

# RF2000

## Radio Frequency Training System

- Simple S11/S21 Measurements
- Sweep/CW Mode Signal Generators
- Single Frequency Power Measurement
- Radio Frequency Counter
- RF Basic Design Theory and Experiments
- Practical and Easy to Follow Experiments



Radio Frequency Training System

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## Radio Frequency Training System

The RF 2000 Radio Frequency Training System is one of the few comprehensive educational training systems on the market today. It can be used for measuring, observing, and even designing RF circuits. Use of the RF 2000, will cultivate students' first-step understanding of characteristics, and basic design theory behind of Radio Frequency. The six major components to the RF 2000 Radio Frequency Training System are outlined below:

- (1).EZ-RF Analyzer
- (2).12 Experiment Courses
- (3).14 Experiment Modules  
(Included 19 kits)
- (4).Student User Manual
- (5).Teacher Technical Manual
- (6).Software for Design Course  
(Options)

Additionally, this complete system will save your educational budget dollars, as it is available at a mere fraction of the cost charged by of other manufactures.

### Technical

### Specifications:

#### (1) EZ-RF Analyzer

- a. 4 sets of frequency band  
(50~1000MHz)
- b. 60dB measurement range  
(-50~10dB)
- c. X.Y.output terminal design, fit in any  
X.Y.display or oscilloscope
- d. Sweep/Single frequency output  
ability
- e. S21/S11 output measurement

- f. Spectrum measurement
- g. Built-in frequency counter  
(up to 2GHz)
- h. Built-in marker for display  
(5MHz minimum interval)
- i. Liquid crystal display with backlight
- j. Second RF signal output
- k. Support RS232C control
- l. Single frequency power measure-  
ment

#### (2) Experiment Courses

##### a. Transmission line

*(open / short / through)*

To understand the basic theory of transmission line and design procedure for microstrip line type for RF/ $\mu$ W applications.

To learn the characteristics of microstrip line with measuring the LabWORK kit 1- OPEN/SHORT/THROUGH by MOTTECH RF 2000.

##### b. Impedance transformer

To understand the basic design theory and procedure for impedance matching network.

To learn the characteristics of imped-

ance transformer with measuring the LabWORK kit 2 & 3 -50 to 75 ohm Pi-type and T-type impedance transformers by MOTTECH RF 2000.

##### c. Power attenuator

To understand the basic design concept and procedure for power attenuator.

To learn the characteristics of power attenuator with measuring the LabWORK kit 4 & 5 -10dB Pi-type and T-type power attenuator by MOTTECH RF 2000.

##### d. Power splitter

To understand the basic design concept and procedure for some typical types of power splitter.

To learn the characteristics of power splitter with measuring the LabWORK kit 6 & 7 - Delta-type and Wilkinson-type power splitter by MOTTECH RF 2000.

##### e. Directional coupler

To understand the basic concept of directional couplers and design procedure for branch line type and parallel line type coupler.

To learn the characteristics of directional coupler with measuring the LabWORK



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kit 8 & 9 L-C branch-line type and Parallel line type coupler by MOTTECH RF 2000.

### *f. Filter*

To understand the basic concept of filters and design procedure for low pass, high pass, band pass, and band stop filters.

To learn the characteristics of filter with measuring the LabWORK kit 10 & 11 L-C type Low pass and Band pass filters by MOTTECH RF 2000.

### *g. Amplifier*

To understand the basic theory of amplifiers and design procedure for small signal amplifiers for RF/ $\mu$ W applications.

To learn the characteristics of amplifier with measuring the LabWORK kit 12 & 13 MMIC amplifier and BJT amplifier by MOTTECH RF 2000.

### *h. Oscillator*

To understand the basic theory and design procedure for RF oscillators using by S-parameters.

To learn the characteristics of oscillator with measuring the LabWORK kit 14 BJT Oscillator by MOTTECH RF 2000.

### *i. Voltage controlled oscillator*

To understand the basic theory and design procedure for VCO with varactors.

To learn the characteristics of VCO with measuring the LabWORK kit 15 VCO by MOTTECH RF 2000.



### *j. Microstrip patch antenna*

To understand the basic concept and design procedure for microstrip patch antenna.

To learn the basic characteristics of antenna with measuring the LabWORK kit 16 & 17 Microstrip patch antenna by MOTTECH RF 2000.

### *k. Up converter*

To understand the basic concept and system parameters for RF Transmitter.

To learn the basic characteristics of upconverter with measuring the LabWORK kit 18 Frequency up converter by MOTTECH RF 2000.

### *l. Down converter*

To understand the basic concept and system parameters for RF Receiver.

To learn the basic characteristics of down converter with measuring the LabWORK kit 19 Frequency down converter by MOTTECH RF 2000.

## **(3) Experiment Modules**

### **a. RF2KM1-1A**

Open/Short/Through

### **b. RF2KM2-1A**

Impedance transformer

### **c. RF2KM3-1A**

Power attenuator

### **d. RF2KM4-1A**

Delta-type power splitter

### **e. RF2KM4-2A**

Wilkinson power splitter

### **f. RF2KM5-1A**

L-C branch line coupler

### **g. RF2KM5-2A**

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- Microstrip parallel line coupler
- h. RF2KM6-1A**  
L-C Low/band pass filter
  - i. RF2KM7-1A**  
MMIC/BJT amplifier
  - j. RF2KM8-1A**  
BJT oscillator
  - k. RF2KM9-1A**  
Voltage controlled oscillator
  - l. RF2KM10-1A & RF2KM10-2A**  
Microstrip patch Antenna (1set)
  - m. RF2KM11-1A**  
Up converter
  - n. RF2KM12-1A**  
Down converter

### **(4) Student User Manual**

- a. Related theory
- b. Experiment purpose
- c. Experiment procedures
- d. Experiment result records
- e. Discussion

### **(5) Teacher Technical Manual**

- a. Detail description of the related theory
- b. Notice and explain of the experiment procedures
- c. Reference of the experiment results

### **(6) Software for Design Course (Options)**

- a. Ansoft®: Serenade®  
(Microwave circuit simulator)
- b. MathCAD®: design formula  
calculation

## *Order Information*

EZ-RF Analyzer(RF2000-1)	1 unit
Experiment Modules (RF 2000 - 2)	15 pcs
BNC Cables	4pcs
BNC Adaptors	4pcs
Terminators	4pcs
Student User Manual	1 pc
Teacher Technical Manual	1 pc
Carrying Case	1 pc
Software for design course (options)	



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\*\*Specifications subject to change without notice