

# LED BASED OPTICAL WIRELESS BACKHAUL LINK



## AT A GLANCE

LED based Optical Wireless Communication (OWC) links, a low-cost alternative to wired connections, offer high robustness and throughput as well as easy alignment.

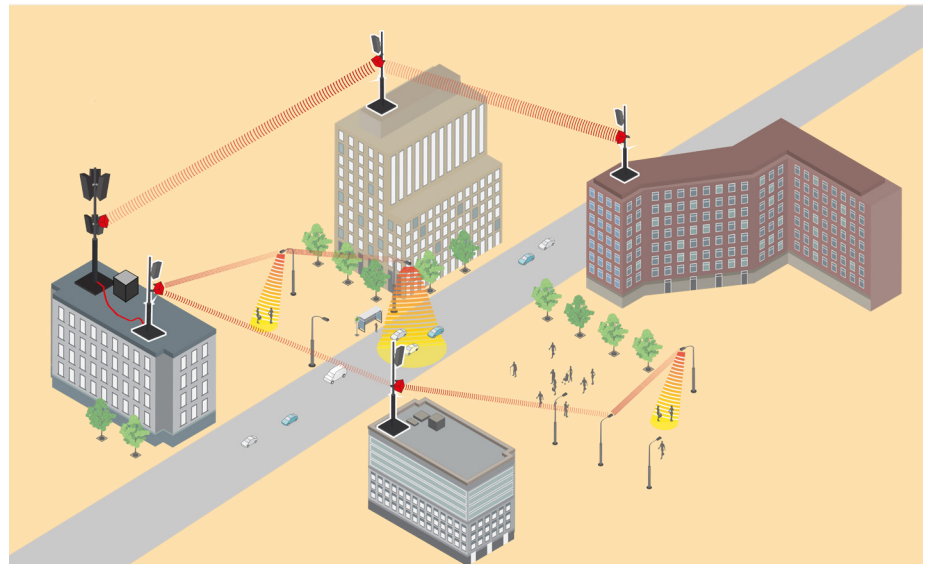
Fraunhofer HHI provides high speed OWC links with proven uninterrupted availability in challenging outdoor conditions.

## Specifications

- Infrared LED based
- Easy alignment:
  - 1.0 Gbps over 100 m
  - 0.5 Gbps over 200 m
- Bidirectional data exchange
- Dynamic rate adaptation
- Low latency (0.1...2 ms)
- 1 GbE chipset and interface
- Footprint and weight:
  - 285 x 170 x 150 mm<sup>3</sup>
  - 4.5 kg

## Background

5G as the next generation of mobile communication will enable new applications like the smart city, autonomous driving and the networked society. However, higher available capacity, latency reduction, as well as coverage of a large number of users remain a major challenge. Accordingly, numerous small cells, in addition to the already existing macro cells, have to be deployed. For this purpose, economic front- and backhauling solutions are needed.



*Optical Wireless link for short-range fixed access applications.*

#### Applications

- Backhauling for Wi-Fi and 5G/LTE small cells
- Building-to-building connectivity
- Redundancy for fixed line connection (disaster recovery, etc.)
- Connectivity for ad-hoc networks
- Wireless point-to-point communication in industrial environments

#### Technical background

- Low cost FSO link based on infrared LEDs
- DMT modulation for high spectral efficiency and improved availability
- Long-time link monitoring shows high robustness against bad weather conditions

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