Technical Data:

Power supply:	P3120-1N box-fixed voltage transformer, magnetic or P3120-1B box-rechargeable battery 6 V/10 Ah, magnetic
Output voltage:	0 … 4 V_{eff}
Curves:	Sinus, triangular, rectangular
Frequency:	1 Hz to 100 kHz
Frequency display:	LED display, 5 decimal places, 26 mm
Overloading protection:	The voltage outlet is protected against short circuits and overloading. In the case of overloading the transformer switches off automatically under both kinds of voltage (electronic circuit breaker). In this case it is necessary to turn the power switch off and on again.
Power source:	230 V~ / 50 ... 60 Hz
Dimensions:	approx. 160 x 120 x 45 mm
Case:	Plastic, ABS
Weight:	approx. 530 g

Do not drop the instrument. Should this occur, have the instrument checked and, if necessary, repaired by authorized service personnel.

In the event that unexpected problems arise during installation or use, turn the instrument off and contact an authorized dealer.

Do not expose the instrument to water drops or spray.

Use only fuses of the type and nominal amperage indicated.

This instrument contains no parts that need to be serviced by the user.

This device is only to be operated by qualified persons and by others duly instructed by such persons.

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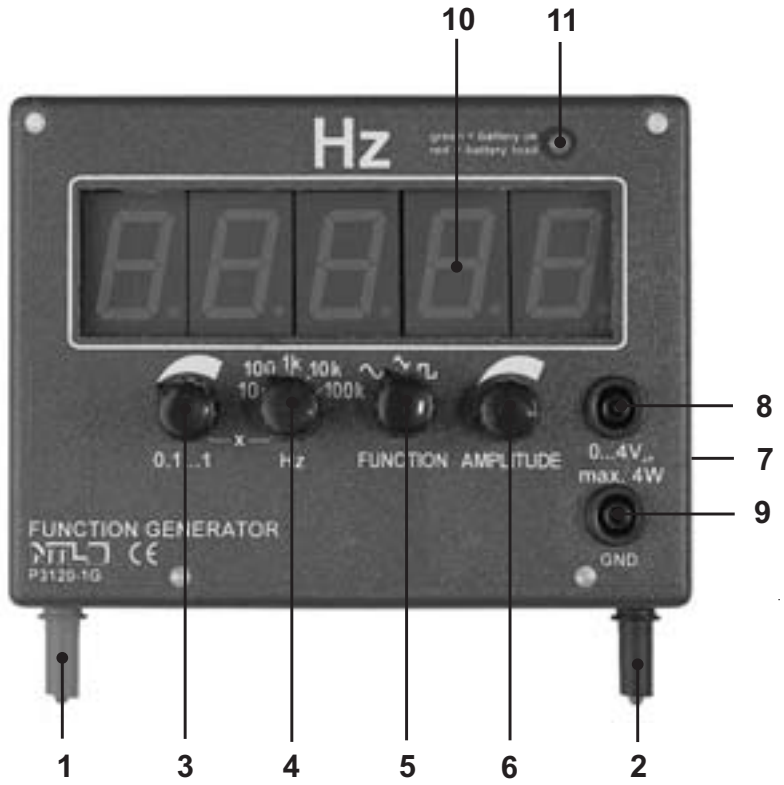
NTL INNO SYSTEM

Box-function generator, magnetic P3120-1G

The main application for this device is in conjunction with either the box-rechargeable battery 6V/10 Ah, magnetic P3120-1B or the box-fixed voltage transformer, magnetic P3120-1N when carrying out experiments in which variable AC voltage (sinus, triangular, rectangular) with a variable frequency and of up to 4 V is required.

The maximum power is 4 watts.

The current output frequency is displayed by the 26-mm high LED display.



1 4 mm safety receptacle, red (positive terminal) for connection to P3120-1N box-fixed voltage transformer, magnetic

2 4 mm safety receptacle, black (negative terminal) for power supply connection

3 Potentiometer for fine adjustment of frequency

4 Step switch for rough adjustment of frequency

5 Step switch for selecting curve form (sinus, triangular, rectangular)

6 Potentiometer for regulating output voltage

7 Ventilation slits (on the side)

8 4 mm safety receptacle for output voltage

9 4 mm safety receptacle for output voltage (GND)

10 LED display for output frequency

11 LED power indicator lamp

2 magnets on the reverse side

Operation:

Due to the large amount of current needed, this device is designed as a converter and thus must be powered by either a fixed voltage transformer (e.g.P3120-1N box-fixed voltage transformer, magnetic) or by the P3120-1B box-rechargeable battery 6 V/10 Ah, magnetic, connected to the 4 mm safety receptacles (1, 2).

Note:
In the case of overloading, the control LED (11) on the converter blinks or glows red.

When used with the box-rechargeable battery P3120-1B the amount of charge in the battery is indicated by the two-colored LED (11) on the converter. Green indicates that sufficient power for operation is available. Red indicates that too little power is being supplied. In this case sufficient output voltage cannot be ensured (charge the battery!). If nothing lights up, then either the power supply is not working or is too weak or the connections have been reversed.

The box-function generator provides AC voltage of the frequency selected between the output terminal (8) and the ground (9). The amount can be adjusted continuously from 0 to about 4 V_{eff} using the potentiometer (6). The maximum power is 4 watts.

The frequency is selected using the step switch (4) for roughly adjusting the frequency (10 Hz to 100 kHz) and using the potentiometer (3) for fine adjustment (0.1 to 1 times the rough setting). Using both knobs (3, 4) a continuous frequency range of between less than 1 Hz and more than 100 kHz is available. The current output frequency is shown on the digital display (10) with 26 mm digits. Step switch (5) is used for setting the type of curve (sinus, triangular, rectangular).

The output terminals are permanently protected against short-circuiting as well as inductive overloading. Capacitive loads may only be powered with the wiring-in of a protective resistance of several ohms in order to prevent a surge in the internal final stage. In the case of continued overloading due to backlash potential, a PTC shuts the output off. Should this occur, turn the device off, allowing it to cool down for a minute, and correct the circuit before turning the device on again. Inadvertently connecting power supplies to the output terminals is of no consequence up to 6 V_{eff}, beyond that there is a danger of the device being destroyed.

Note:

In order to prevent the device from overheating, do not cover the ventilation slits (7).

The negative output terminal (9) is connected to the negative input terminal. This should be noted particularly in the case of experiments involving complicated circuitry!