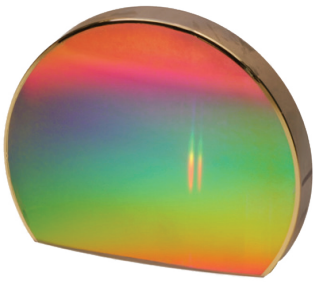
Headwall

OEM PRODUCT DATA SHEET

Raman Discovery™ 532 & 785

- Master-quality holographic diffraction gratings
- Minimal entrance image blur
- High SNR and throughput
- Maximum diffracted light energy
- High diffraction efficiency



Headwall-manufactured diffraction gratings manage reflected light with exceptional precision and resolution.

OEM PRODUCT DATA SHEET

Raman Discovery™

Nominal performance guidelines based on 50 µm core with 10 µm cladding input fiber image

	Raman Discovery 532	Raman Discovery 785
Spectral Range	3650 cm^{-1} (~ 540 – 660 nm)	2000 cm^{-1} (~ 785 – 931 nm)
Spectral FWHM Resolution	< 10 cm^{-1} (< 0.36 nm)	< 10 cm^{-1} (< 0.68 nm)
Spatial FWHM Resolution	3 pixels	
Spatial 20% of Peak FW Resolution	4 pixels	
Horizontal Row Deviation (spectral direction)	1 pixel	
Vertical Column Deviation (spatial direction)	1 pixel	

Headwall Photonics is the world's leading manufacturer of precision spectrometers for OEM's and system integrators. Raman Discovery™ is a compact and light weight Raman spectrom¬eter which maintains uniformly high spectral resolution across its entire defined image format. At the heart of every Raman Discovery™ imaging spectrometer is a Headwall proprietary resonance-domain concave holographic diffraction grating. The highly efficient, holographically ruled master-quality grating combines high throughput and low stray light to achieve the highest possible SNR.

Unlike typical multiple-order gratings, these holographically ruled gratings operate within their resonance domain; hence, only a single diffractive order can propagate, and this order can be blazed to achieve diffraction efficiencies approaching that of an equivalently-blazed sawtooth grating. Unlike conventionally ruled sawtooth gratings, however, the holographic ruling process is readily adapted to rule grating structures on non-planar substrates, enabling a single concave grating to function as collector, disperser, and focusing element. Spectrographs produced using these proprietary gratings exhibit very high diffraction efficiencies (typically a 2-3x improvement relative to a scalar holographic design) and benefit from inherent freedom from dispersive artifacts such as grass and ghosts.

The high-performance imaging properties of Raman Discovery™ faithfully reproduce micro-scale spectral features with remarkable accuracy. The transverse magnification is unity and the absence of curvature in the dispersed image (entrance slit, or stack of fibers) means resolution is maintained without the need to employ expensive curved input geometries or auxiliary field correction optics. Within the 3mm-tall entrance aperture you can arrange a wide assortment of individual fibers or bundles which contain signals from calibration light sources, excitation light sources, and several process monitoring points.

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