LT-0500 Video and Audio Transmission

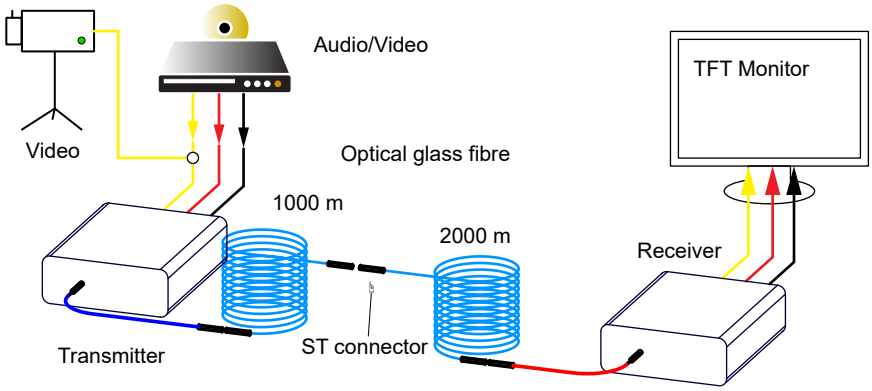
Keywords

Optical Glass Fibre	**Fibre Transmitter**	**Fibre Receiver**
CCD Camera	**Audio Source**	**Signal Transfer via 1+2 km Optical Fibre**
Optical Signal Detection	**Photodetector**	**Fibre Attenuation**

Introduction

This experiment comprises two drums of multimode fibre with one 1000 m and two 2000 m long multimode fibre. With this set data transmission segments can be realized with a length of 1000 m, 2000 m and 3000. The fibre drums are equipped with ST fibre jacks and by means of the provided fibre patch cable they can be interconnected. As signal sources a colour CCD Video camera and a CD - Player as audio source are used. They are connected to the fibre transmitter which converts the electronic signals into digital optical signals which are guided via the optical fibre to the optical receiver where the signals converted back to electronic audio as well as video signal. These signals are connected to a regular TV to watch the transmitted video as well as listen to the simultaneously transmitted audio. The optical signals having a wavelength of 1.3 µm and are detected in addition by the optional fast InGaAs photodetector. The amplitude can be shown on an oscilloscope and the amplitude measured for the 3 different length of the data segment. For each measurement the input and output power is measured and from this relation the fibre attenuation calculated.

How it works



The video signal (yellow lines) is generated either by the CCD camera (2) or by the DVD player (3), whereby the DVD player provides the audio stereo signal (red and black). The video and audio signals are converted by the transmitter (7) to modulated optical signals and made available at a ST panel jack. Optical glass fibre (5, 6) with a length of 1000 m and 2000 m are coiled to a drum and provided with ST panel jacks. The optical connection between the transmitter and the first fibre segment is established by means of a ST fibre patch cable. In the same way the two fibre segments are linked to each other and connected to the receiver. The optical signal is converted back to the video as well as audio signal and are connected via standard BNC and cynch connection cable to the TFT monitor.

LT-0500 Fibre Video & Audio Transmission consisting of:

Item	*Code*	*Qty.*	*Description*	*Details page*
1	CA-0100	1	Flat panel TV	128 (13)
2	CA-0130	1	Colour CCD Camera on tripod	128 (16)
3	CA-0140	1	DVD player with music DVD	128 (17)
4	OC-2020	3	ST/ST SM Fibre patch cable, length 1 m	107 (82)
5	OC-2450	1	Multimode fibre 1000 m, 50/125 µm, ST panel jacks	109 (96)
6	OC-2460	1	Multimode fibre, 2000 m 50/125 µm, ST panel jacks	109 (97)
7	OM-2100	1	Audio & Video upto fibre transmitter	117 (51)
8	OM-2200	1	Audio & Video from fibre receiver	118 (52)
9	UM-LT05	1	Manual Video & Audio transmission	
	Option (order separately)			
10	CA-0200	1	Oscilloscope 100 MHz digital, two channel	128 (19)
11	DC-0210	1	InGaAs Photodetector, ultrafast with amplifier 120 MHz	124 (21)

Highlights

Basic experiment ★★
High technology value
Intended institutions and users:
- Physics Laboratory
- Engineering department
- Electronic department
- Telecommunication department
- Biophotonics department
- Physics education in Medicine