



CULTURAL HERITAGE

Solution Guide

PHASE**ONE**

what the world's best photography is made of

“We are not
makers of history.
We are made
by history.”

Martin Luther King Jr.

Contents

The World of Cultural Heritage	4	Solutions for High Volume Programmatic Imaging	28
Cultural Heritage Collection Types and Applications	5	Digital Transitions DT RGC180	29
Archives and Manuscripts	6	Digital Transitions DT BC100	30
Rare Books Archiving	7	Phase One XF Camera System	32
Transparent Film and Glass Plate Negatives	8	Digital Transitions DT RCam Reprographic Camera	36
Fine Art Reproduction	9	Phase One IQ Digital Backs	40
Special Digitization Projects	10	IQ Digital Back range	42
Multi-Spectral Imaging	11	Lenses and Accessories	44
		Schneider Kreuznach leaf shutter lenses	44
		Phase One focal plane shutter lenses	46
Cultural Heritage Solution Partners	12	Software	48
Phase One	12	Capture One for Cultural Heritage	48
Digital Transitions, USA	12	Warranties	54
Kaiser Fototechnik, Germany	12	References	55
Instant Capture vs. Scanning	14		
The Transparency Kit	18		
The General Purpose Kit	22		
Phase One Standard Copy Stands	24		
Phase One RePro 2motion	25		
Phase One RePro	25		
Phase One RSDmot	26		
Phase One RB 5056	26		
Phase One Film Capture Stage	27		
Phase One Film Carriers and Glass Plate Holders	27		



The World of Cultural Heritage

The Cultural Heritage world is diverse, with many different needs and challenges. For this reason Phase One offers modular and configurable solutions, which can be tailored to all specific needs.

The need for digitization is rapidly growing, with increasing focus on public access, research and preservation of information for the future. Many museums and libraries with valuable collections are expanding their digitization efforts, with exciting possibilities, made available by the rapid growth of internet-access for everyone. The history of Cultural Heritage photography is as long-

standing as photography itself. Historic collections in museums and libraries have often had a dedicated photographic studio for creating photographs of sensitive material, or for producing paper copies for researchers and scholars, protecting the original objects from wear or even damage.

Changing from analog based film processing to digitally based media has introduced for a completely new range of applications, and the possibility to share the material with a much broader audience than previously, while significantly increasing the reproduction quality.



Melk Abbey Library, Melk, Austria
Image © Will Pryce

Preserving the past for the future is often a race against time, as much of the material has a limited lifespan before it is gone forever, thus solutions that enable rapid capture are not only necessary but often crucial.

Cultural Heritage Collection Types and Applications

All Cultural Heritage collections are unique and diverse, but due to the nature of the collections, they most often fall into distinct categories. In order to address the diverse

nature of collections, Phase One invests in developing, implementing and delivering specialized and tailored solutions, designed to produce the best output quality, while ensuring material safety and efficient workflow.

The main collection categories are:

- Archives and Manuscripts
- Rare Books Archiving
- Transparent Material and Film Scanning
- Fine Art Reproduction



Archives and Manuscripts

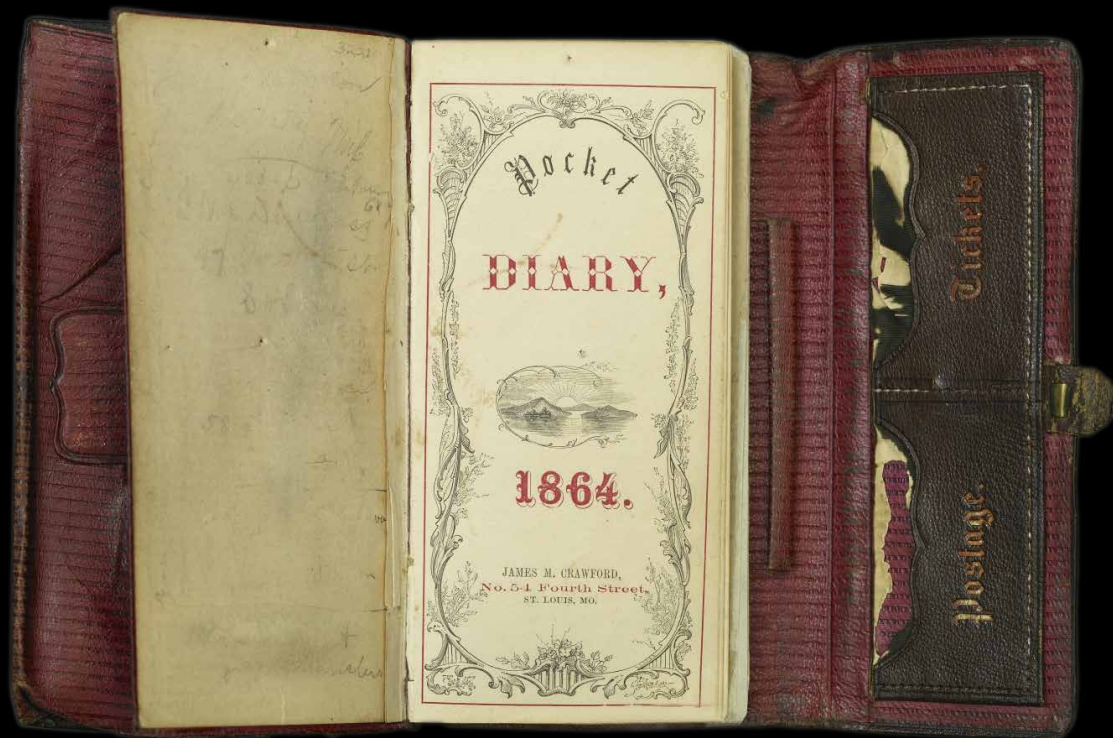
Documents, drawings, maps, manuscripts, photos, newspapers, musical scores, letters, post cards, and other flat objects in all sizes and shapes.

This type of work often requires a “set and forget” workflow where the camera and software are set up so that large numbers of flat objects can be recorded quickly while maintaining high resolution and accurate consistent color and luminosity.

The high resolution of the Phase One digital backs allows capturing several smaller objects at the same time, thus increasing speed and efficiency.

The requirement for lighting may be divided into two categories:

1. Uniform light over the entire surface, with strict requirements to color precision. This is often achieved by photographing the material together with a color chart, as a reference for recreating the correct and exact same colors in the future.
2. Directional light may be used to enhance texture and three-dimensionality of the object. This type of work often leaves artistic freedom to the photographer, as the choices of light will enhance certain features, while diminishing others, thus giving the image an interpreted look or style.



Rare Books Archiving

A large part of the Cultural Heritage community works on digitization of rare and delicate bound materials, such as books. Digitization of books often requires special attention to the binding, that can be fragile, and will determine how the material can be treated in the process. This fact can sometimes be the limiting factor when looking for fast capture turnaround.

Uniform lighting will typically be the choice of operation here, and will often be the same throughout when working with reflective material.

Using a leveled glass plate with the camera set for fixed focus on a copy stand will accelerate the capture process, and photographing both pages at the same time with One or Two cameras will also increase productivity.



Transparent Film and Glass Plate Negatives

Vintage glass plate negatives, medium and large format negatives, transparencies, including 35mm mounted slides, microfilm and all other transparent material.

Uniform illumination of the materials with good color reproduction is mandatory so that all color information may be retrieved during processing, sometimes involving inverting the image from negative to positive.

The conversion process can be open to interpretation, as the base material for the original transparency varies. This is true especially for the earlier glass plates where the specific type of chemicals and processing used is unknown.

Two rolls of film may behave very differently, both in the physical characteristics of the original base material and in their subsequent chemical development.

Traditional scanner solutions work with fixed sizes, such as 24x36mm, 6x6 or 6x9, thus limiting the versatility of the equipment substantially. Phase One camera based solutions work with all sizes of originals.

There is a tremendous speed advantage in the instant medium format capture over scanning, which may speed up the process by a factor 300 or more.

Fine Art Reproduction

3D and larger flat objects such as sculptures, pottery, decorative arts and paintings, are often captured from a tripod in the photo studio or in the gallery and exhibition halls, ideally with uniform lighting to suite the object's character and the curator's requirements

A whole range of different lighting can be used: from flash-based to continuous light to mixed light or even natural daylight. Best results are always obtained by using medium format camera solutions; either based on an SLR-type, or view cameras with tilt & shift movements.

The fastest workflow solutions comprise of a camera system such as the Phase One XF, available with the highest resolution sensors on the market.



© www.witikon.eu

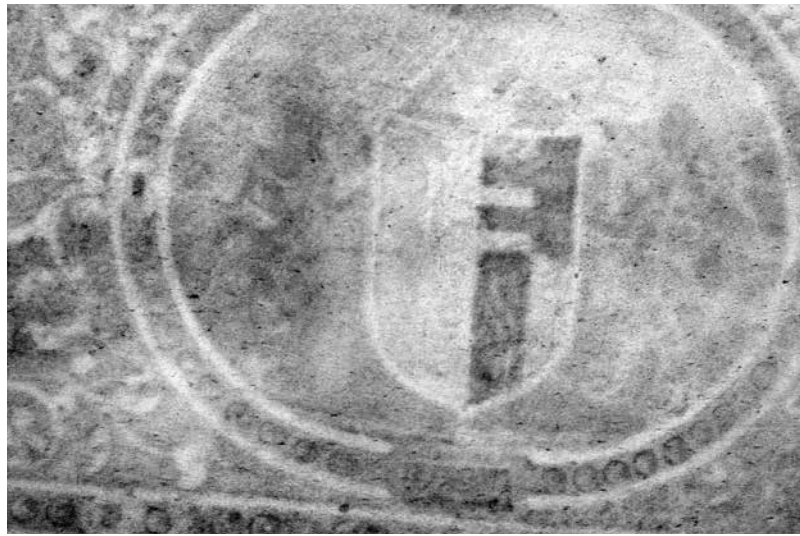


witikon.eu © Paul Safko

Special Digitization Projects

Many cultural heritage objects that are fragile and sensitive, often due to various types of damage and decay and are often very sensitive to human touch and thus require careful handling. Using high resolution, high precision cameras and optics allow researchers and scholars to perform non invasive investigation and analysis with minimal or no exposure to aggressive light rays or chemicals and bring out data that cannot be retrieved with traditional imaging techniques.

3D scanning combined with advanced photogrammetry and image analysis and calculation tools are used for measuring and evaluation of damage in historical objects. The same technology is used for creating exact replicas of precious sculptures and art work. The high resolution of Phase One cameras and the high quality and precision of the optics provide the basis for systems that are several times faster compared to other scanning solutions.



Images from The Cornaro Missal, Northern Italy, 1505, the world's most expensive illuminated manuscript. Images courtesy R.B. Toth Associates & Equipose Imaging, LLC

Multi-Spectral Imaging

Multi-spectral lighting systems, in conjunction with the use of narrow-band optical filters and special image processing can be utilized to retrieve and discover information in materials that have been subject to damage or decay and that is invisible under normal lighting conditions, and provide invaluable data for the research and conservation processes.

Phase One offers a number of unique camera solutions capable of capturing wide-spectrum color, as well as narrow-band achromatic images.

Cultural Heritage Solution Partners

Phase One

Phase One is the world leader in open-platform medium format digital camera systems and solutions designed to deliver the highest image quality for professional photography.

Our products are built by hand using the best materials, highest precision and most advanced quality assurance processes.

Our company was born digital and we have always strived to deliver the highest image quality possible through innovative solutions. Our strong commitment to serving the needs for Cultural Heritage photography has been reinforced by our partnership with Digital Transitions and Kaiser Fototechnik, with long standing expertise and experience in serving the Cultural Heritage Community. Well known Cultural Heritage institutions worldwide rely on our combined systems to consistently deliver

the highest level of quality, performance and safety for demanding collections of objects.

In addition to camera technology, Phase One develops world-class software for optimized capture and postproduction workflow. Our Capture One RAW file converter is known for its quality, flexibility and speed. The complete solution of camera system and software enables the Cultural Heritage photographer to achieve preservation grade quality without compromise.

Phase One was founded in 1993 and is based in Copenhagen with offices in New York, London, Tokyo, Cologne, Hong Kong and Shanghai.

Phase One is proud to work together with the world's leading value added resellers. In doing so we ensure the highest level of service and support to our customers.

Digital Transitions, USA

The Digital Transitions' Division of Cultural Heritage provides cameras and copy-stand solutions to support the digitization programs of libraries, museums, archives, collectors, service bureaus and other institutions.

Their experience in designing reprographic systems, executing preservation and commercial imaging programs gives them first-hand knowledge of the requirements and concerns cultural institutes face when digitizing all collection types. Digital Transitions'

approach is comprehensive: They work closely with every client to design a complete solution with an efficient standards-based workflow. This includes careful choice of hardware, integrating our systems into existing infrastructures, and providing continuing support and training to the staff in order to keep the digitization program running efficiently.

For more information, please visit:
<http://www.dtdch.com/>

Kaiser Fototechnik, Germany

For more than 40 years the copy stands from Kaiser Fototechnik have been chosen by photographers, libraries, and archives as basis for professional reprographic work. The combination with camera solutions and software from Phase One creates a line of Instant

Capture solutions for efficient and high quality digitization projects.

For more information, please visit:
www.kaiser-fototechnik.de/en/



S. MARIA
S. ORA S. D. E. T. R. E.

S. MARTINVS
S. PAVLVS

S. IACOBVS
S. IACOBVS

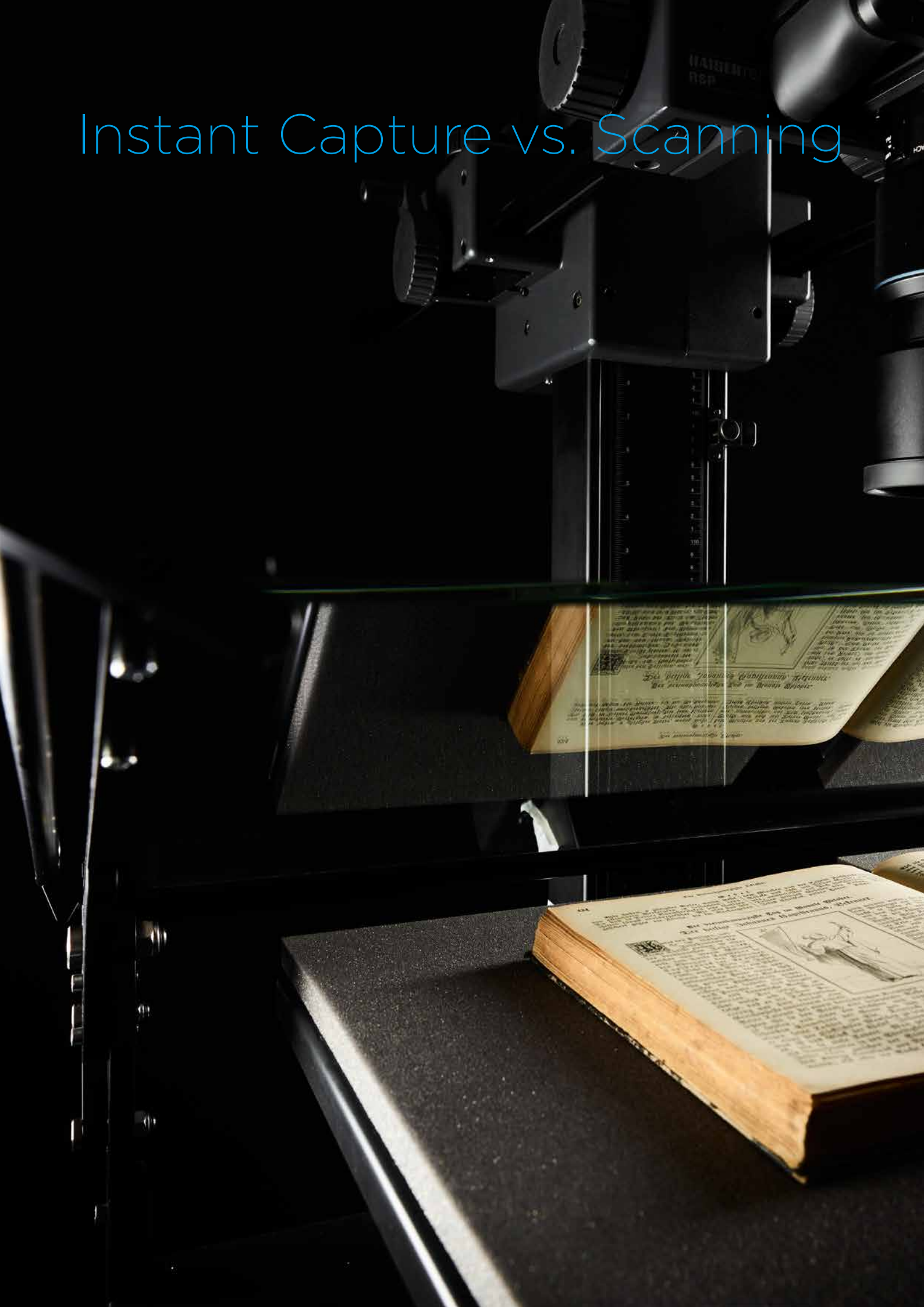
S. IACOBVS
S. IACOBVS

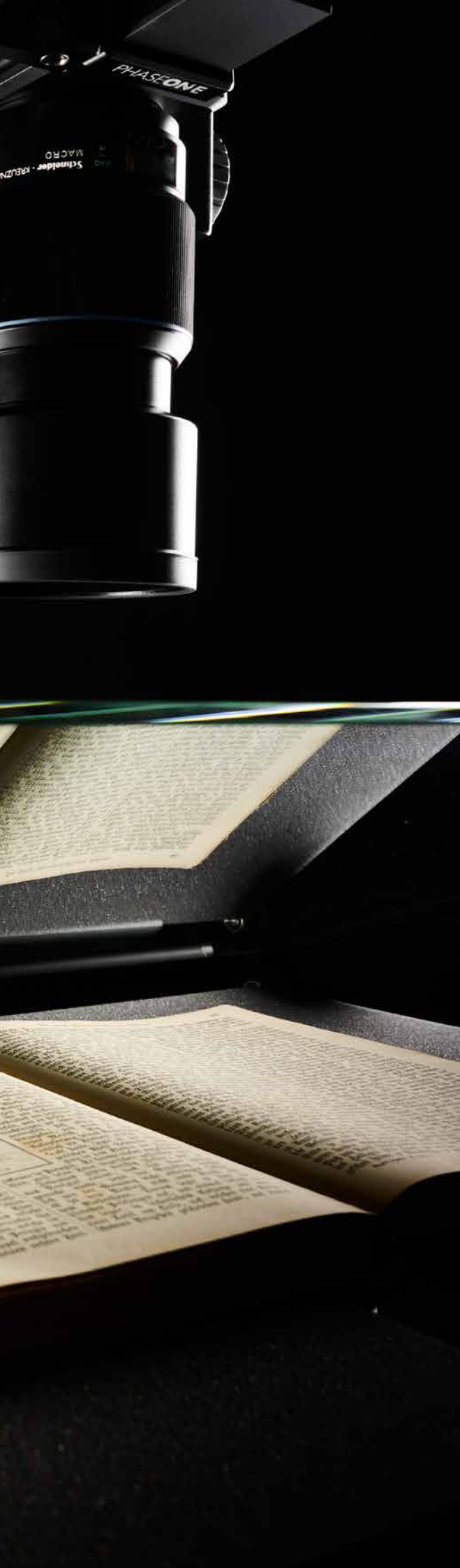
S. IACOBVS
S. IACOBVS

S. IACOBVS
S. IACOBVS

S. IACOBVS
S. IACOBVS

Instant Capture vs. Scanning





Speed

Traditionally, flat objects such as documents and books have been scanned using flatbed or overhead scanners equipped with a linear CCD sensor. Some of these devices can produce high resolution, high quality output however scanning a single page can take as long as 20-30 times more than when using a single-shot, high resolution medium format camera.

Image Quality

When capturing cultural heritage items it is important to produce and maintain the highest image quality possible, in terms of resolution, sharpness, tonality and color.

Phase One's high resolution sensors, Schneider-Kreuznach high precision optics, Kaiser's and Digital Transitions stable copy stands and Capture One's advanced workflow and algorithms, enable the the collections' curators, photographers and technicians to ensure that no detail gets missed and that their collections are archived to the highest level of quality for future use and preservation.

Standards Compliance

These solutions are often being tested and successfully pass the rigor of international standards and guidelines such as FADGI, DFG and Metamorfoze.

RAW Workflow

Unlike scanners, the RAW files coming from the Phase One IQ digital backs contain the RAW data and all the relevant information necessary for processing and re-processing, ensuring a future-proof workflow and a file that can be used time and again as needed and as software performance develops and improves.

Flexibility

By their nature, scanners are designed for reproduction of flat objects with fixed lighting and due to their size, weight and basic design, cannot be used for very large or odd-shaped 3D material.

In comparison, a camera mounted on a copy stand can be moved up/ down and can use different lenses to accommodate different object sizes, and of course can be mounted on a tripod thus allowing complete portability and flexibility in photographing almost anything.

Upgradability

With the advancement in technology and improvements in sensor resolution, optics and software algorithms, each component of the camera system can be changed or upgraded to take advantage of these advances, while keeping the same basic setup and workflow.

Low Maintenance

Collections often include hundreds, thousands or even millions of items that need to be digitized and reproduced consistently and accurately.

The Phase One XF and DT Rcam cameras are both designed and tested to withstand the toughest working conditions and are built with minimal number of moving parts and heavy duty leaf shutters, ensuring long life and low maintenance intervals. Modular design allows for quick and easy swapping of components when it is time for service and the local support provided by a network of trained, value added resellers ensures continuous uptime and fast turnaround.



115. *Job's ne*



Phase One IQ digital camera back
50, 60, 80 or 100 megapixel



Phase One XF medium format or DT
Rcam reprographic camera



uer Wohlstand. Hiob 42, 10–14.



und Hamath sollen das Ende sein. Das sei die Grenze gegen Mitternacht.

18. Aber die Grenze gegen Morgen sollt ihr messen zwischen Hauran und Damaskus und zwischen Gilead und dem Lande Israel, am Jordan hinab bis ans Meer gegen Morgen. Das soll die Grenze gegen Morgen sein.

19. Aber die Grenze gegen Mittag ist von Thamar bis ans * Haderwasser zu Kades und † den Bach hinab bis an das große Meer. Das soll die Grenze gegen Mittag sein.

* 4. Mose 20, 18. † 4. Mose 34, 5.

20. Und an der Seite gegen Abend ist das große Meer von der Grenze an bis gegenüber Hamath. Das sei die Grenze gegen Abend.

21. Also sollt ihr das Land austheilen unter die Stämme Israels,

22. und wenn ihr das Loß werfet, das Land unter euch zu teilen, so sollt ihr * die Fremdlinge, die bei euch wohnen, und Kinder unter euch zeugen, halten gleich wie die Einheimischen unter den Kindern Israel;

* 2. Mose 22, 20.

23. und sollen auch ihren Teil am Lande haben, ein jeglicher unter dem Stamm, dabei er wohnet, spricht der Herr, Herr.

Das 48. Kapitel.

Verteilung des Landes. Umfang der heiligen Stadt und Namen ihrer Tore.

1. Dies sind die Namen der Stämme. Von Mitternacht, an dem Wege nach Hethlon, gen Hamath und Hazar-Enon und von Damaskus gegen Hamath; das soll Dan für seinen Teil haben, von Morgen bis gen Abend.

* R. 47, 15, 17.

Neben Dan soll Asser seinen Teil haben, von Morgen bis gen Abend.

2. Neben Asser soll Naphthali seinen Teil haben, von Morgen bis gen Abend.

3. Neben Naphthali soll Manasse seinen Teil haben, von Morgen bis gen Abend.

4. Neben Manasse soll Simeon seinen Teil haben, von Morgen bis gen Abend.

9. Und dar
Teil absonde
Ruten lang

10. Und da
Priester sein
tausend Rute
gegen Mittag
Morgen und
tum des Herr

11. Das sol
den Kindern
gehalten habe
mit den Kind
abgefallen sin

12. Und sol
des geheiligte
Allerheiligste

13. Die Le
Priester Gre
tausend Rute
send in die B
soll fünf un
Breite zehn t

14. Und sol
noch verändere
ling nicht we
Herrn geheil

15. Aber die
in die Breite
tausend Rute
mein Land se
wohnen, und z
soll mitten dr

16. Und da
tausend und
Mitternacht u
gegen Morgen
tausend und f

17. Die Bor
hundert und f
nacht und geg
gegen Morgen



Schneider Kreuznach
leaf shutter lenses from
28mm to 240mm



Copy stand solutions
from Digital Transitions and
Phase One



Capture One
Cultural Heritage

Phase One Instant Capture

The Transparency Kit



Transparent Film and Glass Plate Negatives

With a capture rate of one image per second, the Phase One Film Capture Kit is up to 400 times faster than flatbed, drum or virtual-drum scanners.

Regardless of the size of the original glass or film negative or transparency, it provides a consistent and reliable workflow, ensuring that the highest levels of image quality and accuracy are met.

The newly designed Film Capture Stage provides an adjustable, geared support mechanism and is compatible

with a range of carriers for glass plate negatives as well as most popular film strip and sheet formats. It can be easily adjusted to position the object directly under the camera. Made of high-grade aluminum ensures longevity and reliability for many years.

The film carriers, also made from aluminum, are designed to maintain film flatness with minimal amount of stress and easy mounting/ dismounting.



The glass plate carriers support most common and odd plate formats and are equipped with an optically optimized glass base. These too are made of high-grade aluminum and are built to last. They provide an economical solution for almost all types and sizes of plates.

With sensitive glass and film transiciencies and negatives, material handling and its safety are key and the Phase One Film Capture Kit offers the ideal solution for a wide range of applications.

The Phase One XF camera system comes with a Schneider-Kreuznach 120mm Macro Auto Focus lens designed to produce a flat image and thus ensuring maximum sharpness across the frame.

Alternatively, The DT RCam camera system is equipped with a shutter that is rated to 1 million cycles service intervals, allowing for reliable and consistent capture of the highest detail with minimum amount of vibration.



Components

The basic Instant film capture kit consists of:

- Phase One XF camera with a 50MP IQ150 digital camera back
- Phase One RSP RePro motorized copy stand
- Schneider Kreuznach 120mm/ f4 Macro AF lens
- Phase One Film Capture Stage
- Optional film carriers for most common formats: 35mm strip, 120mm strip, 4 x 5in sheet, 9 x12cm sheet, 8 x 10in sheet and 35mm mounted slides.
- Optional Glass plate carriers for most common formats
- Optional Kaiser 2436 Lightbox, 60 x 50cm, High Frequency dimmable
- Optional extension tubes for higher resolution/ magnification
- Capture One CH

Benefits and features

- Easy, foolproof operation with geared, accurate adjustments
- Solid, reliable and durable build
- Flexible and modular design
- Up to 400 times faster than traditional scanners
- Consistent, reliable Autofocus with excellent manual option Live View adjustment
- 300MB 16-bit output size



Image on the right produced from a 12x17cm glass negative, UK, circa 1870



Phase One Film Capture Stage



Phase One XF medium format



Phase One 50MP IQ150 digital camera back



Schneider Kreuznach 120mm/ f4 Macro AF lens



Extension tubes for high magnification, high-resolution capture



Kaiser 2436 Lightbox: 60x50cm, High Frequency, dimmable



Capture One Cultural Heritage



Phase One RSP Repro MOT



Phase One Instant Capture

The General Purpose Kit

Components

The basic General Purpose Instant Capture Kit includes:

- Phase One XF camera with an 80MP IQ180 digital camera back
- Phase One RSP 2-Motion motorized copy stand
- Schneider Kreuznach 80mm/ f2.8 LS lens
- Capture One CH

Features and Benefits

- Solid, reliable and durable build
- Easy, foolproof operation
- Maximum adjustability
- 2-speed, self-limiting worm gear for accurate positioning
- Max camera load of up to 15kg
- Flexible and modular design
- Up to 400 times faster than traditional scanners
- Consistent, reliable Autofocus with excellent manual Live View adjustment
- Flicker-free, 5400k dimmable long-life tubes
- 480MB 16-bit output size



Phase One RSP 2-Motion
motorized copy stand



Phase One XF camera



Phase One IQ180 80MP
digital camera back



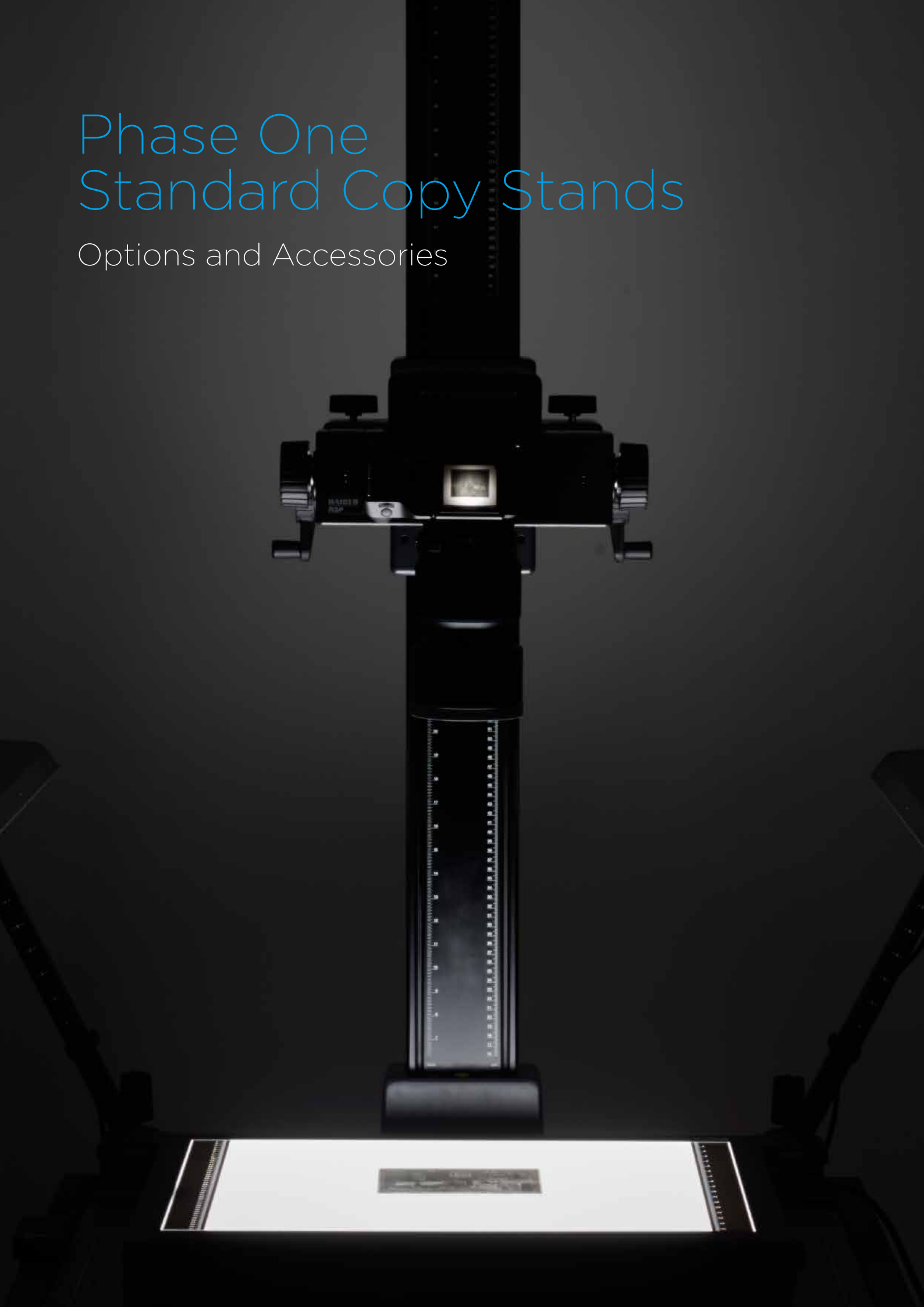
Schneider Kreuznach
80mm/ f2.8 LS lens



Capture One
Cultural Heritage

Phase One Standard Copy Stands

Options and Accessories





Phase One RePro 2motion - Maximum flexibility for larger objects

The RSP 2Motion adds an adjustable, motorized 100x80cm baseboard. Allowing for greater flexibility and use of different lenses when scanning larger objects. The baseboard can be fitted with a steel sheet plate up to DIN A0 format for magnetic attachment of large drawings, maps etc.

Specifications

Total height	227 cm (89.4 in.)
Maximum working span	160 cm (63 in.)
Column cross section	120 x 80 mm (4.7 x 3.1 in.)
Maximum load	on camera carrier: 10 kg (22 lbs.) on base board: 15 kg (33 lbs.)
Base board	100 x 80 cm (39.4 x 31.5 in.)
Camera platform	13 x 13 cm (5.1 x 5.1 in.)
Connecting thread (interchangeable)	1/4" / 3/8"
Required floor space (WxD)	100 x 126 cm (39.4 x 49.6 in.)



Phase One RePro - Basic stability for digitization work

Held by many as the gold standard of copy stands, the Phase One RSP RePro motorized column is designed to carry a maximum of 15kg. It allows for accurate height adjustment by using its two-speed remote control and self-locking mechanism.

The large cross-section high-grade aluminum column provides a stable and rigid platform. The rigid table frame can be fitted with a base board that has printed cm and inch grids and scales, or with a built-in trans-illuminator for transparency scanning.

Specifications

Mounting plate	13 x 13 cm (5.1 x 5.1 in.), tiltable by +/- 90°
Column height	150 cm (60 in.)
Maximum load	approx. 15 kg (33 lbs.)
Mounting thread	1/4" / 3/8" exchangeable



Phase One RSDmot - Motorized desktop model

For studios with limited space or specific needs, the Phase One RSD-Mot provides a compact and flexible solution and is available with 2 different column lengths and base sizes. The RSD kit comes with the larger base plate. When used with the Schneider Kreuznach 120mm AF F4 Macro lens an additional adapter plate is required.

Specifications

Base plate (WxHxD)	900 x 730 x ??mm (34.4 x 28.7 x ?? in)
Height of column	1.20 m (3.9 ft.)
Column cross section	105 x 74 mm (4.1 x 2.9 in.)
Loading capacity	8 kg (17.6 lbs.)
Camera mounting plate:	130 x 78 mm (5.1 x 3.1 in.)



Phase One RB 5056 - Dimmable repro lights

The Phase One RB5056 HF daylight fluorescent banks are rated to 5,400k light temperature and CRI of 90-100 and are each equipped with 2 flicker-free 55w dimmable tubes. Mounted with strong die-cast clamp bases, they can be adjusted for height and angle to maintain uniform illumination across the image.

Specifications

Light temperature	5,400
CRI rating	90-100
Power Output	55W (each lamp)



Phase One Film Capture Stage

The newly designed Film Capture Stage provides an adjustable, geared support mechanism and is compatible with a range of carriers for glass plate negatives as well as most popular film strip and sheet formats. It can be easily adjusted to position the object directly under the camera.

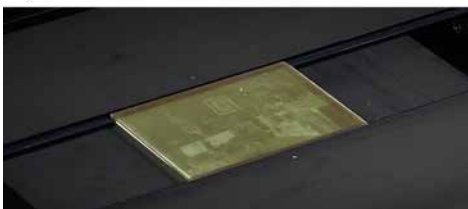
Specifications

Dimensions (WxHxD)

730 x 216 x 700 mm

(28.7 x 8.5 x 27.5 in.)

Weightapprox. 13.5 kg (29.7 lbs.)



Phase One Film Carriers and Glass Plate Holders

The new Phase One film and glass plate carriers were designed to work with the Film Capture Stage, ensuring smooth handling and efficient workflow.

Made of milled high-grade aluminum and using optically optimized glass base, they maintain parallelism and flatness, helped by specially designed clamps that carefully stretch and flatten the film strips.

Supported film formats:

- 35mm strips
- 120mm strips
- 9x12 cm
- 13x18 cm
- 18x24 cm
- 4"x5"
- 8"x10"
- Mounted 35mm slides

Supported glass plate formats:

- 9x12 cm
- 13x18 cm
- 18x24 cm
- 24x30 cm

Solutions for High Volume Programmatic Imaging

From Digital Transitions



Digital Transitions DT RGC180 Programmatic All-purpose Digitization Cradle

Originally designed and built for the National Archives Records Administration, the DT RGC180 Reprographic Capture Cradle is the latest integration of book capture and reprographic technology.

Developed to achieve preservation grade reproductions at the fastest rate of capture—while providing reliability, ease of use, and safety of the original materials—the DT RGC180 is the optimum digitization solution for the rapid capture of rare, bound and loose document collections.

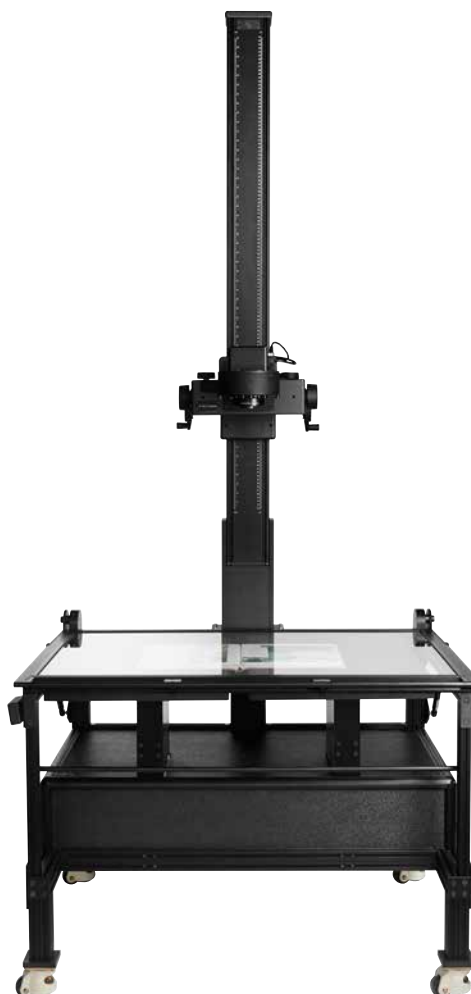
The DT RGC180 features a built-in pneumatic 180° dual platen book cradle that adjusts to the thickness of bound collections. The system is designed to bring printed materials to optimal focus and accommodates books up to 63.5 x 89.0 cm with up to 10.2 cm bindings.

The book cradle platens are self-adjusting platforms that utilize dual pneumatic pistons for raising and lowering. The platforms gently push the books against the glass plate for image capture and can also leave documents partially open when the binding is too fragile and cannot be completely flattened.

The DT RGC180 is operated by foot pedals and can be fine-tuned to protect the widest range of materials. For increased safety, the glass top is hinge mounted to the back of the table and includes lift-assist gas pistons and is secured with hand locks.

The DT RGC180 features a modular design that incorporates today's finest digital camera systems and can be upgraded as technologies or needs change.

To increase versatility, a 76.2 x 101.6 cm copyboard is also included that can be placed over the glass so that oversized books, foldouts, maps, rare materials, paintings, film and glass negatives (utilizing the Phase One Film Capture Stage), and more can be digitized. The DT RGC180 Capture Cradle is truly a proficient system that will protect your investment and enable you to expand the scope of your digitization program.



Digital Transitions DT BC100 Programmatic Book Cradle Solution

Built on the success of the DT Reprographic System, this system redefines the way library materials are digitized. The BC100 is the only true 48 bit system on the market that will meet the high demands of cultural institutions by providing the highest image quality, speed, and reliability needed to capture a wide variety of bound and loose materials — all while protecting the original documents.

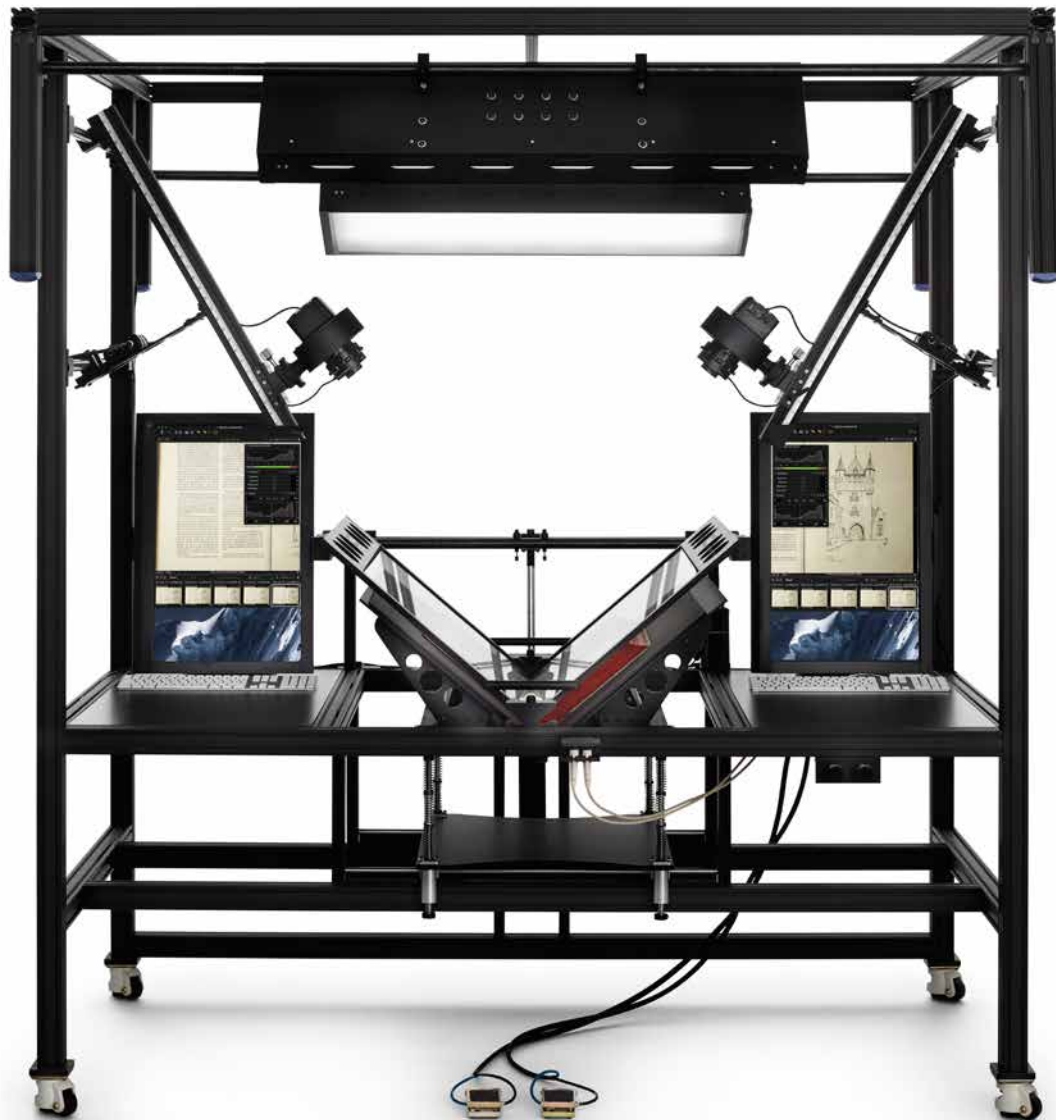
Designed for the mass digitization of books, the 100° bonded v-shaped anti-reflective glass platen and adjustable book cradle secures and holds the largest variety of bound materials with page sizes larger than 17"x24" or A2 size per side.

These combined components keep the focus plane the same while being gentle on the binding of the book. The glass platen of the DT BC100 is designed with a pneumatic lift system to increase productivity while protecting the books, and is incapable of free falling.

To ensure the safety of the binding, the mechanism of the book platform slides back and forth and then sets to make certain that the glass platen is always in the middle of the book's gutter.

The platform rests on a controllable support system that may be adjusted by the operator for different book types. This system has been designed to address the shortcomings of traditional robotic systems, including lack of quality control, the tendency to skip or damage fragile pages and the need for manual assistance. The BC100 has also been constructed with the comfort of the operator in mind. The operator sits in the station and controls the system with a variety of foot and/or hand releases, thereby preventing repetitive stress injury. All operations are within arm's length and the lights are at a pleasant level. There are extra shelves allowing the operator to have computer displays and other equipment nearby.

The modular design of the DT BC100 allows the camera and capture device to be upgraded when necessary, ensuring that it will not become obsolete. It is fabricated with airplane grade extruded aluminum to .005" tolerances, so it will not break down after years of continuous use. The versatile features and reliability of the DT BC100 make it the ideal solution for all of your mass digitization projects.



Features & Benefits:

- Dual Camera Book Capture System with an incredible rate of capture.
- Capable of shooting bound and loose materials, including works on paper, serials including newspapers, loose manuscripts, photos, drawings, etc.
- 100° anti-reflective glass platen enables the digitization of up to 6" bindings and page sizes larger than 17" x 24" or A2 size per side.
- Delivers preservation grade TIFFs, JPEGs, and PDFs in RGB, grayscale, and CMYK modes. Open Source Raw and DNG also supported.
- The only true 48 bit system on the market.
- Operated by foot and/or hand releases.
- Four retractable vibration dampening casters.
- Open platform design allows camera and capture devices to be upgraded, thereby preventing obsolescence.
- Variable resolution options available .
- Compatible with our DT Reprographic Systems for increased versatility.
- Easy to operate.
- Durable design for years of continuous use.



Phase One XF Camera System

Built on many years of experience in the high end photographic market, the Phase One XF camera system brings unrivaled quality, accuracy and reliability and sets a new standard for a flexible platform equipped with everything that is needed for reproduction at the highest possible level.

- Robust, solid, aluminum-alloy construction
- Advanced, expandable operating system
- Intuitive and easily customizable user interface
- Choice of fully integrated Waist Level and Prism viewfinders
- Support for all Schneider-Kreuznach leaf shutter 645 lenses from 28mm-240mm



- Support for all Phase One and Mamiya focal plane shutter lenses and many legacy Mamiya 645 lenses
- Advanced HAP auto focus system with remote control from Capture One
- Compatible with all Phase One IQ digital backs with a choice of 40-100 megapixel

XF Camera System Highlights



Honey Bee AF Platform

HAP-1 is designed with a brand new custom processor, coupled with a high-resolution CMOS AF sensor. Combining a unique floating-point architecture and a fully programmable interface, HAP-1 allows for continuous tailoring and tuning of the AF system, providing user-accessible software updates for years to come. The new Hyperfocal Point Focusing, creates unique presets for each lens which make HAP-1 automatically return to that specific point on demand.

Sequence Photography

Focus stacking - Select the desired focus plane and the camera will create a series of images with several focusing steps and these can be then stacked in 3rd party software solutions.

Intervalometer - the camera can be programmed to take a series of images at fixed intervals.

Exposure bracketing - When there is a need to record an extremely wide dynamic range, the camera can be programmed to create a series of images with fixed ISO and aperture but with variable exposure times.

New Modular Viewfinders

The waist-level finder is convenient for many styles of photography, be it in studio or on location. With the ability to retain the connection between photographer and model or simply to attain a more effective working position, the waist-level finder is a great addition to the creative toolbox.

The XF Camera System can measure the light on the newly designed HAP-1 autofocus platform. Using this ability, light metering is now available with our waist-level finder.

With a solid glass prism, the 90° viewfinder is the brightest of its kind and has virtually no loss of light. Together with nearly 100% frame coverage, the prism viewfinder displays a perfect view of the scene and comes standard on all XF Camera Systems.

OneTouch User Interface

The OneTouch UI on the XF Camera System is a seamless combination of intuitive dials, keys and touch screen interactions. Each operation is used only where it makes sense and where you want it. OneTouch UI is designed with the goal of making controls so simple that photographers will feel at home within moments of getting started. The 1.6" grip screen is designed for clear visibility in any lighting condition using a transreflective capacitive.

XF Camera System

Technical Specifications

Imaging Sensor



Imaging Sensor

Digital Back Options	IQ3 50-100MP & IQ1 40-80MP with XF mounts (See specification for Digital Backs)
Backwards Compatibility	IQ1 & IQ2 with P mounts

Size & Weight



Dimensions (W x H x D)

Weight

XF Camera System* w/ 90° Prism viewfinder	152 x 135 x 160 (mm)	1390g
XF Camera System* w/ Waist level finder	152 x 173 x 160 (mm)	1020g
XF Camera Body w/o battery	152 x 108 x 85 (mm)	790g
IQ3 Digital back	98,5 x 88,5 x 62,3 (mm)	695g
90° Prism Viewfinder	68 x 52 x 152 (mm)	500g
Waist level finder	67 x 17 x 57mm (closed) 67 x 65 x 57 (open)	130g

* without lens

Battery

Battery	BP-911/914/915 3400 mAh
Powershare	IQ3 only
Battery Charger	Integrated
Support for USB 3 Charging hub (1.5 A)	IQ3 only
High capacity back interface	IQ3 only

Flash

Flash trigger	Integrated Profoto wireless
Wireless trigger range	20m (outside)
Back flash sync	Yes
Flash sync speed focal plane shutters (max)	1/125s
Flash sync speed leaf shutters (max)	1/1600s



Digital Transitions DT RCam Reprographic Camera

Cultural institutions have the Herculean task of achieving perfection when scanning their collections. To ensure these images stand the test of time, it is imperative that they have the best tools. The existing reprographic cameras and reproduction scanners available on the market today were designed around yesterday's digital capture technologies, thus producing a substandard digital product. The DT RCam is the result of extensive research into the needs of cultural institutions in order to develop a state of the art reprographic camera.

The DT RCam is built from the ground up with the highest quality components for today's modern digital backs. This high quality construction ensures durability, precision and

quality - all a must for this industry. The DT RCam is a versatile reprographic camera designed to work with a wide variety of digital backs to ensure that you can utilize the best back for each particular project. Many other reprographic cameras are difficult to align and keep aligned, hard to set up, and are limited by the lenses, shutter systems, software, and digital backs they support. The DT RCam is the only reprographic camera on the market that addresses all of these concerns and is truly a superior product.



Digital Transitions DT RCam Reprographic Camera



20mm extension tube



40mm extension tube



Lens board for 120 mm



Helicoid focusing ring

Electronic USB shutter

120 mm Apo Digitar



Lens board for 72 mm
(90 mm looks identical)

Helicoid focusing ring

Electronic USB shutter

72 mm Apo Digitar
(90 mm looks identical)

Features & Benefits:

- Built to extremely tight tolerances to ensure image and focal plane are in perfect alignment.
- Purpose-built helical focusing system. Does not slip even when unlocked.
- Optional lock to prevent accidental changes.
- Compatible with a wide variety of digital backs.
- Built with the industry's leading components.
- Compatible with stitching adapters for increased resolution
- Perfect integration with the DT Reprographic Systems and many other copy stands
- Easy 90° rotation for orienting the sensor left-right or fore-aft on the working surface.

Components:

1. Digital back with adapter plate (back sold separately).
2. DT RCam camera body.
3. Lens with lens board, helicoid focusing ring and electronic USB shutter.
4. Power supply for USB shutter.
5. Adapter plate for universal camera mounts.
6. Control box for electronic USB shutter.



Phase One IQ Digital Backs



© Alexia Sinclair



© Richard Thompson

© David LaChapelle

IQ Digital Back range

Technical Specifications

IQ3



Specifications

	IQ3 100MP	IQ3 80MP	IQ3 60MP	IQ3 50MP
Resolution	101 Megapixel	80 Megapixel	60 Megapixel	51 Megapixel
Long exposure	60 minutes	60 minutes	60 minutes	60 minutes
16 bit Opticolor+	yes	yes	yes	no
Dynamic range	15 f-stops	13 f-stops	13 f-stops	14 f-stops
Sensitivity (ISO)	50 - 12800	50 - 800	50 - 800	100 - 6400
Sensitivity (ISO) - Long Exp.	50 - 12800	200 - 3200	140 - 3200	100 - 6400
Sensor+ (ISO) - 1/4 res.	no	200 - 3200	200 - 3200	no
Lens factor	1	1	1	1,3
Sensor type	CMOS	CCD	CCD	CMOS
Sensor Size	53.7 x 40.4	53.7 x 40.4	53.9 x 40.4	44 x 33
Active pixels	11608 x 8708	10328 x 7760	8984 x 6732	8280 x 6208
Pixel size (micron)	4.6 x 4.6	5.2 x 5.2	6.0 x 6.0	5.3 x 5.3
Output image dim. 300 DPI	98.3 x 73.2 cm	87.4 x 65.6 cm	76.1 x 57 cm	70.1 x 52.6 cm
Output image dim. 600 DPI	49.1 x 36.9 cm	43.7 x 32.8 cm	38 x 28.5 cm	35.0 x 26.3 cm
Mount options*	XF, H	XF, H, V	XF	XF

3.2" Touch Display	yes	yes	yes	yes
High Bandwidth Interface	yes	yes	yes	yes
XF Powershare	yes	yes	yes	yes
Wi-Fi 802.11 n	yes	yes	yes	yes

Captures per second

	14-bit	16-bit		
Focal Plane (Full res.)	1,4	0,7	0,8	0,9
Focal Plane (Sensor+)	n/a		1,1	1,2
Leaf shutter (Full res.)	1,2	0,7	0,7	0,8
Leaf shutter (Sensor+)	n/a		1	1,4

IQ1



IQ2



IQ1 80MP

IQ1 50MP

IQ2 60MP Acromatic

80 Megapixel	51 Megapixel	60 Megapixel
2 minutes	60 minutes	1 minutes
yes	no	no
12.5 f-stops	14 f-stops	13 f-stops
35 - 800	100 - 6400	200 - 3200
no	100 - 6400	no
140 - 3200	no	no
1	1,3	1
CCD	CMOS	CCD
53.7 x 40.4	44 x 33	53.7 x 40.3
10328 x 7760	8280 x 6208	8964 x 6716
5.2 x 5.2	5.3 x 5.3	6.0 x 6.0
87.4 x 65.6 cm	70.1 x 52.6 cm	76.1 x 57 cm
43.7 x 32.8 cm	35.0 x 26.3 cm	38 x 28.5 cm
P, H, V, C	P, H, V, C	P, H, V, C
yes	yes	yes
no	no	no
no	no	no
no	no	yes
0,8	1,8	0,9
1,1	n/a	n/a
0,7	1,4	0,8
1	n/a	n/a

Mount options*

XF: XF, DF⁺ and DF
 P: DF⁺ and DF
 H: Hasselblad H1 and H2
 V: Hasselblad V-series
 C: Contax 645AF

Lenses and Accessories

Schneider Kreuznach leaf shutter lenses



28mm LS f/4.5

Provides complete coverage of full-frame medium format, and provides the fastest flash synchronization capabilities.

- Nearly distortion free
- Minimal light falloff
- 102° viewing angle and a min. focusing distance of 35 cm



35mm LS f/3.5

The professional choice for wide-angle, providing quality in both flash and daylight shooting.

- Tack sharp wide-angle lens
- Full frame edge-to-edge sharpness
- Minimum optical distortion

Minimal distortion semi-wide-angle design provides a normal look, great for editorial portraits and lifestyle photography.

- Fast aperture, shallow depth of field
- Compact size with LS capabilities

For the full range of available lenses please see www.phaseone.com



80mm LS f/2.8

A preferred choice for location fashion photographers using fill flash and an essential lens for every photographers kit.

- Fast aperture allowing shallow depth of field
- Edge-to-edge sharpness
- Extreme optical performance



110mm LS f/2.8

A longer focal length with just enough optical compression for full-length fashion, beauty and portraiture.

- Fast lens allowing shallow depth of field
- Extreme anti-flare optical design



120mm LS f/4.0

Macro lens ideal for close-up product shots, and equally ideal for close up beauty, action, nature and wildlife photography.

- Edge-to-edge tack sharp images
- Beautiful out-of-focus bokeh
- Auto Focus and Manual focus

Lenses and Accessories

Phase One focal plane shutter lenses



35mm AF f/3.5

A compact and lightweight wide-angle. Ideally suited for street, landscape, interior or architecture photography.

- 90° viewing angle
- Perfect for the travelling photographer
- Very compact size



45mm AF f/2.8

Using low dispersion glass, this wide-angle lens offers minimal chromatic aberration and is ideal for high contrast conditions.

- Fastest wide-angle lens
- Low weight and small form factor
- Low distortion and minimum flare

A great all-purpose lens, exhibiting outstanding optical performance. All scenes are captured with amazing detail and accuracy.

- Shallow depth of field
- Edge-to-edge sharpness
- Minimal optical distortion

For the full range of available lenses please see www.phaseone.com



120mm AF f/4

The 120mm AF Macro lens is staggeringly sharp and ideal for beauty, portraits and close-up macro work this lens delivers amazing results in all fine detail applications.

- Staggeringly sharp lens for macro and beauty work
- Focus Limiter ensures fast auto focus in the relevant focus range
- Amazing results both in close-up and distant imaging

To enhance operation for wedding and portraits, this lens offers fast internal focusing for easy use with special effect filters and vignettes.

- Amazingly sharp edge-to-edge at wide open
- Great low light performance
- Push-pull AF lock

The versatility of this lens makes it a preferred choice for location photographers, securing great image quality at all focal lengths.

- Compact and light weight zoom lens
- Push-pull AF lock – fast and quick for hand held use
- Covering several focal lengths



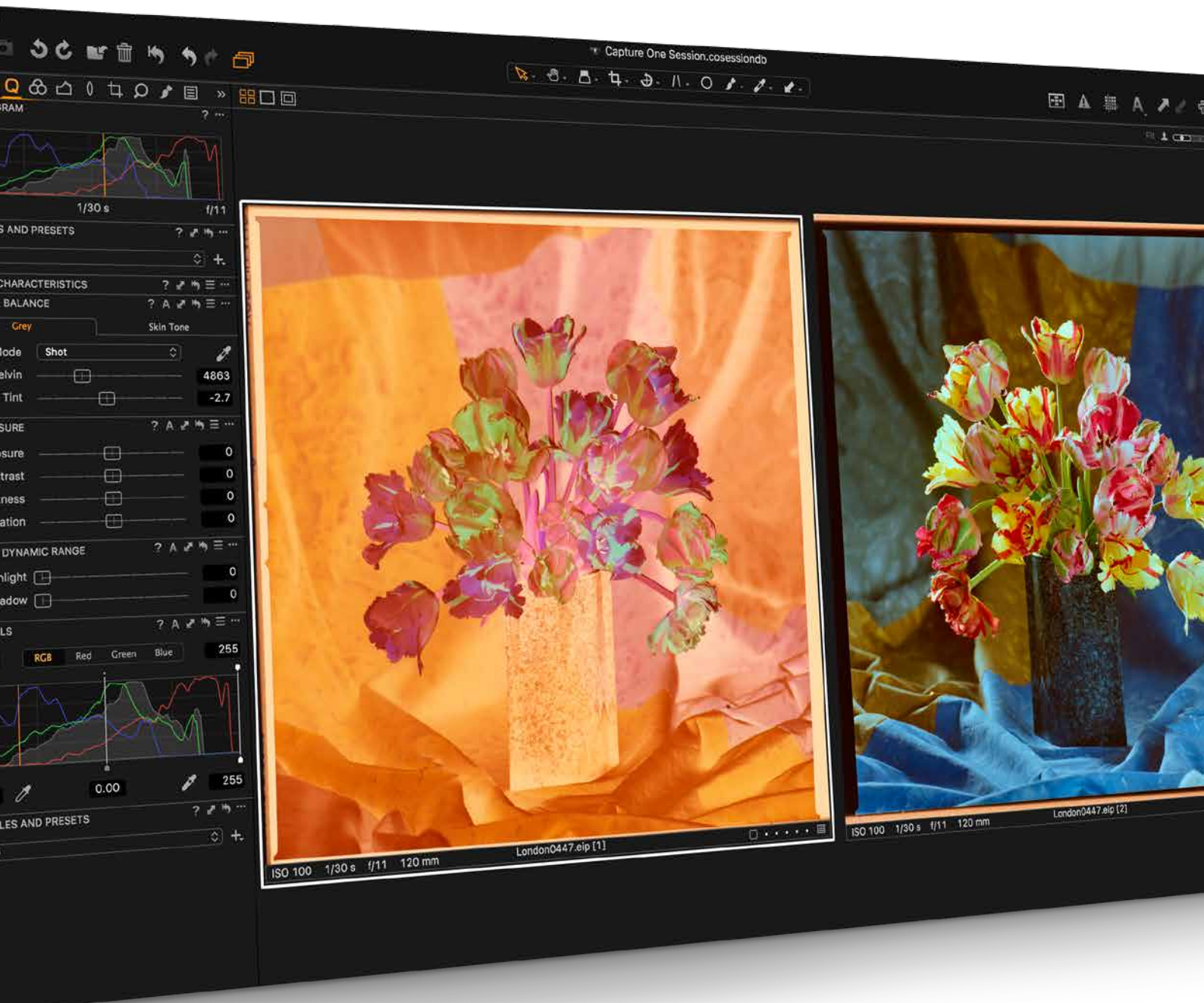
150mm AF f/2.8



75-150mm AF f/4

Capture One for Cultural Heritage

Capture One CH is a professional Rapid Capture Solution dedicated to the Cultural Heritage community. Built on the renowned Capture One Pro software, The Cultural Heritage edition offers a highly specialized feature set that delivers a significantly faster reprographic workflow during both capture and post-production.





CH A Quantum Leap in Productivity

Use Capture One to optimize your images. Not only do you the highest image quality from the advanced image render engine, you also have access to powerful adjustment tools to fine-tune your images for final presentation, digital asset management for archival and retrieval, and much more.

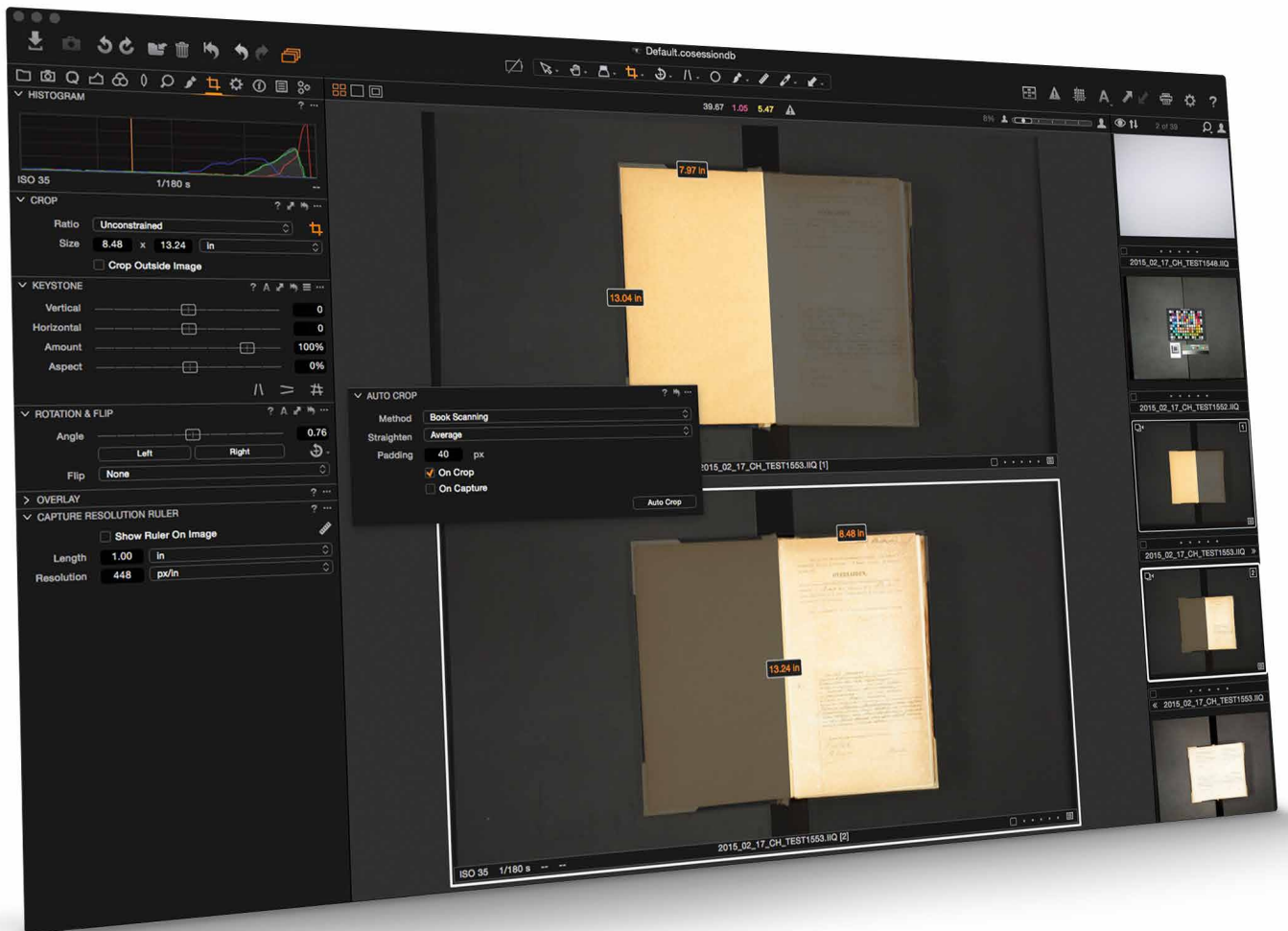
CH Negative Film Reproduction Tool and Styles

An improved workflow that automates the conversion of negative transparent material in both black & white and colors. Use the exposure tools in an intuitive way to adjust exposure, contrast and colors, and get perfect results, ready for print or post processing.

A selection of Cultural Heritage styles allow to quickly chose a set of conversion parameters for different film types.



CULTURAL HERITAGE



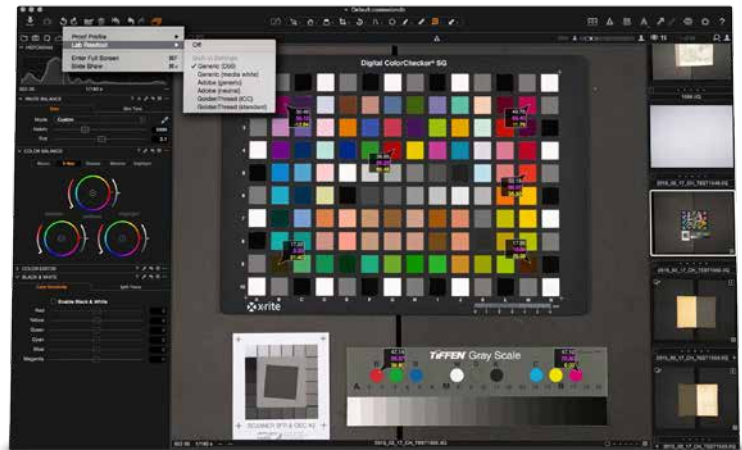
CH Auto Crop & Auto Rotate

Boosting productivity by automating cropping in post-processing. Select cropping options for flat art reproduction or books, including corner or edge alignment with positive or negative padding.

On-Capture multi-crop script increases productivity when scanning books that do not require the full resolution of the camera.

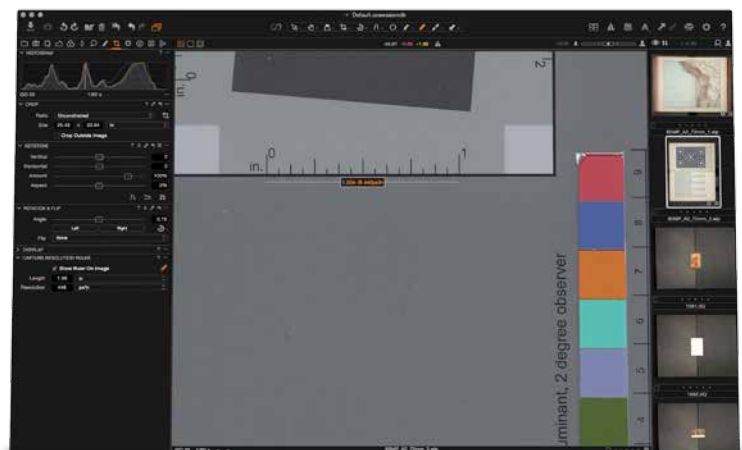
CH LAB Color Readout

Enables precise verification of colors, in LAB (1976 CIE L*a*b*). Fully compliant with FADGI IV and Metamorfoze reproduction guidelines. Export methodologies compatible with major CH solutions on the market, such as Golden Thread (TM) and Adobe Photoshop (TM).



CH Capture Resolution Ruler

Allows marking a known length in inches or centimeters and calculating the exact capture resolution, so that the camera-to-subject distance can be adjusted and the required resolution can be reached.



CH ICC Profiles for Cultural Heritage

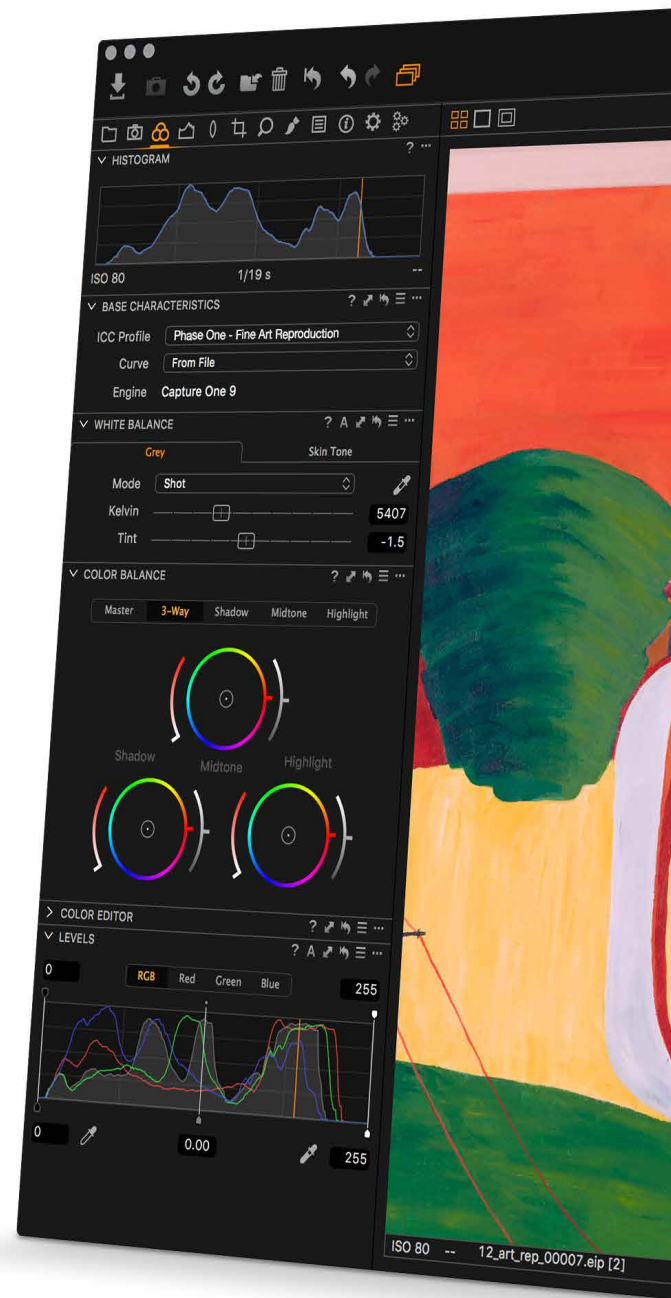
Obtain high color accuracy with specialized ICC profiles optimized for both color precision and three dimensional gradients at the same time. Available for common studio light types such as flash, LED and tungsten as well as for specific types of film

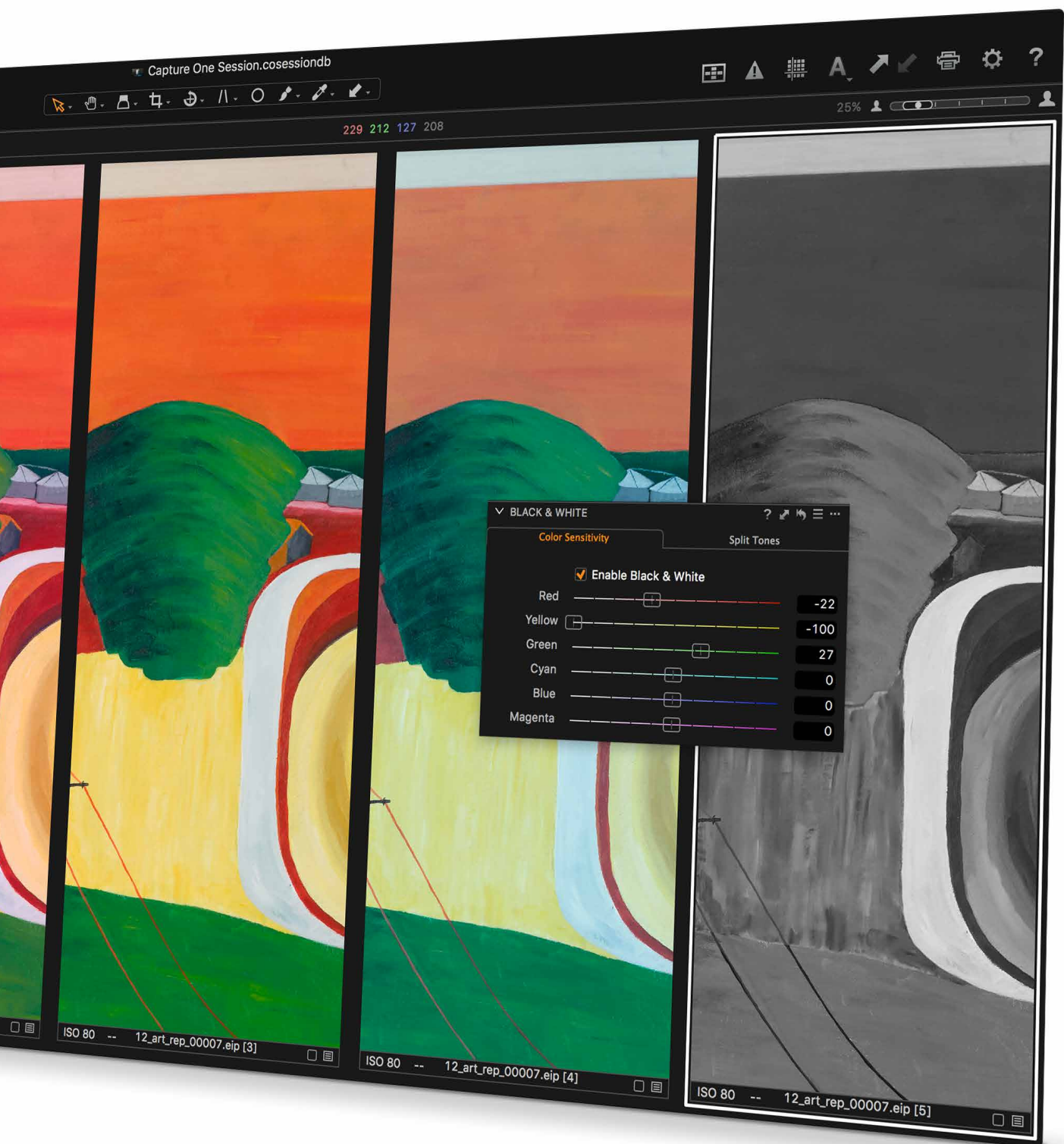
CH Workspaces

Logical setup of tools customized to optimize CH workflows during preparation, production and file storage. They can be used by an admin or an operator and include the required capture and processing tools for specific Reflective or Transmissive materials.

CH Creative Enhancements

Advanced Color Editor can help to achieve monochrome images or to enhance selected colors. In order to achieve the perfect image, Capture One Pro offers an Enhanced Color Editor and also a black and White Tool. Capture One Pro offers a vastly improved noise reduction, especially for higher ISO images.





Warranties

- Buying a Phase One premium product calls for premium service and support.
- Phase one XF camera systems and IQ digital camera backs are covered for One or for Five years, depending on model and package offered.
- Kaiser products are covered for X years
- DT products are covered for X years

Phase One Cameras, Backs and Lenses

5 Year Warranty

Available for IQ3 and XF IQ3 Camera Systems

- Free repair during warranty period
- Exchange for new in case of DOA

Warranty covers:

- XF Camera Body
- IQ3 Digital Back
- Prism viewfinder
- Waist level Finder
- Phase One Lenses
- Schneider Kreuznach Lenses
- Defects in materials and workmanship
- Up to 250,000 shutter actuations

*Warranty requires end-user registration at www.phaseone.com T&Cs apply

5 Years Uptime Guarantee

Available for IQ3 and XF IQ3 Camera Systems

- Free Loaner of similar or better product during warranty repair.
- Loaners sent within 24 hours

Uptime Guarantee covers:

- XF Camera Body
- IQ3 Digital Back
- Prism viewfinder
- Waist level Finder
- Phase One Lenses
- Schneider Kreuznach Lenses
- Defects in materials and workmanship
- Up to 250,000 shutter actuations

*Uptime Guarantee requires end-user registration at www.phaseone.com T&Cs apply

1 Year Classic Warranty

Available for IQ1, or XF IQ1 Camera Systems, or items purchased separately.

- Free repair during warranty period

Warranty covers:

- XF Camera Body
- IQ1 Digital Back
- Prism viewfinder
- Waist level Finder
- Phase One Lenses
- Schneider Kreuznach Lenses
- Defects in materials and workmanship
- Up to 100,000 shutter actuations

*Warranty requires end-user registration at www.phaseone.com. T&Cs apply

Kaiser stands and accessories

All Kaiser products are covered by a two-year warranty. Kaiser will repair or replace, under its discretion, any material or manufacturing related defects within this period of time.

Warranty does not cover defects caused by fair wear and tear, improper storage or

use, non-observance of operating or assembly instructions or interferences or modifications by unauthorized persons.

In addition expendable parts (e.g. lamps, batteries) are not covered by this warranty.

DT stands, cameras and accessories

All DT products and covered by a 1-year parts and labor on all manufacturing defects

References

Partial list

USA

American Museum of Natural History
New York, NY

Smithsonian Institution
Washington DC, PA

Library of Congress
Washington DC, PA

Harvard University
Cambridge, MA

Museum of Modern Art
New York, NY

New York Public Library
New York, NY

Walt Disney Studios Burbank
Glendale, CA

Stanford University
Stanford, CAA

The U.S. National Archives
Washington, DC

UK

The British Museum
London

The British Library
London

The Bodleian Library
Oxford

The John Rylands Library
Manchester

Cambridge University Library
Cambridge

The Netherlands

The National Maritime Museum
Amsterdam

Picturae
Heiloo

France

The National Library of France
Paris

Switzerland

The National Library of Switzerland
Bern

Denmark

The Royal Danish Library
Copenhagen

Norway

The National Archive of Norway
Oslo

Munch Museum
Oslo

Qatar

Qatar Foundation
Doha

Austria

Vienna University of Technology
Vienna

Germany

Berlin State Museums
Berlin

The Prussian Cultural Heritage
Foundation
Berlin

The Schleswig-Holstein State Library
Kiel

Bavarian State Library
Munich

The House of West Germany
Bonn

The State Conservation Office
Mainz

Linden Museum
Stuttgart

Folkwang Museum
Essen

The Rhien Picture Library
Cologne

Additional references and customer testimonials can be found on
<https://www.phaseone.com/en/Camera-Systems/Repro-camera-solutions/In-action.aspx>

For more information, please visit
www.phaseone.com/culturalheritage



PHASEONE

what the world's best photography is made of