# Budowa Silesia Photonics

# Is 3 kilometers enough for an optical module

## Overview

The answer depends on several interrelated factors — fibre type, cable standard, the light wavelength in use, and the optical transceivers connected to it. Estimate whether an FTTH or PON optical link is feasible by calculating PLC splitter loss, fiber attenuation, connector loss, splice loss and remaining power margin between the OLT and ONU/ONT. The most common form factors include SFP, SFP+, QSFP+, QSFP28, and OSFP. Long-distance variants, typically referred to as LX, EX, ZX, or ER/LR SFPs, are engineered with higher optical power budgets and longer wavelength. In Passive Optical Network (PON) deployments, understanding the maximum transmission distance between the Optical Line Terminal (OLT) and the Optical Network Unit (ONU) is crucial for planning efficient and reliable fiber optic networks. This article explores the transmission distance limits in. In the rapidly evolving landscape of optical communications, Data Rate and Transmission Distance are the two primary metrics defining network performance.

## Article Content

Optical Module Speed vs. Distance | Professional Design Guide

In the rapidly evolving landscape of optical communications, Data Rate and Transmission Distance are the two primary metrics defining network performance. For system architects, understanding the …

The relationship between wavelength and transmission distance of ...

The commonly used wavelengths in optical fibers are 850nm, 1310nm, and 1550nm, which have longer waveforms and therefore have relatively less attenuation.

Fibre Optic Distance Limits Explained – OM3, OM4 & OS2

The answer depends on several interrelated factors — fibre type, cable standard, the light wavelength in use, and the optical transceivers connected to it. Even details like connector quality, splicing, and …

Ultimate Guide to 1G SFP Module Selection

Learn how to choose the right 1G SFP module for your network. Our guide covers compatibility, distance, fiber type, cost, and vendor selection for optimal performance.

How to Choose the Right Optical Transceiver Module for You in 2025

Learn how to select the ideal optical transceiver module for your network based on transmission distance, data rate, wavelength, and scalability.

10G Optical Modules: Short-Range vs. Long-Range Comparison Guide

Understand short-range and long-range 10G optical modules in terms of distance, budget, energy use, and scalability to make the right choice.

What is the Maximum Transmission Distance Between OLT and ONU?

While standard EPON and GPON networks support transmission distances up to 20 km, the actual reachable distance depends on optical budget, splitter loss, fiber attenuation, and …

SFP Optical Transceiver Modules for Long Distance: A Complete …

Discover everything you need to know about SFP optical transceiver modules for long-distance fiber transmission. Compare LX, EX, ZX models and choose the right module for your …

FTTH / PON Splitter Loss Calculator

FTTH / PON Engineering Tool FTTH / PON Splitter Loss Calculator Estimate whether an FTTH or PON optical link is feasible by calculating PLC splitter loss, fiber attenuation, connector loss, splice loss …

2.5G-SFP-LX03-SM1310-BIDI-I 2.5G BiDi SFP 1310nm-TX/1550nm ...

2.5G-SFP-LX03-SM1310-BIDI-I 2.5G BiDi SFP 1310nm-TX/1550nm-RX 3-km DOM Simplex LC SMF Transceiver Module Applicable to data center and campus networks, enabling cost-effective, ...

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