Power Electronics is a very important field within the industry worldwide. It is of utmost importance that students in the engineering branch have access to good laboratory equipment.

Within Power Electronics, Terco has a complete set of educational equipment, covering different components e.g. diode, thyristor, triac, diac, different transistors, amplifiers, etc., up to advanced AC- and DC drives.

Beyond the Basic Power Electronics Programme we present a package for traditional "Motor Control" covering Contactor Control, AC- and DC Converters, which also can be controlled by PLC.
Se Catalog: Basic Electricity and motor control

Besides our Power Electronics we have more advanced AC- and DC drives complete with motors, generators, loads etc.
Se Catalog: Basic Electrical Machine Laboratory

LIST OF EXPERIMENTS

01 Rectifications
02 Smoothing
03 Voltage Stabilising
04 Thyristors
05 Triac and Diac
06 Transistors
07 Filters
08 Opto Switches
09 Operation Amplifier
10 Static Current Converter
11 AD/DA Transducer
12 Measuring Semiconductors with a Digital Multimeter
13 Measuring Components with an Ocilloscope
14 Trouble Shooting

Note: Specifications are subject to change.

20.11.2023
Tesca Technologies Pvt. Ltd.
IT-2013, Ramchandrapura Industrial Area, Sitapura Extension,
Near Bombay Hospital, Vidhani Circle, Jaipur-302022, Rajasthan, India,
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Website: www.tescaglobal.com

PROVIDED PANELS AND OPTIONAL ACCESSORIES

SN.	Name	Order Code	Qty.
01	Analog Electronics Base Unit	M00001	2
02	Help Function Card	M00018	1
03	Power Regulator	M00019	1
04	Transistor	M00020	1
05	Operational Amplifier	M00021	1
06	Static Converter	M00022	1
07	AD/DA Converter	M00023	1
08	Component Set	M00024	1
09	DC-Motor	M00025	1
10	Frequency Converter	M00026	1
11	AC-Motor	M00027	1
12	Terminal Board	M00028	1
13	Motor Model	M00029	1
14	Lab Flex Set Shrouded Patch Cords	M00011	1
Optional			
01	Digital Oscilloscope	DSO-1102	1
02	Digital Multimeters	17702C	1
03	Digital Multimeter - Plam	17701C	1
04	Analogue Multimeter	AM-890	1
05	Digital Clampmeters / Tongtesters (DC / AC / TRMS)	17706C	1

ANALOG ELECTRONICS BASE UNIT

Order Code - M00001

The Base Unit is used throughout the system M00001. The unit supplies different output voltages suitable for the different lab cards used in the system. The Lab Cards put in slots and are automatically powered via a D-sub connector.

The base unit is accepted by CE standards.

TECHNICAL SPECIFICATIONS

Supply voltage: 230V AC 50 - 60 Hz

The unit has 6 outputs with following data:

Output 1 - 3 : DC 12 V / 200mA with LED indication and fuse

Output 4 - 6: AC 12 V / 200mA with LED indication and fuse

Dimension: 200 x 300 x 73mm

Weight: 4 kg Approx

HELP FUNCTION MODULE

Order Code - M00018

The Help Function Card, serves as additional power supply and function generator. The Kit slots into the Base Unit, and the power regulator to 6 slots into this kit.

Technical data:

DC Output 1: 0 - +15 V, (5 V,10V,15 V)

DC Output 2: 0 - -15 V, (5 V,10V,15 V)

Sinus wave: 1Hz to 10 kHz in 4 steps

Square wave: 1Hz to 10 kHz in 4 steps

Amplitude: 0-15 V

Dimension: 190 X 110 mm

Weight: 1 Kg Approx

Note: Specifications are subject to change.

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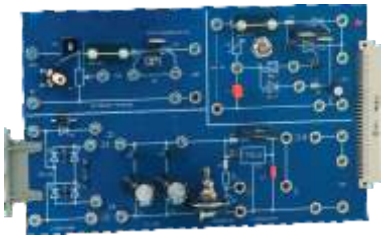


POWER REGULATOR MODULE

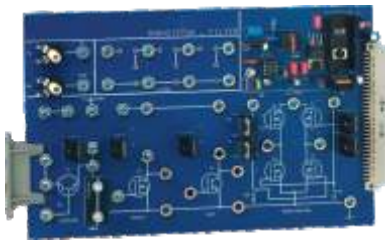
Order Code - M00019

The topics covered by M00019 Power Regulator, are the following exercises and experiments:

01 Rectification, half bridge and full bridge
02 Ripple Smoothing
03 Voltage Stabilising with Zener Diode and IC
04 Thyristor parameters
05 Triac and Diac regulation with a lamp

Technical data:

Dimension: 190 X 110 mm,
Weight: 1 Kg Approx



TRANSISTOR MODULE

Order Code - M00020

The topics covered by M00020 Transistors, are the following exercises and experiments:

01 Power Transistors
02 Bipolar Transistor
03 MOSFET
04 MOSFET Bridge
05 IGBT
06 Filters

Technical data:

Output P1: DC 0 – 24 V
Output P2: PWM Amplitude 24 V / Modulation 0 – 95% Powered from Base Unit 2000 via connector.
Dimension: 190 x 110 mm,
Weight: 1 Kg Approx

OPERATIONAL AMPLIFIER

Order Code - M00021

The topics covered by Lab Card Operational Amplifier, are the following exercises and experiments:

01 Operational Amplifier
02 Voltage Follower
03 Comparator
04 Inverting Amplifier
05 Non Inverting Amplifier
06 Inverting Adder
07 Non Inverting Adder
08 Different Amplifiers

Technical data:

Dimension: 190 X 110 mm
Weight: 1 Kg Approx

STATIC CONVERTER

Order Code - M00022

The topics covered by M00022 Static Converter, are the following exercises and experiments:

01 Current Converter
02 DC Motor Drive
03 Opto Switch
04 Fault finding
05 Speed Control

Lab Card IK 4 will also be used together with the DC-Motor

Technical data:

01 4 mm panel sockets
02 Powered from Base Unit via connector
03 Size: 190 x 110 mm
04 Weight: 1 kg Approx

Note: Specifications are subject to change.

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AD/DA CONVERTER

Order Code - M00023

The topics covered by Lab AD/DA Converter, are the following exercises and experiments.

01 Resolution 8 bits
02 AD/DA Converter Reference Voltage 5 V

Technical data:

01 4 mm panel sockets
02 Powered from Base Unit via connector
03 Size: 190 x 110 mm
04 Weight: 1 kg Approx

COMPONENT SET

Order Code - M00024

This Load Module consists of potentiometer, resistors, inductor and lamp holder with four lamps.

Technical data:

Dimension: 220 x 140 mm
Weight: 1 kg Approx

DC MOTOR

Order Code - M00025

DC-Motor with tachometer generator and rpm meter. The motor can be connected to Converter.

This DC-motor shall be slot into the Base Unit when doing experiments together with the Static Converter (DC-motor Drive). For these experimets two Base Units are needed.

Technical data:

DC-Motor: 24V / 10 W
Dimension: 190 X 110 mm
Weight: 1 kg Approx

FREQUENCY CONVERTER

Order Code - M00026

Lab Card Frequency Converter is a single phase frequency converter, to be used together with the AC-Motor.
It covers the following exercises and experiments.

01 Frequency speed control of an AC-Motor
02 Regulation
03 Distortion
04 Fault finding

Technical data:

Output Voltage : 12 V, 2 A,
Adjustable : 10 – 90 Hz
Dimension: 190 X 110 mm,
Weight: 0.2 kg

AC MOTOR

Order Code - M00027

AC-Motor with tachometer generator and rpm meter. The motor can be connected to Frequency Converter.

This AC-motor shall be slot into the Base Unit when doing experiments together with the Frequency Converter (AC-motor Drive). For these experiments two Base Units are needed.

Technical data:

AC Motor: 12V / 10W
Dimension: 190 X 110 mm
Weight: 0.2 kg

Note: Specifications are subject to change.

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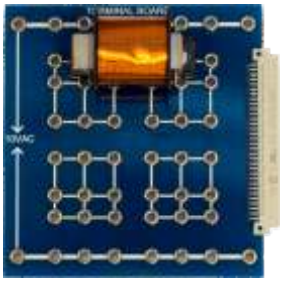
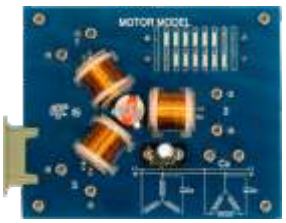


TERMINAL BOARD
Order Code - M00028
Used as coupling table for component connections and for calculating impedance (coil).
-
Technical data:
panel socket : 4mm
Dimension: 220 x 140 mm
Weight: 0.4 kg



MOTOR MODEL
Order Code - M00029
Used as control model together with AC Motor module Frequency Converter.

Technical data:
panel socket : 4mm
Dimension: 220 x 140 mm
Weight: 0.4 kg

LAB FLEX SET SHROUDED PATCH CORDS
Order Code - M00011
01. 2mm Patch Cord Red 50cm 10nos.
02. 2mm Patch Cord Black 50cm 10nos.
03. Connecting Wire 5 colors $1mm^2$. 1 mtr. each

OPTIONAL ACCESSORIES

DIGITAL STORAGE OSCILLOSCOPE
Order Code - DSO-1102
TDigital Storage Oscilloscope 100MHz, 2 CH, Coloured LCD 7, 1GS/s, USB+Software

DIGITAL MULTIMETER
Order Code - 17702C
AC Current - 20A
AC Voltage - 750V
DC Current - 20A
DC Voltage - 1000V

DIGITAL MULTIMETER
Order Code - 17701C
AC Current - 10A
AC Voltage - 750V
DC Current - 10A
DC Voltage - 1000V

DIGITAL CLAMPMETER
Order Code - 17706C
Digital Clampmeters / Tongtesters (DC / AC / TRMS) : 3 ¾ Digit
Count : 6000

ANALOG MULTIMETER
Order Code - AM-890
Special Functions: Dry battery test, continuity buzzer test, decibel, diode test, transistor hFE test Widely used for measuring voltage, current and electrical resistance
ACV Test Range: 10-50-250-1000V

Note: Specifications are subject to change.

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