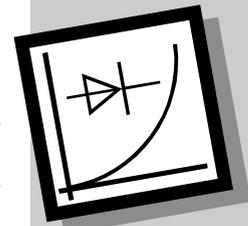


Fundamentals of Electrical Engineering / Electronics



PC BASIC ELECTRONIC BOARD

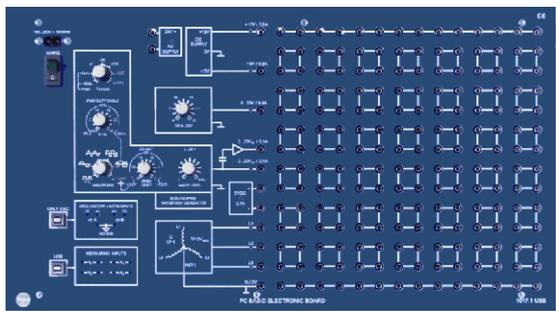
1017.1 USB

PC BASIC ELECTRONIC BOARD with PC-connection

PC BASIC ELECTRONIC BOARD (Type 1017.1 USB)

With USB-Interface (incl. operators software) and the option to upgrade the PC BASIC ELECTRONIC BOARD with the USB-Measuring Interface and the USB-Oscilloscope

NEW!
 • PWM Output
 • DC Offset Output
 • optional:
 USB-Oscilloscope



PC BASIC GENERATOR BOARD (Type 1017.1 USB)



PC (not supplied) to control the PC BASIC ELECTRONIC BOARD

- Useable with or without a PC
- If the optional measuring interface incl. measuring software is used, there are two inputs for current and two inputs for voltage available. Type 1018.4
- Optional: 2-channel USB-Oscilloscope Type 1018.5 with FFT software.

- Universal training and instruction system for the fundamentals of Electrical Engineering / Electronics
- With integrated DC, AC and three-phase current sources as well as a function generator
- Function generator, DC and three-phase current sources short-circuit proof and LED-monitored
- The out signals of the voltage generator can be adjusted precisely with the PC via built-in USB-connection and simultaneously projected with a beamer
- Clear storage of accessories on a separate imprinted Board
- Detailed experiment instructions with solutions

Set of Accessories Type 1017.11
 for the PC BASIC ELECTRONIC BOARD incl. Storage board, consisting of Resistor, Capacitor, Coil, Transformers, Diodes, Transistors, Operational Amplifiers



Set of Accessories (Type 1017.11)

With the PC BASIC ELECTRONIC BOARD hps SystemTechnik offers a universal training and instruction system excellently suited for conducting of fundamentals experiments in Electrical Engineering / Electronics:

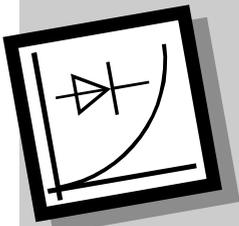
- DC, AC and three-phase current technology
- Characteristics of diodes and transistors
- Characteristics of thyristors and triacs
- Amplifier circuits
- Bridge circuits

The BASIC ELECTRONIC BOARD is equipped, in addition to the power supplies required for conducting the experiments, with a large jack field for setting up experiments with plug-in components. On this jack field, 4 mm jacks are arranged in a 19 mm grid. Four jacks are electrically connected and marked with white printing.

When setting up a circuit, the individual groups of jacks are connected by connecting plugs or leads and by the plug-in components given by the circuit. On this jack field 4 mm safety connecting leads with fixed isolated sleeves are useable.

With the optional measuring interface incl. Measuring software (Type 1018.4) the measured data are easily shown on a PC-monitor.

With the optional USB-Oscilloscope (Type 1018.5) you can view all signals time or frequency based.



PC BASIC ELECTRONIC BOARD

1017.1 USB

Fundamentals of Electrical Engineering / Electronics

Accessories Required

- **Set of Accessories** **Type 1017.11**
consisting of: storage board, resistors, capacitors, semiconductors, transformer coils
- **Set of Accessories** **Type 1017.11.1**
consisting of: connecting leads and plugs
- **Experiment manual** **Type V 0105**
„Fundamentals Experiments in Electrical Engineering / Electronics“ with problems and solutions Section for the following subjects:
 - Electrical Circuit / Ohm's Law
 - Voltage Error Circuit and Current Error Circuit
 - Electrical Resistors
 - Equivalent Voltage Source
 - Series Circuiting of Voltage Sources
 - Parallel Circuiting of Voltage Sources
 - Electrical Power and Work
 - Efficiency of Electrical Power
 - Voltage, Current and Power Matching
 - Establishing and Displaying Characteristics in AC Technology
 - Three-Phase Alternating Current
 - Capacitor in the AC Circuit
 - Coil in the AC Circuit
 - Interconnecting Resistor, Capacitor and Coil Transformers
 - Diodes / Transistors / Thyristors
 - Operational Amplifiers
 - Bridge circuits (Wheatstone-bridge, Thevenin Theorem, Norton Theorem, Maxwell-bridge, Maxwell-Wien-bridge)

Accessories Recommended (optional)

- **USB-Measuring interface** **Type 1018.4**
incl. measuring software to display measured data on a PC-monitor
- **USB-Oscilloscope, 2-channel** **Type 1018.5**
incl. software to view signals time or frequency based

Technical Data

Mains connection

- Voltage: 230 V AC / 115 V AC (110 V AC)
50 ... 60 Hz; approx. 70 VA

AC and DC voltages

- DC voltage: +15 V ($\pm 5\%$); 800 mA
-15 V ($\pm 5\%$); 800 mA
+5 V; 100 mA
0 ... 25 V; 300 mA
- AC voltage: 24 V AC; max. 100 mA

Function generator

- Sinewave / Squarewave / Triangal:
 $U_{PP} = 0 \dots 20 \text{ V}; 100 \text{ mA}$
 $f = 1 \text{ Hz} \dots 250 \text{ kHz}$
 $R_i = 60 \Omega$
- Squarewave, positive:
 $U = 5 \text{ V} / \text{TTL}$
- PWM
10 kHz; Pulse width 0 ... 100 %
- DC Offset
+12 V ... -12 V

Three-phase current generator

- Phase voltage: $7 V_{\text{eff}}$
- Line voltage: $12 V_{\text{eff}}$
- Line current: max. 50 mA
- Frequency: approx. 50 Hz

The outputs of the function generator, DC and three-phase current sources are short-circuit-proof and LED-monitored.

Mechanical Data

The front panel of the PC ELECTRONIC BOARD is made of 5 mm thick laminate, matt blue in colour with white printing representing the built-in function groups.

The rear of the Board is protected with a grey plastic cover. Its shape allows the Board to be placed at an ergonomically favourable angle for example on a table.

Dimensions and weights

- PC BASIC ELECTRONIC BOARD (Type 1017.1 USB):
532 x 297 x 120 mm (w x h x d), weight: 3.9 kg
- Set of Accessories (Type 1017.11):
266 x 297 x 160 mm (w x h x d), weight: 2.2 kg
- Box version, consisting of:
PC BASIC ELECTRONIC BOARD (Type 1017.1 USB),
Set of Accessories (Type 1017.11 and Type 1017.11.1)
and Box (Type 1017.20): 580 x 450 x 200 mm
- total weight: 10.00 kg

Technical changes without prior notice!