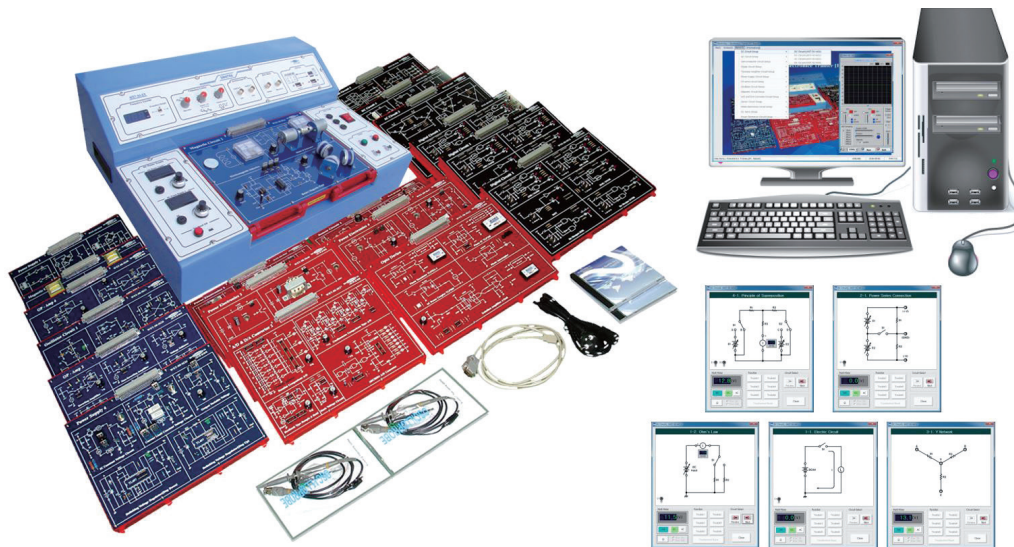


WST-50

Electricity · Electronics Trainer (PC Based)



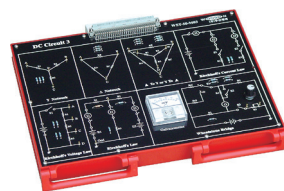
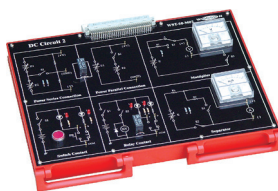
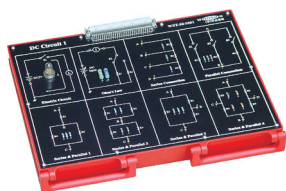
Specification

■ Main Trainer

- Main Voltage
 - 1 Phase 220 ~ 240V / 50/60Hz
 - 3 Phase 220V / 50/60Hz (380V / 415V - Selective)
- Signal Generator
 - Sine-Wave / Square-Wave / Triangle-Wave
- Measurement Port
 - Voltage / Resistance
- Interface Block
 - USB Port
- DC Power Supply
 - DC 0 ~ 20V
- Frequency Range
 - 0.1 ~ 1[KHz] / 1 ~ 10[KHz]
- Oscilloscope
 - 2 Channel

■ Experiment Module

== DC Circuit Module ==



- WST-50-M01 DC Circuit 1
 - Electric Circuit / Ohm' s Law Circuit / Series Connection Circuit
 - Parallel Connection Circuit / Series & Parallel Circuit 1 / Series & Parallel Circuit 2
 - Series & Parallel Circuit 3 / Series & Parallel Circuit 4
- WST-50-M02 DC Circuit 2
 - Power Series Connection Circuit / Power Parallel Connection Circuit
 - Multiplier Circuit / Switch Contact Circuit / Relay Contact Circuit / Separator Circuit
- WST-50-M03 DC Circuit 3
 - Y Network Circuit / Delta Network Circuit / Delta to Y or Y to Delta Circuit
 - Kirchhoff's Current Law Circuit / Kirchhoff's Voltage Law Circuit
 - Wheatstone Bridge / Kirchhoff's Law Circuit

* Product's design and appearance can be changed without any notice.

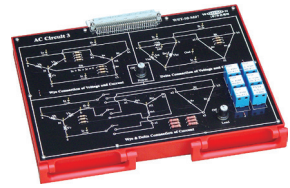
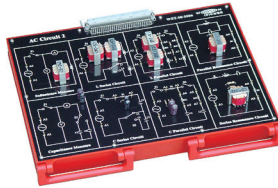
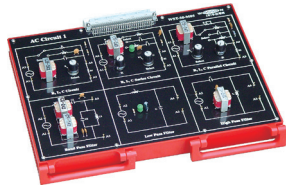
WST-50

Electricity · Electronics Trainer (PC Based)

■ WST-50-M04 DC Circuit 4

- Principle of Superposition Circuit / Thevenin's Theorem Circuit
- Milman's Theorem Circuit / Reciprocity Theorem Circuit 1
- Reciprocity Theorem Circuit 2 / Impedance Matching Circuit

== AC Circuit Module ==



■ WST-50-M05 AC Circuit 1

- R, L, C Circuit / R, L, C Series Circuit / R, L, C Parallel Circuit
- Band Pass Filter Circuit / Low Pass Filter / High Pass Filter

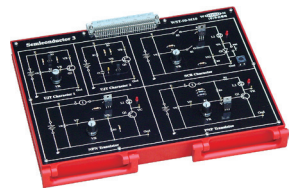
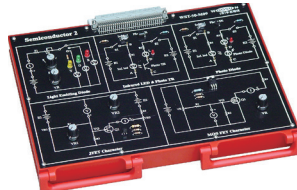
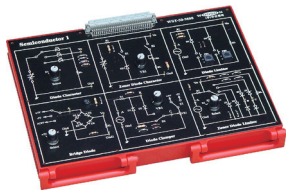
■ WST-50-M06 AC Circuit 2

- Inductance Measure Circuit / L Series Circuit / L Parallel Circuit
- Parallel Resonance Circuit / Capacitance Measure Circuit / C Series Circuit
- C Parallel Circuit / Series Resonance Circuit

■ WST-50-M07 AC Circuit 3

- Y Connection of Voltage and Current Circuit
- Delta Connection of Voltage and Current Circuit
- Y & Delta Connection of Current Circuit

== Semiconductor Circuit ==



■ WST-50-M08 Semiconductor Circuit 1

- Diode Characteristic Circuit / Zener Diode Characteristic Circuit / Diode Limiter Circuit
- Bridge Diode Circuit / Diode Clamper Circuit / Zener Diode Limiter Circuit

■ WST-50-M09 Semiconductor Circuit 2

- Light Emitting Diode Circuit / Infrared Led & Photo TR Circuit / Photo Diode Circuit
- JFET Character Circuit / MOS FET Character Circuit

■ WST-50-M10 Semiconductor Circuit 3

- UJT Character Circuit 1 / UJT Character Circuit 2 / SCR Character Circuit
- NPN Transistor Circuit / PNP Transistor Circuit

■ WST-50-M11 Semiconductor Circuit 4

- Diac Character Circuit / PUT Character Circuit
- Triac Character Circuit / IGBT Character Circuit

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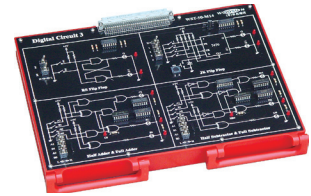
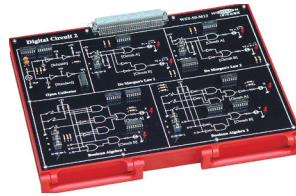
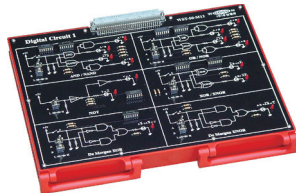
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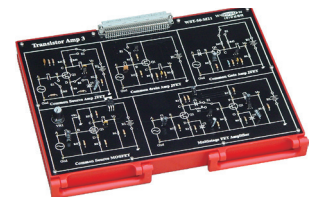
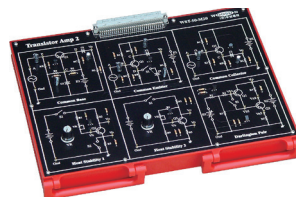
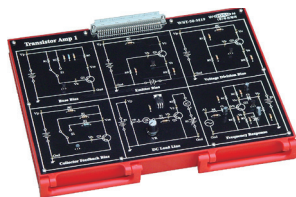
Electricity · Electronics Trainer (PC Based)

== Digital Circuit ==



- WST-50-M12 Digital Circuit 1
 - AND & NAND Gate Circuit / OR & NOR Gate Circuit / NOT Gate Circuit
 - XOR & XNOR Gate Circuit / De Morgan XOR Circuit / De Morgan XNOR Circuit
- WST-50-M13 Digital Circuit 2
 - Open Collector Circuit / De Morgan's Law Circuit 1 / De Morgan's Law Circuit 2
 - Boolean Algebra Circuit 1 / Boolean Algebra Circuit 2
- WST-50-M14 Digital Circuit 3
 - RS Flip Flop Circuit / JK Flip-Flop Circuit
 - Half Adder & Full Adder Circuit / Half Subtractor & Full Subtractor Circuit
- WST-50-M15 Digital Circuit 4
 - D Flip Flop Circuit / Johnson Counter Circuit
 - Up/Down Counter Circuit / Synchronous Decade Counter Circuit
- WST-50-M16 Digital Circuit 5
 - 2 to 4 Line Decoder Circuit / 2 to 4 Decoder & 4 to 2 Encoder Circuit
 - 8 to 3 Line Priority Encoder Circuit / BCD to Seven Segment Decoder Circuit
- WST-50-M17 Digital Circuit 6
 - 4 to 1 Multiplexer Circuit / 4 Bit Decade Counter Circuit
 - 8 Bit Shift Register Circuit / Decade Counter Circuit
- WST-50-M18 Digital Circuit 7
 - SRAM 6264 Circuit / EEPROM 28C64 Circuit

== Transistor Amplifier Circuit ==



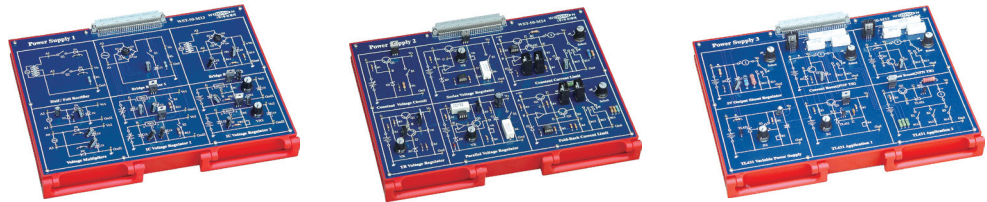
- WST-50-M19 Transistor Amplifier Circuit 1
 - Base Bias Circuit / Emitter Bias Circuit / Voltage Division Bias Circuit
 - Collector Feedback Bias Circuit / DC Load Line Circuit / Frequency Response Circuit
- WST-50-M20 Transistor Amplifier Circuit 2
 - Common Base Circuit / Common Emitter Circuit / Common Collector Circuit
 - Heat Stability Circuit 1 / Heat Stability Circuit 2 / Darlington Pair Circuit
- WST-50-M21 Transistor Amplifier Circuit 3
 - Common Source Amp JFET Circuit / Common Drain Amp JFET Circuit /
 - Common Gate Amp JFET Circuit / Common Source MOSFET Circuit / Multistage FET Amplifier Circuit
- WST-50-M22 Transistor Amplifier Circuit 4
 - B Class Push-Pull Amp Circuit / Syntonic C Class Amp Circuit / Differential Amp Circuit
 - Multistage Amplifier Circuit / Complementary Amp Circuit

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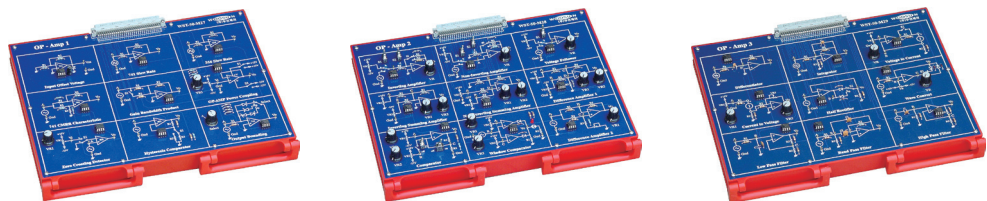
Electricity · Electronics Trainer (PC Based)

== Power Supply Circuit ==



- WST-50-M23 Power Supply Circuit 1
 - Half & Full Rectifier Circuit / Bridge Rectifier Circuit 1 / Bridge Rectifier Circuit 2
 - Voltage Multiplier Circuit / IC Voltage Regulator Circuit 1
 - IC Voltage Regulator Circuit 2
- WST-50-M24 Power Supply Circuit 2
 - Constant Voltage Circuit / Series Voltage Regulator Circuit / Constant Current Limit Circuit
 - TR Voltage Regulator Circuit / Parallel Voltage Regulator Circuit / Fold-Back Current Limit Circuit
- WST-50-M25 Power Supply Circuit 3
 - 5V Output Shunt Regulator Circuit / Current Boost (PNP TR) Circuit
 - Current Boost (NPN TR) Circuit
 - TL431 Variable Power Supply Circuit / TL431 Application Circuit 1
 - TL431 Application Circuit 2
- WST-50-M26 Power Supply Circuit 4
 - IC Constant Voltage Circuit / Current Limit Constant Voltage Circuit
 - Output Variable Voltage Circuit / Switching Voltage Regulator Circuit (Step Down)
 - Switching Voltage Regulator Circuit (Step Up)

== OP-AMP Circuit ==



- WST-50-M27 OP-AMP Circuit 1
 - Input Offset voltage Circuit / 741 Slew Rate Circuit / 356 Slew Rate Circuit
 - 741 CMRR Characteristic Circuit / Gain Bandwidth Product Circuit
 - OP-AMP Power Coupling Circuit / Zero Crossing Detector Circuit
 - Hysteresis Comparator Circuit / Output Bounding Circuit
- WST-50-M28 OP-AMP Circuit 2
 - Inverting Amplifier Circuit / Non-Inverting Amplifier Circuit
 - Differential Amplifier Circuit 1 / Differential Amplifier Circuit 2
 - Non-inverting Summing Amplifier Circuit / Inverting Summing Amplifier Circuit
 - Comparator Circuit / Window Comparator Circuit / Voltage follower Circuit
- WST-50-M29 OP-AMP Circuit 3
 - Differentiator Circuit / Integrator Circuit / Voltage-to-Current Circuit
 - Current-to-Voltage Circuit / Half Rectifier Circuit / Wave Convert Circuit
 - Low Pass Filter Circuit / High Pass Filter Circuit / Band Pass Filter Circuit
- WST-50-M30 OP-AMP Circuit 4
 - Phase Shift Circuit / Adder Amp Circuit 1 / Adder Amp Circuit 2
 - Adder Amp Circuit 3 / OP-Amp Rectifier Circuit / Peak Detector Circuit

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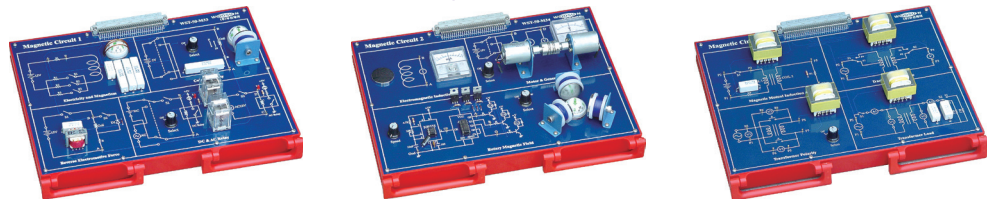
Electricity · Electronics Trainer (PC Based)

== Oscillator Circuit ==



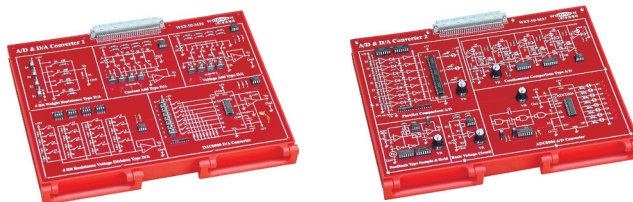
- WST-50-M31 Oscillator Circuit 1
 - Tank Circuit / Lamp Generator Circuit / Astable multivibrator Circuit
 - Monostable Multivibrator Circuit / Bistable Multivibrator Circuit
 - Two Phase Oscillator Circuit
- WST-50-M32 Oscillator Circuit 2
 - 555 Oscillator Circuit / Phase Shift Oscillator Circuit / Wien Bridge Oscillator Circuit
 - Colpitts Oscillator Circuit / Hartley Oscillator Circuit / Crystal Oscillator Circuit
 - Triangular Wave Oscillator Circuit / Rectangular Wave Oscillator Circuit
 - Voltage Controlled Oscillator Circuit

== Magnetic Circuit ==



- WST-50-M33 Magnetic Circuit 1
 - Electricity and Magnetism Circuit / Coil of Polarity Circuit
 - Reverse Electromotive Force Circuit / DC & AC Relay Circuit
- WST-50-M34 Magnetic Circuit 2
 - Electromagnetic Induction Circuit / Motor & Generator Circuit
 - Rotary Magnetic Field Circuit
- WST-50-M35 Magnetic Circuit 3
 - Magnetic Mutual Induction Circuit / Transformation Ratio Circuit
 - Transformer Polarity Circuit / Transformer Load Circuit

== A/D & D/A Converter Circuit ==



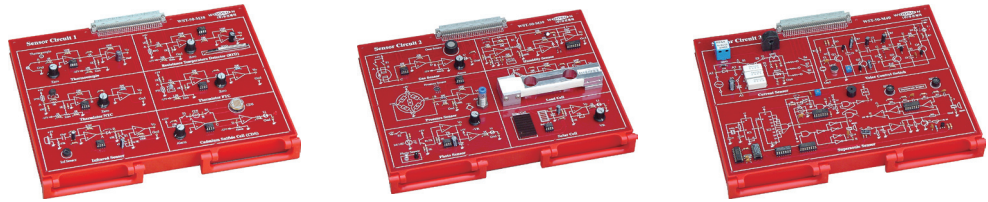
- WST-50-M36 A/D & D/A Converter Circuit 1
 - Current Add Type D/A Circuit / 4 Bit Weight Resistance Type D/A Circuit
 - Voltage Add Type D/A Circuit / 4 Bit Resistance Voltage Division Type D/A Circuit
 - DAC0800 D/A Converter Circuit
- WST-50-M37 A/D & D/A Converter Circuit 2
 - Parallel Comparison A/D Circuit / Continuance Comparison Type A/D Circuit
 - ADC0804 A/D Converter Circuit / Basic Voltage Circuit
 - Feedback Type Sample & Hold Circuit

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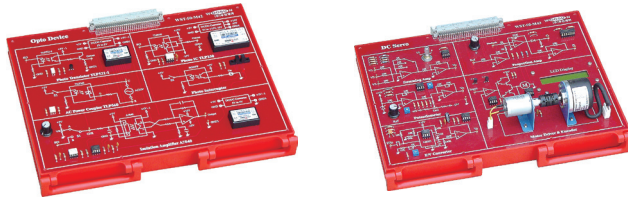
Electricity · Electronics Trainer (PC Based)

== Sensor Circuit ==



- WST-50-M38 Sensor Circuit 1
 - Thermocouple Circuit / Thermistor(NTC) Circuit
 - Resistance Temperature Detector(RTD) Circuit / Thermistor(PTC) Circuit
 - Infrared Sensor Circuit / Cadmium Sulfide Cell (CDS) Circuit
- WST-50-M39 Sensor Circuit 2
 - Gas Sensor Circuit / Humidity Sensor Circuit / Pressure Sensor Circuit
 - Load Cell Circuit / Photo Sensor Circuit / Solar Cell Circuit
- WST-50-M40 Sensor Circuit 3
 - Current Sensor Circuit / Voice Control Switch Circuit / Supersonic Sensor Circuit
- WST-50-M41 Sensor Circuit 4
 - Inductance Meter Circuit / Capacitance Meter Circuit / Distance Measure Meter Circuit

== Opto Electronics & DC Servo Circuit ==

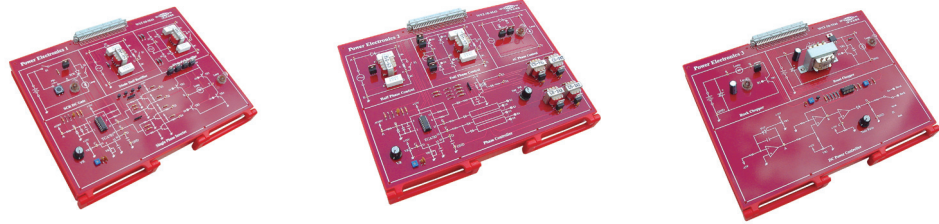


- WST-50-M42 Opto Electronics Circuit
 - Photo Transistor TLP521-1 Circuit / Photo IC TLP250 Circuit
 - AC Power Coupler TLP560 Circuit / Photo Interrupter Circuit / Isolation Amplifier A7840 Circuit
- WST-50-M43 DC Servo Circuit
 - Summing Amp Circuit / Proportion Amp Circuit / Potentiometer Circuit
 - F/V Converter Circuit / Motor Driver & Encoder Circuit

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Electricity · Electronics Trainer (PC Based)

== Power Electronics Circuit ==



- WST-50-M44 Power Electronics Circuit 1
 - SCR DC Gate Circuit / Diode Half Wave Rectification Circuit
 - Diode Full Wave Rectification Circuit / Single Phase Inverter Circuit
- WST-50-M45 Power Electronics Circuit 2
 - Half Phase Control Circuit / Full Phase Control Circuit
 - AC Phase Control Circuit / Phase Controller Circuit
- WST-50-M46 Power Electronics Circuit 3
 - DC Power Controller Circuit / Buck Chopper Circuit / Boost Chopper Circuit
- WST-50-M47 Power Electronics Circuit 4
 - SCR AC Control Circuit / Triac AC Control Circuit
 - SCR Ring Counter Circuit / GTO Gate Trigger Circuit
- WST-50-M48 Power Electronics Circuit 5
 - Single Phase cyclo Converter Circuit
- WST-50-M49 Power Electronics Circuit 6
 - Three Phase Diode Half Wave Rectification Circuit
 - Three Phase Diode Full Wave Rectification Circuit
 - Three Phase Voltage Type Inverter Circuit
- WST-50-M50 Power Electronics Circuit 7
 - Three Phase Controller Circuit / Three Phase Half wave Phase Control Rectifier Circuit
 - Three Phase AC Control Circuit / Three Phase Full Wave Control Rectifier Circuit

Accessory

- Experiment Manual : 1Copy
- Measurement Software : 1Copy
- Oscilloscope Probe : 3EA
- Module Storage Cabinet :1Set
- Power Cable : 1Set
- Communication Cable (USB) : 1EA
- Dust Cover : 1EA

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