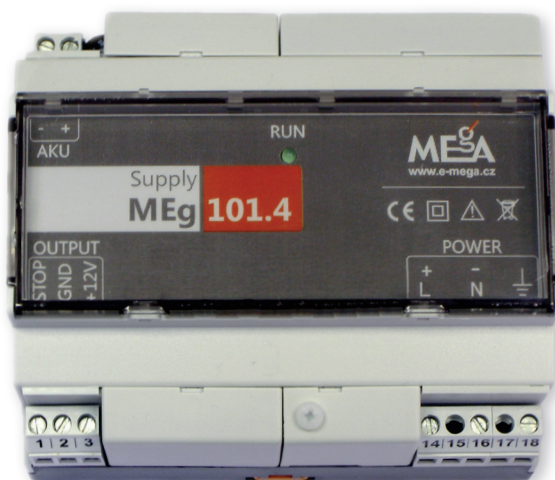




## Uninterruptible power supply Supply MEG101.4



MEGA – Měřící Energetické Aparáty, a.s.  
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# Uninterruptible power supply

## MEg101.4

### 1/ CHARACTERISTICS

The uninterruptible power supply MEg101.4 is designed for feeding the measuring and communication devices with 12V nominal supply voltage. Its core is a High-frequency voltage converter that converts the supply voltage with high efficiency to the output uninterruptible DC voltage. When the supply voltage is interrupted, the power supply delivers the output DC voltage from the internal supercapacitor for 3 sec at least or if an external a 12 V lead-acid accumulator is connected, it will extend duration of power supply according its capacity. If necessary, the uninterruptible power on the output of the power supply unit can be blocked. The output of the power supply is equipped with overcurrent protection and with a replaceable fuse on the input accessible from outside. The accumulator circuit is also equipped with a replaceable fuses. MEg101.4 also meets requirements of overvoltage category CAT IV / 300 V and therefore is suitable do LV distribution networks.

## 2/ TECHNICAL DATA

### Power supply MEg101.4 input

Supply voltage:	DC	AC, $f = 50 \text{ Hz}$
Rated voltage:	$220 \text{ V}_{\text{DC}}$	$230 \text{ V}_{\text{AC}}$
Minimum voltage:	$150 \text{ V}_{\text{DC}}$	$150 \text{ V}_{\text{AC}}$
Maximum voltage:	$300 \text{ V}_{\text{DC}}$	$300 \text{ V}_{\text{AC}}$
Rated current:	$180 \text{ mA}_{\text{DC}}$	$180 \text{ mA}_{\text{AC}}$
Maximum current:	$250 \text{ mA}_{\text{DC}}$	$250 \text{ mA}_{\text{AC}}$
Input power:	$20 \text{ W} / 45 \text{ VA}$	
Insulation voltage:	$5.4 \text{ kV}_{\text{AC}}$	
Overtoltage category:	CAT IV / $300 \text{ V}_{\text{AC}}$	
Fuse FU1:	FSK001 / 1 A-T	

### Accumulator

Type, rated voltage, capacity:	lead-acid, gel type, 12V, 1.2Ah to 24Ah
Fuse FU2:	FSK001 / 2,5 A-T
Fuse FU3:	FSK001 / 0,16 A-T

### Power supply MEg101.4 output

Rated output voltage:	$12 \text{ V}_{\text{DC}}$
Output voltage range:	$10 \text{ V}_{\text{DC}}$ to $14 \text{ V}_{\text{DC}}$
Maximum output current, terminals 2, 3:	1.3 A
Rated power:	15 W
Uninterrupted power supply period:	3 sec. / without external accumulator connected up to 4 hrs / when 6Ah accumulator is connected
Max. accumulator charging current, AKU, terminals 35, 36:	0.2 A
Starting current inrush:	5 A / 3 ms

**Design data**

Length × width × height:	108 × 90 × 63 mm
Weight:	0.4 kg
Installation:	DIN rail TS 35
Terminal block, max. wire cross-section:	4 mm <sup>2</sup>

**Operating conditions**

Rated operating temperature:	22 °C
Operating temperature range:	-20 °C to +55 °C
Operation:	interior, with cover panel of terminals outdoor, in waterproof case
Protection rating:	IP00
Relative humidity:	20 % to 90 %
Altitude:	up to 2000 m
Operating position:	vertical with ventilation openings on upper side, installation on DIN rail
Safety:	EN 61010-1:2010
EMC:	EN 61326-1:2013
Pollution degree:	2

### 3/ EXPLANATION OF SYMBOLS IN USER MANUAL FOR POWER SUPPLY MEg101.4



Danger, electric shock risk



Note in documentation / Danger, risk of danger



Ground, grounding terminal for RF grounding

IP kód

Degree of protection provided by enclosure



The product is intended for recycling and collection spots



Declaration of Conformity – European Community

### 4/ CONSTRUCTION

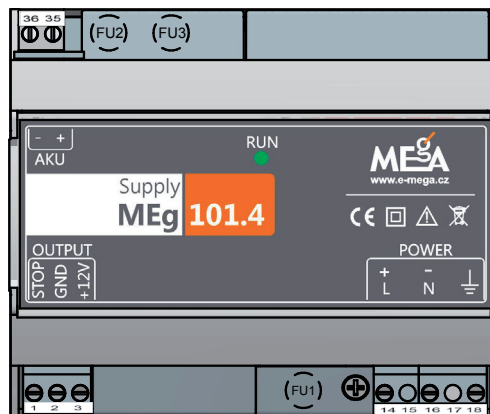
The uninterruptible power Supply MEg101.4 is built in a plastic case made of self-extinguishing polycarbonate. The power supply is installed on the DIN rail TS 35 using upper or lower spring latches. The power supply can be located in the case together with the external accumulator.

Global configuration of the MEg101.4 power supply is on Fig. 1. The LED indicator **RUN** is on the unit's panel, indicating the presence of  $12V_{DC}$  voltage on the output of the units on terminals with label **OUTPUT**. The group of terminals **POWER** with AC or DC supply voltage and the group of **OUTPUT** terminals with  $12V_{DC}$  output voltage and blocking are located on the lower part of the unit and their denotation and explanation are given in Tab. 1. The group of **AKU** terminals is designed for possible connection of an external accumulator and it is found on the upper part of the unit. Maximum cross-section of the connected wire is  $4\text{mm}^2$ . The replaceable input fuse **FU1** is in socket under the screwed cover next to the input supply **POWER** voltage terminals. Both replaceable fuses **FU2** and **FU3** in the external accumulator circuit are found under the cover located next to the group of **AKU** terminals. The rated voltage of the external gel gas-tight lead-acid accumulator is  $12V_{DC}$  and the accumulator can have the capacity up to 24Ah. Without the external accumulator, the supercapacitors used in the uninterruptible power supply provide power with the voltage drop from 12V to 10V for 3sec at 15W load.

Tab. 1: Power supply MEG101.4 terminals


Terminal number	Terminal denotation	Terminal description
1	OUTPUT STOP	Uninterruptible output voltage blocking
2	OUTPUT GND	Output ground of power supply MEG101.4
3	OUTPUT +12V	Uninterruptible output voltage +12V <sub>DC</sub>
14	POWER L POWER +	AC phase conductor or DC supply voltage positive pole
16	POWER N POWER –	AC neutral conductor or DC supply voltage negative pole
18	POWER $\perp$	RF grounding
35	AKU +	Positive pole of the 12V lead-acid accumulator
36	AKU –	Negative pole of the 12V lead-acid accumulator

Fig. 1: Power supply MEG101.4 unit



On the left side of the MEG101.4 power supply unit, there is a rating label with detailed information about the power supply, see the example in Fig. 2.

Obr. 2: MEg101.4 rating label example

<b>Supply MEg101.4</b>	 <b>Made In Czech Republic</b>
<b>Power:</b> $U_n=230V\sim$ , (150-300) V $\sim$ , $f_n=50\text{Hz}$ $U_n=220V\text{---}$ , (150-300) V $\text{---}$ $I_n=180\text{mA}$ , $I_{\text{max}}=250\text{mA}$	
<b>Output:</b> $U_n=12V\text{---}$ , (10-14)V $\text{---}$ $I_{\text{total}}=1,5\text{ A}\text{---}$ (term.2-3 and 36-35) $I_{\text{max}}=0,2\text{ A}\text{---}$ (term.36-35)	

## 5/ SAFETY INFORMATION

### Maximum attention must be paid to this information



**Warnings** draw attention to the facts, constituting safety risks to the operator.



**Cautions** indicate conditions and facts that may cause damage to the uninterruptible power supply MEg101.4.

- The operator engaged in installation of the power supply MEg101.4, commissioning, maintenance and dismantling must be equipped with personal protective equipment against electrical shock and must use other protection devices as well.
- The operator engaged in installation of the power supply MEg101.4, commissioning, maintenance and disassembly must have qualifications for work near dangerous voltages. The operator must also be trained to administer first aid.
- The power supply MEg101.4 may be operated by skilled personnel only.
- The power supply MEg101.4 may be connected to supply by permanent maximum voltages  $300V_{AC}$  and  $300V_{DC}$ , otherwise there is a risk of electrical injury.
- It is necessary to incorporate circuit breakers in the circuits of the power supply MEg101.4 with respect to the type of supply voltage, see Fig. 4.
- Repairs of the power supply MEg101.4 may only be carried out by the manufacturer or service organizations authorized by the manufacturer.
- The replacement of FU1 fuse for AC or DC supply voltage may be carried out only with the supply voltage switched off.
- When connecting an external 12 V battery the terminals must not to be short circuited and as the last the inlet connects to positive pole of the supply source.



## 6/ INSTALLATION AND PUTTING IN OPERATION



If the uninterruptible power supply MEg101.4 is used in ways other than originally intended, the protection provided by the power supply may be impaired.

**The uninterruptible power supply MEg101.4 is a Class A product designed for industrial environments. It may cause radio interference in other environments.**



The power supply MEg101.4 unit is placed only in vertical position and is always installed on DIN rail (35 mm) in the case or under the terminal cover panel so that protection rating, fire resistance, mechanical impact resistance for the required environment can be reached. Due to protection against electrical injury and mechanical impact resistance improvement require overlapping the terminals cover by the cover panel.



The uninterruptible power supply MEg101.4 may only be installed by the person authorized to work with input voltage and equipped with personal protection equipment against electrical injury and familiarized with the instruction manual.



The denotation of supply terminals in the POWER L and N section applies to AC mains supply and the denotation + and – applies to DC supply voltage.



The power supply MEg101.4s with the external lead-acid accumulator is delivered unconnected. When handling the accumulator, its output terminals must not be short-circuited. When installing the MEg101.4 set with the external accumulator, the correct polarity must be respected. In case of incorrect connection of the accumulator to the power supply terminals (terminal 35 is + pole, terminal 36 is – pole), the fuse FU2 (2.5 A) will burn out. In case of short-circuit of the accumulator terminals (terminals 35 and 36) the fuse FU3 (0.16 A) will burn out.



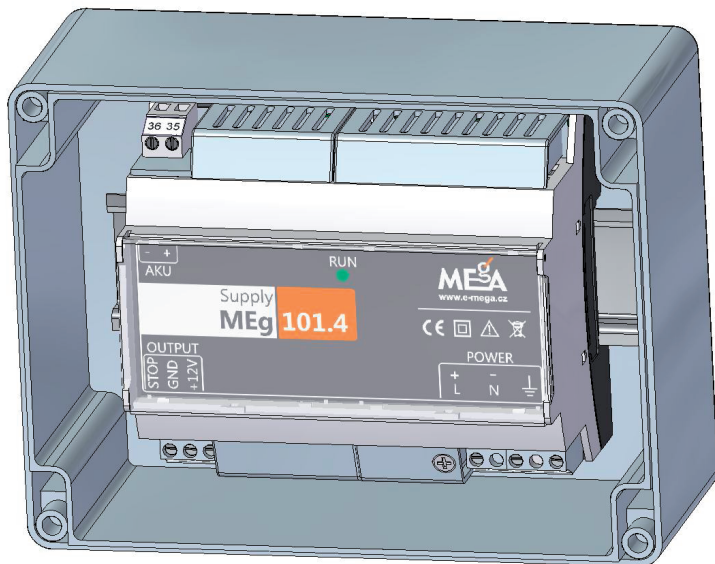
Regardless of the power supply voltage direction or way of grounding (DC or AC, none or one grounded pole), it is necessary to connect both supplying wires via fuse switch-disconnector according to Fig. 4.

It is also necessary to place the fuse switch-disconnector as close as possible and as easily reachable as possible.

The uninterruptible power supply MEg101.4 is installed always on the DIN rail TS 35. The MEg101.4 is always in vertical position with ventilation openings on upper side and the inscription on the unit's panel is readable from left to right, see Fig. 3.

Power supply MEg101.4 wiring is in Fig. 4.

Fig. 3: Example of installation source unit in vertical position to box with DIN rail



The power supply terminal **(18)** for RF grounding must be connected to the grounding system in the power supply installation site.

Based on the type of power supply, AC or DC supply voltage is brought to terminals **(14)** and **(16)**. The power supply MEG101.4 can be fed by AC voltage ranging from  $150 V_{AC}$  to  $300 V_{AC}$ .

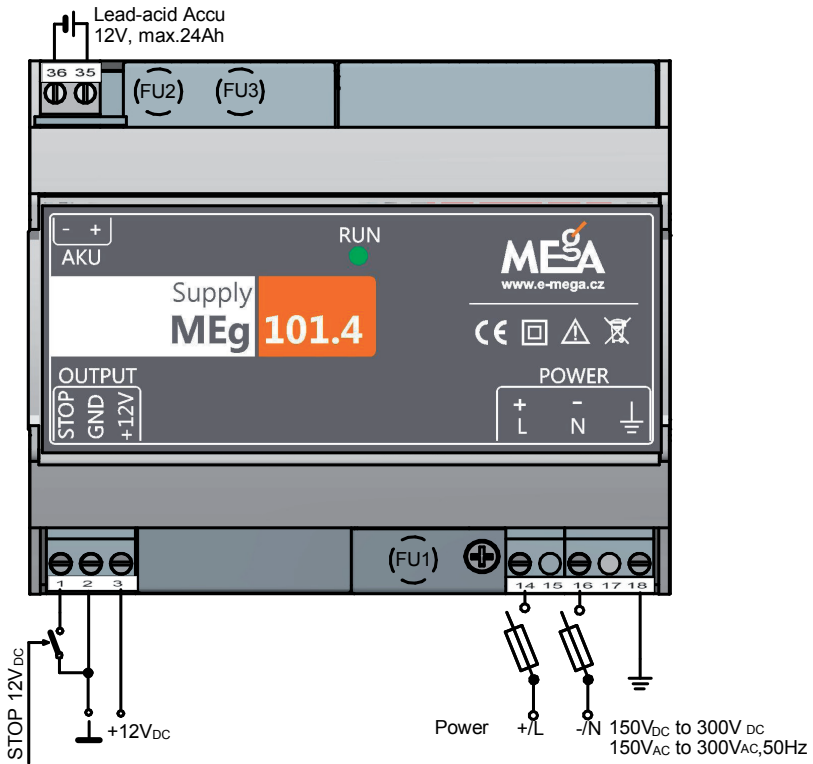
The power supply MEG101.4 can be fed by DC voltage ranging from  $150 V_{DC}$  to  $300 V_{DC}$ .

When the uninterruptible power supply MEG101.4 is used for feeding external devices, the uninterruptible output voltage is  $+12 V$  / max.  $1.3 A$  is available at terminals **(2)** and **(3)**. The terminal **(1)** connected with terminal **(2)** is used for blocking the uninterruptible supply voltage. In this way, it is possible to block unnecessary discharging of the external accumulator, e.g. during functional checks and inspections.

After connection of the input supply voltage, the LED indicator **RUN** on the power supply panel is lit and the output DC voltage  $U_{nom} = +12 V_{DC}$  is available on the output and internal supercapacitors and also alternatively the external lead-acid accumulator connected are charged at the same time. When the supply voltage is interrupted, the power supply unit is fed by DC output voltage ranging from  $10 V$  to  $14 V$  for the period of







uninterruptible power supply. The termination of uninterruptible power supply is indicated by the LED indicator **RUN** turned off. Renewal of the uninterruptible power supply is started up also by short-term renewal of the input supply voltage.

Fig. 4: Power supply MEg101.4 wiring



- ⚠ The discharged accumulator with capacity 6Ah is fully charged in 48 hours even with maximum load of the power supply.
- ⚠ The uninterruptible power supply MEg101.4 has an internal power source (supercapacitors) so it is not permitted to remove its cover when it is in operation.

## 7/ MAINTENANCE REQUIREMENTS

-  The repairs of the power supply MEg101.4 during the warranty period may only be carried out by the manufacturer's skilled and trained personnel or by the manufacturer's service organizations. The contact to the manufacturer's service is indicated on the website [www.e-mega.cz](http://www.e-mega.cz).
-  The power supply MEg101.4 unit may not be exposed to chemicals.
-  The power supply MEg101.4 may be transported in its original container only.
-  The power supply MEg101.4 has no requirements for forced cooling.
-  When polluted, the power supply unit is carefully cleaned with a damp cloth without using cleaning agents.
-  When the power supply MEg101.4 with external lead-acid accumulator is stored for a long time or the input voltage is not connected, it is necessary to charge the battery, preferably through the MEg101.4 power supply, after 1 year at the latest. The minimum charging time for the 6 Ah accumulator is 48 hours. When an external lead-acid accumulator with a different capacity is connected, the charging time will be modified proportionally.

It is recommended to perform preventive inspections after every 4 years of operation.

The preventive inspection includes:

- checking the unit for mechanical integrity,
- checking the level of output DC voltage,
- checking the output DC voltage blocking by connecting the power supply contacts (1) and (2) with disconnected supply voltage,
- checking the capacity of the external lead-acid accumulator or preventive replacement of the accumulator.
- When the power supply is used without the external accumulator connected, check the function of the uninterruptible power supply from internal supercapacitors in such a way that the power supply is connected for 10 minutes to the supply voltage and then the time of uninterruptible power supply is checked according to loading level, see Tab. 2.

Tab. 2: Informative periods of uninterruptible power supply without connected external accumulator with voltage drop to 10 V

P [W]	10	15
t [sec]	8	4

## 8/ DISPOSAL

When the power supply MEg101.4 service life is over, have the unit recycled in waste disposal sites according to rules for electronic waste disposal. The power supply set may include the accumulator as well.

## 9/ CONTENTS OF THE SET

### Basic set

- Uninterruptible power supply MEg101.4
- 1 pc fuse FU1 type FSK001 / 1 A-T
- 1 pc fuse FU2 type FSK001 / 2,5 A-T
- 1 pc fuse FU3 type FSK001 / 0,16 A-T
- CD with user description

### Optional parts of the set

- DIN rail TS 35 with accessories
- n pc fuse FU1 type FSK 001 / 1 A-T
- n pc fuse FU2 fuse type FSK 001 / 2,5 A-T
- n pc fuse FU3 type FSK001 / 0,16 A-T
- 2-pole disconnecter OPVA 10-2

## 10/ WARRANTY



It is not permitted to open the power supply MEg101.4 during warranty period.

The power supply MEg101.4 design is covered by a 24-month warranty from the date of purchase, however, 30 months after removal from the manufacturer storage at longest. Defects originating during this period as a demonstrable result of defective design, manufacturing or using improper material will be repaired free of charge by the manufacturer or his service organization. The external lead-acid accumulator delivered in the MEg101.4 power supply set is covered with a warranty in compliance with delivery terms of the accumulator supplier.

During the warranty period, after 1 year at the latest, it is necessary to connect the power supply with the external lead-acid accumulator to the rated supply voltage for 48 hours at least.

The warranty becomes invalid if the user carries out unauthorized modifications or changes on the power supply if he connects the power supply incorrectly or if operated contrary to technical conditions and user description.

The defects on the power supply and its accessories originating during the warranty period shall be claimed by the user to the manufacturer or to the service organization authorized by the manufacturer.

The manufacturer bears in any case no responsibility for subsequent damages caused by using the MEg101.4 power supply.

No responsibility which would exceed the price of the power supply follows for the manufacturer from this guarantee.

## 11/ MANUFACTURER

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