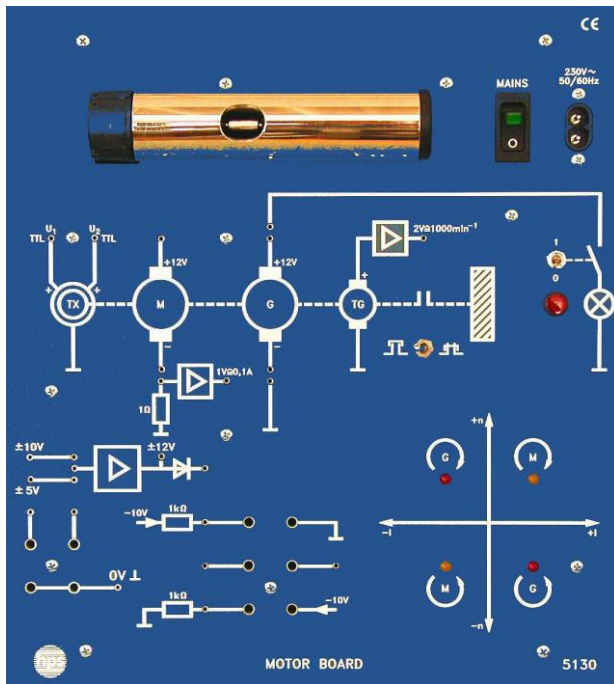




MOTOR BOARD

Type 5130



- Universal speed control system
- Extendable with plug-in module for temperature and brightness control
- With integrated four-quadrant display
- With variable centrifugal mass
- Dual-channel encoder
- Built-in four-quadrant Amplifier

MOTOR BOARD
(Type 5130)

With the MOTOR BOARD hps SystemTechnik offers a controlled system which can be used either in power electronics (e. g. POWER BOARD), in control engineering (e. g. PID BOARD) or in communications technology (PLL, Type 4250).

The MOTOR BOARD contains a machine set comprising:

- DC motor with current actual value acquisition
- DC generator with connectable load
- Tachogenerator with decoupling amplifier
- Connectable mechanical centrifugal mass, realised electronically

- Dual-channel encoder for direct acquisition of speed and direction of rotation
- Built-in sight window for optical recognition of speed and direction of rotation and stroboscopic scanning

A DC power amplifier is built into the MOTOR BOARD for direct connection to a controller or a PLL circuit.

It is possible to plug this amplifier for positive current direction only or for both current directions.

In this way the machine set can be accelerated and decelerated in both directions. Four-quadrant drive is therefore possible.

The momentary operating state of the machine set can be optically monitored.

For this, a four-quadrant indicator is integrated in the MOTOR BOARD which links the current and direction of rotation via a logical circuit and then indicates them on 4 LEDs.

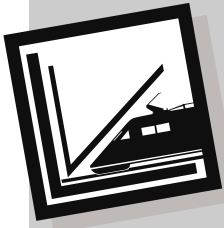
A combined plug-in module „Temperature and Brightness Controlled System“ (Type 5125.5) is offered for temperature and brightness control.

A connection field is provided on the MOTOR BOARD which is wired with voltage dividers for actual value acquisition of temperature and brightness.

The MOTOR BOARD has a built-in power supply unit which guarantees electrical isolation from other connected devices.

The following disturbance variables can be applied on the MOTOR BOARD:

- Variation of the mechanical centrifugal mass and the related time constant fluctuation
- Connectable load on the generator



MOTOR BOARD

Type 5130

Mechanical Data

The front panel of the MOTOR 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.

Adapter field

Serves for adapting 4 mm to 2 mm connections and for plugging in two adapters (BNC socket two 4 mm connectors)

Centrifugal mass

Connectable, for altering the time constants, realised electronically

Connection field

For plugging the Temperature and Brightness Controlled System and adapting it to 2 mm jacks. Two resistors serve as voltage dividers for the actual value acquisition of temperature and brightness.

Accessories Recommended

- Experiment manual: „Controlled Systems/Control Circuits“ (Type V 0122)
- Temperature and Brightness Controlled System (Type 5125.5)



Type 5125.5

▲ Temperature and Brightness Controlled System

Plug-in module consisting of:
actual value acquisition of temperature by PTC resistor; actual value acquisition of brightness by LDR resistor; heat and light source: filament lamp 12 V/5 W

The Temperature and Brightness Controlled System is not part of the delivery scope of the MOTOR BOARD (Type 5130).

Subject to technical modifications.

Technical Data

Mains connection

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

Motor

- Rated voltage: 12 V
- Rated speed: 5900 min⁻¹
- Speed: max. 8000 min⁻¹
- Current: max. 0.5 A

Generator

- Rated voltage: 12 V
- Maximum current: 0.5 A

Tachogenerator

- Output voltage: 2 V $\pm$ 1000 min⁻¹; decoupled by amplifier
- R_i = 200

Encoder

- Resolution: 100 lines / rev.
- Output channels: 2
- Output voltage: TTL (decoupled by TTL module)

Load

- Connectable load resistance: 33 Ω / 5 W ; with parallel-circuited lamp

Current actual value acquisition

- Measuring resistance: 1

Series-connected amplifier

- Gain factor: 10
- Internal resistance: 200

DC amplifier

- Input I: 0 ... $\pm$ 10 V
- Gain factor: V = 1.2
- Input II: 0 ... $\pm$ 5 V
- Gain factor: V = 2.4
- Output voltage in four-quadrant operation: 0 ... $\pm$ 12 V
- Output current: max. 0.5 A

Four-quadrant indicator

4 LEDs in two colours, to distinguish between motor and generator quadrants

Dimensions and weights

- MOTOR BOARD (Type 5130): 266 x 297 x 90 mm (w x h x d); weight: approx. 2.2 kg
- Temperature and Brightness Controlled System (Type 5125.5): 37 x 56 x 35 mm (w x d x h), dimensions without plugs; weight: approx. 65 g