

Recommended to read this section before using the OTDR (Optical Time Domain Reflectometer) on a live fibre system.

Question: - Can I use a OTDR (Optical Time Domain Reflectometer) on a live Fibre System?

Yes, you can use an OTDR (Optical Time Domain Reflectometer) on a live fibre system, but only if the OTDR is designed for live-fibre testing and the correct precautions are taken.

The three main considerations

1. Standard OTDR

A conventional OTDR sends pulses of light down the fibre to measure losses, connections, breaks and fibre length. If the live system is transmitting light at the same wavelength, the existing signal can interfere with the measurement and potentially damage the OTDR receiver.

2. Live-fibre OTDR

Some OTDRs support in-service testing using a dedicated wavelength, commonly 1625 nm or 1650 nm, with appropriate filtering to reject the live traffic signal. This allows testing without interrupting customer services, provided the system and components support it.

3. Wavelength filters and network compatibility

A suitable filter may be required to prevent the test signal from interfering with live traffic. You must also check that the wavelength is compatible with the network, particularly if it uses CWDM, DWDM or other wavelength-sensitive equipment.

Important safety warning

- Never look directly into a fibre connector, even if no light is visible.
- Check the OTDR's live-fibre specifications before connecting it to an active circuit.
- Never assume a standard OTDR can safely accept live optical power; the incoming signal may damage its detector.
- Check with the network operator before transmitting test pulses onto a live network.

What about the GLK-88MT?

Since you're interested in the GLK-88MT fusion splicer with integrated OTDR, I would check its specifications before purchase / using its OTDR on an active fibre. Having an integrated OTDR does not automatically mean it supports live-fibre testing. *See the spec sheet of the different models available.*

Can I ask one question? Are you looking to test:

- A. A live broadband fibre carrying customer internet traffic.
- B. A live fibre carrying a telecom or DWDM signal.
- C. A fibre that is connected to equipment but is not currently carrying traffic

I will explain the safest testing method and what type of OTDR you need.

Let's cover all three situations, because the important difference is whether the fibre is carrying a live optical signal and whether your OTDR can safely test it.

The key rule is you can test some live fibre systems without interrupting service, but you must use an OTDR and test method suitable for that particular network. A standard OTDR is not automatically suitable for live-fibre testing.

A. Live broadband fibre carrying customer internet traffic.

This could be a fibre-to-the-home (FTTH) network carrying internet traffic to customers.

- Can you test it? Yes, with a suitable live-fibre testing arrangement.
- Typical approach: Use an OTDR with an appropriate filtered live-testing wavelength, often 1625 nm or 1650 nm, where supported by the network.
- Important: Passive optical splitters divide the signal and introduce loss, making traces more complicated. The test wavelength must also be compatible with the network's optical components.
- Main risk: An unsuitable test wavelength or connection could disrupt service or damage test equipment.

For routine broadband fault-finding, an optical power meter and light source may be appropriate for loss testing, while an OTDR helps locate faults along the fibre.

B. Live telecom fibre or DWDM system.

DWDM (Dense Wavelength Division Multiplexing) systems carry multiple optical channels along one fibre, with each channel using a different wavelength.

- Can you test it? Yes, but the test method must be compatible with the transmission system.
- Typical approach: Use a network-approved in-service test wavelength and suitable filtering or a designated test port.
- Important: Do not assume that 1625 nm or 1650 nm is safe for every DWDM system. Check the system's wavelength plan, filters and equipment specifications.

- Main risk: Test light can interfere with transmission channels, and live optical power can affect the OTDR receiver.

For DWDM networks, I would always check with the network operator before injecting any OTDR test signal.

C. Fibre connected to equipment but not carrying traffic.

This situation can be simpler but connected does not necessarily mean inactive.

- Can you test it? Usually, if the fibre is genuinely dark and the test is authorised.
- Typical approach: Use a conventional OTDR at 1310 nm and/or 1550 nm for single-mode fibre, depending on the application.
- Important: A link with no customer data may still have active optical transmitters or monitoring signals.
- Main risk: Accidentally testing a fibre that is still illuminated by active equipment.

Confirm that the fibre is safe to test before connecting the OTDR. Never assume that an absence of internet traffic means the fibre has no optical signal.

What this means for the GLK-88MT

I found product information for the GLK-88MT Fusion Splicer with Integrated OTDR. The published specification states 1310/1550 nm OTDR, “Live Test 22 dB”.

That wording needs clarification before you use it on a live network.

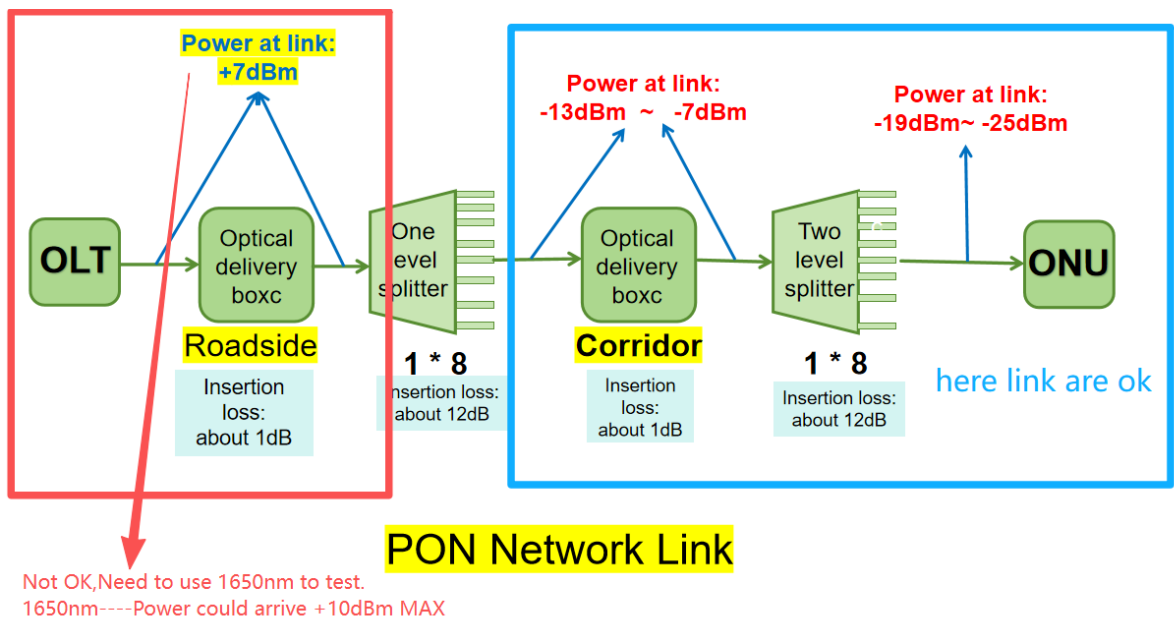
Questions I would put to the manufacturer

1. Does “Live Test 22 dB” mean testing a fibre carrying live optical traffic without interrupting service?
2. Does the OTDR have an internal optical filter or a separate live-fibre test port?
3. What is the maximum permissible incoming optical power at the OTDR port?
4. Is live testing supported on GPON/XGS-PON and DWDM systems, or only on specific fibre configurations?

A conventional live-fibre OTDR commonly uses a dedicated, filtered 1625 nm or 1650 nm test wavelength. The GLK-88MT's published 1310/1550 nm specification is therefore worth verifying carefully.

See below for the maximum optical power levels that each GLK-88MT mode will give you with “Live-fibre Test” option.

My recommendation is to obtain confirmation from the manufacturer / Dealer before purchase / using the GLK-88MT as suitable for your live-fibre applications.



GLK-88MT Model options for Live Fibre use.

Live testing wavelength	Allowable optical power dBm in the line	
1310/1550nm with Live	< -5dBm	
1550nm with Live	< +5dBm	
1625nm with Live	< 0dBm	
1650nm with Live	< +8dBm	