

Y-0036
ELECTRIC MACHINES AND CONTROL TRAINING SET

Electric Machines and Control Training Set is designed in modular structure to teach using the basic electricity laws with their measurement, define, Project and analyzing of the circuit elements. It's modular structure, enables to use possibilities of electrical education area in laboratory like industrial application environment.

The motors and control elements used in the set are the same as with industry. For that reason this set can be used also in industry in addition to vocational institutes.

The Electric Machines and Control Training Set consists of basically multi functional Lab Desk with Energy Unit, Measurement Modules, Electrical Motors, Motor Drivers, Transformer Groups, Check and Control Modules, Load Groups and necessary accessories.



Y-0036
ELECTRIC MACHINES AND CONTROL TRAINING SET

Lab Desk and Energy Units

Y-0036-001	Lab Desk with Energy Unit
Y-0036-002	3 Phase Energy Unit - Mobile
Y-0036-003	Railed Motor Table

Computer Based Application Modules

D-LAB-E	Electric Machine Computer Interface Module Group and Measuring Software
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Measurement Modules

Y-0036-004	Energy Analyzer Module
Y-0036-005	AC Measurement Module
Y-0036-006	DC Measurement Module
Y-0036-007	Analog AC - DC Voltmeter Module
Y-0036-008	Analog AC - DC Ammeter Module
Y-0036-009	Analog Voltmeter Commutator Module
Y-0036-010	Digital Voltmeter Commutator Module
Y-0036-011	Cosφmeter - Frequency Meter Module
Y-0036-012	Synchroscope (with LED Indicator) Module
Y-0036-012A	Synchroscope (Digital) Module
Y-0036-012B	Synchronization Indicator Module
Y-0036-012C	3 Phase Rotation Tester Module
Y-0036-013	Double Quadrant Analog Frequency Meter Module

Electric Motors

Y-0036-014	Asynchronous Motor - 1 Phase
Y-0036-015	Asynchronous Motor - 3 Phase 1kW
Y-0036-016	Asynchronous Motor - 3 Phase 4kW
Y-0036-017	Dahlander Motor
Y-0036-018	Asynchronous Motor - 3 Phase Wound Rotor, with metal ring
Y-0036-019	Asynchronous Motor - 3 Phase with Magnetic Brake
Y-0036-020	Universal Motor and Shaded-Pole Motor - 1 Phase
Y-0036-021	Synchronous Machine - 3 Phase 1kW
Y-0036-022	DC Compound Machine
Y-0036-022A	DC Variable Compound Machine
Y-0036-023A	DC Shunt Machine
Y-0036-023B	DC Serial Machine
Y-0036-023C	DC Step Motor and Driver Module
Y-0036-024	Electromagnetic Foucault Brake
Y-0036-024A	Magnetic Powder Brake

Motor Driver Modules

Y-0036-024B	Brake Control and Measurement Module
Y-0036-025	DC Motor Driver Module
Y-0036-026	AC Motor Driver Module
Y-0036-026A	AC Motor Driver Module - with PC connection

Transformer Modules

Y-0036-027	Transformer Module - 1 Phase 12V - 24V - 36V Output
Y-0036-028	Transformer Module - 1 Phase 55V - 110V - 220V Output
Y-0036-029	Transformer Module - 3 Phase 55V - 110V - 220V Output
Y-0036-030	Transformer Module - 3 Phase 2 x 110V Output
Y-0036-031	Auto Transformer Module - 3 Phase

Check and Control Modules

Y-0036-018A	Motor Starting Module (for Y-0036 - 018 and 019)
Y-0036-032	Contacting Module - 230V AC
Y-0036-033	Relay Module - 230V AC
Y-0036-034	Relay Module - 24V DC
Y-0036-034A	Relay Module - Right / Left Relay
Y-0036-034B	Relay Module - Over Current Relay
Y-0036-034C	Relay Module - Low / Over Voltage Relay
Y-0036-035	Relay Module - Time
Y-0036-036	Relay Module - Thermic
Y-0036-037	Relay Module - Motor Phase Protection
Y-0036-038	Relay Module - Photocell
Y-0036-039	Relay Module - Liquid Level
Y-0036-040	Relay Module - Motion Sensor
Y-0036-041	Relay Module - Easy (Logic)
Y-0036-042	Jog Button Module
Y-0036-043	Signal Lamp Module
Y-0036-044	Limit Switch Module
Y-0036-045	Circuit Breaker Module - Control
Y-0036-046	Circuit Breaker Module - Monophase Asynchronous Motor Starting
Y-0036-047	Circuit Breaker Module - 3 Phase On-Off
Y-0036-048	Circuit Breaker Module - 3 Phase Inverter
Y-0036-049	Circuit Breaker Module - 3 Phase Dahlander
Y-0036-050	Circuit Breaker Module - 3 Phase Star - Delta
Y-0036-051	Circuit Breaker Module - 3 Phase Fused
Y-0036-052	Circuit Breaker Module - 2 Phase Fused
Y-0036-053	Bus Module
Y-0036-054	Project Module

Load Modules

Y-0036-055	Load Module - 3 Phase Lamp
Y-0036-056	Load Module - 3 Phase Variable Resistive
Y-0036-057	Load Module - 3 Phase Variable Capacitive
Y-0036-058	Load Module - 3 Phase Variable Inductive
Y-0036-059	Load Module - 3 x 530Ω Resistive
Y-0036-060	Load Module - 3 x 800Ω Resistive
Y-0036-061	Load Module - 3 x 15μF Capacitive
Y-0036-062	Load Module - 3 x 30μF Capacitive
Y-0036-063	Load Module - 3 x 1650mH Inductive
Y-0036-064	Load Module - 3 x 2550mH Inductive
Y-0036-065	Rheostat - 50Ω 1000W, Variable
Y-0036-066	Rheostat - 100Ω 500W, Variable
Y-0036-067	Load Module - 500Ω 100W, Variable

Accessories

Y-008	Storage Cupboard
Y-0036-068	Connection Leads
Y-0036-069	IEC Connection Cables
	Experiment Book

Y-0036
ELECTRIC MACHINES AND CONTROL TRAINING SET
LAB DESK AND ENERGY UNITS

Y-0036-001 Lab Desk with Energy Unit

The Electric Machines and Control Training Set has a multi functional lab desk with necessary power supplies and railed module panel on it.

The Lab Desk Size is 180 x 134 x 70 cm and is designed in 45x45 mm and 45x90 mm anodic coated aluminium profile. It has two layer module holder rail with 12 module carrying capacity.

Lab desk energy unit box is 32 x 144 x 41 cm metal and insulated panel.

Desk surface is 134 x 70 cm 30 mm laminate (PVC) coated, desk stands are rubber and level adjustable.

The energy unit is mounted on the desk and consists of 5 sections. All sections can be used independently. Energy input and outputs are double insulated and with 4 mm banana sockets.

1. Energy Input Unit

- Start - Stop - Emergency stop button
- 4 x 40A 30mA, leakage current protected
- 3 x 40A, 1 x 4A fuse protected, with signal lamp

2. Measurable AC Energy Unit

- 3 x 32A fuse protected, with signal lamp
- Triphase and monophase plug, triphase energy outputs
- 40 / 5A current transformer and energy analyzer measurement
- Measurement parameters: A - V - W - VAR - VA - COSφ - Hz - kWh -
kVA Rh - $\sum A$ - $\sum W$ - $\sum VAR$ - $\sum VA$ - LN - LL
- All input - outputs double insulated, with 4 mm banana sockets

3. Control Circuit Energy Unit

- 1 x 16A fuse protected, 220V / 50Hz AC,
- 0 - 250V AC / 50Hz, button controlled, with motor excitation, 1.5kVA variac output
- 0 - 250V variable input / output 0 - 24V - 48V / 50Hz, 100VA transformer output
- 0 - 24V - 48V variable input, 0 - 24V - 48V DC output
- All input - outputs double insulated, with 4 mm banana sockets and signal lamp

4. DC Energy Unit

- 0 - 250V DC, with motor excitation, 2.5kVA variac, 1 x 16A fuse protected, with signal lamp, button controlled
- 200V DC fixed, 1 x 10A fuse protected, with signal lamp
- All input - outputs double insulated, with 4 mm banana sockets

5. RPM and TORQUE Measurement Unit

- Manual - PC controlled
- Magnetic Powder Brake control
- D-LAB-E input - output
- Digital RPM measurement
- Digital Torque measurement
- All input - outputs double insulated, with 4 mm banana socket



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ELECTRIC MACHINES AND CONTROL TRAINING SET
LAB DESK AND ENERGY UNITS



Y-0036-002 3 Phase Energy Unit

- 34 x 44 x 85cm, metal box, insulated panel and lockable wheels
- \pm Button controlled, motor driven variable AC / DC energy output, measurement unit, mobile
- Input 3x20A fuse protected
- Energy input 3 x 2,5kVA, 3 x 380V (3 x 415V), 50 / 60Hz
- All AC outputs 3 x 16A fuse protected
- AC Energy output 3 x 2,5kVA, 3 x 0 - 380V (3 x 0 - 415V), 50 / 60Hz
- Digital Multimeter (A - V - COS ϕ - Hz measurement 40 / 5A current transformer) measurement
- DC output 3 x 16A fuse protected
- DC Energy output 0 - 450V (0 - 520V)
- Digital Voltmeter - Ammeter measurement
- All input - outputs are double insulated, with 4 mm banana outputs



Y-0036-003 Railed Motor Table

It is designed to operate all motors and machines with suitable slide together or separately in the experiments. The mechanical noise is decreased and enables to prepare an properly experiment mechanism with its connection apparatus and slide structure.

Nonvibrating, can be fixed with hand-tight thumbscrew and suitable for using table top.

100cm x 30cm x 6cm sized metal profile, rubber foot galvanized "u" railed.



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**ELECTRIC MACHINES AND CONTROL TRAINING SET
COMPUTER BASED APPLICATION MODULES**

D-LAB-E Elektrik Machines Computer Interface Module

D-LAB module is designed to support modules in Electric Machines Training Set to make the Computer based applications experiments with graphics.

Isolation Measurement Module is used to isolate high powered signals and convert into safety level for measuring equipments. Displays the voltage and current waveforms from any measurement point on the oscilloscope screen without affecting the test system in the experiments.

DC Power Supply Module is used to supply the necessary voltage for the modules.

D-LAB Interface Module (V2)

- 30cm x 18cm insulated panel
- 25cm x 18cm x 8cm metal case, with carrying handles
- Allows to control and monitoring the signals on PC
- Allows to monitoring the current and voltage signals on PC
- 4 Analog Inputs (-10V) (+10V)
- 2 Digital Inputs
- 2 Analog Outputs (0 - 5V)
- 4 Digital Outputs
- 5000 samples / sec per channel
- All inputs - outputs double insulated, with 4 mm banana sockets



Isolation Measurement Module

- 30cm x 18cm insulated panel
- 25cm x 18cm x 8cm metal case, with carrying handles
- Isolates the high powered signals and convert to the safety level for measurement devices
- Supply Voltage : $\pm 15V$
- Current measuring range : 10A, isolated
- Voltage measuring range : 0 - 380V, isolated
- 4 channels, each with voltage and current input selection
- X1, X0.1, X0.01 voltage scale
- Panel with circuit scheme
- All inputs - outputs double insulated, with 4 mm banana sockets



Power Supply Module

- 30cm x 18cm insulated panel
- 25cm x 18cm x 8cm metal case, with carrying handles
- Power unit for operating the modules
- $\pm 15V$, 1.7A symmetric power supply
- Panel with circuit scheme
- All inputs - outputs double insulated, with 4 mm banana sockets



System Software

- Real time graphics for Voltage, Current, Torque and Speed
- Electrical Power, Mechanical Power, Efficiency and Power factor estimating, real time graphics
- Current - Voltage characteristics indication
- Torque - Speed characteristics indication
- Instant signal characteristics record
- Report and print specification

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ELECTRIC MACHINES AND CONTROL TRAINING SET
MEASUREMENT MODULES

Y-0036-004 Energy Analyzer Module

- 30cm x 18cm insulated panel
- 25cm x 18cm x 12cm plastic case
- Supply Voltage : 220V - 240V AC, 50 / 60Hz, with IEC plug
- Screen with 5 (five) different digital displays, 4 digit, accuracy 1%
- Current measurement range : 0.1A - 40A, 40 / 5 current transformer
- Voltage measurement range : 10V - 600V AC
- Measurement Parameters : A - V - W - VAR - VA - COS ϕ - Hz - kWh -
kVARh - Σ A - Σ W - Σ VAR - Σ VA - LN - LL
- Keypad controlled and selectable
- All inputs - outputs double insulated, with 4 mm banana sockets



Y-0036-005 AC Measurement Module

- 30cm x 18cm insulated panel
- 25cm x 18cm x 8cm plastic case
- Supply Voltage : 220V - 240V AC, 50 / 60Hz, with IEC plug
- Screen with (two) digital display, 3½ digit, accuracy 1%
- Ammeter current measuring range : 0 - 15A AC
- Voltmeter voltage measuring range : 0 - 750V AC
- All inputs - outputs double insulated, with 4 mm banana sockets



Y-0036-006 DC Measurement Module

- 30cm x 18cm insulated panel
- 25cm x 18cm x 8cm plastic case
- Supply Voltage : 220V - 240V AC, 50 / 60Hz, with IEC plug
- Screen with (two) digital display, 3½ digit, accuracy 1%
- Ammeter current measuring range : 0 - 15A DC
- Voltmeter voltage measuring range : 0 - 750V DC
- All inputs - outputs double insulated, with 4 mm banana sockets



Y-0036-007 Analog AC / DC Voltmeter Module

- 30cm x 18cm insulated panel
- 25cm x 18cm x 8cm plastic case
- Supply Voltage : 220V - 240V AC, 50 / 60Hz, with IEC plug
- Voltmeter voltage measuring range : 0 - 500V AC / DC
- Screen with analog display, accuracy 1%
- All inputs - outputs double insulated, with 4 mm banana sockets



Y-0036-008 Analog AC / DC Ammeter Module

- 30cm x 18cm insulated panel
- 25cm x 18cm x 8cm plastic case
- Supply Voltage : 220V - 240V AC, 50 / 60Hz, with IEC plug
- Ammeter current measuring range : 0 - 15A AC / DC
- Screen with analog display, accuracy 1%
- All inputs - outputs double insulated, with 4 mm banana sockets



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ELECTRIC MACHINES AND CONTROL TRAINING SET
MEASUREMENT MODULES

Y-0036-009 Analog Voltmeter Commutator Module

- 30cm x 18cm insulated panel
- 25cm x 18cm x 8cm plastic case
- Voltmeter voltage measuring range : 0 - 500V AC
- Screen with analog display, accuracy 1.5%
- 0 - 6 exposure voltmeter commutator switch
- L₁N, L₂N, L₃N - L₁L₂, L₁L₃, L₂L₃
- All inputs - outputs double insulated, with 4 mm banana sockets



Y-0036-010 Digital Voltmeter Commutator Module

- 30cm x 18cm insulated panel
- 25cm x 18cm x 8cm plastic case
- Supply Voltage : 220V - 240V AC, 50 / 60Hz, with IEC plug
- Voltmeter voltage measuring range : 0 - 750V AC
- Screen with digital display, 3½ digit, accuracy 1%
- 0 - 7 exposure voltmeter commutator switch
- L₁N, L₂N, L₃N - L₁L₂, L₁L₃, L₂L₃
- All inputs - outputs double insulated, with 4 mm banana sockets



Y-0036-011 Cosømetre - Frequencymeter Module

- 30cm x 18cm insulated panel
- 25cm x 18cm x 12cm plastic case
- Supply Voltage : 220V - 240V AC, 50 / 60Hz, with IEC plug
- Cosømetre measuring range : 0.00 - 0.99 (Inductive - Capacitive)
40 / 5A current transformer
50 - 300V AC
- Frequencymeter measuring range : 20 - 400Hz
30 - 300V AC
- Screen with 2 (two) digital display, 3½ digit, accuracy 1%
- All inputs - outputs double insulated, with 4 mm banana sockets



Y-0036-012 Synchroscope (with LED Indicator) Module

- 30cm x 18cm insulated panel
- 25cm x 18cm x 12cm plastic case
- Network L - N, Generator L - N measuring
- Synchroscope operation is monitored with 36 LED indicator from front panel
- Network - Generator supply with LED indicator
- The phase differences are indicated with red LED
- Synchronous instant are indicated with green LED
- Relay inverter Synchronous instant contact output
- All inputs - outputs double insulated, with 4 mm banana sockets



Y-0036-012A Synchroscope (Digital) Module

- 30cm x 18cm insulated panel
- 25cm x 18cm x 8cm plastic case
- Supply Voltage : 220V - 240V AC, 50 / 60Hz, with IEC plug
- Network L - N, Generator L - N measurement
- Screen with digital display, 4 digit, 8 digit 45° circular loop
- ± phase difference with digital 4 digit indicator
- Phase difference with angular indicator
- SYNC indicator at synchronous instant
- Relay inverter contact output at Synchronous instant
- All inputs - outputs double insulated, with 4 mm banana sockets



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ELECTRIC MACHINES AND CONTROL TRAINING SET
MEASUREMENT MODULES

Y-0036-012B Synchronization Indicator Module

- 30cm x 18cm insulated panel
- 25cm x 18cm x 8cm plastic case
- 3 serial lamp group consists of 2 lamps
- Supply voltage 400V AC for each lamp
- Dark (flashing) lamp synchronization
- Flashing lamp synchronization
- All inputs - outputs double insulated, with 4 mm banana sockets



Y-0036-012C 3 Phase Rotation Tester Module

- 30cm x 18cm insulated panel
- 25cm x 18cm x 12cm plastic case
- Phase rotation with circular indicator
- Operation voltage : 90V - 600V
- Operation frequency : 45Hz - 100Hz
- Lamp flashing in clockwise rotation for phase rotation in $L_1 - L_2 - L_3$ direction.
- Lamp flashing in anticlockwise rotation for phase rotation in reverse $L_1 - L_2 - L_3$ direction.
- All inputs - outputs double insulated, with 4 mm banana sockets



Y-0036-013 Double Quadrant Analog Frequencymeter Module

- 30cm x 18cm insulated panel
- 25cm x 18cm x 8cm plastic case
- Analog structure, double quadrant frequencymeter
- Network L - N, Generator L - N measurement
- Operation voltage : 0 - 300V AC
- Measurement Range : 2 x 45Hz - 55Hz
- All inputs - outputs double insulated, with 4 mm banana sockets



Y-0036
ELECTRIC MACHINES AND CONTROL TRAINING SET
ELECTRIC MOTORS

We provide the cross-section models of the Electric Motors as optional.



Y-0036-014 Asynchronous Motor - 1 Phase

- Mounted on 33cm x 33cm galvanization platform
- Suitable to used with railed motor table and desktop usage
- Suitable to fix with thumbscrews on railed motor table
- Motor connections are metal case, insulated panel and star coupling
- With 4 pulse cycle sensor
- Panel with circuit scheme
- All inputs - outputs double insulated, with 4mm banana sockets
- Voltage : Δ 220V - 240V AC, 1~
- Current : 7.3A
- Power : 1.1kW, 1~
- Frequency : 50Hz
- Revolution : 1400 rpm
- Capacitor : 30 μ F 450V / 189 μ F - 227 μ F 250V
- Standard : S1 IP 55



Y-0036-015 Asynchronous Motor - 3 Phase

- Mounted on 33cm x 33cm galvanization platform
- Suitable to used with railed motor table and desktop usage
- Suitable to fix with thumbscrews on railed motor table
- Motor connections are metal case, insulated panel and star coupling
- With 4 pulse cycle sensor
- Panel with circuit scheme
- All inputs - outputs double insulated, with 4mm banana sockets
- Voltage : Δ 220V / λ 380V AC, 50Hz, 4.6A / 2.7A
 Δ 220V / λ 440V AC, 60Hz, 2.7A
- Power : 1.1kW, 3~ / 1.27kW, 3~
- Cos ϕ : 0.8
- Revolution : 1380 rpm / 1665 rpm
- Standard : S1 IP 55



Y-0036-016 Asynchronous Motor - 3 Phase 4KW

- Mounted to 33cm x 40cm galvanization platform
- Suitable to used with railed motor table and desktop usage
- Suitable to fix with thumbscrews on railed motor table
- Motor connections are metal case, insulated panel and star coupling
- With 4 pulse cycle sensor
- Panel with circuit scheme
- All inputs - outputs double insulated, with 4mm banana sockets
- Voltage : Δ 380V AC, 50Hz, 8.6A
 Δ 440V AC, 60Hz, 8.6A
- Power : 4kW, 3~
- Cos ϕ : 0.85
- Revolution : 1425 rpm / 1715 rpm
- Standard : S1 IP 55



Y-0036
ELECTRIC MACHINES AND CONTROL TRAINING SET
ELECTRIC MOTORS

Y-0036-017 Dahlander Motor

- Mounted to 33cm x 33cm galvanization platform
- Suitable to used with railed motor table and desktop usage
- Suitable to fix with thumbscrews on railed motor table
- Motor connections are metal case, insulated panel and star coupling
- With 4 pulse cycle sensor
- Panel with circuit scheme
- All inputs - outputs double insulated, with 4mm banana sockets
- Voltage : λ 380V AC, 3~, 50Hz
- Current : λ 3.5A
- Power : λ 1.3kW
- Cos ϕ : λ 0.78
- Revolution : λ 2770 rpm
- Standard : S1 IP 55



Y-0036-018 Asynchronous Motor - 3 Phase, Wound Rotor, with metal ring

- Mounted to 33cm x 40cm galvanization platform
- Suitable to used with railed motor table and desktop usage
- Suitable to fix with thumbscrews on railed motor table
- Motor connections are metal case, insulated panel and star coupling
- Transparent window design for tracking the Motor structure
- With 4 pulse cycle sensor
- Panel with circuit scheme
- All inputs - outputs double insulated, with 4mm banana sockets
- Voltage : Δ 220V / λ 380V AC, 50 / 60Hz
- Current : Δ 5A / λ 2.9A
- Power : 1.1kW, 3~
- Cos ϕ : 0.8
- Revolution : 1400 rpm
- Standard : S3 IP 23



Y-0036-019 Asynchronous Motor - 3 Phase, with Magnetic Brake

- Mounted to 33cm x 33cm galvanization platform
- Suitable to used with railed motor table and desktop usage
- Suitable to fix with thumbscrews on railed motor table
- Motor connections are metal case, insulated panel and star coupling
- Panel with circuit scheme
- All inputs - outputs double insulated, with 4mm banana sockets
- Voltage : Δ 220V / λ 380V AC, 50Hz, 4.6A / 2.7A
 Δ 220V / λ 440V AC, 60Hz, 2.7A
- Power : 1.1kW, 3~ / 1.27kW, 3~
- Cos ϕ : 0.8
- Revolution : 1380 rpm / 1665 rpm
- Magnetic Brake : YBF - 03, 24V - 200V DC, 33W - 40W, 10 - 20NM
- Standard : S1 IP 55



Y-0036-020 Universal Motor and Shaded-Pole Motor - 1 Phase

- Mounted to 33cm x 40cm galvanization platform
- Suitable to used with railed motor table and desktop usage
- Suitable to fix with thumbscrews on railed motor table
- Motor connections are metal case, insulated panel and star coupling
- Panel with circuit scheme
- All inputs - outputs double insulated, with 4mm banana sockets
- Shaded Pole : 8 - 10W, 0.18A, 220V, 50 / 60Hz, 2400 / 3000 rpm
Standard : S3 IP 23
- Universal (Serial) : 1200W, 220V, 50Hz, 10000 rpm
0 - 200V DC operation property
Standard : S1 IP 23



Y-0036
ELECTRIC MACHINES AND CONTROL TRAINING SET
ELECTRIC MOTORS

Y-0036-021 Synchronous Machine - 3 Phase

- Mounted to 33cm x 40cm galvanization platform
- Suitable to used with railed motor table and desktop usage
- Suitable to fix with thumbscrews on railed motor table
- Machine connections are metal case, insulated panel and star coupling
- With 4 pulse cycle sensor
- Panel with circuit scheme
- All inputs - outputs double insulated, with 4mm banana sockets
- Voltage : λ 380V AC, 3~, 50 / 60Hz
- Current : 2.3A
- Power : 1kW
- Revolution : 1500 rpm
- Excitation Voltage : 72V DC
- Excitation Current : 2.1A DC
- Standard : S3 IP 23



Y-0036-022 DC Compound Machine

- Mounted to 33cm x 33cm galvanization platform
- Suitable to used with railed motor table and desktop usage
- Suitable to fix with thumbscrews on railed motor table
- Machine connections are metal case, insulated panel and star coupling
- Transparent window design for tracking the Motor structure
- With 4 pulse cycle sensor
- Panel with circuit scheme
- All inputs - outputs double insulated, with 4mm banana sockets
- Armature : 200V DC, 6.3A
- Excitation : 200V DC, 0.3A
- Power : 1kW
- Revolution : 1500 rpm
- Standard : S3 IP 23



Y-0036-022A DC Variable Compound Machine

- Mounted to 33cm x 33cm galvanization platform
- Suitable to used with railed motor table and desktop usage
- Suitable to fix with thumbscrews on railed motor table
- Machine connections are metal case, insulated panel and star coupling
- Transparent window design for tracking the Motor structure
- With 4 pulse cycle sensor
- Panel with circuit scheme
- All inputs - outputs double insulated, with 4mm banana sockets
- Armature : 200V DC, 6.3A
- Excitation : 200V DC, 0.3A
- Power : 1kW
- Revolution : 1500 rpm
- Serial wound in 2 (two) steps
- Standard : S3 IP 23



Y-0036-023A DC Shunt Machine

- Mounted to 33cm x 33cm galvanization platform
- Suitable to used with railed motor table and desktop usage
- Suitable to fix with thumbscrews on railed motor table
- Machine connections are metal case, insulated panel and star coupling
- Transparent window design for tracking the Motor structure
- With 4 pulse cycle sensor
- Panel with circuit scheme
- All inputs - outputs double insulated, with 4mm banana sockets
- Armature : 200V DC, 6.3A
- Excitation : 200V DC, 0.3A
- Power : 1kW
- Revolution : 1500 rpm
- Standard : S3 IP 23



Y-0036
ELECTRIC MACHINES AND CONTROL TRAINING SET
ELECTRIC MOTORS

Y-0036-023B DC Serial Machine

- Mounted to 33cm x 33cm galvanization platform
- Suitable to used with railed motor table and desktop usage
- Suitable to fix with thumbscrews on railed motor table
- Machine connections are metal case, insulated panel and star coupling
- Transparent window design for tracking the Motor structure
- With 4 pulse cycle sensor
- Panel with circuit scheme
- All inputs - outputs double insulated, with 4mm banana sockets
- Armature : 200V DC, 6.3A
- Power : 1kW
- Revolution : 1500 rpm
- Standard : S3 IP 23



Y-0036-023C DC Step Motor and Driver Module

- Supply voltage 220V AC
- 30cm x 18cm insulated panel
- 25cm x 18cm x 12cm plastic case
- Panel with circuit scheme
- 12V DC Step motor
- With Speed control pool
- Right - Left rotation control
- Step motor with energy coil led indicator
- All inputs - outputs double insulated, with 4mm banana sockets



Y-0036-024 Electromagnetic Foucault Brake

- Mounted to 33cm x 40cm galvanization platform
- Suitable to used with railed motor table and desktop usage
- Suitable to fix with thumbscrews on railed motor table
- Brake connections are metal case, insulated panel and star coupling
- Panel with circuit scheme
- All inputs - outputs double insulated, with 4mm banana sockets
- Brake : 78V DC, 2.2A, 20NM
- Fan : 220V - 240V AC, 50 / 60Hz
- Revolution : 4000 rpm
- Standard : S3 IP 23
- Revolution sensor : 4 Pulse



Y-0036-024A Magnetic Powder Brake

- Mounted to 33cm x 40cm galvanization platform
- Suitable to used with railed motor table and desktop usage
- Suitable to fix with thumbscrews on railed motor table
- Brake connections are metal case, insulated panel and star coupling
- Loadcell torque measurement
- With 4 pulse cycle sensor
- Panel with circuit scheme
- All inputs - outputs double insulated, with 4mm banana sockets
- Brake : 24V DC, 1.2A, 30NM, Thermistor protected
- Fan : 220V - 240V AC, 50 / 60Hz
- Revolution : 4000 rpm
- Standard : S3 IP 23



Y-0036
ELECTRIC MACHINES AND CONTROL TRAINING SET
MOTOR DRIVER MODULES

Y-0036-025 DC Motor Driver Module

- 30cm x 18cm insulated panel
- 25cm x 18cm x 8cm plastic case
- Able to operate constant magnetic or warning DC motors via making Speed - Torque control clipping network sine between 14 - 120° (%7.5 - %66)
- Supply Voltage : 220V - 240V AC, 50 / 60Hz
- Motor Power : 1.8kW
- Output Voltage : 0 - 200V DC
- Armature current limitation : 10A
- Excitation current limitation : 2A
- Excitation Voltage : 90 - 180V DC
- PI filter to provide speed and torque control via making phase angle control
- With Digital control panel
- All inputs - outputs double insulated, with 4mm banana sockets
- External start - stop
- External rpm adjustment



Y-0036-026 AC Motor Driver Module

- 30cm x 18cm insulated panel
- 25cm x 18cm x 12cm plastic case
- Supply Voltage : 220V - 240V AC, 50 / 60Hz, 1~
- Output Voltage : 200V - 240V AC, 3~
- Motor Power : 1.1kW
- 3 Phase Asynchronous Motor Driver
- Motor parameter input on driver
- Speed (Frequency), Torque, Movement, Brake control
- Control with keypad on the Driver
- Parameter and control status on LCD display
- All inputs - outputs double insulated, with 4mm banana sockets



Y-0036-026A AC Motor Driver Module (with PC connection)

- 30cm x 18cm insulated panel
- 25cm x 18cm x 12cm plastic case
- Supply Voltage : 220V - 240V AC, 50 / 60Hz, 1~
- Output Voltage : 200V - 240V AC, 3~
- Motor Power : 1.1kW
- 3 Phase Asynchronous Motor Driver
- Motor parameter input on driver
- Speed (Frequency), Torque, Movement, Brake control
- Control with keypad on the Driver
- Parameter and control status on LCD display
- PC communication
- Start - stop, rotation and speed control on PC with D-LAB computer interface module
- All inputs - outputs double insulated, with 4mm banana sockets



Y-0036
ELECTRIC MACHINES AND CONTROL TRAINING SET
TRANSFORMER MODULES

Y-0036-027 Transformer Module - 1 Phase 12V / 24V / 36V Output

- 12.5cm x 17.5cm insulated panel
- With Rubber footed, carrying handle
- Panel with circuit scheme
- Power : 300VA
- Input Voltage : 220V - 380V AC, 50 / 60Hz
- Output Voltage : 12V - 24V - 36V AC, 50 / 60Hz
- All inputs - outputs double insulated, with 4mm banana sockets



Y-0036-028 Transformer Module - 1 Phase 55V / 110V / 220V Output

- 12.5cm x 17.5cm insulated panel
- With Rubber footed, carrying handle
- Panel with circuit scheme
- Power : 1500VA
- Input Voltage : 380V AC, 50 / 60Hz
- Output Voltage : 55V - 110V - 220V AC, 50 / 60Hz
- All inputs - outputs double insulated, with 4mm banana sockets



Y-0036-029 Transformer Module - 3 Phase 55V / 110V / 220V Output

- 17.5cm x 25cm insulated panel
- With Rubber footed, carrying handle
- Panel with circuit scheme
- Power : 1500VA
- Input Voltage : 3 x 380V AC, 50 / 60Hz
- Output Voltage : 3 x (55V - 110V - 220V) AC, 50 / 60Hz
- All inputs - outputs double insulated, with 4mm banana sockets



Y-0036-030 Transformer Module - 3 Phase 2 x 110V Output

- 17.5cm x 25cm insulated panel
- With Rubber footed, carrying handle
- Panel with circuit scheme
- Power : 1500VA
- Input Voltage : 3 x 380V AC, 50 / 60Hz
- Output Voltage : 3 x (2 x 110V) AC, 50 / 60Hz
- All inputs - outputs double insulated, with 4mm banana sockets



Y-0036-031 Auto Transformer Module - 3 Phase

- 14cm x 25cm insulated panel
- With Rubber footed, carrying handle
- Panel with circuit scheme
- Power : 1500VA
- Input Voltage : 3 x 380 AC, 50 / 60Hz, λ connected
- Output Voltage : 3 x (55V - 110V - 220V) AC, 50 / 60Hz
- All inputs - outputs double insulated, with 4mm banana sockets



Y-0036
ELECTRIC MACHINES AND CONTROL TRAINING SET
CHECK AND CONTROL MODULES

Y-0036- 018A Motor Starting Module (for Y-0036 - 018 and 019)

- Suitable to use for starting to Asynchronous Motor 3 phase, wound rotor, with metal ring
- 15cm x 26cm x 26cm metal case
- 4 stage
- LED indicator for each stage
- Fan cooled



Y-0036-032 Contactor Module - 230V AC

- 30cm x 18cm insulated panel
- 25cm x 18cm x 12cm plastic case
- Supply Voltage : 220V - 240V AC, 50 / 60Hz
- Operation Voltage : 3 x 380V AC, 50 / 60Hz, 4kW
- Power contact : 4NA
- Auxiliary Contact : 2NA + 2NK
- Panel with circuit scheme
- All inputs - outputs double insulated, with 4mm banana sockets



Y-0036-033 Relay Module - 230V AC

- 30cm x 18cm insulated panel
- 25cm x 18cm x 8cm plastic case
- 2 relays and relay sockets
- Supply Voltage : 220V - 240V AC, 50 / 60Hz
- Operation Voltage : 250V AC, 8A
- Contact : 2 inverter
- Panel with circuit scheme
- All inputs - outputs double insulated, with 4mm banana sockets



Y-0036-034 Relay Module - 24V DC

- 30cm x 18cm insulated panel
- 25cm x 18cm x 8cm plastic case
- 2 relays and relay sockets
- Supply Voltage : 24V DC
- Operation Voltage : 250V AC, 8A
- Contact : 2 inverter
- Panel with circuit scheme
- All inputs - outputs double insulated, with 4mm banana sockets



Y-0036-034A Relay Module - Right / Left Relay

- 30cm x 18cm insulated panel
- 25cm x 18cm x 8cm plastic case
- Supply Voltage : 220-240V AC, 50/60 Hz
- Adjustable time interval for each output
- Panel with circuit scheme
- All inputs - outputs double insulated, with 4mm banana sockets



Y-0036
ELECTRIC MACHINES AND CONTROL TRAINING SET
CHECK AND CONTROL MODULES

Y-0036-034B Relay Module - Over Current Relay

- 30cm x 18cm insulated panel
- 25cm x 18cm x 8cm plastic case
- Supply Voltage : 220-240V AC, 50/60 Hz
- Adjustable current value interruption time
- Panel with circuit scheme
- All inputs - outputs double insulated, with 4mm banana sockets



Y-0036-034C Relay Module - Low / Over Voltage Relay

- 30cm x 18cm insulated panel
- 25cm x 18cm x 8cm plastic case
- Supply Voltage : 220-240V AC, 50/60 Hz
- Adjustable voltage value interruption time
- Panel with circuit scheme
- All inputs - outputs double insulated, with 4mm banana sockets



Y-0036-035 Relay Module - Time

- 30cm x 18cm insulated panel
- 25cm x 18cm x 8cm plastic case
- Time relay
- Supply Voltage : 220V - 240V AC, 50 / 60Hz - 24V AC / DC
- Operation Voltage : 250V, 5A
- Contact : 1 inverter
- Time range : 0.1 - 100sec, 0.5 - 100min, 1 - 60 hours adjustable
- Pulling delay, Release delay, Flashing operation functions
- Panel with circuit scheme
- All inputs - outputs double insulated, with 4mm banana sockets



Y-0036-036 Relay Module - Thermic

- 30cm x 18cm insulated panel
- 25cm x 18cm x 8cm plastic case
- Thermic relay
- 3Phase Phase bimetal contact input - outputs
- Auxiliary contact : 1NA + 1NK
- Thermic adjustment : 2.4 - 4A
- With Reset button
- Panel with circuit scheme
- All inputs - outputs double insulated, with 4mm banana sockets



Y-0036-037 Relay Module - Motor Phase Protection

- 30cm x 18cm insulated panel
- 25cm x 18cm x 8cm plastic case
- Motor phase protection relay
- L₁ - L₂ - L₃ - N connected
- Contact : 1 inverter, time adjustable
- PTC input, with LED indicator
- No phase, Phase order, PTC, Constant voltage instability adjustable voltage instability protected
- Panel with circuit scheme
- All inputs - outputs double insulated, with 4mm banana sockets



Y-0036
ELECTRIC MACHINES AND CONTROL TRAINING SET
CHECK AND CONTROL MODULES

Y-0036-038 Relay Module - Photocell

- 30cm x 18cm insulated panel
- 25cm x 18cm x 12cm plastic case
- Photocell relay
- Supply Voltage : 220V - 240V AC, 50 / 60Hz
- Operation Voltage : 250V, 5A
- Contact : 1 inverter
- 1 - 3 Lux light adjustment with LED indicator
- Panel with circuit scheme
- All inputs - outputs double insulated, with 4mm banana sockets



Y-0036-039 Relay Module - Liquid Level

- 30cm x 18cm insulated panel
- 25cm x 18cm x 8cm plastic case
- Liquid Level Relay
- Supply Voltage : 220V - 240V AC, 50 / 60Hz
- Operation Voltage : 250V, 5A
- Contact : 1 inverter
- 5 - 50KΩ electrodes with resistance adjustment and LED indicator
- 3 pcs 8cm electrode - connection lead
- Panel with circuit scheme
- All inputs - outputs double insulated, with 4mm banana sockets



Y-0036-040 Relay Module - Motion Sensor

- 30cm x 18cm insulated pane
- 25cm x 18cm x 8cm plastic case
- Motion sensor relay
- Supply Voltage : 220V - 240V AC, 50 / 60Hz
- Time adjustment : 0.6sec - 6min
- Detection influence area : 180°
- Detection area : 2.5m height, 12m distance
- Contact : 1 NA, phase output
- Light adjustment
- Sensor horizontal - vertical adjustable
- Panel with circuit scheme
- All inputs - outputs double insulated, with 4mm banana sockets



Y-0036-041 Relay Module - Easy (Logic)

- 30cm x 18cm insulated panel
- 25cm x 18cm x 8cm plastic case
- Easy (Logic) relay
- Supply Voltage : 100V - 240V AC, 50 / 60Hz
- LCD indicator screen
- Relay with 8 inputs - 4 outputs
- Memory download and password protection property
- Time clock
- Programming with keypad on relay
- PC connection
- Panel with circuit scheme
- All inputs - outputs double insulated, with 4mm banana sockets



Y-0036-042 Jog Button Module

- 30cm x 18cm insulated panel
- 25cm x 18cm x 8cm plastic case
- 3 jog buttons red = yellow = green
- Operation Voltage : 250V, 5A
- All button contacts : 1NA + 1NK
- Panel with circuit scheme
- All inputs - outputs double insulated, with 4mm banana sockets



Y-0036
ELECTRIC MACHINES AND CONTROL TRAINING SET
CHECK AND CONTROL MODULES

Y-0036-043 Signal Lamp Module

- 30cm x 18cm insulated pane
- 25cm x 18cm x 8cm plastic case
- Two sets of Red = Yellow = Green signal lamps
- Operation Voltage : 250V AC, 50 / 60Hz
- Panel with circuit scheme
- All inputs - outputs double insulated, with 4mm banana sockets



Y-0036-044 Limit Switch Module

- 30cm x 18cm insulated panel
- 25cm x 18cm x 8cm plastic case
- Linear motion controlled 2 limit switches with pin
- Operation Voltage : 250V, 5A
- Contact : 1 NA + 1 NK
- Panel with circuit scheme
- All inputs - outputs double insulated, with 4mm banana sockets



Y-0036-045 Circuit Breaker Module - Control

- 30cm x 18cm insulated panel
- 25cm x 18cm x 8cm plastic case
- 0-1 packet circuit breaker 20A, 1 NA
- 1 - 0 - 2 packet circuit breaker, 20A, , 1 NA + 1 NA
- Emergency stop button, 1 NA + 1 NK
- Panel with circuit scheme
- All inputs - outputs double insulated, with 4mm banana sockets



Y-0036-046 Circuit Breaker Module - Monophase Asynchronous Motor Starting

- 30cm x 18cm insulated panel
- 25cm x 18cm x 8cm plastic case
- Auxiliary wound monophase motor starter circuit breaker
- 0 - 1 start status packet circuit breaker, 20A
- Panel with circuit scheme
- All inputs - outputs double insulated, with 4mm banana sockets



Y-0036-047 Circuit Breaker Module - 3 Phase On - Off

- 30cm x 18cm insulated panel
- 25cm x 18cm x 8cm plastic case
- On - Off function in 3 Phase ($L_1 - L_2 - L_3$) circuits
- 0 - 1 packet circuit breaker, 20A
- Panel with circuit scheme
- All inputs - outputs double insulated, with 4mm banana sockets



Y-0036
ELECTRIC MACHINES AND CONTROL TRAINING SET
CHECK AND CONTROL MODULES

Y-0036-048 Circuit Breaker Module - 3 Phase Inverter

- 30cm x 18cm insulated panel
- 25cm x 18cm x 8cm plastic case
- Right - Left rotation function for 3 phase motor
- 1 - 0 - 2 inverter packet circuit breaker, 20A
- Panel with circuit scheme
- All inputs - outputs double insulated, with 4mm banana sockets



Y-0036-049 Circuit Breaker Module - 3 Phase Dahlander

- 30cm x 18cm insulated panel
- 25cm x 18cm x 8cm plastic case
- 3 Phase λ / Δ connected dahlander wound asynchronous motor circuit breaker
- 3 Phase 0 - 1 - 2 dahlander circuit breaker, 20A
- λ high speed, Δ low speed
- Panel with circuit scheme
- All inputs - outputs double insulated, with 4mm banana sockets



Y-0036-050 Circuit Breaker Module - 3 Phase Star - Delta

- 30cm x 18cm insulated panel
- 25cm x 18cm x 8cm plastic case
- 3 Phase λ / Δ starter circuit breaker
- 3 Phase λ / Δ packet circuit breaker, 20A
- Panel with circuit scheme
- All inputs - outputs double insulated, with 4mm banana sockets



Y-0036-051 Circuit Breaker Module - 3 Phase Fused

- 30cm x 18cm insulated panel
- 25cm x 18cm x 8cm plastic case
- 0 - 1 packet circuit breaker, 3 Phase 20A
- 3 x 16A fuse protected
- Panel with circuit scheme
- All inputs - outputs double insulated, with 4mm banana sockets



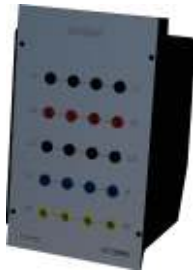
Y-0036-052 Circuit Breaker Module - 2 Phase Fused

- 30cm x 18cm insulated panel
- 25cm x 18cm x 8cm plastic case
- 0 - 1 packet circuit breaker, 2 Phase 20A
- 2 x 16A fuse protected
- Panel with circuit scheme
- All inputs - outputs double insulated, with 4mm banana sockets



Y-0036-053 Bus Module

- 30cm x 18cm insulated panel
- 25cm x 18cm x 8cm plastic case
- L₁ - L₂ - L₃ - PE, 4 in each line ordered, 20A
- Panel with circuit scheme
- All inputs - outputs double insulated, with 4mm banana sockets



Y-0036
ELECTRIC MACHINES AND CONTROL TRAINING SET
LOAD MODULES

Y-0036-054 Project Module

- 30cm x 32cm galvanized pan
- Control circuit panel (open) connections application module
- 2 rows fused rail, with carrying handle
- Monophase and 3 phase fuse
- 3 4kW contactors
- 2 time relays
- 1 thermic relay
- 1 motor protection circuit breaker
- 2.5mm rail clemens
- 2 auxiliary contactors



Y-0036-055 Load Module - 3 Phase Lamp

- 30cm x 18cm insulated panel
- 25cm x 18cm x 8cm plastic case
- 6 E-27 lamp sockets
- Lamp sockets serial - parallel connected
- All inputs - outputs double insulated, with 4mm banana sockets



Y-0036-056 Load Module - 3 Phase Variable Resistive

- 30cm x 40cm insulated panel
- 34cm x 44cm x 85cm metal case, with lockable wheels
- Energy lamp
- Supply Voltage : 220V - 240V AC, 50 / 60Hz
- 3 Phase 5 x 100W resistive load
- 5 stage
- 3 x 500W resistive load
- Each phase 1 x 4A fuse protected
- Fan cooling with 2A fuse protected
- All inputs - outputs double insulated, with 4mm banana sockets



Y-0036-057 Load Module - 3 Phase Variable Capacitive

- 30cm x 40cm insulated panel
- 34cm x 44cm x 85cm metal case, with lockable wheels
- Energy lamp
- Supply Voltage : 220V - 240V AC, 50 / 60Hz
- 3 x 500 VAR capacitive load
- 5 stage
- Each stage 8μF 450V AC
- Each phase 1 x 4A fuse protected
- All inputs - outputs double insulated, with 4mm banana sockets



Y-0036-058 Load Module - 3 Phase Variable Inductive

- 30cm x 40cm insulated panel
- 34cm x 44cm x 85cm metal case, with lockable wheels
- Energy lamp
- Supply Voltage : 220V - 240V AC, 50 / 60Hz
- 3 x 1kVA inductive load
- Control with potentiometer
- Each phase ± button controlled, with DC motor driven
- Fan cooling with 2A fuse protected
- All inputs - outputs double insulated, with 4mm banana sockets



Y-0036
ELECTRIC MACHINES AND CONTROL TRAINING SET
LOAD MODULES

Y-0036-059 Load Module - 3 x 530Ω Resistive

- 30cm x 18cm insulated panel
- 25cm x 18cm x 8cm plastic case
- 3 Phase use $L_1 - L_2 - L_3$
- Each phase 530Ω - 100W resistive load
- Loads suitable for serial - parallel, λ / Δ connection
- All inputs - outputs double insulated, with 4mm banana sockets



Y-0036-060 Load Module - 3 x 800Ω Resistive

- 30cm x 18cm insulated panel
- 25cm x 18cm x 8cm plastic case
- 3 Phase use $L_1 - L_2 - L_3$
- Each phase 800Ω - 75W resistive load
- Loads suitable for serial - parallel, λ / Δ connection
- All inputs - outputs double insulated, with 4mm banana sockets



Y-0036-061 Load Module - 3 x 15μF Capacitive

- 30cm x 18cm insulated panel
- 25cm x 18cm x 8cm plastic case
- 3 Phase use $L_1 - L_2 - L_3$
- Each phase 15μF 400V AC capacitive load
- Loads suitable for serial - parallel, λ / Δ connection
- All inputs - outputs double insulated, with 4mm banana sockets



Y-0036-062 Load Module - 3 x 30μF Capacitive

- 30cm x 18cm insulated panel
- 25cm x 18cm x 8cm plastic case
- 3 Phase use $L_1 - L_2 - L_3$
- Each phase 30μF 400V AC capacitive load
- Loads suitable for serial - parallel, λ / Δ connection
- All inputs - outputs double insulated, with 4mm banana sockets



Y-0036-063 Load Module - 3 x 1650mH Inductive

- 30cm x 18cm insulated panel
- 25cm x 18cm x 8cm plastic case
- 3 Phase use $L_1 - L_2 - L_3$
- Each phase 1650mH 400mA, 220V - 240V, 50 / 60Hz inductive load
- Loads suitable for serial - parallel, λ / Δ connection
- All inputs - outputs double insulated, with 4mm banana sockets



Y-0036-064 Load Module - 3 x 2550mH Inductive

- 30cm x 18cm insulated panel
- 25cm x 18cm x 8cm plastic case
- 3 Phase use $L_1 - L_2 - L_3$
- Each phase 2550mH 300mA, 220V - 240V, 50 / 60Hz inductive load
- Loads suitable for serial - parallel, λ / Δ connection
- All inputs - outputs double insulated, with 4mm banana sockets



Y-0036
ELECTRIC MACHINES AND CONTROL TRAINING SET
LOAD MODULES

Y-0036-065 Rheostat - 50Ω 1000W, Variable

- 50cm x 15cm x 10cm sized
- 50Ω 1000W variable (Sliding) resistive load
- Rubber footed, suitable for using table top
- All inputs - outputs double insulated, with 4mm banana sockets



Y-0036-066 Rheostat - 100Ω 500W, Variable

- 25cm x 15cm x 10cm sized
- 100Ω 500W variable (Sliding) resistive load
- Rubber footed, suitable for using table top
- All inputs - outputs double insulated, with 4mm banana sockets



Y-0036-067 Load Module - 500Ω 100W, Variable

- 30cm x 18cm insulated panel
- 25cm x 18cm x 12cm plastic case
- 500Ω 100W variable (Pot) resistive load
- Panel with circuit scheme
- All inputs - outputs double insulated, with 4mm banana sockets



Y-0036
ELECTRICAL MACHINES AND CONTROL TRAINING SET
ACCESSORIES

Y-0036-068 Connection Leads

- Suitable for 4mm banana sockets, isolated leads, 60 pcs
- Sizes : 50cm, 100cm, 150cm
- Colors : Red, Black, Blue, Yellow



Y-0036-069 IEC Fişli Bağlantı Kabloları

- 2 pcs 20cm IEC plug
- 2 pcs 50cm IEC plug
- 2 pcs 80cm IEC plug



Y-0036 Electric Machines and Control Training Set Experiment Book

Y-008 Module Storage Cupboard

- 175cm x 70cm x 60cm sized
- 2mm sheet painted with electrostatic
- One door, lockable
- 5 shelves with module carrying rails



Y-0036
ELECTRIC MACHINES AND CONTROL TRAINING SET
ELECTRIC MACHINES EXPERIMENTS

DC MOTOR EXPERIMENTS

- DC Shunt motor - dynamo characteristic experiments
Starting, No-load, Load operation, rotation and braking experiments
- DC serial motor - dynamo characteristic experiments
Starting, Load operation, rotation and braking experiment
- DC compound motor – dynamo characteristic experiments
Starting, No-load, Load operation, rotation and braking experiments
- DC shunt - dynamo parallel connection experiments
- DC Electronic motor control experiments
Shunt, Serial and compound DC machine experiments

ASYNCHRONOUS MOTOR EXPERIMENTS

3 Phase Asynchronous Motor Experiments

- Asynchronous motor with no-load, load operation and short circuit experiments
- Asynchronous motor starting experiments
Thermic protected Asynchronous motor starting experiments
Asynchronous motor starting with auto-transformer
Asynchronous motor Star- Delta starting
Asynchronous motor starting with serial resistance – reactance
- Asynchronous motor braking experiments
Asynchronous motor brake with reverse current
Dynamic brake to Asynchronous motor
- Asynchronous motor control with frequency commutator
- 3 Phase wound rotor Asynchronous motor experiments

1 Phase Asynchronous Motor with capacitor Experiments

- Starting, No-load, Load operation, rotation changing experiments

SYNCHRONOUS MOTOR EXPERIMENTS

3 Phase Synchronous Machine Experiments

- 3 Phase Synchronous motor experiments
No-load, Load operation, rotation and different excitation motor experiments
- 3 Phase synchronous alternator experiments
No-load, Load operation experiments
Resistive, capacitive, inductive load experiments
Parallel connection to the network experiment

TRANSFORMER EXPERIMENTS

- 1 Phase transformer experiments
No load, Load and short circuit experiment
Determination of polarization and transformer specification immobilize experiments
Parallel connection of 1 Phase transformers
Generating 3 Phase transformer with 1 phase transformers experiment
- 3 Phase transformer experiments
No load, Load and short circuit experiment
Star, Triangle, Zig Zag and other connections experiments
Parallel connection of 3 Phase transformers experiment

ELECTRIC LAWS AND MEASUREMENT EXPERIMENTS

- Ohm, Kirchhoff Laws etc.
- Current, Voltage, Power, Coefficient of Power, Energy measurement experiments

Y-0036
ELECTRIC MACHINES AND CONTROL TRAINING SET
ELECTRIC MACHINES EXPERIMENTS

- Recognize, connecting and selecting of control input elements
Buttons, packet circuit breakers, mechanic limit switches
- Recognize, connecting and selecting of Control output elements
Relays, contactors
- Recognize, connecting and selecting of Electric motor protection relays
Over current thermic, magnetic relay, thermistor relay, phase interrupted, phase sequence, under and over voltage relay
- Recognize, connecting, selecting and programming of PLC elements in Control systems
Easy relay using and programing
- Controlling 1 - 3 phase induction motors
Interrupted, continuous, interrupted-continuous operation
Operation in two control center
Operation with Sensor - Detectors
Starting and stopping 1 phase auxiliary wound motors
Operation Contactor - Thermic protected 1 - 3 phase motors
Operation 1 phase motor with starter packet circuit breaker
Operation 3 phase motor directly with starter packet circuit breaker
3 phase ASYNCHRONOUS motor starting automatic λ / Δ
3 phase ASYNCHRONOUS motor starting with λ / Δ packet circuit breaker
3 phase ASYNCHRONOUS motor starting with auto transformer
3 phase ASYNCHRONOUS motor starting with serial resistance
3 phase ASYNCHRONOUS motor starting with serial reactance
3 phase wound rotor ASYNCHRONOUS motor starting with serial resistance
Starting - operation 3 phase ASYNCHRONOUS motor with speed controller
- Changing rotation and cycle of 1 - 3 phase motor
Changing rotation with Button safety
Changing rotation with contact safety
Changing rotation with limit switch
Changing rotation with Monophaze packet circuit breaker
Changing rotation with Triphase packet circuit breaker
- Operation double speed ASYNCHRONOUS motor
Operation low speed, high speed with Dahlander packet circuit breaker
- Braking Induction Motors
Braking 3 Phase ASYNCHRONOUS motor with reverse current
Braking 3 Phase ASYNCHRONOUS motor dynamic
Braking 3 Phase ASYNCHRONOUS motor with scram switch
- Operation-stop Electric machines and control systems with photocell
- Operation Electric motor with liquid level relay
- Operation-stop Electric machine and systems with motion sensor
- Electric machine and systems control with different operation types
- Control systems with EASY (logic)
Understanding EASY (logic) programs
Designing control systems with EASY (logic)
Lighting controls
Automatic door control
Dirty water motor control
Air conditioning systems
Staircase - Hall - Corridor lighting
Bell control (School etc...)
External lighting systems
- Panel connection for all control systems