

Via-Spec™ Hyperspectral Systems

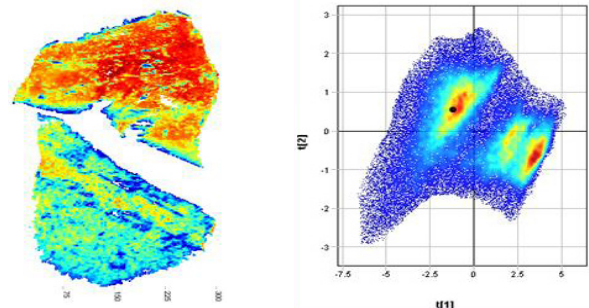


- ### Features
- Unique transmission and reflectance configurations
 - Encoder-synched stage for repeatable measurements
 - Multi-lamp quartz halogen modules for wide wavelength range
 - LED based or quartz halogen dual fiber line-lights
 - Versatile
 - Customizable

strip with medicine applied to a dissolvable transparent strip meant to be applied to the tongue. Several strips were overlapped to show the difference in the amount of light making its way through the samples in the transmission configuration. Medicinal strips such as these could be measured during production to check for uniformity and component concentration.

Overview

The Via-Spec™ is a family of a new hyperspectral imaging systems offered by Middleton Spectral Vision providing flexible magnification and illumination options for transmission and, optionally, reflectance configurations. There are many samples for which a transmission configuration works better for optical analysis than reflectance. Some of these examples may include strips or patches used as pharmaceutical formulations, tissue slices, and artificial tissue samples (treated and untreated) used in biomedical studies. In addition, any thin material which is at least semi-transparent in the near-infrared wavelength range can be sampled in a transmission configuration.



Applications

Pharmaceutical

Shown here is an example of a thin



One, two, and three layers of Benadryl™ Quick Dissolve Strips scanned in transmittance.

Biomedical

Many different types of tissues can be examined. The samples below were human cartilage tissue. Thin samples of treated and untreated tissues were measured in transmission in the 1000-2500 nm wavelength range. The hypercube was evaluated using Evince™ hyperspectral image analysis software and clear differences were found between the samples.

Stage and Frame

The Via-Spec frame has a glass stage for use in transmission. As an alternative to the glass stage, we offer a flat reflectance stage that the customer (or Middleton Spectral Vision, by request) can modify for different sizes and shapes of samples, such as seeds, tablets, etc. Adaptor plates are also available for mounting different cameras or spectrographs to the Via-Spec frame.

Different combinations of the stage and frame, cameras (and required adaptor plates), and illumination types are offered as modular components. The transmission configuration comes standard, and the reflectance configuration may be added.

Via-Spec Complete Systems

The Via-Spec can be ordered as a complete system or made to order via modular components. Middleton Spectral Vision will work with you to customize the system for your needs.

The Via-Spec complete systems include:

- Via-Spec II hyperspectral transmission stage and frame
- VNIR or SWIR hyperspectral camera
- Diffuse fiber optic illumination (for VNIR) for transmission or reflectance
- Halogen illumination (for SWIR) for transmission or reflectance
- Computerized sample stage which sends a synchronizing signal to the camera
- Software to control the camera, collect and save the hyperspectral data
- Adjustable white reference (for reflectance configuration) and focus grid

The CCD-based VNIR camera (MRC-303-002-02) has a built-in spectrograph for the 400-1000 nm range. The MCT-based SWIR camera (MRC-303-005-01) covers the 1000-2500 nm range. Camera lens options are available for both micro and macro measurements.

Illumination Options

The **halogen line light source**, with direct illumination, covers the wavelength range 400-2500 nm. It contains four 20-W bulbs for reflectance measurements and four 35-W bulbs for transmission measurements.



The glass **fiber optic line light**, offered in single or dual configuration, covers the wavelength range 400-1700 nm (without the lens). For a higher level, more focused light, a transparent plastic cylindrical lens is available. The lens will limit the wavelength range to 400-1000 nm. The single and dual line lights are 6 inches long and can be mounted in any of the three illumination positions (interchangeable with the halogen lights).

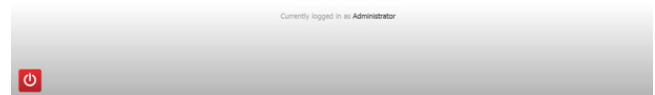
Control and Data Collection Software

The Via-Spec system has a dedicated software utility allowing the user to control the stage, to define the travel limits, display the camera data and save the spectral hypercube in ENVI compatible format. The scanner provides an encoder sync signal to be used for more repeatable measurements.

UmBio's Breeze software is also available for data acquisition and analysis with the Via-Spec system.

Evince™ hyperspectral image analysis software, or Middleton's Prediction Engine Calibration Software is optionally included with the systems.

 **UmBio**
 UmBio SisuCHEMA Version A - 1.3.1



Specifications

Sample tray length	13.5 inches
Maximum travel distance	12 inches
Transmission width	6 inches
Camera height adjustability*	8 inches
Overall dimensions	32 in. (H) x 20 in. (W) x 23 in. (D)
Weight	60 pounds

*Adjustability is slightly different for each camera, please call for more details.

Ordering Information

MRC-920-044 Via-Spec™ II Hyperspectral Transmission Stage and Frame

Complete Systems

MRC-920-042 Via-Spec™ II Hyperspectral Transmission System with SWIR Camera

MRC-920-043 Via-Spec™ II Hyperspectral Transmission System with VNIR Camera