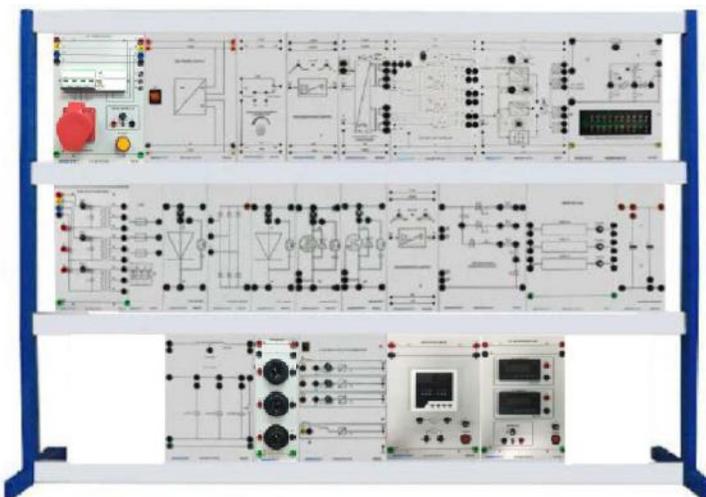


# POWER ELECTRONICS TRAINING KIT

Model Number : GOTT-PET-588A

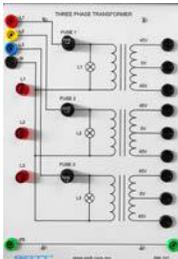
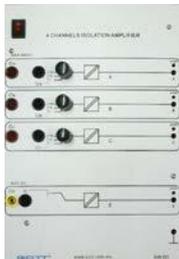
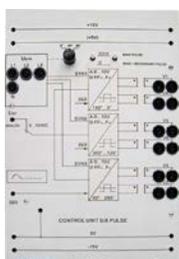
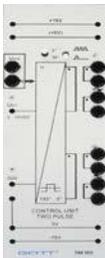
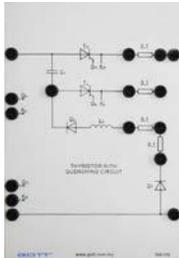
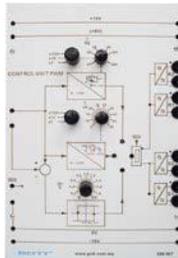


## DESCRIPTION

The Power Electronics Training Kit has been designed to control of electrical energy with the greatest efficiency possible. In fact, it allows the implementation of theoretical-practical courses, for the study of power electronics. The individual units of an experimental set-up are connected via 4mm safety sockets which are arranged in large, synoptically graphical symbols and current flow diagrams. Due to the vertical arrangement of the experimental panels, the experimental set-up can be seen from a far distance and can be adapted step by step to the course of the lessons or lectures.

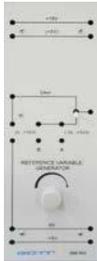
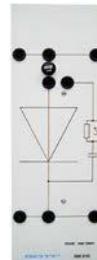
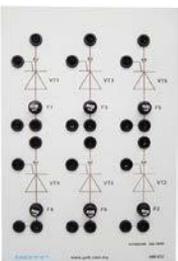
The experiments permit practice-oriented, hands-on training to be carried out, thus assuring the trainees of the proficiency needed to handle the tasks and the equipment found in this field. The training panels and functional units with block circuit diagrams and signal diagrams permit clear and understandable assembly of the experiment circuits.

## PRODUCT MODULES

AC POWER SUPPLY	CODE 588-001	THREE PHASE TRANSFORMER	CODE 588-101	FOUR CHANNELS ISOLATION AMPLIFIER	CODE 588-021	CONTROL UNIT SIX PULSE	CODE 588-006
<p>FCCB x 1 unit Mains Contraol Lamps x 3 units 4mm safety sockets Output : 415V DC : 230V/1A Input : AC 415 , 50Hz 3 Phase</p> 		<p>Protection Fuse 3A x 3 Input : 415v 3phase Output: AC: 3 x 90V/1.5A with 3 center taps 45V 4mm safety sockets</p> 		<p>Channels can be switched on or off individually Frequency Range: DC ... 80kHz Voltage: Max 620VDC/440VAC Overdrive indication with LEDs 4mm Safety Sockets Input: AC 240V, 50Hz 1-Phase</p> 		<p>Single pulse or pulse train operation Phase shift can be set for various natural commutating points: 0°, 30°, 60° Output:  <ul style="list-style-type: none"> <li>Synchronize Voltage: 1...440VAC</li> <li>Control Voltage: 0 ... +10VDC</li> </ul>                     Input: ±15VDC</p> 	
<p>CONTROL UNIT TWO PULSE</p> <p>Single pulse or pulse train operation Phase shift can be set for various natural commutating points: 0°, 30° Output:  <ul style="list-style-type: none"> <li>Synchronize Voltage: 1...250VAC</li> <li>Control Voltage: 0 ... +10VDC</li> </ul>                     Input: ±15VDC</p> 	CODE 588-005	<p>THYRISTOR WITH TURN OFF CIRCUIT</p> <p>Main Thyristor and Turn-off Thyristor:  <ul style="list-style-type: none"> <li>V<sub>DRM</sub>: Max 800V</li> <li>I<sub>TAV</sub>: Max 13A</li> <li>T<sub>Q</sub>: 35µs</li> </ul>                     Free-wheeling Diode:  <ul style="list-style-type: none"> <li>V<sub>RRM</sub>: Max 1000V</li> <li>I<sub>TAV</sub>: Max 8A</li> <li>Shunts: 4 x 0.1 ohm, 1%</li> </ul>                     Turn-off Capacitor: 4µF, 450V                      Ring-around reactor: 1mH</p> 	CODE 588-016	<p>CONTROL UNIT PWM / PFM</p> <p>Operation can be selected with the following control modes: Pulse Width Modulation (PWM) and Pulse Frequency Modulation (PFM)                      Control voltage: 0 ... +10VDC                      Pulse Width Modulator  <ul style="list-style-type: none"> <li>Frequency Ranges: 20 ... 200Hz / 0.2 ... 2kHz / 2 ... 20kHz</li> <li>Pulse Duty Factor t<sub>ON</sub>: 0 ... 0.95</li> </ul>                     Pulse Frequency Modulator  <ul style="list-style-type: none"> <li>Pulse Duration Ranges: 5 ... 50µs / 50 ... 500µs / 0.5 ... 5ms</li> <li>Frequency: 20Hz ... 20kHz</li> </ul>                     Output Amplifier  <ul style="list-style-type: none"> <li>Sustained short-circuit proof</li> <li>Indication of switching state via 2 LEDs</li> </ul>                     INHIBIT input                      Input: ±15VDC</p> 	CODE 588-007		

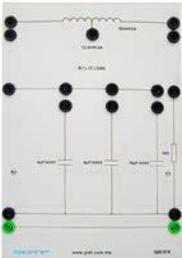
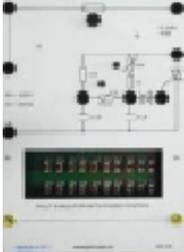
# POWER ELECTRONICS TRAINING KIT

Model Number : GOTT-PET-588A

REFERENCE VARIABLE GENERATOR	CODE 588-003	TRIGGER POINT LIMITER	CODE 588-004	IGBT	CODE 588-014	SINGLE PHASE RECTIFIER	CODE 588-029
Output: (selectable using bridging plug) • 0 ... +10VDC • -10VDC ... +10VDC Input: ±15VDC		LED indication for overlap Rectifier Stability Limit: 0° ... 180° Inverter Stability Limit: 180° ... 0° Input: ±15VDC		$V_{CES}$ : Max 1000V $I_{CAV}$ : Max 10A $V_{CESAT}$ : 3.5V $C_{GE}$ : 1.8Nf		Periodic Repetitive Peak Reverse Voltage: 500V On-State Current: 10A Protection: Fast Acting Fuse With R-C-D suppressor circuit	
FUSE	CODE 588-009	POWER DIODE	CODE 588-010	TRIAC	CODE 588-015	CAPACITOR UNIT	CODE 588-018
Rated voltage : 415VAC Protection Fuse 2A x 3 units		$V_{RRM}$ : Max 1000V $I_{FRMS}$ : Max 10A		$V_{RRM}$ : 800V		Nominal Capacitance: 2 x 1000µF Nominal Voltage : 415V	
RECTIFIER	CODE 588-011	MOSFET	CODE 588-013	BULB SOCKET	CODE 588-020	RESISTOR LOAD	CODE 588-017
Nominal Voltage: 3 x 400V Nominal Current: 10A Surge Forward Current: 300A		$V_{DS}$ : Max 500V $I_D$ : Max 10A $R_{DA(ON)}$ : 0.6Ω 4 Each		Incandescent Lamp x 3 units Input: AC 240V, 50Hz 1-Phase		Resistor 100Ω x 3 units Protection Fuse 1A x 3 units	
DC POWER SUPPLY	CODE 588-002	THYRISTOR	CODE 588-012	ELECTRICAL METER	CODE 588-038	DC MEASUREMENT UNIT	CODE 159-008
Two red LED (Voltage monitor) 4 mm Sockets Output: ±15VDC & +5VDC Input: AC 240V, 50Hz 1-Phase		Thyristor x 6 units Protection Fuse 1.5A x 6 units $V_{RRM}$ : Max 1000V $I_{FRMS}$ : Max 12A		Voltmeter range: 0...500VAC Ammeter range: 0...5A Input: AC 230V, 50Hz 1-Phase 2 Each		Voltmeter range: 0...500VDC Ammeter range: 0...5A Output: 230VDC Input: AC 230V, 50Hz 1-Phase 2 Each	

# POWER ELECTRONICS TRAINING KIT

Model Number : GOTT-PET-588A

<b>RLC LOAD</b> <b>CODE 588-019</b>	<b>SAFETY U-LINK</b> <b>CODE 446-000</b>	<b>SAFETY CONNECTING LEAD</b> <b>CODE 237-001</b>	<b>FAULT SIMULATOR PHASE CONTROL</b> <b>CODE 588-008</b>
Resistor 1kΩ Inductor 50mH 2.5A with tap at 12.5mH Capacitors 4/8/16μF, 450VAC 	A unit which is wed to link the unit together 	4mm connecting leads 	A total of 20 faults from the following categories can be switched on: <ul style="list-style-type: none"> <li>• Faulty components</li> <li>• Faulty assembly</li> <li>• Interruption</li> <li>• Short-circuit</li> </ul> Input: AC 240V, 50Hz 1-Phase 
<b>U-LINK</b> <b>CODE 159-019</b>	<b>VERTICAL FRAME</b> <b>CODE 297-000</b>	<b>EXPERIMENT MANUAL</b> <b>CODE 588-032</b>	
A unit which is wed to link the unit together 	High Level: Din Standard A4 with two shelves Material: Aluminium Side Frame: T shape Size: 3-Layer 1450mm Length 		

### EXPERIMENT TOPICS :

The Power Electronics Training Kit makes it possible to build up straightforward experimental circuits in keeping with practical requirements. Groups of experiments on basic power electronic circuits are presented, demonstrated and explained on the basis of rectifiers in a tried-and-tested didactic manner and sequence.

- Single-Phase Half-Wave Half Controlled Rectifier Circuit
- Single-Phase Full-Wave Controlled Rectifier Circuit
- Single-Phase Bridge-Type Controlled Rectifier Circuit
- Single-Phase AC Booster Circuit
- Three-Phase Bridge-Type Controlled Rectifier Circuit
- Quenching Circuit Step-Down DC Chopper Module
- MOSFET Step-Down DC Chopper Circuit
- IGBT Step-Down DC Chopper Circuit
- Passive Inverter Circuit
- Fault Simulator
- Connection Diagram

### ADDITIONAL MODULE:

Please refer to page “Advanced Power Electronics Training Kit Additional Module”.

### Manuals :

- (1) All manuals are written in English.
- (2) Model Answer
- (3) Teaching Manuals

### General Terms :

- (1) Accessories will be provided where applicable.
- (2) Manuals & Training will be provided where applicable.
- (3) Designs & Specifications are subject to change without notice.
- (4) We reserve the right to discontinue the manufacturing of any product

### Warranty :

2 Years

### ORDERING INFORMATION :

ITEM	MODEL NUMBER	CODE
POWER ELECTRONICS TRAINING KIT	GOTT-PET-588A	590-000

\*Proposed design only, subject to changes without any notice.