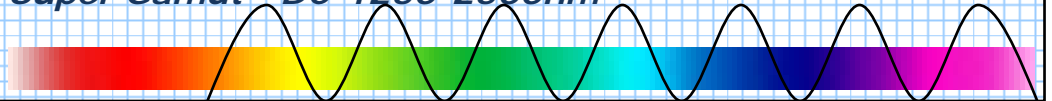




Deep cooled NIR Spectral Engine Super Gamut™ DC-1250-2500nm



Deep-Cooled Detector option



BaySpec's *Super Gamut™* series NIR spectral engines are designed to meet real-world challenges for best-in-class performance, long-term reliability, compact size and ultra-low power consumption. Benefiting from experience manufacturing high-volume optical channel performance monitoring devices for the telecommunications industry, BaySpec's NIR spectral devices utilize low-cost field proven components. For the first time in instrumentation history an affordable, accurate and ruggedized spectral device is a reality.

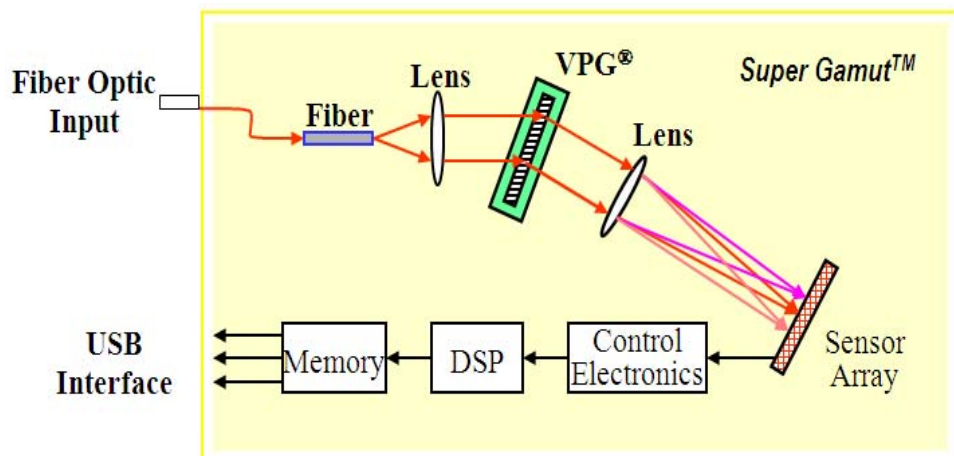
The *Super Gamut™* Series employs a highly efficient *Volume Phase Grating (VPG®)* as the spectral dispersion element and an ultra sensitive InGaAs array detector as the detection element, thereby providing high-speed parallel processing and continuous spectrum measurements. As an input, the device uses a fiber optic input or slit optics arrangement based on customer preferences. The signal is spectrally dispersed with the VPG® and the diffracted field is focused onto an InGaAs array detector. The control electronics read out the processed digital signal to extract required information. Both the raw data and the processed data are available to the host.

Key Features

- Utilizes a unique deep-cooled InGaAs detector array for 8x sensitivity over conventional systems
- Hermetic-sealing ensures reliable operation in harsh environments
- Outstanding optical throughput is achieved with VPG® and f/2 design
- Covers wavelength ranges from 1250-2500 nm
- Real-time spectral data acquisition with fast milli-sec response time

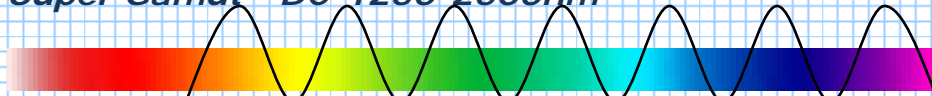
Applications:

- Pharmaceuticals
- Medical Diagnostics
- Semiconductors
- Agriculture
- Beverage & Brewery
- Cosmetics
- Explosives detection
- Counterfeit detection
- Water quality
- Food safety
- Petrochemical
- Law Enforcement
- Pulp & Paper
- Mining
- Oil Exploration
- Biomedical Research
- Homeland security
- Low light spectroscopy



NIR Deep-cooled Spectral Engines

Super Gamut™ DC-1250-2500nm



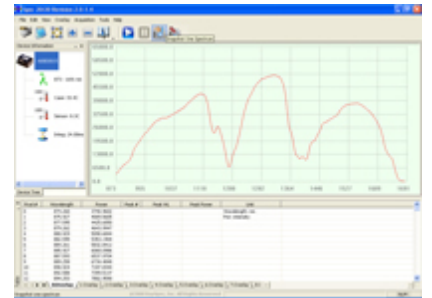

Parameter	Specification
PERFORMANCE	
Wavelength Range	1250-2500nm or customer specified
Spectral Resolution	5-20nm slit dependent
Peak wavelength(λ_{pk}) nom.	2.3 μ m
Signal / Noise	5000:1
Wavelength Calibration	Factory Calibrated, independent of operating temperature
Integration time	20 μ s to 30 seconds
Weight	1000g
Dimensions	Spectrograph: 88 x 122 x 39 mm ³ Detector head: 167 x 103 x 84 mm ³
OPTICS	
f/ number	f/2
Grating	Custom <i>Volume Phase Grating (VPG)</i> ®
Entrance Aperture -Slit	10 μ , 25 μ , 50 μ , 100 μ , 200 μ , Fiber, or custom design
DETECTOR SPECS	
Detector array	50 μ m x256 Pixel
Avg. array response @ λ_{pk} Min.	9.0nV/photon
Quantum Efficiency @ λ_{pk} Min.	60%
Response non-uniformity, max.	10%
Readout noise	180 μ Vrms typical, 300 μ Vrms Max.
Max Dark Current	500pA Typ. 2000pA Max.
Dark Noise	12 counts rms
Saturation charge (Typical)	5X10 ⁶ electrons
Detector Gain	400nV/electron typical
Stray light	0.05%
Detector	3-stage deep-cooled TE cooled InGaAs to -45°C
A/D converter	16bit
Power	1A@5v
COMPUTER	
Scan rate	Up to 6000 full scans/second
Data Ports	RS232 or USB 2.0 (inquire on others)
Trigger modes	Software or External Trigger (TTL) Controlled
Software	BaySpec "Sense 20/20" SDK software LabVIEW supported
Operating System	Windows 2000 or later

Specifications are subject to change without notice

Key design benefits:

- Ruggedized, compact size
- No moving parts
- Ultra reliable transmission Volume Phase Grating (VPG®)
- High throughput f/1.8 optics
- Advanced temperature control
- Factory calibrated
- Excellent repeatability
- Low cost of ownership

BaySpec "Sense 20/20" SDK
Software included for ease of integration.



Ordering Information

Code	Type	Code	Starting λ	Code	Ending λ	Code	Interface Type
S	Standard	Please specify the starting wavelength i.e. :		Please specify the ending wavelength i.e. :		SMA	SMA905
D	Deep Cooled	850	850.00 nm	1700	1700.00 nm	025	25 μ m
		1100	1100.00nm	2200	2200.00 nm	050	50 μ m
		1250	1250.00 nm	2500	2500.00 nm	100	100 μ m
		xxxx	customer specify	yyyy	customer specify	200	200 μ m

Note: probe sold separately

