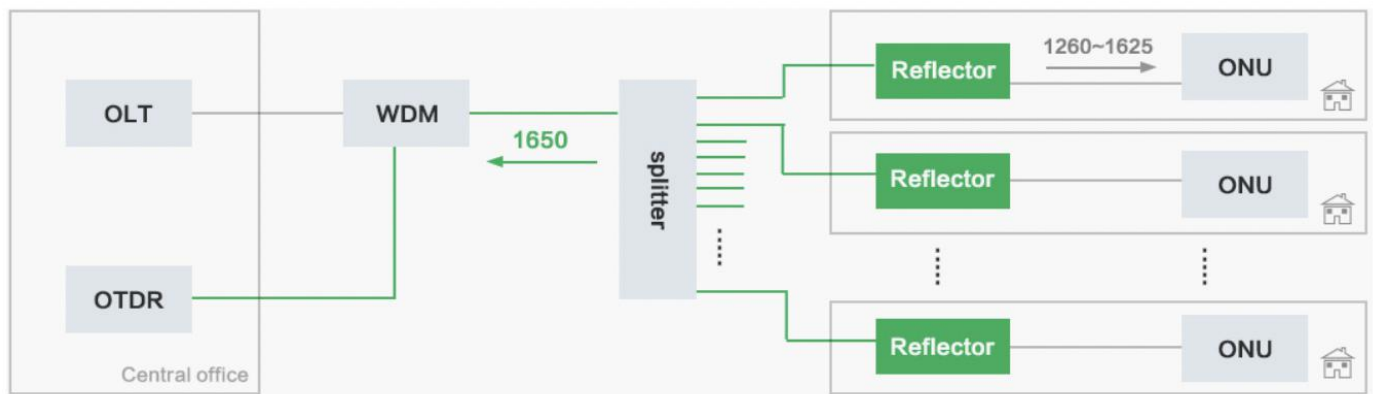


Fiber Optic Reflectors for FTTx Network Link Monitoring

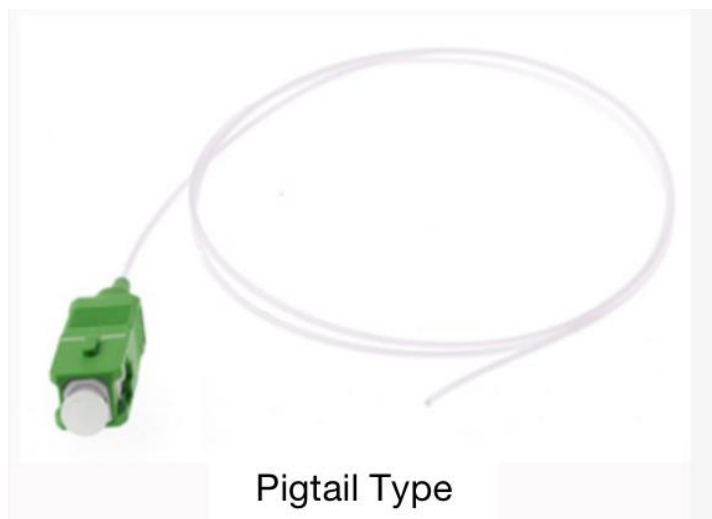
A fiber optic reflector is a passive optical device that only allows specific wavelength bands to pass through. It uses FBG to reflect specific selected wavelengths back, while normally passing other communication bands that are not within the specific reflected wavelength range.

The fiber optic reflector has low insertion loss in the transmission wavelength range and high reflectivity in the reflection wavelength range. It is an ideal optical end for FTTx network link monitoring and is suitable for point-to-point (PTP) and point-to-multipoint (PTMP) networks. Typically installed in the user's home to highlight these locations in the OTDR trace by the reflection of the test signal.



As shown in the figure above, the fiber optic reflector can be installed on the ONU side. The OTDR detects the optical signal intensity reflected by the filter and compares the return loss value between the normal line and the faulty link to determine the optical signal in the link, whether the fiber is damaged or broken. However, the working wavelength of a normal passive optical network (PON) system passes through the filter with little attenuation because it does not meet the filter conditions. The filter achieves the monitoring function without disturbing or losing traffic.

Common fiber optic reflector types are those with special pigtails or adapters. The SC type reflector is a reflector based on the SC connector package. There are two types of connector interfaces: SC/APC and SC/PC.



Fiber optic reflector has the characteristics of simple structure, low cost, easy manufacture, and good stability. The main reference parameters are low insertion loss, high return loss, and high reflectivity. Check the user's optical continuity when adding or troubleshooting, the small size of the filter allows it to be conveniently placed in series at the user's end.

With the implementation of fiber-to-the-home (FTTH) projects, the coverage of optical networks has become larger and larger, and more and more users are involved. Therefore, it is particularly important to detect and maintain faults in the entire optical network quickly and accurately. Fiber optic filters will be widely used in FTTx network, PON OTDR test, central computer room reflectivity test, communication system link detection, etc.

AtGrating OTDR reflector is based on FBG technology to reflect OTDR test signal. Following with mass production of monodirectional reflectors, AtGrating has been capable of making bidirectional reflectors in high performance.

Main Specification of 1650 OTDR FBG Reflector:

Parameters	Unit	Monodirectional		Bidirectional	
		Min.	Max.	Min.	Max
Pass band wavelength range	nm	1260~1625			
Reflect band wavelength range	nm	1644.50~1655.50			
IL(1260~1360nm&1460~1600nm)	dB		1.4		1.4
IL(1600nm~1625nm)	dB		3.4		3.4
IL(REFLECT BAND)	dB	21		21	
RL(1260~1360nm&1460~1581nm)	dB	35		35	
RL(1581nm~1620nm)	dB	30		30	
RL(1620nm~1625nm)	dB	20		20	
RL(REFLECT BAND)	dB	0	1	0	1.4
PDL(1260nm~1600nm)	dB	0.4			
Ripple(REFLECT BAND)	dB	0.6			
TDL(1260nm~1600nm)	dB	0.5			
Operation Temperature	°C	-20~+65			
Relative Humidity	%RH	5~95			
Connector		SC/APC-SC/APC Or LC/APC-LC/APC Attenuator Type			