digital film technology

OXScan **14K**

See the
Bigger
Picture

dft
standing the test of time

See the
Bigger
Picture

ultra - high resolution film scanner
OXScan **14K**

When detail matters, OXScan 14K delivers a high-resolution output, from 2K – 14K, and enables the user to visualise the live image in HD without lengthy time or data consuming post processing.

OXScan 14K enables users to see the "bigger picture" and bring the detail into focus.

Perfectly suited to a 'scan-once' philosophy, OXScan 14K excels in the ingest for mastering of large format 65mm new original camera negative, to reveal remarkable image detail and performance with up to 14.3K horizontal and 10.7K vertical, at up to 16 bit RGB and IR, from either 5 or 15 perforation film.

OXScan 14K also delivers outstanding results during the remastering of older film materials for the evolving 8K UHD market. Ultra-high definition scanning can be achieved for older, good condition, 35mm original camera negative materials, with perforations.
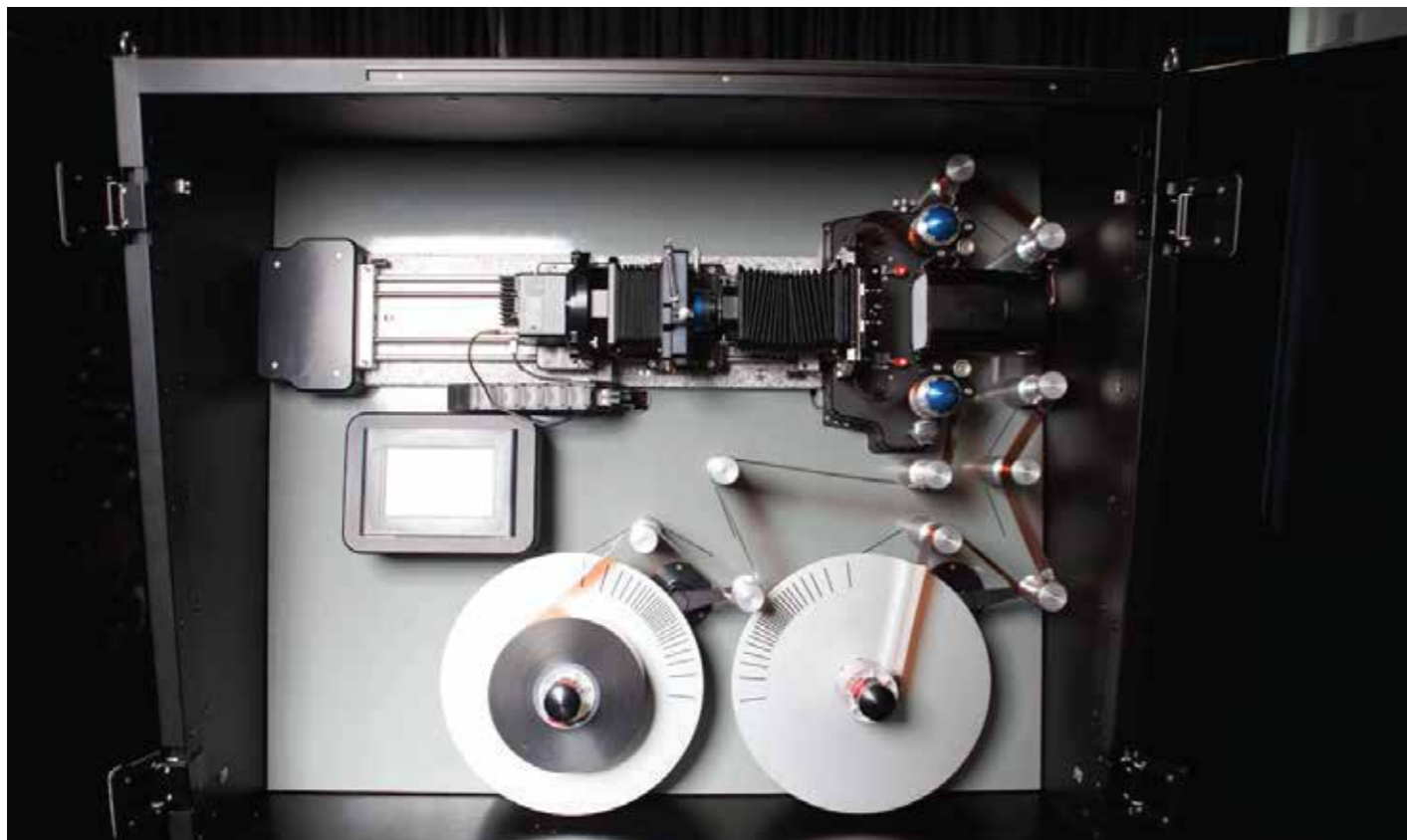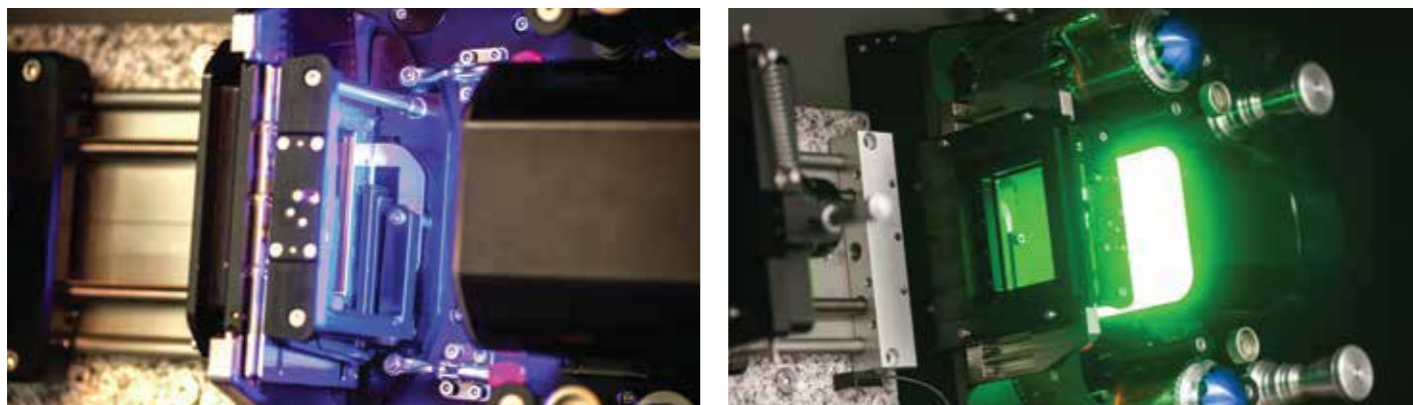
Because OXScan 14K handles a range of film formats, including the larger 70mm 5 and 15 perforation (IMAX) formats, OXScan 14K is also well suited for the ingest and remastering of older (but good condition) flim material, to produce digital masters of old classics to meet the demands for ever higher resolutions in years to come.

Designed by dft's precision engineering team, based in Germany, OXScan 14K uses advanced, state-of-the-art full bandwidth, liquid cooled super-low-power light emitting diodes to enable a high resolution and safe deliverables 35mm, 65mm and 70mm film stock.

OXScan 14K is a highly flexible and configurable scanner, with a range of fully adjustable features to enable the best possible outcome from different material conditions. Automatic and manual control of the matched LED light source means the operator can predetermine the conditions of final deliverable with ease. Users can also select options for digital zoom, pan and scan, as well as focus on 'regions of interest' as needed.

Resolution output can be easily selected and scaled according to final requirements. Virtually any resolution, from 2K to 14K, can be created using our built-in scaler software, with optimisation for 'regions of interest', giving users the flexibility to select and focus on specific areas of the film to be scaled.

OXScan 14K can also be supplied with an alternative, faster camera for the delivery of full resolution 12K, 16 bit RGB images, at 1.9 frames per second (without compression).

With the high dynamic range capability of the OXScan 14K, users can obtain accurate dynamic response, from even the most challenging of materials – to leave no detail behind.

Film stability is critical for the capture of precise, high resolution images. OXScan 14K adopts an ultra-precise pin and sprocket film transport mechanism, ideal for 35mm and 65mm film in good condition. Sprocket and pin transport provides the levels of image stability required for high levels of resolution and gives the user confidence in both horizontal and vertical image stability.

Key features

OXScan 14K delivers the following key features and benefits:

- World's first ultra high-resolution film image scanner, for 35mm and 65/70mm films

- High fidelity and accurate colour performance

- High performance image stability

- Flexibility and choice of deliverables

- Quality you can rely on

- Range of file output formats

- Support when you need it
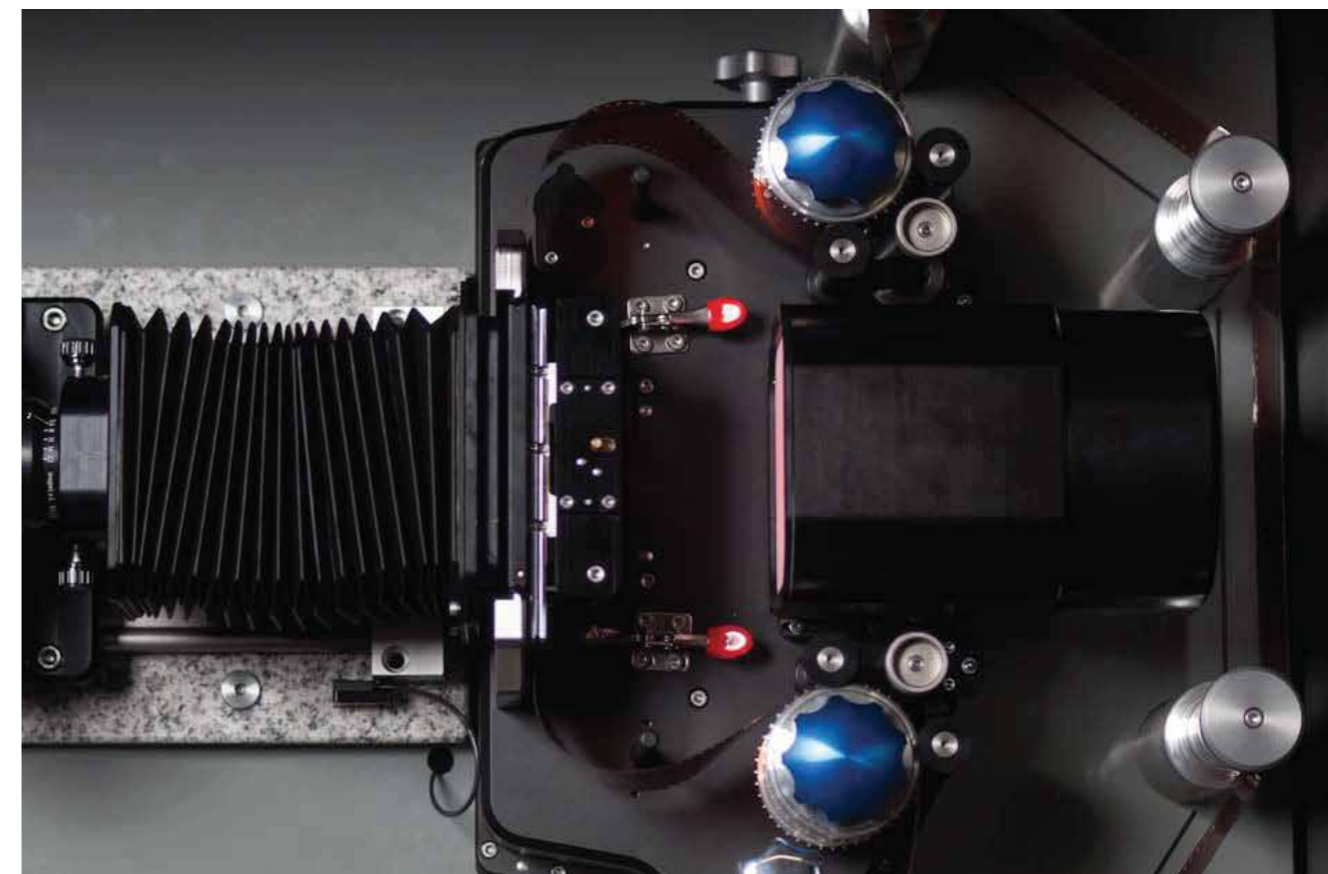
High fidelity and accurate colour performance

OXScan 14K uses true 16-bit RGB colour sampling, ensuring images closely represent the original material. By taking multiple samples – one per colour - in a single scan, users benefit from an accurate colour resolution and fidelity required at this level of resolution.

High performance image stability

Image stability is critical for high resolution image delivery. OXScan 14K uses a pin-registration mechanism to give ultra-high performance, which is both repeatable and stable.

Flexibility and choice of deliverables

OXScan 14K is a versatile and flexible scanner that serves multiple market and format needs.
Users can choose from a range of formats on the same scanner. Film gauge options include 70/65mm (5 and 15 perf films), 35mm (4 perf films) with native resolutions from 4.5K to 14K giving users flexibility and choice.

Range of file output formats

All standard output file formats and multi-resolution transcoded deliverables are available. User can define DPX and TIFF master file deliverables with selectable 10 or 16 bit output.

Quality you can rely on

OXScan 14K is one of a range of film scanners from the world renowned digital film technology stable. With over 90 years experience in developing and delivering German-made, high quality equipment, dft has a solid reputation as the market leading provider to the film and archive industries.

Support when you need it

From day one of the installation and throughout the product lifetime, our global network of enthusiastic, highly trained and experienced engineers, can provide all levels of support from straightforward telephone or email advice and assistance seven days a week, 24 hours a day, through to complex servicing or emergency breakdown repair.

Specifications

Film formats

Film size	65/70mm (70mm uses the same 65mm gate assembly, only spool lock swap needed)
	35mm
Perforations	65 (5 and 15 perforations only)
	35mm (4 perforations only)
Film type	Negative, positive and interpositive

Machine dimensions

Height	1908 mm
Width	1294 mm
Depth	910 mm (without door handles)
Weight	450 kg
Shrinkage	<1 %, higher values need to be tested individually

Light source

Type	RGB-IR LED source
Cooling	Liquid cooled
Uniformity	<1% after calibration
Possible modes of usage	Flashing and Start/Stop
Wavelengths	Red 670 nm, Green 530 nm Blue 450 nm, IR 850 nm

Camera

14K resolution sensor	Pixels: 14308 x 10760
	Sensor dimension: 53.4x40.0 (66.7) mm
12K resolution sensor	Pixels: 11764 x 8854
	Sensor dimension: 43.9x32.9 (54.9) mm
Bit depth	16 bit
Aspect ratio	4:3
Dynamic range	83dB
Pixel size	3.76µm
Interface	USB
Data	RAW

Lens

Name	Inspec.X
Focal length	105 mm
Working distance	100-420 mm
Spectral range	400-750 nm
Distortion	<4%
Aperture	5.6-25
Magnification	0.76x

Workstation (exemplary configuration, actual may vary)

Default Option	
Processor (or similar)	AMD Ryzen 9 3950x 3.5/4.7 GHz 72 MB, 16 Cores, 32 Threads
Graphics Processing Unit (or similar)	Nvidia Quadro RTX 6000
SSD processing (or similar)	SSD M.2 2280 1 TB PCIex4 Intel 660p NVMe PCIe 3.0x4
SSD operating software (or similar)	SSD SVR 2.5" 960 GB SATA MICRON 5200 ECO 6GB/s 7mm
Operating software	Windows 10
Ethernet 10 G customisation (or similar)	10 Gbit/s PCIex8 Intel X520-DA2 2x SFP+
Fibre channel customisation (or similar)	Qlogic FC 16 Dual Port
External storage	User Defined

Gate specification

Type	Pin registration with sprocket
Mechanical stability	<10 micron shift in x and y
Extra features	Pressure plate
Note	Two gate assemblies for 65mm (no overscan) and 35mm (with overscan)

Recommended scanning modes - Native

12K sensor	65mm 5 perf: 11.6K
	35mm 4 perf: 11.6K
	35mm 4 perf: 8K
14K sensor	65mm 15 perf: 14.3K, 65mm 5 perf: 14.3K
	35mm 4 perf: 14.3K, 35mm 4 perf: 8K

Scanning speed - colour (without compression)

	12K sensor	14K sensor
Full resolution	1.9 sec/frame	2.7 sec/frame

Monochrome (without compression)

	12K sensor	14K sensor
Full resolution	0.6 sec/frame	0.9 sec/frame

Spooling Speed

Standard	2 frames per second
Fast (only recommended for new 35mm film only and at customer request)	5 frames per second

Output Deliverables

File format	TIFF and DPX
Bit depth	10, 16
Output colour space	CPD, RAW

Software features

Full transport and scanning control	Manual control of the light source and film transport
Custom output resolution selection	Selection of custom output regions from original scanned image
Job-based processing	Ability to save all preferences and custom settings to job files for re-use later
Image re-sizing	Original scanned image can be resized up to 14K resolution
JPEG 2000 encoding/decoding	Supports up to 14K 16 bit RGB images
Image viewer and analyser	Digital zoom/pan/region select/ROI histogram and pixel values
Sensor live view	Live view of the sensor at 1080p
Histogram/parade monitor	Real time histogram and parade data viewer
Auto flat field/white balance calibration	Auto calibration for flat field image and white balance
QC playback monitor	Real time playback of proxy generated images up to 14K
Image comparer	Wipe image comparison tool
Image sharpening	Luminance sharpening tool

Digital Film Technology GmbH