



VEPIONEER®

Hyperspectral Vision System

FAST, COMPREHENSIVE AND NON-DESTRUCTIVE

VEpioneer® is the world's first fully integrated one-button bench-top Hyperspectral Vision system. It captures surface properties, detects thin films and identifies deviations from production specifications.

- **FAST**

Measurement time: 20 seconds

- **COMPREHENSIVE**

One run: 100% sample information

- **NON-DESTRUCTIVE**

Unique combination of optical spectroscopy and imaging



INSIGHTS FROM INSPECTION

VEpioneer® boosts your product and sample knowledge by orders of magnitude with spatially resolved recognition of:

- **LAYER THICKNESS**

1 nm - 500 µm, depending on layer material

- **QUALITY CRITERIA**

Defects, contaminations, processing status, roughness of surfaces and interfaces

- **SAMPLE PROPERTIES**

Chemical, electrical, optical

CHECK
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INSPECTED MATERIALS

VEpioneer® is designed for simple and fast area measurement of surfaces and thin layers on various substrates:

- **SUBSTRATES**

Metals, glass, polymers and foils, semiconductors (Si, SiC), ceramics, ...

- **LAYERS**

Oxides, nitrides, carbides, polymers , ...

SPECIFICATIONS

Imaging technique	Pushbroom scanning mode
Measurement mode	Reflectance fluorescence optional
Measurement time (typical)	20 s (@framerate 50 Hz)
Wavelength range	VNIR: 400-1000 nm SWIR 1: 900 – 1700 nm SWIR 2: 1000 – 2500 nm on request
Spectral bands	VNIR: 448 SWIR: 224
Spectral resolution	VNIR: 1.34 nm SWIR: 3.5 nm
Field of view (FOV)	300 mm 200 mm optional
Spatial resolution	VNIR: 300 µm SWIR: 470 µm field of view configurable 200 – 300 mm further scan modes with high-resolution available
Lighting	VELuminise unit: tuneable halogen broadband source for homogeneous light field broadband LED with spectral range 400 – 900 nm or UV-LED excitation optional
Dimensions	1052 x 568 x 592 mm (L x W x H)
Sample size	360 x 360 mm maximum sample height max. 10 mm, further sample sizes optional
Sample stage	Linear, 450 mm travel range, sample holder adapted to customer specifications
Reference	Built-in PTFE protected aluminium optional
Operating conditions	+5 ... +45 °C (non-condensing)
System weight	90 kg
System certification	CE, RoHS, UKCA
Power requirements	Rated voltage: 230 VAC (115 V optional) Rated frequency: 50 - 60 Hz Rated power: 170 W
Connectivity	RJ45 (ethernet)
Compute unit	Laptop or PC with DIVE VEsolve® Pro software

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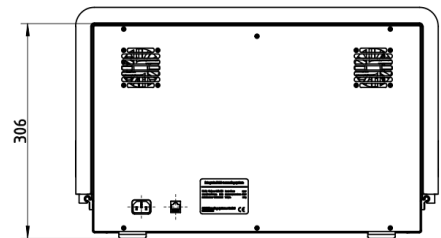
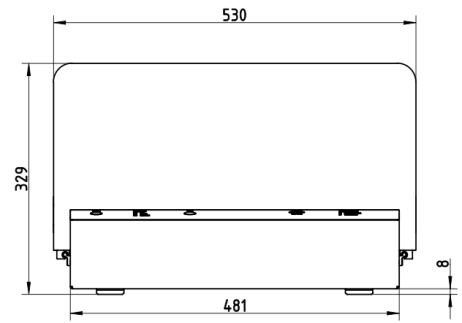
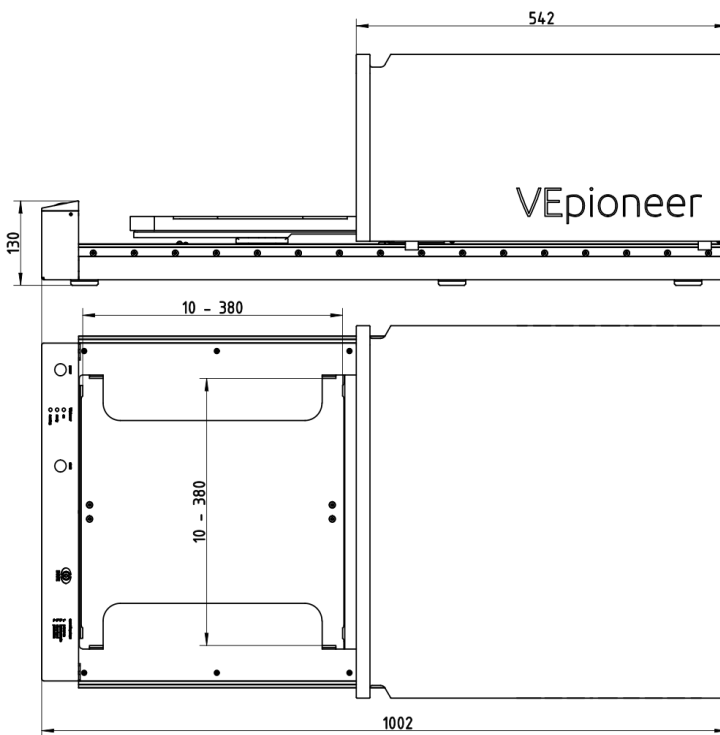
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DIMENSIONS



Additional configurations regarding sample size and sample stage, optical configurations as well as other specifications can be customised.

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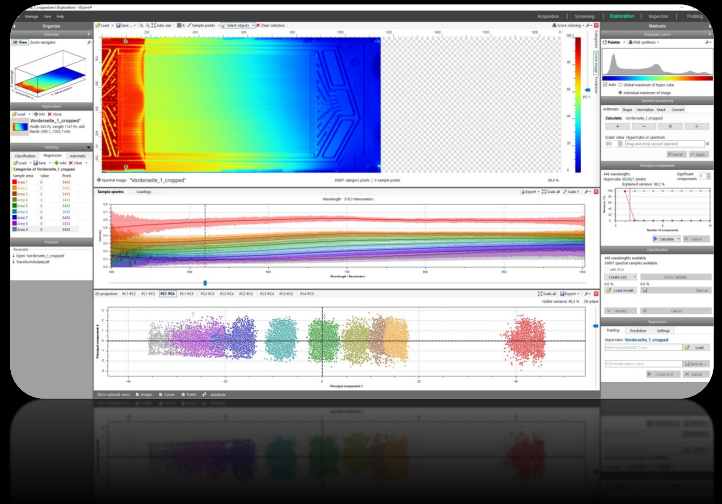
VESOLVE[®] PRO

Hyperspectral Vision Software

TARGETED, USER-CENTERED AND AI-DRIVEN

VEsolve[®] Pro is the powerful all-in-one software suite designed for DIVE technology, comprising acquisition, screening and exploration of Hyperspectral Vision data ("hypercubes").

- **TARGETED**
Designed for DIVE hardware
- **USER-CENTERED**
Visualise the insights within milliseconds after data recording
- **AI-DRIVEN**
Teaching and application of AI models by simply one click



START EASY

VEsolve[®] Pro boosts your productivity together with DIVE's VEpioneer[®] system by orders of magnitude:

- **PRESETS**
Provision of optimised presets per sample and ensuring highest data quality through live correction of all non-sample influences
- **PRESS PLAY**
The green button just starts the preset and runs the measurement

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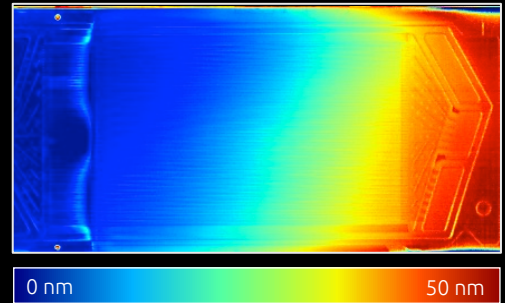
RUN EASY

VEsolve[®] Pro provides easy handling of sophisticated math utilizing commonly known concepts empower users to commence productive work immediately.

- **AI models**

Teach your own AI models by simply “painting” the hypercube or utilize existing models

Bipolar plate with graphite like carbon layer and applied thickness model



SOFTWARE FEATURES

Data acquisition	with live frame
Referencing	white and dark reference fault correction optional
Measurement control	preset use excitation intensity exposure time framerate pixel binning region of interest (if supported by hardware) spatial resolution (scan direction)
Sampling modes	standard (scan moving) reduced noise (step-wise by averaging frames) free run (record frames or record until stop)
Data screening	palette selection RGB synthesis
Hypercube editing	resampling crop rotation stitching
Object separation	threshold arithmetic operations
Spectral processing	smoothing median calculation derivative calculation normalization masking
Data exploration	unsupervised and supervised AI
Exploratory AI	PCA, k-means
Classification AI	LDA, random forest
Regression AI	PCR, PLS
Data import	ENVI (bsq, bil, bip), .jpg, .hsi, .csv, .hdf
Dat export	ENVI, .tiff, .jpg, .png, .csv, .xml
Software requirements	PC or laptop, 32 GB RAM and 1 TB SSD recommended, Windows 11

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