



## Dual SWIR and VNIR Spectral Camera System

### Use

The two spectral cameras are mounted together with an adapter plate and this setup can be installed on a rotary stage on top of a tripod for outdoor scanning. The same dual camera set-up with the rotary stage or with an optional linear stage (linear stage not included) can be also used for laboratory work.

### System Components

- SWIR Spectral Camera (MRC-303-005-01 cased, see separate product sheet for specifications)
  - » Integrated MCT camera and ImSpector N25E OEM spectrograph
  - » 1000 - 2500 nm spectral range
  - » 10 nm nominal spectral resolution with 30  $\mu$ m slit
  - » LVDS, 14-bit data output and camera control
  - » 320 spatial x 256 (240 active) spectral pixels
  - » Adjustable integration time
  - » Maximum frame rate 100 fps, adjustable
  - » Spectral calibration included
  - » Integrated, real time non-uniformity correction
  - » Temperature stabilized detector
  - » OLES15 color-corrected fore objective
  - » Radiometric calibration
- VNIR Spectral Camera (MRC-303-002-02 cased, see separate product sheet for specifications)
  - » Integrated CCD camera and ImSpector V10E spectrograph
  - » 400 - 1000 nm spectral range
  - » <3 nm spectral resolution with 30  $\mu$ m slit
  - » CameraLink 12-bit data output and camera control
  - » 1600 spatial x 1200 (840 active) spectral pixels
  - » Adjustable integration time
  - » Maximum frame rate 33 fps (without binning), adjustable. Higher frame rates available with binning.
  - » Spectral calibration included
  - » OLES18.5 color-corrected fore objective
  - » Radiometric calibration
- Common mechanical mount
  - » VNIR and NIR spectral imagers mounted vertically
  - » Fixed position course mechanical alignment, no adjustment capabilities
  - » Common transport case for sensors, mount and rotating scanner
- Data acquisition computer
  - » Both sensors are controlled by one computer. Acquisition made using 2 computers in master/slave configuration to allow for



*Schematic image of the dual camera setup on a tripod and rotary stage*

- different spatial resolutions.
  - » SpectralDAQ 3.6x data acquisition software (to set the camera parameters, provide real time visualization of the data collection, control the shutters and rotary stage motion, and save data cubes in the hard disk).
  - » Two cameras are acquiring and saving images simultaneously and synchronously
  - » Data from both sensors is saved into two separate data cubes with 16-bit ENVI bil16 data format. Saved data will require post acquisition calibration to ensure accurate alignment.
  - » Delivered inside robust rack, shared with power supplies.
  - » Monitor and keyboard/mouse
- Power supplies
  - » The computer rack includes regulated power supplies for the spectral cameras and the computers.
  - » Input to the power supply is 230 V / 50 Hz
  - » The power requirement for the setup is approximately 900 W.
- Rotary stage with tripod for outdoor scanning
  - » Rotary stage for the dual camera setup to scan images outdoors
  - » Installed between a tripod and camera setup
  - » Maximum payload 62.5 kg, maximum torque 9.5 Nm, IP65, Kill switch
  - » Scanning angle mechanically limited to 180 degrees.
  - » Controlled from system software
  - » Tripod included in the delivery

All technical document and manuals, including set of drawings and manuals, shall be delivered with the system.