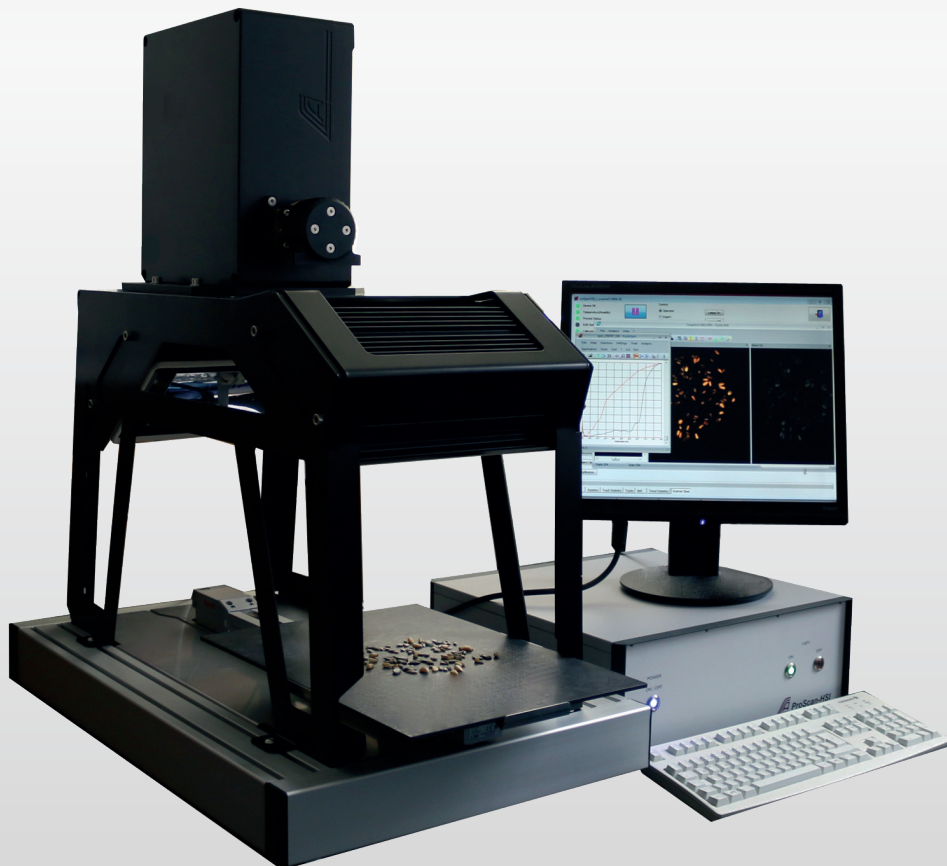


Analytical Imaging Process Control



COMPACT HYPERSPECTRAL SCANNER



ProScan-HSI

LLA Instruments GmbH & Co. KG

System setup

ProScan-HSI is the newest process-dedicated system developed by LLA Instruments GmbH & Co. KG (LLA). Based on the combination of LLA's high performance hyperspectral imagers, a rapid scanning table and an optimised line-illumination system, ProScan-HSI is the perfect solution for laboratory users or process developers who want to perform rapid chemical imaging analysis of small to medium-sized samples, at high spectral and spatial resolution. ProScanHSI is developed to offer the

highest level of modularity in terms of spectral bandwidth and resolution, along with user-friendliness:

- Position the sample on the scanning table,
 - Start the scan and
 - Within seconds the results of the analysis are available.
- Of course, ProScanHSI is fully compatible with the data-processing software suite developed by LLA, and can also be delivered with the Prediktera's software EVINCE for quick and easy visualisation.



figure 1: Sample on the scanning table (mix of corn, stones, empty shells and wood)

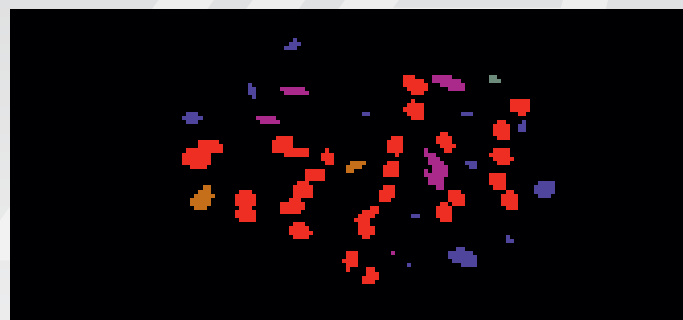


figure 2: Result as false color image: corn, stones, empty shells, wood (software: LLA KustaBelt)

Technical specification

Configuration	uniSPEC0.9HSI UV-VIS	uniSPEC1.7HSI NIR	uniSPEC1.9HSI NIR	uniSPEC2.2HSI NIR
Field Of View	96 mm up to 320 mm			
Max. Sample Size	320 mm x 400 mm x 40 mm			
Wavelength Range	350 nm - 950 nm	950 nm - 1700 nm	1320 nm - 1900 nm	1590 nm - 2170 nm
Spectral Resolution	2.1 nm	< 8 nm		
Number of Spectral Bands	109 - 1100	256	96	96
Number of Pixels/ Line	192 - 1920	320	192	192
Spatial Resolution (Smallest Pixel Size on Sample)	50 µm	0.3 mm	0.5 mm	0.5 mm
Max. Speed of Scanning Table	100 mm/s			
Scanning Time for a 320 mm x 400 mm Sample*	< 10 s for a 320 pixel x 235 pixel image with 256 spectral bands			
Dimensions LxWxH	800 mm x 600 x 1100 mm			

* Depending on exposure time and frame rate

Scope of delivery ProScan-HSI system, including:

- Hyperspectral camera incl. imaging optics,
- Scanning table and optional housing,
- Double-sided halogen illumination unit,
- Control computer and electronics,
- White calibration standard,
- LLA's control software KustaMSI,
- LLA's spectral analysis software KustaSpec,
- LLA's visualisation software KustaBelt
- Optional: Prediktera's hyperspectral analysis software EVINCE