



Batteries

High-quality batteries with a long working life, leakage-free

DG130-3B Battery, D-size, 1.5 V

DG130-4B Battery, AA-size, 1.5 V

DG130-5B Battery, C-size, 1.5 V

P3122-1B Rechargeable batteries, 1.5 V/1500 mAh, AA-size, set of 4

P3122-2L Charger for P3122-1B batteries

For charging up to four 1.5 V/1500 mAh rechargeable batteries (P3122-1B)

Voltage source: 230V AC/50 ...60Hz



DE312-1B Battery holder

For holding a 1.5-volt C-size battery; plastic case mounted on an acrylic base with two 4-mm plugs 40 mm apart (supplied without battery)



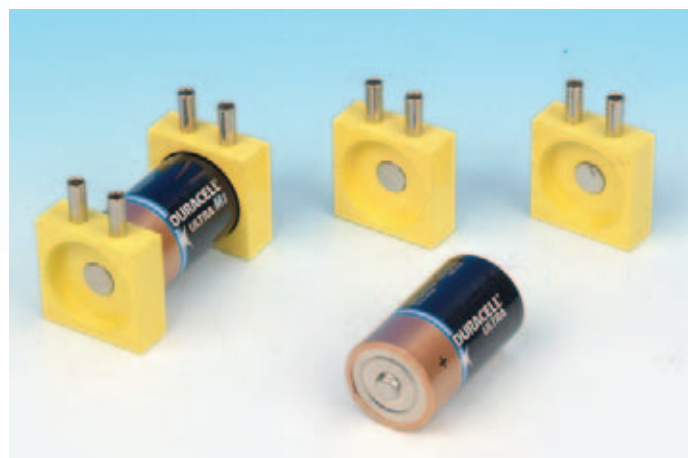
P3120-4B Battery, variable, "inno"

The variable "inno" battery, equipped with four 1.5-volt D-size batteries, may be set to deliver 1.5, 3, 4.5 or 6 volts of fixed direct current. The output voltage selected is taken from the 4-mm safety jack. When doing high-current experiments, the 6-V output circuit can be closed briefly using a push button.

An ON-OFF toggle switch is included, and the operating mode is displayed by a green LED control lamp. The green ABS plastic case is labelled in yellow, and four strong neodymium magnets are inset in the rear panel for mounting the device magnetically.

(Device supplied with four 1.5-volt D-size batteries!)

Dimensions: approx. 160x120x45 mm



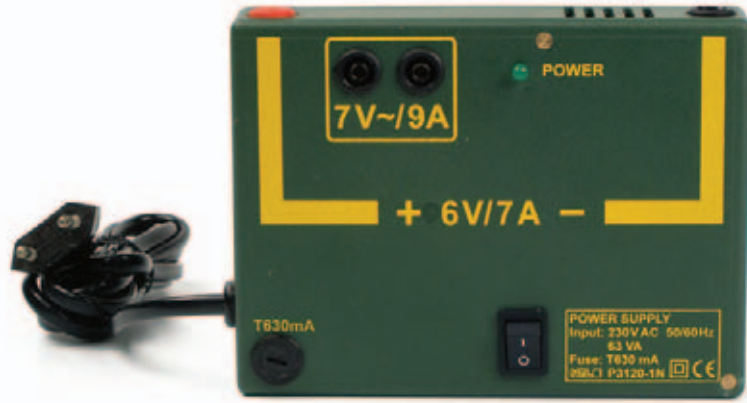
DP911-2A Connector terminals, pair

Aluminium holder for magnetic mounting by means of strong, built-in neodymium magnets; used for connecting a 1.5-volt D-size battery using wires with 4-mm plugs

Dimensions: 40x40 mm



magnetic "inno" power supplies



P3120-1N Fixed-voltage transformer, "inno"

The "inno" fixed-voltage transformer delivers 6 volts of fixed, stabilized direct current at a maximum of 7 A and 7 volts of fixed alternating current at a maximum of 9 A. The output voltage is taken from 4-mm safety jacks that are protected against short circuiting and overloading. The transformer shuts down in the case of an overload.

This device has been specially designed for use with converters P3120-1K, -1W, -1G, -3D. With its magnetic case, it is particularly suited for all experiments done on a magnetic panel with the NTL inno system.

Technical data:

Output voltage: 6 V DC, stabilized, max. 7 A, and 7 V AC, max. 9 A

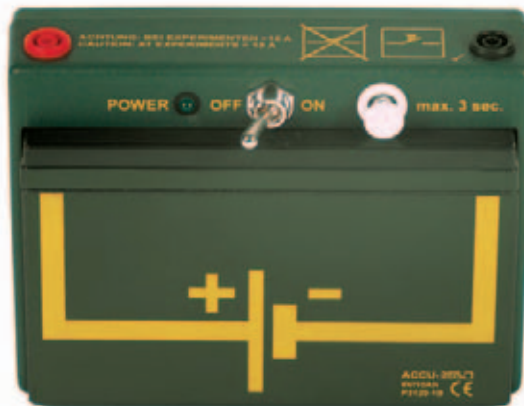
Fuses: T 630mA fine-wire fuse (primary), electronic fuse (secondary)

Voltage source: 230 V AC/50...60 Hz

Dimensions: approx. 160x120x45 mm

Case: ABS plastic with yellow labelling

Weight: approx. 1260 g



P3120-1B Rechargeable battery, "inno", 6V/10 Ah

The 6V/10 Ah inno rechargeable battery delivers 6 V of fixed direct current supplied through 4-mm safety jacks controlled by a toggle switch. When doing high-current experiments (short-circuit current >30 A), the output circuit can be closed for a maximum of 3 seconds using a push button. This device has been specially designed for use with converters P3120-1K, -1W, -1G, -3D and for experiments with high current.

With its magnetic case, it is particularly suited for all experiments done with the NTL inno system on a magnetic panel.

Technical data:

Output voltage: 6 V DC; short-circuit current: >30 A

LED indicator: displays operating mode

Dimensions: approx. 160x120x45 mm

Case: green ABS plastic with yellow labelling

Weight: approx. 2.4 kg



P3121-2S Plug-in battery charger

Automatic battery charger for 6- and 12-volt lead acid rechargeable batteries; indicators for charging status and polarity; slider switch for setting charging voltage; two 4-mm safety plugs with connecting leads; protection against short circuiting and reversed polarity

Voltage source: 230 V AC/50...60 Hz

Dimensions: 100x65x60 mm



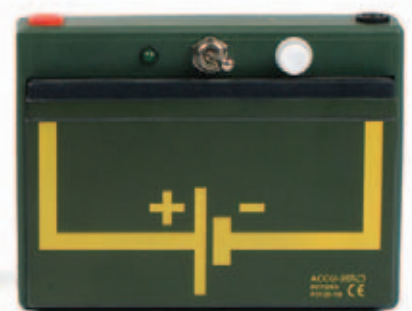
P3121-1L Battery charger, "inno"

Battery charger suited especially for 6V/10Ah "inno" rechargeable battery P3120-1B; with protection against reversed polarity, charging status indicator.

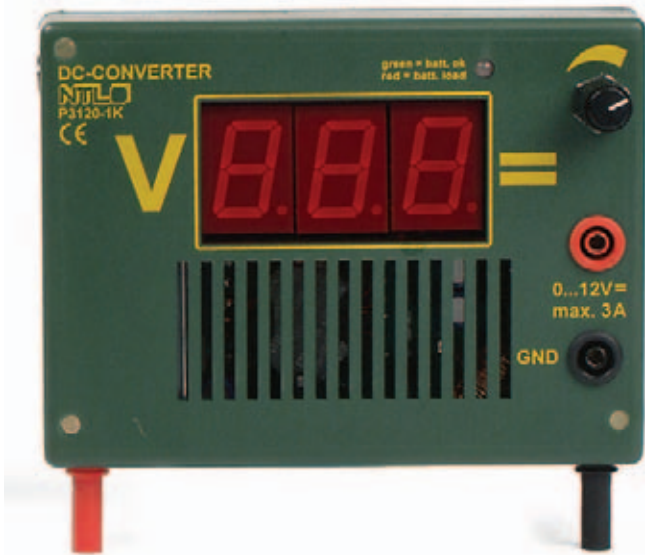
Voltage source: 230V AC/50...60Hz

Case: plastic, green ABS

Dimensions: approx. 160x120x45 mm



magnetic "inno" power supplies



P3120-1K DC converter "inno"

Variable DC power supply suited for an average load, may be combined with 6 V/10 Ah "inno" rechargeable battery P3120-1B or "inno" fixed-voltage transformer P3120-1N using plug-in connectors

Technical data:

Output: 0 ... 12 V DC, stabilized, continuously variable, max. 3 A supplied by 4-mm safety jacks permanently protected against short circuiting

Voltage indicator: LED display; digit height: 26 mm

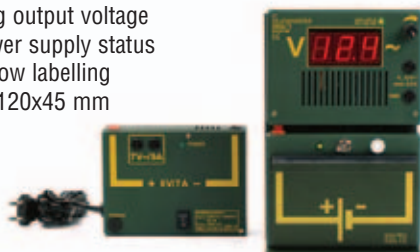
Potentiometer for adjusting output voltage

LED display indicating power supply status

Case: ABS plastic with yellow labelling

Dimensions: approx. 160x120x45 mm

Weight: approx. 540 g



P3120-1W AC converter "inno"

Variable AC power supply suited for an average load, may be combined with 6 V/10 Ah "inno" rechargeable battery P3120-1B or "inno" fixed-voltage transformer P3120-1N using plug-in connectors

Technical data:

Output: 0 ... 12 V AC, stabilized, continuously variable, max. 0.5 A supplied by 4-mm safety jacks permanently protected against short circuiting

Voltage indicator: LED display; digit height: 26 mm

Potentiometer for adjusting output voltage

LED display indicating power supply status

Case: ABS plastic with yellow labelling

Dimensions: approx. 160x120x45 mm

Weight: approx. 540 g



P3120-4A L-shaped assembly platform

Metal bracket, L-shaped, green powder-coated
Height: 240 mm



Use: When used with the 6 V/10 Ah rechargeable battery or fixed-voltage transformer "inno", the "inno" DC or AC converter can be mounted on the L-shaped assembly platform P3120-4A, easily converting it into a table model.



magnetic "inno" power supplies

P3130-3M Low-voltage transformer with digital display, "inno"

Continuously variable, stabilized DC voltage, level displayed on 20-mm digital display, and selectable AC voltage, with electronic overload protection; 10 strong neodymium magnets inset in the rear panel for mounting the device magnetically

Output terminals: 0 ... 12 V DC, stabilized, continuously variable, max. 3 A; and

3, 6, 9 or 12 V AC, variably selectable, max. 3 A

Galvanic separation from mains source; output voltage taken from 4-mm safety jacks; ON-OFF switch; LED indicator for overloads and short circuits; T 630 mA fine-wire fuse (primary)

Voltage source: 230 V AC/50...60Hz

Green ABS plastic case with yellow labelling

Dimensions:

approx. 160x120x45 mm

Not shown:

P3130-3D

Low-voltage transformer with digital display

Technical data as for P3130-3M but

not magnetically mountable!



P3120-3N Low-voltage transformer, "inno"

Continuously variable, stabilized DC voltage and selectable AC voltage, with electronic overload protection; 10 strong neodymium magnets inset in the rear panel for mounting the device magnetically

Output terminals: 0 ... 12 V DC, stabilized, continuously variable, max. 3 A; and

3, 6, 9 or 12 V AC, variably selectable, max. 3 A

Galvanic separation from mains source; output voltage taken from 4-mm safety jacks; ON-OFF switch with indicator lamp; T 400 mA fine-wire fuse (primary)

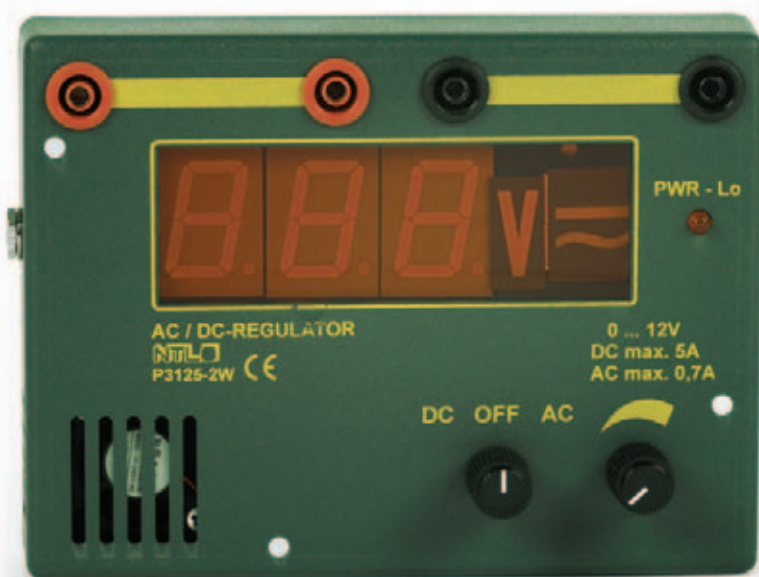
Voltage source: 230 V AC/50...60 Hz

Green ABS plastic case with yellow labelling

Dimensions: approx. 160x120x45 mm



magnetic "inno" power supplies



P3125-2W AC/DC regulator, "inno"

Compact, magnetically mountable low-voltage transformer with large digital display

Technical data:

Output terminals: 0...12 V DC, max. 5 A, and 0...12 V AC, max. 0.7 A

Power supplied through two pairs of 4-mm safety jacks with electronic fuse

Voltage indicator: LED display; digit height: 26 mm

Type of voltage displayed digitally

Diode indicates power on

Voltage source: 12 V stabilized DC, approx. 5 A, e.g. P3130-2P

Connection by means of 5.5 mm hollow plugs

Dimensions: approx. 160x120x45 mm



P3130-7A Fixed-voltage transformer 12V/1.67A AC

Mains transformer for powering lights in students' experiments as well as function generator SE P3120-3F

Output voltage: 12 V AC/20 W

Connecting leads with two 4-mm safety plugs

Voltage source:

230 V AC/50...60 Hz

Dimensions: ca. 83x58x58 mm



Use: "inno" AC/DC regulator connected to 12V/5.8 A fixed-voltage transformer P3130-2P and mounted on s-shaped assembly platform used as a table model

P3120-5B S-shaped assembly platform

Metal bracket, s-shaped, green powder-coated

Height: 240 mm

P3120-6N Mains transformer 6V DC/500 mA

Especially for use as an external power supply for magnetically mounted "inno" measuring instruments, connected by means of 5.5-mm hollow DC plugs

Voltage source: 230 V AC/50...60Hz

Dimensions: approx. 60x50x42 mm

P3130-1P Mains transformer 12V DC/2A

Output voltage: 12 V DC/24 VA supplied by 5.5-mm hollow DC plugs

Voltage source: 100 ... 240 V AC/50...60 Hz

Dimensions: 90x60x37 mm

P3130-2P Fixed voltage transformer 12V DC/5.8A

Especially suited for supplying power to the AC/DC regulator P3125-2W or 12-V blower DM701-2L

Output voltage: 12 V DC, max. 5.8 A, supplied by 5.5-mm hollow DC plugs

Plastic case with power cord

Voltage source: 100 ... 240 V AC/50...60Hz

Dimensions: 170x90x55 mm

DP130-2A Adapter cable

Red-black cable with 5.5-mm hollow DC jacks and 4-mm plugs, L=500 mm





power supplies



P3122-2A Rechargeable power supply, "demo"

Portable low-voltage power supply for demonstrations and student experiments

Variable output voltage: 0...12 V AC, continuously variable, max. 2 A, and 0 ...12 V DC, continuously variable, max. 3 A

Electronic charge level control

Charging power source: 230 V AC/50...60 Hz, may also be used as a battery buffer

Output voltage supplied by 4-mm safety jacks

ABS plastic case with 2 recessed handles

Dimensions: approx. 260x150x210 mm

Weight: approx. 9.4 kg



P3130-1A Variable low-voltage transformer with digital display

Power supply for high-load DC and AC voltages; overload protection by means of automatic thermal cut-outs (over-current protection switch)

Output terminals: 0 ... 25 V AC, continuously variable, max. 10 A

0 ... 20 V DC, continuously variable, max. 10 A

6 V AC fixed, max. 6 A

12 V AC fixed, max. 6 A

Galvanic separation from mains source; output voltage taken from 4-mm safety jacks; digital display showing output voltage setting: 7-segment LED display, three digits 26 mm in size

ABS plastic case with 2 recessed handles

Voltage source: 230 V AC/50 ...60 Hz

Dimensions: 260x150x210 mm

Weight: approx. 9.3 kg



P3130-2B Universal transformer II with digital display

Universal power supply for DC and AC voltages; overload protection by means of automatic thermal cut-outs (over-current protection switch)

Output terminals: 0 ... 25 V AC, continuously variable, max. 6 A

0 ... 20 V DC, continuously variable, max. 6 A

0 ... 15 V DC, continuously variable, stabilized, max. 1 A, with current limiter

6 V AC fixed, max. 6 A

12 V AC fixed, max. 6 A

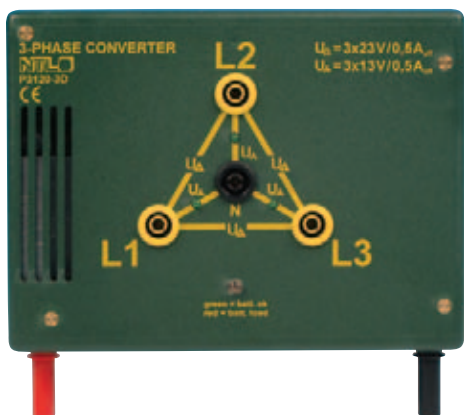
Galvanic separation from mains source; output voltage taken from 4-mm safety jacks; digital displays showing output voltage setting: 7-segment LED display, three digits 26 mm in size

ABS plastic case with 2 recessed handles

Voltage source: 230 V AC/50 ...60 Hz

Dimensions: 260x150x210 mm

Weight: approx. 8.3 kg



P3120-3D Three-phase converter "inno", magnetic

When combined with 6 V/10 Ah "inno" rechargeable battery P3120-1B or "inno" fixed-voltage transformer P3120-1N using plug-in connectors, serves as a three-phase power supply - requires no three-phase mains connection!

Technical data:

Output: four 4-mm safety jacks, permanently protected against short circuiting, 3 x 23 Veff, 500 mA, 70 Hz (in a delta connection), 3 x 13 Veff, 500 mA, 70 Hz (in a star connection)

3 x 3-mm LEDs indicate power supply status
Power supply: 6 ... 15 V DC, stabilized, min. 5 A

Case: green ABS plastic with yellow labelling

Dimensions: approx. 160x120x45 mm; weight: approx. 570 g

Recommended power supply:

P3120-1N fixed voltage transformer "inno" or P3120-1B 6 V/10 Ah rechargeable battery "inno"

Use: When used with the 6 V/10 Ah rechargeable battery or fixed-voltage transformer "inno", the "inno" three-phase



converter can be mounted on the L-shaped assembly platform P3120-4A (height: 240 mm), easily converting it into a table model.



P3130-3A Three-phase low-voltage transformer, "demo"

Low-voltage source of three-phase current providing two different levels of phase-to-phase and phase-to-ground voltage (star, delta); overload protection by means of thermal cut-outs (over-current protection switch)

Output terminals: 6 V/10 V, three phases, max. 4 A, and 23V/40 V, three phases, max. 4 A

Galvanic separation from mains source; output voltage take from 4-mm safety jacks

ABS plastic case with two recessed handles and yellow labelling

Voltage source: 230/400 V three-phase current/50 ... 60 Hz

Dimensions: 260x150x210 mm; weight: 7.1 kg



P3135-3F Three-phase generator with digital display, "demo"

Powerful three-phase function generator featuring digitally synthesized output, low distortion and perfect relative shifting of output phases, regardless of the frequency and type of load; requires no three-phase mains connection!

Technical data:

Output: Star: 3 x 23 Veff, max. 1 A, 1.4 As (peak)

Delta: 3 x 40 Veff, max. 1 A, 1.4 As (peak)

Frequency range: 0.01 ... 1000 Hz in five sub-ranges

Digital display: LED frequency display; digit height: 26 mm

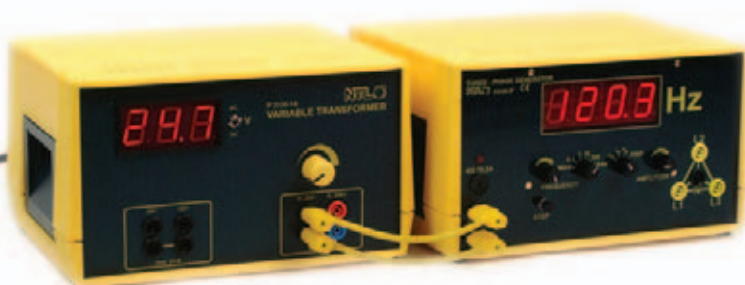
Waveforms: sine, triangle, square and sawtooth

Overload protection: all output terminals are permanently protected against short circuiting and stable against inductive charge

Voltage source: 24 V AC, min. 6 A

Dimensions: 260x150x210 mm; weight: 3.0 kg

Use: Three-phase generator with digital display - power supplied by variable transformer P3130-1A





power supplies



P3150-5A Power supply for electron tubes

For powering electron tubes; features two independent, continuously variable DC voltage outputs with short-circuit protection and very little ripple

Output terminals: 0 ... 60 V DC, continuously variable, stabilized, max. 50 mA

0 ... 500 V DC, continuously variable, stabilized, max. 50 mA

6.3 V AC, fixed, max. 5 A

Galvanic separation from mains source; output voltage take from 4-mm safety jacks

Digital displays for variable voltage outputs: 7-segment LED display, three digits; digit height 26 mm

ABS plastic case with 2 recessed handles

Voltage source: 230 V AC/50 ...60 Hz

Dimensions: 260x150x210 mm; weight: approx. 4.5 kg



P3171-1A High-voltage power supply, 10 kV, with digital display, "demo"

Continuously variable high-voltage power supply for powering electron diffraction tubes

Outputs: 0 ... +10 kV, continuously variable, max. 3 mA, short-circuit protection

6.3 V AC, fixed, max. 5 A

Galvanic separation from mains source; output voltage take from 4-mm safety jacks

Voltage indicator: 7 segment LED display; digit height 26 mm

ABS plastic case with 2 recessed handles

Voltage source: 230 V AC/50 ...60 Hz

Dimensions: 260x150x210 mm; weight: approx. 3.3 kg

P3170-1B High-voltage power supply, 25 kV, with digital display, "demo"

(Picture and technical description see page 305)



DG505-1H Connecting lead for high voltage

Extremely flexible connecting lead with a double insulating jacket and two specially insulated 4-mm plugs

Cross-section: 1 mm²

Jacket thickness: approx. 8 mm

Length: 100 cm



P3127-1V High-voltage power supply, 18 kV, "inno", magnetic

Continuously variable high-voltage power supply for experiments in electrostatics

Output: 0 ... +18 kV, continuously variable, max. 0.5 mA

Voltage indicator: 7-segment LED display; digit height 20 mm

Power supply: 4 x 1.5 V mignon cells (included) or 5.5-mm hollow DC jack for 6 V/500 mA external power supply P3120-6N

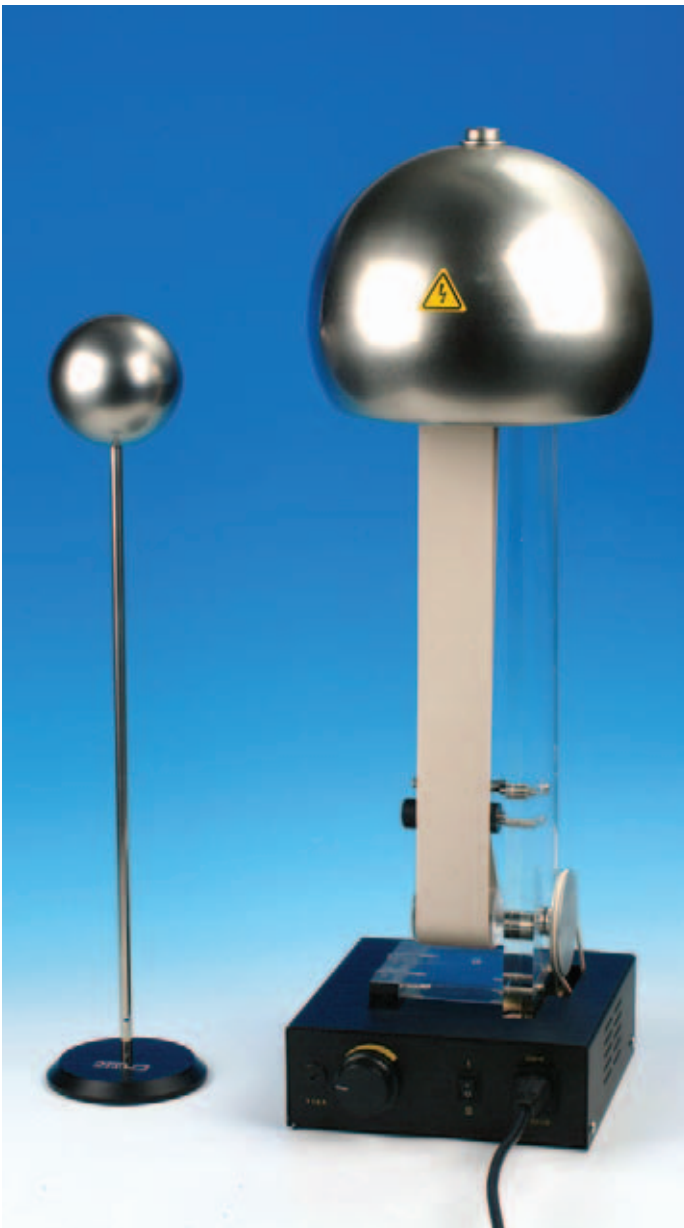
The green ABS plastic case is labelled in yellow, and 10 strong neodymium magnets are inset in the rear panel for mounting the device magnetically.

Dimensions: approx. 160x120x45 mm; weight: approx. 970 g

Recommended accessories:

P3120-6N Mains transformer 6V/500 mA

P3120-5B S-shaped assembly platform



DE525-1B Van de Graaff generator

Used for generating very high DC voltages in electrostatics experiments; removable conducting sphere with 4-mm jack; belt speed is continuously variable and set by means of the motor speed control dial

Diameter of conducting sphere: 220 mm

Output voltage: max. 200 kV

Voltage source: 230 V AC/50 ...60 Hz

Dimensions: 220x220x630 mm; weight: approx. 5.2 kg

DE524-1K Sphere on support

Used in experiments with Van de Graaff generator DE525-1B; conducting sphere mounted on a support rod with a 4-mm hole and insulated base

Diameter of sphere: 90 mm; height: 520 mm



DE526-1F Spark coil

Used for generating high voltages of up to approx. 65 kV; output continuously variable; voltage supplied at two insulated electrodes labelled for polarity; no mechanical parts making contact, thus maintenance-free operation

Voltage range: 15 ... 65 kV, continuously variable;

Current limit: 0.13 A

Spark length: max. 75 mm

Plastic case

Voltage source: 230 V AC/50 ...60 Hz

Dimensions: approx. 300x190x140 mm; weight: approx. 4.1 kg



DE523-1A Wimshurst machine

Electrical influence machine for generating very high DC voltages

Spark length: max. 70 mm; voltage: max. 160 kV

Disc diameter: 300 mm

Dimensions: 350x200x390 mm



power supplies



P3130-4D High-power transformer, 1-12 V AC/DC, "SE"

Power supply for experiments briefly requiring a large amount of current (e.g. displaying field lines of conductors under current), but also suitable for most electricity experiments

Output voltage: 1 ... 12 V AC or DC in 1-V increments

AC load capacity: 6 A, >20 A briefly (for approx. 5 sec.)

DC: 6 A; when set at 1 ... 6 V, 20 ... 25 A briefly (for approx. 5 sec.)

LEDs display the various operating modes; protected against short circuits; automatic load reduction or shutdown under continued overload; galvanic separation from mains

Output voltage supplied by 4-mm safety jacks

ABS plastic case; voltage source: 230 V AC/50 ... 60 Hz

Dimensions: 210x96x200 mm; weight: approx. 3.2 kg



P3172-1H High-current power supply "demo"

Power supply for experiments, e.g. in electromagnetism, requiring large amounts of current

Output: 0 ... 15 V DC, 0 ... 30 A, independently and continuously variable; supplied by 4-mm safety jacks

Digital display: 7-segment LED display; digit height 26 mm

LED displays indicating operating mode (constant current or voltage)

ABS plastic case with 2 recessed handles

Voltage source: 230 V AC/50 ... 60 Hz

Dimensions: 260x150x210 mm; weight: approx. 7.5 kg



P3125-2H Constant current regulator, "inno", magnetic

Source of constant current, may be combined with 6 V/10 Ah "inno" rechargeable battery P3120-1B or "inno" fixed-voltage transformer P3120-1N using plug-in connectors

Output: 0 ... 11 V AC, variable in 1-A increments

Output current supplied by 4-mm safety jacks

Four LEDs display the various operating modes;

stable under reactive loads

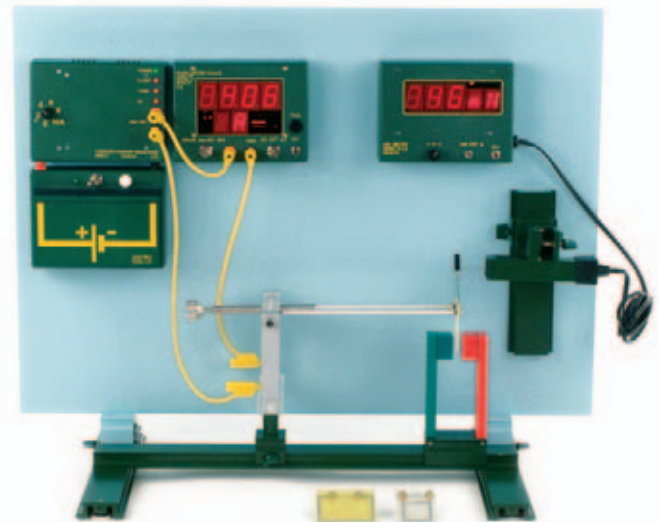
Power supply: 6 V DC

Case: green ABS plastic with yellow labelling

Dimensions: approx. 160x120x45 mm; weight: approx. 570 g

Recommended power supply:

P3120-1B 6 V/10 Ah rechargeable battery "inno" or P3120-1N fixed voltage transformer "inno"



Use: "inno" constant current regulator powered by "inno" rechargeable battery in the "current balance" experiment



Experiment: Oersted's experiment using high-current power supply "demo" P3172-1H