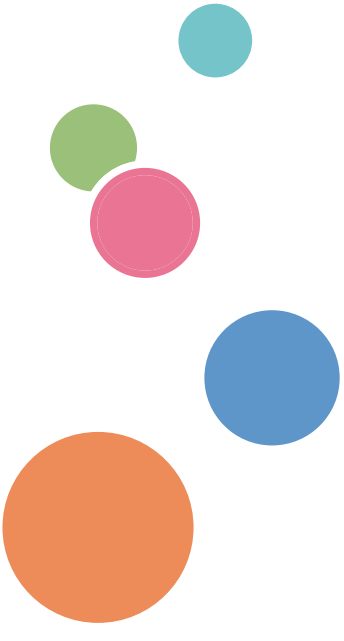
TotalFlow Print Server R-62/R-62A

Operating Instructions

Calibration Guide



For safe and correct use, be sure to read the Safety Information in Setup Guide before using the machine.

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About Calibration

Calibrate the printer so that it prints colors as you expect them to appear. When you perform a calibration, the colors printed from the printer are compared to standard colors and the differences are adjusted for optimal print results.

You need to perform a calibration in the following cases:

- When you use a new paper for the first time
- When you change toner bottles
- If printed colors change over time

About calibration data

Calibration data is associated with the respective printer paper.

Use the same calibration data for multiple types of paper when the paper you are calibrating differs only in size. In the following cases, we recommend that you perform calibrations with different data, even when the paper is the same.

- When loading paper in different paper trays
- When using multiple halftone screens differently
- When performing calibrations according to the humidity of the air

Only one calibration can be associated with one paper type at a time, but you can change the association any time. For details about how to change the calibration associated with a paper, see page 3 "Selecting the Calibration for a Paper".

In addition to the default calibration data, you can create new calibration data, if necessary. For details about how to create new calibration data, see each chapter.

About this guide

This document mainly explains how to calibrate the printer by using an X-Rite i1Pro2, test charts provided by the manufacturer, and one of the following software.

- i1Profiler
- ColorPort

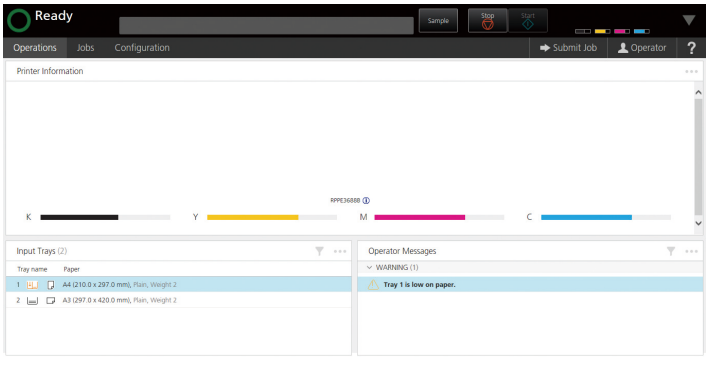
Note

- Production of ColorPort has been discontinued.

Selecting the Calibration for a Paper

This section explains how to change the calibration associated with a paper.

1. **On the remote or local console of the print server, do either of the following:**



   - To select a calibration for a paper in the paper catalog:
     1. Click the [Configuration] page, and then click [Paper] in the navigation pane.
     2. Select the paper and click [Edit].
   - To select a calibration for a paper that is loaded in an input tray:
     1. Click [Operations] page, and then click the tray where the paper you want to associate calibration is loaded.
     2. Click [Manual paper].
2. **Click [Advanced].**
3. **Select a calibration from the [Calibration] dropdown list.**
4. **Click [OK].**

Basic Procedure for Creating Calibration Data

To create calibration data, execute the calibration wizard on the local console of the print server. This section explains how to use the calibration wizard.

Important

- **Do not print any jobs while calibrating the printer. If calibration is interrupted, start again.**

1. **Click the [Configuration] page on the local console of the print server.**
2. **Click [Calibration] in the navigation pane.**

   The initial screen of the calibration wizard appears.
3. **Specify settings for creating calibration data.**

   Select new, update, or copy as according to what you require. After that, select the options such as the paper tray in which the paper you want to calibrate is loaded and the spectrophotometer you want to use.

   You can choose the following spectrophotometers from the [Measure results with] dropdown list.

   - [i1Pro2 attached spectrophotometer]: Select this to connect the spectrophotometer i1Pro2 to the machine to measure colors. Connect it beforehand.
   - [Automated inline sensor]: Select this to use the printer's internal colorimetry sensor.
   - [Offline spectrophotometer]: Select this to connect the i1Pro2 to a separate computer, and then create calibration data.
4. **Click [Print calibration page].**

   Color calibration pages are printed for measuring colors.

   If you select update or copy an existing calibration and use [Automated Inline Sensor] in Step 3, go to Step 6. The printer measures the colors automatically and the verification screen for the measured results will appear.
5. **Measure the colors.**

   - If you select [i1Pro2 attached spectrophotometer] or create new with [Automated inline sensor] in Step 3, see page 7 "Measuring with i1Pro2 Connected to This Machine" to measure the colors.
   - If you select [Offline spectrophotometer] in Step 3, see page 11 or see page 21 to create and import the calibration data.
6. **Click [SAVE CALIBRATION].**

   The calibration data is saved.

   When printing and checking the verification page, click [PRINT VERIFICATION PAGE].
7. **Click [FINISH].**

Note

- When creating new calibration data using [Automated inline sensor], you can also import and save the calibration data created beforehand.
- When special toner is installed and you are using it replaced with black toner, you can create new calibration data that includes the special toner. To do this, follow the procedure below.
  1. In Step 3, specify [Yes] for [Print white first].
  2. Click [PRINT CARIBRATION PAGE].

     A page using only the special toner is printed.
  3. Return the printed page to the same tray.
  4. Click [PRINT CARIBRATION PAGE].
  5. Measure the colors.
  6. Click [PRINT CARIBRATION PAGE].
  7. Measure the colors.
  8. Click [SAVE CALIBRATION].
  9. Click [FINISH].
- When updating or copying the calibration data created with [i1Pro2 attached spectrophotometer] or [Offline spectrophotometer], you cannot use [Automated inline sensor] to measure the colors. Use the same spectrophotometer that you used when you first created the calibration data.

1. Measuring with i1Pro2 Connected to This Machine

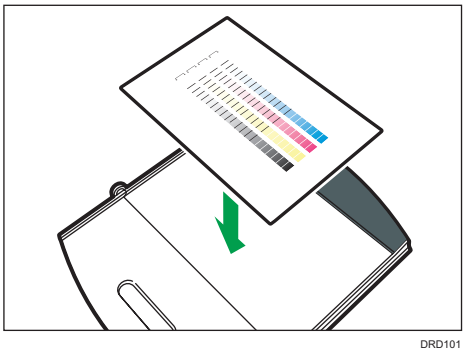
This section describes how to measure and create calibration data by using the i1Pro2 that connected to the print server. Refer to Step 5 of page 4 "Basic Procedure for Creating Calibration Data".

Preparing a Color Calibration Page and Spectrophotometer

1. **Place the spectrophotometer on the calibration plate.**
2. **Click [Calibrate Spectrophotometer].**

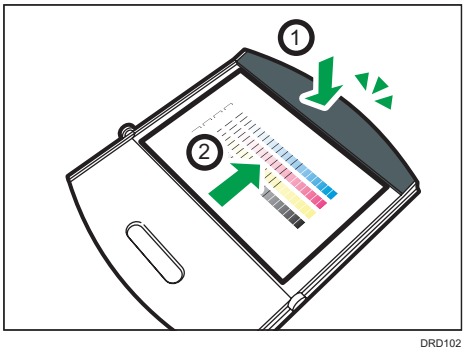
   Calibration of the spectrophotometer starts. When the calibration is complete, the screen for the measurement status appears.
3. **On the backup board, place a stack of unused sheets of paper of the same type that were used to print the color calibration pages.**

   Stack enough paper so that the backup board cannot be seen through the paper.
4. **Place one of the printed color calibration sheets on top of the paper stacked on the backup board.**



DRD101

5. **Open the backup board clip (①), insert the calibration sheet (②), and then fix it in place.**



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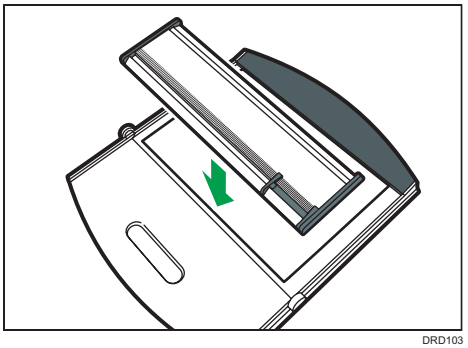
6. **If you have selected [Strip] for [Scan mode] in the initial screen of the calibration wizard, place the ruler on the backup board.**



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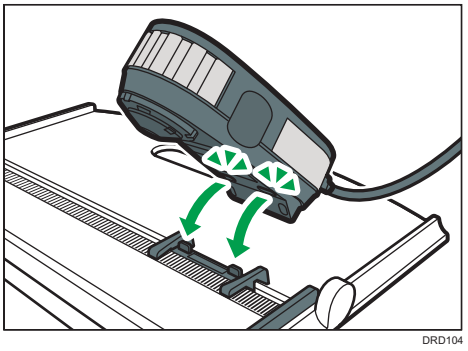
7. **Place the spectrophotometer on the ruler.**



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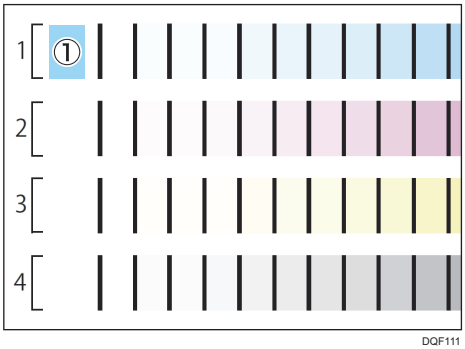
After placing the spectrophotometer, measure the test chart.

See page 9 "Scanning a Color Calibration Page".

Scanning a Color Calibration Page

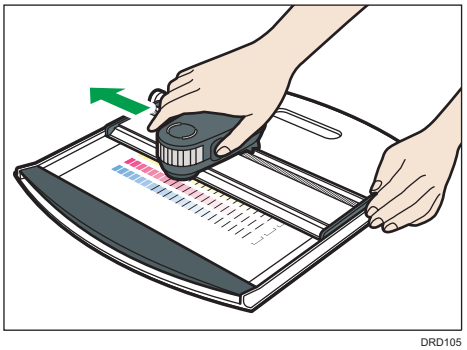
This section explains the procedure for [Strip] that is set as the scan mode.

1. **Move the scanning head of the spectrophotometer to the left edge (①) of color 1 on the calibration page.**



DQF111

2. **Hold down the button on the left side of the spectrophotometer for about one second.**
3. **Keep holding down the button and move the spectrophotometer to the right.**



DRD105

Slide it slowly at a constant speed.

4. **When color 1 has been scanned to the right edge, release the button on the spectrophotometer.**
5. **Check the scan results on the local console.**

   If the color was scanned correctly, the frame indicating the scan position moves to the next color.

   If an error message appears, return to Step 1 and scan the color indicated on the screen once again.

6. **Repeat Steps 1 through 5 to scan all the colors.**

   Continue scanning the colors until the measuring status bar reaches 100%.

7. **After all colors are scanned, save the calibration data.**

   Proceed to Step 6 in page 4 "Basic Procedure for Creating Calibration Data".

Clicking [Reset Scan] takes you back to the screen before starting measurements. The measured data is deleted.

Note

- If you set the scan mode to [Spot], attach the spectrophotometer to the positioning target. Then touch the scanning head of the spectrophotometer to the patch specified on the screen. Click the button on the spectrophotometer side once per patch.
- For details about how to use the spectrophotometer, see the manual.

2. Creating Calibration Data Using i1Profiler

This section explains the procedure for using i1Profiler to create new calibration data.

The procedures in this section are described using i1Profiler v1.7.0 on Windows 7.

To create calibration data using the i1Profiler, register a test chart, scan the color calibration page, and import the results to the print server.

Registering a Test Chart to i1Profiler

When using i1Profiler to perform a calibration for the first time, register the test chart to i1Profiler. You do not need to repeat this procedure.

Install i1Profiler and the applications provided with the spectrophotometer in the client computer in advance.

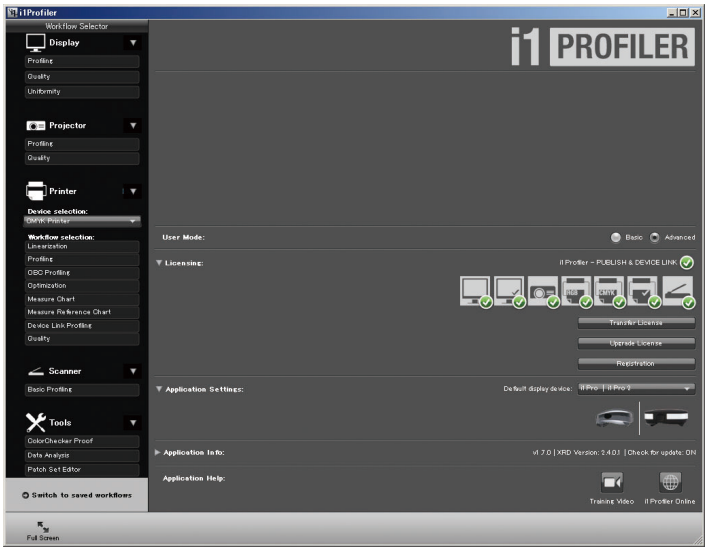
The extension for test charts is ".txf".

The test charts provided are as follows. Select a test chart according to the accuracy of the calibration and the spectrophotometer you are using.

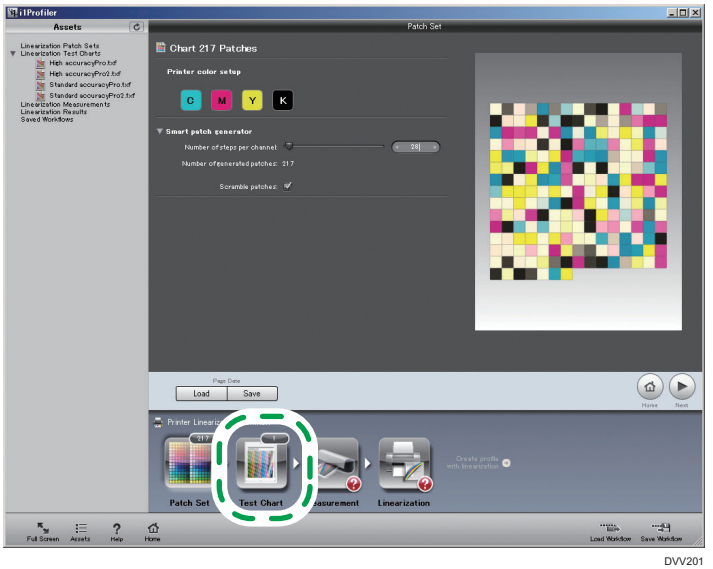
Spectrophotometer	Calibration accuracy	File name of the test chart
i1Pro2	Standard accuracy	Cal_Target_Standard_i1Pro2.txf
i1Pro2	High accuracy	Cal_Target_High_i1Pro2.txf
i1Pro	Standard accuracy	Cal_Target_Standard_i1Pro.txf
i1Pro	High accuracy	Cal_Target_High_i1Pro.txf

1. **Launch i1Profiler.**

2. Select [Advanced] in [User Mode].



3. Select [CMYK Printer] from the [Device selection] dropdown list in [Printer].
4. Click [Linearization] in [Workflow selection] in [Printer].
5. Click [Test Chart] in [Printer Linearization Workflow] at the bottom of the screen.



DVV201

6. Click [Load].
7. Specify the folder where the test chart is stored, and select a standard accuracy test chart for the spectrophotometer you are using.
8. If a confirmation screen for copying appears, click [No].

9. **Click [Save] and save the test chart.**

   Test charts are stored in the following folders unless otherwise specified.

   When using Windows:

   `C:\ProgramData\X-Rite\i1Profiler\ColorSpaceCMYK\LinearizationTestCharts`

   When using a Mac:

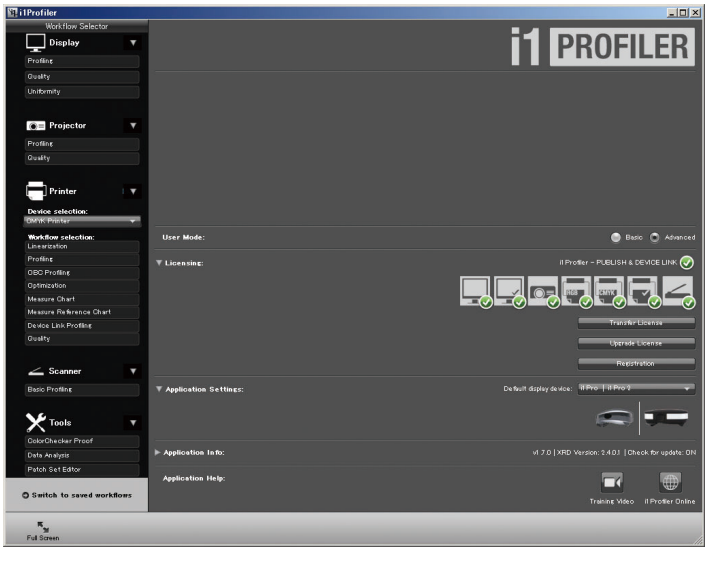
   `/Library/Application Support/X-Rite/i1Profiler/ColorSpaceCMYK/LinearizationTestCharts`

10. **Repeat Steps 6 through 9, select a high accuracy test chart, and save it.**
11. **Click the close button ([×]) to exit i1Profiler.**

Preparing a Color Calibration Page and Spectrophotometer

This section explains how to place the printed color calibration page on the backup board and how to calibrate the spectrophotometer.

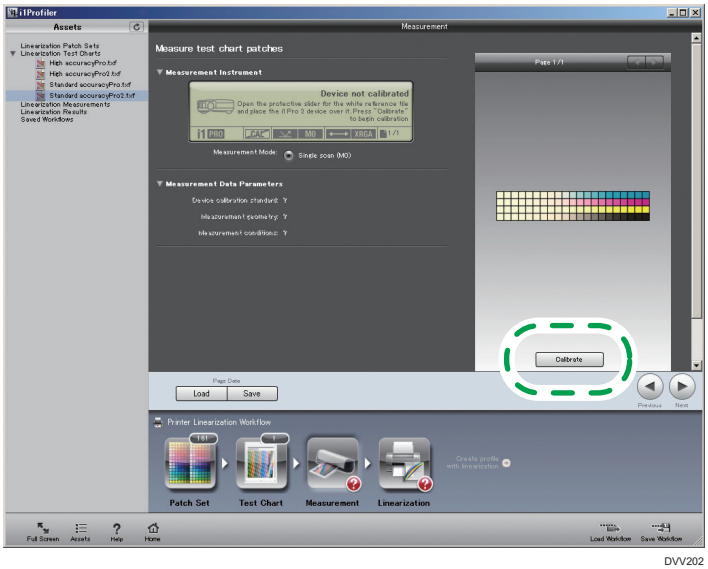
1. **Attach the spectrophotometer to the client computer.**
2. **Launch i1Profiler.**
3. **Click [Advanced] in [User Mode].**



4. **Select [CMYK Printer] from the [Device selection] dropdown list in [Printer].**
5. **Click [Linearization] in [Workflow selection] in [Printer].**
6. **Click [Test Chart] in [Printer Linearization Workflow] at the bottom of the screen.**
7. **Click [Load].**
8. **From the list, select a test chart supported by the spectrophotometer you are using. The accuracy of this test chart must be the same with the one performed on the calibration sheet already printed.**

   You can also select a test chart from [Linearization Test Charts] in the [Assets] menu on the left side of the screen.
9. **Click [Measurement] at the bottom of the screen.**
10. **Place the spectrophotometer on the calibration plate.**

11. Click [Calibrate].



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Perform a calibration using the spectrophotometer.

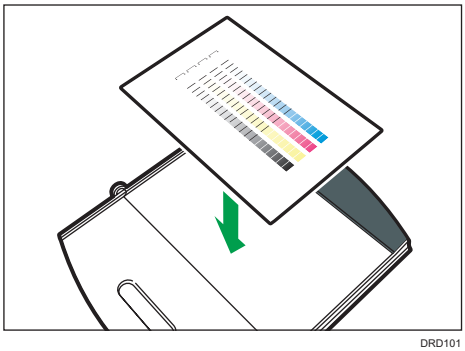
When using i1Pro as a spectrophotometer, select the measurement mode in [Measurement Mode]:

- [Spot (M0)]: Select this when measuring the test chart patch by patch.
- [Single scan (M0)]: Select this when measuring the test chart's patches band by band.

12. On the backup board, place a stack of unused sheets of paper of the same type that were used to print the color calibration pages.

Stack enough paper so that the backup board cannot be seen through the paper.

13. Place one of the printed calibration sheets on top of the paper stacked on the backup board.



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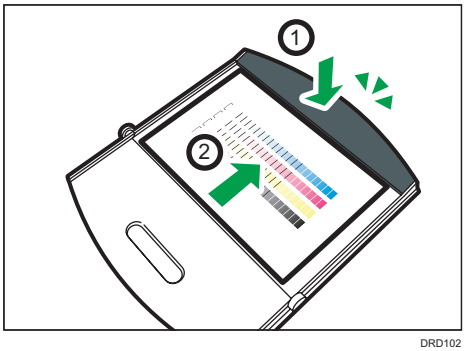
14. Open the backup board clip (①), insert the calibration sheet (②), and then fix it in place.



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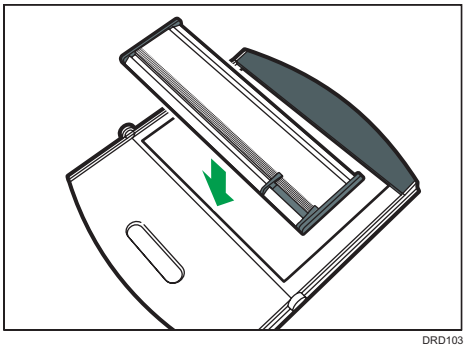
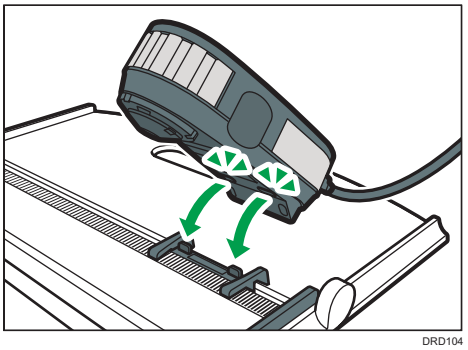
15. Place the ruler on the backup board.

If you have selected [Single scan (M0)] in [Measurement Mode], you must place the ruler on the backup board to use the i1Pro as a spectrophotometer.



DRD103

16. Place the spectrophotometer on the ruler.



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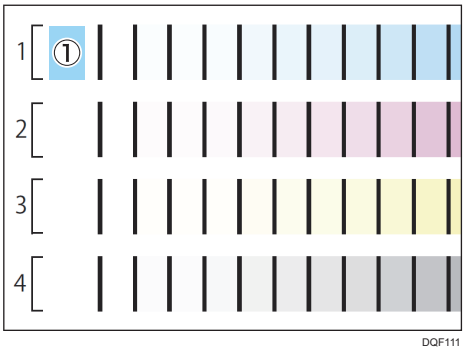
Scanning a Color Calibration Page

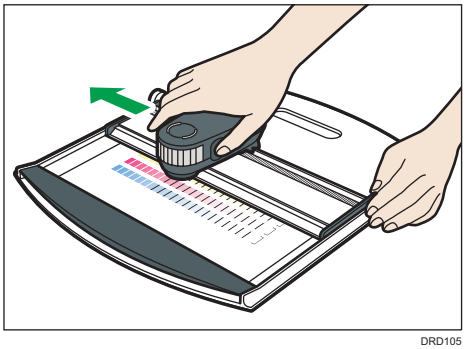
1. **Move the scanning head of the spectrophotometer to the left edge (①) of color 1 on the calibration page.**



DQF111

The color being scanned is displayed on the screen in a frame.

2. **Hold down the button on the left side of the spectrophotometer for about one second.**
3. **Continue to hold the button down. When you hear the computer beep, move the spectrophotometer to the right.**



DRD105

Slide it slowly at a constant speed.

4. **When color 1 has been scanned to the right edge, release the button on the spectrophotometer.**
5. **Check the scan results on the [Measurement] screen of i1Profiler.**

   If the color was scanned correctly, the frame indicating the scan position moves to the next color.

   If an error message appears, return to Step 1 and scan the color indicated on the screen once again.

   If the scan results differ from the gradation variations on the test chart, return to Step 1, select the color to scan, and then scan it again.

6. **Repeat Steps 1 through 5 to scan all the colors.**

   When performing a calibration for standard accuracy, scan four bands of colors. When performing a calibration for high accuracy, scan eight bands of colors.
7. **After all colors are scanned, click [Save].**
8. **Select [CxF Files (*.cxf)] or [i1Profiler CGATS Custom (*.txt)] from [Save as type].**
9. **Specify the folder to save scanned data and name the file.**
10. **Click [Save].**
11. **If you have selected [i1Profiler CGATS Custom (*.txt)] in Step 8, configure the file format option as follows:**

    The machine cannot read calibration data if the configuration is different.

    - Data sets: Save all available data sets
    - Data fields: Select the following:
      - SampleID
      - SampleName
      - CMYK
      - Reflectance spectrum
      - L*a*b*
    - CIE Standard Illuminant: CIE illuminant D50
    - CIE Standard Observer: 2º
    - Decimal separator: Period [.]
    - Output scale: 0.0 to 1.0
    - Spectral range: 380 to 730 nm

    Do not select [Density] or [Minus Paper].
12. **Click [OK].**
13. **Click the close button ([x]) to exit i1Profiler.**

Note

- If you use i1Pro and set the measurement mode to [Spot (M0)], attach the spectrophotometer to the positioning target. Then touch the scanning head of the spectrophotometer to the patch specified on the screen. Click the button on the spectrophotometer side once per patch. For details about measurement modes, see page 14 "Preparing a Color Calibration Page and Spectrophotometer".
- For details about how to use the spectrophotometer, see the manual.

Loading Calibration Data

You can import to the print server the calibration data that you created using i1Profiler. Also you can import the calibration data to the print server via a USB memory or network.

To load calibration data from a USB memory, copy the saved calibration data to a USB memory device, and then install it to the USB port of the printer server.

To load calibration data via a network, log in to the remote console as an administrator.

1. **On the screen of calibration wizard (Step 5 of page 4 "Basic Procedure for Creating Calibration Data"), Click [Import].**
2. **Specify the folder where calibration data is stored, and select the calibration data.**
3. **Click [LOAD].**

   When the measurement results are imported, verify the measurement results.

   Proceed to Step 6 in page 4 "Basic Procedure for Creating Calibration Data".

3. Creating Calibration Data Using ColorPort

This section explains the procedure for using ColorPort to create new calibration data.

The procedures in this section are described using ColorPort v.2.0.5 on Windows 7.

To create calibration data using the ColorPort, register a test chart, scan the color calibration page, and import the results to the print server.

Registering a Test Chart to ColorPort

When using ColorPort to perform a calibration for the first time, register the test chart to ColorPort. You do not need to repeat this procedure.

When perform a calibration, first configure a spectrophotometer and register ColorPort to the client computer. Install ColorPort as the on-screen installer instructs.

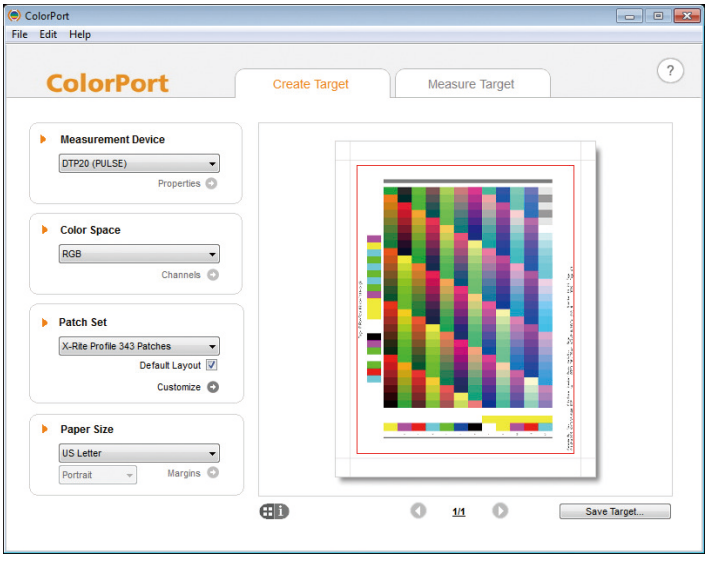
The extension for test charts is ".xml".

The test charts provided are as follows. Select a test chart according to the accuracy of the calibration.

Calibration accuracy	File name of the test chart
Standard accuracy	Calibration_Target_Standard.xml
High accuracy	Calibration_Target_High.xml

1. **Launch ColorPort.**

2. Click the [Measure Target] tab.

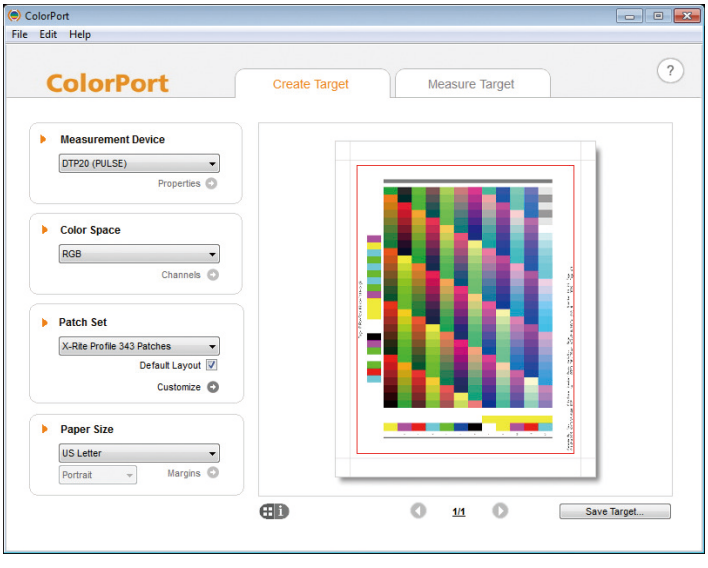


3. Select [Target Manager] from the [Target] dropdown list.
4. Click [Import].
5. Specify the folder where the test chart is stored, select standard accuracy for the test chart, and then click [Open].
6. Click [Import].
7. Select high accuracy for the test chart, and then click [Open].
8. Click [Close].
9. Click the close button ([×]) to exit ColorPort.

Preparing a Color Calibration Page and Spectrophotometer

This section explains how to place the printed color calibration page on the backup board and how to calibrate the spectrophotometer.

1. **Attach the spectrophotometer to the client computer.**
2. **Launch ColorPort.**
3. **Click the [Measure Target] tab.**



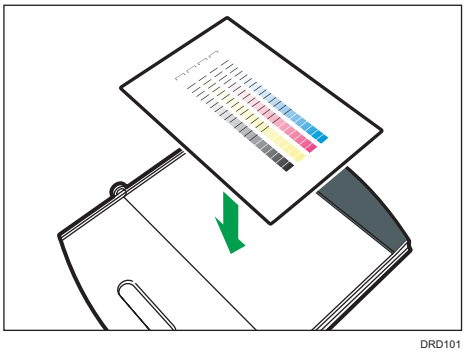
4. **Select the same accuracy for the test chart and the printed color calibration sheet from the [Target] dropdown list.**
5. **Select [i1Pro] from the [Measurement Device] dropdown list.**
6. **Click the icon ( ) to the right of the [Measurement Device] dropdown list.**
7. **Select the measurement mode from the [Measurement Mode] dropdown list.**
   - [Spot]: Select this when measuring the test chart patch by patch.
   - [Strip]: Select this when measuring the test chart's patches band by band.
8. **Click [Calibrate].**
9. **Place the spectrophotometer on the calibration plate.**
10. **Click [Calibrate].**

    Calibrate the spectrophotometer.
11. **Click [Close].**

12. **On the backup board, place a stack of unused sheets of paper of the same type that were used to print the color calibration pages.**

    Stack enough paper so that the backup board cannot be seen through the paper.

13. **Place one of the printed calibration sheets on top of the paper stacked on the backup board.**



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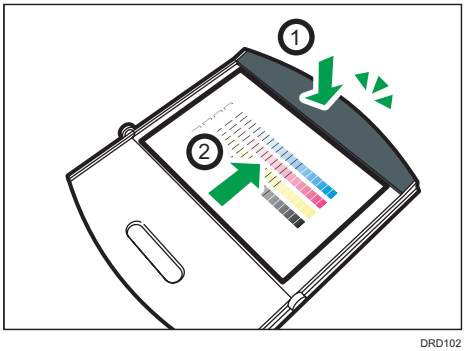
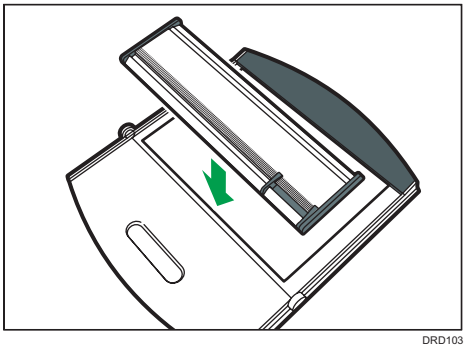
14. **Open the backup board clip (①), insert the calibration sheet (②), and then fix it in place.**



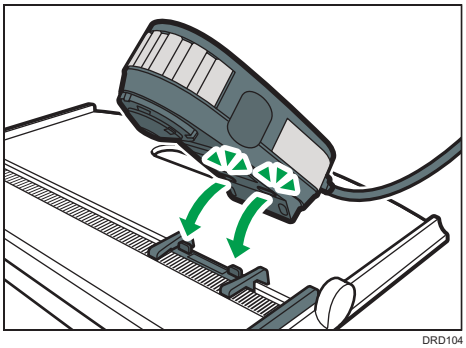
DRD102

15. **If you have selected [Strip] in [Measurement Mode], place the ruler on the backup board.**



DRD103

16. **Place the spectrophotometer on the ruler.**



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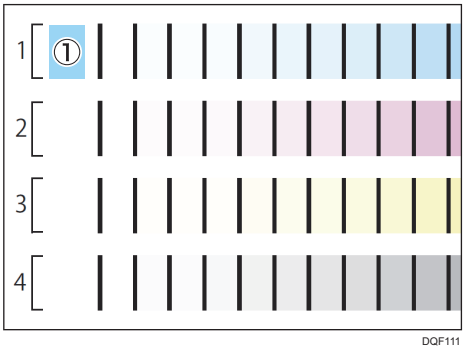
Scanning a Color Calibration Page

This section explains the procedure for [Strip] you select as a measurement mode. For details about measurement modes, see page 23 "Preparing a Color Calibration Page and Spectrophotometer".

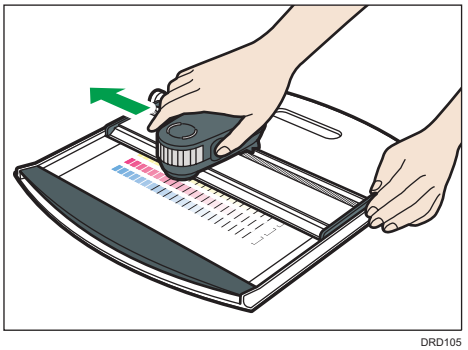
1. **Move the scanning head of the spectrophotometer to the left edge (①) of color 1 on the calibration page.**



DQF111

The color being scanned is displayed on the screen in a frame.

2. **Hold down the button on the left side of the spectrophotometer for about one second.**
3. **Keep holding down the button and move the spectrophotometer to the right.**


DRD105

Slide it slowly at a constant speed.

4. **When color 1 has been scanned to the right edge, release the button on the spectrophotometer.**
5. **Check the scan results using the [Measurement] screen of ColorPort.**

   If the color was scanned correctly, the frame indicating the scan position moves to the next color.

   If an error message appears, return to Step 1 and scan the color indicated on the screen once again.

   If the scan results differ from the gradation variations on the test chart, return to Step 1, select the color to scan, and then scan it again.

6. **Repeat Steps 1 through 5 to scan all the colors.**

   When performing a calibration for standard accuracy, scan four bands of colors. When performing a calibration for high accuracy, scan eight bands of colors.

7. **After all colors are scanned, click [Save Data].**

   Clicking [Clear Data] takes you back to the screen before starting measurements. The measured data is deleted.

8. **Select [ColorPort Linearization] from the [Format] dropdown list.**
9. **Select [None (XRGA)] from the [Conversion] dropdown list.**
10. **Click [Save].**
11. **Specify the folder to save scanned data and name the file.**
12. **Make sure that [LIN(*.lin; *.LIN)] is selected in [File Type], and then click [Save].**
13. **Click the close button ([×]) to exit ColorPort.**

Note

- If you set the measurement mode to [Spot], attach the spectrophotometer to the positioning target. Then touch the scanning head of the spectrophotometer to the patch specified on the screen. Click the button on the spectrophotometer side once per patch.
- For details about how to use the spectrophotometer, see the manual.

Loading Calibration Data

You can import to the print server the calibration data that you created using ColorPort. Also you can import the calibration data to the print server via a USB memory or network.

To load calibration data from a USB memory, copy the saved calibration data to a USB memory device, and then install it to the USB port of the printer server.

To load calibration data via a network, log in to the remote console as an administrator.

1. **On the screen of calibration wizard (Step 5 of page 4 "Basic Procedure for Creating Calibration Data"), Click [Import].**
2. **Specify the folder where calibration data is stored, and select the calibration data.**
3. **Click [LOAD].**

   When the measurement results are imported, verify the measurement results.

   Proceed to Step 6 in page 4 "Basic Procedure for Creating Calibration Data".

4. Appendix

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