Our Scanners

This version is part of a presentation slides for MOBIUS 2021, created by Felicity Dykas and Ying Hu

Creo (2011)

- Purchased in 2003 by another unit; moved to Digital Services in 2011

- Model: IQsmart 3; Software: Kodak oXYgen Scan

- "High-resolution, high-productivity flatbed scanners"

- Projects: slides, transparencies,

Selected iQsmart features

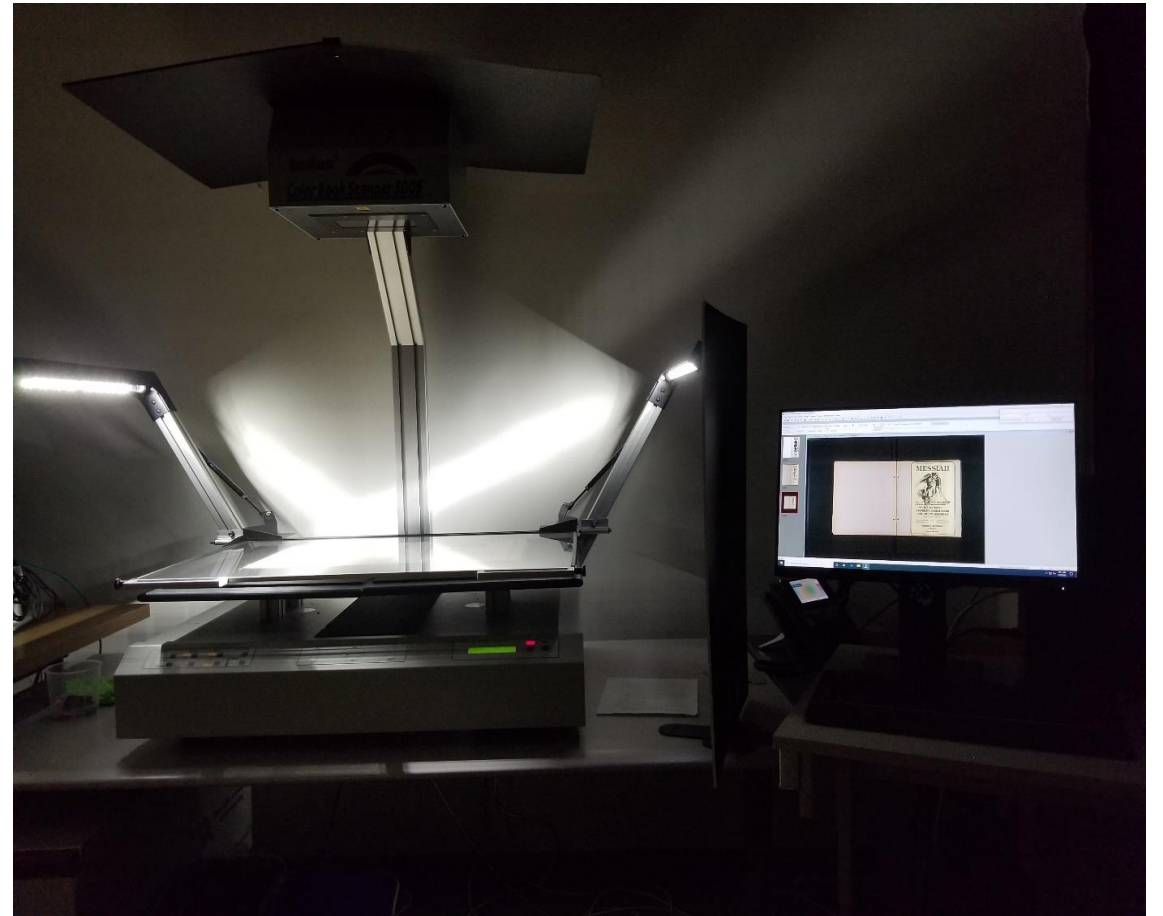| Features	IQsmart³	IQsmart²
Features	• flatbed CCD scanner; tri-linear 10200 element, anti-blooming CCD • XY Stitch scanning technology • Inverted CCD • Scans any type of original, including transparent (positive and negative), reflective, framed slides, line art, printed material	
Light table	built in	no
Maximum resolution (optical)	5,500 x 10,000 dpi	4,300 x 8,200 dpi
Maximum resolution (interpolated)	10,000 dpi	8,200 dpi
Maximum enlargement	3300%	2700%
Color depth	16 bit	16 bit
Density (max)	4.1	3.9
Density range	3.9	3.7
Scans per hour*	40 (batch mode)	30 (batch mode)
Scanning area	12 x 18 in. (305 x 457.2 mm) for transparency, reflective and negative scanning 13 x 18 in. (330.2 x 457.2 mm) for copydot scanning	12 x 18 in. (305 x 457.2 mm)
Interface	Firewire/ IEEE 1394	Firewire/ IEEE 1394
Software included	oXYgen scanning application	oXYgen Lite scanning application
Options	Oil Mounting Station oXYgen Open oXYgen DOT Solution (copydot scanning)	Oil Mounting Station
Software platform	Macintosh (OS 9.1 / OSX)	Macintosh (OS 9.1 / OSX); Windows 2000 (future)

* 6 x 7 cm original, 250%, 300 dpi, using Macintosh G4 500 MHz computer
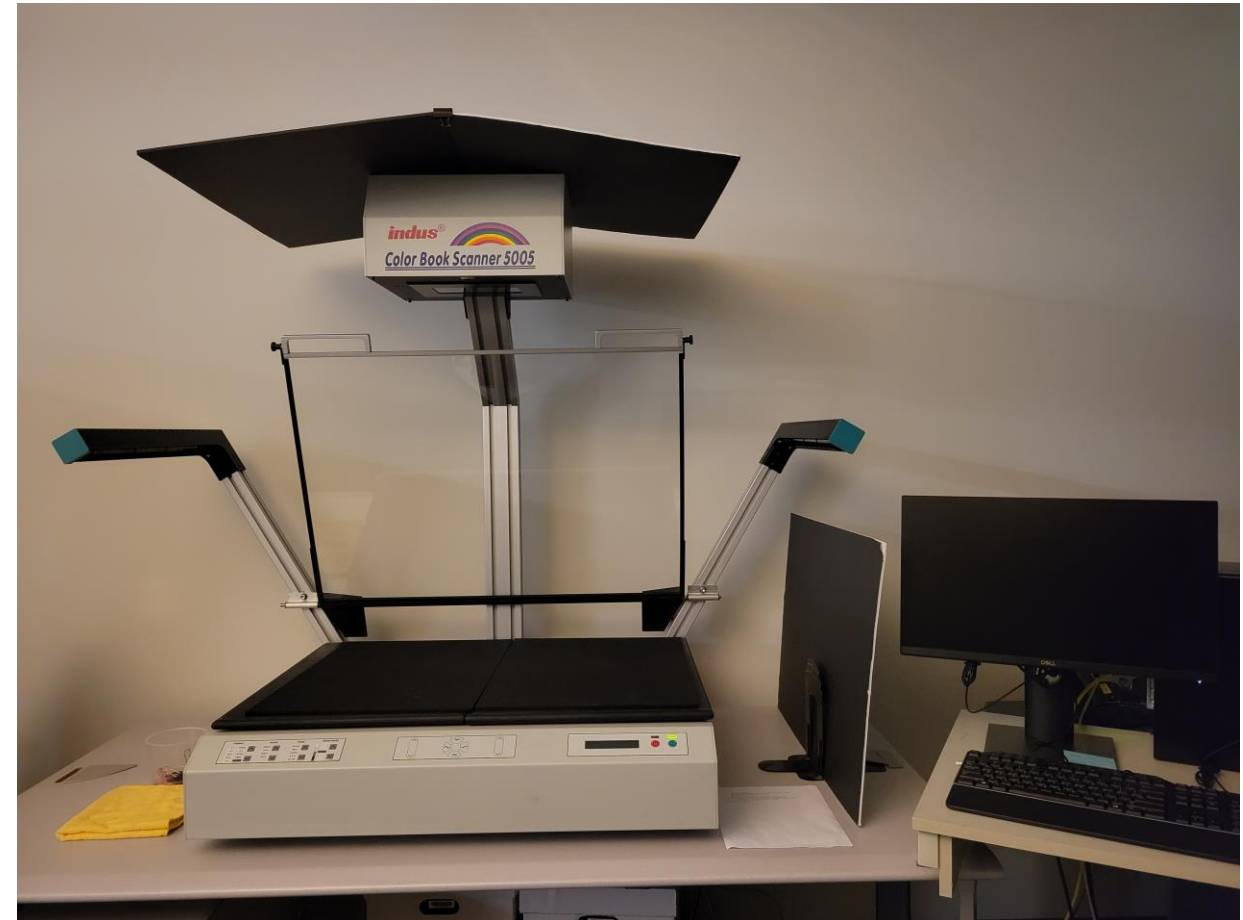
Pros and Cons

- Pros
  - High dpi
  - Good with slides, transparencies, and negatives
- Cons
  - Slow
  - Large size
  - Old; may be hard to get software upgrade

Indus (2011)

- Purchased in 2006; added to Digital Services in 2011
- Model: Color Book Scanner 5005; Software: bcs-2
- Projects
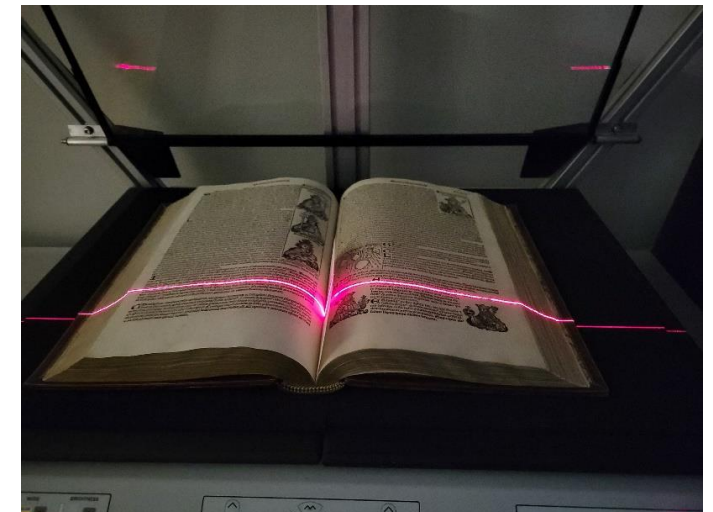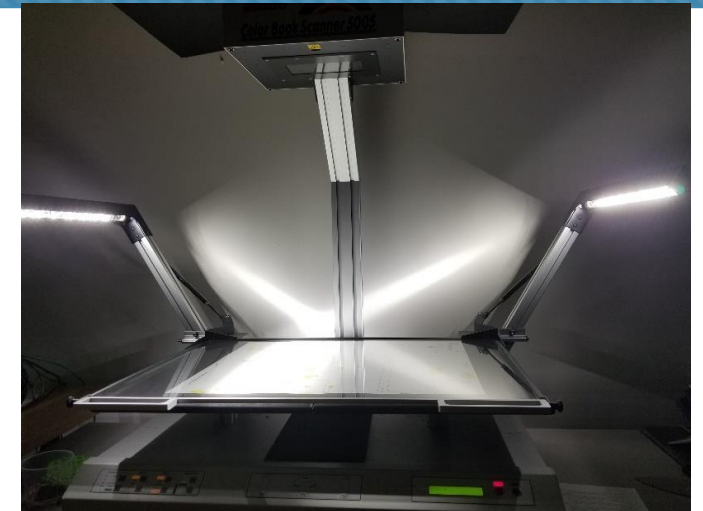 - Maps, posters, and large books

- Specifications/Description:
  - Flat bed
  - Overhead
  - Glass plate (use with or without)
  - Optical dpi, color, file types
    - 400 dpi
    - Color or grayscale
    - Tiff, jpg, pdf

Pros and cons

- Pros
  - Big scanning bed -- good for large scale maps and posters
  - Scanning software is intuitive
  - Overhead scanning – no distortion on the edges
- Cons
  - Sensitive to lights; color unevenness on scanned images
  - Shadow in the gutter area
  - Slow
  - On-going maintenance contract (University policy)

Zeutschel (2012)

- Model: OS 15000; Omniscan software
- Early model
- Projects: Books, single sheets

Technical data	OS 15000 Comfort	OS 15000 Advanced Plus
Scan format	max. 460 x 360 mm (18 x 14 inch)	
Scan mode	color, grayscale, b/w	
True-color processing	42 bit color | output 24 bit color 14 bit grayscale | output 8 bit grayscale 1 bit b/w | output 1 bit b/w	
Resolution	300 dpi, optionally 600 dpi	
User Software	Omniscan 12 / 64 bit, with multi-thread function (optional)	
Book cradle	Comfort book cradle without glass plate	motorized book cradle with self-opening glass plate
Working Mode	manual	automatic / manual
Max. book thickness	100 mm (4 inch)	
Dimensions (w x d x h)	540 x 630 x 600 mm (21 x 25 x 24 inch)	540 x 640 x 670 mm (21 x 25 x 26 inch)
Installation surface	504 x 540 mm (20 x 21 inch)	
Weight	26 kg (57 lb)	50 kg
Power requirement	100 - 240 V / 50 - 60 Hz	

Technical changes reserved

Pros and cons

- Pros
  - Adjustable bed, accommodates thin to thick spins
  - Glass plate to hold pages flat; can be removed
  - "Perfect book" feature reduces page curvature and thumbs
  - Quality is OK
  - Can generate color and grayscale images at same time
  - Templates with settings can be saved and re-used
    - Can have different settings for left and right
  - Several options for initiating capture
- Cons
  - "Perfect book" feature works intermittently
  - Low light conditions needed to reduce glare
  - After software update, image quality dropped
  - Ongoing maintenance contract

ScanPro (purchased in 2015, upgraded in 2018)

- Model: ScanPro 3000; Software: ScanPro 3000 software with PowerScan Productivity Suite

- For microfilm, microfiche, and microcards

- Projects: any microfoms

ScanPro 3000 All-In-One Specifications

Hardware

26 Megapixel Camera: (6.6 MP image sensor x 4) with integrated pixel-shifting technology, largest pixels in the industry, over 7 times larger than the nearest competitor

Zoom range: Optical 7x to 105x

Scannable media reduction range: Optical 7x to 105x

Camera Orientation: Portrait and landscape selectable providing best image clarity for both portrait and landscape images

USB3/USB2/USB1: Convenient, front access port for flash drives

Image rotation: Optical straightening of images for best image clarity

Illumination: Soft, bright, film-optimized, monochromatic LEDs with lifetime warranty and optically clear carrier glass for best image clarity

Precision-Guide rollers: Low inertia 12 ball bearing design protects film, easy-to-thread, provides precision control of film position and movement

Standard Software Features

Automatic Straighten Select fully automatic, or semi-automatic

Previous/Next: Click to quickly and accurately move 1 to 9 images

MergeClips™: Paste, annotate, arrange, and size multiple scans onto a single page

Software selectable resolution: 150 dpi to 2000 dpi, 8-bit grayscale, 1-bit black and white

Scan and save file formats: PDF, TIFF, JPEG and more, single and multi-page, single page OCR (OCR using ABBYY Fine Reader Engine)

Source: https://e-imagedata.com/scanpro-3000-features-benefits/

Pros and cons

- Pros
  - Microfilm and microfiche
  - Automated scanning
  - Editing features optimize image quality
- Cons
  - Grayscale; black and white; no color
  - Automated scanning only works with film if borders are clear and unambiguous
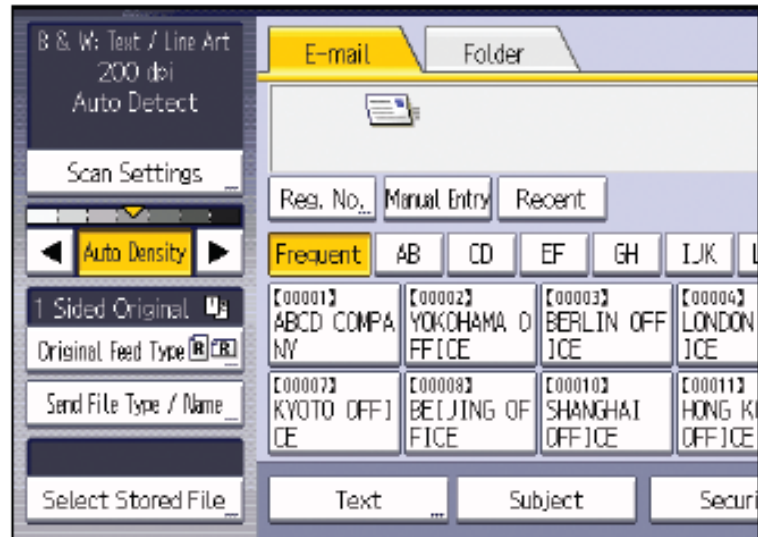 - Ongoing maintenance costs

Ricoh (2016)

- Ricoh MP C4503

- Photocopier, Fax machine, Printer, Scanner

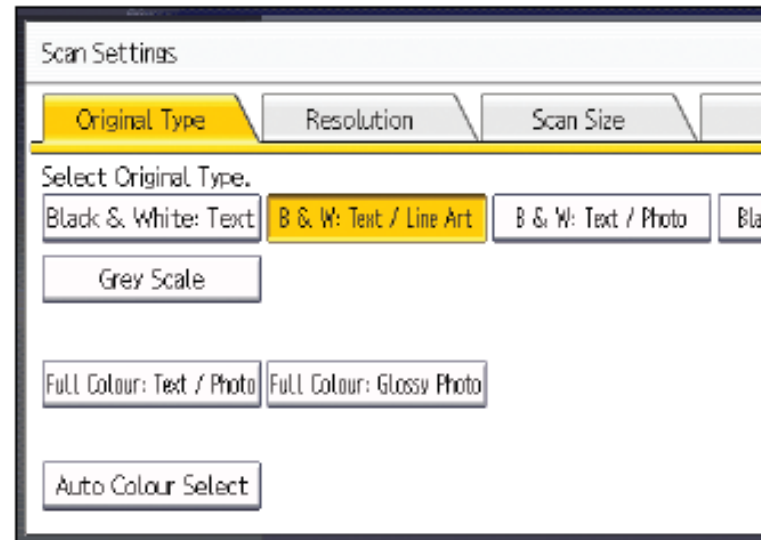- Projects: Books, single sheets

1. **Press [Send File Type / Name].**

2. **Select a file type.**

Source: User Guide,
MP C3003/ C3503/
C4503/ C5503/ C6003
series [2018?]

Pros and cons

- Pros
  - Fast
  - Sheet feeding
  - Color quality is very good
  - Easy to use
  - Touchscreen operation
- Cons
  - Flat bed, so hard to get good images when volumes have tight spines
  - Must pick books up to turn pages - adds time to work
    - Wear and tear on the books
  - Limited memory; can only scan about 25 images before transferring is needed
  - For Digital Services: shared; not dedicated to our work

Dreaded page curvature

ANNOUNCEMENT FOR 1888-89.

The Academic, Agricultural, Medical, Normal and Engineering Schools will open the 2d Tuesday (10th) of September, 1889. The Law School will open October 1.

The departments of instruction are:
1. The Academic Schools of Language and Science.
2. The Professional Schools of Agriculture, Pedagogics, Engineering, Art, Law and Medicine: and at Rolla the School of Mines and Metallurgy.

These Schools of the University are open to young men and to young women. Excepting in the Law, Medical and Engineering Schools (each $40.00) and the Commercial School, the entire expense for the year for tuition and contingent fees is $20.00.

Board in private families, $3.00 to $4.50, and in the clubs at about two-thirds of these rates.

In the means of instruction and illustration, none of the institutions of learning in Missouri have superior advantages. The association of the several schools with each other is deemed a circumstance of decided advantage. When, for example, a student has entered the Law or Medical School, he has access to all the other departments of instruction without any additional expense.

Commencement day is the first Thursday of June—the 5th.

Please send for catalogue to the *Librarian*, Missouri State University, Columbia, Missouri, and not to the President.

SAMUEL S. LAWS, President.

Annual catalogue of the University of the State of Missouri at Columbia, Missouri, 1888-1889
https://hdl.handle.net/10355/60696

Fujitsu (2018)

- Model: fi-7460

  software: ScandAll Pro

- Purchasing decision

- Projects

  - Loose page documents

  - Disbound books

  - Single-sheet foldouts

Scanning Performance

With duplex speeds of 120 images per minute at 300 dpi in Color, Grayscale, and Monochrome, the fi-7460 gives departmental performance in a desktop space.

- Rapid startup from sleep mode in less than a second
- Thick paper (27 to 413 g/m2) and embossed card scanning
- Manual Feed Mode for thick and difficult documents
- 100 page feeder (50 double letter)
- Skew resistance technology
- Automatic stacking speeds for improved organization
- Scan sticky notes, taped receipts, and labels while securing against multifeeds
- Long document support up to 18.3 feet in PaperStream IP
- Latest USB 3.0 for forward compatibility
- 32/64 Bit Driver for PaperStream IP (TWAIN & ISIS)

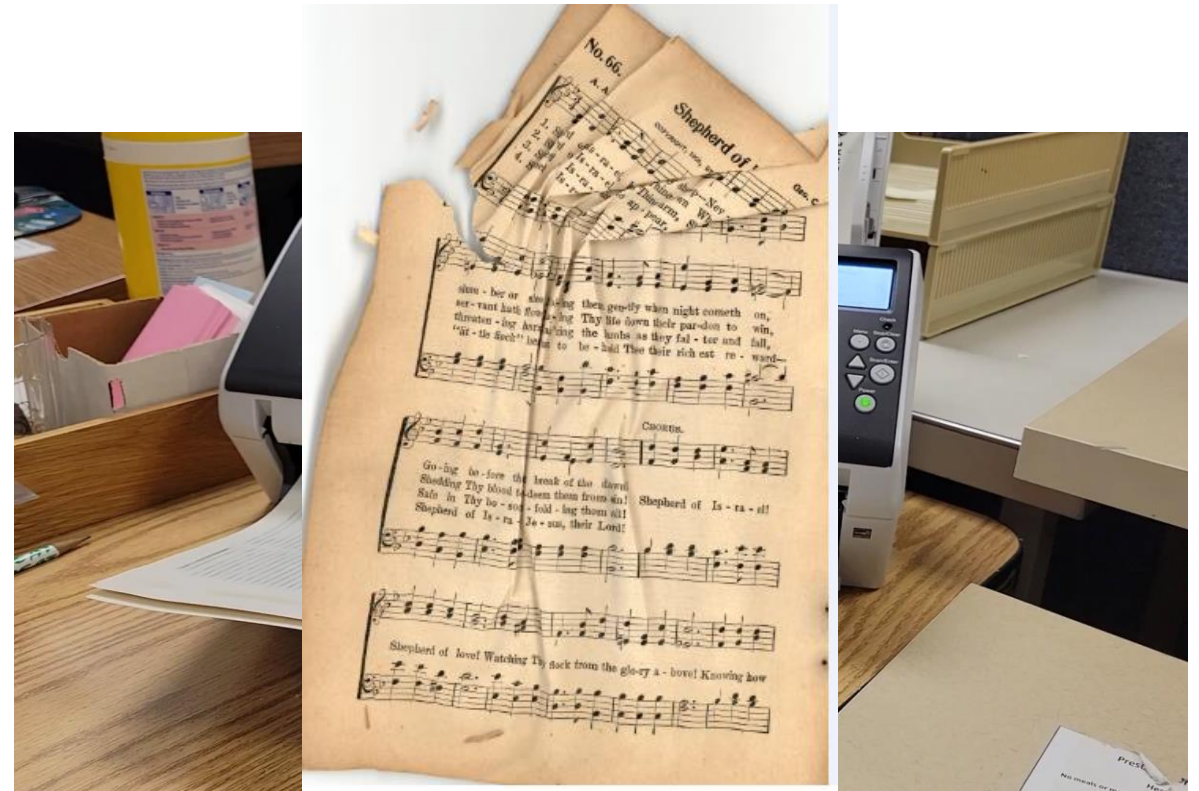| Image Sensor Type		Color CCD (Charge-coupled device) x 2 (front x 1, back x 1)	
Output Resolution[5]	Color (24-bit)	50 to 600 dpi, 1200 dpi [9, 10]	
	Grayscale (8-bit)		
	Monochrome (1-bit)		
Halftone Patterns		4 Dither Patterns and error diffusion	
Grayscale		10-bit/1,024 level (internal), 8-bit/256 level (output)	
Color		24-bit single pass color	

Performance

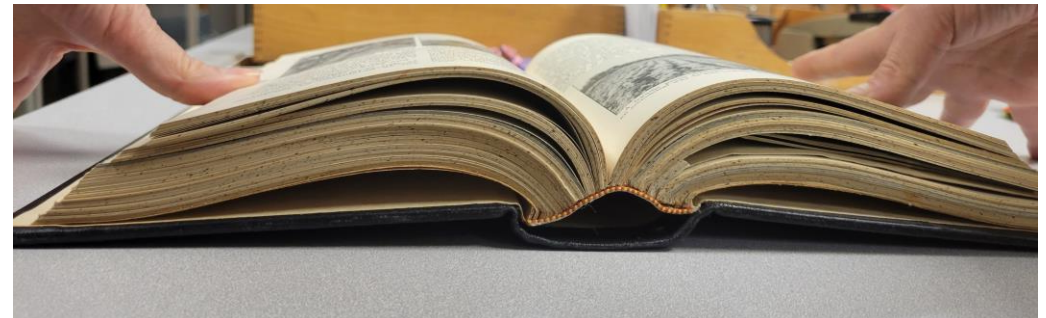| Scanning Speed[1]		(Landscape orientation, 200 or 300 dpi, Letter, Color, Grayscale and Monochrome)[3]	
		Simplex	Duplex
fi-7460		60 ppm[2] Color/Grayscale	120 ipm[2] Color/Grayscale
Scanning Mode		Simplex and Duplex	
Document Feeding Mode		Automatic document feeder (ADF)	
ADF Capacity [4]		100 Sheets (A4: 80 g/m^{2} or 20 lb.)	
Document Size	ADF minimum	51 mm x 69 mm or 2 in. x 2.72 in.	
	ADF maximum	A3 Portrait (297 mm x 420 mm or 11.7 in. x 16.5 in.), Double letter (279.4 mm x 431.8 mm or 11 in. x 17 in.)	
Interface		USB 3.0 (2.0 and 1.1 compatible)	
JPEG Compression		Hardware real time JPEG compression available	

Pros and cons

- Pros
  - Sheet feeder -- super fast
  - Scanning software with many customization
    - Templates
    - Single/batch
  - No on-going maintenance contract
  - Straight feed through
  - Portable size
  - Amazing color output
- Cons
  - Only works for loose sheets
  - Cannot use it for unique or fragile materials
    - potential of damaging pages

Plustek OpticBook (2019)

- Model: A300 Plus
  Software: Book Pavilion

- Purchasing decision

- Projects:
  - Rare and fragile books
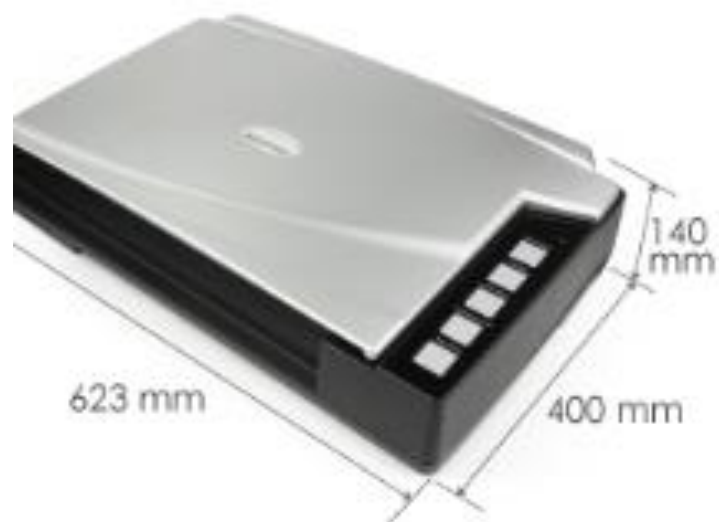 - Thick and tight binding
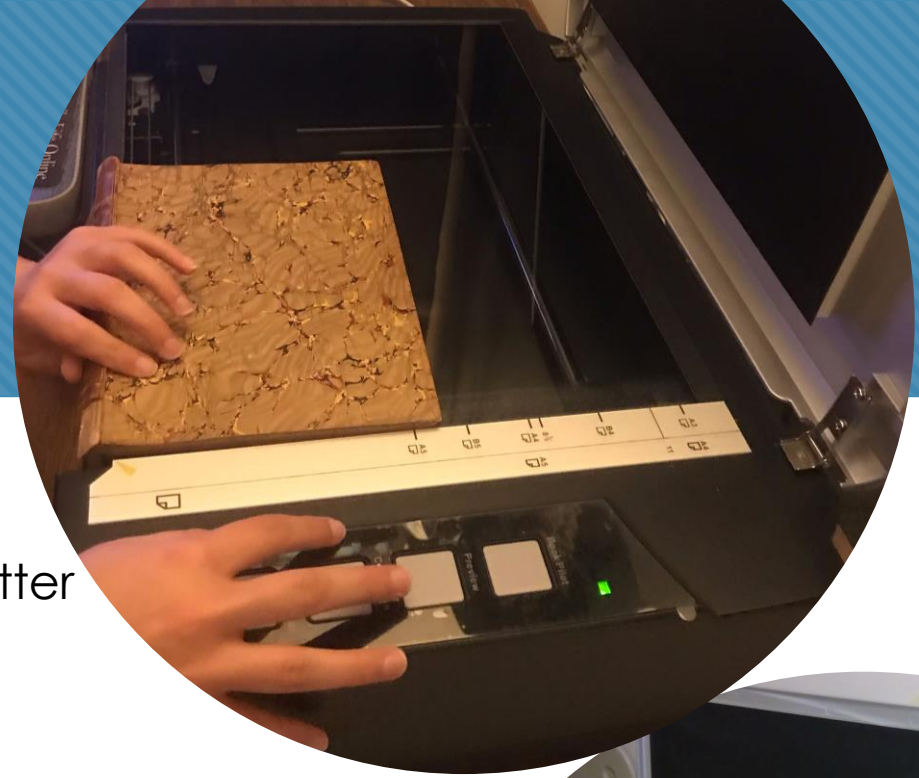 - Maps and posters
  - Photographs

Image Sensor	CCD
Optical Resolution	600 dpi
Hardware Resolution	600 x 1200 dpi
Scan Modes	Color: 48-bit input, 24-bit output
	Grayscale: 16-bit input, 8-bit output
	B/W: 1-bit output
Scanning Speed	2.48 sec (Color mode, 300dpi, A3)
	2.10 sec (Grayscale/ B&W mode, 300dpi, A3)
Scanning Area (W x L)	Max. 304.8 mm x 431.8 mm (12" x 17"), A3
Daily Duty Scan (Sheets)	5,000
Power Consumption	< 36 W (operation), < 8 W (idle)
Interface	USB 2.0
Net Weight	7.7 Kgs (16.96 Lbs)
Dimensions (W x D x H)	623 x 400 x 133 mm (24.53" x 15.75" x 5.24")
Protocol	TWAIN Compliant
OS	Windows XP / Vista / 7 / 8

Pros and cons

- Pros
  - No curvature and easy to get text close to gutter
  - Simple/intuitive software
  - Not sensitive to light
  - Fast scanning speed (up to 100 pages/hr)
  - Scanner lid removable
- Cons
  - Slight noise
  - Have to rotate the book when turning pages, might cause wear and tear on the books
  - Tiring for hands/wrists when working on heavy books

Mark 2 (2020)

- Atiz BookDrive Mark 2, with Canon EOS 5D Mark IV (WG) camera with Canon EF 24-105mm lens (cameras purchased separately)
- Frame with cameras
- Software critical to operation of system
- Purchase decision
  - V-cradle
  - Large bed
  - Cost

- Support the sRGB color space

- Capable of providing uncompressed 24-bit color TIFF files that conform to ISO 12234-2.2

- And a lot more (including rotation, deskew, drop, auto level, brightness and contrast adjustment, etc.)

- Available output formats include PDF (single or multi-page file), TIFF (LZW and CCITT Group 4, Single or multi-page file) and JPEG

TopFeatures

Latest 3rd generation scanner,
XL sizeV-shaped scanning, 2 x A2

Supreme ergonomics and comfort
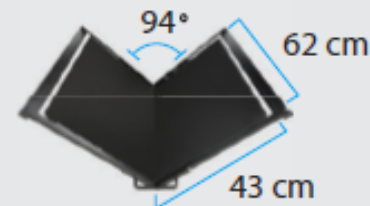
Extra uniform light for best image quality

No direct light or reflection hitting user eyes

Supports Canon DSLRs

Max scan speed 1,600 pages/hour

Auto Capture Switch integrated for scanning without pushing buttons

Max scanning size supported

94°
62 cm
43 cm

Max scanning size 2 x A2
43 x 62 cm (16.9" x 24.4")
Maxbook thickness:15cm

Dimension

120 x 149.8 x 137.9 cm
(47.3 x 59 x 54.3")
80 kg (176 lbs.)

Source: https://www.nmsimaging.com/atiz

Pros and cons

- Pros
  - Big scan bed
  - V-cradle to accommodate books that do not lay flat
  - Fast (though not super-fast for tiffs)
  - Simple to operate; several options for initiating capture
  - Requires light control; has frame
  - Flexible cradle
- Cons
  - Large footprint; requires step ladders to adjust cameras
  - Need to know how DSLR cameras work (focus/zoom)
  - Raw image files; does not create tiffs natively
  - Maintenance: must replace glass platen every 2-3 years
  - Slight pause between scans to wait for image processing
  - Ongoing maintenance costs