

The Mine MI-MW02 Microwave Test Bench Gunn Based X Band are precision made microwave systems, which use standard type rectangular wave-guide components to illustrate the essential elements of this field for study.

Learning's

- Study of Gunn Oscillator
- Measure Frequency and Wave guide Wavelength
- SWR, Reflection Co-efficient and Impedance Measurement

Instruments

- Digital Gunn Power Supply (MI-MC03)-1No.
- Digital VSWR Meter (MI-MC02)-1No.

Package Contents



User Manual



Fastener



Power Cable



BNC(M)-BNC(M) Cable

Components

- | | |
|---------------------------------------|--------|
| • Cooling Fan | 1 No. |
| • Detector Mount | 1 No. |
| • Fixed Short | 1 No. |
| • Analog D.R.F. Meter | 1 No. |
| • Isolator | 1 No. |
| • Gunn Oscillator | 1 No. |
| • Pin Modulator | 1 No. |
| • Matched Termination | 1 No. |
| • Movable Short | 1 No. |
| • Slide Screw (SS) Tuner | 1 No. |
| • Slotted Section with probe carriage | 1 No. |
| • Tunable Probe | 1 No. |
| • Variable Attenuator 20dB | 1 No. |
| • Waveguide Stand | 3 Nos. |

Accessories

- | | |
|--|--------|
| • Cable BNC (M) to BNC (M) 1 Meter | 2 Nos. |
| • Mains Cord | 1 No. |
| • MIC (optional) | 1 No. |
| • Earphone (optional) | 1 No. |
| • Fastener (Brass Fly, Nut- Screw set) | 1 No. |
| • Cable TNC (M) - TNC (M) 1 meter | 1 No. |
| • Operating Manual | 1 No. |



MI-MC02 Gunn Power Supply Comprising of an electronically regulated DC power supply and a square wave generator, the Gunn Power Supply is designed to operate gunn oscillator and pin modulator simultaneously. This equipment has a front panel to read the gunn voltage and the current drawn by the gunn diode. Widely used to protect gunn diode from reverse voltage and from over voltage transients this is also used from preventing from low frequency oscillations.



MI-MC03 Digital VSWR Meter is a Microcontroller based Equipment with LCD. The Analog meters have multiple scales which makes the instrument very complicated for the students. The Digital Display of VSWR & dB solves the problem. Since the Equipment has a Microcontroller based digital display so there is no need of expanded scales, as it was in conventional instruments.

Technical Specifications

MI-MC02 Gunn Power Supply

Display	: 16x2 Characters
LCD	: Show-volt, Current, Modulation Frequency
Voltage Range	: 0 to 10V
Current	: 750mA max
Stability	: 0.1% for $\pm 10\%$ mains variation
Ripple	: 1.0mV typical
Modulating Frequency	: 800 to 1200Hz
Modulating Voltage	: 0 - 10Vpp variable
Modulation Modes	: Continuous Wave, Internal Modulation (Square Wave) Audio Modulation & PC Data Modulation
PC Interface	: RS232 Output
Connector	: BNC for Gunn Bias, TNC for Pin Bias
Mains Supply	: 230V AC $\pm 10\%$, 50Hz

Technical Specifications

Digital VSWR Meter MI-MC03

Display	: LCD (16 X 2)
Sensitivity	: 0.1mV for 200 ohm input impedance
Noise Level	: Less than 0.02V Attenuation range: 0-60dB in 10dB steps
Input	: Un-biased low and high impedance crystal biased (200ohm and 200Kohm)
Display	: SWR Scale, dB Scale, Modulation Frequency, Power Bar Graph
Modes	: Normal, Audio, PC-Interface
Gain Control	: Adjust the reference level, variable range 0-10dB (Approximately)
Input Connector	: BNC (F)
Input Frequency	: 1 KHz ± 10
Power	: 230 Volts AC $\pm 10\%$, 50Hz



MI-MC05 Cooling Fan with stand



MI-MC06 Detector Mount

Band : X-Band
Waveguide : WR-90
Flange : UG-39/U
Detector : IN21(any equivalent)
Output Connector: BNC (F)
Material : Brass
Plunger : Dumble Type
Internal Plating : Silver



MI-MC08 Analog D.R.F. Meter

Band : X band
Waveguide : WR-90
Flange : UG-39/U
Calibra. Accuracy : $\pm 2\%$
Calibration Incr. : 5 MHz
Max. VSWR : 1.28 At 10.5GHz
Return Loss : -18.2 At 10.5GHz



MI-MC19 Isolator

Band : X band
Waveguide : WR-90
Flange : UG-39/U
Inner Coating : Silver
Max. VSWR : 1.15
Min. Insert. Loss : 0.46dB
Min. Isolation : 20dB
Return Loss : 22.4dB



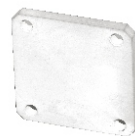
MI-MC20 Gunn Oscillator

Band : X band
Waveguide : WR-90
Flange : UG-39/U
Material : Brass
Inner Coating : Silver
Bial voltage max. : 10V
Power output : 10mW
Output connector : BNC Female
Micrometer : 25mm

MI-MC30 Pin Modulator

Band : X band
Waveguide : WR-90
Flange : UG-39/U
Material : Brass
Inner Coating : Silver
Bias Voltage : 0-12Vpp
Output Connector: TNC (F)

MI-MC47 Wave guide stand



MI-MC07 Fixed Short

Frequency Range : 8.2 -12.4 GHz
Material : Brass
Inner Coating : Silver
Reflection Coeff. : 0.98



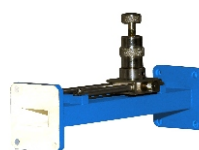
MI-MC25 Matched Termination

Band : X band
Waveguide : WR-90
Flange : UG-39/U
Material : Brass
Inner Coating : Silver
VSWR : 1.03 at 10.5GHz
Return Loss : -33dB at 10.5GHz
AV power : 2W
Type : Fixed



MI-MC26 Movable Short

Band : X band
Waveguide : WR-90
Flange : UG-39/U
Material : Brass
Inner Coating : Silver
Reflection Coeff. : 0.98



MI-MC39 S S Tuner

Band : X band
Waveguide : WR-90
Flange : UG-39/U
Material : Brass
Inner Coating : Silver
Max. VSWR : 20:1.02



MI-MC41 Slotted Section with Dial Guage

Band : X band
Waveguide : WR-90
Flange : UG-39/U
Residual VSWR : 1.01
Slope (dB) : ± 0.2 dB



MI-MC44 Tunable Probe

Band : X band
Detector : In23
Output connector : BNC(F)
Type : Tunable



MI-MC45 Variable Attenuator 20 dB

Band : X band
Waveguide : WR-90
Flange : UG-39/U
Material : Brass
Inner Coating : Silver
VSWR : 1.25 At 10.5GHz
Return Loss : -19.23dB At 10.5GHz
AV. Power : 2W