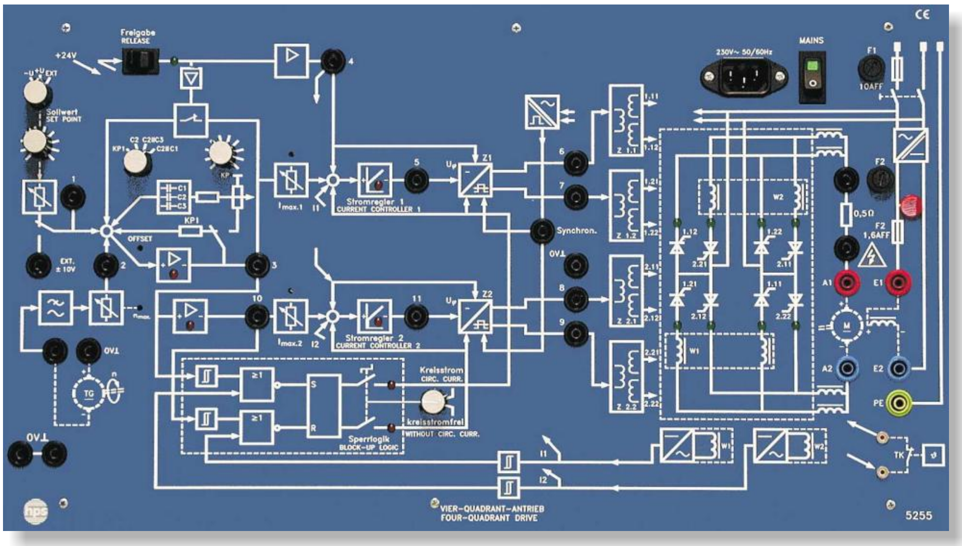
Control Engineering / Power Electronics



Front view of the Four-Quadrant Drive (Type 5255)

Four-Quadrant Drive (DC)

Type 5255

- **Compact construction for fast setup**
- **For DC machines of 100 W ... 1 kW**
- **Circulating current and circulating current-free operation, switchable**
- **Built-in controllers for current and speed**
- **Optical indicator for thyristor switching states**
- **Test jacks for recording electrical parameters**

With the Four-Quadrant Drive hps SystemTechnik offers a training system to conduct experiments in the field of automatic monitoring and control of the speed of Shunt-Wound DC Machines.

Measuring and adjusting facilities are available for recording and displaying all the important electrical parameters.

Detailed instructions are available for conducting experiments with the Four-Quadrant Drive.

The Four-Quadrant Drive is designed for operating DC machines rated up to 1 kW.

To conduct the experiments, the Four-Quadrant Drive is placed on a table or suspended in an hps rack for demonstration purposes.

Accessories Recommended

- Experiment manual: „Four-Quadrant Drive“ (Type V 0015)
- Shunt-Wound DC Machine (Type 2701) or Variable Compound Machine (Type 2704)
- Universal Power Supply (Type 2740.1)
  DC: 200 V / 4 A (fixed),
  DC: 0 ... 250 V / 4 A
  (only required for static inverter)
- Load (Type 5512)
  three lamps and one switch
- Connecting leads
- Measuring equipment:
  - oscilloscope (with divider probe),
  - isolation amplifier,
  - multimeter (0 ... 300 V; 0 ... 10 A),
  - speed indicator
- DC Brake Unit (Type 2718)

SystemTechnik
Competence in Training

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Four-Quadrant Drive (DC)

Type 5255

Technical Data of the Four-Quadrant Drive

Mains connection
- Voltage: 220 ... 240 V AC; 50 ... 60 Hz;

Power consumption
- Approx. 200 VA ... 1.1 kVA
  (depending on the connected machine set)

Armature voltage and current
- Max. 207 V; 6 A (with 230 V mains voltage)

Field voltage and current
- Max. 207 V; 2.5 A (with 230 V mains voltage)

Speed controller (can be switched off)
- Proportional part K_P continuously adjustable
- Integral part adjustable in 3 stages

Temperature control
- For motor set, via 2 mm jacks

Mechanical data

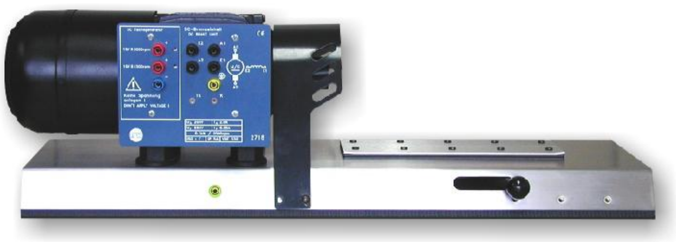
The front panel of the Four-Quadrant Drive is made of 5 mm thick Laminate, matt blue in colour with white engraving representing the built-in function groups.
The front panel also contains the necessary controls as well as the 4 mm test jacks required for conducting experiments.
The rear of the Board is protected with a grey powder-coated metal cover.

Dimensions
- 532 x 297 x 190 mm (w x h x d)

Weight
- Approx. 14.9 kg

Subject to technical modifications.

DC Brake Unit (Type 2718)



The DC Brake Unit has been designed for applications in the field of drive engineering, e. g. for experiments with a shunt-wound DC machine and a four-quadrant drive.

It can be used as a motor together with the Universal Power Supply (Type 2740.1) or as a generator with the Load (Type 5512).

The DC Brake Unit consists of a shunt-wound DC machine with integrated DC tachogenerator mounted on a base. The base accomodates and mechanically connects the experimental machines, e. g. a shunt-wound DC machine (Type 2701).

The hps experimental machines are equipped with 4 machine feet. They are slipped on the Brake Unit and fixed with a single-lever quick-action clamping device.

Accessories included: Coupling Collar (Type 2718.5)

Technical data of the DC Brake Unit

Shunt-Wound DC Machine
- Armature voltage and current: 205 V / 2 A;
- Field voltage and current: 205 V / 0.33 A
- Power: 0.3 kW (at 2000 rpm)
- Protection through thermal contact

DC tachogenerator
- Output 1: 10 V (at 1500 rpm)
- Output 2: 10 V (at 3000 rpm)

General
- Material of the base: stainless steel, brushed
- Dimensions: 710 x 220 x 250 mm (w x h x d)
- Weight: 13.7 kg