Océ CS4100 Scanner Series

12 ips monochrome; 0.6-3.0 ips color
Wide-Format Scan

100% Independent Analysis
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The Océ CS4100 series was released in the second half of 2006 as state-of-the-art wide format scanners. BERTL tested two of the scanners, the 36” and the 42” wide color scanners. It was part of a major release of a family of scanners using the same scanning technology and consisting of 36”, 42”, and 54” wide scanners. The scanners address the need in the reprographic, CAD & GIS market.

**Océ CS4100 FAMILY OF SCANNERS**

The Océ CS4100 is part of a family of five wide format color scanners all based on the same hardware platform, and consists of two 36” wide color scanners the Océ CS4136 & Océ CS4136S; two 42” wide color scanners the Océ CS4142 and Océ CS4142S and finally the Océ CS4154S.

The MSRP price difference between the Océ CS4100Q and the Océ CS4100 base version. Basically for $2,000 more, customers can nearly double the color scanning speed and increase the maximum resolution by a factor of 8. The Océ CS41xx is a lower color speed version of the Océ CS41xxS.

Since the Océ CS4100 is based on the same hardware the only difference between the models are:

- Scan width
- Color scanning speed
- Maximum Scanning resolutions
- Price

For all models there exist an upgrade to the Q version which adds faster color performance and higher maximum resolution. The Q upgrade is available as a field upgrade for a price of $2,000.

**Océ Scan or Océ Color Copy software.** The software is Océ’s own scanning software and supports professional scan-to-file operations and viewing. Océ Color Copy software also supports one-step scan-to-copy functionality.
### Specific Model Device Feature Summary

<table>
<thead>
<tr>
<th>Model</th>
<th>List price</th>
<th>Monochrome Speed @ 200 dpi</th>
<th>Color Speed @ 200 dpi</th>
<th>Maximum resolution</th>
<th>Max Document Width</th>
</tr>
</thead>
<tbody>
<tr>
<td>Océ CS4136</td>
<td>$10,900</td>
<td>12 ips</td>
<td>0.6 ips</td>
<td>1200 dpi</td>
<td>36&quot;</td>
</tr>
<tr>
<td>Océ CS4136Q</td>
<td>$12,900</td>
<td>12 ips</td>
<td>1.0 ips</td>
<td>9600 dpi</td>
<td>36&quot;</td>
</tr>
<tr>
<td>Océ CS4136S</td>
<td>$15,500</td>
<td>12 ips</td>
<td>1.5 ips</td>
<td>1200 dpi</td>
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<tr>
<td>Océ CS4136QS</td>
<td>$17,500</td>
<td>12 ips</td>
<td>3.0 ips</td>
<td>9600 dpi</td>
<td>36&quot;</td>
</tr>
<tr>
<td>Océ CS4142</td>
<td>$16,500</td>
<td>12 ips</td>
<td>0.6 ips</td>
<td>1200 dpi</td>
<td>42&quot;</td>
</tr>
<tr>
<td>Océ CS4142Q</td>
<td>$18,500</td>
<td>12 ips</td>
<td>1.0 ips</td>
<td>9600 dpi</td>
<td>42&quot;</td>
</tr>
<tr>
<td>Océ CS4142S</td>
<td>$19,900</td>
<td>12 ips</td>
<td>1.5 ips</td>
<td>1200 dpi</td>
<td>42&quot;</td>
</tr>
<tr>
<td>Océ CS4142QS</td>
<td>$21,900</td>
<td>12 ips</td>
<td>3.0 ips</td>
<td>9600 dpi</td>
<td>42&quot;</td>
</tr>
</tbody>
</table>

ips = inches per second.

Note: Price includes the scanner with scanner stand and 12-month on-site warranty in the United States. Optional Océ Scan Scanner Software is sold for $690. And optional installation service $670.
GETTING SET UP

The scanner arrives in three cardboard crates containing the scanner and the scanner stand and the optional Océ Scan scanner software. Océ recommends that you hire the company to install the scanner at your site for an additional $670. The scanner stand is easy to assemble, even if you’re alone on the job. The assembly instructions are clear and easy to understand. The hardest part of the assembly process is placing the scanner on the stand. Weighing in at 135 lbs., it’s best to have two people lift it and secure it to the stand. When they have been assembled, you connect the scanner to your computer using either USB 2 or FireWire interface (a USB 2 cable is included).

Before you turn the scanner on, install all the software components: the WIDEsystem Tool kit containing the scanner drivers, maintenance utility, WIDEsystem, and a SCANdump utility for diagnostic purpose. During installation of these utilities, you can choose from among nine supported languages, including English, Spanish, German, French, Dutch, Italian, Japanese, Korean, and simplified Chinese.

Last, you install the Océ Scan software and reboot your computer. Next, you can turn your scanner on and the Microsoft Windows operating system automatically recognizes the Océ CS4100 scanner. After going through the usual Windows steps in searching for the best scanner driver, your new scanner system should be up running.

BERTL downloaded the newest, most currently available scanner firmware from the Océ Web site. The firmware upgrade automatically finds the scanner and starts downloading the correct new firmware. We were up and running within five minutes.

WHAT WE LIKED

- The installation procedure is easy to follow and can be done by anyone in an organization that has an average experience in installing new software and hardware on a computer.
- Instruction for assembly and installation is easy to follow and understand.
- Typical assembly time is 5-10 minutes.
- Typical software installation time is a total of 10 minutes for Scanner Maintenance, WIDEsystem, and WIDEimage.NET.
- Easy and automated firmware-upgrade procedure.

WHAT WE WOULD LIKE TO SEE

- BERTL would like to see an application install manager to install all the software packages in one coherent operation.

SCANNER CALIBRATION

After you have installed the software, you must walk through a series of scanner calibrations to ensure that your scanner delivers optimal scanning quality. Calibration is straightforward, especially with the included illustrated setup guide that is aimed to provide a language-free visualization of the calibration procedure. The Océ CS4100 is a three-camera scanner and the first step is to ensure that all cameras are aligned correctly both horizontally and vertically.

A zoomed-in picture of a perfect horizontal camera alignment.

The motorized cameras help maintain perfect stitching between cameras.

The picture above shows the same view of the calibration chart with a perfect horizontal and vertical alignment between cameras. The 45° angled lines are used for vertical alignment that is done electronically using Océ patented stitching wire technology. When vertical alignment is not done properly, it shows up as jagged angle lines.
The next step calibrates the black and white points and grayscale camera-to-camera calibration to ensure that the grayscale levels are identical for each camera, eliminating the grayscale shift that can occur between cameras. Mismatched grayscale levels between cameras are an important quality factor for a scanner.

The final step is a color calibration using the ANSI.IT8 color calibration chart that is used to ensure accurate color matching. The Océ CS4100 series scanner can color calibrate to both the old NTSC color standard and the newer sRGB color standard.

Despite a worst-case warning that this calibration can take up to an hour, the whole process took less than 10-12 minutes to complete and is fully automated.

**WHAT WE LIKED**

- The calibration procedure is the most comprehensive and automated in the wide-format scanner industry.
- Typical calibration time is 10-15 minutes.
- A scanner operator does not need to understand the various steps and as such it can be performed by an operator that does not have specific knowledge of color calibration.

**WHAT WE WOULD LIKE TO SEE**

- BERTL would like the scanner to automatically detect the need for color calibration when it detects degradation in scanning quality or dust and dirt on the mechanism.
Océ Scan

Océ Scan scanning software is the cornerstone of the scanning process. The software has been around since 1998 and is very stable and feature-rich scanning software. The software is split into a scan station, a viewer station, and a feature-extraction station, the last of which is mostly oriented towards the GIS environment, but graphic arts could also benefit for making special image manipulation.

The Océ CS4100 series produces high-quality color scans.

The scan station controls the scanning process with the choices of scanning to:
- File
- Viewer
- Network

It also provides:
- Batch scanning to file
- Batch scanning to the network

Scan-to-file is the most commonly used and does what is says: it scans and saves the image to a file. Océ Scan supports more than 50 different black and white formats, and around 10 grayscale and color formats, among them JPEG, PDF, and TIFF but also the newer JPEG2000. Compared to JPEG, JPEG2000 offers lossless compression and other features such as specifying the size of the destination image. This can be very handy when you want to allocate a maximum of 2 MB per file. JPEG2000 automatically adjusts the quality and compression to fit to this maximum size regardless of the actual image. For now BERTL will continue to recommend using JPEG until the use and support of JPEG2000 becomes more mainstream for image viewers and applications. However, it's a plus to note that Océ is adding support for more file formats.

Scan-to-network is another nice feature. Unlike a printer, a scanner is an input device that should be close in proximity to the user. If the scanner is shared by several departments, this is often not the case. It makes sense to have a feature for scanning remotely directly to users' local computer workstations. Once the scanner is set up to accept remote scan clients, users can then select the remote scanner and specify the destination file folder on a computer workstation. When scanning to the network, a list of potential remote scanner clients appears, and the scanner operator selects the correct scan client to receive the scanned images. In order to avoid unauthorized scanning to a client, the scan server and the scan client can be password protected.

Océ Scan Scanning

When scanning to file, you set up basic scan parameters prior to scanning:
- Scanning mode, such as color, grayscale or black and white
- Scanning resolution in dpi
- Paper size

To begin, set your basic scan parameters, including mode, resolution, and paper size.

While scanning or while in preview mode, you can adjust scan parameters such as Gamma corrections, sharpening, softening, and blurring, making it easy to set optimal scan parameters.
While scanning or when in preview mode, you can make adjustments to your scan.

The Océ CS4100 series scanners have two unique features to help you obtain higher quality scans: anti-alias and high-quality scan mode.

**Anti-alias** is a high-quality re-sampling of the scanner’s optical resolution. Scanning is performed at the scanner's optical resolution, and re-sampling to the requested resolution is done in Océ Scan. Although it slows the scanning process, it is effective in cases where scanning of raster originals lead to moiré-like interferences in the scanned image (i.e., wavy patterns across the pictures).

In **high-quality** scan mode, the scanner increases the camera exposure time to allow more time to capture the light and in turn obtain a higher quality image. It improves the quality for both color and black and white at the expense of scanning speed. The scans usually take eight times longer, but this mode is useful for difficult originals that produce a high degree of noise with normal scans.

**Océ Scan Viewer**

The built-in viewer is basic and does not offer editing capabilities. For more elaborate viewing features, you should purchase one of the many image viewers on the market. However, the Océ Scan viewer is optimized to handle big files and, if the user's PC is equipped with about 2 GB of memory, it speeds up the process. The viewer supports common viewing features such as rotating, cropping, alignment, and de-skewing, plus simple measuring tools to measure lengths and angles.

Océ Scan has a nice feature that lets you crop images at the pixel level. In general, when you want to crop an image, you just select a rectangle to crop. However, when dealing with large files measuring upwards of 15,000 x 20,000 dpi, it’s very difficult for precise cropping. To begin, select the overall cropping area and then zoom in on one of the corners until the corner can be moved at the detail pixel level. Now, instead of zooming out or panning to the next corner, simply right-click the mouse, and it automatically positions itself on the next corner at the same zoom in level. Continue right-clicking and you move to the next corner until you have set the cropping area at the pixel level. This feature makes precision cropping an easy task to do even with large files.

An example of a bird’s eye view of a cropping.

To begin to crop a large image, zoom in on the first corner and move the upper right to the desired location.
A simple right-click and the view is moved to the next corner, making precision cropping easy.

WHAT WE LIKED

• The Océ Scan Scanning Software is a professional scanning tool that gets the job done.
• Every control and dialog box is organized in a very structured way, enabling a short learning curve.
• Pixel level precision cropping and alignment of the image.
• Feature extraction aimed at supporting the GIS market segment.
• Flexible scan-to-file, scan-to-viewer, scan-to-net, and scan-to-batch feature.
• Batch printing and file conversion

WHAT WE WOULD LIKE TO SEE

• BERTL would like to see a magnification tool. Although we like the concept of ViewBoard that allows switching between critical areas, it is not the same as a general magnification tool.
• Would like to see support for viewing more than one image at a time.
• Support of multiple page TIFF file format.
• Support of mark-up text and simple erasing tool.
• Support of indexing features for image archiving.
• Support of scan-to-e-mail directly into Océ Scan.
• Océ Scan support for upgrading to high-quality color copying using RIP technology. Today it requires the use of the company’s Océ Color Copy application, which has a different interface than Océ Scan.
CONSUMABLES

It's easy for users to replace the Océ CS4100 series consumables.

Like any other peripheral, a scanner also has consumable parts, although they're insignificant compared to large-format printers. There are three pieces that you should know about: replacement lamps, the white background plate, and the scanner glass plate. The scanner lamp is contained in a metal frame that you easily slide out from the right side. You can replace the glass plate and the white background plate just as easily as the lamps. It shields the internal optics that can over time become scratched from drawings passing over the glass. By making these common spare parts replaceable by customers, you can avoid costly technician fees and the total cost of ownership is lower compared to other large-format peripherals.

WHAT WE LIKED
• BERTL liked that the Océ CS4100 series supports easy replacement by users of most consumables.

Upgrade Card

If you ever need to upgrade the Océ CS4100 series to the Q version, the process is straightforward. After lifting the right cover, you'll see a small, credit-card size Smartcard on the right side. Just pull the card out and insert the Q card. The scanner automatically recognizes the new Q card and reboots the scanner. After about two minutes, the scanner offers the Q features with higher resolution and faster color scanning speed. Océ has really perfected the scanner upgrade process.

WHAT WE LIKED
• BERTL liked how easy it is to upgrade the Océ CS4100 series of scanners
Scan Quality

Scanner Accuracy
BERTL performed a series of quality testing with the Océ CS4100 scanners.

We used our Applied Image (QA-1) test chart for determining the scanner’s horizontal and vertical accuracy. Instead of measuring the accuracy between two end points, we instead only measured a random selection of 6” width. Or test results indicate:

<table>
<thead>
<tr>
<th>Océ CS4100 Series</th>
<th>Accuracy %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Horizontal</td>
<td>0.07</td>
</tr>
<tr>
<td>Vertical</td>
<td>0.1</td>
</tr>
</tbody>
</table>

This result is excellent and is within the vendor’s claimed accuracy of 0.1%.

The Océ scanner has an interesting patented feature call Accuracy Lens Enhancement (ALE). This is an electronic correction of the spherical errors in CCD-based camera systems. Pixels across the image range of a camera can be more elliptical at the outer edges of the lens and rounder in the middle of the lens. This normally is known as a spherical lens error. Most scanner manufacturers typically state a ±0.1% accuracy of the scanner between two end-points of a scan line. However, when measuring between two points that do not fall across the entire scan line, it is not unusual to see variation much higher than ±0.1%.

WHAT WE LIKED
- BERTL found the Accuracy Lens Enhancement (ALE) to be a significant improvement to the scanner’s general accuracy.

WHAT WE WOULD LIKE TO SEE
- BERTL would like to see the ALE feature as the default setting.

Text Sharpness
Text sharpness is another test where we look at the impact of scanning small text size at low, medium, and high resolutions. As the results below show, the Océ CS4100 series has no problem scanning small text characters at low resolutions.

Small text scanned at 200 dpi.

Small text scanned at 400 dpi.

Small text scanned at 600 dpi.
Scan Quality

**Color Fringing**
The Color fringing test checks how well the RGB channel is aligned. We do this by scanning the Grayscale Applied image test chart (QA-1) in color at the optical resolution and see if there is any visible color fringing problem.

![Color Fringing Test Image](image)

As can be seen, we do have a barely visible fringing problem.

<table>
<thead>
<tr>
<th>Océ CS4100 Series</th>
<th>Color Fringing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Test Result</td>
<td>Barely</td>
</tr>
</tbody>
</table>

**Color Accuracy**

For our Color Accuracy test, we use the well known ANSI IT8 test chart that is used to calibrate many color devices.

![Color Accuracy Test Image](image)

We scan the test chart at 300 dpi using the sRGB color space and a Gamma of 2.2. We then read each patch and compare them with the reference patches of true color value and determine the \( \Delta E \) value indicating how accurately the scanned colors match the reference chart. The color accuracy score for the Océ CS4100 series are excellent.

<table>
<thead>
<tr>
<th>Océ CS4100 Series</th>
<th>ANSI IT8.7 Color Matching</th>
</tr>
</thead>
<tbody>
<tr>
<td>Test Result</td>
<td>( \Delta E=4.4 ) Average</td>
</tr>
<tr>
<td></td>
<td>( \Delta E=12.2 ) Worst Case</td>
</tr>
<tr>
<td></td>
<td>( \Delta E=8.4 ) 95%</td>
</tr>
</tbody>
</table>

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Line Pair Per mm Resolutions Test

Optical resolution is a physical characteristic of a scanner system, and it describes the ability of a system to distinguish, detect, and/or record physical details. However, there is more to the story than just the sensor in a scanner system so when considering scanning quality, we also have to consider the optical system, mirrors, CCDs, glass plate, and the scanner’s illumination systems. Furthermore, when scanning is not performed at the highest optical resolution, we must consider how the scanner performs the actually scaling to the selected scanning resolution. All these factors introduce errors and reduce scanning quality; therefore optical resolutions are an indicator of scan quality not a measure of it.

We use line pairs per mm (lp/mm) as a way to measure spatial resolution. With the lp/mm measure, all quality factors, such as lenses, optical system, scaling, and image processing, are taken into account, making the use of lp/mm a better way to measure scanning quality. In connection with the lp/mm, we also like to measure how well a scanner maintains rapid change in the image and if it maintains the sharpness instead of just blurring rapid transition in the image. We use the 50% point of the Contrast Transfer function to measure the sharpness of the scanner.

The graph on the right shows the test results of the lp/mm test for resolutions between 100 to 600 dpi in steps of 100 dpi. As expected, we see that with lower resolutions, the lp/mm goes down but the curve keeps up fairly well, so that it maintains lp/mm at lower resolutions. We also note that the lp/mm peaks at the optical resolution at 7.2 lp/mm. This result is good, but under what can be obtained by a real 600 dpi optical resolution scanner. On the other hand, the Océ CS4100 series maintains a very high sharpness response down to 200 dpi; thereafter it quickly falls off.

Because most scanner users scan between 200 to 400 dpi, the Océ CS4100 series performs at the same level as other scanner vendors in that range, even though the other vendors’ scanners are of higher optical resolution.

Panchromatic Test

This test is designed to check if the scanner can scan panchromatic correctly. If a scanner has a dedicated panchromatic line sensor or the grayscale response is formed by combining the red, blue, and green channels, the test reveals a correct response. If, on the other hand, the scanner uses the green color channel to get the grayscale response, it will not be able to detect color that does not reflect with the green color. The result above is the correct response.
Adaptive Thresholding

Adaptive thresholding is a scanning technology that cleans up engineering blueprints and other deteriorated drawings. We test the scanners the ability to clean up the drawings both in terms of the cleaning up result, and also how easy it is to quickly find the best settings for this process.

<table>
<thead>
<tr>
<th>Océ CS4100 Series</th>
<th>Adaptive Thresholding</th>
</tr>
</thead>
<tbody>
<tr>
<td>Test Result</td>
<td>Good</td>
</tr>
</tbody>
</table>

The scoring is based on a subjective scale from:
- **Best** – The best available in the industry in terms of clean up and ease of use.
- **Good** – Good clean-up result that is better than average and easy to use.
- **Average** – Average clean-up result and average ease of use.
- **Poor** – The clean-up result is poor, and it is cumbersome to find the best optimal setting.
- **N.A.** – Adaptive clean up is not available.
Scan Performance

Scan Speed Tests

We performed a series of scanner speed tests for black and white, grayscale, and color scanning. For each test we measure the scanning speed between 100 to 600 dpi resolutions in steps of 100 dpi. This test range represents more than 95% of all wide-format scanners in use and is therefore representative for a real user environment. Our test drawing size is architectural E-size (36" X 48") for both black and white and grayscale performance testing, while for color performance testing we use a 36" X 24" color drawing.

For the performance test, we use a computer running Microsoft Windows XP/2 with 2 GB of memory and a 2.8 GHz Pentium 4 processor with 80 GB hard disk and connected to the scanner via the USB 2 interface. The test is performed using the supplied scanner software. While this computer is not the fastest available, it represents a typical computer used by a typical scanner customer.

BERTL measured the scanning time by starting a regular stop watch at the time we pressed the scan button and stopping it when the scanning application finished scanning the image into the destination file. We call the measure the "observed scanning speed" for a drawing. For black and white drawings, we use TIFF Group 4 compression, while for grayscale and color scanning, we used TIFF uncompressed file format. The error in measuring time by hand is approximately 1 second, which indicates that black and white performance measures can show great variation at up to 25% error for less than 300 dpi scans; at higher resolution the relative error converges to less than 5%.

For each scan timed, BERTL also measured the reaction time from the time we pressed the scan button to the time the scanner actually start scanning, and then we measured the end time at the completion of the scan. The reaction time is in the range of 2-3 seconds for a scanner.

We then graph the result with both the observed time and the adjusted time, that is the observed time minus the reaction time. This performance is more true to the actual true speed of the scanner. Finally, we graph the scanner manufacturer's claimed speed time. All measures are in inches per seconds (ips).

Black & White Performance

The black and white performance after adjustment matches the manufacturer's claimed speed. Note however that the observed speed is roughly half the claimed performance. This is not uncommon and is due to the scanner reaction mentioned before. Also note that as we scan at higher and higher resolution the "reaction" time will have influence less and less on the result, and above 500 dpi it has virtually no impact.
Color Performance

Color performance is split up into two sections. One is for the Océ CS4100 series S versus QS of the scanner that Océ rates at 3 ips @ 200 dpi and one is for the Océ CS4100 series base version Q that Océ rates at 1.0 ips @ 200 dpi. For the Océ CS4100 series QS, we observed that the color speed is roughly half the Océ’s claimed speed. The reason is again that the computer bottleneck is limiting the scanner color performance.

For the Océ CS4100 Series (base), Q & S version, we observed that the scanner speed is more in line with the claimed speed for scanning resolution up to 400 dpi; thereafter it falls below the claimed performance curve. Again the computer bottleneck comes into play at resolution above 400 dpi.

Finally we notice that when comparing the Océ CS4100 series QS color speed versus the Océ CS4100 series S version color speed, we don’t see any color performance gain for color scans above 300 dpi scanning resolution.

Performance Conclusion

As expected, the real achievable scanner performance is dependent and limited by the computer and the interface in use (USB 2 or FireWire) for both grayscale and color scanning. This fact is not very well known in the industry and among potential customers. However, our performance test shows that this is the biggest obstacle to getting the most out of your scanner.

To assess realistic black and white performance, you must take into account the scanner reaction time that for the Océ CS4100 series scanners are approximately 3 seconds. For grayscale scanning this reaction has less impact, and for color scanning it’s negligible. Also, the higher the scanning resolution, the less impact the reaction time has.

WHAT WE RECOMMEND

- BERTL recommends that you strongly consider investing in a top-of-the-line computer with high performance to get the most out of your scanner.
- Due to limited or no observed difference between the Océ CS4100 series QS and the Océ CS4100 series S versions color performance, we recommend that potential buyers go with the Océ CS4100 series S (Base) version and spend the saved $2,000 to upgrade the computer to a higher performance computer, unless the buyer must scan at resolutions higher than 1,200 dpi.
The Océ CS4100 series with the Océ Scan software is a fully featured wide-format color scanner, and clearly provides high-end scanning quality, displaying excellent performance in BERTL’s tests. We noticed however that scanner color performance is bound to the performance of the computer attached to it (S version only), and you should not expect to gain the full color performance potential of this scanner with the present state of computer and interface technology.

The Océ CS4100 series S version weakest point is its price level. Océ does offer a sibling scanner, the Océ CS4100, with the same quality, features and performance except for a reduced color scanning speed at 0.6-1 ips and a $3,400 lower price for the 42” version and 2,600 for the 36” version.

Recommendations

The Océ CS4100 series of scanners are feature-rich, reliable and high-quality scanners with a color-capture accuracy that is among the best in the industry. They’re fast in black and white, grayscale, and color, even though we could not fully realize the potential of their color performance because of a computer bottleneck. They’re best used as high productivity scanners. If your scanning needs are only occasional and you are more price conscious, you should consider the Océ CS4136 or Océ CS4142, which deliver nearly the same color performance but are priced considerable lower than the Océ CS4136S & Océ CS4142S scanners. However overall BERTL highly recommends the Océ CS4100 series of scanners.

If uncompromised performance, quality, and a rich feature set are more important than a low price, these scanners will fit your needs well. They operate smoothly, and with the scanners’ high reliability, they should provide trouble-free operation for years to come. The scanners are therefore a recommended choice for the CAD, GIS, graphic arts, photo lab, and reprographic industries.

<table>
<thead>
<tr>
<th>PROs</th>
<th>CONs</th>
</tr>
</thead>
<tbody>
<tr>
<td>High productivity, fast color scanner.</td>
<td>With current computer technology, fastest color scanning speed cannot be achieved.</td>
</tr>
<tr>
<td>High color-capture accuracy.</td>
<td>Price</td>
</tr>
<tr>
<td>Feature-rich and mature software.</td>
<td></td>
</tr>
<tr>
<td>RoHS-compliant.</td>
<td></td>
</tr>
</tbody>
</table>

PROs

CONs

With current computer technology, fastest color scanning speed cannot be achieved.

Price

RoHS-compliant.
WHAT WE LIKED

- The installation procedure is easy to follow and can be done by anyone in an organization that has an average experience in installing new software and hardware on a computer.
- Instruction for assembly and installation is easy to follow and understand.
- Typical assembly time is 5-10 minutes.
- Typical software installation time is a total of 10 minutes for Scanner Maintenance, WIDEsystem, and WIDEimage.NET.
- Easy and automated firmware-upgrade procedure.
- The calibration procedure is the most comprehensive and automated in the wide-format scanner industry.
- Typical calibration time is 10-15 minutes.
- A scanner operator does not need to understand the various color-calibration steps, and as such, color calibration can be performed by an operator that does not have specific knowledge of color calibration.
- BERTL rated WIDEsystem.NET software as a powerful scanning tool for controlling, monitoring, and sharing the scanner among users and departments.
- WIDEsystem.NET provides quick access to scanner status and viewing of error log, which is crucial for fast diagnostic and problem resolution.
- Océ Scan Scanning Software is a professional scanning tool that gets the job done.
- Every control and dialog box is organized in a very structured way, enabling a short learning curve.
- Pixel level precision cropping and alignment of the image.
- Feature extraction aimed at supporting the GIS market segment.
- Flexible scan-to-file, scan-to-viewer, scan-to-net, and scan-to-batch feature.
- Batch printing and file conversion
- BERTL recommends the use of TWAIN drivers for access to the scanner from other applications. Although not as feature rich as the regular scanner software it’s sufficient for most needs.
- BERTL liked how easy it is to upgrade the Océ CS4100 series of scanners from the Base version to the Q version.
- BERTL found the Accuracy Lens Enhancement (ALE) to be a significant improvement to the scanner’s general accuracy.

WHAT WE WOULD LIKE TO SEE

- BERTL would like the scanner to automatically detect the need for color calibration when it detects degradation in scanning quality or dust and dirt on the mechanism.
- BERTL would like to see a magnification tool. Although we like the concept of ViewBoard that allows switching between critical areas, it is not the same as a general magnification tool.
- Would like to see support for viewing more than one image at a time.
- Support of multiple page TIF file format.
- Support of mark-up text and simple erasing tool.
- Support of indexing features for image archiving.
- Support of scan-to-e-mail directly into Océ Scan.
- Océ Scan support for upgrading to high-quality color copying using RIP technology. Today it requires the use of the company’s Océ Colour Copy application, which has a different interface than Océ Scan.
About BERTL

The success of an organization depends on its ability to manage its information and assets. An effective workflow process requires the complex integration of information, devices, software, and people.

IT managers, office managers, and other knowledge management professionals need to know what digital imaging devices would best serve their specialized workflow processes.

BERTL’s services are designed around this real-world framework, delivering business consumers the independent analysis and insight needed to make critical decisions about digital imaging’s role in their organization.

Independent Analysis and Insight

BERTL’s reports, comparative data, and strategic guides look at digital imaging through the eyes of the business user. The research examines not only the technical features, but also vertical market applications, and business benefits. The impact on worker productivity is a primary concern.

BERTL is 100 percent independent. It receives no funding from manufacturers and all product evaluations and reports are published at BERTL’s own expense for its subscribers. Business users worldwide trust BERTL for objective, unbiased analysis of digital imaging systems.

BERTL Services

Reports and Star Ratings
BERTL analysts provide detailed reports on the technical and practical benefits of thousands of color and monochrome workgroup, office, graphic arts, and production devices.

Product Specifications
DataCheck Gen II provides the most current competitive data on printers, copiers, MFPs, fax devices, wide format printers, scanners, and more.

News, Interviews, and Analysis
The ITchat online magazine provides insight into the dynamics and trends of the digital imaging marketplace through interviews, feature articles, and software reviews.

BERTL Awards
BERTL analysts recognize the leading devices and software solutions in the annual BERTL’s Best awards. BERTL also honors the performance of manufacturers in the annual Readers’ Choice selections.

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