# IMSPECTOR *imaging spectrographs*

IMAGING SPECTROGRAPHS

ENHANCE YOUR PERCEPTION

# IMSPECTOR *imaging spectrographs*

The ImSpector is a direct sight imaging spectrograph which uses transmissive dispersion elements and optics. ImSpector works as an add-on optical component that changes an area camera to a spectral imaging device with full contiguous spectral information and high spectral resolution.


**ImSpector selection**

SPECIM produces several versions of ImSpector imaging spectrographs for different wavelength ranges, all delivered in rugged, compact packages. The spectrographs are used in large variety of hyperspectral imaging or multipoint spectrometer applications.

ImSpectors provide high quality, distortion-free image with negligible aberrations. They also provide higher light throughput, which is independent of light polarization. Transmissive optics used enable reduced focal length and physical size. Moreover, the ImSpector spectrograph is now one of the smallest solutions on the market.

ImSpectors can be quickly attached and easily integrated with a monochrome area camera with standard C or U-mount, to form a line imaging spectral camera.

## DIFFERENT POINT OF VIEW

In combination with standard objective lenses, the ImSpector functions as an imaging device forming a 2D spatial image with full spectral data subsequent to the spatial scan.

ImSpector spectrographs can be integrated with a multi-channel fiber optic array. Consequently the integration creates a solution capable of the simultaneous spectral measurement of up to 120 points.

## STANDARD OF MEASURING

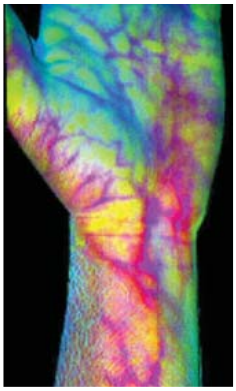
The Standard series of ImSpectors are basic imaging spectrographs designed for area scan cameras with 1/2" or 2/3" detectors. Standard series provides the smallest possible physical size and light weight with a small aberration, and high image throughput.

## Application examples

- On-line sorting and quality monitoring
- Light source and display testing
- Microscope systems
- NIR spectral imaging
- Mineral mapping
- Food and vegetation research
- Semiconductor industry
- High-accuracy color measurement

**Art diagnostics**

Image courtesy of Nello Carrara, Institute of Applied Physics.



**Biomedical research**

Image courtesy of Themis Vision Systems.

## ENHANCED PERFORMANCE

The Enhanced series ("E") meets the requirements when using larger size detectors with more and smaller pixels. These imaging spectrographs are suitable for applications that require high spatial image resolution or simultaneous measurement with large number of optical fibers.

ImSpector Enhanced series share the similar ease of use as the Standard series with improved performance (sub-pixel aberrations, improved light throughput and smaller spot size).

## FAST ACQUISITION

ImSpector Fast10 is a high intensity imaging spectrograph. It makes spectral imaging acquisition possible at speeds up to 1500 lines per second.

ImSpector Fast10 provides the highest possible light throughput with a superior image quality. Maximum light intensity on the camera pixels (short integration time) and small spectral dispersion (high speed acquisition) are features that bring synergy when combined with high speed industrial CCD and CMOS cameras.

## REDEFINED PERFORMANCE

The newest addition to the Specim imaging spectrograph line is the ImSpector M-series. The new optical design and principle (patent pending) of the M-series takes the performance of the Imaging Spectrographs to a new level. Practically an aberration free design with High Resolution Optics and possibility to use a larger detector than before combined with low weight and small footprint gives a new reference level of performance for VNIR, SWIR, MWIR and LWIR wavelength ranges.

## ACCESSORIES

SPECIM's ImSpectors can be provided with various accessories i.e. fore optics or filters to improve the quality of measured data.

Hyperspectral fore optics can be provided from 400 nm to 12000 nm. Multiple point fiber optics are available from 200 nm to 2500 nm.

**Hyperspectral fore lenses, detailed datasheet available on request.**

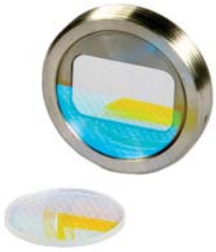
## ImSpector selection; Standard, Enhanced, Raman, M and Fast series

| Wavelength range | Spectral range | ImSpector |
|---|---|---|
| UV | 200 - 400 nm | UV4E |
| VIS | 380 - 780 nm | V8H, V8, V8E |
| Raman | 500 - 600 nm<br>800 - 900 nm | R6E, R9E |
| VNIR | 350*/400 - 1000 nm | V10H, V10, V10E,<br>V10M*, Fast10 |
| eNIR | 600 - 1600 nm | V16M |
| NIR | 900 - 1700 nm | N17E |
| SWIR | 1000 - 2500 nm | N25E |
| MWIR **) | 3000 nm - 5000 nm | M50M |
| LWIR **) | 8000 - 14000 nm | L120M<br>L140M<br>L120MP |

**)Only available as Spectral Cameras or with integration to customer's camera.

ImSpectors can be equipped with spectral flattening or pass-band filter to enhance the performance for diverse applications.

Selection of order blocking filters (OBF's) is available for use with spectrographs to guarantee desired spectral quality.



**OBF 570 (with and without C-mount holder)**

IMAGING SPECTROGRAPHS

SPECIM IS A WORLD LEADING COMPANY for hyperspectral imaging instruments, from UV through VNIR and SWIR up to LWIR (long wave infrared).

We provide ImSpector imaging spectrographs, Spectral Cameras and hyperspectral imaging solutions to a rapidly increasing number of industrial OEM customers and a large scientific clientele. Specim's AISA FAMILY of airborne hyperspectral sensors provides market leading solutions for remote sensing, from small UAV systems to full featured commercial, research and military remote sensing tools.

Our hyperspectral products are known for the highest performance at the lowest budget in the market. They are used in an increasing range of demanding applications like color, Process Analytical Technology (PAT), life sciences, chemical imaging, military and security.

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