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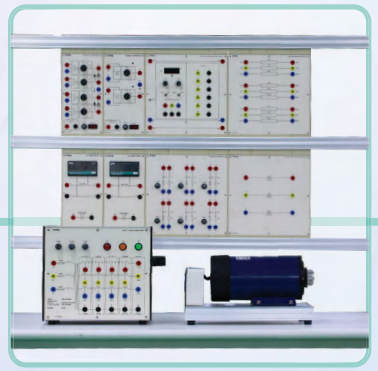
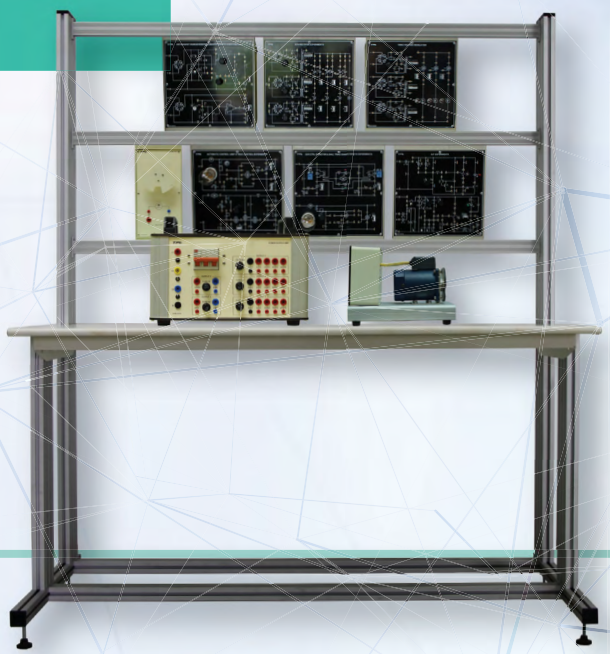
TOTAL AUTOMATION SOLUTIONS

Training equipment

ELECTRONICS

ETEK AUTOMATION SOLUTONS





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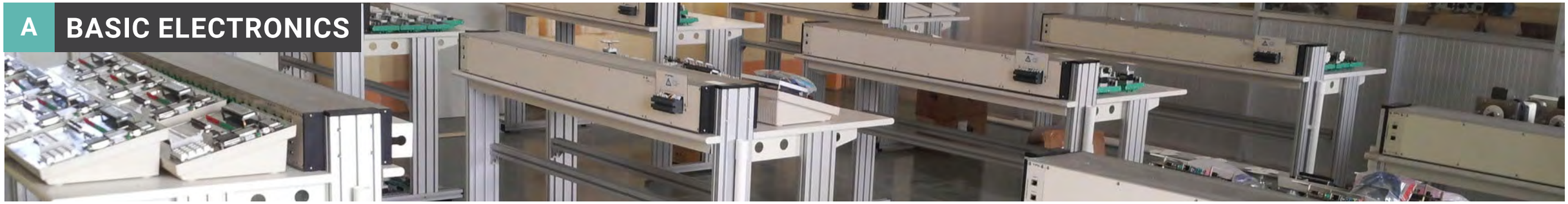
A BASIC ELECTRONICS



BASIC ELECTRONIC PRODUCT DESIGN SOLUTION

BASIC ELECTRONIC PRACTICE KIT

PRACTICE MODULE FUNCTION

COMPLETE PRACTICE SET

TRAINING CATALOG

NO.	NAME	SERI
1	BASIC ELECTRONICS PRACTICE KIT	ST.BE.A0001
2	MAIN MODULE FOR BASIC ELECTRONICS EXPERIMENT KIT WITH COMPUTER CONNECTION	ST.BE.A0018
3	ANALOG/DIGITAL LOGIC PRACTICE KIT	BE.A0100
4	BASIC EXPERIMENT SET FOR DC CIRCUITS	ST.BE.A0002
5	EXPERIMENT SET FOR DC CIRCUIT THEOREMS	ST.BE.A0003
6	AC-1 CIRCUIT BASIC EXPERIMENT SET	ST.BE.A0004
7	AC-2 BASIC CIRCUIT EXPERIMENT SET	ST.BE.A0005
8	SEMICONDUCTOR COMPONENTS EXPERIMENT KIT	ST.BE.A0006
9	TRANSISTOR AMPLIFIER CIRCUIT EXPERIMENT KIT	ST.BE.A0007
10	TRANSISTOR POWER AMPLIFIER EXPERIMENT KIT	ST.BE.A0008
11	TRANSISTOR FEEDBACK CIRCUIT EXPERIMENT KIT	ST.BE.A0009
12	POWER SOURCE ADJUSTMENT CIRCUIT EXPERIMENT KIT	ST.BE.A0010
13	POWER CONTROL AND THYRISTOR EXPERIMENT KIT	ST.BE.A0011
14	ALGORITHM AMPLIFIER BASIC EXPERIMENT SET	ST.BE.A0012
15	APPLICATIONS OF AMPLIFIER ALGORITHM EXPERIMENT KIT	ST.BE.A0013
16	BASIC FET TRANSISTOR EXPERIMENT SET	ST.BE.A0017
17	ANALOG ELECTRONICS BASIC EXPERIMENT SET	ST.BE.A0023
18	DIGITAL PRACTICE KIT	ST.BE.B0100
19	PULSE TECHNIQUE PRACTICE SET	ST.BE.B0110
20	ANALOG ELECTRONIC CIRCUIT ASSEMBLY PRACTICE KIT	ST.BE.C0200
21	DIGITAL ELECTRONIC CIRCUIT ASSEMBLY PRACTICE KIT	ST.BE.C0210
22	FTTX PRACTICE SYSTEM	TPAR.B0710

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1 BASIC ELECTRONICS PRACTICE KIT
ST.BE.A0001

SOURCE BLOCK

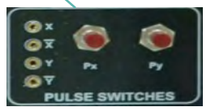
PULSE GENERATION BLOCK

8BIT LED BLOCK

7-SEGMENT LED BLOCK

RHEOSTAT BLOCK

8BIT SWITCHING BLOCK



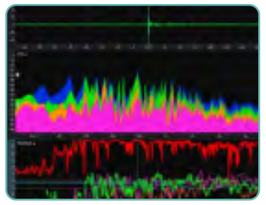
BLOCK PX, PY

OPERATION PROCESS

Set the practice module to the main kit

Connect the power and signal cords according to diagram

Supply power and turn on the switch



Adjust parameters and measure the signal

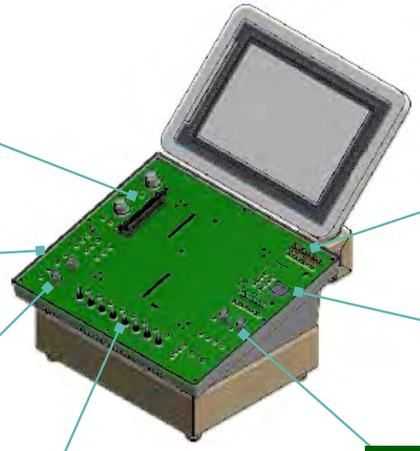
GENERAL TECHNICAL SPECIFICATIONS

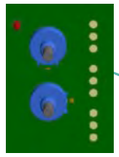
- Box size: 330 x 264 x 109 (WxDxH)
- Quality Management Standard ISO 9001:2015
- Input power supply for module: 220VAC/50Hz
- Output powerblock: 0 ~ ± 15V/500mA
- Module design uses standard plastic box
- Standard M2 type pin
- The printing pattern guides the printing of the film on the module surface, ensuring aesthetics and the longevity of the device

HIGHLIGHTS FEATURES

- There are many AC/DC power supplies with many different adjustable voltage levels
- There is a pulse generator with customizable frequency, pulse type, and amplitude
- There are binary logic switches and LED indicators to support exercises on binary logic
- Has rheostat, BCD decoding and 7-segment LED display

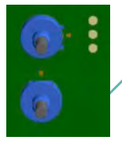
2 MAIN MODULE FOR BASIC ELECTRONICS EXPERIMENT KIT WITH COMPUTER CONNECTION
ST.BE.A0018



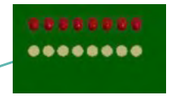


RHEOSTAT BLOCK

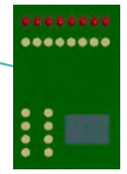
SOURCE BLOCK



PULSE GENERATION BLOCK

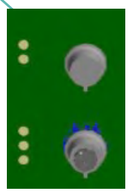


SINGLE LED DISPLAY BLOCK



7-SEGMENT LED BLOCK

8 BIT SWITCHING BLOCK



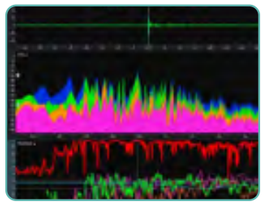
OSCILLATION SIGNAL MEASUREMENT BLOCK

OPERATION PROCESS

Set the actual module to the main kit

Connect the power and signal cords according to the diagram

Power supply and turn on the switch



Adjust parameters and measure the signal

GENERAL TECHNICAL SPECIFICATIONS

- Box size: 330 x 264 x 109 (WxDxH)
- Quality Management Standard ISO 9001:2015
- Input power supply for module: 220VAC/50Hz
- DC output power block: ±5V/500mA, ±12V/500mA
- Module design uses standard plastic box
- Standard M2 type pin
- The printing pattern guides the printing of the film on the module surface, ensuring aesthetics and the longevity of the device

HIGHLIGHTS FEATURES

- Can be used independently or connected to control data collection using a computer software interface
- There are many AC/DC power supplies with many different adjustable voltage levels
- There is a pulse generator with adjustable frequency and pulse type
- Built-in osccilo measurement port to analyze spectrum and waves when connected to a computer
- The data is displayed on the LCD screen

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3 BASIC EXPERIMENT SET FOR DC CIRCUITS
ST.BE.A0002

GENERAL TECHNICAL SPECIFICATIONS

- Box size: 330 x 264 x 110 (WxDxH)
- Quality Management Standard ISO 9001:2015
- Designed as separate modules with the same connection standard
- Standard M2 type pin
- Black plastic box, molded plastic lid
- The printing pattern guides the printing of the film on the module surface, ensuring aesthetics, the longevity of device

HIGHLIGHTS FEATURES

- The practice set helps students improve their knowledge and verify the laws when learning about circuit theory
- Ohm's law, calculate resistance in series or parallel circuits
- On the circuit board are built-in components and intuitive,easy-to-understand circuit drawings

TRAINING CONTENT

- DC power sources in series, parallel, dual
- Determine theswitching type
- Concept of circuit reversal
- Ohm's Law: resistance, current, circuit voltage
- Resistance, current, voltage in series, parallel, mixed resistor circuits
- Power in series, parallel and mixed resistor circuits

SKILLS ACHIEVED

- Review learned theories
- Calculate and design basic electronic circuits
- Understand the uses and scope of application of each circuit
- Know how to measure, detect errors and repair circuit errors

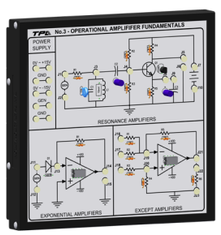
DC1 CIRCUIT BASIC EXPERIMENT MODULE TPAQ.B0100

- Box size: 173x169x25mm (LxWxH)
- Power supply: ±5VDC, 0 ~ ±15VDC
- Black anodized aluminum case
- M2 signal jack

DC2 CIRCUIT BASIC EXPERIMENT MODULE TPAQ.B0200

- Box size: 173x169x25mm (LxWxH)
- Power supply: ±5VDC, 0 ~ ±15VDC
- Black anodized aluminum case
- M2 signal jack

DC3 CIRCUIT BASIC EXPERIMENT MODULE TPAQ.B0300



- Box size: 173x169x25mm (LxWxH)
- Power supply: ±5VDC, 0 ~ ±15VDC
- Black anodized aluminum case
- M2 signal jack

4 EXPERIMENT SET FOR DC CIRCUIT THEOREMS
ST.BE.A0003

GENERAL TECHNICAL SPECIFICATIONS

- Box size: 330 x 264 x 110mm (WxDxH)
- Quality Management Standard ISO 9001:2015
- Designed as separate modules with the same connection standard
- Standard M2 type pin
- Black aluminum box style, molded plastic lid
- The printing pattern guides the printing of the film on the module surface, ensuring aesthetics and the longevity of the device

HIGHLIGHTS FEATURES

- The practice set helps students improve their knowledge and verify the laws when learning about circuit theory
- Ohm's law, calculate resistance in series or parallel circuits
- On the circuit board are built-in components and intuitive,easy-to-understand circuit drawings

TRAINING CONTENT

- DC power sources in series, parallel, dual
- Determine theswitching type
- Concept of circuit reversal
- Ohm's Law: resistance, current, circuit voltage
- Resistance, current, voltage in series, parallel, mixed resistor circuits
- Power in series, parallel and mixed resistor circuits

SKILLS ACHIEVED

- Review learned theories
- Calculate and design basic electronic circuits
- Understand the uses and scope of application of each circuit
- Know how to measure, detect errors and repair circuit errors

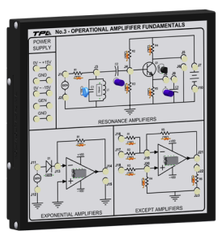
DC1 CIRCUIT BASIC EXPERIMENT MODULE TPAQ.B0100

- Box size: 173x169x25mm (LxWxH)
- Power supply: ±5VDC, 0 ~ ±15VDC
- Black anodized aluminum case
- M2 signal jack

DC2 CIRCUIT BASIC EXPERIMENT MODULE TPAQ.B0200

- Box size: 173x169x25mm (LxWxH)
- Power supply: ±5VDC, 0 ~ ±15VDC
- Black anodized aluminum case
- M2 signal jack

DC3 CIRCUIT BASIC EXPERIMENT MODULE TPAQ.B0300



- Box size: 173x169x25mm (LxWxH)
- Power supply: ±5VDC, 0 ~ ±15VDC
- Black anodized aluminum case
- M2 signal jack

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5 BỘ THÍ NGHIỆM CƠ BẢN MẠCH AC-1
ST.BE.A0004

GENERAL TECHNICAL SPECIFICATIONS

- Box size: 330 x 264 x 110 (WxDxH)
- Quality Management Standard ISO 9001:2015
- Designed into removable modules that can be assembled flexibly with the same connection standard
- Black aluminum box style, molded plastic lid
- The printing pattern guides the printing of the film on the module surface, ensuring aesthetics as well as the longevity of the device

HIGHLIGHTS FEATURES

- The practice set helps students improve their theoretical knowledge of AC circuits
- Effects of series/parallel impedance and inductance
- Series/parallel RC/RL circuit, AC waveform
- AC phase angle control, transformer
- The circuit board has built-in components and easy-to-understand visual circuit drawings

TRAINING CONTENT

- Measure AC circuit amplification, voltage, current and AC impedance with a parallel scope
- Measure and set frequency, inductance, phase angle, inductance, series and parallel impedance
- Measure RL circuits in series and parallel
- Measure electromagnetic fields, transformers, mutual inductance, secondary loads
- Measure series and parallel circuit capacitors
- Measure RC circuits in series, parallel, time coefficient
- How to detect problems

SKILLS ACHIEVED

- Verify the theories you have learned
- Calculate and design basic electronic circuits
- Understand the uses and application scope of each circuit
- Know how to measure, detect errors and fix circuit errors

6 AC-2 BASIC CIRCUIT EXPERIMENT SET
ST.BE.A0005

GENERAL TECHNICAL SPECIFICATIONS

- Box size: 330 x 264 x 110 (WxDxH)
- Quality Management Standard ISO 9001:2015
- Designed into removable modules that can be assembled flexibly with the same connection standard
- Black aluminum box style, molded plastic lid
- The printing pattern guides the printing of the film on the module surface, ensuring aesthetics, longevity of the device

HIGHLIGHTS FEATURES

- The practice set helps students improve their theoretical knowledge of AC circuits
- Series/parallel RLC circuit, RLC resonant circuit
- Power in AC circuit, low pass filter, high pass filter
- The circuit board has built-in components and easy-to-understand visual circuit drawings

TRAINING CONTENT

- RLC circuits in series and parallel
- Resonant circuit, and series RLC circuit frequency range
- Resonant frequency in parallel LC circuit
- Division, power factor
- Low pass, high pass, band, stop band filters
- Troubleshooting

SKILLS ACHIEVED

- Verify the theories you have learned
- Calculate and design basic electronic circuits
- Understand the uses and application scope of each circuit
- Know how to measure, detect errors and fix circuit errors

BASIC EXPERIMENT MODULE OF AC ELECTRICAL CIRCUITS 1 (CIRCUIT 1) TPAQ.B2100

- Box size: 173x169x25mm (LxWxH)
- Power supply: ±5VDC, 0 ~ ±15VDC
- Black anodized aluminum case
- Practice circuits divided into clear blocks
- M2 signal jack

BASIC EXPERIMENT MODULE OF AC ELECTRICAL CIRCUITS 1 (CIRCUIT 2) TPAQ.B2200

- Box size: 173x169x25mm (LxWxH)
- Power supply: ±5VDC, 0 ~ ±15VDC
- Black anodized aluminum case
- Practice circuits divided into clear blocks
- M2 signal jack

AC2 ELECTRICAL CIRCUIT BASIC EXPERIMENT MODULE (CIRCUIT 1) TPAQ.B2100

- Box size: 173x169x25mm (LxWxH)
- Power supply: ±5VDC, 0 ~ ±15VDC
- Black anodized aluminum case
- Practice circuits divided into clear blocks
- Giắc cắm tín hiệu M2

AC2 ELECTRICAL CIRCUIT BASIC EXPERIMENT MODULE (CIRCUIT 2) TPAQ.B3200

- Box size: 173x169x25mm (LxWxH)
- Power supply: ±5VDC, 0 ~ ±15VDC
- Black anodized aluminum case
- Practice circuits divided into clear blocks
- M2 signal jack

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7 SEMICONDUCTOR COMPONENTS EXPERIMENT KIT
ST.BE.A0006

GENERAL TECHNICAL SPECIFICATIONS

- Box size: 330 x 264 x 110 (WxDxH)
- Quality Management Standard ISO 9001:2015
- Designed into removable modules that can be assembled flexibly with the same connection standard
- Black aluminum box style, molded plastic lid
- The printing pattern guides the printing of the film on the module surface, ensuring aesthetics as well as the longevity of the device

HIGHLIGHTS FEATURES

- The practice set helps students improve their theoretical knowledge of semiconductor components diode, zener diode, PNP/NPN transistor, optocoupler, IC CD4066
- Applications for rectifier circuits, transistors, voltage doublers, diodes, etc.
- The circuit board has built-in components and intuitive, easy-to-understand circuit diagrams

TRAINING CONTENT

- Identify semiconductor devices
- Semiconductor switching control
- Diode and DC characteristics
- Half-cycle rectification, full-cycle bridge using diodes
- Power filter, voltage doubler
- Waveform using Diode Zener
- Adjust Zener Diode voltage
- Check PNP Transistor function
- Emitter-Base bias voltage, upstream of Collector
- DC circuit voltage using Transistor
- Photo resistive isolation IC
- How to detect problems

SKILLS ACHIEVED

- Calculate and design basic electronic circuits
- Understand the uses and application scope of each circuit
- Know how to measure, detect errors and fix circuit errors

SEMICONDUCTOR COMPONENTS EXPERIMENT MODULE 1 TPAQ.B2100

- Box size: 173x169x25mm (LxWxH)
- Power supply: 12VAC, 0 ~ ±15VDC
- Black anodized aluminum case
- Practice circuits divided into clear blocks
- M2 signal jack
- Rectifier bridge diode: 2A/1000V
- Output current: 0.2A
- Adjustable rheostat: 0 ~ 10KΩ

SEMICONDUCTOR COMPONENTS TESTING MODULE 2 TPAQ.B4100

- Box size: 173x169x25mm (LxWxH)
- Power supply: 12VAC, 0 ~ ±15VDC
- Black anodized aluminum case
- Practice circuits divided into clear blocks
- M2 signal jack

SEMICONDUCTOR COMPONENTS EXPERIMENT MODULE 3 TPAQ.B4300

- Box size: 173x169x25mm (LxWxH)
- Power supply: 12VAC, 0 ~ ±15VDC
- Adjustable rheostat: 0 ~ 10KΩ
- Black anodized aluminum case
- Practice circuits divided into clear blocks
- M2 signal jack

SEMICONDUCTOR COMPONENTS EXPERIMENT MODULE 4 TPAQ.B4400

- Box size: 173x169x25mm (LxWxH)
- Power supply: 12VAC, 0 ~ ±15VDC
- Adjustable rheostat: 0 ~ 1KΩ
- Logic switch: 2 holding positions
- LED displays signal
- Optical resistor 5mm
- Black anodized aluminum case
- Practice circuits divided into clear blocks
- M2 signal jack

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8 TRANSISTOR AMPLIFIER CIRCUIT EXPERIMENT KIT
ST.BE.A0007

GENERAL TECHNICAL SPECIFICATIONS

- Box size: 173x169x25mm (LxWxH)
- Quality Management Standard ISO 9001:2015
- Designed into removable modules that can be assembled flexibly with the same connection standard
- Black aluminum box style, molded plastic lid
- The printing pattern guides the printing of the film on the module surface, ensuring aesthetics as well as the longevity of the device

HIGHLIGHTS FEATURES

- The practice set helps students improve their theoretical knowledge of amplifier circuits using transistors
- Common B amplifier circuit, common E amplifier, common C amplifier, coupling circuits...
- The circuit board has built-in components and intuitive, easy-to-understand circuit diagrams

TRAINING CONTENT

- Recognize, become familiar with and locate components in the circuit
- Introduction to multistage amplification
- DC/AC operation of common Base, Emitter, Collector circuit
- Temperature effects on fixed polarity, voltage divider circuits
- Use the Transistor parameter table
- DC operation RC coupled amplifier
- DC/AC operation of transformer-coupled, direct-coupled amplifier
- Handling and troubleshooting circuit problems

SKILLS ACHIEVED

- Verify the theories you have learned
- Calculate and design basic electronic circuits
- Understand the uses and application scope of each circuit
- Know how to measure, detect errors and fix circuit errors

TRANSISTOR AMPLIFIER CIRCUIT EXPERIMENT MODULE 1 TPAQ.C0100

- Box size: 173x169x25mm (LxWxH)
- Power supply: 12VAC, 0 ~ ±15VDC
- Adjustable rheostat: 0 ~ 10KΩ, 0 ~250KΩ
- Power resistor: 4.7Ω/5W
- Black anodized aluminum case
- Practice circuits divided into clear blocks
- M2 signal jack

TRANSISTOR AMPLIFIER CIRCUIT EXPERIMENT MODULE 2 TPAQ.C0200

- Box size: 173x169x25mm (LxWxH)
- Power supply: 12VAC, 0 ~ ±15VDC
- Adjustable rheostat: 0 ~ 250KΩ
- Output voltage: symmetrical 6VAC
- Output current: 0.2A
- Black anodized aluminum case
- Practice circuits divided into clear blocks
- M2 signal jack

9 TRANSISTOR POWER AMPLIFIER EXPERIMENT KIT
ST.BE.A0008

GENERAL TECHNICAL SPECIFICATIONS

- Box size: 173x169x25mm (LxWxH)
- Quality Management Standard ISO 9001:2015
- Designed into removable modules that can be assembled flexibly with the same connection standard
- Black aluminum box style, molded plastic lid
- The printing pattern guides the film's printing on the module surface, ensuring aesthetics, the longevity of the device

HIGHLIGHTS FEATURES

- The practice set helps students improve their theoretical knowledge of amplifier circuits using transistors
- Common B amplifier circuit, common E amplifier, common C amplifier, coupling circuits...
- The circuit board has built-in components and intuitive, easy-to-understand circuit diagrams

TRAINING CONTENT

- Recognize, become familiar with and locate components in the circuit
- Introduction to multistage amplification
- DC/AC operation of common Base, Emitter, Collector circuit
- Temperature effects on fixed polarity, voltage divider circuits
- Use the Transistor parameter table
- DC operation RC coupled amplifier
- DC/AC operation of transformer-coupled, direct-coupled amplifier
- Handling and troubleshooting circuit problems

SKILLS ACHIEVED

- Verify the theories you have learned
- Calculate and design basic electronic circuits
- Understand the uses and application scope of each circuit
- Know how to measure, detect errors and fix circuit errors

TRANSISTOR POWER AMPLIFIER EXPERIMENT MODULE 1 TPAQ.C1000

- Box size: 173x169x25mm (LxWxH)
- Power supply: 12VAC, 0 ~ ±15VDC
- Adjustable rheostat: 0 ~ 10KΩ, 0 ~ 250KΩ
- Power resistor: 4.7Ω/5W
- Black anodized aluminum case
- Practice circuits divided into clear blocks
- M2 signal jack

TRANSISTOR POWER AMPLIFIER EXPERIMENT MODULE 2 TPAQ.C1100

- Box size: 173x169x25mm (LxWxH)
- Power supply: 0 ~ ±15VDC
- Adjustable rheostat: 0 ~ 250KΩ
- Output voltage: symmetrical 6VAC
- Output current: 0.2A
- Black anodized aluminum case
- Practice circuits divided into clear blocks
- M2 signal jack

10 TRANSISTOR FEEDBACK CIRCUIT EXPERIMENT KIT
ST.BE.A0009

GENERAL TECHNICAL SPECIFICATIONS

- Box size: 173x169x25mm (LxWxH)
- Quality Management Standard ISO 9001:2015
- Designed into removable modules that can be assembled flexibly with the same connection standard
- Black aluminum box style, molded plastic lid
- The printing pattern guides the printing of the film on the module surface, ensuring aesthetics and the longevity of the device

HIGHLIGHTS FEATURES

- The practice set helps students improve their theoretical knowledge of amplifier circuits using transistors
- Common B amplifier circuit, common E amplifier, common C amplifier, coupling circuits...
- The circuit board has built-in components and intuitive, easy-to-understand circuit diagrams

TRAINING CONTENT

- Recognize, familiar with and locate components in circuits
- Introduction to multistage amplification
- DC/AC operation of common Base, Emitter, Collector circuit
- Temperature effects on fixed polarity, voltage divider circuits
- Use the Transistor parameter table
- DC operation RC coupled amplifier
- DC/AC operation of transformer-coupled, direct-coupled amplifier
- Handling and troubleshooting circuit problems

SKILLS ACHIEVED

- Verify the theories you have learned
- Calculate and design basic electronic circuits
- Understand the uses and application scope of each circuit
- Know how to measure, detect errors and fix circuit errors

TRANSISTOR FEEDBACK CIRCUIT EXPERIMENT MODULE 1 TPAQ.C2000

- Box size: 173x169x25mm (LxWxH)
- Power supply: 12VAC, 0 ~ ±15VDC
- Output voltage: symmetrical 6VAC
- Output current: 0.2A
- Black anodized aluminum case
- Practice circuits divided into clear blocks
- M2 signal jack

TRANSISTOR FEEDBACK CIRCUIT EXPERIMENT MODULE 2 TPAQ.C2100

- Box size: 173x169x25mm (LxWxH)
- Power supply: 0 ~ ±15VDC
- Adjustable rheostat: 0 ~250KΩ
- Output voltage: symmetrical 6VAC
- Output current: 0.2A
- Black anodized aluminum case
- Practice circuits divided into clear blocks
- M2 signal jack

11 POWER SOURCE ADJUSTMENT CIRCUIT EXPERIMENT KIT
ST.BE.A0010

GENERAL TECHNICAL SPECIFICATIONS

- Box size: 173x169x25mm (LxWxH)
- Quality Management Standard ISO 9001:2015
- Designed as separate modules with the same connection
- standard
- Black aluminum box style, molded plastic lid
- The printing pattern guides the printing of the film on the module surface,ensuring aesthetics, longevity of the device

HIGHLIGHTS FEATURES

- The practice set helps students improve their theoretical knowledge of power source circuits
- Theory of source voltage regulator circuit, source voltage regulator circuit, current source circuit
- The circuit board has built-in components and intuitive, easy-to-understand circuit diagrams

TRAINING CONTENT

- Identify components in the circuit
- Introducing power supply adjustment
- Parallel, series, pressure feedback, voltage feedback, current adjustment, 3-pin IC adjustment operations
- Reverse current limiting protection circuit
- DC to DC conversion characteristics and performance
- Basic concepts of troubleshooting and troubleshooting

SKILLS ACHIEVED

- Verify the theories you have learned
- Calculate and design basic electronic circuits
- Understand the uses and application scope of each circuit
- Know how to measure, detect errors and fix circuit errors

POWER SOURCE REGULATION CIRCUIT EXPERIMENT MODULE 2 TPAQ.C6000

- Box size: 173x169x25mm (LxWxH)
- Power supply: 12VAC, 0 ~ ±15VDC
- Adjustable rheostat: 0 ~ 10KΩ
- Voltage regulator diodes: 3V3, 5V1, 12V
- Black anodized aluminum case
- Practice circuits divided into clear blocks
- M2 signal jack

POWER SOURCE REGULATION CIRCUIT EXPERIMENT MODULE 3 TPAQ.C6100

- Box size: 173x169x25mm (LxWxH)
- Power supply: +5VDC, 0 ~ +15VDC
- IC power source regulator
- Power supply: 2.75V ~ 15V
- Output voltage: 1.25V ~ 13.8V
- Black anodized aluminum case
- Practice circuits divided into clear blocks
- M2 signal jack

POWER SOURCE REGULATION CIRCUIT EXPERIMENT MODULE 1 TPAQ.C6200

- Box size: 173x169x25mm (LxWxH)
- Power supply: 0 ~ ±15VDC
- Adjustable rheostat: 0 ~ 1KΩ, 0 ~ 10KΩ
- Operational amplifier IC:
- Power supply: 3V ~ 32V, ±1.5 ~ 16V
- Offset input voltage: 2~3mV
- Black anodized aluminum case
- Practice circuits divided into clear blocks
- M2 signal jack

ETEK
TOTAL AUTOMATION SOLUTIONS

12 POWER CONTROL AND THYRISTOR EXPERIMENT KIT
ST.BE.A0011

GENERAL TECHNICAL SPECIFICATIONS

- Box size: 173x169x25mm (LxWxH)
- Quality Management Standard ISO 9001:2015
- Designed as separate modules with the same connection standard
- Black aluminum box style, molded plastic lid
- The printing pattern guides the printing of the film on the module surface, ensuring aesthetics longevity of the device

HIGHLIGHTS FEATURES

- The practice set helps students improve their theoretical knowledge of power source circuits
- Theory of DC rectifier circuit using controlled half-wave/ full-wave SCR
- SCR trigger circuit by UJT, AC voltage regulator circuitis by Triac
- The circuit board has built-in components and intuitive, easy-to-understand circuit diagrams

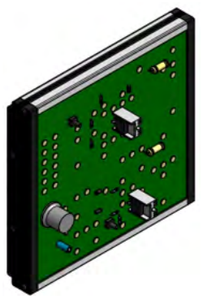
TRAINING CONTENT

- Learn the principles and practice of half-wave DC Gate and full-wave Gate SCR circuits
- Learn the principles and practice of AC power control circuits using Triac
- Learn the principles and practice of controlled rectifier circuits
- Learn the principles and practice of half-wave and full-wave SCR AC Gate circuits

SKILLS ACHIEVED

- Verify the theories you have learned
- Calculate and design basic electronic circuits
- Understand the uses and application scope of each circuit
- Know how to measure, detect errors and fix circuit errors

POWER CONTROL AND THYRISTOR EXPERIMENT MODULE 1 TPAQ.C4000



- Box size: 173x169x25mm (LxWxH)
- Power supply: 0 ~ ±15VDC
- Thysistor: 20A/800V
- Triac: 8A/600V
- Adjustable rheostat: 0 ~ 10KΩ
- Black anodized aluminum case
- Practice circuits divided into clear blocks
- M2 signal jack

POWER CONTROL AND THYRISTOR EXPERIMENT MODULE 2 TPAQ.C4100

- Box size: 173x169x25mm (LxWxH)
- Power supply: 0 ~ +15VDC
- Thysistor 20A/800V
- 3-pin UJT TO-18
- Adjustable rheostat: 0 ~ 10KΩ
- Black anodized aluminum case
- Practice circuits divided into clear blocks
- M2 signal jack

13 ALGORITHM AMPLIFIER BASIC EXPERIMENT SET
ST.BE.A0012

GENERAL TECHNICAL SPECIFICATIONS

- Box size: 173x169x25mm (LxWxH)
- Quality Management Standard ISO 9001:2015
- Designed as separate modules with the same connection standard
- Black aluminum box style, molded plastic lid
- The printing pattern guides the printing of the film on the module surface, ensuring aesthetics, longevity of the device

HIGHLIGHTS FEATURES

- The practice set helps students improve their theoretical knowledge of power source circuits
- Theory of inverting/non-inverting amplifier circuits, buffer circuits
- Add/subtract circuit, differential amplifier circuit, comparator circuit...
- The circuit board has built-in components and intuitive, easy-to-understand circuit diagrams

TRAINING CONTENT

- Basic characteristics, parameters of operational amplifiers
- Learn the principles and practice of inverting, non-inverting, and inverting amplifier circuits
- Learn the principles and practice with voltage repeater circuits, sine wave to square wave
- Learn the principles and practice with differential amplifiers, open loop circuits, resonators
- Learn the principles and practice with exponential and subtractive amplifier circuits

SKILLS ACHIEVED

- Verify the theories you have learned
- Calculate and design basic electronic circuits
- Understand the uses and application scope of each circuit
- Know how to measure, detect errors and fix circuit errors

BASIC EXPERIMENT MODULE ON ALGORITHM AMPLIFIER 1 TPAQ.D0100

- Box size: 173x169x25mm (LxWxH)
- Power supply: 0 ~ ±15VDC
- Thysistor 20A/800V
- Triac 8A/600V
- Adjustable rheostat: 0 ~ 10KΩ
- Black anodized aluminum case
- Practice circuits divided into clear blocks
- M2 signal jack

BASIC EXPERIMENT MODULE ON ALGORITHM AMPLIFIER 2 TPAQ.D0200

- Box size: 173x169x25mm (LxWxH)
- Power supply: 0 ~ +15VDC
- Thysistor 20A/800V
- 3-pin UJT TO-18
- Adjustable rheostat: 0 ~ 10KΩ
- Black anodized aluminum case
- Practice circuits divided into clear blocks
- M2 signal jack

BASIC EXPERIMENT MODULE ON ALGORITHM AMPLIFIER 3 TPAQ.D0200

- Box size: 173x169x25mm (LxWxH)
- Power supply: 0 ~ +15VDC
- Thysistor 20A/800V
- 3-pin UJT TO-18
- Adjustable rheostat: 0 ~ 10KΩ
- Black anodized aluminum case
- Practice circuits divided into clear blocks
- M2 signal jack

ETEK
TOTAL AUTOMATION SOLUTIONS

14 APPLICATIONS OF AMPLIFIER ALGORITHM EXPERIMENT KIT
ST.BE.A0013

GENERAL TECHNICAL SPECIFICATIONS

- Box size: 173x169x25mm (LxWxH)
- Quality Management Standard ISO 9001:2015
- Designed as separate modules with the same connection standard
- Black aluminum box style, molded plastic lid
- The printing pattern guides the printing of the film on the module surface, ensuring aesthetics, longevity of the device

HIGHLIGHTS FEATURES

- The practice set helps students improve their theoretical knowledge of power source circuits
- Theory of DC rectifier circuit using controlled half-wave/ full-wave SCR
- SCR trigger circuit by UJT, AC voltage regulator circuit by Triac
- The circuit board has built-in components and intuitive, easy-to-understand circuit diagrams

TRAINING CONTENT

- Learn the principles and practice with full-wave, integral, and differential diode control circuits
- Learn the principles and practice with low-pass, high-pass,and equal-pass filter circuits
- Learn the principles and practice of limiter, latch, and sampling circuits
- Learn the principles, practice with window comparator circuits
- Basic characteristics and parameters of operational amplifiers

SKILLS ACHIEVED

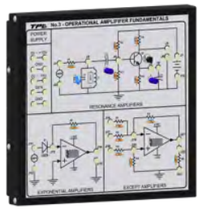
- Verify the theories you have learned
- Calculate and design basic electronic circuits
- Understand the uses and application scope of each circuit
- Know how to measure, detect errors and fix circuit errors

EXPERIMENTAL MODULE OF APPLICATIONS OF ALGORITHM AMPLIFIER 1 TPAQ.D1000

- Box size: 173x169x25mm (LxWxH)
- Power supply: ±5VDC, 0 ~ ±15VDC
- Adjustable rheostat: 0 ~ 10KΩ
- Operational amplifier IC power supply ±18V
- Black anodized aluminum case
- Practice circuits divided into clear blocks
- M2 signal jack

EXPERIMENTAL MODULE OF APPLICATIONS OF ALGORITHM AMPLIFIER 2 TPAQ.D1100

- Box size: 173x169x25mm (LxWxH)
- Power supply: 12VAC, 0 ~ ±15VDC
- Adjustable rheostat: 0 ~ 10KΩ
- Operational amplifier IC power supply ±18V
- Black anodized aluminum case
- Practice circuits divided into clear blocks
- M2 signal jack



EXPERIMENTAL MODULE OF APPLICATIONS OF ALGORITHM AMPLIFIER 3 TPAQ.D1200

- Box size: 173x169x25mm (LxWxH)
- Power supply: 0 ~ ±15VDC
- Adjustable rheostat: 0 ~ 10KΩ
- Operational amplifier IC power supply ±16VDC
- Black anodized aluminum case
- Practice circuits divided into clear blocks
- M2 signal jack

15 BASIC FET TRANSISTOR EXPERIMENT SET
ST.BE.A0017

GENERAL TECHNICAL SPECIFICATIONS

- Box size: 173x169x25mm (LxWxH)
- Quality Management Standard ISO 9001:2015
- Designed as separate modules with the same connection standard
- Black aluminum box style, molded plastic lid
- The printing pattern guides the printing of the film on the module surface, ensuring aesthetics, longevity of the device

HIGHLIGHTS FEATURES

- The practice set helps students improve their theoretical knowledge of FET circuits
- Hartley/ Colpitts JFET circuit
- MOSFET circuit, fiber optic sensor circuit
- The circuit board has built-in components and intuitive, easy-to-understand circuit diagrams

TRAINING CONTENT

- Learn the principles and practice with circuits amplifier of JFET, JFET CURRENT
- Practice DC source current/load voltage variation operation with JFET
- Learn principles and practice with Colpitts and HARTLEY oscillator circuits
- Learn the principles and practice with thermistor, photoresistor, and fiber optic transceiver circuits
- Learn the principles and practice of waveform generation and control characteristics using UJT and MOSFET

SKILLS ACHIEVED

- Verify the theories you have learned
- Calculate and design basic electronic circuits
- Understand the uses and application scope of each circuit
- Know how to measure, detect errors and fix circuit errors

TRANSISTOR FET BASIC EXPERIMENT MODULE 1 TPAQ.B5000

- Box size: 173x169x25mm (LxWxH)
- Power supply: ±5VDC, 0 ~ ±15V
- Adjustable rheostat: 0 ~ 10KΩ
- Black anodized aluminum case
- Practice circuits divided into clear blocks
- M2 signal jack

TRANSISTOR FET BASIC EXPERIMENT MODULE 2 TPAQ.B5100

- Box size: 173x169x25mm (LxWxH)
- Power supply: 12VAC, 0 ~ ±15V
- Adjustable rheostat: 0 ~ 10KΩ
- Black anodized aluminum case
- Practice circuits divided into clear blocks
- M2 signal jack

ETEK
TOTAL AUTOMATION SOLUTIONS

16 ANALOG ELECTRONICS BASIC EXPERIMENT SET
ST.BE.A0023

GENERAL TECHNICAL SPECIFICATIONS

- Box size: 173x169x25mm (LxWxH)
- Quality Management Standard ISO 9001:2015
- Designed as separate modules with the same connection standard
- Black aluminum box style, molded plastic lid
- The printing pattern guides the printing of the film on the module surface, ensuring aesthetics, longevity of the device

HIGHLIGHTS FEATURES

- The practice set helps students improve their knowledge of circuit theory
- Analog switching circuit
- Analog amplifier circuits, oscillator circuits
- The circuit board has built-in components and intuitive, easy-to-understand circuit diagrams

TRAINING CONTENT

- Learn the principles and practice of analog switching circuits using 4051, 4066
- Learn the principles and practice of signal amplifier circuits using LM358, BJT2N3904
- Learn the principles and practice of the PNP transistor amplifier circuit using the 2N3906 transistor
- Learn the principles and practice of logarithmic amplification using IC LM358
- Learn the principles and practice of the transformer coupled Armstrong oscillator, LC resonance

SKILLS ACHIEVED

- Verify the theories you have learned
- Calculate and design basic electronic circuits
- Understand the uses and application scope of each circuit
- Know how to measure, detect errors and fix circuit errors

ANALOG TECHNICAL BASIC EXPERIMENT MODULE 1 TPAQ.C5000

- Box size: 173x169x25mm (LxWxH)
- Power supply: ±5VDC, 0 ~ ±15VDC
- Adjustable rheostat: 0 ~ 10KΩ
- Operational amplifier IC power supply ±18V
- Black anodized aluminum case
- Practice circuits divided into clear blocks
- M2 signal jack

ANALOG TECHNICAL BASIC EXPERIMENT MODULE 2 TPAQ.C5100

- Box size: 173x169x25mm (LxWxH)
- Power supply: +5VDC, +12V
- Adjustable rheostat
- Black anodized aluminum case
- Practice circuits divided into clear blocks
- M2 signal jack

ANALOG TECHNIQUE BASIC EXPERIMENT MODULE 3 TPAQ.C5200

- Box size: 173x169x25mm (LxWxH)
- Power supply: +5VDC, +12V
- Adjustable rheostat
- Black anodized aluminum case
- Practice circuits divided into clear blocks
- M2 signal jack

17 DIGITAL PRACTICE SET
ST.BE.B0100

GENERAL TECHNICAL SPECIFICATIONS

- Box size: 173x169x25mm (LxWxH)
- Quality Management Standard ISO 9001:2015
- Designed as separate modules with the same connection standard
- Black aluminum box style, molded plastic lid
- The printing pattern guides the printing of the film on the module surface, ensuring aesthetics, longevity of the device

HIGHLIGHTS FEATURES

- The practice set helps students improve their knowledge
- Logic gates, flip-flops, TTL/ CMOS
- Encode/decode, ADC/DAC, counter, bit shift, multiplexing /demultiplexing, ROM / RAM / SRAM / EEPROM memory
- The circuit board has built-in components and intuitive, easy-to-understand circuit diagrams

TRAINING CONTENT

- Learn circuit principles and practice with MULTIPLEXER multiplexing and DEMULTIPLEXER multiplexing circuits
- Learn the principles and practice with BCD/DECIMAL, BCD PRIORITY circuits
- Learn the principles and practice with ADC/DAC conversion circuits
- Learn the principles and practice with the 7-SEGMENT DRIVER/DISPLAY circuit
- Learn the principles and practice with the ASYNCHRONOUS RIPPLE COUNTER circuit

SKILLS ACHIEVED

- Verify the theories you have learned
- Calculate and design basic electronic circuits
- Understand the uses and application scope of each circuit
- Know how to measure, detect errors and fix circuit errors

BASIC EXPERIMENT MODULE ON LOGIC CIRCUIT NO. 1 TPAQ.E0300

- Box size: 173x169x25mm (LxWxH)
- Power supply: +5VDC
- Pulse level input pin
- Led display output
- Black anodized aluminum case
- Practice circuits divided into clear blocks
- M2 signal jack

BASIC EXPERIMENT MODULE ON LOGIC CIRCUIT NO. 2 TPAQ.E0400

- Box size: 173x169x25mm (LxWxH)
- Power supply: +5VDC
- Pulse level input pin
- Led display output
- Black anodized aluminum case
- Practice circuits divided into clear blocks
- M2 signal jack

BASIC EXPERIMENT MODULE ON LOGIC CIRCUIT NO. 3 TPAQ.E0500

- Box size: 173x169x25mm (LxWxH)
- Power supply: +5VDC, 0-15V
- Pulse level input pin
- Led display output
- Black anodized aluminum case
- Practice circuits divided into clear blocks
- M2 signal jack

ETEK
TOTAL AUTOMATION SOLUTIONS

BASIC EXPERIMENT MODULE ON CIRCUIT NO. 1 - CIRCUIT 1 TPAQ.E1400

- Box size: 173x169x25mm (LxWxH)
- Power supply: +5VDC, 0-15V
- Pulse level input pin
- Led display output
- Black anodized aluminum case
- Practice circuits divided into clear blocks
- M2 signal jack

BASIC EXPERIMENT MODULE ON CIRCUIT NO. 1 - CIRCUIT 2 TPAQ.E1500

- Box size: 173x169x25mm (LxWxH)
- Power supply: +5VDC, 0-15V
- Pulse level input pin
- Led display output
- Black anodized aluminum case
- Practice circuits divided into clear blocks
- M2 signal jack

BASIC EXPERIMENT MODULE ON DIGITAL CIRCUITS 2 TPAQ.E1600

- Box size: 173x169x25mm (LxWxH)
- Power supply: +5VDC
- Pulse level input pin
- Led display output
- Black anodized aluminum case
- Practice circuits divided into clear blocks
- M2 signal jack

BASIC DIGITAL EXPERIMENT MODULE 1 TPAQ.E2000

- Box size: 173x169x25mm (LxWxH)
- Power supply: +5VDC
- +5VDC data latch IC
- Johnson counter IC with +5VDC decoding output
- The counter IC presets the count
- Black anodized aluminum case
- Practice circuits divided into clear blocks
- M2 signal jack

BASIC DIGITAL EXPERIMENT MODULE 2 TPAQ.E2100

- Box size: 173x169x25mm (LxWxH)
- Power supply: +5VDC
- Synchronous counter IC with +5VDC power supply
- IC decoder 8 -3 +5VDC power supply
- C decoding and demultiplexing 3-8
- Black anodized aluminum case
- Practice circuits divided into clear blocks
- M2 signal jack

DIGITAL BASIC EXPERIMENT MODULE 3 TPAQ.E2200

- Box size: 173x169x25mm (LxWxH)
- Power supply: +5VDC
- 2-1 multiplexer
- Decoder 2-4
- Channel divider 2-4
- 4-bit Johnson counter
- M2 signal jack

ROM SKILLS EXPERIMENT MODULE TPAQ.G0100

- Box size: 173x169x25mm (LxWxH)
- Power supply: 5VDC
- Black anodized aluminum case
- Practice circuits divided into clear blocks
- M2 signal jack

RAM MEMORY SKILLS EXPERIMENT MODULE TPAQ.G1000

- Box size: 173x169x25mm (LxWxH)
- Power supply: 5VDC
- Black anodized aluminum case
- Practice circuits divided into clear blocks
- M2 signal jack

SKILLS ON EEPROM AND SRAM MEMORY EXPERIMENT MODULE TPAQ.G2000

- Box size: 173x169x25mm (LxWxH)
- Power supply: 5VDC
- Black anodized aluminum case
- Practice circuits divided into clear blocks
- M2 signal jack

ETEK
TOTAL AUTOMATION SOLUTIONS

18 PULSE TECHNIQUE PRACTICE SET
ST.BE.B0110

GENERAL TECHNICAL SPECIFICATIONS

- Box size: 173x169x25mm (LxWxH)
- Quality Management Standard ISO 9001:2015
- Designed as separate modules with the same connection standard
- Black aluminum box style, molded plastic lid
- The printing pattern guides the printing of the film on the module surface, ensuring aesthetics, longevity of the device

HIGHLIGHTS FEATURES

- The practice set helps students improve their theoretical knowledge of FET circuits
- Hartley/Colpitts JFET circuit
- MOSFET circuit, fiber optic sensor circuit
- The circuit board has built-in components and intuitive, easy-to-understand circuit diagrams

TRAINING CONTENT

- Learn the principles and practice with monostable, astable, bistable oscillator circuits using OP-AMP
- Learn the principles and practice with frequency to voltage conversion circuits, converting voltage to frequency
- Practice pulse generator circuit using UJT, IC74112
- Practice pulse reduction circuit, multi vibrator
- Practice creating pulses with the IC555 chip
- Learn the principles and practice with Wien bridge circuits, trimmer circuits, pin circuits, integral and differential circuits

SKILLS ACHIEVED

- Verify the theories you have learned
- Calculate and design basic electronic circuits
- Understand the uses and application scope of each circuit
- Know how to measure, detect errors and fix circuit errors

PULSE TECHNICAL EXPERIMENT MODULE 1 TPAQ.B5000

- Box size: 173x169x25mm (LxWxH)
- Power supply: ±5VDC, 0 ~ ±15V
- Adjustable rheostat
- Black anodized aluminum case
- Practice circuits divided into clear blocks
- M2 signal jack

PULSE TECHNICAL EXPERIMENT MODULE 2 TPAQ.B5100

- Box size: 173x169x25mm (LxWxH)
- Power supply: ±5VDC, 0 ~ ±15V
- Adjustable rheostat
- Black anodized aluminum case
- Practice circuits divided into clear blocks
- M2 signal jack

PULSE TECHNICAL EXPERIMENT MODULE 3 TPAQ.E0300

- Box size: 173x169x25mm (LxWxH)
- Power supply: ±5VDC, 0 ~ ±15V
- Adjustable rheostat
- Black anodized aluminum case
- Practice circuits divided into clear blocks
- M2 signal jack

PULSE TECHNICAL EXPERIMENT MODULE 4 TPAQ.E0400

- Box size: 173x169x25mm (LxWxH)
- Power supply: ±5VDC, 0 ~ ±15V
- Adjustable rheostat
- Black anodized aluminum case
- Practice circuits divided into clear blocks
- M2 signal jack

PULSE TECHNICAL EXPERIMENT MODULE 5 TPAQ.E0500

- Box size: 173x169x25mm (LxWxH)
- Power supply: ±5VDC, 0 ~ ±15V
- Adjustable rheostat
- Black anodized aluminum case
- Practice circuits divided into clear blocks
- M2 signal jack

ETEK
TOTAL AUTOMATION SOLUTIONS

19 ANALOG ELECTRONIC CIRCUIT ASSEMBLY PRACTICE KIT
ST.BE.C0200

GENERAL TECHNICAL SPECIFICATIONS

- Identify electronic components and digital ICs commonly used in practice
- The device will guide students to visualize the function of the circuit to be tested visually through a circuit diagram that has been printed on a cardboard cover. Students will place these covers on the test board and plug them in according to the diagram on the cover
- Electronics theory will be taught directly in the accompanying documents

HIGHLIGHTS FEATURES

- The practice set includes individual wires and components for students to plug into complete circuits on the plug board
- Help students gain a deeper understanding of analog electronic circuits
- Attached is a theoretical guide to analog circuits

TRAINING CONTENT

- Semiconductor, light-emitting diode in 1-way circuit
- Semiconductor diodes in AC circuits, half-cycle and full-cycle rectifiers
- Use bridge diodes in DC and AC circuits
- Filter circuit, adjusting one-way pulse source
- The power circuit uses a PI filter
- Voltage multiplier circuit uses diode and capacitor
- Common E current amplifier circuit, stage amplifier, Single-End type audio amplifier
- Pull-push type audio amplifier circuit, pull-push symmetric compensation amplifier
- Zero-Phase oscillator circuit, phase shift
- Oscillator circuits ARMSTRONG, Hartley, Colpitts
- Digital circuits of AND, OR, OR– AND gates
- NAND and NOR digital circuits
- Inverting circuit, adding circuit

SKILLS ACHIEVED

- Verify the theories you have learned
- Calculate and design basic electronic circuits
- Understand the uses and application scope of each circuit
- Proficient in assembling components and separate wires into electronic circuits on plug-in circuits
- Know how to measure, detect errors and fix circuit errors

20 DIGITAL ELECTRONIC CIRCUITS ASSEMBLY PRACTICE KIT
ST.BE.C0210

GENERAL TECHNICAL SPECIFICATIONS

- Identify electronic components and digital ICs commonly used in practice
- The device will guide students to visualize the function of the circuit to be tested visually through a pre-printed circuit diagram on a cardboard and plug it in according to the diagram on the cardboard.
- Teach students electronic circuits instead of focusing on assembling other components

HIGHLIGHTS FEATURES

- The practice set includes individual wires and components for students to plug into complete circuits on the plug board
- Help students gain a deeper understanding of digital electronic circuits
- Attached is a theoretical guide to digital circuits

TRAINING CONTENT

- Basic logic functions, Demoorgan theorems 1, 2, 3, 4
- Boolean algebra and simplifying logical expressions 1, 2 ,3, 4, 5, 6
- Definition and operation of TTL NAND/NOR gate 1, 2
- XOR logic function and its applications 1 - 7
- Full adder and full subtractor 1, 2, 3, 4, 5
- Binary counter and binary number system 1, 2
- Divide by -n counter and decimal counter 1 - 5
- Random access memory working memory area
- Digital-to-digital (D/A) and digital-to-digital (A/D) converters 1-2

SKILLS ACHIEVED

- Verify the theories you have learned
- Calculate and design basic electronic circuits
- Understand the uses and application scope of each circuit
- Proficient in assembling components and separate wires into electronic circuits on plug-in circuits
- Know how to measure, detect errors and fix circuit errors

ETEK
TOTAL AUTOMATION SOLUTIONS

21 FTTX PRACTICE SYSTEM
TPAR.B0710

GENERAL TECHNICAL SPECIFICATIONS

- Box size: 330 x 264 x 110mm (WxDxH)
- Quality Management Standard ISO 9001:2015
- Input power supply for module: 220VAC/50Hz
- Communication range up to 40m
- Module design uses standard plastic box
- Printing type instructs film printing on the module face

HIGHLIGHTS FEATURES

- The practice set includes fiber optic cables, optical connection ports and optical splitter ports for students to learn how to connect into a complete fiber optic network.
- There are optical connection ports with noise so students can know the effects of noise on fiber optic networks

TRAINING CONTENT

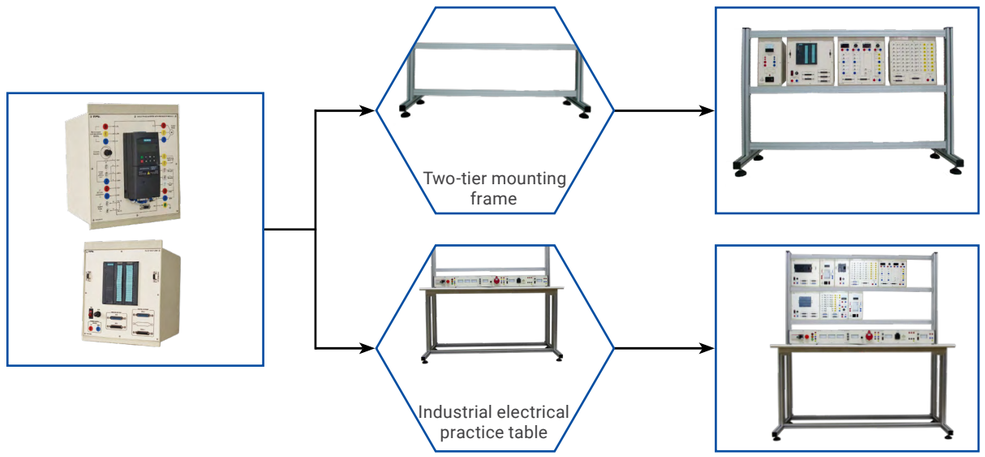
- Gate splitter block: 1x4, 1x8, 1x16
- Error checking practice block, RF settings block
- Converter block to Ethernet port
- Draw technology diagrams for practice exercises
- Handheld RF receiver
- Operating band standard: RF 2.4 GHz
- Led indicates connection status

SKILLS ACHIEVED

- Verify the theories you have learned
- Calculate and design basic electronic circuits
- Understand the uses and application scope of each circuit
- Proficient in assembling components and separate wires into electronic circuits on plug-in circuits
- Know how to measure, detect errors and fix circuit errors

B POWER ELECTRONICS

A4 MODULE DESIGN SOLUTION



TRAINING SPECIALIZATION

POWER ELECTRONICS SPECIALIZED EQUIPMENT

Teacher control panel | Module storage cabinet | Mobile material rack | Cable hanger | Other auxiliary equipment

TRAINING EQUIPMENT LIST

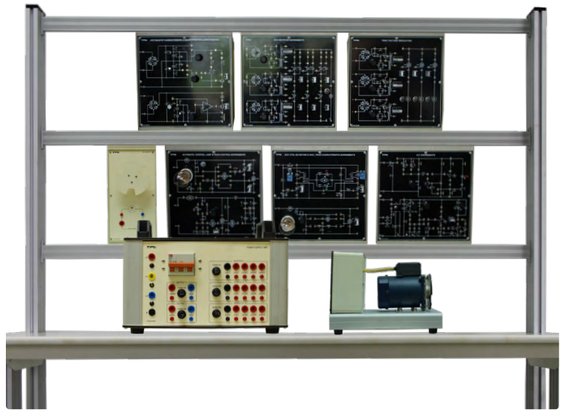
NO	NAME	SERI
1	Power Electronics Component Practice Kit	ST.PE.E0901
2	High Voltage Power Electronics Practice Kit	ST.PE.E0101
3	Inverter and PWM Converter Principles Training Kit (Single-phase, Three-phase)	ST.PE.E0601
4	Electronic Switch Practice Kit (Power Semiconductor Switch)	ST.PE.E0401
5	Uncontrolled Power Rectifier Practice Kit	ST.PE.E0201
6	Controlled Power Rectifier Practice Kit	ST.PE.E0202
7	AC Voltage Regulation Practice Kit	ST.PE.E0402
8	Controlled Inverter Practice Kit	ST.PE.E0301

TRAINING CONTENT

- The Electrical Machine Practice Room is designed for teaching integrated practical applications, specifically for: Analyzing structure, operation principles, and functions of equipment such as transformers, single-phase and three-phase AC motors, DC motors, and generators.
- Calculating parameters, rewinding, and repairing: transformers, electric motors, and generators. The room is equipped with training devices, including various electrical machines, tools for practice in repairs, and winding for electrical machines.

ETEK
TOTAL AUTOMATION SOLUTIONS

1 POWER ELECTRONICS COMPONENT PRACTICE KIT
ST.PE.E0901



TRAINING CONTENT

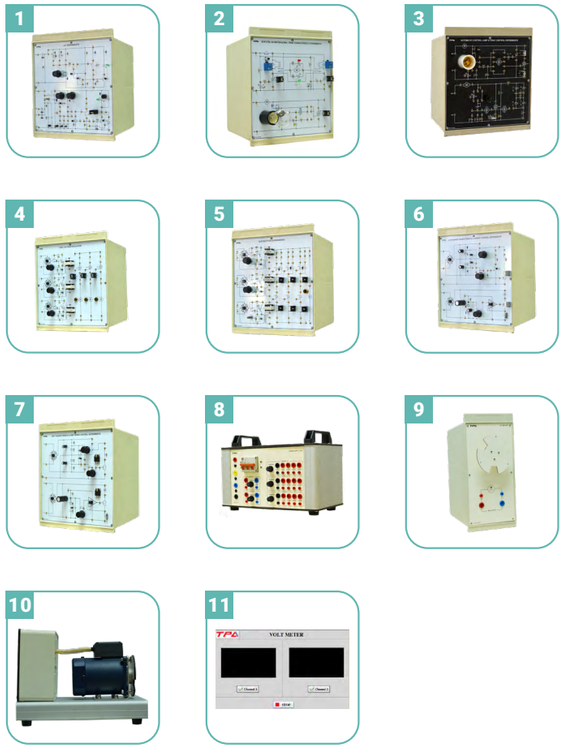
- Experiments with UJT, SCR, DIAC, and TRIAC
- Experiment on automatic light adjustment and AC motor speed control using TRIAC
- Experiment with rectifier circuits using SCR
- Experiment with JFET and MOSFET
- Experiment with IGBT

SKILLS ACHIEVED

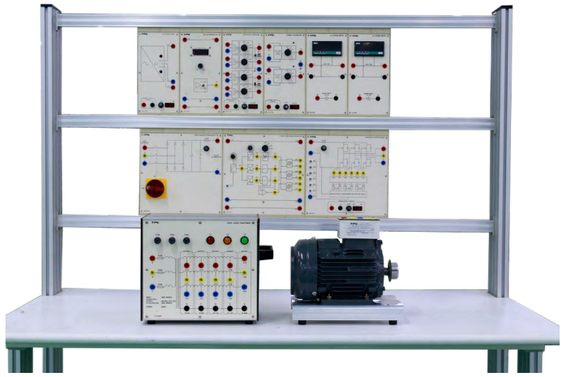
- Understand the structure, function, and control methods of semiconductor switches.
- Grasp the principles and operation of rectifier circuits.
- Understand the principles and operation of AC voltage control circuits.
- Gain skills in using measurement tools.
- Recognize control waveforms and output waveforms of converters

TRAINING EQUIPMENT LIST

NO.	NAME	SERI
1	UJT Experiment Module	TPAD.P7501
2	01 SCR Experiment Module	TPAD.P7601
3	01 DIAC and TRIAC Experiment Module	TPAD.P7701
4	01 Voltage Adjustment Experiment Module using TRIAC	TPAD.P7801
5	01 Rectifier Circuit Experiment Module using SCR	TPAD.P7901
6	01 JFET and MOSFET Experiment Module	TPAD.P8001
7	01 IGBT Experiment Module	TPAD.P8101
8	01 Power Electronics Power Supply	TPAD.E4601
9	01 DC Motor Training Module (DC24V/25W Type)	TPAD.E7001
10	01 AC Motor Training Module (Single-phase squirrel-cage rotor 25W/24VAC)	TPAD.E6401
11	01 Waveform Measurement and Display Unit	EDUX1002A



2 TRAINING KIT FOR INVERTER AND PWM INVERTER PRINCIPLES (1-PHASE, 3-PHASE)
ST.PE.E0601



TRAINING CONTENT

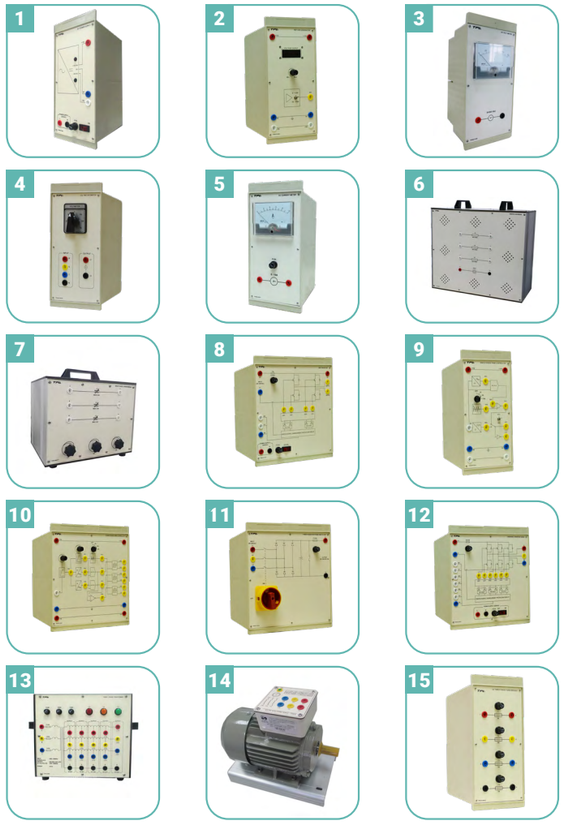
- Understand the principles of converters and the function of each stage in the circuit.
- Grasp the pulse waveform and control pulse generation rules.
- Learn measurement and circuit analysis methods.
- Use electrical measuring instruments.
- Acquire skills in electrical safety.

SKILLS ACHIEVED

- Basic characteristics of inverters and principles of frequency conversion
- Practice with 1-phase PWM control circuit
- Practice with 3-phase PWM control circuit

TRAINING EQUIPMENT LIST

NO.	NAME	SERI
1	01 DC Power Module (Symmetrical DC15V)	TPAD.P1001
2	01 Reference Voltage Generator Module	TPAD.P1003
3	01 AC Voltage Meter Training Module	TPAD.I1104
4	01 Switching Module Training	TPAD.C8010
5	03 AC Current Meter Training Modules	TPAD.I0101
6	01 Three-Phase Resistive Load Training Module	TPAD.B0221
7	01 Inductive Load Training Module	TPAD.B0421
8	01 Single-Phase Power Bridge Module (IGBT)	TPAD.P1012
9	01 Single-Phase PWM Inverter Control Module	TPAD.P1014
10	01 Three-Phase PWM Inverter Control Module	TPAD.P1015
11	01 Three-Phase Bridge Rectifier Training Module	TPAD.P1016
12	01 Three-Phase Power Bridge Module	TPAD.P1017
13	01 Transformer Training Module (Isolation Transformer)	TPAD.E4804
14	01 AC Motor Training Module	TPAD.E6101
15	01 Fuse Training Module	TPAD.C6701



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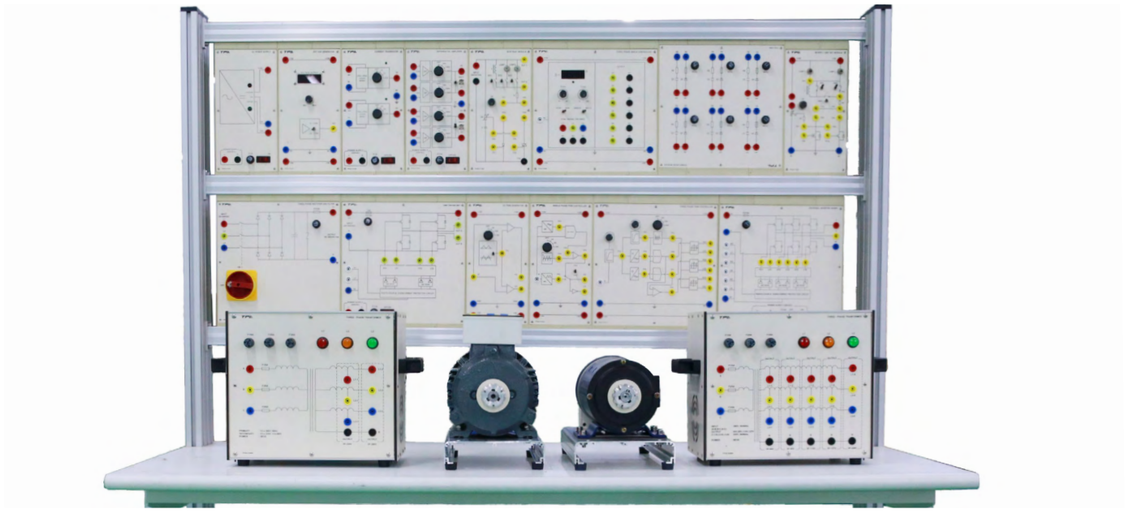
3 HIGH VOLTAGE POWER ELECTRONICS PRACTICE KIT
ST.PE.E0101



TRAINING CONTENT

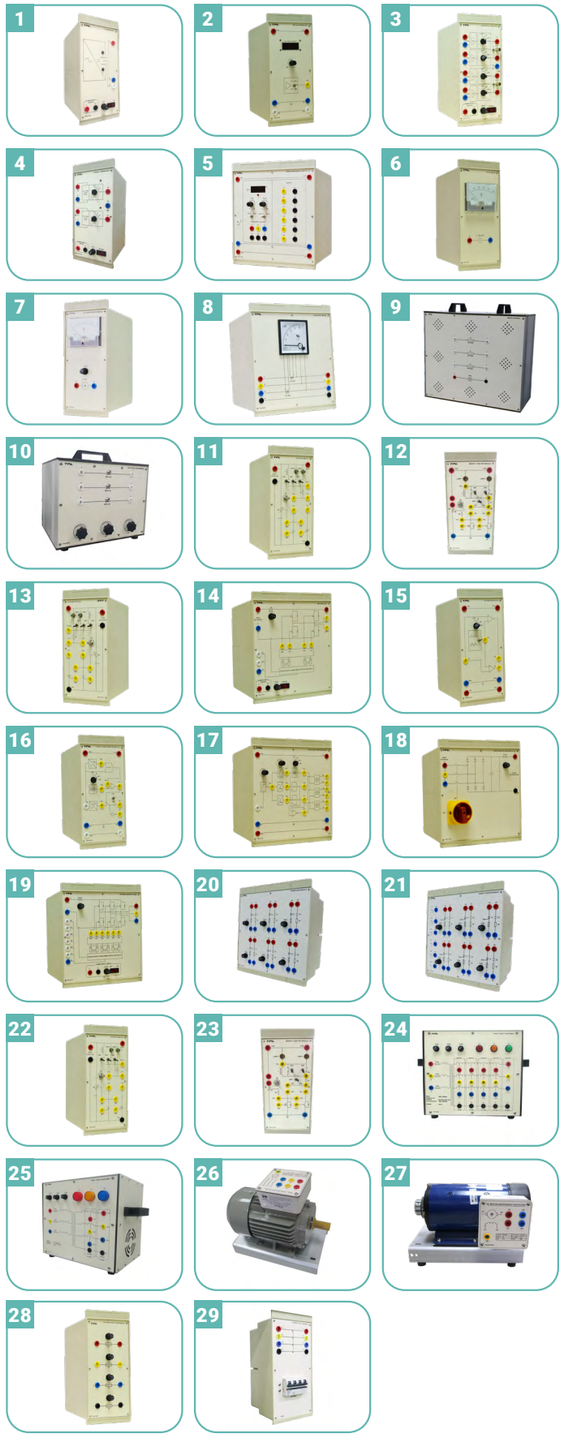
- Understand the structure and operating principles of power devices, and methods for controlling them.
- Grasp the circuit principles of practical converters.
- Learn measurement and circuit analysis techniques.
- Gain skills in signal connection and processing.
- Measurement techniques and signal conversion for high voltage measurements.
- Use of electrical measuring instruments.
- Troubleshooting and handling power circuit issues.
- Electrical safety skills.

SKILLS ACHIEVED

- Basic measurements and characteristics of power electronic components
- Single-phase/three-phase rectification (AC-DC)
- Phase control (AC-AC)
- Single-phase/three-phase inverter (AC-DC-AC)
- DC voltage conversion

TRAINING EQUIPMENT LIST

NO.	NAME	SERI
1	01 DC Power Module (Symmetrical DC15V)	TPAD.P1001
2	01 Reference Voltage Generator Module	TPAD.P1003
3	01 Differential Amplifier Module	TPAD.P1004
4	01 Current/Voltage Conversion Module	TPAD.P1005
5	01 Three-Phase Phase Angle Adjustment Module	TPAD.P1006
6	01 DC Voltage Meter Module	TPAD.I1301
7	01 DC Current Meter Module	TPAD.I0301
8	01 Power Meter Module	TPAD.I2501
9	01 Three-Phase Resistive Load Training Module	TPAD.B0221
10	01 Inductive Load Training Module	TPAD.B0421
11	01 Boost DC Voltage Conversion Module	TPAD.P1008
12	01 Buck DC Voltage Conversion Module	TPAD.P1009
13	01 Buck-Boost DC Voltage Conversion Module	TPAD.P1010
14	01 Single-Phase Power Bridge Module (IGBT)	TPAD.P1012
15	01 DC Pulse Width Modulation (PWM) Control Module	TPAD.P1013
16	01 Single-Phase PWM Inverter Control Module	TPAD.P1014
17	01 Three-Phase PWM Inverter Control Module	TPAD.P1015
18	01 Three-Phase Bridge Rectifier Training Module	TPAD.P1016
19	01 Three-Phase Power Bridge Module	TPAD.P1017
20	01 Diode Training Module (Power Diode)	TPAD.P3060
21	01 Thyristor Training Module (Power Thyristor)	TPAD.P3050
22	01 SCR/TRIAC Training Module	TPAD.P1040
23	01 MOSFET/IGBT Training Module	TPAD.P1050
24	01 Transformer Training Module (Isolation Transformer)	TPAD.E4804
25	01 Three-Phase AC Power Module (220/380VAC Isolation)	TPAD.E4805
26	01 AC Motor Training Module	TPAD.E6101
27	01 DC Motor Module	TPAD.E6501
28	01 Fuse Training Module	TPAD.C6701
29	01 Three-Phase Circuit Breaker Training Module	TPAD.C1330



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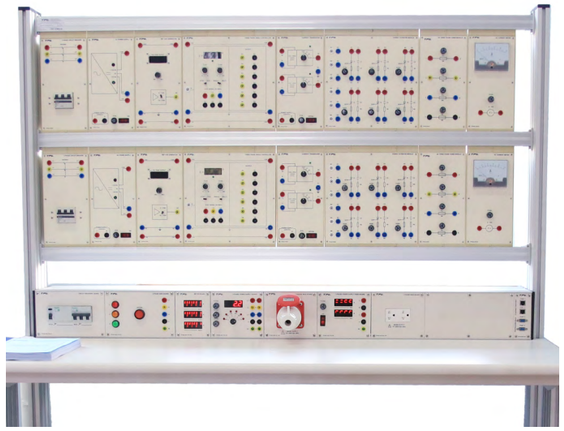
4 ELECTRONIC SWITCH PRACTICE KIT(POWER SEMICONDUCTOR SWITCHES)
ST.PE.E0401



TRAINING CONTENT

- Understand the structure and operating principles of power switches.
- Methods for controlling power switches.
- Familiarity with the practical applications of different power switches, along with the advantages and disadvantages of each type.
- Electrical safety skills.

SKILLS ACHIEVED

- Measurement and characteristics of SCR
- Measurement and characteristics of TRIAC
- Measurement and characteristics of IGBT
- Measurement and characteristics of MOSFET
- Measurement and characteristics of DIODE
- Measurement and characteristics of TRANSISTOR

TRAINING EQUIPMENT LIST

NO.	NAME	SERI
1	01 Symmetrical DC15V Power Supply Module	TPAD.P1001
2	01 Transformer Training Module	TPAD.E4112
3	01 SCR/TRIAC Training Module	TPAD.P1040
4	01 MOSFET/IGBT Training Module	TPAD.P1050
5	01 DIODE/TRANSISTOR Experiment Module	TPAD.P1080

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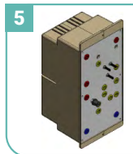

5 UNCONTROLLED POWER RECTIFIER PRACTICE KIT
ST.PE.E0201

TRAINING CONTENT

- Understand the principles of rectifier circuits using diodes.
- Learn how to measure and analyze circuits.
- Methods for signal conversion and isolation in high-voltage measurement.
- Use of electrical measurement tools.
- Electrical safety skills.

SKILLS ACHIEVED

- Single-phase half-wave rectification
- Single-phase full-wave rectification
- •Single-phase bridge rectification
- Three-phase star rectification
- Three-phase bridge rectification

TRAINING EQUIPMENT LIST

NO.	NAME	SERI
1	01 Three-Phase Circuit Breaker Training Module	TPAD.C1350
2	01 Diode Training Module	TPAD.P3060
3	01 AC Power Supply Module	TPAD.E4805
4	01 Transformer Training Module	TPAD.E4804
5	01 Differential Amplifier Module	TPAD.P1004
6	01 Current/Voltage Conversion Module	TPAD.P1005
7	01 Fuse Training Module	TPAD.C6701
8	01 DC Voltage Meter Training Module	TPAD.I1301
9	01 DC Ammeter Training Module	TPAD.I0301
10	01 Three-Phase Resistive Load Training Module	TPAD.B0221
11	01 Inductive Load Training Module	TPAD.B0421
12	01 DC Motor Training Module	TPAD.E6501

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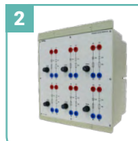
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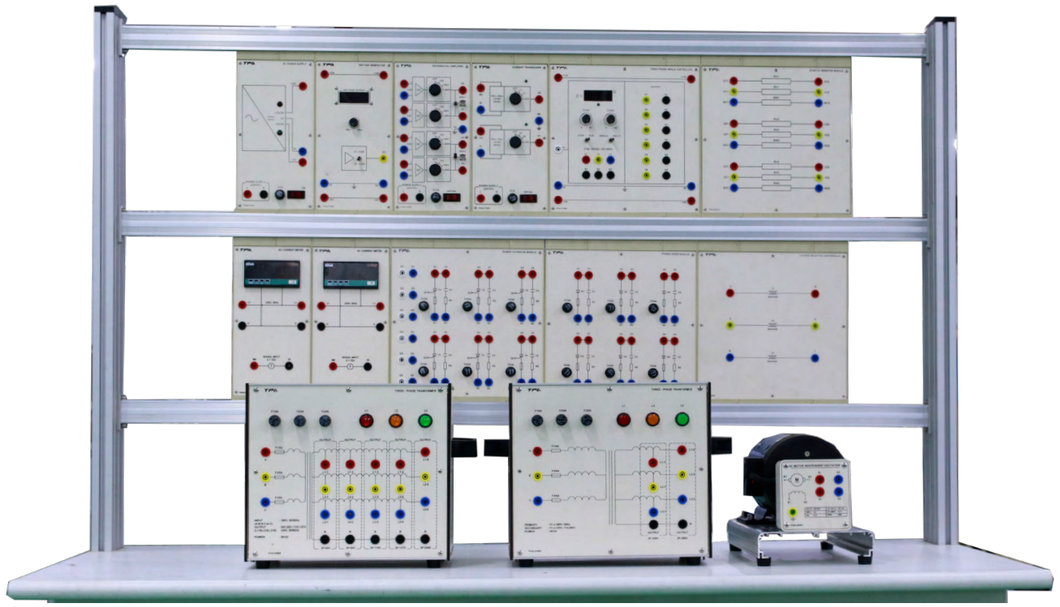
6 CONTROLLED POWER RECTIFIER PRACTICE KIT
ST.PE.E0202



TRAINING CONTENT

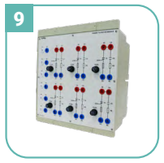
- Understand the principles of controlled rectifier circuits using Thyristors.
- Generation of control pulses for rectification and signal waveform analysis.
- Measurement and circuit analysis techniques.
- Understand the impact of inductive loads on controlled rectifier circuits.
- Signal conversion and isolation methods in high-voltage measurement.
- Use of electrical measurement tools.
- Electrical safety skills.

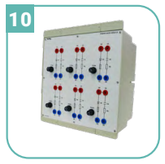
SKILLS ACHIEVED

- Overview of power rectifier control circuits
- Uncontrolled single-phase half-wave and full-wave rectification (half-wave and full-wave rectification)
- Controlled single-phase half-wave and full-wave rectification
- Symmetrical and asymmetrical semi-controlled single-phase full-wave rectification
- Uncontrolled three-phase star and full-wave rectification
- Controlled three-phase star rectification
- Semi-controlled and fully controlled three-phase full-wave rectification

TRAINING EQUIPMENT LIST

NO.	NAME	SERI
1	01 Three-Phase Circuit Breaker Training Module	TPAD.C1350
2	01 AC Power Supply Module	TPAD.E4805
3	01 Transformer Training Module	TPAD.E4804
4	01 DC Power Supply Module (Symmetrical DC15V)	TPAD.P1001
5	01 Reference Voltage Generation Module	TPAD.P1003
6	01 Three-Phase Phase Angle Control Module	TPAD.P1006
7	01 Differential Amplifier Module	TPAD.P1004
8	01 Current/Voltage Conversion Module	TPAD.P1005
9	01 Thyristor Training Module	TPAD.P3050
10	01 Diode Training Module	TPAD.P3060
11	01 Fuse Training Module	TPAD.C6701
12	01 DC Voltage Meter Training Module	TPAD.I1301
13	01 DC Ammeter Training Module	TPAD.I0301
14	01 Three-Phase Resistive Load Training Module	TPAD.B0221
15	01 Inductive Load Training Module	TPAD.B0421
16	01 DC Motor Training Module	TPAD.E6501





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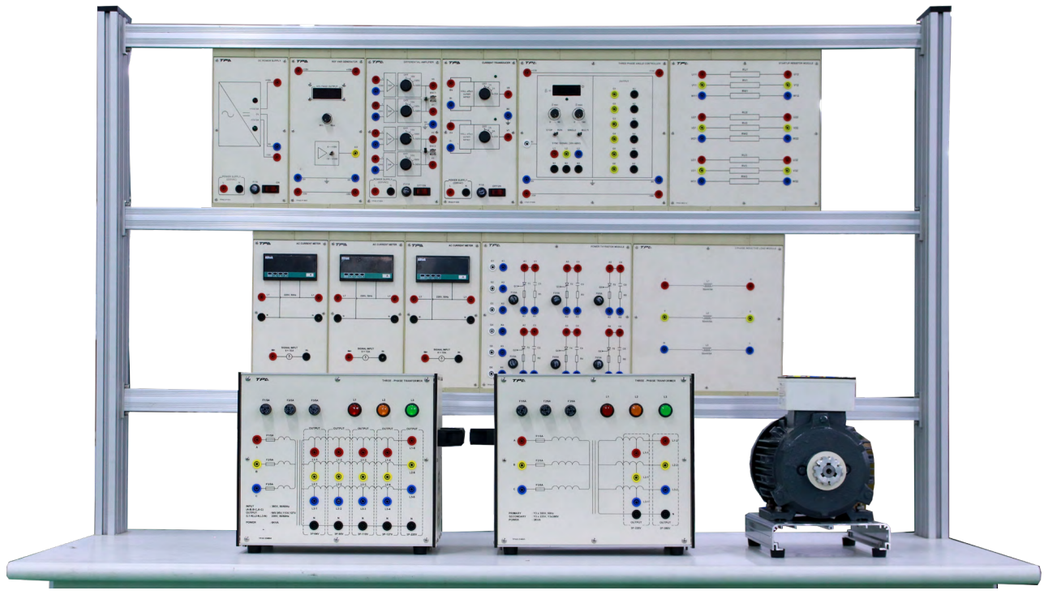
7 AC VOLTAGE REGULATION PRACTICE KIT
ST.PE.E0402



TRAINING CONTENT

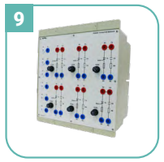
- Understand the principles of AC voltage regulation circuits using thyristors.
- Generation of control pulses for AC and signal waveform analysis.
- Techniques for measuring and analyzing circuits.
- Understand the impact of inductive loads on AC voltage regulation circuits.
- Signal conversion and isolation methods in high-voltage measurement.
- Use of electrical measurement tools.
- Electrical safety skills.

SKILLS ACHIEVED

- General concepts of AC voltage regulation.
- Single-phase AC voltage control.
- Three-phase AC voltage control.

TRAINING EQUIPMENT LIST

NO.	NAME	SERI
1	01 Three-Phase Circuit Breaker Training Module	TPAD.C1350
2	01 AC Power Supply Module	TPAD.E4805
3	01 Transformer Training Module	TPAD.E4804
4	01 DC Power Supply Module (Symmetrical DC15V)	TPAD.P1001
5	01 Reference Voltage Generation Module	TPAD.P1003
6	01 Three-Phase Phase Angle Control Module	TPAD.P1006
7	01 Differential Amplifier Module	TPAD.P1004
8	01 Current/Voltage Conversion Module	TPAD.P1005
9	01 Thyristor Training Module	TPAD.P3050
10	01 Fuse Training Module	TPAD.C6701
11	03 AC Ammeter Training Modules	TPAD.I0101
12	01 AC Voltmeter Training Module	TPAD.I1101
13	01 Three-Phase Resistive Load Training Module	TPAD.B0221
14	01 Inductive Load Training Module	TPAD.B0421
15	01 AC Motor Training Module	TPAD.E6101
16	01 Three-Phase Power Meter Training Module	TPAD.I2501



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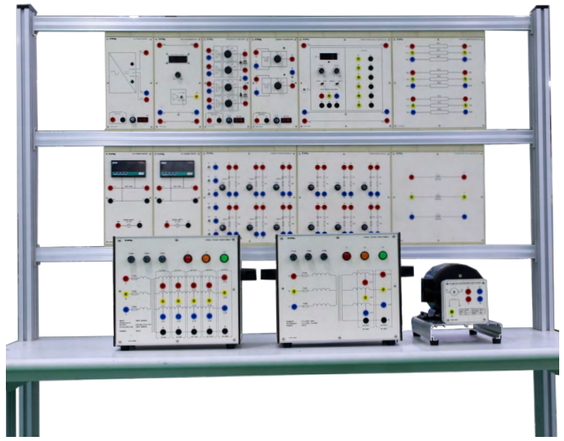
8 CONTROLLED INVERTER PRACTICE KIT
ST.PE.E0301



TRAINING CONTENT

- Understand the principles of SinPWM and 6-step inverters.
- Identify and differentiate the advantages and disadvantages of each type.
- Familiarize with control pulse waveform and motor output waveform.

SKILLS ACHIEVED

- Experiment with three-phase SinPWM inverter circuit.
- Experiment with three-phase 6-step inverter circuit.
- Methods for operation and speed control of a three-phase motor.
- Electrical safety skills.

TRAINING EQUIPMENT LIST

NO.	NAME	SERI
1	01 Three-Phase SinPWM Inverter Module	TPAD.P2001
2	01 Three-Phase 6-Step Inverter Module	TPAD.P2101
3	01 Transformer Training Module	TPAD.E4112
4	01 AC Motor Training Module	TPAD.E6202

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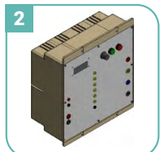

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