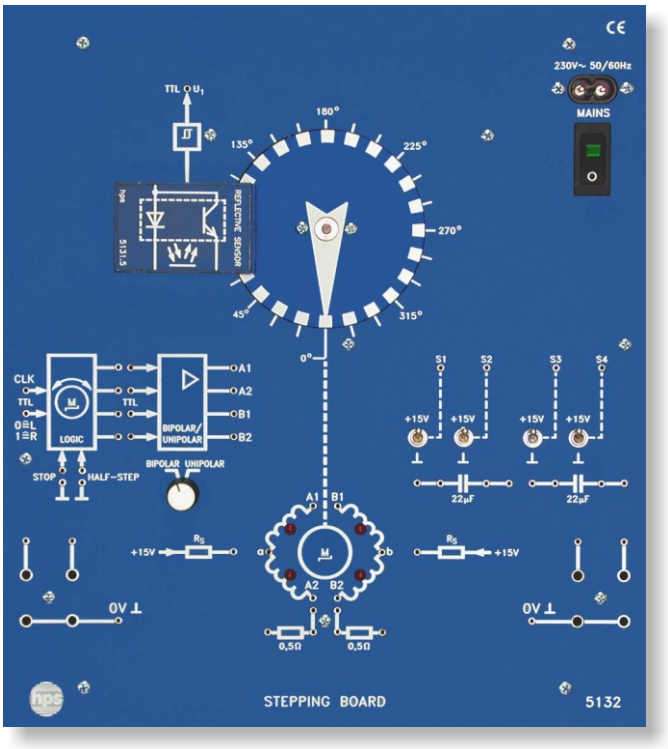
STEPPING BOARD

Type 5132



STEPPING BOARD
(Type 5132)

- **Universal stepping motor for digital technology and power electronics**
- **Digital recording of the angle and number of revolutions by a plug-in reflective sensor**
- **Digital control inputs for both senses of rotation**
- **With built-in control logic**
- **Bipolar and unipolar function of the stepping motor**

With the STEPPING BOARD hps SystemTechnik offers a controlled system which can be used in digital automatic control engineering as well as in power electronics.

The STEPPING BOARD Used as a Stepping Motor

The stepping motor used in the STEPPING BOARD can be manually examined in half and full stepping operation (unipolar) by means of 4 switches.

A control logic with downstream amplifier allows operation with a square-wave generator (TTL level), for example with the hps DIGI BOARD 2 or a PC interface.

The direction of rotation can be preselected by logic 0 ≙ L or logic 1 ≙ R.

Without the control logic level the amplifier can be actuated with a digital pulse sequence via four inputs (TTL level), for example with the hps DIGI BOARD 2, the hps PC CONTROL BOARD or a PC interface.

Two built-in amplifiers allow to select unipolar or bipolar drive.

The stepping motor of the STEPPING BOARD is equipped with an encoder disk on which 24 lines are printed. These lines are incrementally registered with a plug-in reflective sensor and converted iUse as a and a synchronous motor

Digital recording of the angle and nunto the according digital pulses. The digital pulses are lead over a Schmitt trigger and can be used as TTL signals for determining the number of revolutions and the angle of rotation.

The STEPPING BOARD in Power Electronics

The STEPPING BOARD can be directly connected to the sine modulated pulse-width modulation (PWM) of the hps POWER BOARD through a built-in phase shifter. This allows to examine the function of a frequency converter in connection with a motor.

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Digital Technoloy

To conduct the experiments, the STEPPING BOARD is placed on a table or suspended in an hps bench rack for demonstration purposes.

Mechanical Data

The front panel of the STEPPING BOARD is made of 5 mm Thick laminate, matt blue in colour with white engraving 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.

Accessories Included

- Reflective Sensor (Type 5131.5)

with built-in LED photo darlington transistor.
Dimensions (without plugs): 37 x 56 x 35 mm (w x d x h), weight: approx. 50 g

- 4 Connecting plugs, 2 mm

Accessories Recommended

- Experiment manual:
  „Experiments with the STEPPING BOARD"
  (Type V 0123)

- Software:
  DIGIWIN (Type 3890.4)

Technical Data

Mains connection
- Voltage: 230 V AC / 115 V AC (110 V AC);
  20 VA; 50 ... 60 Hz

Motor
- Stepping motor, 2-phase
- Rated voltage: 12 V
- Current consumption: max. 0.4 A per phase
- Resonant frequency: 15 Hz ... 35 Hz

Voltage supply
- +15 V in unipolar mode, for each phase

Encoder disk
- Speed: 300 min^{-1}
- Resolution: 24 pulses (lines) / revolution

Plug-in field (4 mm jacks)
for the use of the Reflective Sensor (Type 5131.5) with the encoder disk

Output (U_1)
Output voltage: TTL, decoupled through TTL module.
The output signal is incremental and only existing with plugged Reflective Sensor.

Adapter fields
The adapter fields serve for change-over from 4 mm to 2 mm plug connections and to plug-in adapters (BNC jack → 4 mm plugs).

Amplifier
- All inputs: TTL level

Control logic
- CLK input: TTL level
- Input below: TTL level
  logic 1 ≙ clockwise
  logic 0 ≙ anticlockwise

Dimensions and weight
- 266 x 297 x 90 mm (w x h x d);
  weight: approx. 1.2 kg

Subject to technical modifications.