

VSC[®] 6000

an advanced workstation for the visual examination of questioned documents and security documents

- Technology in use by immigration authorities, government agencies and forensic laboratories worldwide
- Effective on all types of passports and ID cards
- Detects alterations and counterfeits
- Reveals covert security features
- Provides documentary evidence for prosecutions
- Helps generate security alerts
- Comprehensive passport & banknote reference databases
- Now featuring 'HFi' imaging technology for exceptional image quality



foster+freeman



VSC® 6000

is an examination system for detecting altered and counterfeit security documents

The VSC® 6000 is a high resolution imaging system for authenticating passports, visas, ID cards and many other security documents.

The multi-functional workstation provides facilities for examining...

- UV activated luminescent features under short, medium and long wave UV.
- Tampering and photo-substitution under high magnification.
- Anti-Stokes security features using intense IR lighting.
- Retro-reflective features with coaxial lighting.
- Embossed stamps under oblique lighting.
- Watermarks using transmitted lighting.
- DOVDs, holograms and kinegrams using multi-angled lighting.
- Suspected alterations using differential infrared absorption and luminescence properties of inks.
- Embedded personal information.
- ICAO coded data.
- Document and currency databases with continuously updated reference collections.

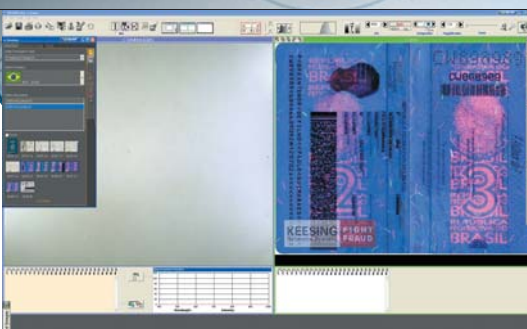
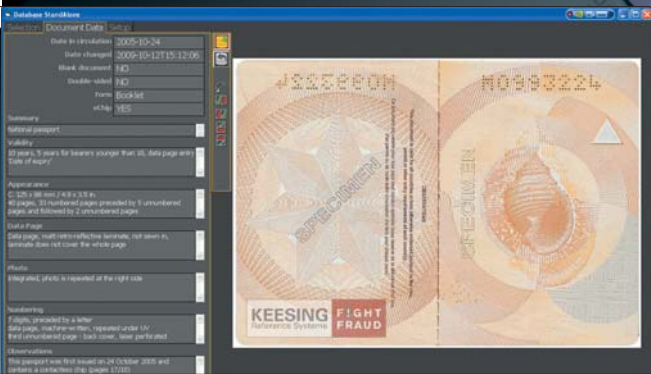


TAMPERING
Zoom magnification is essential for scrutinising fine detail and to identify alterations.



COMPREHENSIVE EXAMINATION SYSTEM

High resolution, wide screen, a working gallery and on-screen notepad are just a few of the new features that make document examination and comparison much easier with the VSC6000.



LUMINESCENT SECURITY FEATURES
embedded in identity cards and passports viewed with transmitted or incident UV lighting.

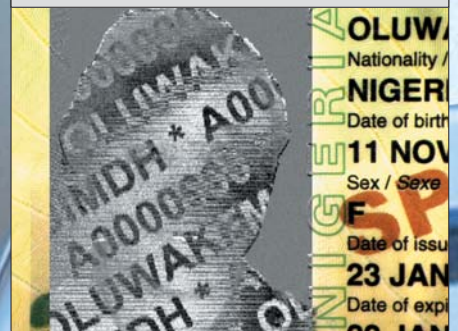
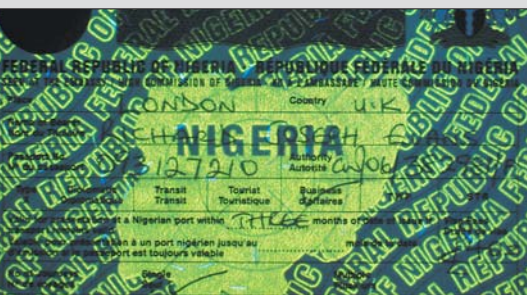


ANTI-STOKES SECURITY FEATURES
revealed with high intensity IR lighting.

HOLOGRAMS AND OVDs
viewed with angled lighting.



EMBEDDED INFORMATION
revealed with software decoders.



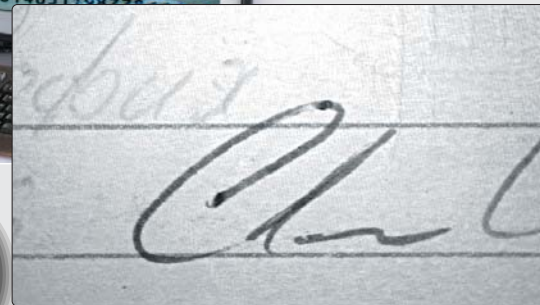
VSC® 6000

is a comprehensive workstation and casework management system for questioned document examiners



NEW and IMPROVED features

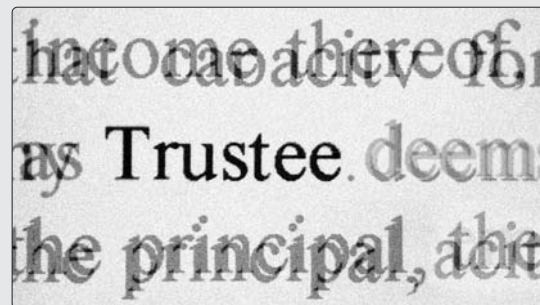
- **NEW** 5.0 million pixel FireWire camera for high resolution imaging.
- **NEW** 'Hfi' technology for improved image quality.
- **NEW** 30" (75cm) wide screen monitor for improved image display.
- **NEW** x86 zoom range providing optical magnification up to x140 (approx).
- **IMPROVED** field of view, enlarged to 210 x 160mm.
- **NEW** 'Auto Examine' software allows the scanning of up to 435 illumination/filtration settings with results displayed as thumbnails.
- **NEW** on-screen note pad for report writing.
- **NEW** image database search facility with keyword search engine.
- **IMPROVED** 'thumbnail' gallery, enlarged for viewing casework images.
- **NEW** AOI (Area of Interest) image processing – improves the effects of image enhancing software.
- **NEW** differential absorption imaging - amplifies small differences in the spectral absorption characteristics of inks.
- **NEW** high resolution, real-time grating spectrometer with 9nm FWHM resolution.
- **NEW** wide field, broad band infrared illumination for examining anti-Stokes fluorescence.
- **IMPROVED** side lighting providing more even illumination for the examination of security features.
- **NEW** 14 LED scanning array provides sequential visualisation of DOVDs, holograms and kinegrams with video recording facilities.
- **IMPROVED** design for easier servicing and lamp replacement plus automatic lamp failure diagnostics.
- **NEW** e-passport and ICAO card reader.
- **NEW** image enhancement with pseudo colour mapping.



Differences in infrared absorption reveals an alteration to a document.



Differences in infrared fluorescence reveals an alteration to a document.



Live and stored images can be overlaid for the comparison of physical characteristics.

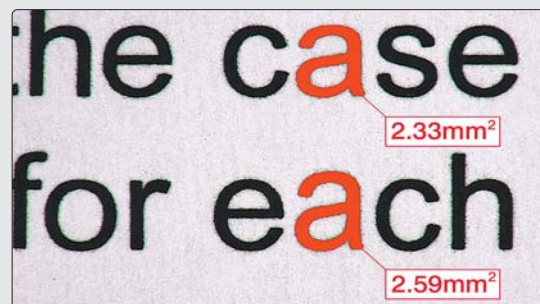


Image measurement; comparison of feature areas can provide evidence of alterations or forgery.



The image gallery, pictured left, is a fast way to review all images saved in a casework folder. Drag up to five images to the Preview Windows for full screen displays.

VSC®6000 Features

● 'HfI' IMAGING TECHNOLOGY

An optical system that minimizes spatial distortion and chromatic aberration throughout the entire magnification range, offering exceptional image quality.

● IMAGING SYSTEM

A FireWire 5 Mpixel CCD colour camera with zoom magnification up to x140 (approx).

● FULL RANGE OF LIGHT SOURCES

Includes ultraviolet to infrared incident and transmitted for the examination of fluorescent security features including anti-Stokes inks, DOVDs, holograms, kinegrams and retro reflective images. High intensity illumination is also provided for the examination of infrared fluorescence and absorption characteristics of inks.

● OVI IMAGING

An optical viewer that creates images of OVI print from two angles, incident and 45°, simultaneously.

● GRAPHIC USER INTERFACE

A new, intuitive, on-screen control system allows the operator to navigate the system more easily. Magnification, light sources, filters, image analysis and image processing functions are selected from simple on screen icons using the PC mouse.

● INTERACTIVE TUTORIAL

An on-screen, step by step guide to facilities.

● INTELLIGENT SOFTWARE

VSC®6000 ensures compatible combinations of illumination and imaging filters automatically. When the operator selects a filter to generate fluorescence, the system automatically selects the first compatible imaging filter to prevent light leakage that would otherwise mask the fluorescence. The operator may override the automatic selection, if required.

● MICROSPPECTROMETER

A new high resolution, real-time grating spectrometer provides absorption, reflectance, transmittance and fluorescence spectra.

● IMAGE MEASUREMENT

A software module that enables examiners to make a variety of measurements including distances, angles, areas, circle radii and shape perimeters. A simple calibration procedure also enables absolute values to be computed.

● IMAGE PROCESSING AND ENHANCEMENT

A suite of programs for rotating and reversing a displayed image plus image enhancement by sharpening, noise reduction including FFT filters, background flattening, gamma correction and contrast stretching.

● IMAGE COMPARISON

A range of facilities for displaying the images of two documents simultaneously including split screen, overlays and alternate strobe.

● IMAGE INTEGRATION

A variation in the infra red fluorescence emitted by two inks provides a valuable means of detecting a fraudulent alteration to a document. On chip integration from 8ms to 180sec (1/125sec to 180sec) allows the examiner to enhance and differentiate weakly fluorescent images.

● IMAGE ANNOTATION

Includes text and symbols such as arrows, lines, boxes and circles.

● COLOUR MEASUREMENT

Characterises the colour of a selected area of an image in standard colour coordinates with displays on chromaticity charts for colour comparisons.

● IMAGE ENHANCEMENT WITH PSEUDO COLOUR MAPPING

Techniques for enhancing small variations in IR absorption, reflectance and fluorescence characteristics of inks and pigments which exploit the eye's ability to detect small colour variations in an image more easily than small grey level differences.

● CASEWORK MANAGEMENT

The system, which is compatible with both Windows XP and VISTA, allows the operator to create casework files and to store and recall images, including instrument settings. Features include a pull-out gallery of recent work, notepad and a key word search engine.



'AUTO EXAMINE' FEATURE

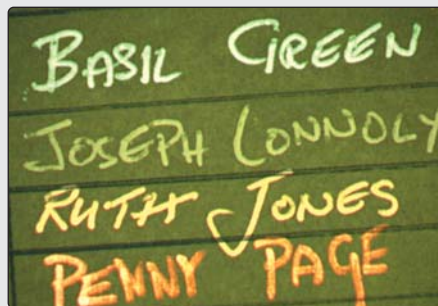
The **NEW** auto examine feature allows the operator to select up to 435 illumination and filter settings which the VSC®6000 will then scan through and create a thumbnail image of each result. A complete scan of all 435 settings would take approximately 15 minutes but in practice the selection would be restricted to around 200 settings. The operator's preferred settings can also be saved and applied to any subsequent document examinations.

The gallery of thumbnail results can be scrolled through and either saved as a general record of document examination or by double clicking any thumbnail, the VSC® will automatically recall the settings to allow a more detailed examination on the live image.

● PROGRAMMED EXAMINATIONS

The VSC®6000 may be pre-programmed with instrument settings to facilitate multiple, standard examination tasks, ensuring consistency in the repetitive examination of identical documents such as cheques.

Below: Monochrome images taken at different wavelengths and combined to produce a pseudo coloured image.



Below: Sequential images of a banknote OVD using the VSC6000's programmed multi-angled illumination.



● ICAO DATA READER

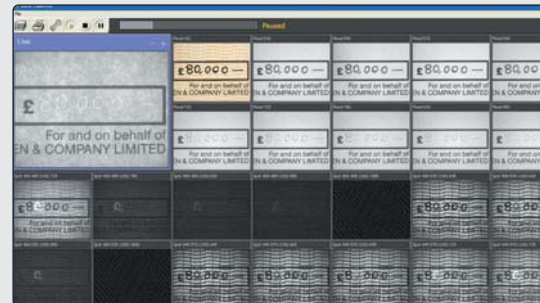
The OCR allows operators to check data in the Machine Readable Zone of passports and ID cards.

● EMBEDDED INFORMATION DECODER (optional)

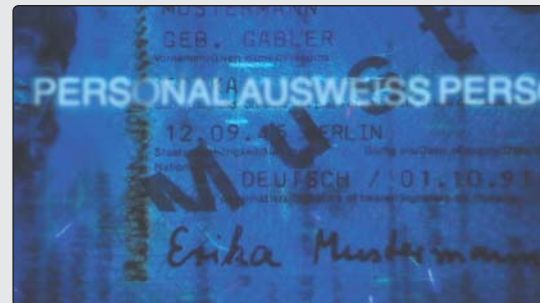
Personal information invisibly embedded in photographs is a valuable technique for protecting passports against forgery. The operator selects the country and the VSC®6000 automatically applies the appropriate decoding system. Uses Scrambled Indicia® Technology supplied under licence from Graphic Security System Corp (GSSC) of the USA.

● DOCUMENT AND BANKNOTE DATABASES (optional)

Full details of the current databases can be found under the 'Document and banknote database options' page.



Above: 'Auto Examine' software allows the scanning of up to 435 illumination/filtration settings with results displayed as thumbnails.



Above: Luminescent security features on an identity card seen when viewed with transmitted UV.



Above: Twin lamps provide orthogonal lighting to enhance shadow cast images of an embossed stamp.

VSC® 6000 Specifications

IMAGING SYSTEM

Featuring 'HFI' imaging technology combined with colour/IR high resolution 5M pixel digital Firewire camera 2584 x 1956 viewable pixels with x22 motorised zoom lens providing magnification of 140x (±5x) on the 30" monitor, spectral response 360 - 1100nm, preset iris positions and automatic exposure with manual and automatic contrast adjustment and auto focus.

IMAGING FILTERS

15 long pass filters in the visible and near infrared with thresholds at 530, 550, 570, 590, 610, 630, 645, 665, 695, 715, 725, 780, 830, 850 and 925nm plus a broadband pass filter 390-690nm, UV viewing filter 360 - 400nm, multi-band calibration filter.

IMAGE DISPLAY

30" (75cm) flat screen colour LCD monitor.

MAGNIFICATION

Zoom range of x1.5 to x140 (approx) on-screen magnification.
Fields of view: 2.5 x 1.9mm to 210 x 160mm.

Digital x2 magnification provides a maximum magnification up to x280 at full resolution.

(All magnifications and fields of view are approximate and based upon a 30" (75cm) monitor).

ILLUMINATION MODES:

Ultraviolet, incident flood light

Long wave 365nm peak wavelength, 4 x 9W.

Medium wave 312nm peak wavelength, 2 x 8W.

Short wave 254nm peak wavelength, 2 x 8W.

(Medium and short wave lamps operated with interlocking safety shields)

Ultraviolet, transmitted flood light

Long wave 365nm peak wavelength, 2 x 9W.

Visible, incident high intensity spot light

250W tungsten halogen lamp with independent low pass and high pass filters providing 80 different wavebands and zoom lens, providing a broad beam to a focused spotlight (see table below).

Visible/infrared, incident flood light

4 x 20W halogen lamps + 2 x white 1W LEDs.

Visible/infrared, continuous narrow band illumination

100W halogen lamp filtered by a continuous interference band pass filter from 400 to 1000nm, operated in 3.5nm steps providing 171 wavebands with an average band pass width of 40nm.

Visible/infrared, incident background illumination

2 x 5W incandescent lamps with intensity control.

DOVD, hologram & kinegram illumination

14 x 1W LEDs in horizontal and vertical arrays (for sequential scanning of OVDs).

OVI imaging

An optical system that creates images of OVI print from two angles, incident and 45°, simultaneously.

Visible, incident coaxial light

11 x 1W white LEDs (illuminates retro-reflective security features).

Visible/infrared, oblique light

2 x 20W halogen, orthogonal, variable height (creates shadow cast images).

Visible/infrared, transmitted flood light

4 x 12W incandescent lamps.

Visible/infrared, transmitted high intensity spot light

20W halogen lamp, gives 25mm spot.

Infrared, incident light

High intensity broadband illumination for anti-Stokes inks.

IMAGE INTEGRATION

On-chip integration from 8ms to 180sec (1/125sec to 180sec) in 33 steps.

COLOUR MEASUREMENT

Measures colour parameters: XYZ, xy, uv, Lab. Displays data on 1931 and 1960 UCS chromaticity charts.

IMAGE ENHANCEMENT WITH PSEUDO COLOUR MAPPING

Three techniques for enhancing small variations in IR absorption, reflectance and fluorescence characteristics of inks and pigments which exploit the eye's ability to detect small colour variations in an image more easily than small grey level differences.

● Enhancing small variations in IR absorption and reflectance

Three different spectral bands of the near infrared image of a document are converted into red, green and blue using the camera's three colour sensors. Any difference in the infrared spectra of inks on the document are displayed as a colour variation. The spectral bands may be selected by the operator to produce maximum colour difference.

● Enhancing small differences in infrared fluorescence by using a single excitation waveband

A single excitation waveband is selected to produce a fluorescent image of the sample document. Using three different long pass camera filters, three fluorescent images are created and converted to red, green and blue using the camera's three colour sensors. Any difference in the fluorescence spectra of inks on the document are displayed as a colour variation.

A typical imaging procedure is:

Excitation waveband of 400-485nm with fluorescent images taken with longpass camera filters of 645nm, 695nm and 725nm.

● Enhancing small differences in infrared fluorescence by using multiple excitation wavebands

Three excitation wavebands are selected to produce three fluorescent images of the sample. Using three different long pass camera filters, each fluorescent image is converted to red, green and blue using the camera's three colour sensors. Any difference in the fluorescence spectra of inks on the document are displayed as a colour variation. The imaging conditions are preset as;

i) excitation at 400-535nm with longpass camera filter at 715nm imaging on the red channel.

ii) excitation at 515-640nm with longpass camera filter at 780nm imaging on the green channel.

iii) excitation at 605-730nm with longpass camera filter at 830nm imaging on the blue channel.

LOW PASS FILTER THRESHOLD nm

(Nominal 10% Transmission Point)

	430	465	485	535	570	590	610	640	675	720	730	800
380	<i>50</i>	<i>85</i>	<i>105</i>	<i>155</i>	<i>190</i>	<i>210</i>	<i>230</i>	<i>260</i>	<i>295</i>	<i>340</i>	<i>350</i>	<i>420</i>
400		<i>65</i>	<i>85</i>	<i>135</i>	<i>170</i>	<i>190</i>	<i>210</i>	<i>240</i>	<i>275</i>	<i>320</i>	<i>330</i>	<i>400</i>
445			<i>40</i>	<i>90</i>	<i>125</i>	<i>145</i>	<i>165</i>	<i>195</i>	<i>230</i>	<i>275</i>	<i>285</i>	<i>355</i>
485				<i>50</i>	<i>85</i>	<i>105</i>	<i>125</i>	<i>155</i>	<i>190</i>	<i>235</i>	<i>245</i>	<i>315</i>
515				<i>20</i>	<i>55</i>	<i>75</i>	<i>95</i>	<i>125</i>	<i>160</i>	<i>205</i>	<i>215</i>	<i>285</i>
545					<i>25</i>	<i>45</i>	<i>65</i>	<i>95</i>	<i>130</i>	<i>175</i>	<i>185</i>	<i>255</i>
585						<i>25</i>	<i>55</i>	<i>90</i>	<i>135</i>	<i>145</i>	<i>215</i>	
605							<i>35</i>	<i>70</i>	<i>115</i>	<i>125</i>	<i>195</i>	
645								<i>30</i>	<i>75</i>	<i>85</i>	<i>155</i>	
680									<i>40</i>	<i>50</i>	<i>120</i>	
720										<i>10</i>	<i>80</i>	
745											<i>55</i>	

Nominal waveband nm (in italics)

VSC®6000 Specifications - continued

IMAGE COMPARISON & TRANSFORMATIONS

- Side by side comparison of live and stored images on a vertical or horizontal split screen, user adjustable screen split position.
- Superimposition of live and stored image with adjustable mix, 0% to 100% (*option of red/green rendered images for extra clarity*).
- Variable speed image strobe between live and stored image.
- Subtraction of live and stored images with adjustable mix, 0% to 100%.
- Mirror reversal modes; left to right reversal (*horizontal*) and top to bottom (*vertical*).
- Pixel value reversal in B&W and colour, (*positive to negative*).
- Image rotation through 90°, clockwise or anticlockwise.
- Reference image can be positioned/rotated by mouse control.
- Video capture of OVDs.

IMAGE ANALYSIS

Measurement facilities for distance, angle and area measurement, calibrated grids, user-definable grids. Measurements can be added to image.

IMAGE ANNOTATION

Editable image annotation facilities (*text and shapes including arrows, lines, boxes and circles*).

IMAGE ENHANCEMENT

Image enhancement functions including Contrast Stretch, HSL, RGB, Filters, Equalization, FFT, Gamma Correction, Sharpen.

MICROSPECTROMETRY

Grating type spectrometer allowing for rapid measurement of absorption, reflectance, transmission and fluorescence spectra. 400 to 1000nm range with a resolution of 9nm FWHM.

CASEWORK MANAGEMENT SYSTEM

- Similar file representation to Windows Explorer with facilities to organize and store casework information including text, images, spectra and chromatography charts.
- Images can be stored with full instrument settings (*type of illumination, camera filter, integration time, magnification, etc*) to enable the operator to recreate previous examination conditions. Instrument is reset automatically to stored conditions on demand.
- Pull-out image gallery of all recent work allowing comparison with current or previously stored images. Images may be saved as BITMAP, JPEG, JPEG2000 or TIF files.
- Interface to Microsoft Word, notepads for making and reviewing notes.
- Comprehensive image search facility.

ICAO DATA READER

The optical character reader deciphers, checks and displays the information held in the machine readable zone of the document. Handles ICAO accredited and similar format codes.

REMOTE OPERATION

The VSC®6000 is designed to facilitate remote operation using a high speed link. For further information please contact our Sales Office.

PROGRAMMED EXAMINATIONS AND 'AUTO EXAMINE'

Features that allows the VSC®6000 to be pre-programmed with instrument settings including magnification, illumination and filters to perform a series of standard and operator determined examination tasks.

LANGUAGES

Many languages are available, including interactive Help with the F1 key.

COMPUTER & PERIPHERALS

All VSC®6000s are supplied with the latest computer systems and a 30" (75cm) display. Please contact our Sales Office specifications.

LAMP REPLACEMENT

Removable lamp tray for easier lamp/bulb replacement.

POWER

Universal input, 85 - 250V, 50/60Hz, 700W.

DOCUMENT CAPACITY

Accommodates documents up to 596mm x 422mm.

AFTER SALES SUPPORT

Foster & Freeman are always pleased to offer advice, installation, training and on-site maintenance world wide. Please contact our Sales Office for further information. VSC®6000 software updates are supplied free of charge for 2 years.

VSC®6000 Optional accessories

POLARISAFE VIEWER

Product Code: VSC/POLARISAFE

- UV polarised light viewer for VSC®6000 (*specifically to view Swiss passports*).

QUARTZ GLASS HOLDING PLATE

Product Code: V6/QPLATE

Quartz glass plate to hold documents flat during examination.

- Dimensions: 200mm x 200mm x 6mm with polished edges.
- Transmittance greater than 80% from 250-1100nm.
- Uncoated.



TRANSLATION STAGE

Product Code: V6/TRANS

An XY translation stage is now available for the VSC®6000 document examination system to allow precise positioning of a document at high magnification.

The stage is manually adjustable, with a travel of +/- 20mm in both X and Y directions. The bed is transparent from long wave UV to near infrared to facilitate transmitted light examinations. The translation stage can be easily fitted to the VSC®6000 by the operator.

EMBEDDED PERSONAL INFORMATION DECODERS

Product Code: V6/IPI

Software to detect and display embedded personal information on passports and ID cards, including pre-sets for different passports. Uses Scrambled Indicia® Technology supplied under licence from Graphic Security System Corp. 4450 Jog Road, Lake Worth, Florida 33467, USA.

ICAO READERS FOR E-PASSPORTS AND ID CARDS

Two stand-alone readers that can operate independently of the VSC.

READER OPTION 1 Product Code: VSC/EREADER1

Features:

- SSD 5000 series OCR MRZ, RFID and CARD reader.
- USB cable, connection to PC and power supply.

READER OPTION 2 Product Code: VSC/EREADER2

Features:

- Multiple document reading and imaging capability, imaging in 24-bit colour.
- 400 DPI high resolution imaging.
- Multiple wavelength illumination for viewing visible, IR, UV and 3M Confirm™ laminates.
- Enables images to be accessed as BMP or JPEG format.
- OCR data capture and complete access to OCR data and images captured via Software.
- Auto-triggering of document capture – presence of document is automatically detected.
- USB 2.0 high speed compatible.
- Integrated USB 2.0 Hub - 2 ports for external peripherals (*3 track magnetic strip reader, 2D barcode gun*).
- No moving parts.



VSC®6000 Document and banknote database options



VSC DOCUMENT DATABASE SYSTEM - NOW INCLUDED WITH THE VSC®6000

Product Code: VSC/DB/SOFTWARE

The VSC's updated software now includes the **Document Database System** (with single user licence) that enables the operator to generate their own databases (VSC®6000 only) and to access and display data from the **Keesing reference database of security documents** shown below.

Features include:

- Displays document images with saved data.
- Displays pages as thumbnails and hovering the cursor over the thumbnail displays a larger image.
- Enables images to be rotated.
- Enables double page images to be split to show each page separately.
- Enables a live VSC® image to be displayed alongside an image from the Keesing database for comparison.
- Archives VSC® generated images, data and VSC® settings to a user generated database (VSC®6000 only).
- Automatically resets VSC® to saved viewing parameters on image retrieval from a user generated database (VSC®6000 only).
- Enables images, data and VSC® settings in one user's document database to be shared with other users (VSC®6000 only and under licence).

Note: Some features of the Document Database System will only function on the VSC®6000 and are currently not available on the VSC®400 and VSC®40 systems.

KEESING REFERENCE DATABASE OF SECURITY DOCUMENTS THE ARCHIVE COLLECTION - OPTIONAL

Product Code: VSC/DB/ARCHIVE

A reference database showing the security features in Passports, ID cards and Driving Licences from 180 countries, comprising images and data. Compatible with the VSC Document Database System VSC/DB/SOFTWARE.

- Contains information on the security features of over 1,100 (approximate) security documents.
- Information is provided in the form of descriptions and full colour images of over 10,000 pages of security documents.
- Supplied as the latest up-to-date collection at time of despatch.
- Accessible only via the VSC Document Database System VSC/DB/SOFTWARE.

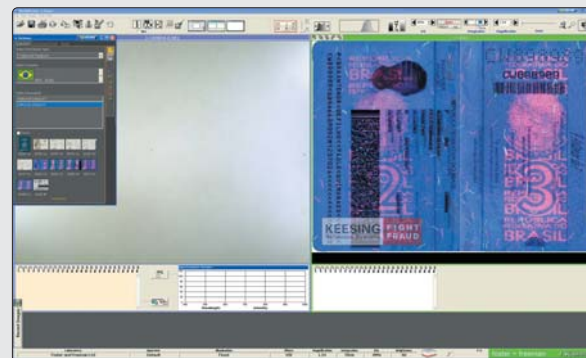


KEESING REFERENCE DATABASE OF SECURITY DOCUMENTS ANNUAL SUBSCRIPTION - OPTIONAL

Product Code: VSC/DB/KDATA

Provides updates and revisions to the Passports, ID cards and Driving Licences covered by the Keesing Reference Database of Security Documents issued during the year of the subscription. Compatible with the VSC Document Database System VSC/DB/SOFTWARE.

- Covers the 180 countries covered by the database.
- Information is provided every two months over the year of the subscription.
- Information is sent electronically or on DVD from Foster & Freeman.
- After each update the data will be added to the archive collection.
- Accessible only via the VSC Document Database System VSC/DB/SOFTWARE.



KEESING REFERENCE DATABASE OF BANKNOTES THE ARCHIVE COLLECTION - OPTIONAL

Product Code: KD/BANKNOTE

A reference database showing security features found on banknotes from 180 countries, comprising images and data.

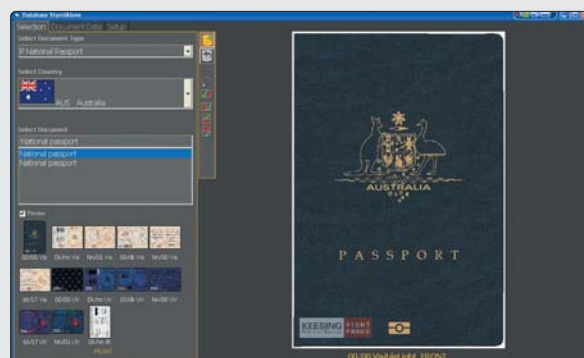
- Contains information on the security features of over 4,500 banknotes including watermarks, holograms and UV features.
- Information will take the form of descriptions and full colour images of over 70,000 banknotes.
- Updated monthly.

KEESING REFERENCE DATABASE OF BANKNOTES USER LICENCE - OPTIONAL

Product Code: KD/BANKNOTE/LICENCE

Provides updates and revisions to the banknotes covered by the Keesing Reference Database of Banknotes issued during the year of the subscription.

- Gives the user access to the Keesing database for 12 months.
- Renewable annually.



VSC®6000 Microscope options

A range of high magnification imaging systems suitable for the examination of A4 documents that provide input into the VSC®6000. Comprising a high resolution video camera and a choice of microscopes.

HIGH RESOLUTION VIDEO CAMERA

Product Code: V6/CAMFW

A 5.0 Mpixel CCD colour digital camera that provides an alternative image input to the VSC®6000 system. It can be mounted on to any suitable microscope and connected to the FireWire camera port on the VSC®6000 PC. Image integration ranges from 8ms to 180sec (1/125sec to 180sec). Images input to the VSC®6000 may be processed under the VSC® software including archiving, feature measurement, comparative display and image enhancement.

NIKON SMZ1500 MICROSCOPE

Product Code: V6/MIC/NIKON/2

Nikon stereo microscope with phototube, 2x objective, 10x eye pieces and multi-angle LED illumination.

NIKON SMZ1500 MICROSCOPE WITH HIGH RESOLUTION VIDEO CAMERA

Product Code: V6/NIKON/2/CM

Nikon stereo microscope with phototube, 2x objective, 10x eye pieces, multi-angle LED illumination and 5.0 Mpixel CCD colour digital camera (V6/CAMFW).

Nikon SMZ1500 microscope features:

- 15:1 zoom range (1.2 to 18x), working distance 32.5mm.
- Eyepiece magnification 12 to 180x, field of view 18.3mm to 1.20mm.
- On-screen magnification (30" monitor) 88x to 1290x, horizontal field of view 7.4mm to 0.50mm.

Microscope comprises:

- Main Body.
- Coarse and fine focusing.
- Binocular eyepiece tube.
- Beam splitter, left eye:right eye:camera = 100:100:0 or 100:50:50.
- Trinocular eyepiece tubes.
- 2 x 10x eyepieces, 22mm field of view with dioptre adjuster, rubber eye-shields, reticle holder.
- Double nosepiece for on-axis imaging.
- Plan 2x objective, 32.5mm working distance.
- Plain stand with 180mm opal and black acrylic plate.
- C-Mount camera adapter.
- LED illumination control unit with dimming and colour temp. selection.
- Power supply input 100-240 VAC, 50/60 Hz, output 24 V/1.00A, UL and CE.
- Power Cord UK, length 2.0m 5A Fuse.
- Objective adapter 66mm to 60mm internal dia.
- LED ringlight for intensive brightfield, 66mm internal dia., working distance 25 - 50mm.

NIKON SMZ1000 MICROSCOPE

Product Code: V6/MIC/NIKON/1

Nikon stereo microscope with phototube, 1x objective, 10x eye pieces and multi-angle LED illumination.

NIKON SMZ1000 MICROSCOPE WITH HIGH RESOLUTION VIDEO CAMERA

Product Code: V6/NIKON/1/CM

Nikon stereo microscope with phototube, 1x objective, 10x eye pieces, multi-angle LED illumination and 5.0 Mpixel CCD colour digital camera (V6/CAMFW).

Nikon SMZ1000 microscope features:

- 10:1 zoom range (1.6 to 16x), working distance 32.5mm.
- Eyepiece magnification 16 to 160x, field of view 13.8mm to 1.40mm.
- On-screen magnification (30" monitor) 115x to 1148x, horizontal field of view 5.5mm to 0.55mm.

Microscope comprises:

- Main body with zoom.
- Coarse and fine focusing.
- Binocular eyepiece tube.
- 2 x 10x eyepiece, field of view 22mm with dioptre adjuster, rubber eye-shields, reticle holder.
- Plan objective, 2x, working distance 32.5mm.
- Focusing C-mount with coaxial coarse and fine focusing knobs to be used with stands for SMZ1500/1000.
- Focusing stand supplied with 180mm opal and black acrylic plate.
- Beam splitter, left eye:right eye:camera = 100:100:0 or 100:50:50.
- C-Mount camera adapter.
- LED illumination control with dimming and colour temperature selection.
- Power supply, input 100-240 VAC, 50/60 Hz, output 24 V/1.00A, UL and CE.
- Power Cord UK, length 2.0 m 5A Fuse.
- Objective adapter 66mm to 60mm internal dia.
- LED ringlight for intensive brightfield, 66mm internal dia., working distance 25 - 50mm.

LEICA M205C MICROSCOPE

Product Code: V6/MIC/LEICA

Leica microscope with phototube, 1x objective, eye pieces and multi-angle LED illumination.

LEICA M205C MICROSCOPE WITH HIGH RESOLUTION VIDEO CAMERA

Product Code: V6/LEICA/CM

Leica microscope with phototube, 1x objective, eye pieces, multi-angle LED illumination and 5.0 Mpixel CCD colour digital camera (V6/CAMFW).

Leica M205C microscope features:

- 20.5:1 zoom range (0.78 to 16x), working distance 61.5mm.
- Eyepiece magnification 7.8 to 160x, field of view 31mm to 1.5mm.
- On-screen magnification (30" monitor) 56x to 1148x, horizontal field of view 11.5mm to .055mm.

Microscope comprises:

- M205 C optics carrier.
- Trinocular tube 100%, M series.
- Video-/photo objective 1.0x.
- C-mount adaptor 1 x delta.
- 2x 10x eyepiece with dioptre adjuster.
- Universal microscope carrier.
- Course and fine focussing.
- Light base with anti-shock feet.
- Multi - angle LED illumination.
- Planapo objective 1.0x.
- Power cable.



Leica M205C



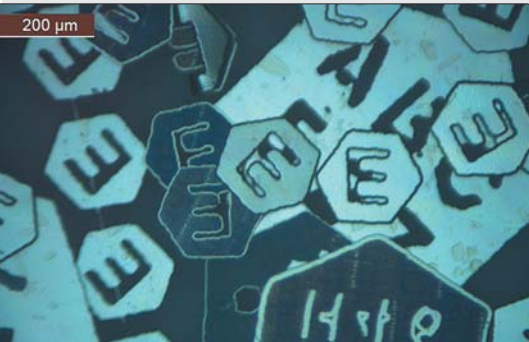
Nikon SMZ1000

VSC®6000 Microscope options for taggant examination

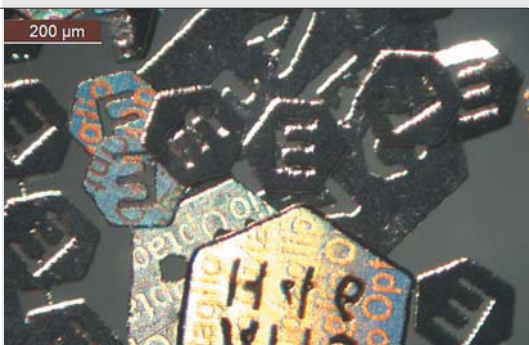
Taggants are being increasingly used with security printed items which may include items such as passports, visas, identity cards and driving licences.

Due to their microscopic size, taggants can easily be included in inks, lacquers, plastics and plastic laminates. They can also be embedded and will work regardless of environmental conditions or background colour, making them easy to integrate into printed documents. As such, the technology is increasingly used to create an additional level of traceability, allowing genuine documents to be verified.

For many taggants, the trigger is excitation by infra-red light, others are only visible under high magnification. Following successful trials, the Leica DVM2000 microscope is now available as an option with the VSC®6000 for viewing and evaluating taggant security devices.



Taggants viewed under x350 magnification and coaxial illumination.



Taggants viewed under x350 magnification and side lighting.



LEICA DVM2000 MICROSCOPE

Product Code: V6/DVM2000

Leica microscope connects directly to the computer and images are displayed in the VSC®6000 software window.

LEICA DVM2000 microscope features:

- VZ 105 C, (35 - 7000x) Coaxial 10:1 Zoom - C-mount, encoded.
- Polarizing Adapter.
- Objective Lens (350 - 3500x), WD 10.6mm.
- Objective Lens (35 - 350x), WD 34mm.
- Coaxial LED illumination.
- Incident light base with 400 column and Coarse / Fine Focus.
- Incident light base with rotating XY stage.
- 230 V - 110 V.

HORIZONTAL FIELDS OF VIEW (1/1.8" camera):

- with x350 - x3500 objective (15" monitor), 0.88 - 0.09mm.
- with x35 - x350 objective (15" monitor), 9.83 - 1.05mm.

MAGNIFICATION RANGE ON 30" MONITOR:

- x460 - x4600 and x41 - x390, based on 1:1 display (no digital magnification).
- full screen image x720 - x7200 and x65 - x610.

LEICA DVM2000 microscope comprises:

- Main body with zoom, VZ105 C.
- Leica DVM2000 digital camera: 2.11 Mpixel CCD colour digital camera.
- Polarizing Adapter for VZ105 (C).
- Optical Rotary Adapter for VZ100 (C).
- Objective Lens for VZ100 (350x to 3500x).
- Objective Lens for VZ100 (35x to 350x).
- Inc. light base, Medium with AntiShock.
- 400mm focus column.
- Coarse / fine focus drive.
- LED illum for VZ100 Coaxial 10:1 Zoom.
- DVM control unit.
- Incident light XY stage.
- Incident light adapter.
- Interface ring to XY stage adapter.
- Power cable, 2m.

ADDITIONAL OBJECTIVE LENS

Product Code: V6/DVM/700X

Optional additional objective lens for Leica DVM2000 microscope.

OBJECTIVE LENS features:

- Objective Lens for VZ100 (700x to 7000x)

HORIZONTAL FIELDS OF VIEW (1/1.8" camera):

- x920 - x10100 based on 1:1 display (no digital magnification).
- Full screen image x1400 - x16000.

DARK FIELD RING LIGHT

Product Code: V6/DVM/DFRING

Optional dark field ringlight for Leica DVM2000 microscope.

- Dark Field Ringlight for VZ100.

Appointed Agent:

foster+freeman

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Foster & Freeman Ltd reserve the right to alter the specification of the VSC®6000 or any accessories without prior notice.