



# Single Board Interrogator

Luna's Micron Optics HYPERION Single Board Interrogator is a high performance optical sensing instrument that offers unmatched ease of integration for OEM systems. A full suite of software tools typically only available to high-end instruments is among one of the many features of the HYPERION Single Board Interrogator.

Derived from the HYPERION si155 platform, the HYPERION Single Board Interrogator leverages the unmatched gains, which are realized with Micron Optics-patented Fiber Fabry-Perot filter and wavelength reference technology.

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

The HYPERION Single Board Interrogator is compatible with ENLIGHT Sensing Analysis Software, which provides a single suite of tools for data acquisition, computation and analysis of optical sensor networks. This interrogator also includes a comprehensive Application Programming Interface (API) and examples written in LabVIEW, Python, Matlab, C++ and C#.

## KEY FEATURES

- **Truly turn-key solution** providing quick start-up and data collection with minimal software or electronic design required for system implementation with added benefit of reduced cost
- **Dynamic measurements of FBGs, LPGs, FP and MZ sensors** from detailed optical spectrum
- **Data verification key guarantees only valid output.** Each data set is calibrated and verified against an available permanent NIST traceable reference.
- **Feature-rich ENLIGHT software and API support,** available at no cost for sensor conditioning, data visualization and data saving definitions
- **Deep, continuous dynamic range** is available to each sensor on each channel, independent of differential system losses
- **Proven reliability and longevity of the Micron Optics swept wavelength source,** with over 100 million hours logged since 2000

**Flexible peak and valley detection on 1 through 4 parallel channels with widest available wavelength range**

## KEY FEATURES

Performance Properties	
Measurement options	Enhanced Visibility, Standard, High Speed (10 Hz, 100 or 1000 Hz, 5000 Hz)
Number of channels	1 through 4 channels
Wavelength range	60, 80, 100 or 160 nm
Wavelength repeatability/accuracy <sup>1</sup>	1 pm
Dynamic range / continuous	17 - 45 dB
Full spectrum measurement	Included, data rate at 10 Hz
Optical connectors	LC/APC
Compatible sensors <sup>2</sup>	Fiber Bragg Gratings, Long period gratings, Fabry-Perot, Mach-Zehnder Sensors and others
Interfaces and Software	
Interface	Ethernet
Software	Comprehensive API and example support for LabVIEW™, Python, Matlab, C++, C#
Physical Properties	
Weight	1.8 kg
Operating / storage temperature <sup>3</sup>	Capable of operating temperature range of -20 to 60 degree C
Input voltage	9 - 36 VDC, optional AC/DC converter included (100~240 VAC, 47~63 Hz)
Power consumption at 12 V	30 W typ, 40 max

## ACCESSORIES

Available for purchase:

LC/APC-FC/APC connectivity kit

Power Supply

## NOTES

1. Repeatability as per NIST Technical Note 1297, 1994 Edition, Section D.1.1.2, definition of “repeatability [of results of measurements]”. (Assumes an FBG bandwidth of 0.25nm). 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. FBG bandwidths of 0.25 nm used for performance qualification.
3. User is responsible for thermal management. HYPERION platform was tested and qualified using a finned heat sink and a convective airflow. Reference design documentation available by request.