



# VSC<sup>®</sup>40 security document verification systems



The VSC<sup>®</sup>40 range of instruments are designed for the examination of security features on passports, banknotes, identity cards and a wide range of breeder documents. The standard models are operated using simple, push button facial controls without the need of a PC, but the VSC<sup>®</sup>40 is a modular system that can be configured with additional light sources, and PC operated software including image processing to suit all examination applications

## The VSC<sup>®</sup>40 system enables you to check...

- UV activated fluorescent features and fibres
- Infrared activated anti-Stokes fluorescent features
- Watermarks and metallic strips
- Variations in the infrared absorption and reflectance of inks and 'IR drop out' inks
- Retro-reflective images
- Variations in the infrared luminescence of inks
- DOVDs, holograms and kinegrams
- Surface features such as embossed stamps, intaglio printing and paper texture using oblique lighting
- Paper quality, by assessing the level of paper fluorescence
- Print quality, using high magnification up to x43 (approximate, on-screen)
- ICAO coded data
- Invisibly embedded information (IPI)

The VSC<sup>®</sup>40's high resolution, high magnification imaging system also enables an operator to examine suspected alterations to the construction of a document such as irregularities in the lamination of a photograph or to the binding.

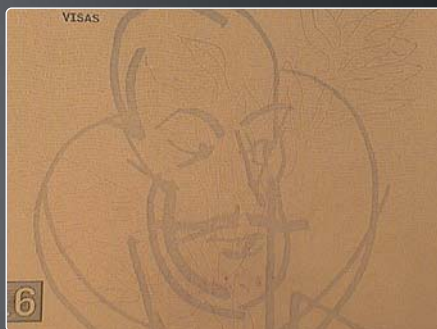
By adding a PC and an image processing system, such as Foster & Freeman's Document Imaging Software Suite, the examiner can enhance images, make measurements of features, display two documents for comparison, assemble easy to recall working image galleries and create permanent image archives. Images are displayed in colour on a 22" monitor at magnifications ranging from x2.5 to x43.

## VSC<sup>®</sup>40 example results



### OBLIQUE LIGHTING

Check the quality of embossed features, intaglio printing (*lower image*) and surface texture of paper.



### ANTI-STOKES FEATURES

Portuguese e-passport viewed under visible illumination (*top image*) and intense infrared lighting to reveal anti-Stokes fluorescence.







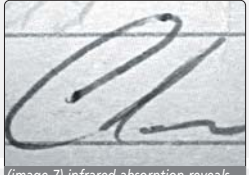




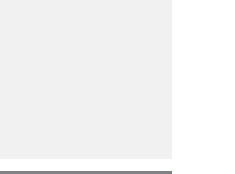






### RETRO REFLECTIVE IMAGES

French passport reveals retro reflective features under coaxial lighting (*lower image*).





# VSC<sup>®</sup>40 system selection, specifications & applications

The 'system selection' allows you to select and configure a document examination system to your specific requirements. An operational system is constructed from the VSC<sup>®</sup>40 (basic unit) with light sources, software, hardware, databases and decoders added as required.

PRODUCT	ESSENTIAL SYSTEM COMPONENTS	APPLICATIONS/EXAMINATIONS	
VSC40	<p><b>IMAGING SYSTEM and BASIC LIGHT SOURCES</b>            CCD colour/monochrome IR sensitive camera with zoom lens, field of view 133 x 100mm to 8.5 x 6.4mm (equivalent to approximately x43 ± 5% on the monitor + x2 digital)</p> <ul style="list-style-type: none"> <li>● Mirror image facility</li> <li>● On-screen current operating parameter display function (switchable)</li> <li>● Incident IR and visible light source, 4 x 12.8W</li> <li>● Transmitted IR and visible light source, 4 x 12.8W</li> <li>● Twin side light source 2 x 20W independently selectable positions (for imaging surface features i.e. intaglio print, embossings, indentations)</li> <li>● High intensity transmitted spot light 1 x 20W</li> <li>● UV light source (365nm), incident 2 x 6W (upgraded to 2 x 9W if Lighting Modules VSC40/EUV1, 2 or 3 are fitted)</li> <li>● Co-axial light source 1W LED, if VSC40/13LED is selected this is upgraded to 3 x high power LEDs (Rebel)</li> </ul>	<p>Colour and IR imaging (image 1)            Water marks and metallic strips (image 2)            Surface features (image 3)</p> <p>Concealed data (image 4)            Examination of UV activated fluorescence (image 5)            Retro-reflective images (image 6)</p>	 <p>(image 1) full colour imaging</p>  <p>(image 2) watermarks</p>  <p>(image 3) Intaglio print</p>  <p>(image 4) concealed data revealed</p>
PRODUCT	CAMERA FILTERS & SPOT LIGHT COMBINATIONS	APPLICATIONS/EXAMINATIONS	
VSC40/RM1	<p><b>EITHER</b>  <b>SINGLE CAMERA FILTER MODULE</b>            internal camera filter wheel with motorised control incorporating a colour filter, 400 to 700nm, and a IR long pass filter with threshold at 715nm</p>	IR colour imaging, absorption and reflectance (image 7)	 <p>(image 5) fluorescence at 365nm</p>
VSC40/RM2	<p><b>OR</b>  <b>6 FILTER CAMERA FILTER MODULE</b>            internal camera filter wheel with motorised control incorporating colour imaging filter and 6 long pass red IR filters with thresholds at 610, 665, 695, 715, 780, &amp; 850nm</p>		 <p>(image 6) retro reflective images</p>
VSC40/FF50W	<p><b>WITH</b>  <b>50W VISIBLE SPOT LIGHT MODULE</b>            High intensity 50W. Single band pass filter, 380 to 570nm</p>	Spot light module for the examination IR luminescent emissions (images 9 & 10)	 <p>(image 7) infrared absorption reveals an alteration</p>
VSC40/FF100W	<p><b>OR</b>  <b>100W VISIBLE SPOT LIGHT MODULE</b>            High intensity 100W. Single band pass filter, 380 to 570nm</p>		 <p>(image 8) infrared imaging reveals 'drop out' inks</p>
VSC40/RM3	<p><b>ALTERNATIVELY</b>  <b>13 FILTER CAMERA FILTER MODULE</b>            13 camera filters mounted in a motorised wheel, including 12 red and infrared high pass filters with thresholds at 570, 590, 610, 630, 645, 665, 695, 715, 735, 780, 850 and 1000nm and 1 x broadband visible pass filter 400 - 740nm.</p>	IR colour imaging, absorption and reflectance (image 8)	 <p>(image 9) concealed information</p>
VSC40/MF100W	<p><b>WITH</b>  <b>100W VISIBLE SPOT LIGHT MODULE</b>            High intensity 100W. Single band pass filter, 400 - 680nm, 400 - 480nm, 400 - 540nm, 400 - 580nm, 495 - 640nm, 520 - 640nm, 560 - 680nm, 620 - 740nm and 650 - 740nm.</p>	Spot light module for the examination IR luminescent emissions (images 9 & 10)	 <p>(image 10) infrared fluorescence reveals an alteration</p>
VSC40/SK	<p><b>KEYPAD OPTIONS</b>  <b>SINGLE MANUAL KEYPAD</b>            Simple single manual keypad to control lamps and filters</p>	For manual control without computer, this option can be only be used with VSC40/RM1.	 <p>(image 11) fluorescence at 254nm</p>
VSC40/SK/A	<p><b>FULL ILLUMINATED MANUAL KEYPAD</b>            Full manual illuminated keypad to control lamps, filters, camera controls and macro system</p>	For manual control without computer, this option can be used with VSC40/RM2 or VSC40/RM3	 <p>(image 12) fluorescence at 313nm</p>
PRODUCT	ADDITIONAL LIGHT MODULES	APPLICATIONS/EXAMINATIONS	
VSC40/EUV1	<p><b>INCIDENT SHORT WAVE UV LIGHT MODULE</b>            UV-C incident light source (254nm), 2 x 6W lamps (Safety interlocked)</p>	UV activated fluorescent features 254nm (image 11)	 <p>(image 11) fluorescence at 254nm</p>
VSC40/EUV2	<p><b>INCIDENT MEDIUM WAVE UV LIGHT MODULE*</b>            UV-B incident light source (313nm), 2 x 6W lamps (Safety interlocked)</p>	UV activated fluorescent features 313nm (image 12) *This module can only be ordered if VSC40/EUV1 is selected as well.	 <p>(image 12) fluorescence at 313nm</p>
VSC40/EUV3	<p><b>TRANSMITTED LONG WAVE UV LIGHT MODULE</b>            UV-A transmitted light source (365nm), 2 x 9W lamps</p>	UV activated fluorescent features, trans 365nm (image 13)	 <p>(image 13) fluorescence at 365nm</p>
VSC40/2LED	<p><b>DUAL-ANGLE 2 x LED LIGHT MODULE</b>            Dual-angle LED light source for imaging of DOVDs, OVDs, OVIs, holograms and kinegrams</p>	DOVDs, holograms, OVIs and kinegrams (image 14)	 <p>(image 14) kinegrams</p>
VSC40/13LED	<p><b>OR</b>  <b>MULTI-ANGLE 13 x LED LIGHT MODULE</b>            Electronically adjustable multiple LED light source arranged in horizontal and vertical arrays for the sequential imaging of DOVDs, OVDs, OVIs, holograms and kinegrams. 2 x LED's are combined with visible incident light to increase colour temperature for improved image quality</p>	DOVDs, holograms, OVIs and kinegrams (image 14)	

# VSC<sup>®</sup>40 system selection, specifications & applications

The 'system selection' allows you to select and configure a document examination system to your specific requirements. An operational system is constructed from the VSC<sup>®</sup>40 (basic unit) with light sources, software, hardware, databases and decoders added as required.

PRODUCT	ADDITIONAL LIGHT MODULES - CONTINUED	APPLICATIONS/DESCRIPTION	
VSC40/AS	<b>ANTI-STOKES ILLUMINATION MODULE</b> High intensity 850 - 1100nm broadband light source	Anti-Stokes fluorescence	anti-Stokes fluorescence 
PRODUCT	OPTIONAL SOFTWARE MODULES	APPLICATIONS/DESCRIPTION	
VSC40/SW	<b>DOCUMENT IMAGING &amp; CONTROL SOFTWARE</b> Belkin Link - complies with Hi-Speed USB 2.0 specifications, 2.0m USB cable and S-Video lead 1.5m  Requires a computer system to function	Provides a wide range of additional image processing functions which include; image comparison, image measurement, image enhancement, image integration, image 'thumbnail' gallery and image archiving, plus Optical Character Reader (OCR) for reading and verifying ICAO codes on Passports, ID cards and visas	
PRODUCT	OPTIONAL HARDWARE MODULES	APPLICATIONS/DESCRIPTION	
VSC40/PENT	<b>DESKTOP PC AND 22" MONITOR</b> <b>OR</b>	Please consult Sales Office for latest hardware specification	
VSC40/PENT/LT	<b>LAPTOP PC</b> <b>OR</b>	Please consult Sales Office for latest hardware specification	
VSC40/MON/19	<b>MONITOR</b> 19" TFT display screen <b>AND</b>	Please consult Sales Office for latest hardware specification	
VSC40/UPSCALE	<b>UPSCALER</b> S video input with RGB output		
PRODUCT	OPTIONAL DECODERS and DATABASES	APPLICATIONS/DESCRIPTION	
VSC40/IPI	<b>EMBEDDED INFORMATION DECODER</b> This module requires the software module (VSC40/SW) and computer system to function. Uses Scrambled Indicia® Technology supplied under licence from Graphic Security System Corp (GSSC) of the USA	Detects and displays invisible personal data embedded in photographs in passports and ID cards.	 Embedded data revealed on a passport
V6/EPRT	<b>E-PASSPORT &amp; ICAO READER</b> Stand alone desktop reader, USB connection Requires a computer system to function	Reads electronic passports and identity cards with a Machine Readable Zone or ICAO coded data.	
KD/IDENTITY/LICENCE	<b>IDENTITY DOCUMENT DATABASE, SINGLE USER LICENCE</b> Requires a computer system to function	A database of over 1,400 passports, driving licences and identity cards issued by 180 countries. Data includes descriptions and over 20,000 images of watermarks, holograms and UV features	 Passport and Banknote databases
KD/IDENTITY	<b>IDENTITY DOCUMENT DATABASE, 12 MONTHLY UPDATES</b> Requires a computer system to function		
KD/BANKNOTE/LICENCE	<b>BANKNOTE DATABASE, SINGLE USER LICENCE</b> Requires a computer system to function	A database of over 4,500 banknotes issued by 180 countries. Data includes over 70,000 images and descriptions of watermarks, holograms and UV features	
KD/BANKNOTE	<b>BANKNOTE DATABASE, 12 MONTHLY UPDATES</b> Requires a computer system to function		
PRODUCT	OPTIONAL ACCESSORIES	APPLICATIONS/DESCRIPTION	
VSC40/BAT	<b>UNINTERRUPTIBLE POWER SUPPLY</b> Mains input, mains & battery status monitoring, typical runtime on battery for VSC <sup>®</sup> 40 with monitor and visible and IR lighting = 2 hours. Inline RCD (IEC)	If local power supply is potentially unstable we recommend the use of a UPS power supply	
VSC40/12VDC	<b>12 VDC POWER ADAPTOR</b> Input loading to 25A, screw terminal inputs, connecting leads and inline RCD (IEC).	Allows the VSC <sup>®</sup> to be powered from a 12V source	
VSC40/CC	<b>CARRYING CASE</b>	Padded with handles for VSC <sup>®</sup> and separate monitor. Outer shell of case can be removed and the instrument can be used in situ	
VSC40/AC	<b>VSC40 ACCESSORIES PACK</b>	Includes dust cover, screen wipes, paper weights and spare lamps for VSC <sup>®</sup> 40 only. Additional lamps for VSC40/EUV1, VSC40/EUV2, VSC40/EUV3 or VSC40/FF50W, VSC40/FF100W, VSC40/MF100W must be ordered separately if required.	

# VSC<sup>®</sup>40 pre-selected system configurations



In addition to selecting your own document examination system the VSC<sup>®</sup>40 is also available in six pre-selected configurations.

These consist of a VSC<sup>®</sup>40 base unit with a single or multiple camera filter and lighting modules as indicated in the table below. To operate any of the software modules or access the security document databases, a computer system is required.

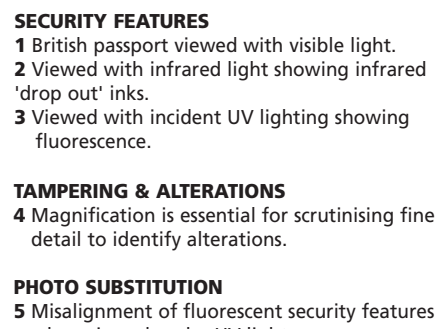
Specifications for individual items can be found on pages 3 and 4.

The following pre-selected units have no manual controls and are controlled only by the software. A computer is required. Manual controls are available, please contact Foster & Freeman for details.

## VSC<sup>®</sup>40 RANGE COMPONENTS & MODULES

	VSC40	VSC40/SW	VSC40/AC	VSC40/RM1	VSC40/RM2	VSC40/RM3	VSC40/EUV1	VSC40/EUV2	VSC40/EUV3	VSC40/AS	VSC40/2LED	VSC40/13LED	VSC40/FF50W	VSC40/FF100W	VSC40/MF100W
<b>VSC40/M1</b>	✓	✓	✓	✓								✓			
<b>VSC40/M2</b>	✓	✓	✓	✓			✓	✓	✓			✓			
<b>VSC40/M3</b>	✓	✓	✓	✓			✓	✓	✓	✓	✓	✓			
<b>VSC40/M7</b>	✓	✓	✓		✓		✓		✓		✓		✓		
<b>VSC40/M10</b>	✓	✓	✓		✓		✓	✓	✓				✓		✓
<b>VSC40/FS</b>	✓	✓	✓				✓	✓	✓	✓	✓		✓		✓

Other VSC40 configurations are available. Quantity dependent.



### SECURITY FEATURES

- 1 British passport viewed with visible light.
- 2 Viewed with infrared light showing infrared 'drop out' inks.
- 3 Viewed with incident UV lighting showing fluorescence.

### TAMPERING & ALTERATIONS

- 4 Magnification is essential for scrutinising fine detail to identify alterations.

### PHOTO SUBSTITUTION

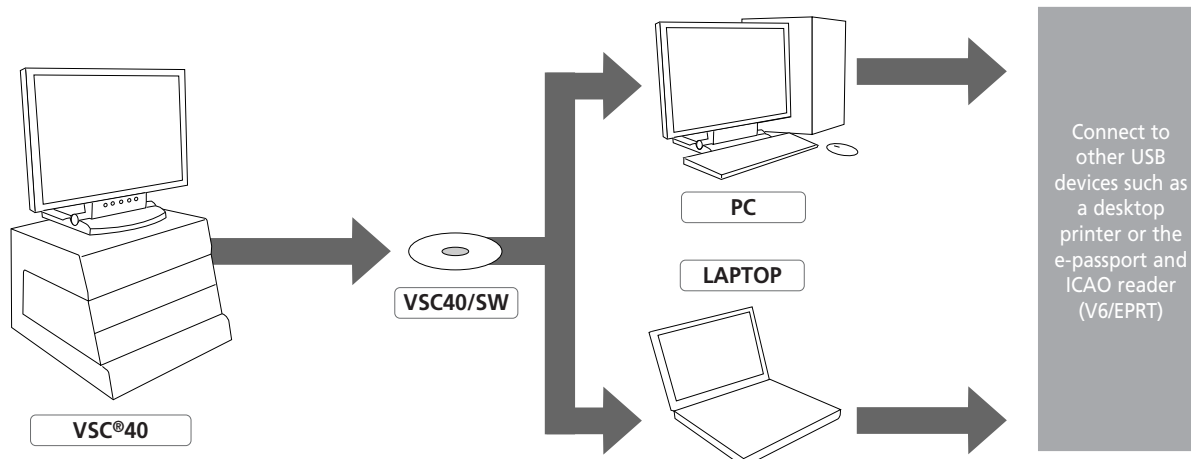
- 5 Misalignment of fluorescent security features when viewed under UV light.

# VSC<sup>®</sup>40 document imaging & control software

## DOCUMENT IMAGING & CONTROL SOFTWARE

Product Code: **VSC40/SW**

Installation of the Document Imaging and Control Software to a desktop computer or laptop with direct connection to a **VSC<sup>®</sup>40** system provides a wide range of additional image processing functions. These include; image comparison, image measurement, image enhancement, image integration, image 'thumbnail' gallery and image archiving.



## SPECIFICATIONS

### ● IMAGING SOFTWARE FEATURES

- displays video image at full resolution in windows, various modes
- save live image to disk
- real time live image from camera
- stored image from camera
- stored image from disc file
- images may be saved to and opened from disk or kept in a snapshot gallery
- inset (split field) live and stored image for comparison
- inset split field two stored images
- overlay (mixed) live and stored image for comparison
- strobe between two images (live/stored) for comparison
- image filing using either standard 24-bit colour bitmap (BMP) files or JPEG.
- image copy to the system Clipboard for pasting to other applications

### ● ADDITIONAL SOFTWARE FEATURES

- special image processing tool for enhancing embossed security features
- image processing for image sharpen, inversion, shading correction, contrast stretch, image addition and subtraction
- measurement functions including distance, angle and area measurements
- annotations: areas (rectangle, circle and irregular area overlay) plus text
- image rotation and mirroring
- digital image zoom
- image integration 12 frames (max)
- complies with Hi-Speed USB 2.0 specifications
- software drivers on CD ROM

### ● OPTICAL CHARACTER READER (OCR)

- verifying ICAO codes on Passports, ID cards and visas

### IMPORTANT ESSENTIAL PC REQUIREMENTS

If configuring a VSC<sup>®</sup> system to your own PC it should meet or exceed the following specifications;

- ✓ Pentium 4+ Processor with an available Hi-Speed USB 2.0 on the motherboard
- ✓ Windows XP with the latest service pack or Vista
- ✓ Minimum 256 MB RAM but ideally 512MB or more
- ✓ Minimum 500 MB free hard-disk space
- ✓ CD-ROM drive
- ✓ Graphics card should support a resolution of 1024 x 768 (higher is recommended), with either 24 or 32 bit true colour

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

Appointed Agent:

**foster + freeman**

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