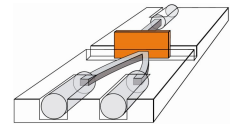# lilix FTTx Reflector 1625/1650 nm
High Reflection Device for
OTDR monitoring of FTTx networks

lili optix series

The **lilix** FTTx Reflector 1625/1650 nm selectively reflects in the wavelength range of 1625-1675 nm or at 1645-1675 nm. With its low insertion loss and high reflectance it is the ideal optical termination for link monitoring of FTTx networks via OTDR (optical time domain reflectometer) measurements at 1625 nm or 1650 nm from Central Office. Link monitoring is possible at any time since the operating channel remains undisturbed.

Reflectors are suitable for both PTP and PTMP (PON) networks. In PONs, for example, they are preferably installed at the subscriber's homes in order to highlight these positions in the OTDR trace by distinct reflexions of the test signal. These reflexions make it possible to assign the links after the splitter to the respective subscribers. Moreover, the overall OTDR trace represents an individual footprint of the PON which can be used as a reference for later troubleshooting. Reflectors lay the foundation for an automation of the service workflow and thus for faster service turn up and restoration.

With the **lili optix** technology an extremely compact form factor has been achieved making it easy to upgrade wall outlet boxes or optical network units.

Function

Reflects an OTDR test signal at 1625 or 1650 nm without disturbing the transmission channels.

Features

- Ultra compact package
- Low insertion loss and high return loss at traffic wavelengths
- High reflectance at test wavelength
- High thermal, mechanical und climatic stability according to Telcordia GR-1209 / GR-1221
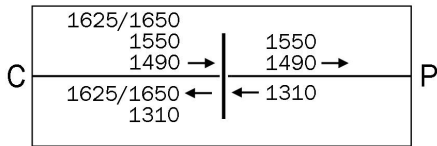
Applications

- Physical layer monitoring of FTTx networks
- Compatible with GPON, EPON, GEPON, 10GEPON, NGPON

Device types and packages

- 1625 nm or 1650 nm test wavelength
- Inline type
- Size 01 for maximum space-saving

Schematic diagram

The schematic diagram shows the optical ports and signal flows inside of the reflector. The traffic wavelengths for data/voice upstream (1310 nm) or downstream (1490 nm) pass the reflector while the monitoring signal (1625/1650 nm) is reflected.

Application example: 1x64 PON monitoring system
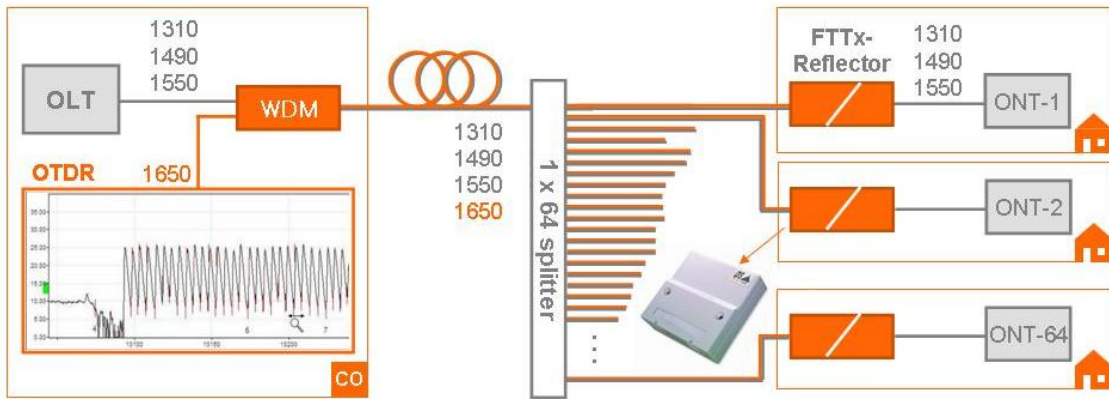
The picture shows a 1x64 PON in which every splitter branch is terminated with an FTTx reflector, such representing the subscribers. The optical line length is 10 km in total (including launch fiber). Every reflector can be clearly identified in the OTDR trace and may be assigned to one of 64 ONT. In order to make the reflector peaks easily distinguishable length differences of 5 m were introduced between two adjacent reflectors. The resolution limit is about 1 m of length difference.

Optical parameters

Parameter	Value		
	min.	typ.	max.
Wavelength Range Transmission Channels [nm] [1]	1260..1600 / 1620 [4]		
Wavelength Range Monitoring Channel [nm]	1625–1675 / 1645–1675 [4]		
Insertion Loss Transmission Channels [dB] [2]			0,5 / 1,0 [5]
Reflectance Monitoring Channel [%] [2][3]	90	95	
Return Loss Transmission Channels [dB] [3]		26	
Polarisation Dependent Loss (PDL) [dB]			0,15
Temperature range during operation [°C]	−25 /−40 [6]		85

[1] other wavelengths on request
[2] without connectors
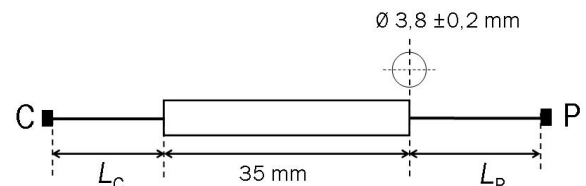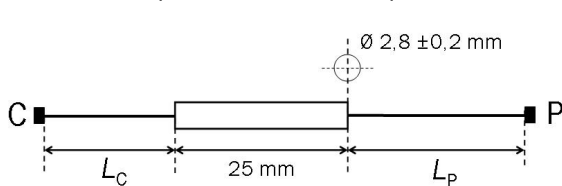[3] other parameters on request
[4] depending on monitoring wavelength
[5] depending on grade
[6] −40°C only for bare fibre pigtails

Package dimensions

Size 01: 250 µm bare fibre / 900 µm loose tube fibre

Size 02: 900 µm loose tube fibre

The standard fibre length of the port pigtails is 1 m. The connector types are individually configurable. Further information is provided by our customer service, please contact us via email or call us.