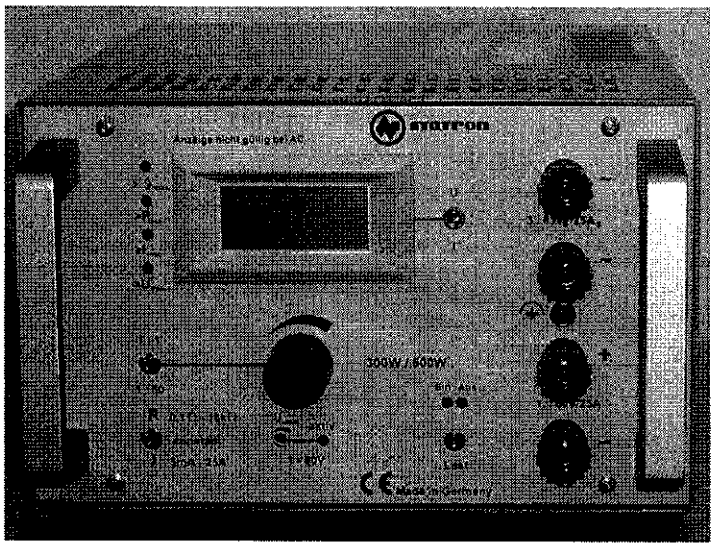
STATRON
Gerätetechnik GmbH

Operation instructions
Electronic load type 3227.31



Read the operation instructions carefully before using the electronic load firstly. The right to claim under guarantee and possible adhesion of the manufacturer go out at damages which arise from nonobservance of these instructions from the results of the nonobservance.

1st use as agreed

The device is planned for the application in research, industry and education.
The load tensions can be loaded as a DC voltage or change tension in the modes of operation Stream-consistently (stream depression), Opposition-consistently and Tension-consistently.
It is suited with it, e.g., to the check power supply units, transformers, battery systems.

2. Connection and introduction

The device is built up in protective class I. It is furnished for the connection with a change tension net of 230 V 50Hz-60Hz-10 %/6%. The mains connection and the net counter S1 are at the back of the device.
After him switch on of the net counter S1 (back) the device is ready for use.
It is to be guaranteed on an unchecked aerial entry on the upper page and underside as well as the escape at the back!
The connection of the load tension should occur in the state without tension. The management cross section must correspond to the load stream to be expected (min 1qmm/10A).
The connection of the DC voltage occurs in the measuring clips Bu1 and Bu2. With the tracer SW3 the load is activated or deactivated and indicated with LED5 and LED6 their state.
With the spiral potentiometer P1 the values are put in the mode of operation I-constant or R-constant.
The setting for the mode of operation U-constant occurs in the potentiometer P10 and is to be operated only with a screwdriver.
With the counter SW1 the mode of operation I-constant or R-constant is chosen. The field of work lays SW2
Of potentiometer P1 (approx. 1/50 firmly.
The choice between tension and stream announcement on the announcement MS 1 occurs with the counter SW 4.
The status of the electronic load is indicated with the LED's 1-7.

3rd function description/application

Constant resistance (Rconst)

The resistance is adjusted using the helical potentiometer P1. The electronic load shows a resistance behavior within the limits set in data.
Constant current operation (current sink) (Iconst)
The setting of the load current also takes place with P1 With SW2, the setting range can be selected in a ratio (approx. 1:50) for a better resolution of small currents.

Constant voltage operation (Uconst)

Using the potentiometer P10 (only to be actuated with a screwdriver), a voltage-dependent disconnection at the electronic load in the given operating range can be set.
In this case, the load has the property of a variable Zener diode whose maximum current is mode I-const. Or R-const. Has been set.
The series resistor required for a Zener diode can also be formed, among other things, by the internal resistance of the test voltage source.
If the conditions for a voltage constancy are fulfilled, LED 7 illuminates with reduced brightness and indicates the active state. When the LED 7 is lit with full brightness, the load current is interrupted.
If this operating mode is not used, set potentiometer P10 to the left stop.
This operating mode can, for example, be used for a controlled battery discharge with deep discharge protection.
The setting of the cut-off voltage could be done with P10 before eg with an adjustable voltage source.

AC voltage load

For simple applications for the loading of alternating voltage sources is via a second pair of sockets Bu3 and Bu4, the alternating voltage is supplied to the electronic load via an internal bridge rectifier.
The connected bridge rectifier is not included in the control, actual value formation and display.
The displayed actual values are therefore invalid. A required measurement must therefore be carried out externally.
ATTENTION ! The operating mode R-const is for alternating voltage loads with transformers. to choose.
Special attention must be paid to the maximum peak voltage of 81Vs.

External load switch

The electronic load can be controlled via a three-pin socket (Bu5 on the back) independent of the operation of the on / off switch SW3. The control should take place via a change-over contact, eg a relay.
The connection is not potential-free.

Power handling and protective circuits:

If the nominal load capacity of 300W is exceeded, the LED2 (> P-name) is illuminated.
A power reserve of up to 500W can be used until the cooling system has reached its maximum permissible temperature. If the maximum power is exceeded, a load cut-out occurs and LED6 (load-off) lights up. When the overload is over, electronic load can be reactivated with 'On / Off' button SW3.
The availability of this power reserve depends, among other things, on ambient and heat sink temperature.
When the maximum heat sink temperature of 96 ° C is reached, the load current is interrupted and LED1 (T-max) lights up.
After cooling, the load current (with a hysteresis of approx. 20 ° C) is automatically switched on again.
This power reserve is, for example, after a cold start approx. 4 min. available.
The cooling is carried out by a temperature-controlled fan.
The maximum load current is limited to 25.5 A. When this limit is reached, the LED3 (> I-max) lights up.
If the load voltage is exceeded by 83Vs, a load cut-off occurs and LED4 (> U-max) and LED6 (load-off) light up. After the status has been canceled, the switch SW3 can be activated again.

The overvoltage protection circuit, consisting of a varistor and a suppressor diode, protects only against non-periodic voltage spikes of short pulse duration. If the thermal load of the protective circuit is too great, this circuit is destroyed and leads to consequential damage. To keep a possible damage low, this unit is encapsulated and executed as a separate module.

4. safety notes

4.1 The power supply unit is built up in safety class II as well as in accordance with VDE 0411 and VDE 0805/DIN EN 60950. The net transformer is built up after DIN VDE 0551/DIN EN 60742 as safety separating transformer and is checked with 3.75 kVeff primarily/secondarily. It is 0875th it is equipped with a VDE checked mains power line with protection leader and may be operated or attached only at 230-V alternating

voltage nets with protective earthing therefore radio suppressed in accordance with VDE.

4.2 It has to be respected on this that the protection leader is interrupted (yellowly/green) neither in the mains power line nor in the piece of equipment or in the net since with interrupted protection leader there is serious danger. It has to be respected on this furthermore that the insulation is neither damaged nor destroyed.

4.3 power supply units don't belong child hands in!

4.4 The accident prevention regulations of the association of the commercial group have to be observed for electrical plants and operating supplies in commercial facilities.

4.5 Operating power supply units by trained staff is responsible to supervise to hobby and alone help workshops in schools, education facilities.

4.6 Open of shutters or remove of parts at this, unless if this is possible by hand, voltage-carrying parts can be exposed. Junctions also can be voltage-carrying. The piece of equipment must be separated from all voltage sources in front of a comparison, a maintenance, an overhaul or an exchange of parts, if a opening the piece of equipment is required. After one, at the open piece of equipment under tension unavoidably is comparison, a maintenance or a repair, may happen only by a qualified employee which is familiar with the thus obliged dangers or the appropriate regulations for this this if.

4.7 Condensers in the piece of equipment still can be loaded even if the piece of equipment was separated from all voltage sources.

4.8 It has to be guaranteed that only safeguardings of Nennstromsträrke said the given type and this one are used as a substitute. The use of mended safeguardings or bridging of the fuseholder are inadmissible. The piece of equipment is overtaxing safe and short-circuit protected. There is a grave fault to Abschmelzen of the initial safeguarding which must be removed by a qualified employee before the new intact safeguarding can be used by this qualified employee.

4.9 Never switch your power supply unit on immediately, if it is taken to a warm room from a cold, then. The condensation arising at dewfall can destroy your piece of equipment under unfavorable circumstances. Let the piece of equipment switch off on room temperature come.

4.10 At works with power supply units carrying is forbidden to rings by metallic or conductive jewelry like chains, bracelets, or the like.

4.11 Power supply units aren't allowed for the application at people or animals.

4.12 Critical tensions (> 35 VDC) are caused at the series connection of the exits of one or several power supply units.

4.13 Ventilation slits of power supply units may not be covered! The pieces of equipment have to be moved to hard, heavily inflammable documents so that the air can unhinderedly enter the pieces of equipment. The cooling of the pieces of equipment is made by forced ventilation.

4.14 Power supply units and the attached consumers may not be operated for unbeaufsichtigt. It is (measures z to the protection and the safeguarding of the attached consumers opposite effects of the power supply units. B. overloads, failure of the power supply unit) and meet effects and going out dangers (e.g. inadmissibly high current consumption) of the consumers this one.

Respect! Sensitive consumers must in addition be protected from destruction by external measures!

4.15 In the fault case power supply units can give V direct voltage to tensions over 50 of which dangers start out, also then if the given output voltages of the pieces of equipment lie more lowly.

4.16 At works under tension tool only allowed particularly for this may be used.

4.17 (the exits of the power supply units/and lines attached to this must be protected from direct touch output jacks-stick). The used lines must have a sufficient isolation or tension strength and be touch sure the contact points (safety sockets) to this.

4.18 Transferring metallicly shiny lines and contacts has to be avoided. All these places have to be covered by suitable, heavily inflammable insulants or other measures and protected which from direct touch. The electrically leading parts of the attached consumers also have to be protected from direct touch by corresponding measures.

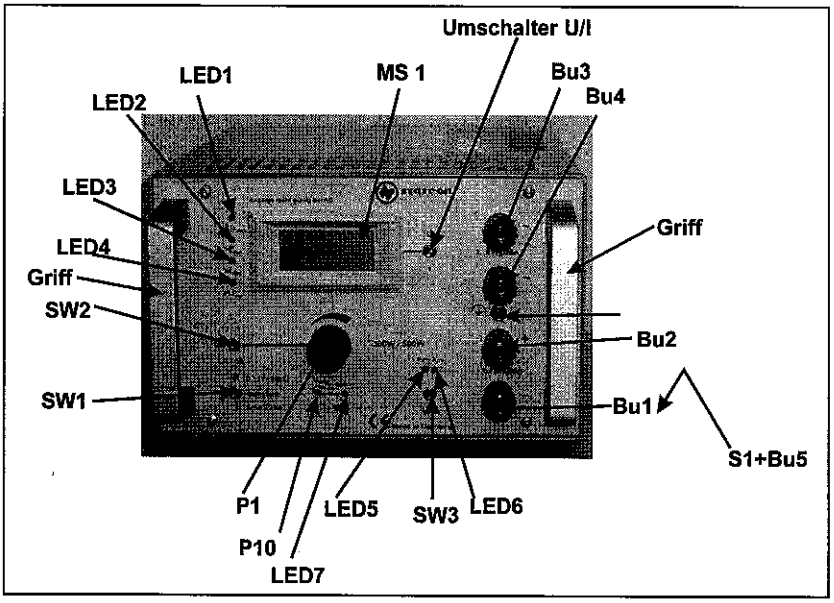
4.19 To be assumed has that a safe business is no longer possible, it is to put apart from business and to safeguard against unintentional business the piece of equipment so if. It has to be assumed, that a safe operating no longer possible if:

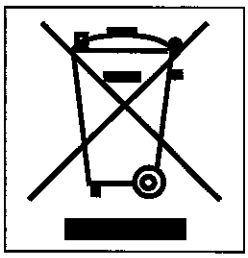
the piece of equipment or the power cord shows visible damages --
the piece of equipment doesn't work -- any more
-- after longer storage under unfavorable conditions
-- after heavy transport uses

5. Fault causes / change of fuse

Troubleshooting by the customer only covers the eventual change in the fuse.
Repairs are carried out by the manufacturer.
As a result of a reversed load voltage, the corresponding fuse can trigger.
The fuse consists of 3 parallel-connected fuses G-melt insert F10A
These are located on a circuit board on the left side of the cooling unit

6. Operating devices 3227.1





7. technical data:

STATRON Gerätetechnik GmbH

electronic load

rated power 500W

equipment qualities

- compact structure
- load on/off switch
- extensive protective circuits
- cure early load to 500W
- also alternating voltage load
- in parallel switchable
- for DC voltage and AC voltage
- LCD Display switchable
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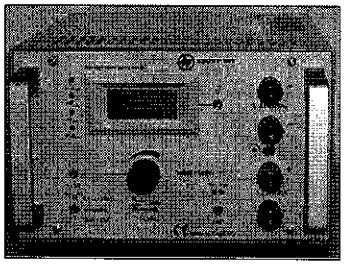

technical parameter:

	specification / type	3227.31
DC	DC input voltage	1,0 V ... 80 V
AC	AC input voltage	3Vs ... 81Vs
DC	DC load current	5 mA ... 25 A
AC	AC load current	5,0mAs ... 25As
	control mode	Rconst. And Iconst.
	load resistor DC	0,1 Ohm ... 16 KOhm
	load resistor AC	0,2 Ohm ... 16 kOhm
	edge steepness	<= 50µs
	adjustment of the load current	wirewound potentiometer with switch 50:1
	adjustment Uconst.	potentiometer
	load rating	300 W
	max. load rating	500 W ca. 4min
	display voltage/current	LCD 3½- panel meter switchable
	dissolution of the voltage display	0,1V +/- 1 Digit
	dissolution of the current display	0,1A +/- 1 Digit
	cooling	regulated ventilator
	overvoltage protection	available
	overcurrent protection	available
	other	automatic disconnection with overload temperature rise disconnection temperature rise disconnection inverse-polarity protection
	operating temperature	0-35°C
	max. relative humidity	85% by 35°C
AC	input voltage	230V +6 / -10% 50Hz
	capacity network	5 VA
	dimension WxHxD mm	204 x 134 x 320
	weight	4,0 kg
	color	RAL 7035 front paneel RAL 7035 case
	degree of protecion	IP 30
	connect input load voltage	apparatuses clamps
AC	testing voltage	EN 61010 ; EN 61558-2-4
	safety class	I
	electromagnetic compatibility	EN 61000-6-3 ; EN 61000-6-2

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