IGBT Power Conversion Circuits

TP 8015-4



Equipment Set TP 8015-4

220 – 240 V, 50 Hz	**8223523**

The most important components at a glance:

1x Resistive Load	594820
1x Rectifier and Filtering Inductors Capacitors	8136516
1x Three-Phase AC Filter	8166653
1x 48 V Lead-Acid Battery Pack	8174051
1x IGBT Chopper/Inverter	8167609
1x Three-Phase AC 400 V DC 230 V Power Supply	594825
1x 24 V AC Power Supply (Wall Mount)	793290
1x 4-Quadrant Power Supply and Dynamometer Controller (note 1)	595028
1x Data Acquisition and Control Interface DACI-2 (note 2)	594499

Notes:

(1) The Lead-Acid Battery Charger function set must also be activated (sold separately, order no. 581438).

(2) The Chopper/Inverter function set must also be activated (sold separately, order no. 581453)

Necessary accessories, also order:

1x Connection Lead Set and Grounding Kit	595916
1x Three-Phase AC Power Supply and Safety Unit	594826
1x Mobile Frameline, complete model without energy duct **or**	8075133
1x Tabletop Workstation (DIN A4) **or**	8153360
1x Tabletop Double-Sided Workstation	8158409

Note: A computer with a Windows 7/8/10 operating system is also required.

Explore the fundamentals of power electronics and DC power conversion and control.

This training package provides hands-on experience with rectifiers, inverters, and various types of choppers using IGBTs as switching elements in single- and three-phase circuits.

The training package contains the necessary equipment to perform the practical learning activities of the “Single-Phase AC Power Electronics”, and “Three-Phase AC Power Electronics” courses available on Festo LX (subscription required) or as a campus license (sold separately).

Learners follow step-by-step instructions to connect modules and explore topics such as power diode rectifiers, switching transistors, ripple in choppers, buck/boost choppers, single- and three-phase rectifiers/inverters, and single-phase PWM inverters with a dual-polarity DC bus.

The four-quadrant power supply and dynamometer controller regulates the variable DC power supplied to the IGBT. In other scenarios include three-phase AC power supplied to the rectifier and filtering inductors capacitors to produce DC for the IGBT. The IGBT chopper/inverter either converts the DC to AC or boosts the DC voltage to the desired output level. The Data Acquisition and Control Interface (DACI) allows users to monitor and adjust parameters for chopper/inverter operation.

Recommended Learning Material

Workbooks (→ page 162)



Campus license:

en	8212870

Notes: The campus license “Power Electronics Fundamentals” includes the student and instructor manuals of the following workbooks: “DC Power Electronics”, “Single-Phase AC Power Electronics”, “Three-Phase AC Power Electronics”, and “Thyristor Power Electronics”. Printed workbooks are available upon request.

Courses on Festo LX:

- → DC Power Electronics
- → Single-Phase AC Power Electronics
- → Three-Phase AC Power Electronics
- → Thyristor Power Electronics