

Hamamatsu Photonics Unveils the G1682x Series: A Non-Cooled InGaAs Image Sensor for Near-Infrared Applications

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Hamamatsu Photonics is excited to announce the G1682x series, a compact InGaAs linear image sensor designed for near-infrared multichannel spectrophotometry.

This front-illuminated range of sensors offers high sensitivity and an uncooled design, enabling rapid and accurate real-time analysis across a diverse range of applications for R&D, industrial, and original equipment manufacturer use.

The G1682x series allows users to conduct simultaneous analyses across multiple channels. With the same outline dimension as the previous [G9203-256DA sensor](#), and single video line data output, the latest sensors significantly enhance efficiency and ensure thorough data collection, making them an indispensable tool for quality control, process optimization, and various research applications.



Hamamatsu's G1682X series InGaAs Image Sensor modules

Key features of the G1682x series include:

- **High-Performance Design:** Combines an InGaAs photodiode array with a CMOS chip for stable operation in the near-infrared range of 0.9 to 2.1 μm .
- **Selectable Conversion Efficiency:** Users can optimize performance via adjustable conversion efficiency, selecting between two settings ($\text{CE}=16 \text{ nV/e-}$ and $\text{CE}=160 \text{ nV/e-}$) through external voltage. This adaptability makes the G1682x series ideal for industrial, R&D and OEM requirements.
- **Uncooled Operation for Low Dark Current:** Unlike previous long-wavelength models that required TE cooling to mitigate dark current, the G1682x series maintains low dark current through zero bias operation, effectively eliminating the need for cooling.
- **Low Power Consumption:** Operating at a drive voltage of just 3.3 V, and with pixel sizes measuring $50 \mu\text{m} \times 250 \mu\text{m}$ for the G16823-128DB sensor and $25 \mu\text{m} \times 250 \mu\text{m}$ for the G16823/G16824/G16825-256DG, low power consumption is possible.

Key Benefits:

- **Portability:** Designed with portability in mind, the G1682x series enables users to conduct analyses in various environments without sacrificing performance.
- **Multichannel Analysis Efficiency:** The ability to analyze multiple channels simultaneously allows users to save time while expanding the scope of their data collection.
- **Enhanced Process Monitoring:** Specifically crafted for process analysis, this sensor enables organizations to monitor conditions and adjust processes in real-time, thus enhancing operational efficiency.
- **Cost-Effective Spectroscopy:** The G1682x series offers a high-performance solution at an accessible price point.

“We are proud to introduce the G1682x series, providing a robust solution for near-infrared applications,” comments Luigi Ghezzi, Technical Marketing Engineer at Hamamatsu Photonics. ***‘Its compact design and practical features are tailored to meet the evolving needs of our customers in the field of spectrophotometry.’***

The G1682x series is now available for purchase. For further details about this product and its applications, please visit the [G1682x product page](#) and [datasheet](#) or contact us directly.

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Hamamatsu Photonics is a leading provider of cutting-edge photonics technology and products. With 70 years of experience, the company delivers innovative solutions to customers across a wide range of industries, including medical, scientific research, industrial, and telecommunications. Hamamatsu Photonics offers a comprehensive range of products, such as imaging sensors, light sources, and optical systems designed to meet customers' unique needs.

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Keywords: photonics technology, near-infrared, spectroscopy, spectral analysis, InGaAs Image Sensors [Contact us](#)

Market: photonics, analysis, quality control, material inspection, monitoring, manufacturing, OEM, engineering, research, R&D

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