



Power supply
MA 4852
Instruction manual
Version 1.3., Code no. 20 750 306

Distributor:

Manufacturer:

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| |
|---|
|  Mark on your equipment certifies that this equipment meets the requirements of the EC (European Community) regulations concerning safety and electromagnetic compatibility. |
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1 Preface

Congratulations on your purchase of the instrument from METREL. The instrument was designed on basis of rich experience, acquired through many years of dealing with variable transformers and power supplies.

The Power supply MA 4852 is a low-voltage source of adjustable AC and DC voltage. It is intended for supplying equipment and circuits that requires supply voltage separated from mains. In general the MA 4852 offers the following:

- Floating secondary circuit,
- Robust construction,
- Adjustable output AC voltage from 0 V to 33 V,
- Adjustable output DC voltage from 0 V to 46 V,
- Permanent load current is 6 A,
- Low ripple voltage by built in C filter,
- Possible overloading for short period,
- 6 A output circuit protection,
- Measurement of output voltage and load rms current,
- Inrush current limiting to prevent automatic disconnection of supply voltage.

The MA 4852 is designed for supplying an extensive range of low-voltage devices, for charging batteries and, particularly for applications where the supply source must be separated from the mains because of technical or safety reason.

2 Safety and operational considerations

2.1 Warnings and notes

In order to reach high level of operator's safety while carrying out various applications of MA 4852, as well as to keep the equipment undamaged, it is necessary to consider the following general warnings:

- **If the MA 4852 is used in a manner not specified in this user manual the protection provided by the equipment might be impaired!**
- **The MA 4852 is intended for indoor use only.**
- **Do not use the instrument and accessories if any damage is noticed!**
- **In case a fuse has blown, follow the instructions in this manual to replace it!**
- **Consider all generally known precautions in order to avoid risk of electric shock while dealing with hazardous voltages!**
- **Service intervention and calibration procedure is allowed to be carried out only by a competent authorized person!**

2.2 Standards applied

The MA 4852 is manufactured and tested according to the following regulations as listed below.

Electromagnetic compatibility (EMC)

| | |
|----------|---|
| | Electrical equipment for measurement, control and laboratory use – EMC requirements |
| EN 61326 | Class B (Hand held equipment used in controlled EM environments) |

Safety (LVD)

| | |
|--------------|--|
| | Safety requirements for electrical equipment for measurement, control, and laboratory use – Part 1: General requirements |
| EN 61010 - 1 | |

| | |
|---------------|---|
| EN 61558-1 | Safety of power transformers, power supplies, reactors and similar products – Part 1: General requirements and tests |
| | Safety of power transformers, power supplies, reactors and similar products – Part 2-1: Particular requirements and tests for separating transformers and power supplies incorporating separating transformers for general applications |
| EN 61558-2-1 | |
| | Safety of transformers, reactors, power supply units and combination thereof – Part 2-14: Particular requirements and tests for variable transformers and power supply units incorporating variable transformers |
| EN 61558-2-14 | |

Note about EN and IEC standards:

Text of this manual contains references to European standards. All standards of EN 6xxxx (e.g. EN 61010) series are equivalent to IEC standards with the same number (e.g. IEC 61010) and differ only in amended parts required by European harmonization procedure.

3 Instrument description

3.1 Front panel

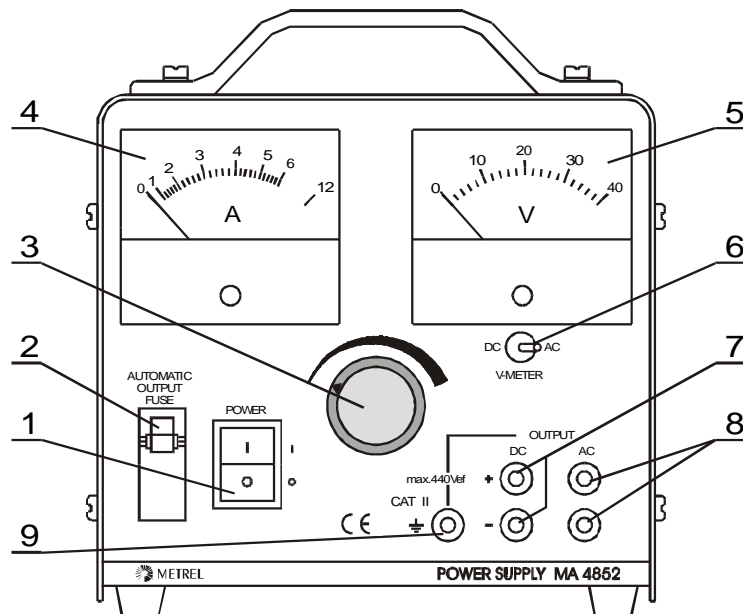


Figure 3.1: Front panel

Legend:

| | | |
|---|------------------------|---|
| 1 | I/O switch | Main switch for turning power on/off. |
| 2 | AUTOMATIC OUTPUT FUSE | Protects output circuit. |
| 3 | Dial | Knob for manual regulation of output voltage. |
| 4 | A-meter | Indicates rms value of load current. |
| 5 | V-meter | Indicates output voltage. |
| 6 | V-METER DC / AC switch | Selects output voltage indication |
| 7 | OUTPUT-DC | DC output terminals |
| 8 | OUTPUT-AC | AC output terminals |
| 9 | Green socket | Earth terminal |

3.2 Back panel

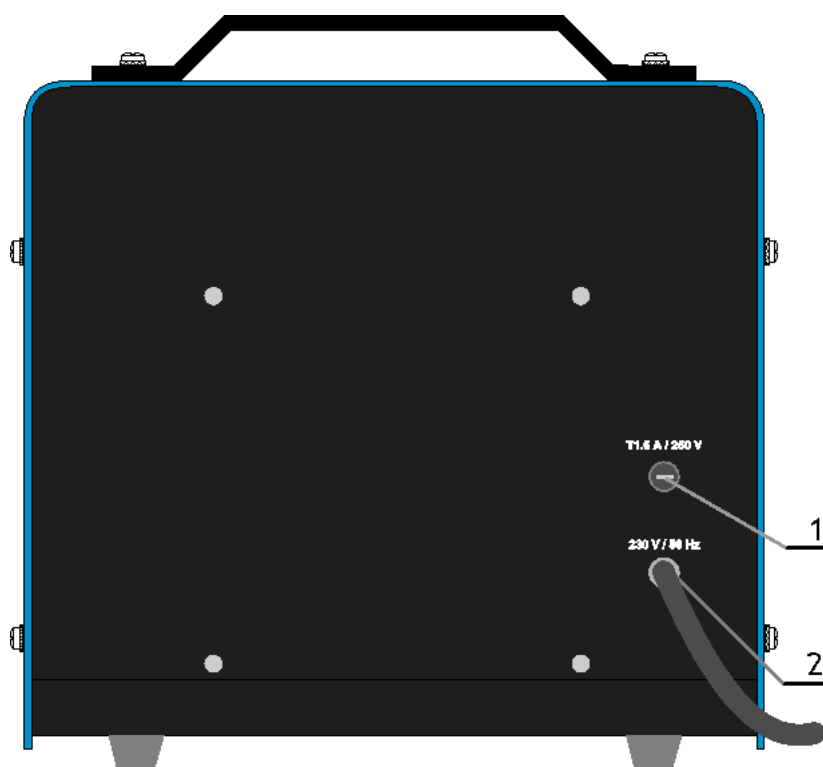


Figure 3.2: Back panel

Legend:

| | | |
|---|------------|---|
| 1 | Fuse F1 | T 1.6 A / 250 V (5 mm x 20 mm) (Breaking capacity: >150 A) |
| 2 | Cord entry | For power supply entry |

3.3 Instrument set

- Instrument – Power supply MA 4852
- Instruction manual

4 Instrument operation

4.1 Working with MA 4852

The MA 4852 is class I equipment. It means that all accessible conductive parts (case) are connected to PE. For safety working the following shall apply:

- ❑ **Use wall socket with proper earthing of PE terminal!**
- ❑ **Never disconnect PE wiring nor cut it, it is hazardous live!**
- ❑ **Secondary circuit is floating, it is separated from mains input and separated from PE. Keep secondary circuit floating or connect to PE only if necessary!**

4.2 Application of MA 4852

General application procedure for MA 4852 is as follows:

- ❑ Before connection to mains supply keep I/O switch in O (OFF) position, switch off automatic fuse and rotate dial knob c.c.w. to the limit position (0 V position).
- ❑ Connect MA 4852 into proper wall socket (see 4.1).
- ❑ Connect the circuit supplied from MA 4852 into proper pair of output sockets. Pay attention on right polarity in case of applied DC sockets.**
- ❑ Turn mains switch to I (ON), turn on output fuse and adjust output voltage.

** If the circuit requires limited voltage range then the last two steps are modified as follows:

- ❑ Turn mains switch to I (ON), turn on output fuse and adjust output voltage into required voltage range.
- ❑ Turn off output fuse.
- ❑ Connect the circuit supplied from MA 4852 into the proper pair of output sockets.
- ❑ Turn on output fuse.

Notes:

- ❑ Earth socket is extension of PE entry and is intended for functional earthing of supplied device or circuit if necessary.
- ❑ Do not connect any DC or AC output sockets together. DC part is extension of AC.

5 Maintenance

Unauthorized person is not allowed to open the MA 4852. There are no user serviceable components inside the instrument.

5.1 Replacing fuse

There is a fuse on the backside of the MA 4852.

- F1

T 1.6 A / 250 V, 20 mm × 5 mm (Breaking capacity: >150 A)

Warnings:

- Disconnect power cord from main supply before replacing the fuse!
- Replace blown fuse with original type only, otherwise the instrument may be damaged and/or operator's safety impaired!

Position of fuses can be seen in *Figure 3.4* in chapter 3.3 *Back panel*.

5.2 Cleaning

No special maintenance is required for the housing. To clean the surface of the instrument use a soft cloth slightly moistened with soapy water or alcohol. Then leave the instrument to dry totally before use.

Warnings:

- Do not use liquids based on petrol or hydrocarbons!
- Do not spill cleaning liquid over the instrument!

5.3 Periodic calibration

It is essential that the test instrument is regularly calibrated in order the technical specification of built in instrument is guaranteed. We recommend an annual calibration. Only an authorized technical person can do the calibration. Please contact your dealer for further information.

5.4 Service

For repairs under warranty, or at any other time, please contact your distributor.

6 Technical specifications

Rated mains supply voltage 230 V
 Rated supply frequency 50 Hz, 60 Hz
 Max. power consumption 190 VA
 Maximum output voltage 33 V AC (no load)
 30 V AC (rated load)
 46 V DC (no load)
 32 V DC (rated load)
 Continuous output current 6 A (DC + AC rms)
 Idle run current consumption.... <30 mA
 Automatic output fuse 6 A (type B)
 Mains fuse M 1.6 A, 250 V, 5 mm x 20 mm (IEC 60127),
 breaking capacity: >150 A
 Loading characteristics see graph below

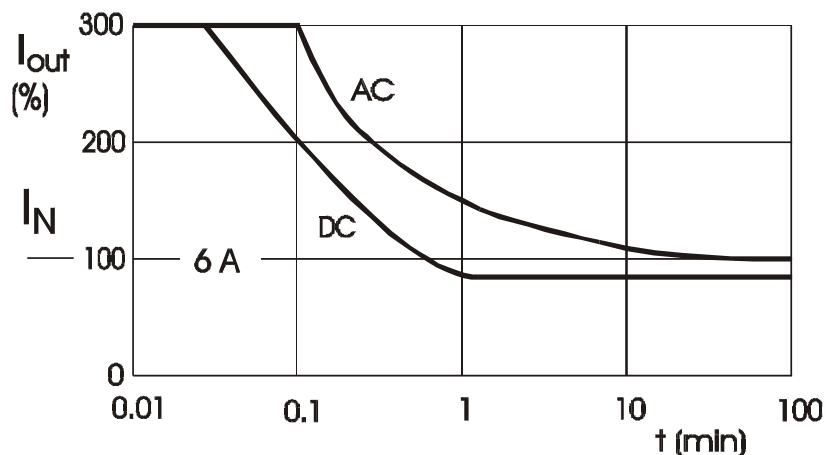


Figure 6.1: Loading characteristic of MA 4852

V-meter 0 - 40 V, moving coil, 1.5% f.s.
 V-meter source AC / DC output, selectable by switch
 A-meter 0 - 6 A (12 A), moving iron, 1.5% f.s.
 A-meter source rms current of secondary circuit
 A-meter crest factor 2.5
 Input overvoltage category 300 V CAT II
 Output overvoltage category 300 V CAT II (output to case)
 Pollution degree 2
 Protection class I
 Transformer type separating
 Protection degree IP30
 Dimensions (w x h x d) 228 mm x 216 mm x 210 mm
 Weight approx. 8.2 kg

Reference conditions

Reference temperature range ... 10 °C ÷ 30 °C

Reference humidity range 40 %RH ÷ 70 %RH

Operation conditions

Working temperature range..... -5 °C ÷ 40 °C

Maximum relative humidity 95 %RH (0 °C ÷ 40 °C), non-condensing

Storage conditions

Temperature range -10 °C ÷ +70 °C

Maximum relative humidity 90 %RH (-10 °C ÷ +40 °C)

80 %RH (40 °C ÷ 60 °C)