

FIBRE-OPTICS TRAINER

Designed for teaching fibre-optics and telecommunications, particularly in schools.

The trainer comprises an optical transmitter and receiver unit (both switchable between analogue and digital), 5 metres of terminated optical cable (1mm core plastic fibre), two battery clips, comprehensive manual and a carrying case.

Examples of demonstrations that can be performed, with the addition of some standard school equipment, include:

Transmission of high quality analogue (e.g. speech and music) and digital data (including morse code and computer data) over optical fibres and free-space;

“Listening” to various light sources, such as mains lighting, torch light, sunlight or infra-red light;

Measuring the frequency of a rotating disc or vibrating object using light reflection or transmission;

Clarifying the important differences between analogue and digital techniques;

Construction of an alarm system based on the presence of a light signal;
Producing an optical pulse-counting system.

Technical Data

Bandwidth:	Analogue:	20Hz to 25kHz
	Digital:	d.c. to 20kBit/s
Range for analogue transmission:		20dB
Range for digital transmission:		10dB
Power Supply:	Transmitter:	+9V to +12V d.c., current is 25mA typical at 9V
	Receiver:	+9V to +12V d.c., current is 15mA typical at 9V
Optical Connections:		AMP DNP
Operating temp. range:		0 to 50°C
Dimensions of each unit:		14 x 10cm

P31-9160 Fibre-Optics Trainer**SPEED OF LIGHT APPARATUS / FIBRE OPTICS KIT**

An economic and simple to use piece of apparatus which utilises electronics and fibre-optics, updating and simplifying this classic experiment. 1MHz pulses are generated and applied simultaneously to one channel of an oscilloscope and an electro-optic transmitter. The light pulses produced travel down a 20m length of fibre-optic cable and are registered by a special receiver. The second channel of the oscilloscope records the results from this receiver, displaying the two signals with the phase delay produced by the 20m light path. The pulsed signals are generated by a slim circuit board, 15 x 11cm. Two fibre-optics cables are included: a 15cm reference cable and a 20m test cable. The fibres end in “sweet spot” connectors for efficient coupling with the circuit board. All circuit board inputs and outputs are on 2mm jacks. Complete instructions are supplied. A 9V power supply and a dual-trace 25MHz oscilloscope or PC based oscilloscope are required for use with this apparatus (not supplied).

P31-9200 Speed of Light Apparatus / Fibre Optics Kit**Accessories**

P58-2250 9V Power Supply

P83-5050 20MHz Dual-Trace Oscilloscope



P31-9160



P31-9200