

Luna's Micron Optics HYPERION si255 is an industrial grade fanless optical sensing interrogator. Featuring both static and dynamic full spectrum analysis, the si255 provides long-term, reliable and accurate measurements of nearly 1000 sensors on 16 parallel, 160 nm wide channels.

The si255 features an all new, high power, low noise, ultra wide swept wavelength laser with guaranteed absolute accuracy on every scan, which is realized with Micron Optics patented Fiber Fabry-Perot filter and wavelength reference technology.

The HYPERION platform features groundbreaking capabilities including on-board, high-performance DSP and real-time FPGA processing. This enables rapid, full-spectrum data acquisition and flexible peak detect algorithms of Fiber Bragg Gratings (FBG), Long Period Gratings, Fabry-Perot (FP) and Mach-Zehnder (MZ) sensors with low-latency access to data for closed loop feedback applications.

The HYPERION platform is now compatible with ENLIGHT Sensing Analysis Software, which provides an integrated suite of tools for data acquisition, computation and analysis of optical sensor networks.

The HYPERION platform also includes a comprehensive Application Programming Interface (API) and examples written in LabVIEW, Python, Matlab, C++ and C#.

Dynamic and absolute measurements of FBG & FP sensors on 16 parallel, 160 nm wide channels and ENLIGHT compatible

KEY FEATURES

- Standard, High Speed and Enhanced Visibility models, each with available depolarized source
- Up to 16 parallel channels
- Dynamic and absolute measurements of FBGs, LPGs,
 FP and MZ sensors from detailed optical spectrum
- Deep, continuous dynamic range is available to each sensor on each channel, independent of differential system losses
- Data verification key guarantees only valid output. Each data set is calibrated and verified against a NIST traceable reference.
- Proven reliability and longevity of the Micron Optics swept wavelength source, with over 100 million hours logged since 2000

DEPLOYMENTS

- Oil & gas
- Medical devices
- Industrial measurements
- Energy
- Structures
- Security
- Aerospace

PERFORMANCE

Performance Properties				
Measurement option	Enhanced visibility, 10 Hz	Standard, 100 or 1000 Hz	High speed, 5000 Hz	
Number of channels	4, 8 or 16 parallel channels	4, 8 or 16 parallel channels	4, 8 or 16 parallel channels	
Wavelength range	1500-1600 or 1460-1620 nm	1500-1600 or 1460-1620 nm	1500-1580 or 1510-1590 nm	
Wavelength accuracy/stability ¹	1 pm / 1pm	1 pm / 1pm	2 pm / 3 pm	
Wavelength repeatability ²	1 pm, 0.3 pm at 1 Hz	1 pm, 0.05 pm at 1 Hz	2 pm, 0.05 pm at 1 Hz	
Dynamic range/continuous	35 dB peak / 45 dB FS	25 dB peak / 40 dB FS	17 dB peak / 40 dB FS	
Full spectrum measurement ³	Included, data rate at 10 Hz	Included, data rate at 10 Hz	Included, data rate at 10 Hz	
Optical connectors	LC/APC			
Compatible sensors ⁴	Fiber Bragg Gratings, Long Period Gratings, Fabry-Perot and Mach-Zehnder Interferometers			
Interfaces and Software				
Interface	Ethernet			
Software	Comprehensive API and example support for LabVIEW™, Python, Matlab, C++ and C#			
Physical Properties				
Dimensions/weight	307 mm x 274 mm x 69 mm / 4.9 kg			
Operating/storage conditions	-20 to 60 C, < 80%RH non-condensing / -30 to 70 C, < 95%RH non-condensing			
Input voltage	9 - 36 VDC, AC/DC converter included (100~240 VAC, 47~63 Hz)			
Power consumption at 12 V	30 W typ, 40 max			

EXAMPLE CONFIGURATIONS

si255-ST-04-1500-1600-0100-NO	4 ch si255 ST with 1500-1600 nm scan range, 100 Hz scan rate and no internal accessories	
si255-EV-08-1460-1620-0010-DP	8 ch si255 EV with 1460-1620 nm scan range, 10Hz scan rate and internal depolarizer option	
si255-ST-16-1460-1620-1000-FR	16 ch si255 ST with 1460-1620 nm scan range, 1 kHz scan rate and full redundancy option	

ORDERING

si255-mm-cc-lwvl-uwvl-ssss-aa

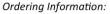
mm	Measure EV ST HS	ment option Enhanced visibility Standard High speed	
СС	Number 04 08 16	of channels 4 channel 8 channels 16 channels	
lwvl	Lower wavelength in nanometers		
uwvl	Upper wavelength in nanometers		
ssss	Scan rate in Hz		
aa	Internal A NO DP FR	Accessory Option None Depolarizer Full Redundancy (16 ch only)	

ACCESSORIES

x55_rkm 19" rack mount kit 19" ATEX certified x55_atx x55_skm Surface mount kit x55_ew3 3 year extended warranty oa2001 LC/APC-FC/APC x55_cas x55 transport case connectivity kit

NOTES

- 1. Accuracy per NIST Technical Note 1297, 1994 Edition, Section D.1.1.1, definition of "accuracy of measurement." Stability captures effects of long term use over operating temperature range.
- 2. Per NIST Technical Note 1297, 1994 Edition, Sect D.1.1.2, definition of "repeatability [of results of measurements]."
- 3. For faster scan rates >10 Hz, data bandwidth may limit rate of multichannel spectral streams.
- 4. FBG bandwidths of 0.25 nm used for performance qualification.
- 5. Details regarding the Depolarized Laser Option are available in the x55 Depolarized Laser Option Technical Note.





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