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Technology leadership

contex

WHEN IMAGING MATTERS

Wide Format Scanner Buyer's Guide

Contents

Purchasing the right large format scanning or multi-function solution does not have to be difficult. This guide is designed to help you understand which product is best for your specific needs, and why. Technical terminology and detailed product features are made clear and simple - so you can understand the real-world benefits and decide what is relevant in making your choice.

After reading this guide, please feel free to email us your questions and let us help you find the right scanner for your unique needs. info@azon.com

Introduction:

What can you do with a wide format scanner?

Scanners are tools. And like any job, things are easier when you have the right tools. But what is the job? What are you going to use the scanner for? Who is going to use it? What will you do with the results? What are the current problems, challenges or issues you would like to overcome with a wide format scanner? Will the cost of buying a scanner be offset by added business, or making your office more efficient?

Through discussions with many of our customers around the world, Contex has identified four main scenarios where wide format scanners are most useful:

Capture and Archive

Companies are capturing more documents than ever before. Why? Creating a digital archive of all your documents (not just the small stuff) ensures you are never without your information in the future. Whether it's a big archiving project, or your day-to-day backup scan, having the right scanner and software means you'll save time and the cost of outsourcing your oversized scanning. If you already have an efficient workflow for your standard size documents, you'll need a scanner that can adapt and fit easily – not slow you down.

Email and Share

In a collaborative work environment, a large format scanner can enable simple sharing of concepts, project proposal materials, document revisions, drawing changes, and more. The ideal scanning solution works with your office – connecting to your network, workstations, and printers, and scanning to email and to shared file servers.
So, whether your team is local or remote, your information should never be tied-down.

Copy and Print

Already own a wide format printer? Adding a scanner adds capabilities that allow you to get the most out of both. If you're making copies for your customers, or for project collaboration, having a color-capable wide format scanner that works seamlessly with your printer (or printers) is a must. When the job is larger, demands on the scanner are even greater to deliver fast scans to multiple printers – without wasting time connecting or adjusting.

Edit and Enhance

Sometimes, the scanned image is just the starting point. Document editing and revision often begins with scanning a hard copy. Especially when the document is old – getting a clean, high quality scan can make the difference between capturing all the information you need, or only some.
Redrawing old maps from scratch and updating drawings by hand also takes valuable time. Using specialized software with a large format scanner can handle this work for you quickly, reliably and accurately capturing your documents for further enhancement, editing or conversion.

Chances are you probably need to address *at least* one of the above scenarios. So, it's great news that a wide format scanner can satisfy all needs. Maybe you even see further uses for a scanner in your office. *But which scanner?*

Understanding Your Choices:

A scanner is not just a scanner.

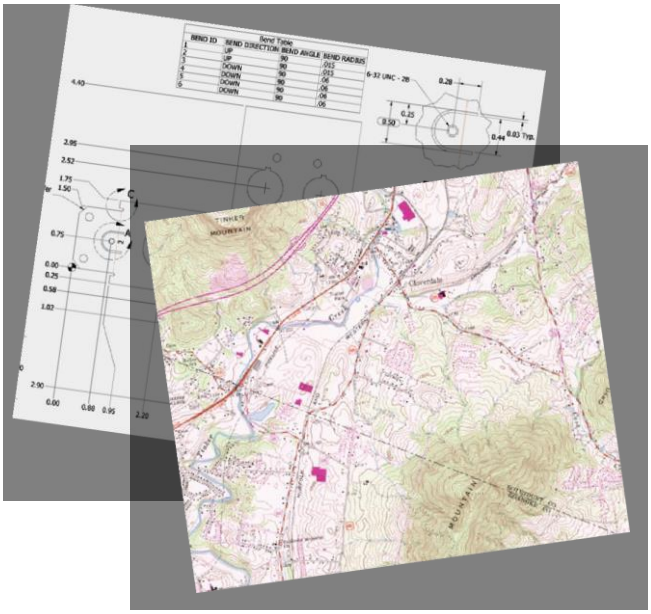
When it comes to large format scanners, the market is full of options: from small models to large, monochrome to color, simple to advanced features, low speed to high speed, scanners designed for ease of use and scanners engineered for high volume production use. All models and options exist for one good reason: Because documents exist in a wide variety of size, content, media, and condition. In addition to your planned use for the scanner from above, your documents will help determine which scanning solution is best for you. Let's look at some of the major areas where scanners differ from model to model, in order to satisfy those different needs and document types…

Flexibility:

What kind of documents? What media? What condition?

Many scanners are designed to handle very specific types of documents properly, while others offer higher degrees of flexibility and the ability to scan just about anything. Just like size, speed, or resolution – you have a choice in the **versatility** of your wide format scanner. You also need to consider how **compatible** your scanner will be with your existing equipment and workflow. A truly flexible scanner will have the ability to plug-n-play with what you already have.

So, what kind of documents are you planning to capture, share, or copy?



Technical drawings, including CAD plots, sketches, planning maps, or other documents with line information are the most common documents scanned, as most manufacturing, design, and construction plans are designed in large format. So logically, most wide format scanners can capture this type of content. But don't forget that the media type is also very important. Many old drawings are printed on anything from plain paper to linen to long-life materials like Mylar. They are also commonly stored rolled, folded, or hanging to save space in the pre-digital age.

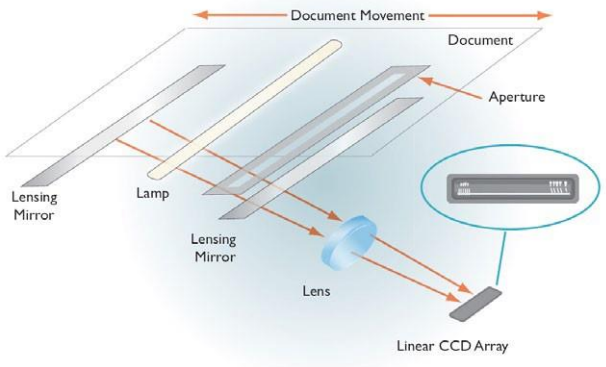
Since **maps** are also commonly simple large format in size, most scanners can scan handle these documents very well. But the same rules apply as above – the media type and condition are very important. When scanning maps for data or feature extraction, the accuracy of the scanner is often critical as well. Some maps are also more photographic – with smooth color transitions and high color detail. As with technical line drawings, you may also have maps with very fine lines and text that require a higher quality scan to reproduce accurately.

Photos, Artwork, and other graphics- based documents are often the most demanding of a scanner's flexibility as they cover a wider range of media types and usually require high levels of color accuracy to preserve the detail of the original. A flexible wide format scanner can handle very thick or very thin media while preserving correct colors and shading and capturing fine lines just as well.

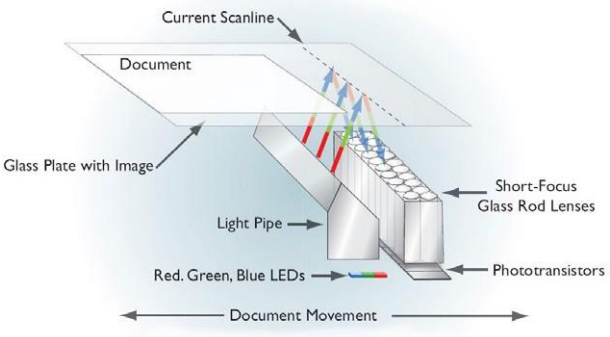
Don't forget to consider your primary use for the scanner; If you need to serve customers that span across different industries, with different documents, you also need a more flexible solution to keep their business or expand your services. However, if your office is only scanning plain paper CAD plots with some color mark-up, then you don't need the added capability to "scan it all".

How can you tell if a scanner is more flexible?

Some features are clearly for added flexibility – like the capability to scan thick documents. But the most important feature that determines the level of flexibility is the imaging technology inside the scanner: The cameras, the lenses, and the lighting. There are two prevailing technologies existing: CCD (Charge-Coupled Device) and CIS (Contact Image Sensor). CCD scanners have a modular design inside – that is, they have separate imaging electronics, lenses, and light sources (see Figure 3). CIS scanners have an integrated design – with these combined into a single small module (see Figure 4). So, most CIS scanners are smaller on the outside as well. Typically, CCD-based scanners can produce higher quality scans on a wider range of documents compared to CIS scanners – *depending on the quality of the components used*.



[Figure 3]: In a CCD scanner, the quality of each component is very important - as each serves a different purpose in the system, but they must work perfectly together to produce the highest quality scans.



[Figure 4]: In a CIS scanner, the components are all built into one single module - integrated into a small package using space-saving technologies like LED lighting.

In general, when you need to scan a wide range of document types and varying condition/age documents, then you should look for a scanner based on CCD technology. If your needs are simpler - just maps or drawings in decent to good shape - then CIS technology may meet your expectations. When comparing, keep in mind that CCD scanners may be more capable, but that comes at a somewhat higher price as well - depending on the model.

Performance and Productivity:

How many documents will you scan? How often?

Most scanner models differentiate primarily on speed. Usually in several steps from slow to fast, and logically, you pay more for higher speed. In most cases, this will be specified in “inches per second” or “ips.” In a higher volume environment, if you want to avoid production bottlenecks, speed is critical. The more documents to scan, the faster the scanner must be. Or if your business depends on delivering finished scans to the customer – time is often limited.

However, this measurement (ips) is easily manipulated. It’s easy to produce high numbers when scanning a small format document – as there is less data to capture and therefore scanning is faster. However, when scanning full-size documents, the speed might only be 50%.

Why? …Because fast scanning requires fast data transfer to the PC. Even if a scanner can move the paper quickly, data transfer to the PC can be very slow – especially when scanning in color. In this case, you must wait for the PC to “catch up” before you can scan the next document. The result is slower scanning and lower productivity. A fast scanner is important, but the interface speed is critical to the scanning time and the true productivity of the system. These days, USB 2.0 is a minimum requirement with faster interfaces like Gigabit Ethernet and USB3 can handle more than double the amount of data in the same time.

Perhaps you do not need blazing speed. Sometimes “Productivity” means getting a single image, and then getting back to work. For those users in an office or workgroup environment, scanning more than 5 documents in a day is rare. But they still don’t want to spend even 5 minutes in front of a scanner!

So, in addition to the performance of the scanner, there are other factors that contribute to productivity which are equally important to get the most out of the solution for any user:

Paper Handling: *How long does it take to load paper correctly, or to unload?*

The scanner design can assist the user in several ways. It should be easy to load paper precisely the first time, then scan quickly (without stopping), and then retrieving your document. If batch-scanning several pages, you should be able to load the next page as soon as the first is scanned, without waiting.

Software: *Is it easy to scan, adjust, and save files? How long does it take to get what you want?*
The more automation in the software, the faster you can complete the scan and move on to the next document. Auto-sizing, auto clean-up, auto enhance, etc., can help get the job done faster. In addition, the software should be simple and straightforward, without sacrificing features you need to handle difficult documents.

Ease-of-Use:

How long to setup? Training required? Does it fit in my workflow?

No matter how you define Productivity for your business, it is highly dependent upon how simple the scanning solution is to operate - the ease-of-use. From the setup and installation, to the daily operation of the system - a wide format scanner should fit smoothly into your existing workflow, without disrupting efficiency. **Easier = Faster.**

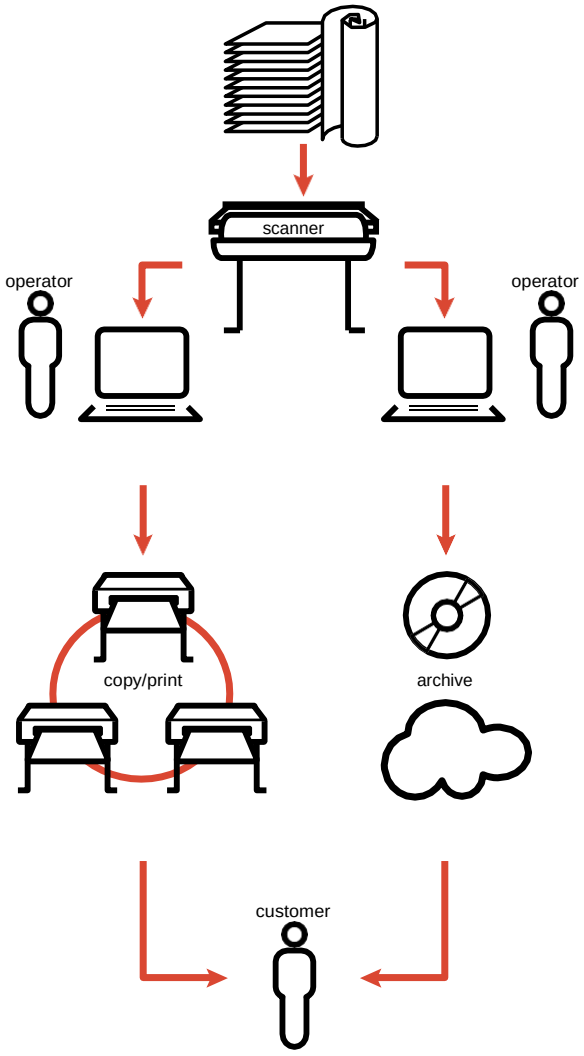
Very often, the importance of ease-of-use is related to the number of operators using the scanner. Normally there are two scenarios:

1. When you have one or two skilled operators in a production environment – like a busy copy shop – how quickly will he/she will adapt to the scanner and software controls. Are fine image adjustments easy to locate and use? *See Figure 1*

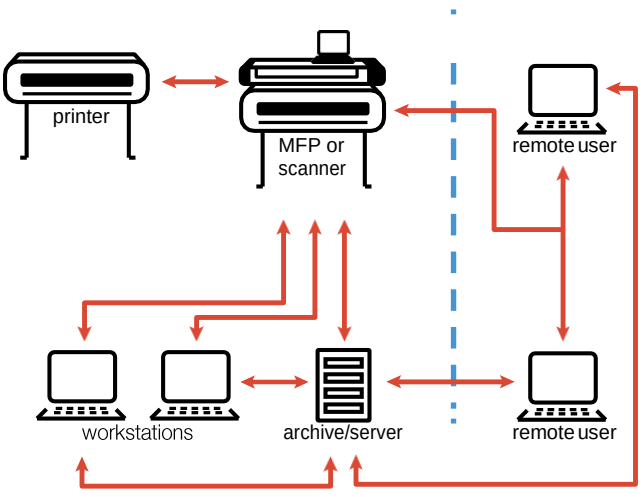
2. When the scanner is in a central, shared space – like a typical office copier – how quickly will users be able to walk up, feed, scan, and walk away with a good scan? *See Figure 2*

The simpler it is to approach and use the scanner, the more likely it will be used – especially in a shared workgroup environment. Your business doesn't have time to train staff on how to use the equipment – and you should not have to.

Ease-of-use should also mean fewer calls to the helpdesk, and less strain on your IT resources for solving technical problems. The solution must have simple operation, an intuitive user interface, and push-button-simple design.



[Figure 1]: The illustration above shows a typical production scan and copy workflow, with higher volume of scans, and with a few trained operators.



[Figure 2]: The illustration above shows a typical networked office environment, with shared equipment and several workstations with access to the scanner and printers.

Image Quality:

What is "Good Enough", and what is Best?

No matter the industry, buyers will tell you the most important of a wide format scanner is its image quality. Nobody wants to sacrifice image quality. The problem is, image quality means different things to different people – but it usually depends again on the documents you need to scan. An engineer wants perfectly scanned fine lines, and accurate scaling. A graphic artist wants high resolution and flawless color detail. A copy shop owner wants sellable copies and prints that keep their customer happy. Different needs and expectations = Different scanners.

More than any other criteria, Image Quality is difficult to evaluate from any brochure. But there are some features that are important to note:

Optical Resolution: In large format, this usually ranges from 400 to 1200 dots per inch (dpi). This represents the physical capability of the scanner to view image details and is related to both the imaging technology, and the quality of the components used in that technology. This specification is often the first number that buyers use to compare scanners' image quality capabilities. But just like MegaPixels on a digital camera, a higher dpi does not automatically mean better images.

Higher resolution scans also produce larger file sizes, but as the cost of storage space decreases, and as wide format printer resolutions continue to increase, your needs for higher scanning resolution may also increase. But once again, it is also important to note that optical resolution requirements will depend primarily on your documents and what you will do with the scanned image.

Optics: Like photography, scanned image quality depends heavily on lens quality. Using lenses that are not specifically designed for the scanning resolution will cause various problems, from uneven sharpness to chromatic errors and color fringing (black lines show up in color).

Color bit depth: This spec describes the range of colors a scanner can capture or process into image files. Some color scanners can capture 24-bit color, while others can capture up to 48 bits. Most CCD-based scanners can capture 48-bit image data. But be careful – capture does not mean use. The best color scanners can both capture and process 48-bit color image data for maximum precision and vibrant, accurate color.

Light source (CRI): CIS-based scanners use pulsating red, green, and blue LED lights to capture images – overlaying the three layers to get one combined color image. Some CCD scanners also use "white" LED lamps due to their long-life characteristics. This works very well for some documents, but LED lights have some weaknesses. While bright, it is very difficult to focus their light properly – leaving uneven light across wide scanners. The other weakness is their inability to produce accurate neutral light. The Color Rendering Index (CRI) of a light source is a proven way to evaluate the effectiveness of a scanner's light source in capturing color images correctly.

Accuracy: When reporting a scanner's geometric accuracy, the industry seems to have stabilized on a standard of 0.1% (99.9% accurate) plus/minus one pixel. As there is no standard for measuring this accuracy (usually just left to right and top to bottom edges), true accuracy is not always indicated in this number. True accuracy exists only when this measurement applies to the error between any two points in the document, not just between the two outer-most edges.

Reliability:

What is the cost to operate? What is the cost when it stops operating?!

A wide format scanner is a rare investment for most companies. So, here's more criteria where everyone agrees – Everyone needs reliable equipment. But scanners are tested to different levels of durability and service life. Back to our earlier comparison: the office with 5 documents to scan per day, and the busy copy shop with hundreds. Naturally, they have different needs, but the same expectation – a scanner that just works.

The amount of scanning you will do should weigh into your decision in this case, and like most of the other criteria above, you pay more to get more. Like anything manufactured today – the scanner is the sum of its parts. **Better components = Greater reliability.** The lowest price option is not always the smartest option as cost-cutting on components often leads to shorter duty cycles.

While all large format scanners will need regular maintenance, customers often cannot afford to stop work for extended periods, waiting for calibration or repair. So, the best scanner is the one that needs the least time performing routine maintenance and offers the best warranty and service for getting you up and running again, as fast as possible.

Scanners do have some parts to change now and then, but in those cases – make sure you have a scanner you can maintain yourself, to avoid service calls when possible. For example, changing the glass plate on a scanner should take no tools and less than 2 minutes.

Finally, there are many products sold around the world which do not meet modern safety standards, which are frequently updated. Make sure the scanner you select is approved for safe use in your region and meets your office's requirements for energy savings as well. Well known marks such as "UL-Approved" and "Energy Star" ensures that your scanner is safe and has a minimal impact on your energy consumption.

Scanner or MFP:

What fits best for your workflow?

In an office or production environment, space is often very valuable and cannot be wasted under any circumstance. A Multi-Function Printer (MFP) can combine scanning and printing products into one footprint, one product. However, with many solutions available today, there are a few factors to consider before you decide on the right solution for your needs.

Integrated or not?

There are several wide format MFP solutions on the market these days. Printer manufacturers such as HP, Canon, Océ, Xerox and Ricoh understand that adding a scanner to their printers provides more functionality and value - just as it does for standard document sizes. However, it is important to note that these devices are designed with different priorities: *For these products, printing is critical, scanning is secondary.* This is visible in several ways - like the lower level of options and image adjustments the user is offered in the software, and how the scanner handles paper, etc. In most cases, you will not get optimal image quality using the built-in scanner on an integrated MFP.

The alternative? When your project works relies on getting better scanned images, then an MFP Solution from a scanner manufacturer could make more sense. In this case, there are MFP solutions for just about any scanner you decide to buy. But consider: Will you want to copy to more than one printer? Will you need to scan documents in poor condition? Will you need to clean up or correct images in any way? If you answer “Yes” to any of these - then chances are, an integrated MFP will not meet your needs.

MFP Solutions from scanner manufacturers also vary in features. So be careful in comparing specifications and try to get a demonstration if possible. Make sure you evaluate which solution has the best support for your printer or printers. Windows printer driver support is not very reliable in wide format copy software - and you must take care to adjustment in several locations before you can copy. The best software solutions have native, built-in printer drivers designed to work efficiently and automatically with your existing or new printer, with little or no setup required - just as you would expect from an integrated MFP solution.

Finally, an MFP solution should not add, but remove complexity - so don’t just settle for a solution that meets your spec requirements but sacrifices ergonomics and usability. Look for the solution that is easiest to understand and use for the employees that will need the simplicity of an office copy machine.

Contex Solutions:

Designed in Detail to Meet Your Needs

With more than 20 years of experience in wide format imaging, Contex has the largest installed customer base and the quality product lineup that can only come from understanding those customers and their needs. No matter what you plan to do with the scanner, or which criteria in this guide is most important to you, we have a solution with your needs in mind.

HD Ultra X Series:

The latest generation in Contex' long history of top-quality CCD-based scanners has more new enhancements than any scanner ever made. We studied our customers' needs and responded with a scanner that pushes large format scanners to new levels of **Productivity, Flexibility, and Image Quality**, while maintaining Contex' strong reputation as the most reliable scanner money can buy. And with a wide variety of different models available, there's an HD Ultra X scanner that suits your business - no matter what your needs:

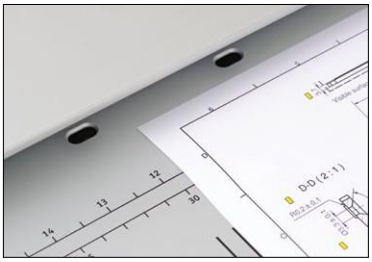
Productivity/Performance:

For mid/high-demand production business, or for time-sensitive projects that require no-compromise performance, the **HD Ultra X Professional** range combines the highest performance available in wide format with the most advanced imaging technology you can buy. Adding a fast Gigabit Ethernet interface, the HD Ultra X Professional scanners are the fastest you can buy, with the ability to scan around 15 A1/D-size pages per minute in color (900 documents per hour). Fast data transfer helps, but the scanner load/unload time is also minimized.

Ease-of-Use:

Productivity also comes from **Ease-of-Use**, simple design, and easy software. To meet this need, the HD Ultra X scanners were designed with several new features and innovations that make scanning more intuitive - without training - for anyone...

One-Touch buttons are customized to your software settings. Send a scan to any network PC with one press.

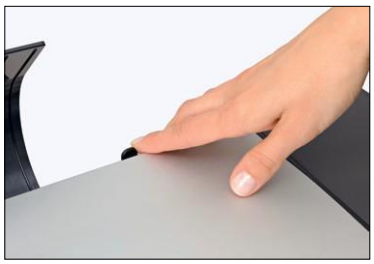


SnapSize: auto size detecting paper sensors means less software adjusting, more scanning.

Paper Return Guides - returns your documents as you scan. No rewinding necessary.

Flexibility:

Based on high-quality CCD technology, the HD Ultra X series can handle just about any type of document. And with the **highest resolution and speed** available in a wide format scanner, that might have been enough improvement for some buyers, but we went further and built in **intelligent paper handling** features that make the HD Ultra X scanner the easiest scanner to feed and scan - no matter what media you put in. Maximum Flexibility - so you can handle any document with just one scanner:



Paper Pressure switch - adjusts paper pressure to handle normal to very thin media, including newspaper.

Funnel-shaped feed handles torn and wrinkled documents with ease.

ATAC: automatically adjusts to scan thick documents, with the press of a button.

Flexibility to handle all your documents, and the **versatility** to quickly adapt to changes - including changes to your needs: The HD Ultra X series also has the capability to electronically and instantly upgrade the scanners' main features. You can upgrade scan width, color capability, resolution, speed and add Gigabit Ethernet connectivity - all with a simple electronic license key.

Image Quality:

All CCD-based scanners are not equal. For this type of scanner, the quality of the components is critical. The HD Ultra X series uses only high-quality full-sized four channel cameras - custom made by Fuji for Contex. The HD Ultra X utilizes an LED light source with a high Color Rendering Index (**CRI > 95**) to produce the most accurate colors possible. The CCD itself is high resolution and capable of capturing 48- bit color, but Contex have the unique ability to process the entire 48-bit color data - resulting in the most accurate color images you can get from a scanner today. We call it **AccuColor.** Finally, when scanning drawings and maps, a scanner must preserve the correct scaling of the document. Contex Accuracy Lens Enhancement (**ALE**) technology, keeps point-to-point measurements 99.9% accurate anywhere on the document - not just the ends of the page.

MFP Solution:

The HD Ultra X MFP combines all the great features of the HD Ultra X scanner with your printer's abilities to form the perfect MFP solution. It provides all the powerful scanning capabilities you need to get perfect image results, while including **built-in compatibility with your network, and your printers!** So, there's no need to tie yourself down to an integrated solution that will prevent you from getting what you really want - great prints and copies AND great scans. If you need more productivity or features - the entire HD Ultra X series is available with MFP capabilities - just ask for the MFP kit with your scanner of choice.

IQ Quattro X:

When you're working with maps and technical drawings and you need a scanner that doesn't compromise on quality, the IQ Quattro X scanners may be the more affordable choice that meets your needs. Designed to provide sharp, clear images on your most detailed documents, these scanners are simple to install, simple to use, even simple to transport. And with three different sizes and several different models to choose from, you can be sure you don't have to pay for features you won't use. Let's evaluate how these models measure up against your needs:

Productivity/Performance:

With the ability to scan up to 856 color pages per hour at 200 DPI, the IQ Quattro X Series scanners qualify as high-volume capable scanners, utilizing **xDTR** technology to accelerate data transfer and keep your scanner active - not waiting for data to process at the PC. These scanners all share the ability to feed documents very quickly as well, thanks to a large paper insertion point.

Ease-of-Use:

As the HD Ultra X series, the IQ Quattro X Series also focus on improving productivity and minimizing user interaction by making the scanner and software very easy to use. From the moment you open the box, a Contex scanner comes with simple instructions to get you operational in no time. In addition to a smooth paper feed, the scanners are also fed with the documents face-up - so you can see what you are scanning very clearly. The Nextimage software has a simple, yet powerful user interface, with settings combined into quick-configure "Presets" in the software - your most common scan settings are no more than a click away. In addition, these presets can be assigned to the scanners keypad One-Touch buttons - so you can walk up, feed your document, press a button, and send your scan to your PC, to an email application, or to a file server on your network.

Flexibility:

Based on CIS technology, the IQ Quattro X scanners are designed to provide the best scanning results on maps and drawings but could also satisfy your needs to scan basic office graphics, design sketches, or CAD renderings. For more flexibility with scanning thick documents, or media in poor condition, you should consider the HD Ultra X series scanners - designed to handle these and other difficult documents. With models raging from the 24-inch IQ2490 to the 36-inch IQ3600 and 44- inch IQ4400, the Quattro X range covers a wide range of scan width requirements as well as speed and resolution needs. The IQ3600 scanner models have the added versatility to adapt to your changing needs, with the capability to electronically and instantly upgrade the scanners' main features. You can upgrade color capability, resolution, and speed - all with a simple electronic license key.

Image Quality:

When scanning maps and drawings, precision often means capturing very fine lines and text. The IQ Quattro X includes models with up to **1200dpi** optical resolution - capable of capturing even the smallest of details in these documents. The custom-made CleanScan CIS modules with dual sided LED light and dual diffusion along with patented color fringe removal (CFR)

provide **48-bit color capture** to ensure that even the lightest color shades or pencil marks or highlighter marks are captured correctly. Borrowing from the proven CCD-based HD Ultra X scanners, the **All-Wheel-Drive** system ensures 0.1%-line accuracy throughout the document.

MFP Solution:

Solutions include award-winning Nextimage Multi-Function software along with all the powerful scanning features listed here. When you are looking for an affordable MFP solution that offers more than that integrated MFP solutions can manage, An MFP solution from Contex is the no-compromise choice.
They are just as easy to use but offer more capabilities for correcting and editing image quality, while including **built-in compatibility with your network, and your printers!** So, there's no need to tie yourself down to an integrated solution that will prevent you from getting what you really want - great prints and copies AND great scans. If you need more productivity or features - the entire IQ Quattro X line is available with MFP capabilities - just ask for the MFP kit with your scanner of choice.

The Contex SD ONE MF

The Contex SD ONE MF is an easy plug and play solution when customers need to scan, share and copy changes to plans and drawings. The SD ONE MF is a professional solution. The Contex CleanScan CIS technology gives you sharp scans without unwanted background noise. And the double-sided LED light eliminates any shadows on the scan even if the original is in poor condition. The SD ONE MF connects easily to a dedicated large-format printer giving a nice and small footprint and fitting the customer's existing tools and business processes. SD ONE MF makes in-house scanning easy and affordable, freeing you from the hassle of outsourcing. And because of the lightweight design, you can also take it with you when you are out of office. The ease of use makes it suitable for both entry-level and professionals.

Fitting printers

When a customer selects an SD ONE MF., it may be combined with HP DesignJets, Canon iPF and PRO-Series, Epson Stylus Pro and T-Series as well as HP Page Wide printers.

Key Features

- Intuitive touch screen solution with embedded software
- Preview, crop and adjust image settings
- Scan-to-copy, email and USB support
- Redline image support
- EPA Energy Star certified device
- Supports Scan to cloud services

The SD One MF shown fitting neatly on top of a Canon PRO-Series printer

Contex Reliability: All Products

Scanners designed to capture up to **2 million pages** are not easy to develop. It takes experience, innovation, and close attention to build quality to continuously build on a reputation of top quality and reliability in large format imaging. Ask around, and you'll get the same answer - Contex scanners are built to last.

A hardware product is only as reliable as its parts. Using only the best quality components means the quality is maintained, even under extremely heavy use. The scanners are also designed for minimal service cost. What few parts are needed to replace, can be done without any calls for service - requiring no tools, and taking only a minute or two to get back up and running.

Certified safe and reliable to operate through various regional and worldwide safety standards, all Contex scanners are also **Energy Star** compliant, using almost no energy when not in use (less than 3W).

Contex scanners also come with the best warranty in the industry - and the service and support organization to back it up. If you need even more peace of mind, we offer extended warranties on our products as well, and convenient customer care-kits that include common consumable parts.

Get the Full Details at contex.com!

Be sure to visit our website for the full details with product brochures and specifications on all Contex products. Also try the **Product Selector** (on the home page) to find out which scanner models we suggest for your scanning requirements.

Where to Buy:

National / AZON is a proud distributor of Contex Wide Format Scanners. Contact our experienced and well-trained staff with questions – we are happy to help!

National / AZON 800-260-0839 ● azon.com ● info@azon.com

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