Spectre® MINI [SWIR 1]

Powered by the Hamamatsu Photonics C14272

NSF
NIST

AGR®
We See the *Invisible* ®

**Save Money.
Reduce Waste. Go Faster.**

Compact plug-and-play
spectroscopy module
made in the USA
for edge AI and
industrial integration

Features

See *Faster*

◇ Minimize data processing time and errors with **high frame rates** and **onboard calibrations** powered by 5 proprietary algorithms.

◇ Start today with AGR's® **evaluation apps** and sample embedded **Python scripts**.

See *Farther*

◇ Send analysis-ready data **hundreds of feet** using PoE or within the same housing with **board-to-board** connectors and USB.

◇ Deploy like a camera for **non-contact** scans to **mitigate the risk** of cross-contamination.

See *Fearless*

◇ Scale from **prototype to production** with a customizable OEM module reliably made in **America's Optics Capital**: Rochester, NY.

◇ **Solid state** sensors and rugged environmental ratings ensure **performance-critical integrity**.

APPLICATIONS

See the *Invisible* to Control Your Quality

◇ Agriculture, Forestry, Food & Beverage

◇ Medical & Pharmaceutical

◇ Water Quality & Environmental Monitoring

◇ Manufacturing & Recycling

◇ Lighting & Calibration

Contact us for inspiration from 100+ case studies.

Specifications

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Sensor		Hamamatsu Photonics C14272 MEMS-FPI Spectrometer
AGR® Part Number	Board-Level	9008 (USB), 9008-E (PoE)
	Enclosed	9009 (USB), 9009-E (PoE)
Electrical Interfaces	Enclosed	USB 2.0 Type C PoE M12 X-Coded Ethernet
	Board-Level	USB 2.0 Type C POE M12 X-Coded or RJ45 Ethernet UART Board-to-Board [3.3V] I2C Board-to-Board [3.3V] Power Board-to-Board [5.0V I/O] Input & Output Triggers [Up to 24V]
Optical Interfaces		Free-Space SMA Fiber: With Housing Adapter Lenses and Diffusers by Request
Spectral Range		1350 nm - 1650 nm
Numerical Aperture		0.09
Free-Space Full Field of View		10˚
Nominal Spectral Resolution		1 nm (Specific Mode) 7.5 nm (Full-Spectrum Mode)
FWHM Spectral Resolving Power		18 nm
Bit Depth		Linearized 16-bit
Integration Time (Exposure)		10µs to 10s
Maximum Frame Rate		840 FPS (Specific Mode) 15 FPS (Full-Spectrum Mode)
Optical & Temperature Calibrations		Embedded Onboard
Operating Temperature		-40˚ to +85˚ C [-40˚ to +185˚ F]
Mechanical Dimensions		Drawings Available upon Request
Ingress Protection		Untested
Interface Protocol		EMI-Resistant Standard JSON
Operating Modes		Automatic & Manual
Compatible Off-the-Shelf Accessories		Flex Cable to Detach Sensor Card Housed SMA Fiber Adapter Calibrated Armored Optical Fiber Calibrated Glass Diffuser

Are You Ready for the AI Revolution?

Ready or not, it's already here. That's why you need the **AGR® Advantage** to outperform standard imaging in **accuracy and training time**. Every Spectre® is factory-embedded with the 5 proprietary onboard calibrations demonstrated below to **minimize post-processing** time while **maximizing signal and accuracy** for high-performing spectral analytics.

**You take the scan, we do the rest**.
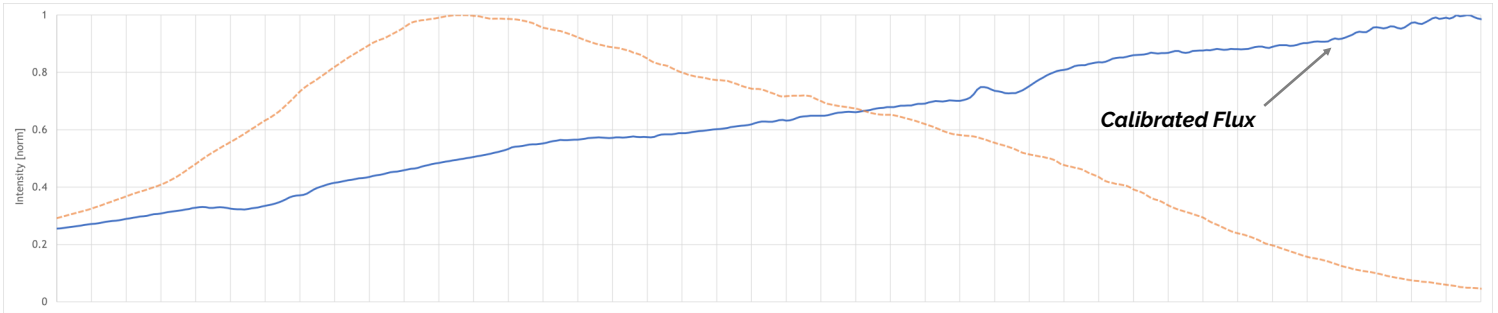
Calibrated Flux

Y-Axis [Quantum Efficiency and Auto-Exposure]
Calibrated reading (blue) directly overlaps tungsten-halogen data from NIST calibrated reference spectrometer, in contrast to raw reading (orange).

Accurate Spectral Fingerprint
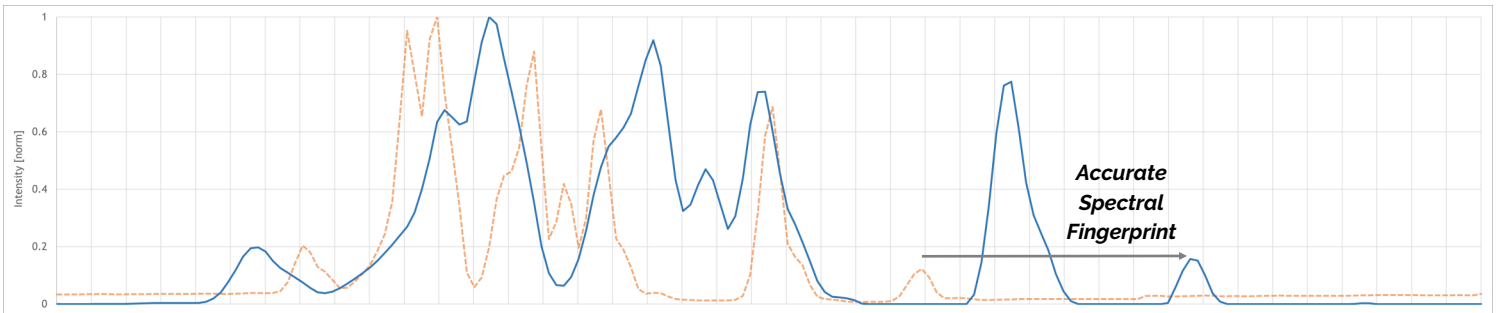
X-Axis [Optical Alignment and Temperature Shift]
Calibrated reading (blue) correctly identifies primary Mercury-Argon atomic emission peaks, in contrast to wavelength-shifted raw reading (orange).

Pixel-Specific Noise Elimination

Sharper Peaks
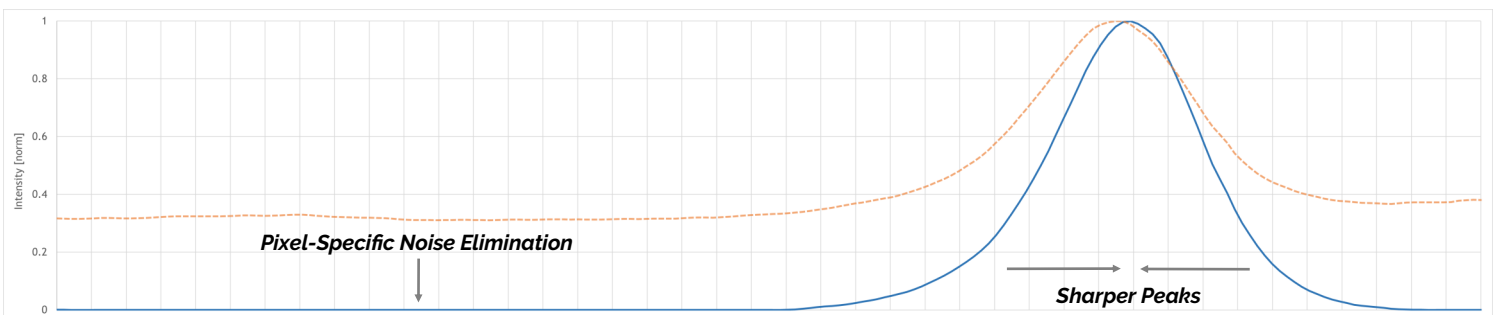
Multi-Dimensional [Predictive Patterned Dark Noise]
Calibrated reading (blue) mitigates dark noise and its spectrally-dependent pattern *without* requiring the installed unit to be covered for dark readings.

Buy Now
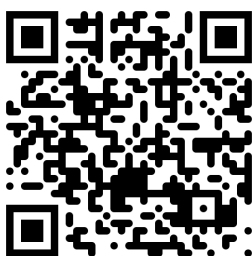
Custom AI Models
We see the *invisible*, and you can too by contacting AGR® for tailored analytics.

System Integration
Customize for original design manufacturing (ODM) with AGR® & integration partners.