DISS 6
Digital Image Scanning System

DISS 6

The most powerful and versatile Digital Image Scanning System (DISS)

point
electronic

DISS 6 is our best ever image acquisition system
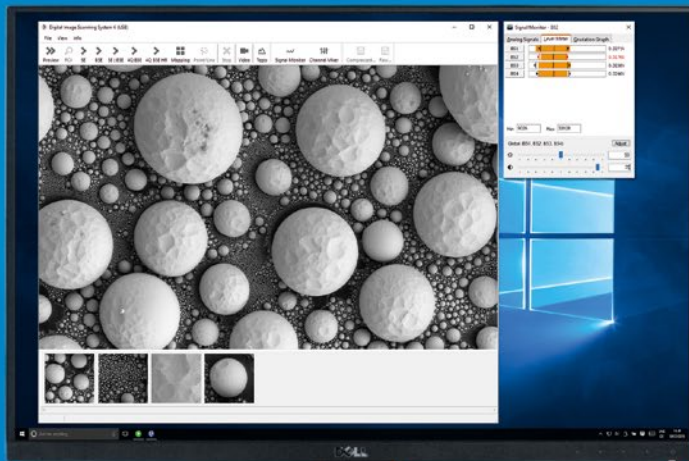
Digital Image Scanning System (DISS)

- Full-featured scan generator and image acquisition combined into a single device
- Rectangular (raster) and point-based (vector) scan modes
- System Development Kit (SDK) with API and demo apps

The most powerful scan generator and image acquisition for SEM, FIB and STEM

- Very large image resolution, up to 500 MPixels
- Very fast scanning speed, down to 10 ns dwell time
- Simultaneous acquisition of 4× analogue inputs with 12-bit digitization
- Versatile triggers/synchronization for pixel, line and frame

DISS 6

## The most versatile digital image scanning system

- Optional MICS amplifier with further 4× signal inputs
- Optional CCD video frame grabber
- Optional 20-bit digital Lock-In amplifier

Optional rack mountable packaging

- 19-inch housing for modular, rack-based systems
- Front plate with open boards for closely integrated systems
- Optional MICS amplifier with further 4×, 8×, 12× or 16× analogue inputs
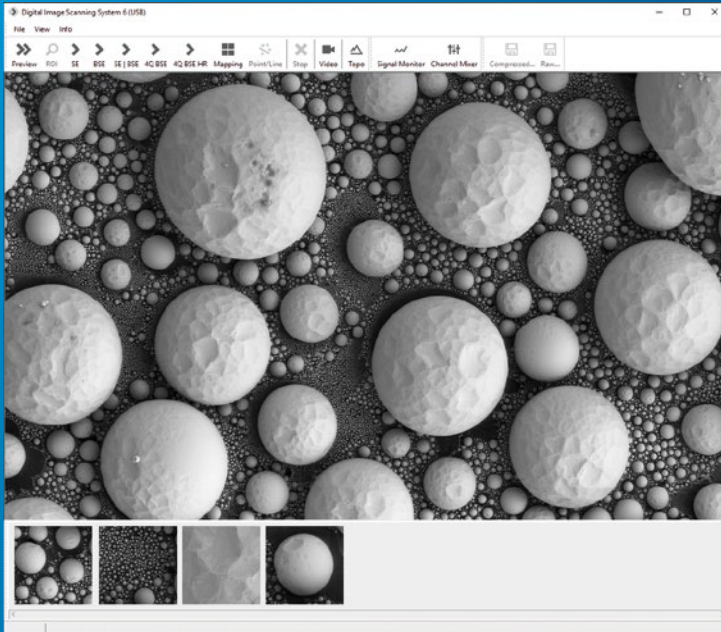
All control and acquisition is software integrated

- Software control of all scanning and acquisition parameters
- Standard TIF, JPG, PNG, plain text image file formats
- Standard XMP tags in image header for all control parameters
- Windows 10…7 compatible

Simultaneous signals are displayed using tiled image windows

- 4 simultaneous analogue signals, including SE, IL, BSE, CL
- 12 elemental maps for EDS
- Further 16× analogue signals may be added with the optional MICS amplifier
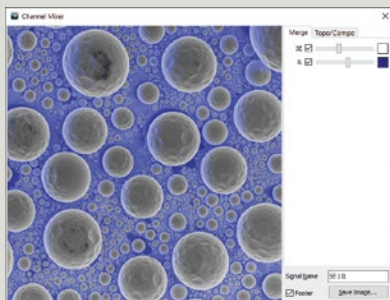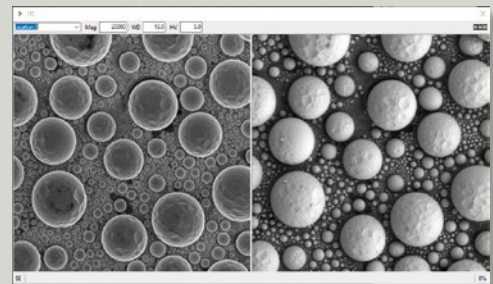
Composed colour images are produced live from simultaneous signals

- All available signals may be mixed
- Colour and intensity are fully configurable
- Result is displayed live during the acquisition
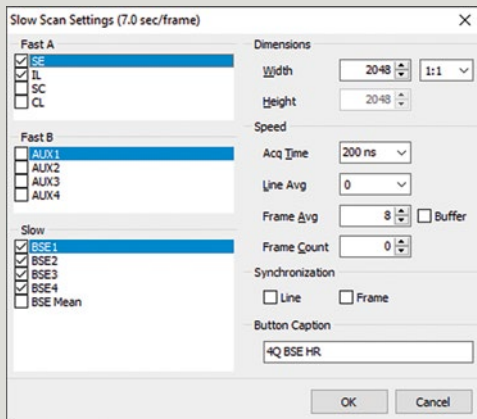
Scan profiles are fully configurable to produce custom workflows

- Fast live scans for SEM alignment and navigation
- Simultaneous scans for co-localization and mixing
- High-resolution scans for mapping and analysis

DISS 6

Quantification tools include signal monitor and pixel inspector

- Live line graph display for brightness & contrast optimization
- Direct pixel value display with the inspector tool
- Simultaneous display/measurement of multiple signals
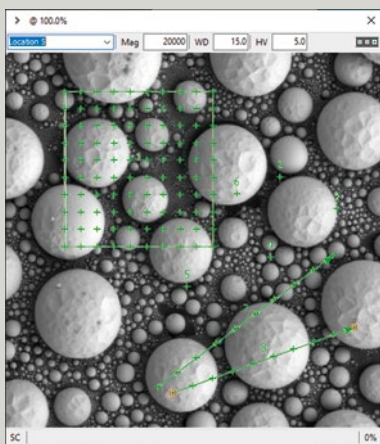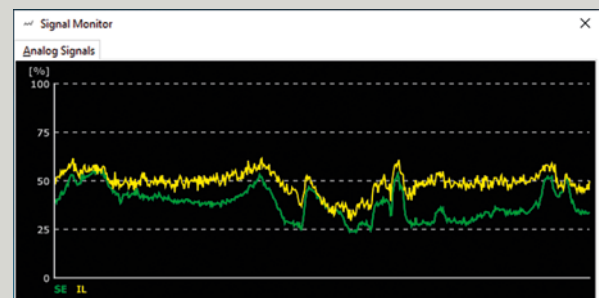
Line and point mapping tool supports analytical techniques

- Manual point and line scans are provided for flexible control of acquisition parameters
- Mapping tool provides control of map location, step size, sub-pixel scans
- Mapping parameters and data are exported to spreadsheet and plain text formats

Detailed technical specifications

■ DISS 6 unit

Standard inputs	8× calibrated analogue inputs (A1…A4, B1…B4)
	12× digital inputs (D1…D12)
	3× trigger inputs (Pixel, Line and Frame)
	scan pause/resume input
Standard outputs	2× calibrated analogue scan outputs (X, Y)
	2× calibrated analogue magnification outputs (X, Y)
	2× external control outputs (Blank and Scan)
	4× clock outputs (Pixel, Line, Frame and Blank)
	DVI display output
Control interfaces	USB2
	TCP/IP
Scan modes	Sawtooth scan mode
	Vector scan mode
	Chopped scan mode
	Subpixel scan mode
Scan generator	16-bit ±3.5…±12V analogue X, Y scans
	16-bit 3.5…12V analogue X, Y magnifications
	10-bit ±1.8V analogue X, Y shifts
	Gnd., 5V, 15V external bank/scan
	TTL pause/resume
	TTL clock and synchronisation
	0.5 GPixels maximum frame size (software limit)
	10 ns…10 ms pixel dwell time (selection dependent)
	0…256× frame average
	0…50× line average
	1…32,000× pixel average (oversampling)
	Mains frequency synchronization
Signal digitization	12-bit for analogue A1..A4, B1…B4
	16-bit for TTL D1…D12
	32-bit for TTL D1…D6 (optional)
Electron counting (optional)	2× counter inputs (ECL1…ECL2)
	2× threshold level outputs
	1 GHz bandwidth
CCD-video input (optional)	1x PAL video input
Lock-in amplifier (optional)	1× calibrated analogue input (LIA)
	TTL reference frequency output
	20-bit digitisation
	1 µs…10 milliseconds pixel dwell time
MICS amplifier (optional)	16× calibrated inputs (M1…M16) maximum
	-1…1 V input offset M1…M16
	1× … 1,800× gain M1….M16
	-1…1 V output offsets M1…M16

	3.4 MHz…34 Hz low-pass filter
	4× averages M1…M4, M5…M8, M9…M12, M13…M16
	Automated 4Q global brightness and contrast
	Automated input offsets (dark correction)
	Automated gain normalisation (bright correction)
	Automated low-pass filter (matching pixel dwell time)
Touch display (optional)	Scan status overview
	Installed options list
	Scan detailed information
	TCP connections settings
	DVI output settings
Housing	9.5-inch desktop
	19-inch desktop (optional)
	19-inch rack-mountable (optional)

■ PC/Laptop, display (optional)

PC/Laptop	Intel Core i3 minimum
	1× USB 2.0 minimum, Windows 10…7
	network is recommended for remote support
Display	1,280 × 1,024 resolution minimum

■ Parts and cables

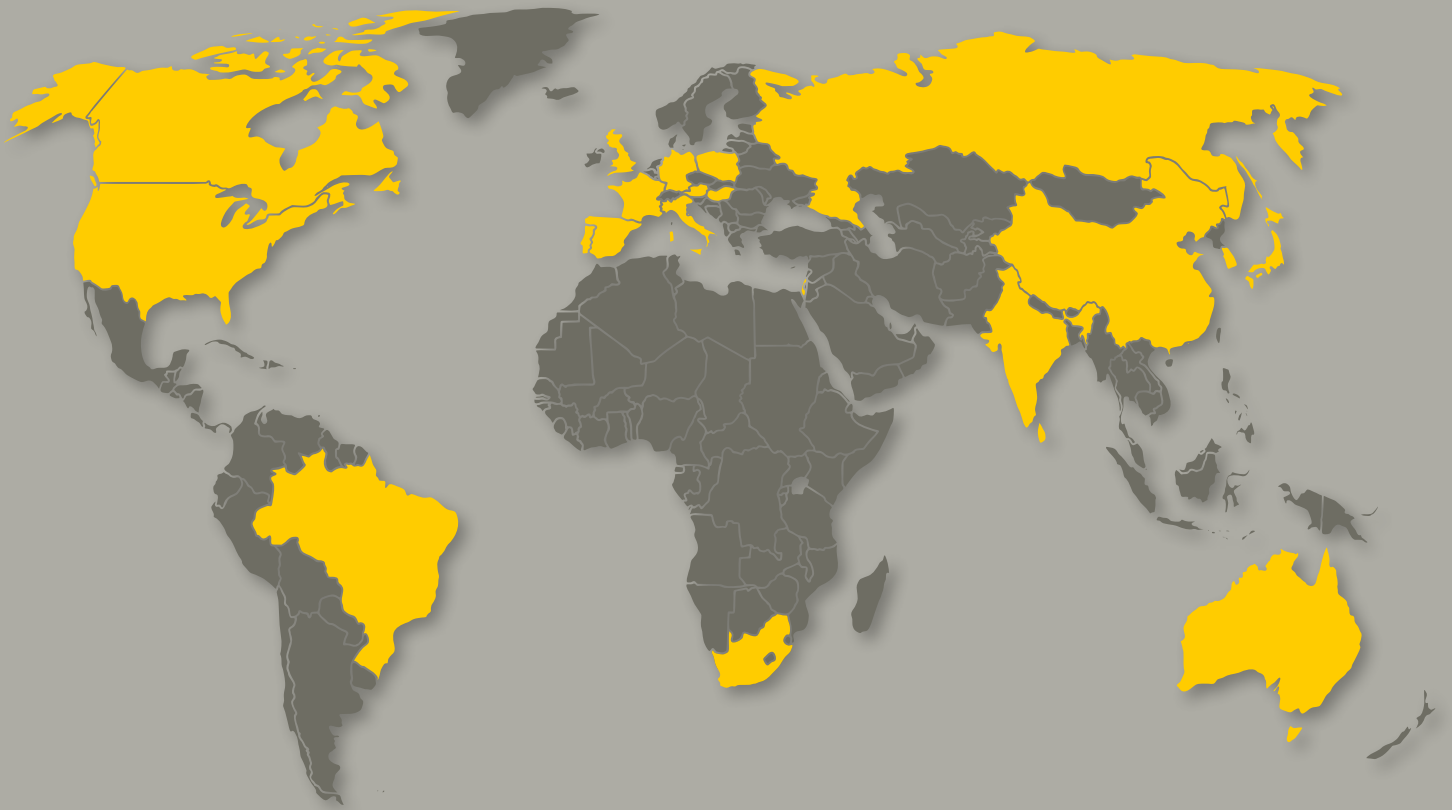|	
DISS 6 unit	standard 1×
Imaging cable, Power cable, USB cable	standard 1×
USB flash drive	standard 1×
PC, keyboard, mouse	optional 1×
Displays	optional 1×

■ Software packages

Drivers	PE USB
Libraries	DISS 6 Control
Software	DISS 6

■ Weight and dimensions

DISS 6 unit	typ. 23.5 × 8.7 × 29.5 cm, typ. 4 kg
Shipping	typ. 36 × 32 × 60 cm, typ. 5 kg

■ Site requirements

Power	1× mains 105…240 VAC single phase 50/60 Hz
	on the same earth as the microscope
Imaging	1× external scan interface at SEM
	1× video signals outputs at SEM
Space	DISS 6 unit may be placed on the SEM table