

# Frequently asked questions

## New D-series OTDRs



### 1. Why is a Swap-Out connector helpful?

OTDR connectors get damaged over time with mating/unmating cycles, impacting optical performance (longer dead zone, reduced dynamic range). Because test unit downtime impacts the business, OTDR users usually wait for the calibration to replace the connector, but it's often too late. More than 90% of units received by manufacturer for calibration have connectors that are severely damaged. Thanks to its innovative swappable connector, EXFO provides the capability to maintain optimal optical performance over time with no need to return the unit (no undue downtime). When choosing EXFO's D-series OTDRs, users benefit from optimal performance throughout the tester's lifecycle, without the need to plan for service center returns or to buy connector replacements during calibration.

**PLUS:** the Swap-Out connector design enables iOLM support for both APC and UPC optical connectors (the internal connector is always APC, and thus always iOLM-compatible).

### 2. Can B and C units be retrofitted to benefit from the Swap-Out connector concept?

No, they cannot. Our former OTDR series have to be sent to a service center to have the damaged connectors replaced. The Swap-Out design for our D-series OTDRs is an industry first.

### 3. Will Swap-Out connectors change the recommended calibration period?

No. The recommended calibration period is still one year for the D-series OTDRs. Calibration minimizes measurement uncertainty by ensuring the accuracy of test equipment, especially for distance measurement. The optical connector is only one contributor of inaccuracies over time, especially relating to dynamic range and dead zone degradation. Calibration remains relevant for distance measurements, despite the capability to replace the optical connector in the field.

### 4. Lifetime calibration is offered with the Optical Explorer (OX1). Will it be offered with this new line of OTDRs as well?

No. OX1 measurements help verify and troubleshoot optical links, unlike OTDR measurements, which provide the full characterization of optical links. Verification and troubleshooting entail only the detection of elements impacting link performance, whereas characterization implies the localization and the measurement of any element (even the smallest) along the entire optical link for documentation purposes, thus requiring maximum accuracy and minimum uncertainties on distance measurements. Periodic verification and calibration is necessary for OTDRs to ensure minimal uncertainties over time.

## 5. What is the recommended calibration period for an OTDR?

EXFO, as other manufacturers, recommends a calibration period of one year. However, the user may determine the calibration interval according to actual instrument use and the acceptable level of inaccuracies.

## 6. Are units with UPC connection iOLM-ready?

EXFO recommends the use of APC connectors because UPC connectors damage faster than APC connectors with each mating/unmating cycle. They can be highly reflective when contaminated, worn or damaged. This negatively impacts iOLM measurement and leads to premature connector replacement. This also stands true with the D series. However, with the Swap-Out connector, allowing connector replacement in the field without returning the unit to a service center, it becomes less impacting for users to select a UPC optical interface.

**Note:** UPC Swap-Out connectors will need to be replaced more often than APC Swap-Out connectors.

## 7. Are Swap-Out connectors interchangeable with Click-Out connectors on the OX1?

No. Each product line has its own specificities: OX1's Click-Out connectors are not compatible with OTDRs and vice versa.

## 8. With the Swap-Out connectors, how damageable is it to mate a UPC connector with an APC connecting port on the unit?

A UPC connector should NEVER be mated with an APC connecting port or vice versa. However, with more and more inexperienced technicians in the field, this situation happens more frequently. Usually, such a mistake would have serious financial repercussions as the test unit would have to be sent back to the manufacturer for a given period of time – i.e., unit downtime – and the cost of replacing a connector can be quite high. However, with Swap-Out connectors, this type of honest mistake doesn't bear such a toll on the user or owner. The connector can simply be replaced on the spot in a matter of seconds, with minimal impact.

## 9. Will Swap-Out connectors allow me to go from UPC to APC?

Not on a daily basis. Otherwise, successive mating/unmating cycles are likely to damage the internal connection, with irreversible degradation of performance. It is recommended to replace the Swap-Out connector for repair only, when necessary. To test an UPC cable with an APC unit, it is still recommended to use a hybrid jumper cable.

## 10. How do I know when it's time to replace the Swap-Out connector?

As it may be challenging to know exactly when the connector needs to be replaced, an onboard step-by-step diagnosis wizard indicates the optical output health of the connector. Connector replacement can now be done only as and when needed.

## 11. Do units need to be sent back for immediate calibration after the Swap-Out connector is replaced?

No. The replacement of traditionally fixed connector requires recalibration, which adds extra cost to the operation. EXFO's Swap-Out design does not require any recalibration. However, the set calibration date should remain the same after a swap operation.

## 12. Why add an in-line power meter (OPM) to all D-series OTDRs?

Power meters are an essential tool for frontline technicians. They can be used to identify a fiber with a tone, or to check the power level of the signal before troubleshooting. Also, troubleshooting jobs often start with a power level measurement, and then an OTDR test is done as a second step to identify the root cause of the issue. It is definitely helpful to have such capability included. And having it on the same port as the OTDR (i.e., in-line) streamlines the workflow, as the technician can perform both steps without disconnecting the fiber.

### 13. Will the in-line OPM on the D-series replace the built-in power meter on platforms such as the MAX or FTB-1?

The specifications of the in-line power meter specifications included on the D-series OTDRs fit nearly 80% of use cases. The mainframe's built-in power meters have better specifications, but also a higher price. Based on your needs and budget, both options can be considered.

### 14. Why add 1650 LIVE testing?

1650 nm is the future-proof solution to test FTTx networks (unlike 1625 nm). 1650 live testing features filtering specifications to support active XGS-PON networks.

### 15. Will the change in laser (1650 vs 1625 nm) impact my capability to test PON and PTP networks?

No. Any PON and PTP network tested today at 1625 nm can be tested with a 1650 nm laser.

For live FTTx networks, 1650 nm offers the advantage of higher isolation from transmission band and filtering capabilities for testing XGS-PON networks.

For dark networks, 1650 nm wavelength has the advantage of being more attenuated by macrobends, thus improving their detection.

### 16. What are the possible configurations for the in-line power meter on the D-series OTDRs?

An in-line power meter is included by default. For more specific needs around FTTx activation or troubleshooting, an optional PON power meter is available in-line for FTTx troubleshooting or activation work (including XGS-PON).

### 17. Why 1310/1550/1650 LIVE on a single port and for such a wide range of modules?

3-wavelengths OTDRs which exhibit dark and live on a single port are often high-end modules with 39 or 40 dB of dynamic range. By introducing this capability to entry-level and mid-level OTDRs, EXFO offers broader options to users who may not need such dynamic range but who are interested in versatility. With dark and live wavelength on a single port, the unit becomes suitable for:

- Construction jobs requiring 1310/1550 or 1310/1550/1650 tests; 1650 being better than 1625 in detecting macrobends.
- FTTx troubleshooting jobs on live fiber.
- FTTx troubleshooting or activation work with the optional in-line PON power meter.