Ennostar



Smart Sensing-Transmitter >

With the rapid advancements in optical sensing technology, consumers can now manage their health more conveniently. Ennostar offers a comprehensive range of products—from full-spectrum chips, packages to modules that include both emitters and receivers. We have diversified design, customized design, and high-quality manufacturing capabilities, our solutions are the top choice for energy-efficient applications. Ennostar can meet the needs of leading brands in sensing and are trusted by our partners.





Smart Watches / Rings Heart Rate & Blood Oxygen Sensing





Market Trends and Potential

The smartwatch market is growing as technology advances and health awareness increases. With multifunctional capabilities including health data monitoring, communications, and motion recognition, these devices attract a broad consumer base and offer high growth potential. Ennostar provides a full series of heart rate and blood oxygen sensing products across various models. We have diversified design, customized design, and high-quality manufacturing capabilities. With industry-leading performance and energy efficiency, our solutions are the most trusted by our partners.

- PPG sensors in smartwatches use high-intensity LED light sources to accurately and continuously monitor physiological data such as heart rate and blood oxygen levels while reducing power consumption by over 10%.
- Highly sensitive photodiodes (PD) minimize power usage and deliver rapid response times for stable and reliable data, enabling more precise measurements.







	Dimension(mm)	2.4 X.2.1 X 0.55mm
	LED Wavelength	1050 nm + 1450 nm
	PD Wavelength	1000 nm ~ 1700 nm

Current moisture sensing technology is mainly applied in smart earphones, where detecting moisture helps determine whether the earphones are worn on the ear or placed in a non-human environment—thereby conserving battery power. According to market reports, the smart earphone market is expected to maintain an annual compound growth rate of over 15% from 2025 to 2032. This trend is set to drive increased demand for skin moisture sensing modules, revealing significant market potential.

- Achieves 10% more energy efficiency compared to industry standards.
- Provides more accurate wear detection for human proximity compared to traditional object proximity sensors, enhancing convenience and user experience.









Dimension(mm)	2.2 x 1.8 x 0.6mm
LED Wavelength	1450nm + 1550nm
PD Wavelength	1000nm~1700nm

With over 500 million diabetic patients globally, there is strong demand for non-invasive blood glucose monitoring devices. Optical measurement techniques for blood glucose have become a market focus due to their painless and convenient nature. Supported by global health policies promoting diabetes management and broader health insurance coverage, the market penetration for these technologies is expanding, demonstrating enormous potential. The smart ring not only monitors blood glucose but also analyzes body age, tracks exercise data, and provides health forecasts. In addition, by monitoring indicators such as heart rate and blood oxygen, it offers personalized health and exercise recommendations to help users maintain optimal well-being.

Technical Highlights

- Reusable optical sensing technology reduces the need for disposable consumables.
- World's first smart ring offering non-invasive blood glucose measurement.
- Non-invasive design alleviates finger-prick discomfort for diabetic patients. Miniaturized and energy-efficient, with up to five days of battery life per charge.
- Meets IP67 standards for waterproof and dustproof protection.

Sustainable Development Goals (SDGs)

















Current (uA)	Active 1.4mA/ Sleep0.7uA
Accuracy (Tobj: 35~42°C)	±0.2°C
Output	Temperature, I2C with MCU

The thermopile sensing solution provides non-contact temperature measurement, delivering real-time and accurate body temperature monitoring for wearable devices which are Ideal for both health management and medical applications. This low-power, high-sensitivity technology enhances device competitiveness, and are attracting investment from medical, sports, and consumer electronics brands.

- Non-contact method delivers ear-thermometer-level performance with immediate measurement and feedback.
- FDA-approved precision specs and integrated MCU solutions, validated in mass production, achieve ±0.2°C accuracy.
- Approximately 20% more energy savings compared to similar industry products.





Ambient Light – Smart Doorbell		
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Dimension (mm)	2.4x2.0x0.7mm	
Current	Active 128uA/ Sleep 0.5uA	
FOV (°)	55°	

The security market is experiencing growth, driven by the increasing popularity of smart home concepts and heightened awareness of surveillance. Products featuring remote monitoring, video recording, and internet connectivity are increasingly in demand to provide both convenience and safety.

- Supports a wide range of wavelengths, making it adaptable to various indoor and outdoor scenarios.
- Optimized for low brightness conditions, ideal for precise day-night mode switching in security applications.
- Wide-angle detection expands the field-of-view (FOV) to 55 degrees, ensuring extensive coverage for diverse applications.



