uni-max

ORIGINAL USER'S MANUAL

REGULATED BENCH POWER SUPPLY 0 – 30 V/5 A

20231000

Dear Customer, thank you for purchasing a product from UNI-MAX.
Our company is ready to provide you with its services - before, during and after you purchase a product. Should you have any questions, suggestions or recommendations, please contact our place of business. We will endeavour to consider and respond to your suggestion to the highest extent possible.

It is a legal requirement, within the sense of this user's manual, that the user confirms of their own free will that they have thoroughly studied the operating instructions, fully understand their meaning and are familiar with all the risks before the first use of the equipment.

ATTENTION! Do not attempt to put into operation (or use) the equipment before you are completely familiarised with the entire user's manual. Keep this user's manual for future reference.

Attention should be especially paid to occupational safety guidelines. Non-compliance or inaccurate implementation of these instructions may lead to injuries to the operator or other persons, or it may cause damage to equipment or the processed material.

Pay special attention to the safety instructions provided on the equipment's labels. Do not remove or damage these labels.

In order to facilitate possible communication, transcribe the number from the invoice or proof of purchase here.

DESCRIPTION

Standard equipment for electronics repair workshops and electronics hobbyists for external power supply to low direct current devices up to a voltage of 30 V and a current draw of 5 A. The power supply is equipped with anti-overload and short circuit protection, it has coarse and fine voltage and current adjustment, indicated on an LED display, voltage stabilisation ≤ 0.01 % + 3 mV, ripple ≤1 mV; current stabilisation ≤ 0.2 % + 3 mA, ripple 3 mA. Three-segment indicators of output direct voltage and current; fine/coarse adjustment of output values; fan; device output sockets; operating temperature 0 – 40°C; dimensions 285 × 128 × 145 mm.

The accuracy of the text, graphs and data depends on the date of printing. In the interest of continuous improvement of our products, we reserve the right to make changes to our technical data without prior notice.

TECHNICAL DATA

Input power source	230//50 or 110 V/60 Hz
Nominal output voltage	0 – 30 V
Voltage stabilisation	< 0.01 % + 3 mV
Ripple	≤ 1 mV
Nominal direct output current	0 – 5 A
Current stability	< 0.2 % + 3 mA
Ripple	3 mA
Voltage and current regulation	variably adjustable
Operating temperature	0°– 40°C
Relative humidity	< 80 %
Dimensions	285 × 128 × 145 mm

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CONTACTS

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SAFETY PRECAUTIONS

- **The equipment may only be operated by persons duly qualified, informed about and trained in the principles of safety and occupational health and safety.**

! Generally

- Plastic bags for packaging can be hazardous to children and animals.
- Familiarize yourself with the equipment, its controls, operation, elements of this equipment and possible risks associated with its incorrect use.
- Ensure that the user of the equipment has been thoroughly familiarised with the controls, operation, elements of this equipment and possible hazards resulting from its use.
- Always adhere to the safety instructions provided on labels. Do not remove or damage these labels. Contact the supplier in the event of damaged or illegible labels.
- Keep the workplace clean and in order. Untidiness in the workplace may lead to an accident.
- Take care of your tools and keep them clean.
- Never leave the equipment unattended whilst it is in operation.
- Do not use the equipment for any purpose other than for which it is intended.
- Never operate the equipment under the influence of alcohol and drugs.
- No modifications to the equipment are permitted. DO NOT USE it if you discover bent parts, cracks or other damage.
- Never carry out maintenance on the equipment during operation.
- In the event of unusual sounds or other unusual phenomenon occurring, immediately turn off the equipment and stop working.
- Ensure proper maintenance of the equipment. Check the equipment for damage before using it.
- Only use original spare parts for maintenance and repair.
- Protect the equipment against excessively high temperature.
- When not using the equipment, store it in a dry, safe place away from children.
- Before turning on the equipment, check all the control and safety elements. Make sure that all moving parts are in good condition.
- Check whether any parts are broken or stuck, make sure that all components are properly mounted. Also check all other conditions, which may affect the operation of the equipment.
- Unless otherwise stated in this manual, any damaged parts or safety elements must be repaired or replaced.

! Configurations

- Do not use the equipment if it has not been completely assembled according to instructions contained in the manual.

! Electrical equipment

- You should always follow the basic safety precautions when using electrical equipment, including the following, so that the risk of fire, electrical shock and injury to persons is reduced to a minimum. Before putting this product into operation, read these instructions and remember them.
- Ensure that the power plug is connected to a correctly fused and grounded power socket. To prevent the motor from overheating or burning up, and to avoid insufficient performance, the mains voltage must correspond to the voltage on the rating label.
- Never carry electrical equipment by the power cord. Do not use the power cord to pull the plug out of the power socket.
- Protect the power cord against high temperatures, oil, solvents and sharp edges.
- Regularly inspect the power cord, and in the event of its damage, have it repaired by an expert. Regularly inspect all extension cords and in the event of their damage, replace them.
- Prior to starting maintenance, installation, replacement of parts or other similar tasks, turn off the main switch and pull the plug out of the power socket.
- Take care that the equipment is prevented from starting spontaneously.
- Do not use in an explosive environment
- Electrical equipment is subject to regular technical inspections at set intervals.

IMPORTANT

Before throwing away the equipment packaging, ensure that no parts remain inside it. If this occurs, please contact the vendor and upon agreement install the respective part, or send the equipment back to the vendor if necessary.
Before installation and operation of this equipment, please carefully read this Operating and Maintenance Manual.

DESCRIPTION AND OPERATION

Description of the control elements:

Front panel:

1. Digital voltmeter: Shows the output voltage (**V**)
2. Digital ammeter: Shows the output current (**A**)
3. Regulator for **fine adjustment of current:** Fine adjustment of the output current.
4. Current regulation indicator: This indicator **will be lit** when the current coming from the equipment is being limited.
5. Regulator for **coarse adjustment of current:** Used for coarse adjustment of the output current.
6. Current range setting switch: Option for **high** or **low** current range
7. Regulator for **fine adjustment of voltage**: Fine adjustment of the output voltage.
8. Voltage regulation indicator: This indicator **will be turned off** when the voltage coming from the equipment is being limited.
9. Regulator for **coarse adjustment of voltage**: Used for coarse adjustment of the output voltage.
10. Mains **On/Off power** switch:
11. Output terminal "**-**": **Negative polarity** (black)
12. Terminal "**GND**": **Grounding terminal** (green)
13. Output terminal "**+** ": **Positive polarity** (red)

DISPOSAL

It is necessary to dispose of the product at the end of its service life in accordance with the applicable legislation. The product is made of metal and plastic parts that are recycled after separation.

1. Disassemble all parts of the equipment.
2. Sort all parts according to the material (metals, rubber, plastics, etc.). Hand over the sorted material for further use.
3. Electrical and electronic waste (used electrical power tools, electrical motors, charging power supplies, electronics, batteries, ...).

Dear customer, in terms of valid waste regulations, electrical and electronic waste is considered to constitute hazardous waste the disposal of which is subject to special provisions.

It is forbidden to throw electrical and electronic waste into containers intended for the collection of communal waste.

ATTENTION

In the event of a malfunction, send the equipment to the vendor's address so that the repair can be carried out as soon as possible. A brief description of the fault will shorten troubleshooting and repair time. Include the warranty card and proof of purchase with the equipment within the warranty period.

We will repair your equipment for a reasonable price after the warranty period expires.

To prevent damage to the equipment during transport, pack it securely and use the original packaging. We are not liable for any damage during transit and any claims with the shipping service depends on the level of packaging and protection against damage.

Note: The illustrations may differ from the product delivered and the extent and type of accessories supplied can also vary. This is a result of development, and such differences have no impact on the product's correct functionality.

Adjusting basic parameters on the power supply:

The power supply is precisely set prior to being shipped from the factory. Never unnecessarily tamper with the trimmers underneath the display on the front panel.

However, if accuracy problems arise, please proceed according to the following instructions:

Adjusting the voltage indicator:

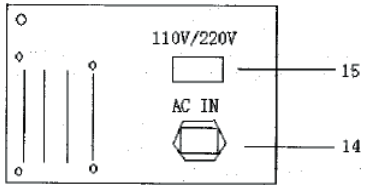
1. In order to accurately measure the output direct voltage, connect a **laboratory voltmeter** (not included) with a measurement accuracy of ± 0.1 % to the output terminals of the power supply.
2. Using the coarse and fine regulators, set the voltage to the **minimum** value (anticlockwise direction).
3. Use the fine adjustment regulator (**7**) to set the value "**MIN.VOLTS**" so that a value of "**0**" is shown on the laboratory voltmeter.
4. Using the adjustment **trimmer** under the display (**1**) set „**0**" (V) also on the display (**1**).
5. Using the coarse and fine regulators, set the voltage to the **maximum value** (clockwise direction).
6. Use the fine adjustment regulator to set the value "**MAX.VOLTS**" so that the **maximum nominal voltage** (30 V) value is shown on the measuring device, and check that the value on the connected laboratory voltmeter matches the value on the display of the power supply (**1**).
7. Adjust the display trimmer so that the correct voltage values are displayed.

Adjusting the current indicator:

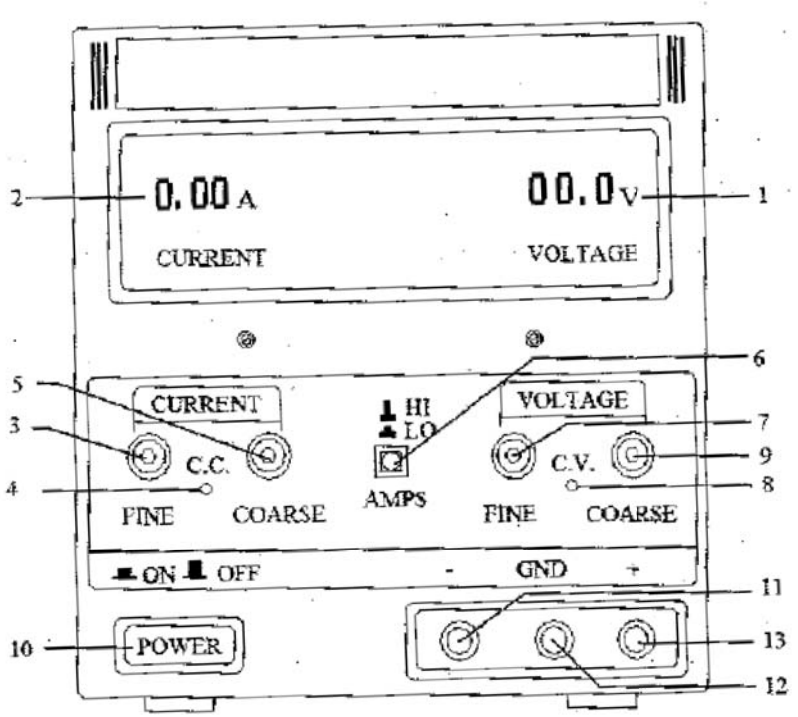
1. Using the **coarse** and **fine current regulators**, set the minimum value (anticlockwise direction).
2. Connect a **laboratory ammeter** to the output terminals of the power supply and measure the current value.
3. Use the fine adjustment regulator to set the value "**MIN.AMPS**" so that a value of **"0" A** is shown on the laboratory voltmeter.
4. Using the adjustment trimmer under the display (2) set "0" (A) also on the display of the power supply (2).
5. Using the coarse and fine current regulators, set the **middle** value (2.5 A) and check that the value on the ammeter corresponds with the value on the display.
6. Finally, set the value "**MAX.AMPS**" so that the maximum current (5 A) value is shown on the laboratory measuring device, and check that the value on the connected laboratory voltmeter matches the value on the display of the power supply (**2**).
7. Adjust the display trimmer so that the correct current values are displayed.

Rear panel:

14. Socket for the mains **power cord**
15. **Mains input voltage toggle** switch



Front panel:



Attention:

- The alternating voltage must be **230 V** ± 10 %, **50 Hz** or **110 V** ± 10 %, **60 Hz** (The mains input voltage toggle switch is located on the rear panel). In the event of incorrect power voltage, the regulated bench power supply cannot function properly and serious damage may result.
- Do not use the power supply in an environment where the temperature **is higher than 40 °C**. The cooling fan is located at the rear of the power supply. Therefore, there must be sufficient free space behind the equipment to enable it to be cooled.
- When the power supply is turned on or off, the voltage between the output terminals must not exceed the nominal value.

Limiting current

1. First select the highest current that should be set for the used devices.
2. Use a wire to temporarily short-circuit the terminals "**+**"and "**-**" (not included).
3. Then turn the voltage regulator until indicator **CC (4)** lights up.
4. Using the current regulators (**5** and **3**), set the required max. current (**A**).
5. Once the current (protection value against overload) is completely set, no longer use the current regulators (**5** and **3**).
6. Remove the short circuit wire and you may start work.

Constant voltage / current

The automatic conversion of constant voltage / constant current is a characteristic of the power supply. It is possible to switch between constant current and constant voltage when the load changes.

For example: If the power supply load enables work with a constant voltage, then with increasing load the output voltage will be constantly stabilized until the current limit value is reached. When the current limit value is reached, the output current will remain stable. And based on the increasing load, the output voltage will decrease proportionately. The change of constant voltage and constant current will be indicated on the front panel using **LED** indicators (**8** and **4**).

Likewise, when the load decreases, constant current will automatically change to constant voltage. In the constant voltage mode, the **LED** indicator **CV** (**8**) will be lit, whereas in the constant current mode the **LED** indicator **CC** (**4**) will be lit.

Operating instructions:

1. Set the On/Off switch (**10**) to the off (**OFF**) position.
2. Check that the input voltage (**110 V** or **230 V**) is correctly set; the input voltage toggle switch is located on the rear panel).
3. Connect the power cord.
4. Set the On/Off switch to the on (**ON**) position.
5. Using the regulator **VOLTAGE** and **CURRENT**, set the required output voltage and current.
6. Connect the external load to terminals "**+**" and "**-**".
7. When used for tasks with high performance requirements, the output terminal "**-**" must be securely connected to the "**GND**" terminal to prevent increased ripple current.

Operation and maintenance:

- **Replacement of the safety fuse**

In the event that the safety fuse burns out, the power supply will stop working. For replacement, use a safety fuse of corresponding quality and value.

- **Changing the mains input voltage for the equipment:**

This power supply is suitable for use with a mains input voltage of 110 V/60 Hz, or 230 V/50 Hz. The mains input voltage is set using the **toggle switch on the rear panel** of the power supply.

1. First, disconnect the mains power cord plug.
2. Set the toggle switch to the required mains input voltage.
3. When the mains input voltage is changed, the size of the corresponding safety fuse must be changed on the rear panel.