

# Satellite Communication Trainer

## ST2271



Exactly the way it Should be !!



2 Yr Warranty

Satellite Communication Trainer ST2271 provides an in-depth look at basic Satellite Communication techniques and concepts. It consists of Uplink Transmitter, Satellite Link and Downlink Receiver, which can be conveniently placed in the laboratory. The Satellite can be placed at an elevated position if needed. The Satellite Transponder receives signal from Uplink Transmitter and retransmit at different frequencies to a Downlink Receiver. The Uplink and Downlink frequencies are selectable and carry three signals- Video, Audio/ Voice/ Tone and Data simultaneously Any Broadband signal or Digital/Analog data or Function Generator waveforms can be communicated through this Satellite link. The students can conduct a large number of experiments very easily on this Trainer. The Operating manual illustrates basic theory and glossary of Satellite Communication terms

- Simultaneous Communication of 3 different signals.
- 1100 - 1300 MHz PLL microwave operation.
- Crystal Control Frequencies.
- Communicate Audio, Video, Digital data, PC data, Tone, Voice waveforms etc.
- Communication of external broad band digital and analog data.
- Choice of different transmitting and receiving frequencies.
- Transmission and Reception of PC signals via Satellite link.
- High power Low Noise transmission.
- Built-in Microphone and Speaker for Voice link.
- Detachable Dish Antenna at each station.
- Estimation of S/N ratio, Fading etc.
- Facility to attach Scientech Analog/Digital Communication Trainers.
- Built-in speaker.

### Experiments :

1. Understanding concepts of Satellite Communications.
2. To set up Direct link.
3. To set up Active Satellite link.
4. Study Satellite transponder.
5. To set up Satellite communication link.
6. Study Audio-Video transmission through Satellite link.
7. Study Base Band Analog signal(voice) in Satellite link.
8. To transmit and receive function generator waveforms through Satellite link.
9. To transmit Tone through Satellite link.
10. To study Fading of signal.
11. To estimate C/N ratio.
12. To measure the parameters in an Analog FM/FDM TV Satellite link.
13. To estimate S/N ratio.
14. To establish PC-to-PC Communication using Satellite Communication link.
15. To estimate FM deviation, Bandwidth.

And Many More.....

.... the best learning tools !

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### Technical Specifications

#### Uplink Transmitter

Transmit three signals simultaneously at each frequency  
1200/1250/1300 MHz transmitting frequencies.  
4 MHz clock frequency  
Wide band RF amplifier. No manual matching required.  
PIC16F84 - 8 Bit RISC processor based PLL.  
16 MHz Max. Bandwidth  
Frequency Up-Down switch and LED indication  
FM Modulation of Audio, Video.  
5 & 5.5 MHz Audio Modulation and Max. 8 MHz Video Modulation  
Detachable Dish Antenna.  
Radiated Power output 25mW (approx.) with power control.  
Transmit Audio, Video, Digital/Analog data, PC data, Tone, Voice waveforms etc.  
Separate terminals provided for inputs  
Power Supply - 230 Volts,  $\pm 10\%$ , 50Hz.

#### Satellite Link

Transponder with selectable frequency conversion.  
Choice of 3 downlink frequencies 1100/1150/1200 MHz  
Rotary Switch and Tuner for selecting Uplink frequency, Link Fail switches  
Detachable Dish Antennas.  
Radiated power 25 mW Approx. with Variable gain control.  
Power Supply 230 Volts,  $\pm 10\%$ , 50 Hz.

#### Downlink Receiver

Receives and demodulate three signals simultaneously.  
Based on Eurostar Tuner.  
Intermediate Frequency 479.6 MHz.  
1100/1150/1200 MHz fix receiving frequencies  
Variable tuner 900-1500 MHz.  
-60 dBm sensitivity at tuner input  
Rotary Switch and Tuner for selecting Downlink frequency.  
Built in speaker  
Detachable Dish Antenna.  
Power Supply - 230 Volts,  $\pm 10\%$ , 50Hz.

#### Standard Accessories :

Operating Manual- 1 Nos.  
Mains cords- 3 Nos.  
Audio-Video Cables- 2 Nos.  
Dish Antennas- 4 Nos.  
BNC - Banana Cables- 2 Nos.  
Dynamic Microphone- 1 Nos.

#### Optional Accessories :

VCD Player  
PC Communication Software  
Portable Color TV Monitor  
12 GHz Level Meter, Digifield  
3.3 GHz Spectrum Analyzer, Micronix- MSA338  
2.5 GHz Frequency Counter

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