

ETT-211 with NI ELVIS II/+

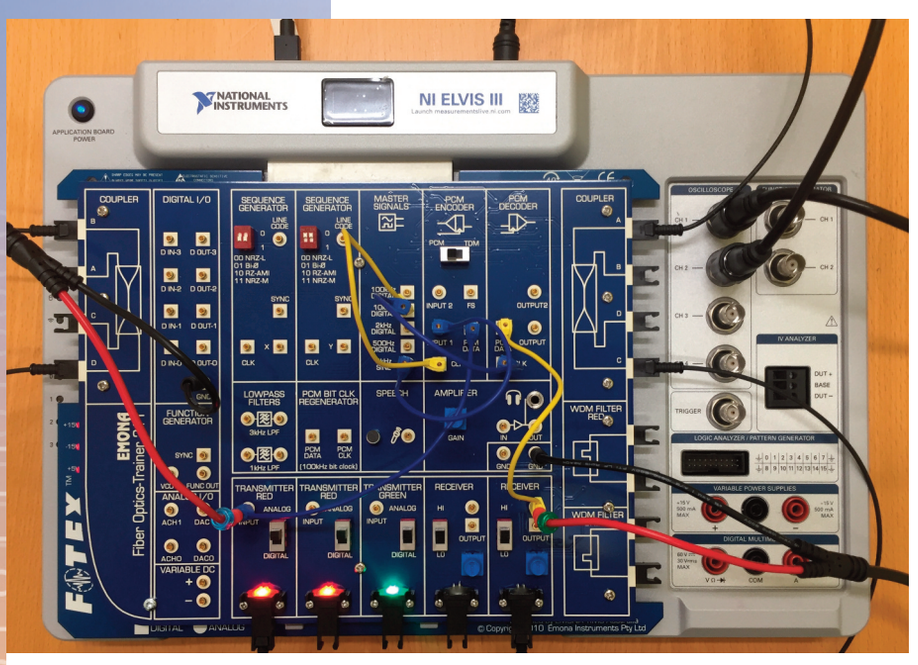


OPTIONAL PHYSICS OF FIBERS kit

NEW **NI ELVIS III SUPPORT**

Complete Course in Modern Fiber Optic Communications for NI ELVIS™ III & II/+

Emona Fiber Optics Trainer ETT-211



Complete 19 chapter Lab Manual covering:

- *Electrical Communications*
- *Introduction to Optics & Fiber Optics*
- *Fiber Optic Communications*

FOTEx : Fiber Optics Telecoms Experimenter for ELVIS III

- "Hands-on" experimenting using TIMS™ modeling approach
- Fully integrated with NI ELVIS™ utilizing ELVIS virtual instruments
- Fully self contained with all required optical components, including optical signal sources, couplers, WDM optical filters & receivers
- Includes voice and digital sources, PCM and TDM electronic blocks

FOTEx™

EMONA INSTRUMENTS
www.emona-tims.com

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FOTEx COURSE IN FIBER OPTICS

EXPANDED LAB MANUAL

FOTEx Series II Lab Manual

SECTION 1 – Introduction to the TIMS Hardware
1 - An introduction to the NI ELVIS test equipment
2 - An introduction to the FOTEx electronics modules

SECTION 2 – Electrical Communications
1 - PCM encoding
2 - PCM decoding
3 - Sampling and Nyquist in PCM
4 - Time division multiplexing (TDM)
5 - Line coding and bit clock regeneration

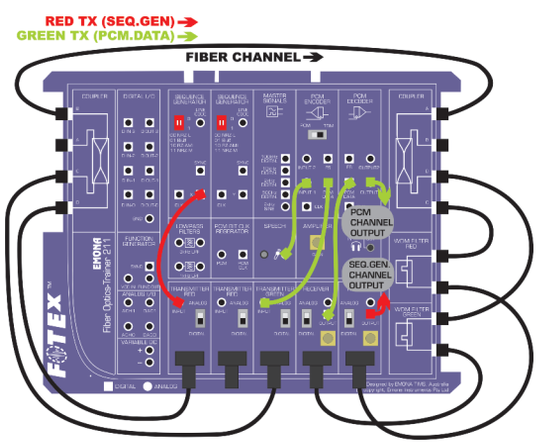
*** SECTION 3 – Introduction to Fiber Optics**
1 - An introduction to the FOTEx fibre optics components
2 - Guiding light using total internal reflection
3 - Losses in fiber optic networks
4 - Polarization
5 - Bending losses in fiber optic systems
6 - Connectors
7 - Couplers
8 - Wavelength filters

SECTION 4 – Fiber Optic Communications
1 - Analog fiber optic communications
2 - PCM-TDM 'T1' implementation
3 - Fiber optic bi-directional communication
4 - Wavelength division multiplexing (WDM)

The FOTEx **Standard Package** implements all **SECTION 1, SECTION 2** and **SECTION 4** expeirments.

* NOTE: The experiments in **Section 3** require the OPTIONAL **PHYSICS OF FIBERS kit.**

FULL DUPLEX & WDM FIBER OPTIC UNIQUE EXPERIMENTS

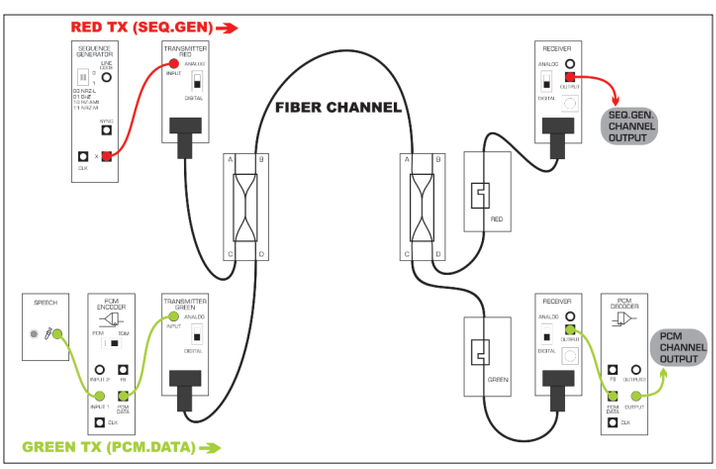


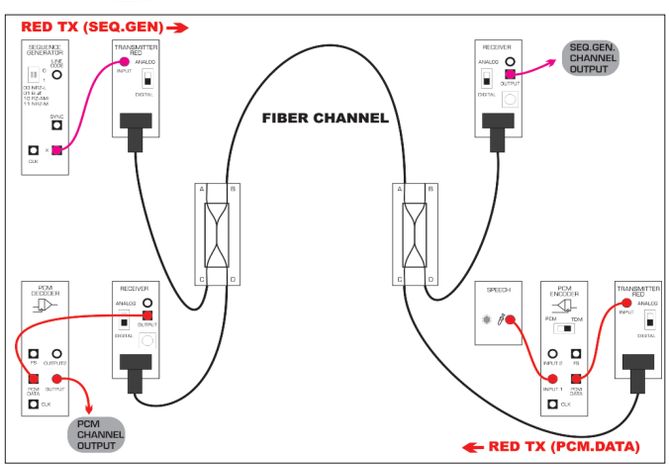
WDM EXPERIMENT

- 2 FOTEx digital signals can be multiplexed using the Red transmitter, Green transmitter & FOTEx Coupler.
- Demultiplexing is performed by the FOTEx Coupler and FOTEx WDM Optical Filters.

FULL DUPLEX EXPERIMENT

- Demonstrating the optical principle that light travelling in one direction is unaffected by light travelling in the opposite direction.





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