

## Microwave Trainer

**56-200**



### Description

The Feedback **Microwave Trainer 56-200** is a basic trainer that has been designed to enable students to investigate the principles of microwave transmission systems, such as those used in radar and communication links. It is a precision made, bench-top microwave system that uses standard type WG16 (WR90) waveguide components to illustrate the essential elements in this field of study.

The equipment has a selection of waveguide components and an electronic supply console which contains the power supply for a modulated, solid-state Dielectric Resonance Oscillator (DRO) X-band microwave source, a demodulation circuit and a meter which monitors the detector output. The trainer is supplied in a dedicated, protective, carrying case, is completely self-contained and provides the means to allow students to carry-out realistic practical work at extremely low cost per workstation.

It is suitable for use in courses ranging from technician studies to degree level. A comprehensive manual containing extensive microwave theory and a progressive series of assignments is supplied with the Trainer.

The Trainer is also available with a MIDE Design Software option. The software enables the student to investigate the principles of Microwave transmission in greater depth and can also be used for component design (see Ordering Information for details).

## Features

- Low cost
- No further ancillary equipment required
- Simple, robust stands for antenna studies
- Modulated 10.425GHz solid state DRO source
- Can be used with MIDE Design Software
- Modules conveniently packed for inventory control
- Modules available as individual items
- Each component identified with an inscribed reference number

## Specifications

### Curriculum Contents

An outline of simple transmission line theory as an introduction to waveguide principles, which are illustrated by nine assignments:

#### Introduction to a microwave waveguide bench and measurement of:

- source frequency
  - guide wavelength
- Measurement of voltage standing wave ratio (VSWR)
  - Measurement of diode detector law Measurement of impedance and impedance matching
  - Measurement of radiation diagram of a horn antenna
  - Use of directional couplers in power transmission and reflection measurement Series, shunt & hybrid tee waveguide junctions
  - Waveguide-to-coaxial transformers
  - Microwave radio link investigations

In addition, there are appendices covering: general, RF and microwave data and tables; a review of transmission line theory and the Smith Chart and its applications.

### Control Console

**Power Supply:** 120 – 230 V, 50/60 Hz

**Fuse rating:** 315 mA

**Modulator bandwidth:** 10 kHz min

**Oscillator power supply:** + 18 V nom

#### Dimensions and Weight (in protective case)

**Height:** 370 mm (14.6 in),

**Width:** 518 mm (20.4 in),

**Depth:** 121 mm (4.75 in),

**Weight:** 9.1 kg (20 lb)



*The trainer is supplied in a protective, carrying case and is completely self-contained.*

### Waveguide Components

Nickel plated and painted brass, type WG16 (WR90) waveguide and flanges. Component identifying letter on flange:

- **Variable Attenuator (2 off)** - rotating Vane type
- **Slotted line** - sliding detector probe carriage
- **Slotted line** - sliding screw tuner
- **Frequency Meter (uncalibrated)** - absorption cavity type

- Shunt Tee
- Directional Coupler
- Series Tee
- Hybrid Tee
- Probe Detector Assembly
- Waveguide to Coaxial Adapter (2 off)
- Resistive Terminator
- Diode Detector - Fixed in waveguide section
- Horn Antennas (2 off)
- Solid-state X-band Oscillator  
Frequency: 10.425 GHz nom  
Output Power: 10 mW min
- Blank Ends (2 off)

## Ancillary Equipment - non required

### Tender Specification

Microwave Trainer operating in the X-band, comprising standard WG16 waveguides components, a solid state DRO source and a supply console providing all necessary power supplies, modulating facilities and metering, plus a tutorial text containing at least nine assignments.

### Ordering Information

Microwave Trainer	56-200
Ordering Information with MIDE Software options MIDE Microwave (includes Microwave Trainer and MIDE Design Software)	56-002
MIDE Microwave Design Software	56-901



#### Feedback Instruments

5 & 6 Warren Court  
Park Road, Crowborough  
East Sussex  
TN6 2QX  
United Kingdom  
Tel: +44 1892 653322  
Sales: [sales@feedback-instruments.com](mailto:sales@feedback-instruments.com)  
Website: [www.feedback-instruments.com](http://www.feedback-instruments.com)

For further information on Feedback equipment please contact ...

Feedback reserves the right to change these specifications without notice