Li-Fi TinySpot

Ultra-Low Power Link

Fraunhofer IPMS

Leistungszentrum mikro I nano

Key Features

Robust & Secure
- No radio-frequency (RF) interference
- A direct line of sight makes eavesdropping more difficult
- Much more stable maximum data rate than RF
- Works in sensitive environments

Energy Efficient
- Ultra-low power consumption (~5 mW or less)
- Easy power supply with standard 2.5 V
- TinySpot extends battery life for mobile devices, wearables, sensors, data loggers,
- 10-20 Mbit/s or more shorter transmission bursts to further reduce system energy consumption, heat and costs

Easy to Install
- Flexible, easy integration, comes with own PCB
- Runs with standard UART / SPI interfaces
- Compact footprint (~15 mm × 21 mm x 3.3 mm)
- Easy integration into existing embedded systems

Applications

Mobile Devices
Its small, low-power design suits data-to data communication, secure authentication, and data sync in RF-restricted spaces like hospitals, aircraft, and industrial sites.

Mobile and ultra-low Power Sensor Nodes
Ultra-low power (≤5 mW), compact, UART/SPI - ideal for battery/harvested devices; optical power + MCU enable wireless IoT/embedded sensing.

IrDA Replacement
10 Mbps bi-directional, full-duplex IR; compact, low-power, IrDA-compatible (SIR/FIR/VFIR)—ideal for upgrading embedded, medical, industrial interfaces.

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Li-Fi at Fraunhofer IPMS

Our Li-Fi product portfolio offers a range of solutions tailored to different needs in latency, maximum range, and data rate. Whether you're designing for ultra-low latency control systems, high-throughput data links, or long-range communication, we have the right technology for your application.

	LiFi GigaDock®	LiFi GigaCoupler	LiFi Grathus®	LiFi GigaSpot	LiFi Arthus
Range	mm – 10 cm	mm - 5 cm	cm – 10 m	cm – 30 m	cm – m
Data Rate	up to 10 Gbps	up to 10 Gbps	>1 Gbps	up to 1 Gbps	10 & 100 Mbps
Topology	Point-to-Point	Point-to-Point	Point-to-Point	Point-to-Point, Point-to-Multipoint	Point-to-Point
Key Feature	High Performance, Real-Time, Short Range Data Link	High-Speed, Short Range Optocoupler	High Performance, Real-Time Data Link	Robust, Versatile Data Link	Low-Cost, Real-Time Data Link

	LiFi TinySpot	LiFi Pharlan®	LiFi Ligion®	LiFi PoL	LiFi Underwater
Range	mm – 2 m	up to 300m	up to multiple cm	up to 1m	up to 100 m
Data Rate	Up to 20 Mbps	≥1 Gbps	Multi Gbps	up to 20 Mbps	up to 1 Gbps
Topology	Point-to-Point	Point-to-Point	Point-to-Point	Point-to-Point	Point-to-Multipoint
Key Feature	Ultra-Low Power Data Link	Directional High Performance Data Link	Contactless Off-Axis Rotary Data Link	Power & Data Dual Link	High Performance Underwater Link

„CommUnity" Project from Leistungszentrum Mirko-Nano

The Li-Fi TinySpot was developed as part of the "CommUnity" project from the Leistungszentrum Mikro-Nano and is already being used in a defense application and therefore more than ready for any civil or industrial use-case.

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