"ON" |
| Default: | "OFF" |
| Dependencies: | None. |

# 6.3    Imprinter String

| Description: | This string can be printed as imprinter string. |
| --- | --- |
| Values: | None |
| Default: | None |
| Dependencies: | Maximum string is 72 characters. |

# 6.4    Printing Offset

| Description: | Defines the Y-offset of the start of the printed text. Is entered and displayed by column. |
| --- | --- |
| Values: | Minimum         0<br>Maximum        99<br>Step              1 |
| Default: | 0 |
| Dependencies: | None. |

# 6.5    Orientation

| Description: | Selects direction of the printed text. |
| --- | --- |
| Values: | "0"<br>"90"<br>"180"<br>"270" |
| Default: | "90" |
| Dependencies: | None. |

## 6.6    Start Number

| Description: | Set starting number of imprinting count. | | |
|---|---|---|---|
| Values: | Minimum | 0 | |
| | Maximum | 9999999 | |
| | Step | 1 | |
| Default: | 1 | | |
| Dependencies: | None. | | |

## 6.7    Step Number

| Description: | Set steps of imprinting count. | | |
|---|---|---|---|
| Values: | Minimum | 1 | |
| | Maximum | 9 | |
| | Step | 1 | |
| Default: | 1 | | |
| Dependencies: | None. | | |

## 6.8    Starting Number Automatic Increment

| Description: | Set counter number is based on scanner settings or Imprinter dialog settings. |
|---|---|
| Values: | "ON"<br>"OFF" |
| Default: | "OFF" |
| Dependencies: | None. |

## 6.9    Ok

| Description: | Closes the dialog and notifies caller that the user accepts the changes made within the dialog. |
|---|---|
| Values: | N/A |
| Default: | N/A |
| Dependencies: | None. |

## 6.10  Cancel

| Description: | Closes the dialog and notifies caller that the user does not accept the changes made within the dialog. |
|---|---|
| Values: | N/A |
| Default: | N/A |
| Dependencies: | None. |

# 6.11  Default

| Description: | Resets all to their default values. **This affects on Other Settings dialog.** |
|---|---|
| Values: | N/A |
| Default: | N/A |
| Dependencies: | None. |

# 6.12  Help…

| Description: | Displays help dialog box. |
|---|---|
| Values: | N/A |
| Default: | N/A |
| Dependencies: | None. |

# 7 Sub Area Dialog
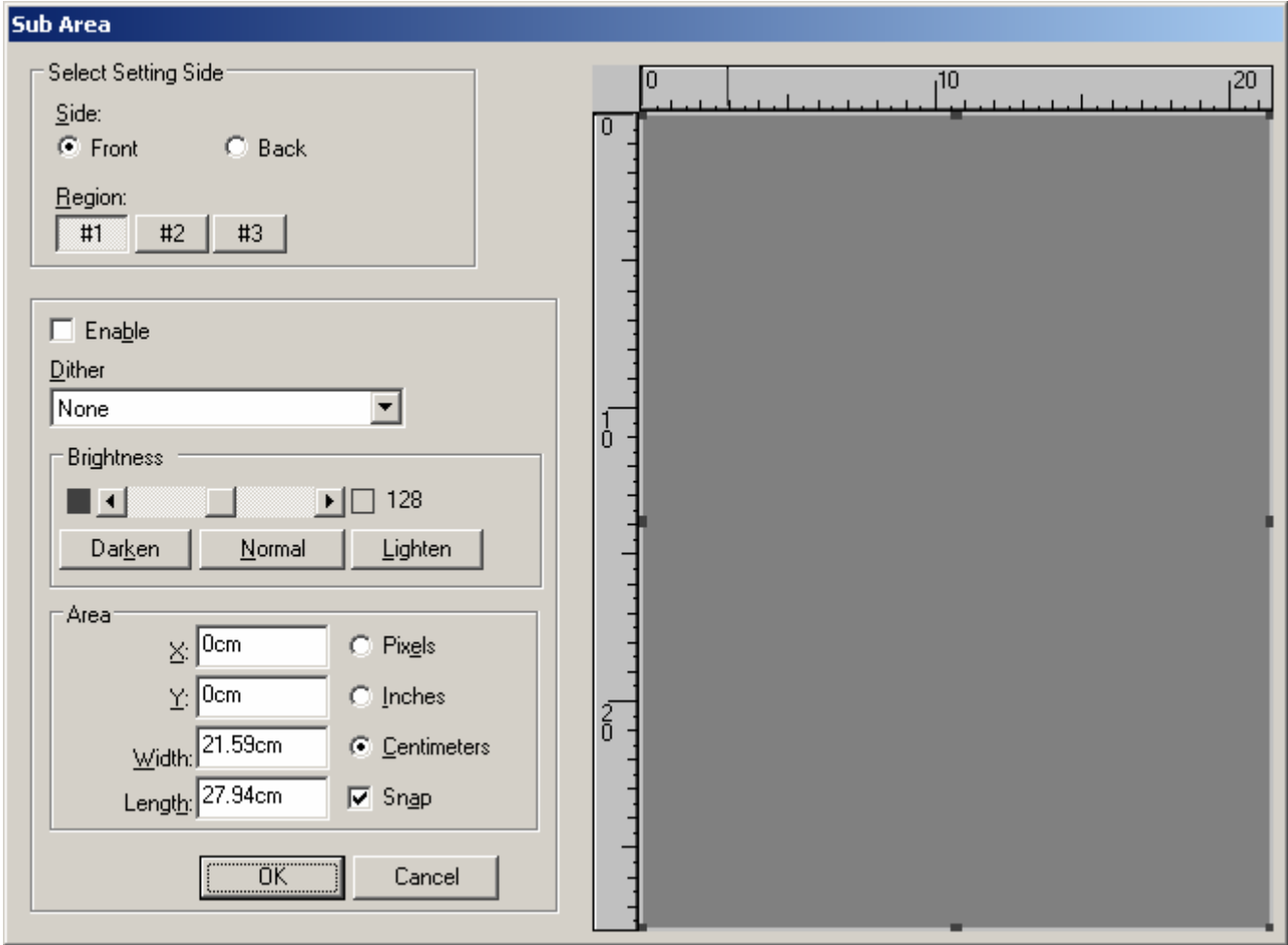


**Figure 5**

# 7.1    Select Setting Side

| Description: | Enables side dependent settings. | |
|---|---|---|
| Values: | Front | Checked |
| | Back | Unchecked |
| Default: | Front | Checked (Region #1) |
| Dependencies: | Sub Area dialog is available when Margin and Length Control is OFF in Other Settings dialog. | |

# 7.2    Enable

| Description: | Enables/disables the Dither feature for front and back independent. |
|---|---|
| Values: | Cleared |
| | Checked |
| Default: | Checked |
| Dependencies: | Sub Area dialog is available when Margin and Length Control is OFF in Other Settings dialog. |

# 8   About Dialog

Displays the version of this driver

Contains certifications status of this driver. Only drivers that have been certified by Pixel Translations will contain the official certification logo.

Displays the version of QuickDriver used to develop this driver.

**About**

BH3200 Version 1.2.10601.24003
Böwe Bell+Howell 3200/3600 Driver
Copyright © 2006 EMC Corporation.

This driver was written to be compatible with ISIS(R) but has not been certified by EMC Corporation.

Created with
QuickDriver Version DEBUG 1.0.10603.10001

EMC², Captiva, and ISIS are registered trademarks, and QuickDriver is a trademark of EMC Corporation. All other trademarks used herein are the property of their respective owners.
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OK

**Figure 6**

# 9   API

This sections details elements that are related to the API functions of this driver.

## 9.1   Settings of multistream

Stream order is fixed as grayscale/color as 1$^{st}$ stream, binary is 2$^{nd}$ stream.

| | Samples per pixel | Bits per samples | WINDOW | Note |
|---|---|---|---|---|
| Black and White | 1 | 1 | 0 | |
| 256-Level Gray | 1 | 8 | 0 | |
| 24-bit Color | 3 | 8 | 0 | |
| Binary&Color*[1] | 3 | 8 | 1 or -1 | Primary data (negative: back side) |
| | 1 | 1 | 2 or -2 | Secondary data (negative: back side) |
| Binary&Gray*[1] | 1 | 8 | 1 or -1 | Primary data (negative: back side) |
| | 1 | 1 | 2 or -2 | Secondary data (negative: back side) |

# 10 Settings of imprinter

The format string can include a combination of format specifies (with modifiers) and messages. Here is help content TWAIN driver support.



**Imprinter Help**

```
TO PRINT AN INCREMENTING NUMBER: (For example)
"%0#" -> "0000001"
"#"   -> "ssssss1" (s = space)
"%3#" -> "ss1"
"%05#" -> "00001"

TO PRINT THE DATE:
%1d: YY/MM/DD
%2d: YYYY/MM/DD
%3d: MM/DD/YY
%4d: DD Abbreviated Month, YYYY
    (For example) "%4d" -> "21 Dec., 1997"

TO PRINT THE TIME:
%1t: HH:MM
%2t: HH:MM:SS

VERTICAL OFFSET:
An offset of 10mm is always added to the value.

    1 is equivalent to 2.38 mm (Orientation:90,270).
    (For example) 5 = 10mm + 5 * 2.38mm = 21.9mm
    1 is equivalent to 3.44 mm (Orientation:0 ,180).
    (For example) 5 = 10mm + 5 * 3.44mm = 27.2mm

STARTING NUMBER AUTOMATIC INCREMENT:
'Start Number' is renewed to 'Start Number' +
 (The number of scanned sheets) x 'Step Number'
```
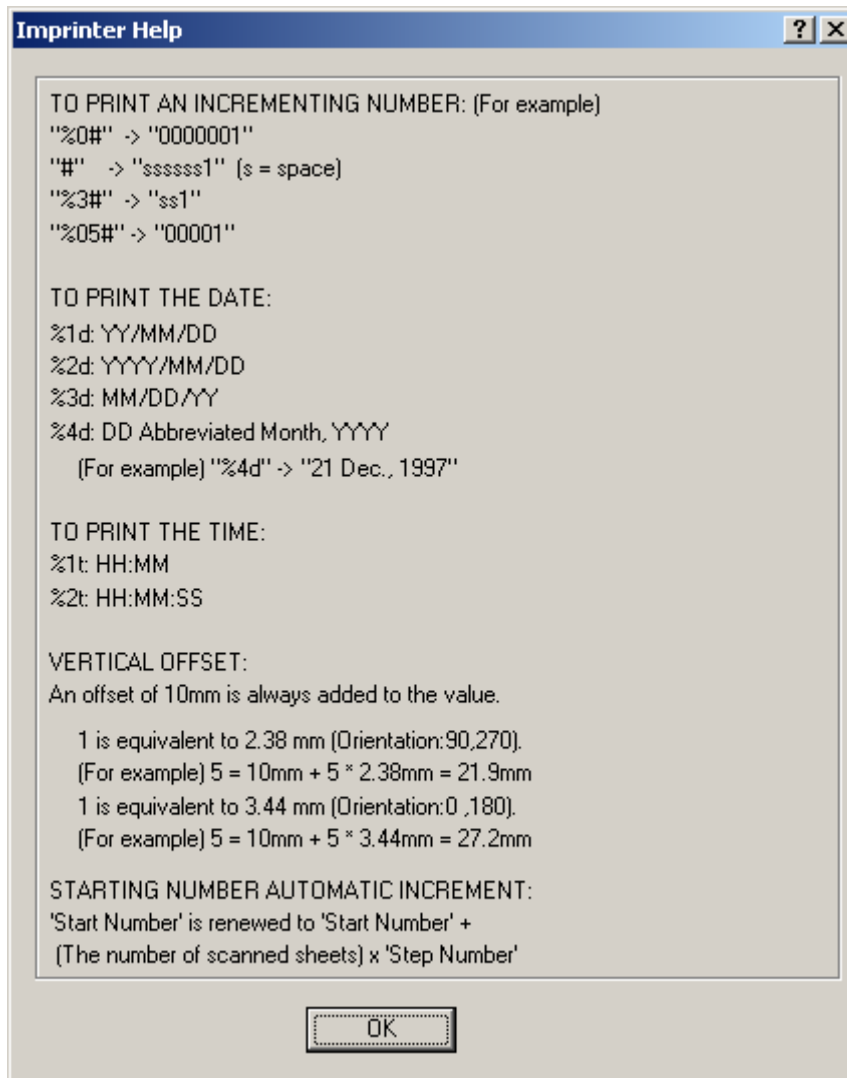
OK

**Figure 7**

# 11 Supported TWAIN Capabilities

Following TWAIN capabilities are supported by this version of TWAIN driver. This list is an excerpt from the TWAIN.H version 1.9 March 2000 released.

| Capabilities | value | Supported | Not Supported | Note |
|---|---|---|---|---|
| CAP_CUSTOMBASE | 0x8000 | | O | |
| CAP_XFERCOUNT | 0x0001 | O | | |
| ICAP_COMPRESSION | 0x0100 | O | | |
| ICAP_PIXELTYPE | 0x0101 | O | | |
| ICAP_UNITS | 0x0102 | O | | |
| ICAP_XFERMECH | 0x0103 | O | | |
| CAP_AUTHOR | 0x1000 | | O | |
| CAP_CAPTION | 0x1001 | | O | |
| CAP_FEEDERENABLED | 0x1002 | O | | |
| CAP_FEEDERLOADED | 0x1003 | O | | |
| CAP_TIMEDATE | 0x1004 | | O | |
| CAP_SUPPORTEDCAPS | 0x1005 | O | O | Please issue this capability to get all of supported capabilities in the driver. |
| CAP_EXTENDEDCAPS | 0x1006 | | O | |
| CAP_AUTOFEED | 0x1007 | O | | |
| CAP_CLEARPAGE | 0x1008 | | O | |
| CAP_FEEDPAGE | 0x1009 | | O | |
| CAP_REWINDPAGE | 0x100a | | O | |
| CAP_INDICATORS | 0x100b | O | | |
| CAP_SUPPORTEDCAPSEXT | 0x100c | | O | |
| CAP_PAPERDETECTABLE | 0x100d | O | | |
| CAP_UICONTROLLABLE | 0x100e | O | | |
| CAP_DEVICEONLINE | 0x100f | O | | |
| CAP_AUTOSCAN | 0x1010 | O | | |
| CAP_THUMBNAILSENABLED | 0x1011 | | O | |
| CAP_DUPLEX | 0x1012 | O | | |
| CAP_DUPLEXENABLED | 0x1013 | O | | |
| CAP_ENABLEDSUIONLY | 0x1014 | O | | |
| CAP_CUSTOMDSDATA | 0x1015 | O | | |

| | | | | |
|---|---|---|---|---|
| CAP_ENDORSER | 0x1016 | O | | |
| CAP_JOBCONTROL | 0x1017 | O | | |
| CAP_ALARMS | 0x1018 | | O | |
| CAP_ALARMVOLUME | 0x1019 | | O | |
| CAP_AUTOMATICCAPTURE | 0x101a | | O | |
| CAP_TIMEBEFOREFIRSTCAPTURE | 0x101b | | O | |
| CAP_TIMEBETWEENCAPTURES | 0x101c | | O | |
| CAP_CLEARBUFFERS | 0x101d | | O | |
| CAP_MAXBATCHBUFFERS | 0x101e | | O | |
| CAP_DEVICETIMEDATE | 0x101f | | O | |
| CAP_POWERSUPPLY | 0x1020 | | O | |
| CAP_CAMERAPREVIEWUI | 0x1021 | | O | |
| CAP_DEVICEEVENT | 0x1022 | | O | |
| CAP_SERIALNUMBER | 0x1024 | | O | |
| CAP_PRINTER | 0x1026 | O | | |
| CAP_PRINTERENABLED | 0x1027 | O | | |
| CAP_PRINTERINDEX | 0x1028 | O | | |
| CAP_PRINTERMODE | 0x1029 | O | | |
| CAP_PRINTERSTRING | 0x102a | O | | |
| CAP_PRINTERSUFFIX | 0x102b | | O | |
| CAP_LANGUAGE | 0x102c | | O | |
| CAP_FEEDERALIGNMENT | 0x102d | | O | |
| CAP_FEEDERORDER | 0x102e | | O | |
| CAP_REACQUIREALLOWED | 0x1030 | | O | |
| CAP_BATTERYMINUTES | 0x1032 | | O | |
| CAP_BATTERYPERCENTAGE | 0x1033 | | O | |
| ICAP_AUTOBRIGHT | 0x1100 | O | | |
| ICAP_BRIGHTNESS | 0x1101 | O | | |
| ICAP_CONTRAST | 0x1103 | O | | |
| ICAP_CUSTHALFTONE | 0x1104 | | O | |
| ICAP_EXPOSURETIME | 0x1105 | | O | |
| ICAP_FILTER | 0x1106 | | O | |
| ICAP_FLASHUSED | 0x1107 | | O | |
| ICAP_GAMMA | 0x1108 | | O | |

| | | | | |
|---|---|---|---|---|
| ICAP_HALFTONES | 0x1109 | O | | |
| ICAP_HIGHLIGHT | 0x110a | | O | |
| ICAP_IMAGEFILEFORMAT | 0x110c | O | | |
| ICAP_LAMPSTATE | 0x110d | | O | |
| ICAP_LIGHTSOURCE | 0x110e | | O | |
| ICAP_ORIENTATION | 0x1110 | | O | |
| ICAP_PHYSICALWIDTH | 0x1111 | O | | |
| ICAP_PHYSICALHEIGHT | 0x1112 | O | | |
| ICAP_SHADOW | 0x1113 | | O | |
| ICAP_FRAMES | 0x1114 | O | | |
| ICAP_XNATIVERESOLUTION | 0x1116 | | O | |
| ICAP_YNATIVERESOLUTION | 0x1117 | | O | |
| ICAP_XRESOLUTION | 0x1118 | O | | |
| ICAP_YRESOLUTION | 0x1119 | O | | |
| ICAP_MAXFRAMES | 0x111a | O | | |
| ICAP_TILES | 0x111b | | O | |
| ICAP_BITORDER | 0x111c | O | | |
| ICAP_CCITTKFACTOR | 0x111d | | O | |
| ICAP_LIGHTPATH | 0x111e | | O | |
| ICAP_PIXELFLAVOR | 0x111f | O | | |
| ICAP_PLANARCHUNKY | 0x1120 | O | | |
| ICAP_ROTATION | 0x1121 | | O | |
| ICAP_SUPPORTEDSIZES | 0x1122 | O | | |
| ICAP_THRESHOLD | 0x1123 | | O | |
| ICAP_XSCALING | 0x1124 | | O | |
| ICAP_YSCALING | 0x1125 | | O | |
| ICAP_BITORDERCODES | 0x1126 | | O | |
| ICAP_PIXELFLAVORCODES | 0x1127 | | O | |
| ICAP_JPEGPIXELTYPE | 0x1128 | | O | |
| ICAP_TIMEFILL | 0x112a | | O | |
| ICAP_BITDEPTH | 0x112b | O | | |
| ICAP_BITDEPTHREDUCTION | 0x112c | O | | |
| ICAP_UNDEFINEDIMAGESIZE | 0x112d | O | | |
| ICAP_IMAGEDATASET | 0x112e | | O | |
| ICAP_EXTIMAGEINFO | 0x112f | O | | |

| | | | | |
|---|---|---|---|---|
| ICAP_MINIMUMHEIGHT | 0x1130 | O | | |
| ICAP_MINIMUMWIDTH | 0x1131 | O | | |
| ICAP_FLIPROTATION | 0x1136 | | O | |
| ICAP_BARCODEDETECTION ENABLED | 0x1137 | | O | |
| ICAP_SUPPORTEDBARCODE TYPES | 0x1138 | | O | |
| ICAP_BARCODEMAXSEARC HPRIORITIES | 0x1139 | | O | |
| ICAP_BARCODESEARCHPRI ORITIES | 0x113a | | O | |
| ICAP_BARCODESEARCHMO DE | 0x113b | | O | |
| ICAP_BARCODEMAXRETRIE S | 0x113c | | O | |
| ICAP_BARCODETIMEOUT | 0x113d | | O | |
| ICAP_ZOOMFACTOR | 0x113e | | O | |
| ICAP_PATCHCODEDETECTI ONENABLED | 0x113f | | O | |
| ICAP_SUPPORTEDPATCHCO DETYPES | 0x1140 | | O | |
| ICAP_PATCHCODEMAXSEAR CHPRIORITIES | 0x1141 | | O | |
| ICAP_PATCHCODESEARCHP RIORITIES | 0x1142 | | O | |
| ICAP_PATCHCODESEARCH MODE | 0x1143 | | O | |
| ICAP_PATCHCODEMAXRETR IES | 0x1144 | | O | |
| ICAP_PATCHCODETIMEOUT | 0x1145 | | O | |
| ICAP_FLASHUSED2 | 0x1146 | | O | |
| ICAP_IMAGEFILTER | 0x1147 | | O | |
| ICAP_NOISEFILTER | 0x1148 | | O | |
| ICAP_OVERSCAN | 0x1149 | | O | |
| ICAP_AUTOMATICBORDERD ETECTION | 0x1150 | O | | |
| ICAP_AUTOMATICDESKEW | 0x1151 | | O | |
| ICAP_AUTOMATICROTATE | 0x1152 | | O | |
| ICAP_JPEGQUALITY | 0x1153 | | O | |
| CAP_CAMERAENABLE | 0x801D | O | | Please refer to next section. |

| CAP_CAMERAORDER | 0x801E | O | | Please refer to next section. |
|---|---|---|---|---|
| CCAP_QUIETERRORS | 0x8100 | O | | This capability suppresses error dialog. Application set one of TWTY_BOOL values with this capability. |

# 12 How to support multistream

Here is the description how to programmatically enable multistream on a TWAIN driver.
First, here is detail specification of CAP_CAMERAENABLE and CAP_CAMERAORDER.

CAP_CAMERAENABLE
    Value:
        0x801D
    Description:
        Indicates whether the current window is enabled or disabled.
        Allows the current window to be enabled or disabled.
    Application:
        Set this capability to TRUE to enable the current window.
        Set this capability to FALSE to disable the current window.
        The current window MUST be enabled before setting or getting
    capabilities.
    Source:
        The source will keep track of which windows are enabled and disabled
        and only return images for the enabled windows.
    Values:
        Type:                       TW_BOOL
        Default Value:              FALSE
        Allowed Values:             TRUE or FALSE
        Container for MSG_GET:      TW_ONEVALUE
        Container for MSG_SET:      TW_ONEVALUE
    Required By:
        Multistream sources.


CAP_CAMERAORDER
    Value:
        0x801E
    Description:
        Indicates the order of the images for multistream scanning.
    Application:
        Get this capability to determine the order of the images.
        The capability cannot be set.

| Name | Value | Description |
|------|-------|-------------|
| TWCM_BW_BOTH | 0 | Binary first on both sides. |
| TWCM_BW_TOP | 1 | Binary first on front. |
| TWCM_BW_BOTTOM | 2 | Binary first on back. |
| TWCM_CLBW_BOTH | 3 | Not used. |
| TWCM_CL_TOP | 4 | Color first on front. |
| TWCM_CL_BOTTOM | 5 | Color first on back. |
| TWCM_CL_BOTH | 6 | Color first on front and back. |
| TWCM_BW_CL | 7 | Binary first on front, color first on back. |
| TWCM_CL_BW | 8 | Color first on front, binary first on back. |
| TWCM_GR_BW | 9 | Gray first on front, binary first on back. |
| TWCM_BW_GR | 10 | Binary first on front, gray first on back. |

| TWCM_GR_CL | 11 | Gray first on front, color first on back. |
|---|---|---|
| TWCM_CL_GR | 12 | Color first on front, gray first on back. |
| TWCM_GR_BOTH | 13 | Gray first on front and back. |
| TWCM_GR_TOP | 14 | Gray first on front. |
| TWCM_GR_BOTTOM | 15 | Gray first on back. |

Source:
> The source will provide images in the order that is requested.

Values:
| | |
|---|---|
| Type: | TW_UINT16 |
| Default Value: | TWCM_BW_BOTH |
| Allowed Values: | See above table. |
| Container for MSG_GET: | TW_ONEVALUE |
| Container for MSG_SET: | N/A |

Required By:
> Multistream sources.

# 12.1  Enabling Multistream

Following show how to enable TWAIN multistream.

1. Multistream available?

> To determine if multistream is available for a particular source, check the return value of the MSG_CHANGEDIRECTORY call that is described above.  If multistream is not available, then TWRC_FAILURE will be returned.

2. Selecting Windows

> Windows are enabled and disabled using the following mechanism.
> 1. Select the window to enable/disable.
> 2. Enable or disable the window.
>
> To select a window, use the following TWAIN message:
> DG_CONTROL, DAT_FILESYSTEM, MSG_CHANGEDIRECTORY, pData
>
> pData is a pointer to a TW_FILESYSTEM structure.  The "InputName" field should be filled in with the name of the window to select.  The following window names are available:
>
> /Camera_Bitonal_Top
> /Camera_Bitonal_Bottom
> /Camera_Bitonal_Both
> /Camera_Gray_Top
> /Camera_Gray_Bottom
> /Camera_Gray_Both
> /Camera_Color_Top
> /Camera_Color_Bottom
> /Camera_Color_Both
>
> The name must match exactly and may not contain any spaces either before or after the name.  The '/' at the start of the name is required.
>
> The following is an explanation of what a particular window selection will do:

/Camera_Bitonal_Top          Controls the front binary window.
/Camera_Bitonal_Bottom       Controls the back binary window.
/Camera_Bitonal_Both   Controls the front and back binary windows at the same time.
/Camera_Gray_Top             Controls the front gray window.
/Camera_Gray_Bottom          Controls the back gray window.
/Camera_Gray_Both            Controls the front and back gray windows at the same time.
/Camera_Color_Top            Controls the front color window.
/Camera_Color_Bottom Controls the back color window.
/Camera_Color_Both           Controls the front and back color windows at the same time.

If the InputName does not match one of the above selections, then the window selection will be cleared.  When the window selection is cleared, capabilities will no longer refer to a specific window.  Capabilities will refer to all windows, exactly the same as if a window were never selected.  Basically, the capabilities will behave as they would in any other TWAIN driver.

3. Enabling Windows

After a window is selected, it is considered the current window.  All capabilities will refer to only that window.  (Capabilities that normally don't refer to a particular window can be changed and they will affect all windows.  For example, if the scanner doesn't support different brightness settings on multiple windows, then setting brightness would affect all windows.)  To enable or disable the current window, use the following TWAIN message:
DG_CONTROL, DAT_CAPABILITY, MSG_SET, pData

pData is a pointer to a TW_CAPABILITY structure.  pData->Cap should be set to CAP_CAMERAENABLE. (see the definition in this document)  If the value to set is TRUE, then the window will be enabled.  If the value is FALSE, then the window will be disabled.

4. Image Order

The order that the images are returned to the application is determined by the CAP_CAMERAORDER capability.  (see definition in this document) CAP_CAMERAORDER cannot be set, but an app can do a "get" and determine the order of the images it will receive.  CAP_CAMERAORDER only determines the order of the images, it does not determine whether a particular image will be returned.  Setting CAP_CAMERAORDER will not affect the enabled/disabled status of any window.

All of the front images are always returned before any of the back images.

5. Notes

5.1.  If the last window on a particular side is disabled, then the window with the opposite mode will be enabled, automatically.  For example, if front binary is the only enabled window and front binary is disabled, then front color will automatically be enabled.  It is not legal for all of the windows on a particular side to be disabled.  To avoid unexpected enabling of windows, do not disable the last enabled window on a particular side.

5.2.  Enabling any window will cause the feeder to be enabled.  The feeder may be disabled using the normal capability, CAP_FEEDERENABLED.

5.3.  Enabling a window on the back side will automatically enable duplex scanning.  Since it is not legal for all the windows on a particular side to be

disabled, disabling all the windows on the back side will not disable duplex. Duplex may be disabled with the normal capability, CAP_DUPLEXENABLED.

5.4. A window must be enabled before getting or setting capabilities for that window. Getting and setting capabilities on a window that is not enabled may produce unexpected results.

5.5. If the current window is /Camera_Color_Both or /Camera_Bitonal_Both, then messages that get values, such as MSG_GET, will refer to only the front window because both the front and back values cannot be returned at the same time.

5.6. Do not set ICAP_PIXELTYPE during multistream configuration. Selecting the current window will specify the mode. For example, to select the front binary window, set the current window to /Camera_Bitonal_Top. Setting ICAP_PIXELTYPE will change the mode of the current window and will cause multistream to not work correctly.

The code below assumes that the TWAIN driver is open and in state 4.
DSMProc is a pointer to the DSM entry function.
AppID and SrcID are TW_IDENTITY structures and are filled in properly.

Selecting a Window
    To select binary front:
        TW_FILESYSTEM filesys;
        strcpy(filesys.InputName, "/Camera_Bitonal_Top");
        (*DSMProc)(&AppID, &SrcID, DG_CONTROL, DAT_FILESYSTEM,
        MSG_CHANGEDIRECTORY, (TW_MEMREF)&filesys);
    To select both color images:
        TW_FILESYSTEM filesys;
        strcpy(filesys.InputName, "/Camera_Color_Both");
        (*DSMProc)(&AppID, &SrcID, DG_CONTROL, DAT_FILESYSTEM,
        MSG_CHANGEDIRECTORY, (TW_MEMREF)&filesys);

Enabling a Window
    Do the following to enable the current window.  This is normal capability setting
    code in TWAIN, just set the Cap to CAP_CAMERAENABLE, the ItemType to
    TW_TYBOOL and the Item to TRUE.  To disable the current window, use the
    same code and set the Item to FALSE.

    TW_CAPABILITY twCap;
    pTW_ONEVALUE pVal;
    twCap.Cap = CAP_CAMERAENABLE;
    twCap.ConType = TWON_ONEVALUE;
    twCap.hContainer = GlobalAlloc(GHND, sizeof(TW_ONEVALUE));
    pVal = (pTW_ONEVALUE)GlobalLock(twCap.hContainer);
    pVal->ItemType = TWTY_BOOL;
    pVal->Item = TRUE;
    (*DSMProc)(&AppID, &SrcID, DG_CONTROL, DAT_CAPABILITY, MSG_SET,
    (TW_MEMREF)&twCap);
    GlobalFree((HANDLE)twCap.hContainer);

Setting the Image Order
    The same code above to enable the window can be used to set the image order.
    The only changes are to set the Cap to CAP_CAMERAORDER, set the
    ItemType to TWTY_UINT16, and set the Item to the TWCM_XXX value that is
    desired.

    Example

    The following pseudo code will enable front binary, back binary, and back color.
    The image order will be set to front binary, back color, back binary.

    // enable front binary
    strcpy(filesys.InputName, "/Camera_Bitonal_Top");
    (*DSMProc)(&AppID, &SrcID, DG_CONTROL, DAT_FILESYSTEM,
    MSG_CHANGEDIRECTORY, (TW_MEMREF)&filesys);
    * set CAP_CAMERAENABLE to TRUE as described above

    // enable back binary
    strcpy(filesys.InputName, "/Camera_Bitonal_Bottom");
    (*DSMProc)(&AppID, &SrcID, DG_CONTROL, DAT_FILESYSTEM,
    MSG_CHANGEDIRECTORY, (TW_MEMREF)&filesys);

\* set CAP_CAMERAENABLE to TRUE as described above

```
// disable front color
strcpy(filesys.InputName, "/Camera_Color_Top");
(*DSMProc)(&AppID, &SrcID, DG_CONTROL, DAT_FILESYSTEM,
MSG_CHANGEDIRECTORY, (TW_MEMREF)&filesys);
* set CAP_CAMERAENABLE to FALSE as described above

// enable back color
strcpy(filesys.InputName, "/Camera_Color_Bottom");
(*DSMProc)(&AppID, &SrcID, DG_CONTROL, DAT_FILESYSTEM,
MSG_CHANGEDIRECTORY, (TW_MEMREF)&filesys);
* set CAP_CAMERAENABLE to TRUE as described above

// set the image order
* set CAP_CAMERAORDER to TWCM_BW_CL, as described above, to get
```
binary first on the front and color first on the back.  In this case, since only binary
is available on the front, TWCM_CL_BOTTOM could also be used.