# **Bridges Training Modules**

# MARS

## **Bridges Training Modules**

## ME 2200E - Anderson Bridge Objective

 To calculate the value of inductance (500mH - 100mH) in term of Capacitance & resistance.



#### **Technical Specification**

- In built fixed DC regulated power supply of ±5V±12V & +5V/ 500mA.
- Inbuilt sine wave oscillator, frequency 1KHz ±3%, amplitude 0-15Vpp.
- In built 3½ digit digital null detector used as detector
- On Board three set of two decade dial x(10 W & 100W).
   On Board four unknown inductance & two standard capacitor are mounted behind the front panel with connections are brought out on front panel.
- Bakelite used as front panel of 400mm x 225mm & mounted on light weight shock proof plastic cabinet.
- Circuit diagram of discrete component printed & all important connection are brought out on front panel
- Power requirement: 220 VAC +10%, 50Hz
- Weight: 3.0Kg Approx.
- Dimensions (mm): 430( L) x 230(B) x 75(H)

#### **Standard Accessories**

Power Cord, Patch Cords & Instruction Manual

#### **Optional Accessories**

Dual Trace CRO 30MHz (ME 3030)

## ME 2201E - Schering Bridge

#### **Objective**

To calculate the value of capacitor (0.01mF - 1mF).



#### **Technical Specification**

- In built fixed DC regulated power supply of ±5V ±12V & +5V/ 500mA.
- Inbuilt sine wave oscillator, frequency 1KHz ±3%, amplitude 0-15Vpp.
- In built 3½ digit digital null detector used as detector

- On Board two ratio dial "P" & "Q" each having 10 W,100W & 1000W.
- On Board two decade dial x (0.01 mF & 0.01mF).
- On Board one variable gang capacitor range of 25pF to 500pF
- On Board six unknown capacitor are mounted behind the front panel with connections are brought out on front panel.
- Bakelite used as front panel of 400mm x 225mm & mountedon light weight shock proof plastic cabinet.
- Circuit diagram of discrete component printed & all important connection are brought out on front panel
- Power requirement: 220 VAC +10%, 50Hz
- Weight: 3.0Kg Approx.
- Dimensions (mm): 430(L) x 230(B) x 75(H)

#### Standard Accessories :

Power Cord, Patch Cords & Instruction Manual

#### **Optional Accessories**

Dual Trace CRO 30MHz (ME 3030)

## ME 2204E - Maxwell Inductance Bridge Objective

To calculate the value of inductance (500mH - 10mH).



#### **Technical Specification**

- In built fixed DC regulated power supply of ±5V, ±12V & 55V/ 500mA
- Inbuilt sine wave oscillator, frequency 1KHz ±3%, amplitude 0-15Vpp.
- In built 31/2 digit digital null detector used as detector
- On Board two set of two decade dial x(100W & 1000W).
- On Board four unknown inductance are mounted behind the front panel with connections are brought out on front panel.
- Bakelite used as front panel of 400mm x 225mm & mounted on light weight shock proof plastic cabinet.
- Circuit diagram of discrete component printed & all important connection are brought out on front panel
- Power requirement: 220 VAC +10%, 50Hz
- Weight: 3.0Kg Approx.
- Dimensions (mm): 430(L) x 230(B) x 75(H)

#### **Standard Accessories:**

Power Cord, Patch Cords & Instruction Manual

#### **Optional Accessories**

• Dual Trace CRO 30MHz (ME 3030)

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## ME 2205E - Wein's Bridge (Capacity Measurement) Objective

• To calculate the value of capacitor (0.033 mF - 1mF).



#### **Technical Specification**

- In built fixed DC regulated power supply of ±5V, ±12V & +5V/ 500mA.
- Inbuilt sine wave oscillator, frequency 1KHz ±3%, amplitude 0-15Vpp.
- In built 3½ digit digital null detector used as detector
- On Board two set of two decade dial x(1W & 10W).
- On Board six unknown capacitor & two capacitor (0.033mF & 1mF) are mounted behind the front panel with connections are brought out on front panel.
- Bakelite used as front panel of 400mm x 225mm & mounted on light weight shock proof plastic cabinet.
- Circuit diagram of discrete component printed & all important connection are brought out on front panel.
- Power requirement: 220 VAC +10%, 50Hz
- Weight: 3.0Kg Approx.
- Dimensions (mm): 430(L) x 230(B) x 75(H)

#### **Standard Accessories:**

• Power Cord, Patch Cords & Instruction Manual

## **Optional Accessories**

Dual Trace CRO 30MHz (ME 3030)

## ME 2206E - Wein's Bridge (Frequency Measurement) Objective

• To calculate the value of frequency (500Hz - 100KHz).



#### **Technical Specification**

- In built fixed DC regulated power supply of ±5V & +5V/ 500mA.
- In built 3½ digit digital null detector used as detector
- On Board two set of two decade dial x(0.01mF& 0.1mF).
- On Board three decade dial x(10 W, 100W & 1000W).
- On Board three decade dial x(1W, 10W & 100W).
- Bakelite used as front panel of 400mm x 225mm & mounted on light weight shock proof plastic cabinet.

- Circuit diagram of discrete component printed & all important connection are brought out on front panel.
- Power requirement : 220 VAC +10%, 50Hz
- Weight: 3.0Kg Approx.
- Dimensions (mm): 430( L) x 230(B) x 75(H)

#### **Standard Accessories:**

· Power Cord, Patch Cords & Instruction Manual

#### **Optional Accessories**

Dual Trace CRO 30MHz(ME 3030)

#### ME 2208E - De-Sauty Bridge Objective

 To calculate the value of unknown capacitor (0.047mF - 1mF) in term of capacitance.



#### **Technical Specification**

- In built fixed DC regulated power supply of ±5V, ±12V & +5V/ 500mA
- Inbuilt sine wave oscillator, frequency 1KHz ±3%, amplitude 0-15Vpp
- In built 3½ digit digital null detector used as detector
- On Board two set of two decade dial x(10W & 100W).
- On Board one decade dial x(0.1mF).
- On Board six unknown capacitor are mounted behind the front panel with connections are brought out on front panel.
- Bakelite used as front panel of 400mm x 225mm & mounted on light weight shock proof plastic cabinet.
- Circuit diagram of discrete component printed & all important connection are brought out on front panel.
- Power requirement : 220 VAC +10%, 50Hz
- Weight: 3.0Kg Approx.
- Dimensions (mm): 430( L) x 230(B) x 75(H)

#### **Standard Accessories:**

Power Cord, Patch Cords & Instruction Manual

#### **Optional Accessories**

Dual Trace CRO 30MHz(ME 3030)

# **Bridges Training Modules**



## **Bridges Training Modules**

#### ME 2209E - Hay's Bridge Objective

To calculate the value of unknown inductance (20mH - 100mH).



#### **Technical Specification**

- In built fixed DC regulated power supply of ±5V, ±12V & +5V/ 500mA.
- Inbuilt sine wave oscillator, frequency 1KHz ±3%, amplitude 0-15Vpp.
- In built 3½ digit digital null detector used as detector
- On Board two decade dial x(100 W & 1000W).
- On Board three decade dial x(10W, 100W & 1000W).
- On Board two decade dial x (0.01mF & 0.1mF).

# ME 2202 - Kelvin Bridge (Industrial) Objective

To measure the low value Resistance.



#### **Technical Specification**

- Multiplier dial is provided on the front panel with ranges X 0.01W, X0.1W, X1W, X10W, X100W.
- Standard resistance dial & slide wire dial are also provided on the front panel.
- Two press keys are provided on the front panel marked as coarse and fine.
- Current reversing switch is provided on the front panel to get the deflection on left or right
- Hand side in a galvanometer.
- Terminals are provided on front panel to connect galvanometer & DC source.

#### **Optional Accessories**

- DC Source 0-12VDC/10A(ME -176)
- Galvalnometer 30-0-30 Division Sensitivity of 2µA/Division (ME 472D)
- Conductivity Attachment (ME-2218)
- Connecting Leads (current carrying capacity 10Amps)

## ME 2203 - Kelvin Bridge (Student)

#### **Objective**

To measure the low value Resistance

#### **Technical Specification**

One ratio box of 1-1W, 0. 1-0.1W, 0.01-0.01W, 10-10W, 100-

#### 100W.

- · for connection of Galvanometer.
- One decade dial of X0.01W.
- Slide wire of resistance 0.05W with scale of 100 equal divisions.
- · Four terminals for connecting unknown resistance wire.
- Two terminals are provided for Battery.

#### **Optional Accessories**

- DC Source 0-12 VDC/10A(ME 176)
- Galvalnometer 30-0-30 Division Sensitivity of 2µA/Division(ME

#### 472D)

- Conductivity Attachment(ME -2218)
- Connecting Leads (current carrying capacity 10Amps)

## ME 2207 - Wheatstone Bridge (Portable)

#### **Objective**

To calculate the unknown value of resistance.

#### **Technical Specification**

- Series Arm: Four decade dial in steps of 1000W, 100W, 10W, 1W.
- Ratio Arm: The ratio arm of bridge are capable of Selecting multiplying factor of 0.001, 0.01, 0.1, 1, 10, 100,1000 for resistance measurement & varley loop test & ratio M10, M100, M1000 for Murray loop test.
- One selectable switch with option for Murray (M) loop & For resistance/ Varley (VR) loop test.
- One galvanometer fitted inside the box with option of external or internal galvanometer with terminal.
- Two press keys provided marked as initial & final.
- Two toggle switches are provided one for internal or external battery and other for direct or shunted sensitivity of galvanometer.

#### **Optional Accessories**

 Metal Film Resistance of 0.5 Watt in wooden/Bakelite Box (ME -336)