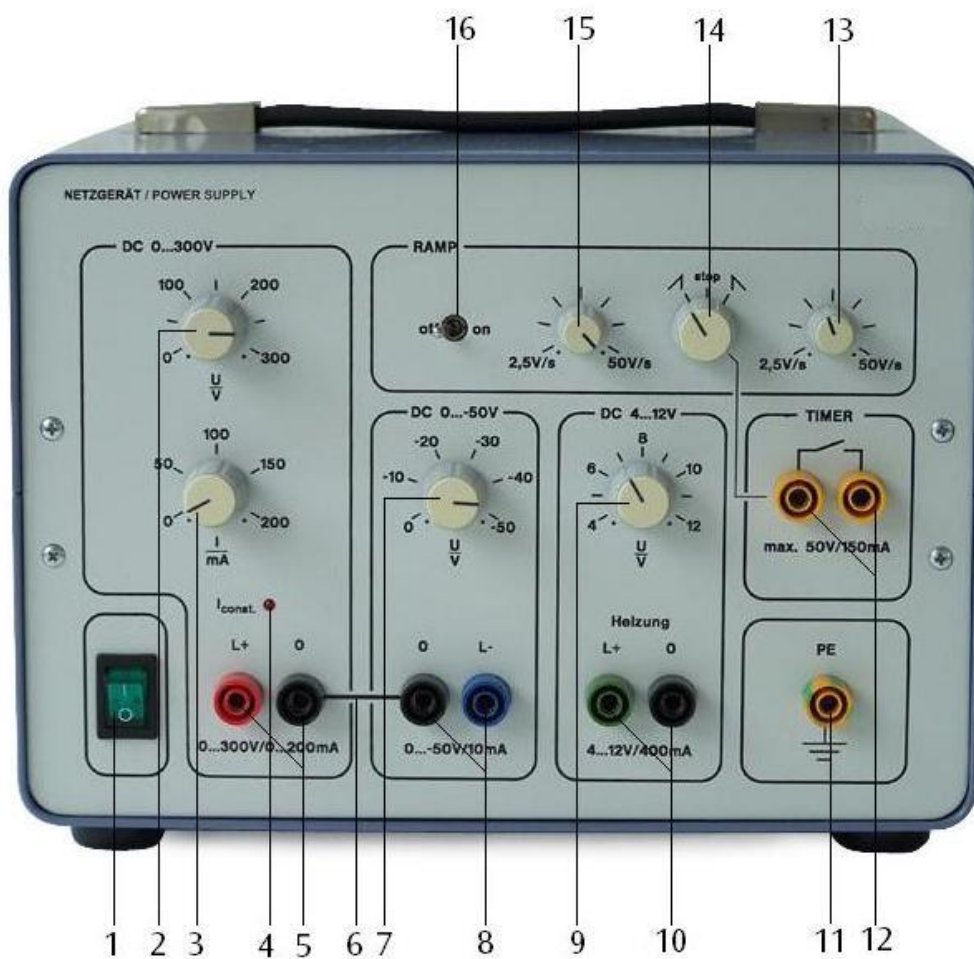


Tube power supply unit 0–300 V @115 V 1001011
Tube power supply unit 0–300 V @230 V 1001012

Instruction sheet

06/15 ALF



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| <ul style="list-style-type: none"> 1 Main ON/OFF switch 2 Voltage regulator 0-300 V 3 Current limit regulator 0-200 mA 4 Operation indicator for current limit 5 Output sockets 0-300 V (constant, linear rise/fall) 6 Common ground 7 Voltage regulator 0-50 V 8 Output sockets 0-50 V 9 Voltage regulator 4-12 V | <ul style="list-style-type: none"> 10 Output sockets 4-12 V 11 PE socket 12 Sockets for timer 13 Regulator for rate of voltage drop 14 Rotary switch for increasing, maintaining or reducing output voltage 15 Regulator for rate of voltage rise 16 ON/OFF switch for ramp generator |
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1. Safety instructions

The tube power supply unit conforms to safety regulations for electrical measuring, control, monitoring and laboratory equipment, as specified under DIN EN 61010, section 1, and is designed to be classified as protection class I equipment. It is intended for operation in a dry environment suitable for the operation of electrical equipment and systems.

Safe operation of the equipment is guaranteed, provided it is used correctly. However, there is no guarantee of safety if the equipment is used in an improper or careless manner. If it is deemed that the equipment can no longer be operated without risk (e.g. visible damage has occurred), the equipment should be switched off immediately and secured against any unintended use.

In schools and other educational institutions, the operation of the AC/DC power supply unit must be supervised by qualified personnel.

- Before putting the equipment into operation, confirm it is compatible with the local mains voltage.
- Before setting starting any experiments, check the basic unit for any damage. In the event of any malfunction/defect or visible damage, switch off the equipment immediately and secure it against any unintentional use.
- The instrument may only be connected to the mains via a socket that has an earth connection.
- Never cover the air vents at the rear of the housing. They are necessary in order to ensure sufficient circulation of air required for cooling the internal components of the equipment.
- The equipment may only be opened/repared by qualified and trained personnel.

Warning: The equipment supplies DC voltages in excess of 60 V that are hazardous to come into contact with.

- Always, switch off the equipment before making any modifications to the circuit. Only switch on the equipment when the experimental set-up is complete.
- Use only safety experiment leads for making connections.
- Never touch or make direct contact with any connected or exposed leads, or the plates of a connected plate capacitor.

2. Description

The tube power supply unit is primarily designed for operating cathode ray tubes (e.g. a narrow-beam tube or oscilloscope demonstration set). In addition, the equipment can be used very effectively for conducting experiments on the law of induction and on charging and discharging of capacitors.

The power supply unit is capable of supplying voltage in the following ranges:

1. Stabilised DC (0-300 V) for acceleration voltage in cathode ray tubes
2. Stabilised DC voltage (0-50 V) for grid (Wehnelt) voltage in cathode ray tubes
3. Stabilised DC voltage (4-12 V) for heater voltage in cathode ray tubes
4. Stabilised, linearly rising or falling voltage for quantitative analysis of induction processes with coreless coils and for charging and discharging of capacitors

All voltage sources are floating and proof against short circuits and all are equipped with an electronic voltage stabilisation system as well as a current limiter. In the event of a thermal overload, the tube power supply unit is automatically disconnected from the mains power supply and is automatically reactivated when the permissible temperature range has been attained.

The two sockets marked "Timer" are equipped with an internal relay, which is closed when a rising or falling ramp is activated and is used for switching on/switching off any additionally connected equipment (timer, oscilloscope, x-t plotter, etc.)

The tube power supply unit 1001011 is for operation with a mains voltage of 115 V ($\pm 10\%$), and the 1001012 unit is for operation with a mains voltage of 230 V ($\pm 10\%$).

3. Technical data

Output voltage:	4-15 V DC, 400 mA 0-50 V DC, 10 mA 0-300 V DC, 0-200 mA 0-350 V DC*, 0-10 mA *with common ground
Ramp generator:	linearly rising or falling values, 2.5-50 V/s, 0-300 V
Ripple voltage at full load:	10 mV _{rms}
Voltage stability:	at 10% mains voltage: < 0.2% between no-load operation and full load: < 0.5%
Power consumption:	75 VA
Timer relay:	50 V, 150 mA
Mains voltage:	See rear
Dimensions:	240 x 230 x 170 mm ³
Weight:	3.7 kg approx.

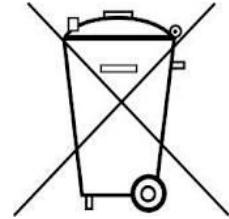
4. Operation

- Connect the equipment via the mains lead to the mains power supply. Switch on the green ON/OFF button. The equipment is immediately ready for use.
- Select the desired voltage from the available voltage ranges depicted on the front panel.
- In order to operate the ramp generator, switch on the ON/OFF switch for the ramp generator and set the rotary switch to "STOP".
- Use the voltage regulator (0-300 V) to set the final value of the voltage ramp.
- Set the desired ramp using the rotary switch.

If the rotary switch is turned to the left from the STOP position, the voltage at the output connectors of the DC 0...300 V voltage field increases linearly from 0 to the set final value of the ramp voltage. If the rotary switch is turned to the right from the STOP position, the voltage decreases from the set final value to 0. It is possible to halt at an intermediate value by switching back quickly to "STOP". After this, you can continue the process of either increasing or decreasing the voltage from/to 0 V by turning the rotary switch accordingly.

5. Storage, cleaning and disposal

- Keep the equipment in a clean, dry and dust-free place.
- Before cleaning the equipment, disconnect it from its power supply.
- Do not clean the unit with volatile solvents or abrasive cleaners.
- Use a soft, damp cloth to clean it.
- The packaging should be disposed of at local recycling points.
- Should you need to dispose of the equipment itself, never throw it away in normal domestic waste. Local regulations for the disposal of electrical equipment will apply.



6. Sample experiments

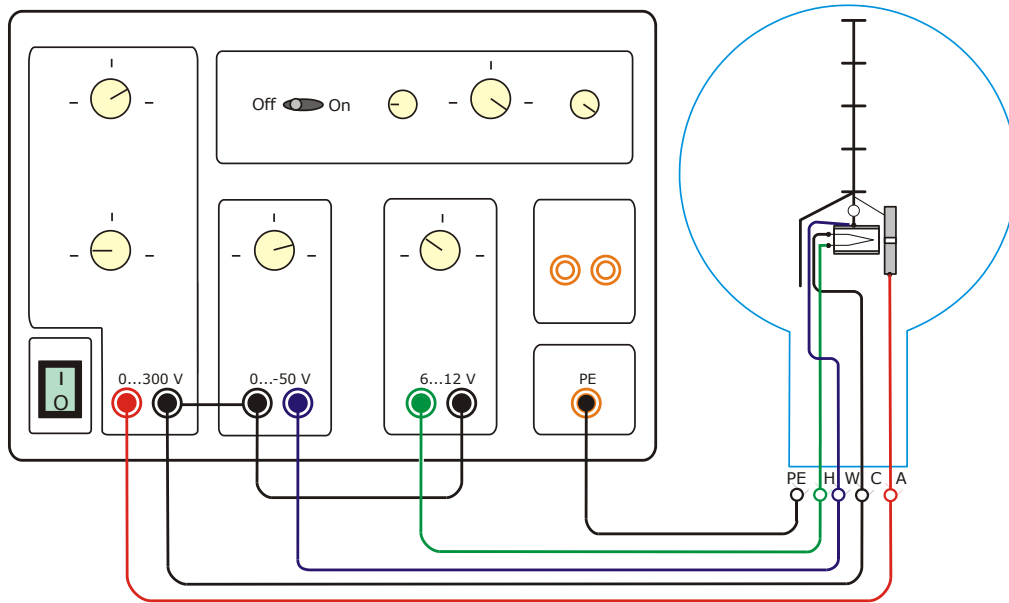


Fig. 1: Experimental set-up for filament tube

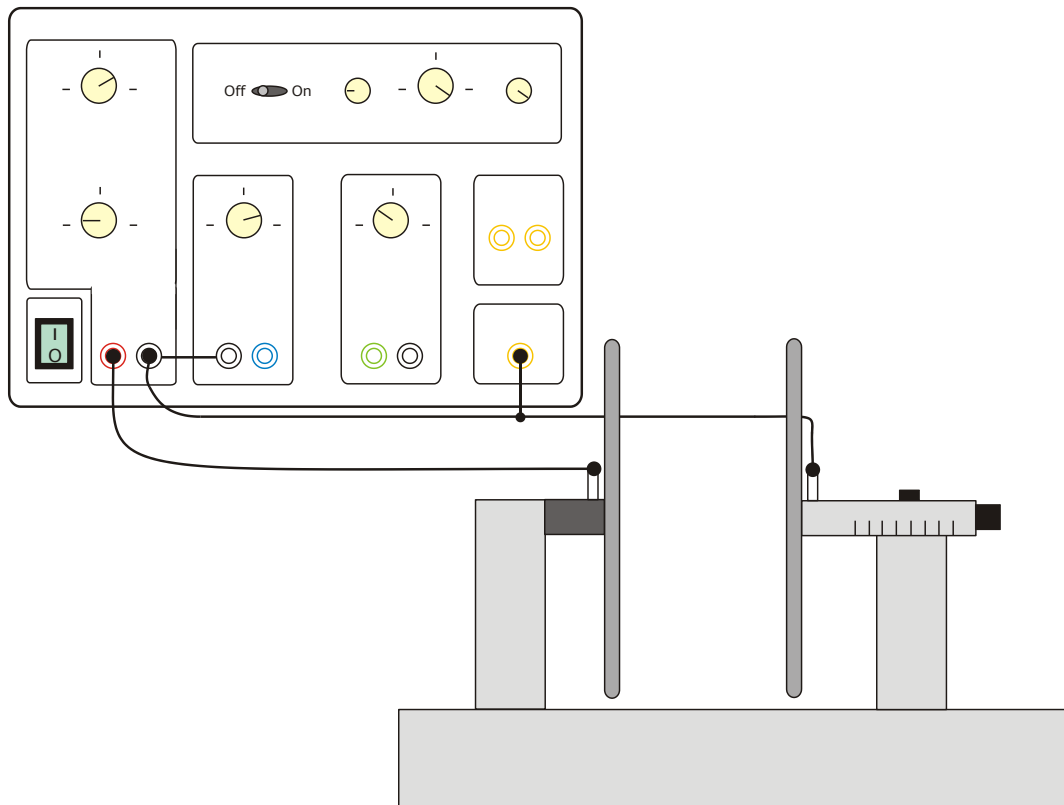


Fig. 2: Experimental set-up for plate capacitor