

**COMPREHENSIVE LABORATORY BASED EDUCATIONAL PACKAGE IN
FIBRE OPTIC NETWORKS AND OTDR ANALYSIS**



MAIN FEATURES AND BENEFITS:

- All fibre optic and opto-electronic hardware required to perform the experimental investigation
- Extensive literature support including: student and instructor's manuals with exercises, solutions & sample results
- Detailed lecture notes, tutorial examples and solutions to assist with the development of courses
- Saves 2-3 years of course, literature and hardware development effort

THE EXPERIMENTAL INVESTIGATION* ADDRESSES:

- Fundamental properties and operation of OTDRs (dead zone, distance and spatial resolution, dynamic range etc.)
- Event identification and location
- Line and component loss measurements
- Network components and their characterisation at 1300nm and 1550nm
- Multi-branch and Wavelength division multiplexed (WDM) networks
- Fault location and analysis

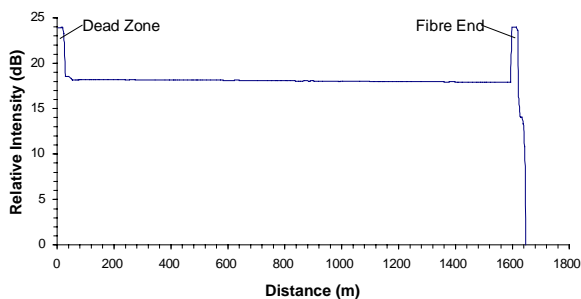
*Full details of the experiments and equipment specifications are provided overleaf

Laboratory Exercises

ED-NET enables students to investigate the fundamental characteristics of optical time domain reflectometry using a commercial OTDR unit and observe how these principles are applied in practice to examine the response of optical fibre links, fibre optic components and optical fibre networks. The educator kit will allow the following experiments to be performed:

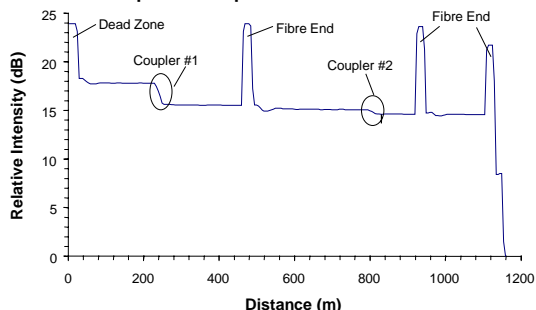
- Examination of basic principles of the OTDR instrument, such as; dead zone, distance and spatial resolution, dynamic range etc.
- Determination of event location and fibre link lengths.
- Identification and measurement of Rayleigh scattering losses along a fibre link and Fresnel end reflections.

OTDR Response of Single-Mode Fibre Length @ 1550nm



- Measurement of fibre connector and splice losses.
- Investigation of bend losses in a fibre at different wavelengths.
- Characterisation of optical fibre components (fibre coupler and wavelength division multiplexer).
- Investigation and characterisation of multi-branched optical networks.

OTDR Response of Optical Fibre Network @ 1550nm



- Fault location and analysis of a series of networks with deliberately introduced faults.

Product Description

The OPTOSCI Optical Network Analysis educator kit consists of the following hardware elements (when supplied with the OTDR and accessories):

- A commercial OTDR* instrument operating at 1310nm and 1550nm, with a single-mode fibre FCPC connectorised output, and integral floppy disc drive.
- Trace analysis software* to allow the students to analyse the traces acquired on the OTDR remotely on a PC.
- A 2km reel of connectorised single mode optical fibre.
- FCPC connectorised fibre patchcords.
- Bend loss devices.
- A number of test optical networks which include various elements, such as; optical fibre directional couplers, simulated faults, splices, connectors, extra fibre lengths and a wavelength division multiplexer.
- Series of network fault traces for analysis either, as a paper study, or using the trace analysis software, as appropriate.

*These items are only supplied if ordered with the ED-NET educator kit. Further details regarding the specifications required for the OTDR instrument and its associated accessories are available directly from OPTOSCI. For those purchasing ED-NET without the OTDR and trace analysis software, then the OTDR unit must have similar specifications to those noted above to enable the operator to perform the full range of ED-NET experiments.

In addition, a comprehensive literature package accompanies each educator kit:

- A set of student laboratory manuals, describing the background theory and experimental procedure, with associated exercises to encourage the student to discuss the implications of their results.
- A complete instructor's manual dealing with all aspects of using the equipment and providing sample results for the experiments and exercises.
- Extensive lecture notes on optical time domain reflectometry and fibre optic components detailing the principles of all the issues explored in the laboratory exercises.
- A comprehensive set of tutorial examples and their solutions.

Ordering Information

ED-NET	Optical Network Analysis w/o OTDR unit
OTDR	Dual wavelength OTDR + accessories

Since OPTOSCI are committed to continuously improving the design and performance characteristics of our products, these specifications are subject to change without notice.

Date: September 2002