Bookeye® 4

V-Cradle Planetary Scanner
Scan 17 x 24 inches at up to 600 dpi

3 Unparalleled Features !

- *600 dpi (non-interpolated) V-Cradle Scanner*
- *Both V and flat scanning modes*
- *Less than 2 seconds scan times at 200 dpi*

Get Ready for Brilliant Results!

Bookeye scanners have remained at the peak of the performance curve for serious production scanners for more than 15 years. They are relied upon worldwide as much for their speed and durability as for the beautiful 24-bit color images they produce at true preservation quality 600 dpi resolution.
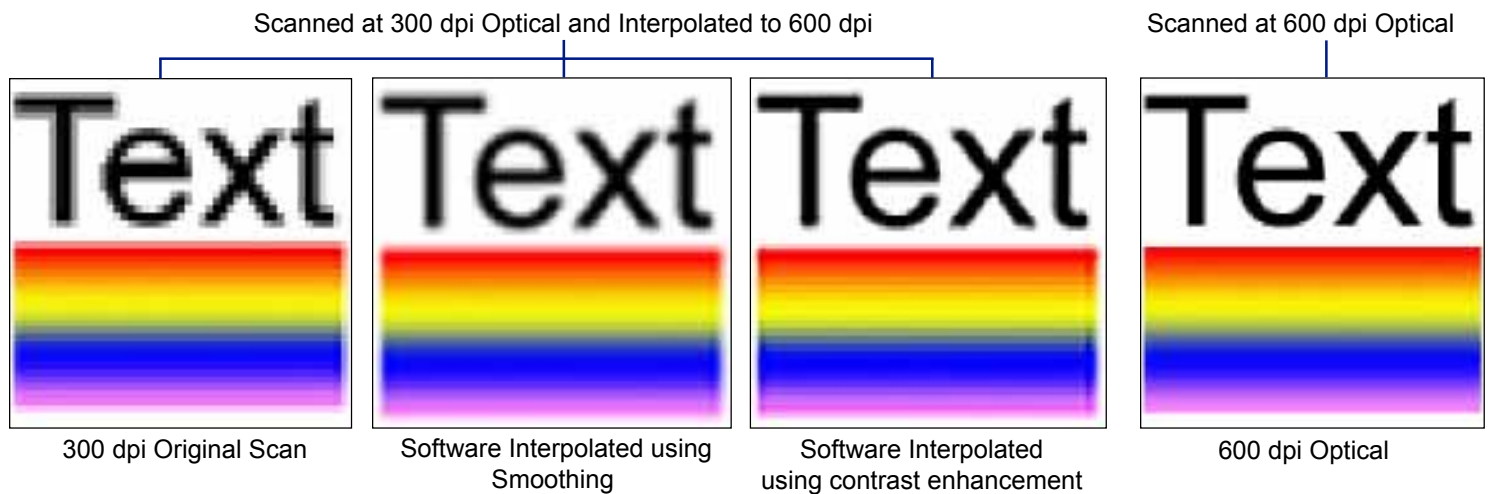
That tradition of technology leadership continues with the Bookeye 4 and its revolutionary new large format V-cradle scanner, which uses linear CCD technology to produce large format images in true 600dpi clarity. Images produced by the Bookeye 4 are equivalent to what a 148 megapixel digital camera would produce in black and white, if such a camera existed. The most advanced professional digital camera-based scanning systems, which cost four times more than Bookeye 4, produce less B&W (grayscale) image data and therefore

less clarity. The Bookeye 4 produces 445 million bytes of raw, uncompressed image data — that's over four times more color data than those costly systems. The result is dramatically higher clarity.

One secret behind Bookeye 4's superior quality images is that it employs linear CCD's with dual reflecting mirrors that move instead of the lens; all but eliminating distortions inherent with both film and digital cameras (e.g. chromatic aberrations and barrel and pincushion distortions). Another reason for Bookeye 4's superior image quality is that the lens always remains perfectly perpendicular to the book whether in the flat or 'V' position, thereby enabling the scanner to digitize each side of the book in perfect alignment. The end result is a scanner that captures documents precisely from edge to edge while gently preserving their subject matter.

Image Access

www.imageaccess.com
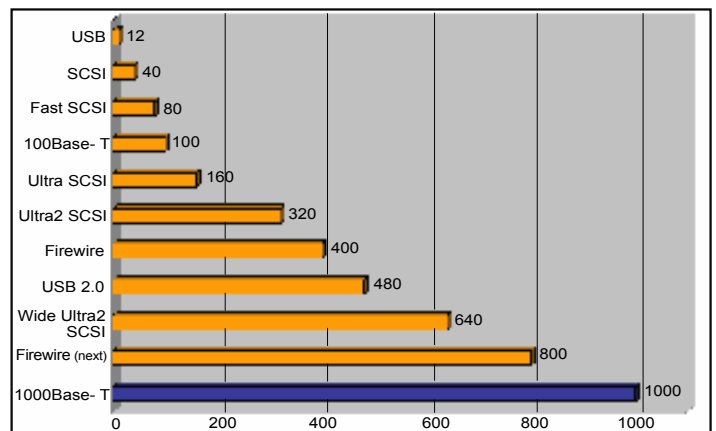
Better Image Quality

When given the opportunity to compare the image quality of several competing scanners outputting the same resolution or dpi, it's likely that you will notice variations in quality like the ones below. These variations result from the effects of differences in scanner optics, electronics and lighting. One Western European nation purchased 80 scanners from Image Access based on its superior image quality, even though the competing scanners offered the same resolution.

Scanned at 300 dpi Optical and Interpolated to 600 dpi   Scanned at 600 dpi Optical

| 300 dpi Original Scan | Software Interpolated using Smoothing | Software Interpolated using contrast enhancement | 600 dpi Optical |

Higher Scanner Speeds

Scan2Net Interface Speed

Since Scan2Net scanners connect to computers via Gigabit Ethernet, their data transfer speeds are substantially higher than any other scanners on the market. This high speed is vital for performance when scanning large images at high resolutions. For optimal speed, connect the scanner directly to the computer using the Ethernet crossover cable supplied with the scanner.

Interface	Speed
USB	12
SCSI	40
Fast SCSI	80
100Base-T	100
Ultra SCSI	160
Ultra2 SCSI	320
Firewire	400
USB 2.0	480
Wide Ultra2 SCSI	640
Firewire (next)	800
1000Base-T	1000

Scanner Options

Bookeye 4 options include:

- optional 18 inch viewing monitor (see image at right)
- 24 bit color option
- foot pedal for hands-free operation

Optional Mounted 18" Display

Intuitive Touch Screen Operation

Foot Pedal

save directly to a USB drive, or email, FTP, etc.

Features and Benefits

Bookeye 4 is a great choice for professionals that demand attention to detail in every facet of a book scanner. Whether you need to scan maps, renderings, or large books, --- Bookeye provides the colorful clarity to capture the most from your scan materials. Scan in black and white or color and at resolutions up to 600dpi.

Bookeye scanners are designed for easy setup, effortless connectivity, and low maintenance operation. Our scanners connect over your network and can be operated using a standard web browser — no drivers or add-on cards. They operate independently from your operating system and the scanner is readily available to anyone on your network. Software updates can be installed with the click of a button.

State of the art illumination using bright white LEDs guarantees long life and excellent scans with the added benefit of producing less heat than other lighting systems.

Optical components are encapsulated in Bookeye's dust-free, hermetically sealed camera box for dust-free and quiet operation. What's more is that no consumables are required for continual operation.

In addition to their higher speed and larger than normal bed sizes, the 600 dpi optical resolution of Bookeye scanners meets and exceeds the recommendations established in the Report on the Meeting of Experts on Digital Preservation by the U. S. Government Printing Office in 2005. This makes them an ideal resource within such high production workflow areas as: InterLibrary Loan; Digital Archive & Preservation; Museums; Historical Societies & Genealogy organizations; National, State and Local government offices, as well as the most demanding commercial applications.

Scanning Speed and Overall Throughput

Bookeye 4	200 dpi		300 dpi		600 dpi	
	Sweep	Transfer	Sweep	Transfer	Sweep	Transfer
Full Bed	1.8 sec	0.5 sec	4.0 sec	0.8 sec	9.2 sec	3.6 sec
Typical 8.5 x 11" book, scanning both sides at once	1.1 sec	0.3 sec	3.6 sec	0.4 sec	6.3 sec	1.6 sec
One side of an 8.5 x 11" book	0.6 sec	0.1 sec	2.3 sec	0.2 sec	4.2 sec	0.8 sec

Scanning 24 bit color images in JPEG file format.

At a Gigabit per second, the Bookeye scanner's Ethernet interface is twice as fast as USB 2.0 and is the fastest available today. This is important because grayscale and color images can be very large and take a long time to transfer. With Bookeye scanners, transfering images to the PC is typically fast enough that, by the time the scan operator has placed the next document on the scanner, the transfer is already completed and the scanner can begin scanning the next image. In these cases (usually at 300dpi and lower), transfer times have no effect on the overall scanning throughput and instead, the overall throughput is limited by the scan operator. However, at 600dpi and without compression, transfer times can become a factor. The figures above show scan sweep time separately from transfer time so that the transfer time can be compared with the expected time to turn to the next page or move to the next document or object to be scanned, and the overall throughput can be estimated more accurately.

Bookeye 4 Technical Specifications

The Bookeye 4 planetary scanner produces brilliant color images at production scanning speeds. Incorporating Scan2Net® technology, Bookeye 4 sets new standards in quality, speed, user friendliness and duty cycle. The newest illumination technology, 'super bright' white LEDs, combined with the dust proof encapsulation of optical parts create a low maintenance design which results in a lifetime expectancy of well over 1,000,000 scans.

Bookeye 4's built-in book cradle eliminates bookfold curvature and shadows near the book spine that can distort the images of bound documents. Its Image Enhancement System allows color correction on the fly with minimal speed penalty. This feature also minimizes the post-processing effort.
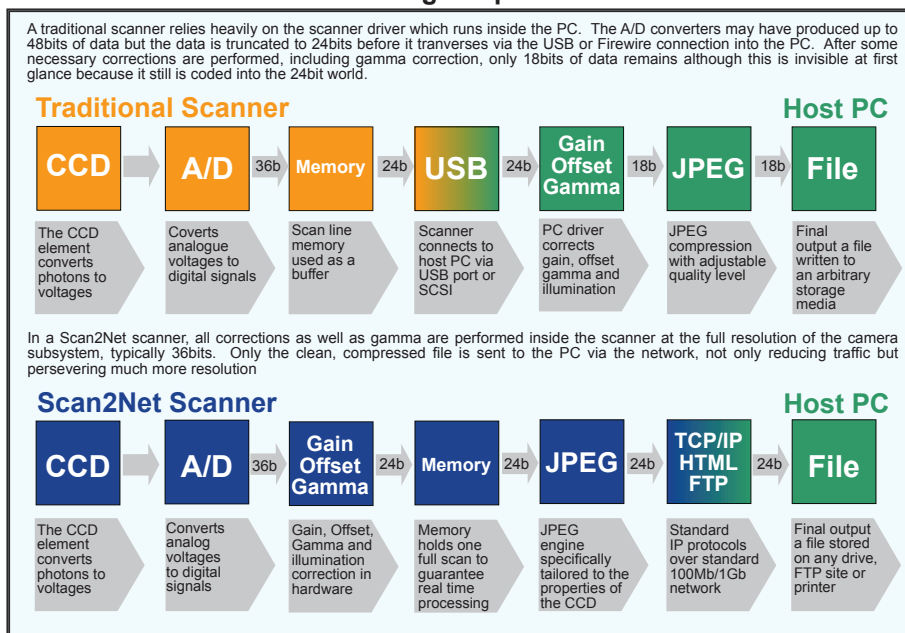
Features

- Up to 600 dpi resolution
- Touch screen control
- V-cradle 120 ° angle or flat
- 2 seconds for 17 x24" scan
- USB ports
- Small footprint
- Gigabit Ethernet connectivity
- Easy installation
- Windows, Linux, Mac, OS, Unix compatible
- User friendly interface
- Remote maintenance and analysis
- Print on any network printer
- Foot pedal included

Options

- 18" mounted display
- Upgrade to 24-bit color
- 600 dpi output

Scan2Net Image Capture Process

A traditional scanner relies heavily on the scanner driver which runs inside the PC. The A/D converters may have produced up to 48bits of data but the data is truncated to 24bits before it tranverses via the USB or Firewire connection into the PC. After some necessary corrections are performed, including gamma correction, only 18bits of data remains although this is invisible at first glance because it still is coded into the 24bit world.

Traditional Scanner — **Host PC**

CCD → A/D → 36b → Memory → 24b → USB → 24b → Gain Offset Gamma → 18b → JPEG → 18b → File

- The CCD element converts photons to voltages
- Coverts analogue voltages to digital signals
- Scan line memory used as a buffer
- Scanner connects to host PC via USB port or SCSI
- PC driver corrects gain, offset gamma and illumination
- JPEG compression with adjustable quality level
- Final output a file written to an arbitrary storage media

In a Scan2Net scanner, all corrections as well as gamma are performed inside the scanner at the full resolution of the camera subsystem, typically 36bits. Only the clean, compressed file is sent to the PC via the network, not only reducing traffic but persevering much more resolution.

Scan2Net Scanner — **Host PC**

CCD → A/D → 36b → Gain Offset Gamma → 24b → Memory → 24b → JPEG → 24b → TCP/IP HTML FTP → 24b → File

- The CCD element converts photons to voltages
- Converts analog voltages to digital signals
- Gain, Offset, Gamma and illumination correction in hardware
- Memory holds one full scan to guarantee real time processing
- JPEG engine specifically tailored to the properties of the CCD
- Standard IP protocols over standard 100Mb/1Gb network
- Final output a file stored on any drive, FTP site or printer

Bookeye 4 Specifications

Dimensions (HxWxD)	30 x 26 x 26 inches (770 x 660 x 660 mm)
Scan Area	24.4 x 16.9 inches (620 x 430 mm) >DIN A2
Weight	77.2 lbs
Document Formats	Autoformat with edge recognition A2, A3, A4 Letter & Legal User defined up to: 24.4 x 16.9"
Resolution	Up to 600 dpi
Color Depth	36 bit color, 12 bit grayscale
Scan Output	24 bit color, 8 bit grayscale
Output Formats	JPEG, PNM, TIFF, PDF (optional)
Interface/Protocol	1 GBit Fast Ethernet TCP/IP
Voltage	100-240 V EPS
Power	0.5 W Standby, 55 W Ready to scan, 110 W Scanning
Lamps	White LEDs, no UV/IR emission

Preservation Quality Scanning

Compression and Losses

Legend: Scanner, JPEG, S2N-JPEG, TIFF Raw, Added Noise, Lost Details
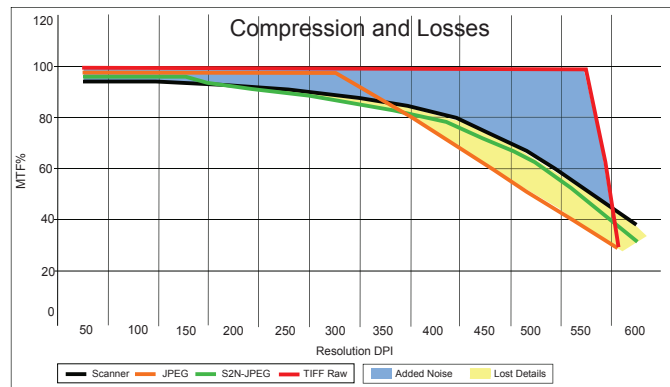
Traffic lights use three colors that are highly distinct from each other so that there is no ambiguity to the human eye. This kind of distinction is not possible when the goal is to produce the greatest likeness to the original as possible. Archive quality scanners must capture such high spatial and chromatic detail that they naturally capture 'noise', along with the image being scanned. To reduce the 'noise' that is introduced by even the best CCD electronics, Image Access has painstakingly profiled the added 'noise' versus 'real data' curve for its CCDs. This added noise is then eliminated, resulting in significantly more accurate representations of the original objects.