

QUADBLACK USER GUIDE

What is Quad Black for?

Standard colour ink jet inks, when used for producing monochrome prints, exhibit tonal defects throughout the different levels of grey in the image. To overcome this problem, the Quad Black process uses four or six intensities of black ink in place of the normal CMYK colours in a standard Photo Ink Jet printer. Now anyone can produce stunning black & white images with a tonal quality to match traditional silver Halide printing.

Is Quad Black easy to use?

Using Quad Black inks couldn't be easier. The dilution strengths have been designed around the output characteristics of the print driver software. This means that great looking prints can be produced with little or no user intervention. For some printer models Lyson have also provided printer profiles that can further refine the image quality obtainable. For more information about printer profiles refer to the PDF document "Colour Management 2002" available for download from the Lyson website.

How do I get started?

Changing over from a full colour set to Quad Black inks is a simple process. Simply follow the directions on the instruction leaflet included with your cartridges. We do recommend the use of cleaning cartridges when changing over from a full colour ink set to a Quad Black ink set. This ensures that all traces of colour inks are removed from the system so that the Quad Black output is cast-free. After your cartridges are installed then this guide is a great place to start learning about the product. It has been written to answer the most common questions new users may have, but even experienced users may find information here that they can use to further improve the quality of their Quad Black prints.

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1. Preparing your image in Photoshop

2. Suggested settings: Epson Print Driver (All models) Canon Print Driver (Individual Ink Tank Models)

3. Frequently Asked Questions

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Tonal Range Adjustment

To get the best print outs possible it is advisable to have your image in RGB mode before sending it to print.

Check which mode your image is in by going to: IMAGE - MODE.

The image mode will be ticked. See fig1.

If your image has been scanned from a black and white negative it will most likely be in Greyscale mode. If so simply go to:

IMAGE - MODE - RGB COLOR.

If you have a full colour image that you want to print with Quad Black inks simply go to:

MODE - GREYSCALE.

Photoshop will ask if you want to discard the colour information. See Fig 2. Click "OK". Then go to:

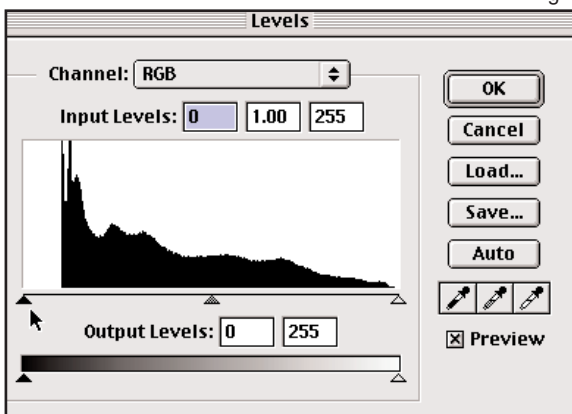
IMAGE - MODE - RGB COLOR.

The Quad Black inks are capable of reproducing a massive tonal range from the deepest blacks to the lightest shadows. Your image may not carry all the information necessary to achieve this tonal range.

Go to

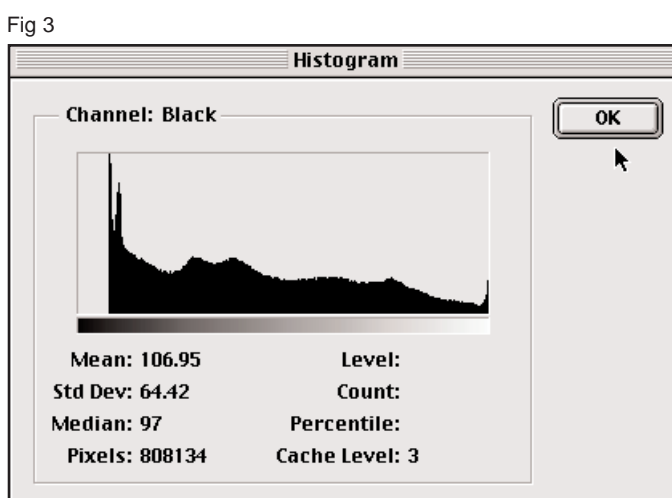
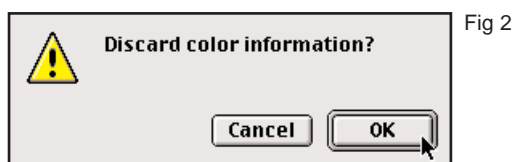
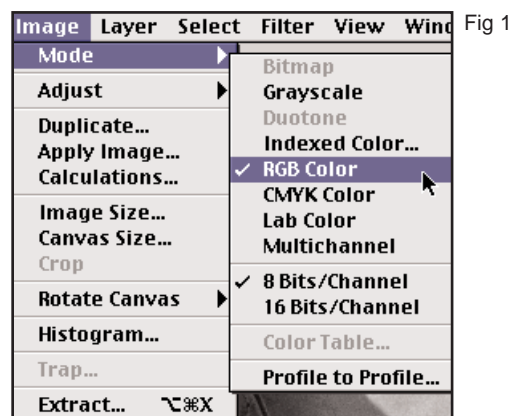
IMAGE - HISTOGRAM

The graph shows you the tonal range contained in your image from black on the left to white on the right. If there is a gap on the left such as in Fig 3 then there are no deep blacks available to print and you may wish to correct for this.



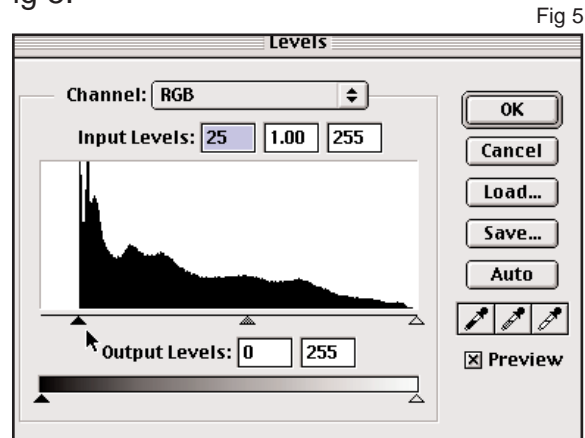
The middle (mid-tones) marker will move to the right in conjunction with the left (Shadows) marker, darkening the mid-tones. You can correct for this by clicking on the mid-tone marker and dragging it to the left.

You may also wish to have an absolute white point in your image (an area where no ink at all is put down). This further improves the contrast levels but may burn out information that you wish to keep. If you want an absolute white point click and drag the right hand (Highlight) marker slightly to the left so that the input level drops below 255, or enter a value directly in the right hand input levels box. A drop of four or five points to 250 should be sufficient to create an absolute white point in your image. We recommend you have a saved version of your image before creating white points as highlight information once lost can not be returned.



Go to IMAGE - ADJUST - LEVELS.

If you are correcting for a lack of deep blacks you should see a gap on the left of the histogram graph. Click and drag on the marker the arrow is pointed at in Fig 4 until it is underneath the start of the black information. See Fig 5.



Tips for achieving the best results

1. Ensure that your scan has the correct weight of tone before working on it in Photoshop. Extreme tonal correction will lead to a degradation in the smoothness and quality of tonal transitions. This can be revealed more by Quad Black prints than with your monitor; Quad Black inks are designed to reveal large amounts of detail, especially in high key and low key areas. It is these areas that monitors, especially un-calibrated monitors, struggle to resolve. In this way monitors can sometimes mask areas of the image that have become degraded. See number 6 below for more detail on this point.

2. Avoid the “Brightness/Contrast” tool on Photoshop as this tool is highly destructive and discards large amounts of information from your image file.

3. Wherever possible use image adjustment layers rather than applying tonal adjustments directly to the file itself. Adjustment layers can sit on top of your image as a passive filter so that the original file data remains intact. Also an adjustment layer can be tweaked infinitely without repeatedly applying corrections to the image itself.

4. Some scanners are able to scan in 16 bit mode. This captures more colour information than standard 8 bit mode. Files edited in 16 bit are more resistant to image deterioration during editing and provide more distinction in colour, although the file size is larger than with 8 bit images. Keep your image file in 16 bit mode as long as possible before converting down to 8 bit for final editing and printing.

5. With certain printers a superior result can be obtained by using the ICC profiles supplied by Lyson on our website. These profiles control the level of contrast in the print and can smooth out the tonal transitions, providing a continuous tone.

6. Beware your monitor. Most free software such as Adobe Gamma can only help to equalise the red, green and blue intensity levels for your monitor and provide the right level of brightness. The calibration of your monitor, ie, how dark or bright the output should be over different parts of the greyscale and colour spectrum, cannot be altered.

The result is that you should not rely absolutely on your monitor display for evaluating contrast levels. Calibration and monitor profiling software is available that works in conjunction with a spectrophotometer that attaches to your monitor and measures its colour output. This is the only way to ensure that your greyscale and colour images are displayed perfectly accurately. Lyson can recommend the “Eye1” software from Gretag and the “Prove It” software from ColorBlind (www.typemaker.co.uk).

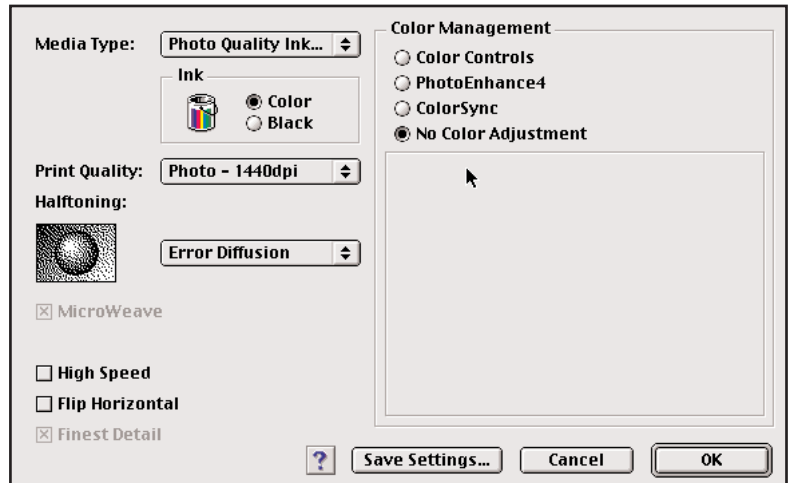
Print Driver Settings: Epson Printers

Go to
FILE - PAGE SETUP

Go through the print driver to the “Advanced” section.

We recommend always printing at the highest resolution possible up to 1440dpi. Always use “Error Diffusion” Halftoning.

The media settings we recommend for Quad Black inks are “Photo Quality Ink Jet Paper”, “Photo Paper”, and “Matte Paper-Heavyweight”. These settings control how much ink is laid down on the paper. Try these settings to see which works best for your image. If you are printing using in ICC printer profile then follow the instructions in the PDF document that accompanies the profile.



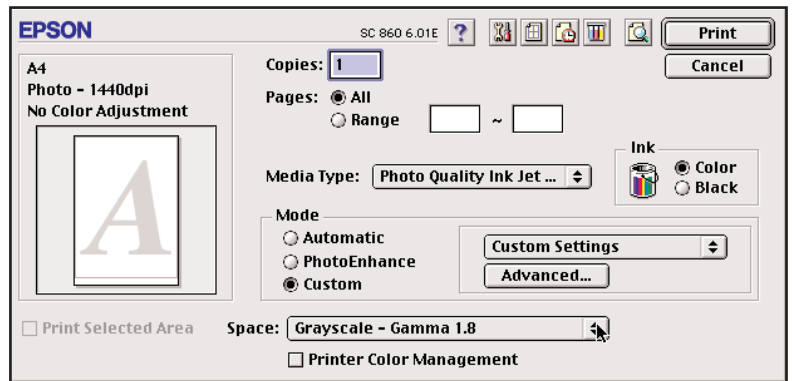
Ensure that “No Color Adjustment” is selected in the “Color Management” section. This ensures that the print driver does not alter the tonal balance of your image. This setting can sometimes be found as a drop down option alongside “Photo-Realistic”, “Automatic” and “Vivid” when the “Color Controls” button is clicked. Use this setting regardless of whether you are printing with or without printer profiles.

Go to FILE - PRINT...

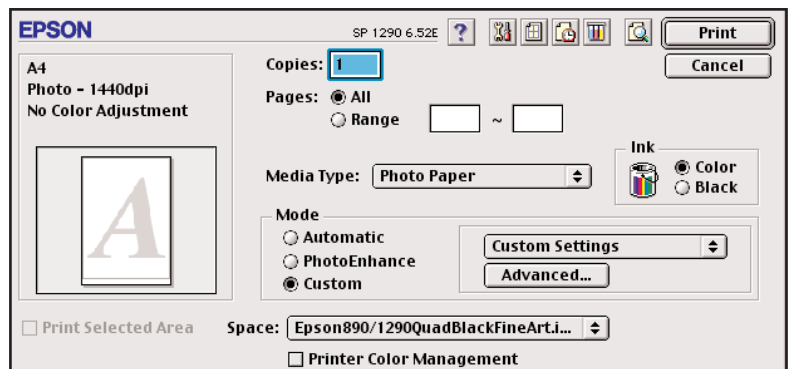
Photoshop 5:

Ensure that the “Ink” option is set to “Color” and not “Black”. This ensures that all the Quad Black channels are employed for printing.

In the “Space” dialogue box there will be a list of options. Select “Grayscale-Gamma 1.8”
Click “Print”.



If you are using a Quad Black printer profile then select the profile in the “Space” drop down menu. Deselect “Printer Colour Management”.
Click “Print”.



Photoshop 6 / 7

In the “Print Space: Profile” select “Grey Gamma 1.8”. Select “Perceptual” as the rendering intent. Click “Print”.

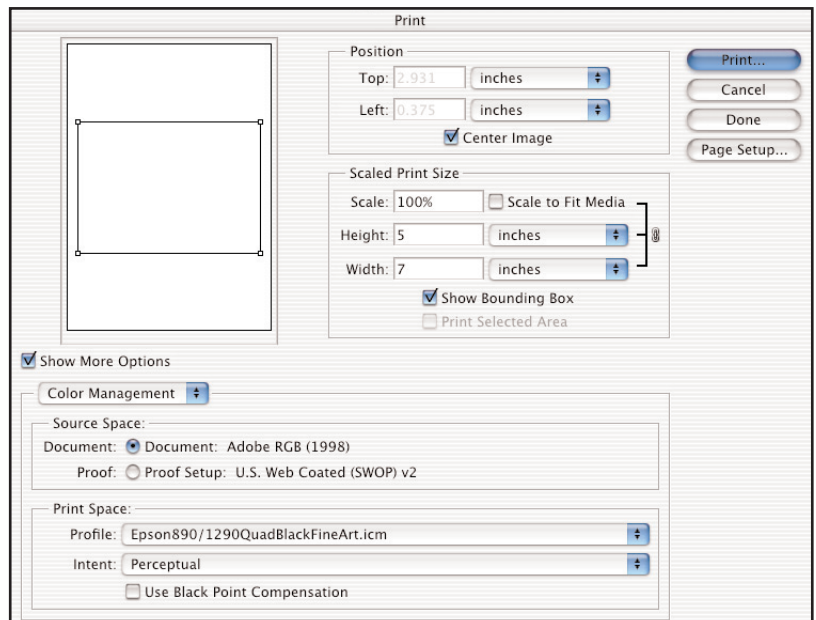
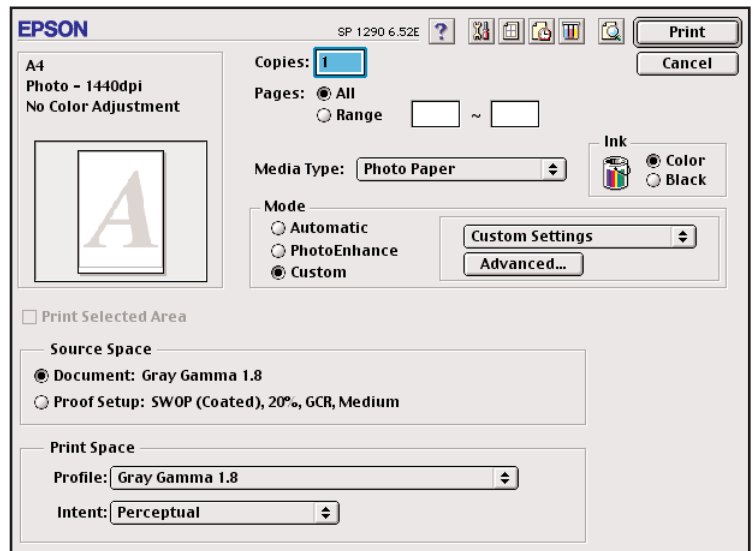
If you are using a Quad Black profile then select the profile from the “Print Space:Profile” drop down menu, in place of “Grey Gamma.1.8”.
Click “Print”.

PS7: Go to FILE-PRINT PREVIEW
Activate “Show More Options”
Select “Color Management” from the drop down menu.

In the “Print Space: Profile” select “Grey Gamma 1.8”. Select “Perceptual” as the rendering intent. Click “Print”.

If you are using a Quad Black profile then select the profile from the “Print Space:Profile” drop down menu, in place of “Working Grey...”.(as shown above) For full instructions on printing with profiles refer to the PDF instruction document included with the Printer Profile.

Click “Print”.



Print Driver Settings: Canon Printers / Mac (Individual Ink Tank Models)

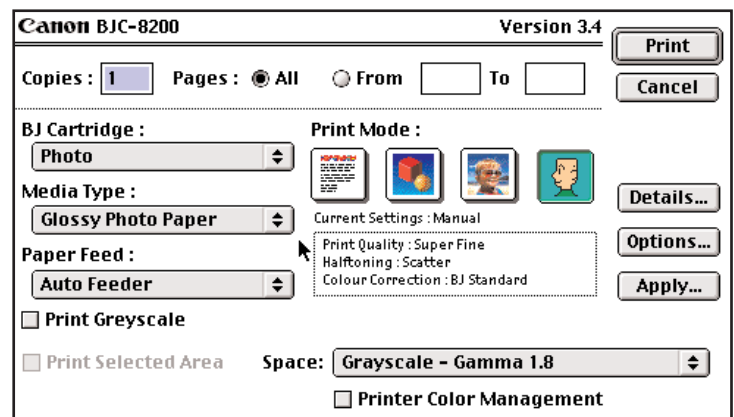
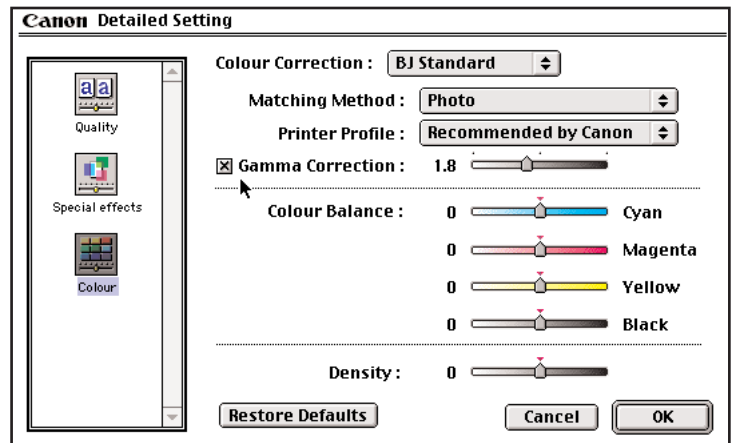
Printing without ICC Printer Profiles.

Photoshop 5

Go to
FILE - PRINT

Click on the Manual button to come to this screen. Fig 8. Ensure the "Quality" scale is set to "Finest". Click on the "Colour" tab. The "Gamma Correction" control can be used to lighten or darken your print. Click it on and move the slider towards the right for a darker print and the left for a lighter print. Click "OK"

Select the Media Type:
"High Resolution Paper" for these papers:
Standard, Rough and Smooth Fine Art Paper,
170g Matt Paper.
265g Professional Monochrome Gloss / Satin,
240g Colour Gloss, 180g Gloss Paper.



In the "Space" dialogue box there will be a list of options. Select "Grayscale - Gamma 1.8" option

Activate the "Printer Colour Management" option.
Click "Print"

Photoshop 6 / 7

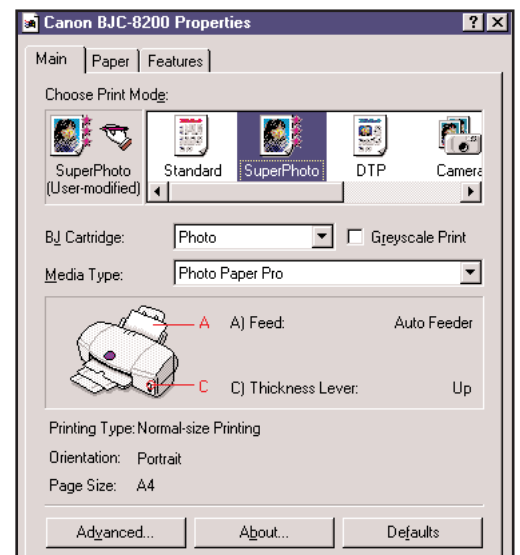
Follow the same instructions given opposite for Photoshop 6 and 7 with the Epson print drivers but maintaining the Media Type and colour adjustment settings given for the Canon drivers above.

Print Driver Settings: Canon Printers / PC (Individual Ink Tank Models)

Go to
FILE - PAGE SETUP

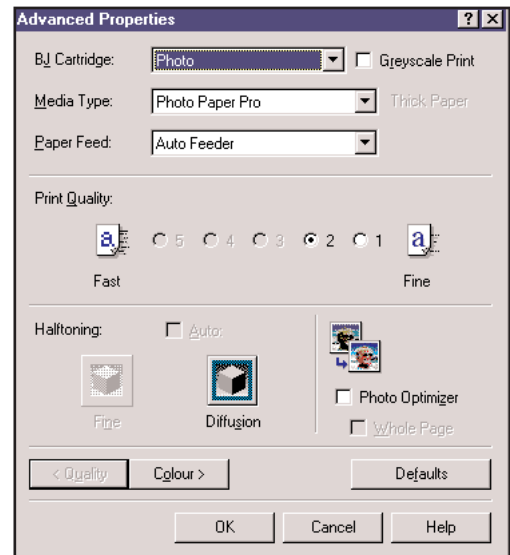
Click on the "Super Photo" Print Mode

Click on the "Advanced" button, bottom left.



Select the Media Type:
“High Resolution Paper” for these papers:
 Standard, Rough and Smooth Fine Art Paper, 170g
 Matt Paper, 265g Professional Monochrome Gloss
 and Satin papers, 240g Colour Gloss, 180g Gloss
 Paper.

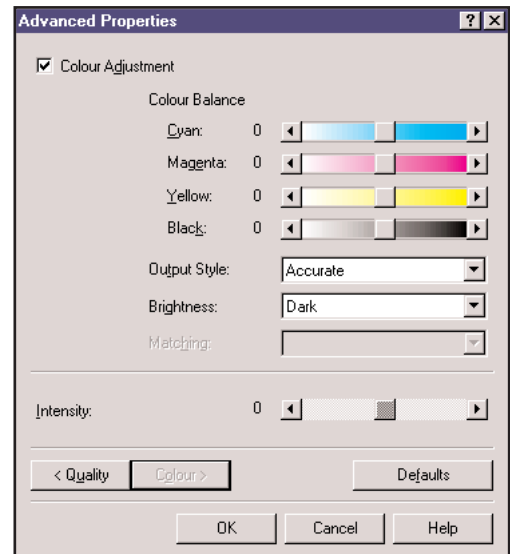
Click on the “Colour” tab, bottom left.



Click on the “Colour Adjustment” box, top left.

Select “Accurate” output style
Select “Dark” Brightness

Click OK.

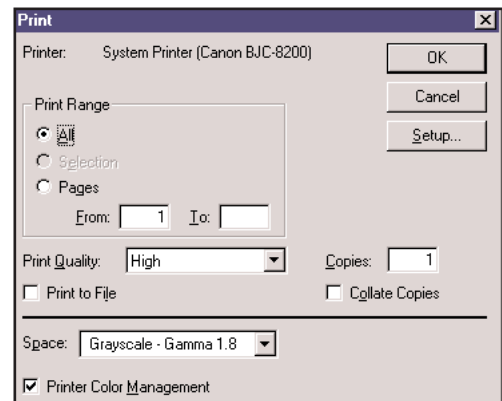


Go to
 FILE - PRINT

In the “Space” dialogue box there will be a list of
 options. Select Greyscale - Gamma 1.8” option.

Click on the “Printer Colour Management” option.

Click “OK” to print.



Photoshop 6 / 7

Follow the same instructions given above for Photoshop 6 and 7 with the Epson print
 drivers but maintaining the Media Type settings given for the Canon drivers.

Printing with ICC profiles for Canon Printers

Refer to the PDF instruction document included with the Canon Quad Black
 Printer Profiles for full print driver instructions. Always deselect the “Print
 Colour Management” option.

FREQUENTLY ASKED QUESTIONS

Q. How many different tones can I achieve with Quad Black Inks?

A. There are three tones of Quad Black available for most older printers, neutral, warm (sepia), and cool (selenium). The latest Photo printers from Canon® and Epson® are supported with Neutral Tone only. Each tone is fixed as a complete cartridge set. Therefore if a different tone is required a new cartridge set will have to be installed.

Q. Do I need to use an ICC profile when using Quad Black?

A. No. Great quality prints can be made without any ICC profiles as this user guide has shown. However, Quad Black Printer Profiles have been written for selected printers but only where the benefit in print quality warrants it.

Q. Do I have to use cleaning cartridges every time I change tones?

A. Cleaning cartridges are particularly recommended when changing from full colour inks to Quad Black inks. This is because any colour ink remaining in the printer system will add unwanted tones to your Quad Black prints.

When changing from one Quad Black set such as “Warm” to another such as “Neutral” the use of cleaning cartridges will ensure perfect tonal quality immediately. However, if the same procedure was performed without cleaning cartridges, two or three head cleans should eliminate any subtle colour casts.

Q. What is the advantage of Quad Black over other Monochrome ink jet products such as Lyson Small Gamut SG and the “Piezography”® system?

A. The advantages over Small Gamut are twofold. As the tone of the Quad Black ink is fixed there is no chance of unwanted colorations affecting your prints. Also due to the lightness of the ink dilutions used in Quad Black it can achieve a wider tonal range with superior highlight detail. The advantage over the “Piezography”® system is that there is no need for additional investment in driver software. The Quad Black system integrates perfectly with the standard print driver. No further software is needed.

Q. Can I use both colour and Quad Black inks on the same printer without any problems?

A. Repeated ink change-overs can cause problems with Epson and Canon printers. This is because they store all the waste ink from each changeover in an absorbent sponge inside the printer body. Eventually this sponge can become full and the printer will stop operating. We recommend having one printer for Colour work and another for Monochrome work if your budget allows.

The latest Canon printers supported by Lyson have removable head assemblies and spares can be purchased. This means that one assembly could be stored on a shelf with colour inks installed, another could be installed in the printer running Quad Blacks. When Colour is needed the Quad Black head assembly can simply be lifted out and the new colour head be installed. Be sure not to let the head dry out if putting it into long term storage.

Q. How long will my Quad Black prints last?

A. Lyson Quad Black inks have been independently tested and found to have a life span of over one hundred years when used with Lyson media.

Q. How can I look after my prints?

A. As with all ink jet prints, images printed with Quad Black inks should be kept away from moisture and humid conditions. For long term display we also recommend that the prints be fronted with glass. Lyson manufacture a protective lacquer called “Print Guard” that will further protect your prints. This product is available as a clear Aerosol spray, and as a brush applied lacquer with Satin or Gloss finishes. Refer to the technical section of the Lyson website for in depth advice regarding the preservation of your ink jet prints.

Q. Is there a big difference in Quality between Quad Black prints from a six colour Photo printer when compared to standard four colour printers?

A. This depends on the four colour printer used. The Epson 860 and 1160 are both four colour printers and yet the print quality is comparable to that achieved by an Epson Photo 1200, a six colour printer. This is because the dot size on these four colour printers is so small as to render them virtually invisible. Older 4 colour printers such as the Epson 1520 will not produce prints of the same quality due to the larger drop size, each dot being clearly visible on the paper when printed. That said, the Epson Photo 890 and 1290 do offer superior quality to any printer previously offered by Epson.

TROUBLESHOOTING

Q. My Quad Black Neutral prints look perfect when viewed in daylight but look “warm” when viewed under yellow light.

A. This is because of a phenomenon called metamerism and all ink jet dyes such as the ones used in Quad Black Neutral inks are susceptible to this effect. A Quad Black image contains a range of densities of the same tone and any change in this tone is immediately obvious. Full colour ink sets are also susceptible to this problem but because of the wide range of tones usually found in a full colour print the eye cannot spot these shifts as easily.

Q. What can be done about it?

A. Ensure that Quad Black Neutral prints are displayed under daylight tubes rather than yellow tungsten lighting. When the Neutral Quad Black inks were developed we decided to balance the tone for the D65 specification (daylight tubing). Every yellow tungsten light emits a slightly different shade of yellow and it would have been impossible to balance a neutral ink set for the variable conditions this lighting can present.

Q. My prints look warm even under daylight tubes.

A. Ensure cleaning cartridges are used when changing from colour inks to Quad Black inks. Any ink residue left behind in the printer system before Quad Black inks are installed will add colorations to the print out.

Q. I've changed over to Lyson Quad Black inks for my Epson 1200 but the nozzles of my printer appear to be blocked. The nozzle check pattern for my printer has gaps in it, even after repeated head cleans.

A. Gaps in the nozzle check patterns are usually caused by pockets of air obstructing the ink flow rather than actual blockages. Air can potentially enter the system during the cartridge replacement procedure. All Epson printers except the Stylus Pro 3/5/7/9000 series use sponge filled cartridges that are designed to be installed only once. Lyson products for these printers follow the same design. There can occasionally be tiny pockets of air in the sponge that may transfer into the printer causing nozzles to temporarily fail. The best solution for nozzle failures is simply to perform one head clean and then to leave the printer alone for a few hours to let the air pocket work its way free. Do not perform repeated head cleans.

Q. My prints are too heavy in appearance but the image looks fine on my monitor.

A. Different “media type” selections in the print driver directly affect the amount of ink that is put down on the paper. Try different media selections such as “Film” or “Photo Paper” to find the one that looks best for your image. See the recommendations earlier in this guide for suggestions on which selection to use. Also refer to the “Tips...” section in this guide for more information about monitors.