Operating Manual

Barbieri Gateway:
Measuring software for Barbieri spectrophotometers

edition E11
for software version 4.6.25 or newer

1. CONTENTS

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1. INTRODUCTION

This operating manual will give you a quick overview on how to install and use the Barbieri Gateway Measuring Software.

The function of this software is to allow you to drive a BARBIERI spectrophotometer for use in digital imaging applications.

The software runs under Windows 10 and 11 (32 and 64 Bit) and Mac OS X 10.12 (Intel and M1) or newer and delivers measurement data either spectral, CIELAB or Density.

This software supports currently the following BARBIERI measuring instruments:

- Spectrophotometer Spectropad
- Spectrophotometer Spectro Swing
- Spectrophotometer Spectro LFP
- Spectrophotometer Spectro LFP qb
- Spectrophotometer Spectro LFP qbTextile edition
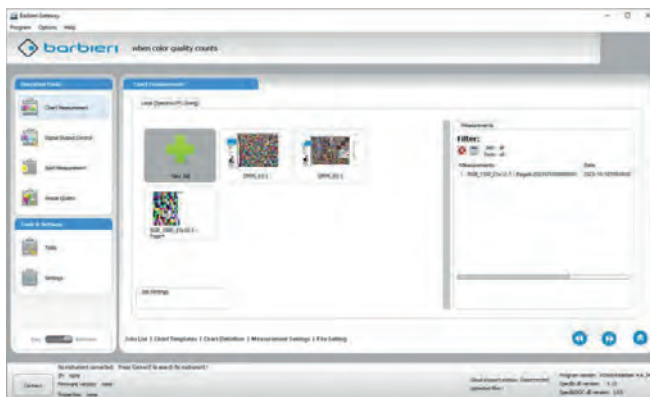
2. SOFTWARE INSTALLATION

The software is available as free download from the Barbieri website (www.barbierielectronic.com).

Run the Installer program and follow the instructions given.

When setup is complete, run the program by double clicking on the program icon placed on the desktop (Windows) or in the Application folder (Mac).

The program version of the Gateway software is displayed at the right bottom side.

Make sure you are using the latest program version by checking with Tools/ Check for Updates.

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The software tries automatically to connect to the instrument using the USB port.

If the instrument is connected to a IP-Address (WiFi, Ethernet), change your parameters using the "Settings" button.

Choose the port to which your instrument is connected. Confirm with OK button and press "Connect" button.

Once the instrument is correctly recognized, you will see the instrument type and firmware version displayed.

In the language selector, you can switch the program language.

The instrument and software are now ready to be used.

The software is designed in a wizard like mode which guides you step-by-step through the measurement.

It allows 4 main operation modes:

- Chart Measurement: for linearization and ICC Profiling
- Digital Output Control: for process and quality control
- Spot Measurement: for measurement of single color patches
- Image Quality: for homogeneity tests

The main window is devided into 4 sections:

1) Operation Mode
2) Job list
3) Measurements list
4) Instrument connection

When using a internet connection, the software will directly connect to the Barbieri website to transfer/retrieve the following information:

- Instrument registration: to enable access to Firmware updates, operating manuals etc.
- Instrument specific configuration file
- Color Charts updates

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3. CHART MEASURING MODE

The Chart measuring mode is used for measuring color charts. Typical use is the measurement of color targets for ICC profile creation, linearization etc.

3.1 JOB SETUP

Before starting with a measurement, you need to set-up a job which describes what you want to measure.

Select "Easy Mode".

Create a new chart measurement job according to your need by selecting "Chart Measurement" and the "New Job" Icon and pressing "Next" button (right arrow button).

Under "Chart Templates" select one of the pre-configured job definition templates:
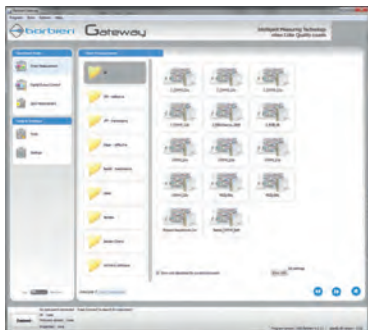
Press "Next" button and save the job.

Use the suggested job name, or specify one by your own. A job name is a name for the type of measuring job you want to define and is usually either the name of the color target, the name of a certain printing application (example Textile CMYK, Glass CMYK etc.), or simply a name that you will easily remember (Jeffs measuring job 1).

Jobs can be deleted, renamed, copied onto a external instrument (Barbieri Spectropad) for measurement in off-line mode, by selecting the job icon and clicking the right mouse button and choosing the desired option.
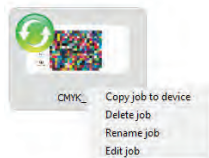
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3.2 CHART MEASUREMENT: EASY MODE

Printing the color target:

Locate the "Targets" folder on the users Gateway data folder (usually User Documents/Barbieri/Gateway/Chart/Targets) or also on the supplied USB stick or on the web-site: www.profile-xpert.com.

Choose the color target corresponding to your job.

Then print the target on your printer.

Measuring:

With your printed target proceed as follows:

Check that the Spectrophotometer is switched ON.

Start the BARBIERI Gateway measuring software and connect the measuring device.

Choose the desired job, verify that "Easy" is selected and press "Next" button.

On the "Insert Target" step, insert the color target into the instrument (Spectro Swing) or place the target on the instrument (Spectro LFP) or place the instrument on the target (Spectropad) and press "Next" button.

The color target to be measured is shown:
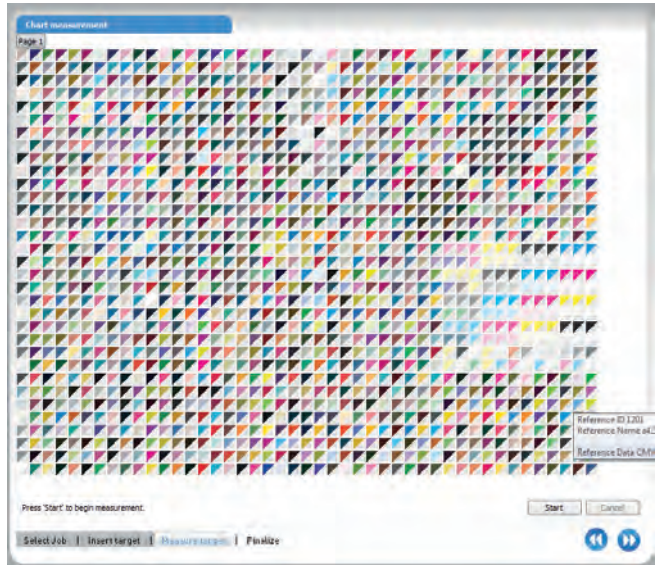
Press "Start" to start measurement.

When measurement is finished, press "Next" button.

After having completed the measurement the measuring data is available in different file formats.

Measurements are saved in the user documents folder.

Windows: Documents\Barbieri\Gateway\Chart\Measurements

Mac OSX: Documents\Barbieri\Gateway\Chart\Measurements

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3.3 CHART MEASUREMENT: ADVANCED MODE

The advanced mode allows to see all the job parameters and change them.

You can modify the job options to meet your needs. The parameters are described in the following table:

Note: The available options depend on the instrument being used.

Note: to rename or delete a job, right click the job icon and select the desired option.

Option	Accepted Values	Description
File Format		The A list of available pre-defined file formats: BARBIERI - horizontal (default)
Patches x	1-99	Amount of patches to be measured in X direction
Patches y	1-99	Amount of patches to be measured in Y direction
Number of Pages	1-99	Number of pages to be measured.
Number of Patches	1-32000	Number of patches to be saved. If this parameter is not specified, it defaults to 0 which is equal to Patches_X multiplied by Patches_Y
Target size X (mm)	1-600	Size of Target to be measured in mm. (Size of patch area only)
Target size Y (mm)	1-210	Size of Target to be measured in mm. (Size of patch area only)
Reflection		measure in reflection mode
Transmission		measure in transmission mode
Up-Down		the measuring head moves up and down between each measurement. For sensitive materials to avoid any scratches on the surface of the target.
Fast (default)		the measuring head lies on the target and the surface is scanned.
Contactless		scanning without contact with the surface of the target. For sticky and sensitive materials.
Use Automatic Target Recognition		Availale when Spectro LFP qb Textile editionis connected: uses sensing unit for chart/patch recognition
Use Auto Positioning		Instrument uses the autopositioning lines to automatically search the corner points of the target.
Use Manual positioning		Manual positioning to 3 corner points is requested.
Illuminant	D50 D65 A	Colorimetric values are calculated and saved with the specified illuminant.
Observer	2 10	Colorimetric values are calculated and saved with the specified observer.
Density	A M T E	Density values are calculated and saved with the specified status filters. Use Status A for photographic positive materials, Status M for negative material, Status T or E for Inks.

Save Spectral Values		Save spectral measuring data in a file with extension "SPD.TXT"
Save Lab Values		Save measuring data in a file with extension "LAB.TXT" containing L*a*b* colorimetric data.
Save XYZ Values		Save measuring data in a file with extension "XYZ.TXT" containing XYZ colorimetric data.
Save Density Values		Save measuring data in a file with extension "DEN.TXT" containing density data
Number of Measurements per Patch	1-5	Used to average multiple measurements per patch
Distance of Measurements per Patch	10-100	The distance is specified in 1/10 mm (value of 10 equal to 1 mm)
Average Method	1	Currently the arithmetic average method only is supported
Run profiler		If selected, the external/optional profiling software specified under settings is launched at the end of the measurement
Reference file name		The name of the reference file needed by the profiler (located in "References" folder
Profile file name		The name of the ICC profile to be created

3.4 FILE FORMATS

The software can save measurements in different file formats.

Gateway will always first measure patches and then decide where and how this data has to be saved.

Data is always saved in text format, but can differ in sequence of data, type and amount of data saved etc.

Here a short description on the most common file types:

BARBIERI - Horizontal (default)	saves data specified in job parameters in row sequence in CGATS format This is the file format used with all standard Barbieri targets.
BARBIERI - Horizontal (right-left)	saves data specified in job parameters in row sequence in CGATS format
BARBIERI - Vertical (left right) ProfileMaker Reference file	saves data specified in job parameters in column sequence in CGATS format
BARBIERI - Vertical (right left)	saves data specified in job parameters in column sequence in CGATS format
BARBIERI Density	saves data in Barbieri Density format

3.5 USE AUTOMATIC TARGET RECOGNITION

When a Spectro LFP qb Textile edition is connected, the sensing unit is used to capture a picture of the inserted target and the software uses patch recognition algorithms to detect the centers of patches:
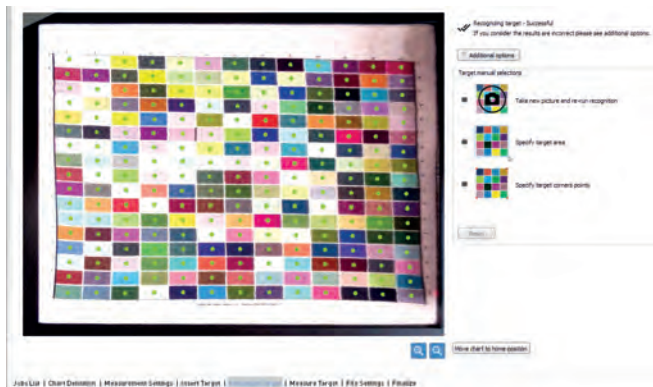
The green dots indicate the calculated centers of the detected patches. In case this automatic result is wrong, youcan select between the following 3 options:

Take new picture and re-run recognition: use this option to first reposition the chart correctly on the sample holder

Specify target area: in case of two or more charts on the same page, or if you want to specify where the patch recognition should look, use this option and draw the area onthe image with your mouse

Specify target corner points: incase recognition is not correctly working, use this option and point with the mouse the 4 corner points of the chart on the image.

3.6 USE JOB DETECTION BY QR-CODE

When a Spectro LFP qb Textile edition is connected, or the DOC option is activated, the sensing unit can be used to capture a QR code printed on the color chart and automatically identify the job to be run.

3.7 ICC PROFILE CALCULATION

Barbieri Gateway can automatically run a optional profile calculation program after terminating measurement.

The profiler application to be launched has to be specified in the "Settings" of Gateway.
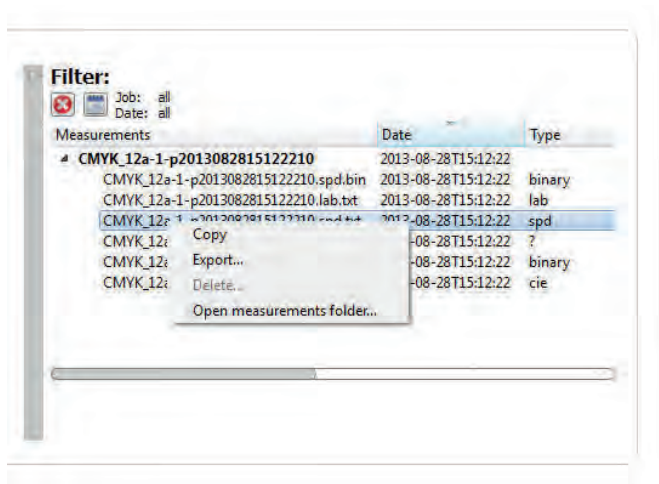

the application will launch automatically after a measurement, and the *.CIE measurement file needs to manually be loaded into the program for ICC profile calculation.

3.8 MEASUREMENTS EXPLORER

The measurements explorer lists all measurements.

When selecting a specific job, measurements are filtered and shown only for the selected job.

Files can also be filtered by date by selecting the desired date.

It supports multiple file selection with Shift and Ctrl keys (Windows) and Drag & Drop of files to other applications.

Right mouse click opens a contect menu.

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4. DIGITAL OUTPUT CONTROL (DOC)

With this operation mode you can measure control charts and compare them against a reference.

You can trace the stabilty and quality of your printer. A PDF report is generated.

Note: this option is only activated in the software if the "DOC mode" has previously been acitvated in your measuring device.

Note: when using the instrument Spectropad, please see chapter 7 for instructions on how to transfer information between the computer and the device.

4.1 JOB SETUP

Jobs are organised into Printers and Media. Each job includes the following information:

- used control strip

- reference data

- tolerances

- measuring conditions

Select "Easy Mode". Create new jobs by first selecting a Printer and then "New Job".

Select a pre-defined Template according to your application. Templates are shown for different measuring needs and different allowed tolerances. Job parameters may be changed later if some parameters do not fit your need. Press "Right Arrow" to proceed to next step:

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The DOC Reference is requested.

Choose to "use the first measurement" as the reference if you want to use the job to track daily stability of your printer.

If you already have a reference file name for your job, then you can load this here.

Press "Right Arrow" to proceed to next step:

The "File Settings" step requests you to input a name for your Job.

Please note, that the Printer name will always automatically be inserted in front of the job name.

Job name may be the media name, or additionally information on reference file used and tolerance set used.

Example: Coated-Paper-FOGRA39-Tolerance-A

4.2 JOB MEASUREMENT

Printing the Control strip:

Locate the "DOC/Targets" folder on the users Gateway data folder (usually User Documents/Barbieri/Gateway/DOC/Targets) or also on the supplied USB stick or on the web-site: www.profile-xpert.com.

Choose the control target you want to use.

The Barbieri DOC control strip CMYK is available in two versions: image (TIFF) and vector (EPS).

For process control use, the TIFF version is usually recommended.

For checking the color accuracy of your printer, the vector EPS version is usually recommended.

Print the target on your printer.

Measuring the control strip:

Choose "Easy Mode". Select the job you want to measure and click Next (right arrow button)

In case the job has been defined to use the first measurement as "Reference", you need to carefully choose a printed strip as your reference print.

Measure the control strip. When measurement is terminated, a quality report is visualized:
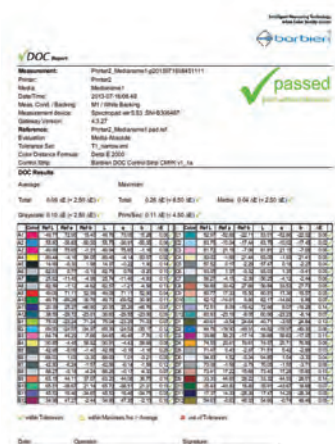
The PDF file of this report is saved in DOC/Measurements folder together with a XML file.

The Report shows a summary result:

The indicated Delta E values are color differences and have the following meanings:

Average Total, Maximum Total: Color gamut difference

Prim/Sec: Ink difference

Grayscale: Linearization accuracy and stability

Media: Media difference

5. SPOT MEASUREMENT

You can use your spectrophotometer to measure single spots on a target.

Create a new Job with the settings you require.

Run this job and make several single spot measurements.

If you want a Color Distance calculation (Delta E) between two colors, selct one color as the "reference" and click on another measured color. The Delta E value will appear.
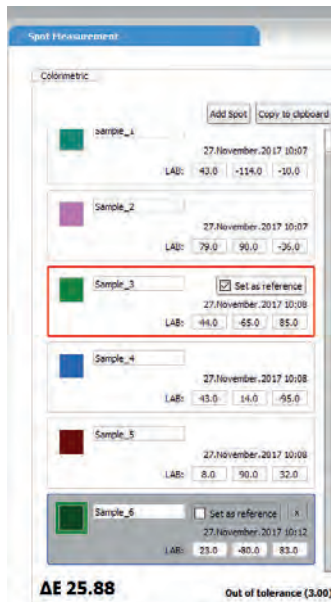
Values can be copied directly to the Clipboard, or saved in a file on the "Finalize" step.

With button "Add spot", a color specified in L*a*b* can be manually added. The color name can be renamed by editing its text.

Note: Colorimetric values are indicated as specified in the Job definition. You can change this as needed by editing the Job in Advanced Mode.

6. IMAGE QUALITY

Within Image Quality section, you can measure and evaluate FOGRA homogeneity test charts.

After measurement of the chart, a image quality report is generated indicating the M-Score value. For more informationregarding Fogra M-Score, please see the relevant FOGRA publications.

7. USE WITH 3RD PARTY SOFTWARE APPLICATIONS

You can use BARBIERI measuring instruments together with the Gateway software to measure charts and load measuring data into another application using File Import. A list of supported software products is published on the Barbieri web site in section "Service/ Supported RIP/ Software".

8. SYNCHRONIZATION WITH SPECTROPAD INSTRUMENT

The Gateway software is capable of transferring/ synchronizing Jobs and measurements to and from the Spectropad spectrophotometer.

When a Spectropad instrument is connected to the computer, a new Job Tab is created (see picture above tab Spectropad-A80000). This tab shows the jobs present on the connected Spectropad.

Please note, that the default tab (Local) is still present on your computer.

Jobs and measurements are automatically synchronized with the device. Measurements are done on the device without user interface in the Gateway software. (off-line measuring mode).

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9. Tools

There are some Tools available in your software, which offer specific functions. Some tools are made available when switching to „Advanced" mode:

9.1 CHECK FOR UPDATE

 Check if new updates for this program are available on the Barbieri webserver for download.

9.2 CHART GENERATOR

 This will open the Chart Generator Tool, a tool that creates color targets from a Reference file to be used with Barbieri spectro-photometers.

The Chart Generator works for RGB, CMYK and CMYK+N color charts and creates TIFF or EPS files.

The created charts are available in the folder Documents/Barbieri/Gateway/Chart.

The following files are created:

In the References folder: Reference file

In The Previews folder: Preview image

In the Targets folder: TIFF or EPS file of the color chart, XML file used by Gateway as chart definition, ZIP file including all above files

9.3 Enter TAN

This option is used for entering a TAN code (Transaction Number) which will be written into the instrument in order to activate additional functionality.

This option is used for example to upgrade a instrument to Barbieri DOC functionality.

The TAN code is available for purchase.

9.4 Get Service Report

This tool is used for diagnostic use to create a service report to be sent to support personnel.

9.5 Service Report Analyser

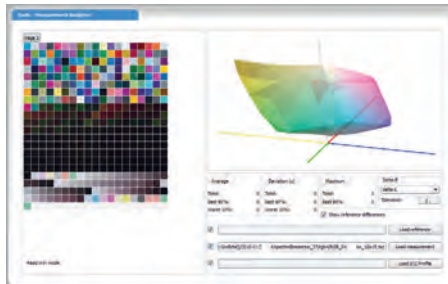This tool is used for diagnostic use to analyze the service report.

A instrument reference file can be retrieved over your internet connection and a diagnostic report is shown.

9.6 MEASUREMENT ANALYZER

 This tool is used to load measurement data, see a gamut view, and compare with a reference measurement.
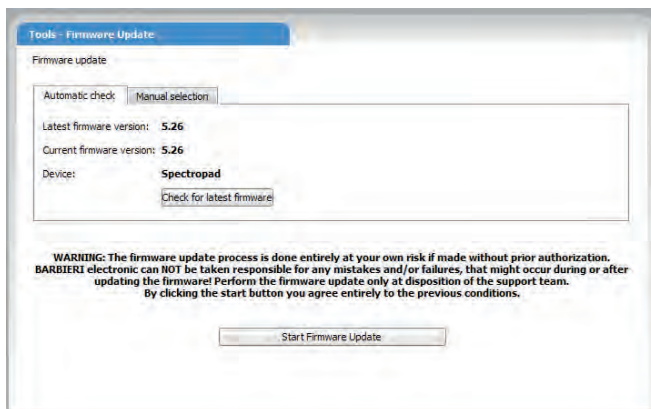
9.7 FIRMWARE UPDATE

This tool is used to update the firmware of the measuring instrument.

WARNING: Do only use original files supplied by the manufacturer!

Note: This Tool is only available to registered users. Please register your instrument with menu command Program/ Register over your internet connection.

Note: Firmware update does require a cable connection (USB) and will not work with a WiFi connection (Spectropad).

The Gateway software will connect with the Barbieri website over your internet connection and retrieve the latest Firmware available for your instrument.

You can then start the Firmware update process.

In case you do not have a Internet connection, contact Barbieri support

and use "manual selection" tab for manually selecting the Firmware file received from Barbieri support.

9.8 Upload Instrument Configuration File

With this option you can upload into the measuring instruments memory a configuration file. This is usually necessary if parameters have been lost because of a memory failure.

WARNING: Do only use original files supplied by the manufacturer! Note, that the configuration file is specific for a particular instrument as it contains calibration parameters!
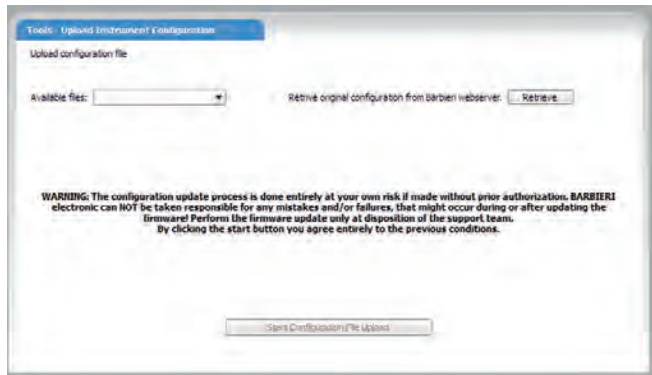
If your instrument specific configuration file is not listed under available files, you can retirieve it from the Barbieri server over your internet connection.

9.9 LOAD MEASUREMENTS

The Gateway software saves a binary file *.BIN with every measurement. This tool allows you to load a previous measurement and convert/ save it into a different file format.

9.10 OPEN PROFILE FOLDER

A quick link to your computers ICC profile folder.

9.11 INSTRUMENT COMMAND MODE

This tool allows direct interfacing with the measuring device and is used by service personnel or by special instructions only.

9.12 REGISTER INSTRUMENT

Register your product to get access to software and firmware updates latest product and corporate news.

9.13 CALIBRATE SENSING UNIT

Verify and calibrate the Spectro LFP qb sensing unit

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