

DATASHEET M-POWER-LINE

GENERAL

The M-Power-Line series is a competitive, highly efficient, compact DC power supply with robust design. Combining simple operation and an easy to use multi-function display, these power supplies are well suited for applications in industry, science and research.



FEATURES

- Multi-function control panel with user friendly interface
- Very compact and lightweight 2U rackmount package
- Power ratings from 200 W to 1000 W
- Output voltages: 0 - 10kV, 0 - 30kV and 0 - 50kV
- Low 0.1% peak-peak output ripple
- Integrated ARC counter
- Protected against short circuits and arcs
- Variable speed fan for quiet operation
- High efficiency – 85% to 90%
- CE mark, EN61010 safety compliant
- Standard integrated LAN and USB interfaces
- Wide range single phase AC input with active PFC

APPLICATIONS

- Laboratory power
- Photomultiplier / Secondary electron multiplier
- High voltage test stands
- Gas discharge / Plasma
- Electrostatics
- Capacitor / Insulation testing
- Ion sources
- Nuclear fusion research
- Particle accelerators
- Sputtering



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FLEXIBLE CONTROLS WITH CONVENIENT MENU NAVIGATION

M-Power-Line models feature flexible and easy to operate local controls combined with a multifunction digital display that simultaneously shows both the output set points and actual measured values. HV outputs can be adjusted with voltage and current encoders with coarse and fine settings, with set point adjustment possible even with the output locked. The local control interface also allows the user to set the IP address, displays information about the unit, such as serial number, firmware version, operation hours, MAC address and internal status. Other features include operating hours counter, device history (fault memory), streaming of actual values and states with timestamp, flash-over counter, over temperature device shutdown, and much more. The HV output is resistant to short circuits and flash-overs and can operate continuously into a short circuit. The M-Power-Line power supplies are suitable for both inductive and capacitive loads and for unlimited operation at both full and no load.

PROTECTIVE FUNCTIONS

Multiple temperature sensors monitor the main power components, and in the event of a fault, power circuits are shut down and a fault message is displayed.

STANDARD DIGITAL INTERFACES

Standard integrated LAN and USB interfaces are located on the rear panel. This ensures the power supply can be controlled and maintained remotely and also allows multichannel communication with the unit using checksum-protected data transmission.



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OVERVIEW OF TYPES

TYPE	POLARITY	POWER	VOLTAGE	CURRENT	RIPPLE	MAX STORED ENERGY
	positive/negative	W	kV	mA	Vp-p	J
MPL 200-10000 POS	positive	200	10	20	10	1,1
MPL 200-10000 NEG	negative	200	10	20	10	1,1
MPL 500-10000 POS	positive	500	10	50	10	1,7
MPL 500-10000 NEG	negative	500	10	50	10	1,7
MPL 1000-10000 POS	positive	1000	10	100	10	3,1
MPL 1000-10000 NEG	negative	1000	10	100	10	3,1
MPL 200-30000 POS	positive	200	30	7	30	2,4
MPL 200-30000 NEG	negative	200	30	7	30	2,4
MPL 500-30000 POS	positive	500	30	17	30	2,4
MPL 500-30000 NEG	negative	500	30	17	30	2,4
MPL 1000-30000 POS	positive	1000	30	33	30	3,5
MPL 1000-30000 NEG	negative	1000	30	33	30	3,5
MPL 200-50000 POS	positive	200	50	4	50	3,5
MPL 200-50000 NEG	negative	200	50	4	50	3,5
MPL 500-50000 POS	positive	500	50	10	50	3,4
MPL 500-50000 NEG	negative	500	50	10	50	3,4
MPL 1000-50000 POS	positive	1000	50	20	50	4,9
MPL 1000-50000 NEG	negative	1000	50	20	50	4,9



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TECHNICAL DATA

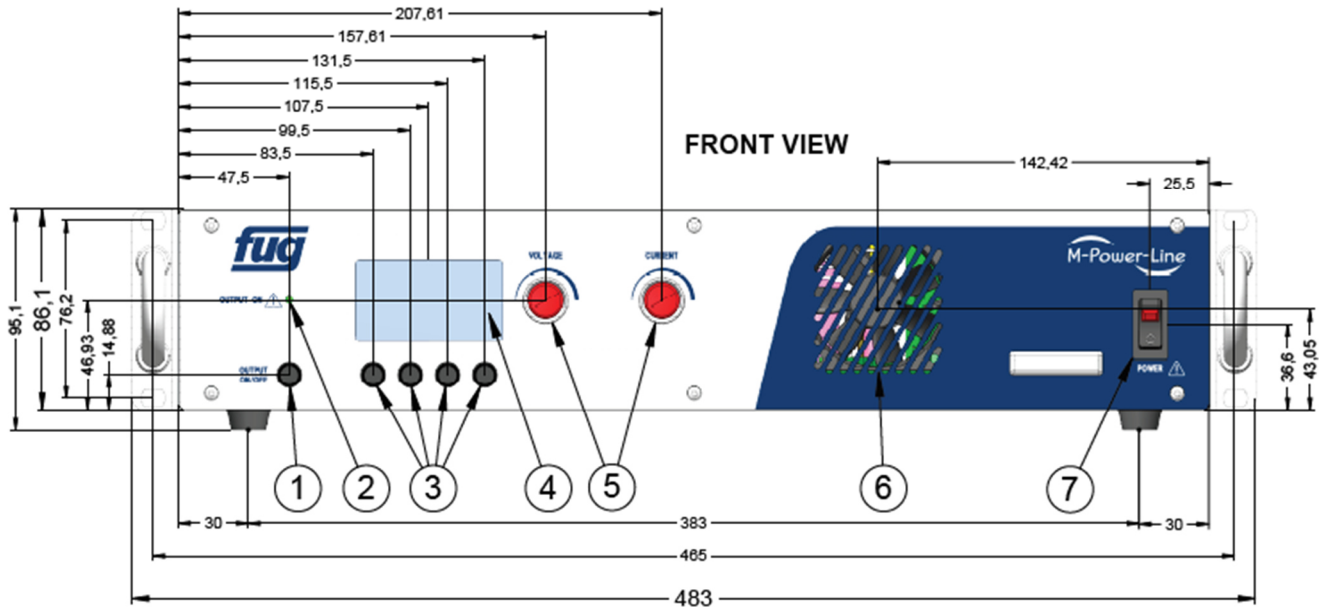
→ Average output power:	200W, 500W, 1000W
→ Output voltage range:	See table "Overview of types"; variable from 0.1% to 100% of rated voltage
→ Output current range:	See table "Overview of types"; variable from 0.1% to 100% of rated current
→ AC input:	Wide range 99-253V AC single phase, 47-63Hz
→ AC input connector:	IEC60320 C20 receptacle
→ Power factor:	> 0.95 at full load at nominal AC line
→ Efficiency:	85% - 90% at full load
→ Safety:	CE mark, EN61010-1 compliant. The power supply unit may only be operated by trained and qualified personnel.
→ EMC:	EN61000-6-2 and EN61000-6-3
→ Output control:	Continuous adjustment from 0 to rated voltage/current by front panel mounted encoders with coarse and fine adjustment settings
→ Response time:	< 500ms for 10% - 90% or 90% - 10% of rated output voltage at rated load
→ Polarity:	Specify positive (P) or negative (N) when ordering, grounded return
→ Set point resolution:	±0.1% of rated
→ Line regulation (current & voltage):	±0.01% for ±10% AC line voltage variation
→ Load regulation (current & voltage):	±0.1% no load to full load
→ Voltage ripple (0 - 10MHz):	0.1% peak to peak
→ Stability:	±0.1% over 8 hours under constant conditions after 30 min. warm up
→ Temperature coefficient:	±0.1% per °C
→ Ambient temperature:	0°C to +40°C operating, 0°C to +60°C storage
→ Humidity:	0% - 80% at 0°C - 31°C, 0% - 50% at 31°C - 40°C non-condensing
→ Cooling:	Forced air cooling with variable speed fan
→ Altitude:	Operating: 6,500ft (2.000m)
→ HV output connection:	Mating HV connector and 3m cable supplied
→ HV insulating medium:	Outputs ≤ 10kV are air insulated, ≥ 30kV use solid dielectric silicone encapsulation
→ Front panel:	Voltage and current encoders, power switch, HV ON/OFF switch, multi-function display shows actual outputs, set points, set/display IP address, unit status, MAC address, baud rate
→ LAN interface (standard):	Full duplex with 5 simultaneous connections possible via Ethernet, IP address configurable via front panel display, transfer speed of 10/100Mbit/s. TCP/IPv4 protocol
→ USB interface (standard):	Virtual COM port on PC side, 115k Baud
→ Mechanical:	2HU height (3.5") rackmount package x 17.9" deep x 17.5" wide
→ Weight:	10kV models – approx. 10 kg / 30kV - 50kV models – approx. 14 kg
→ Protection:	Open/short circuits, arcs, overtemp, flashover
→ Warranty:	2 years, outside of Germany without transport and travel costs



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COMPONENTS OF THE DC POWER SUPPLY

FRONT VIEW WITH CONTROL ELEMENTS



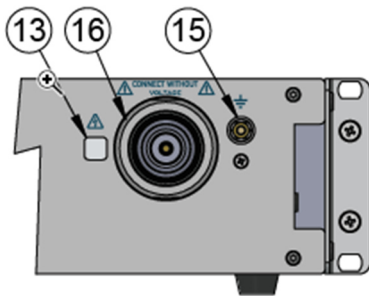
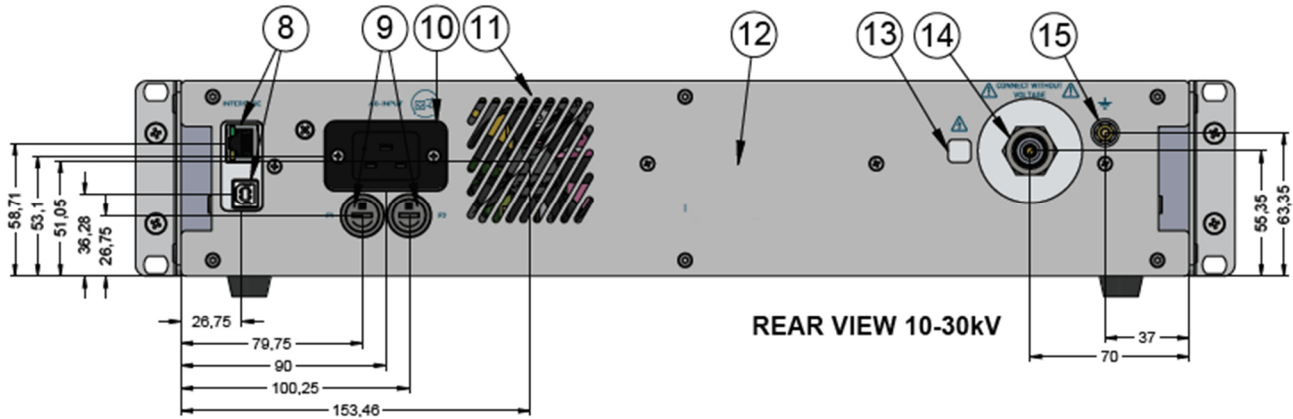
1	HV-ON/OFF button	5	Rotary encoders for current and voltage control
2	HV activation LED	6	Air inlet
3	Operating buttons "softkeys"	7	Power switch
4	Display		



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REAR VIEW



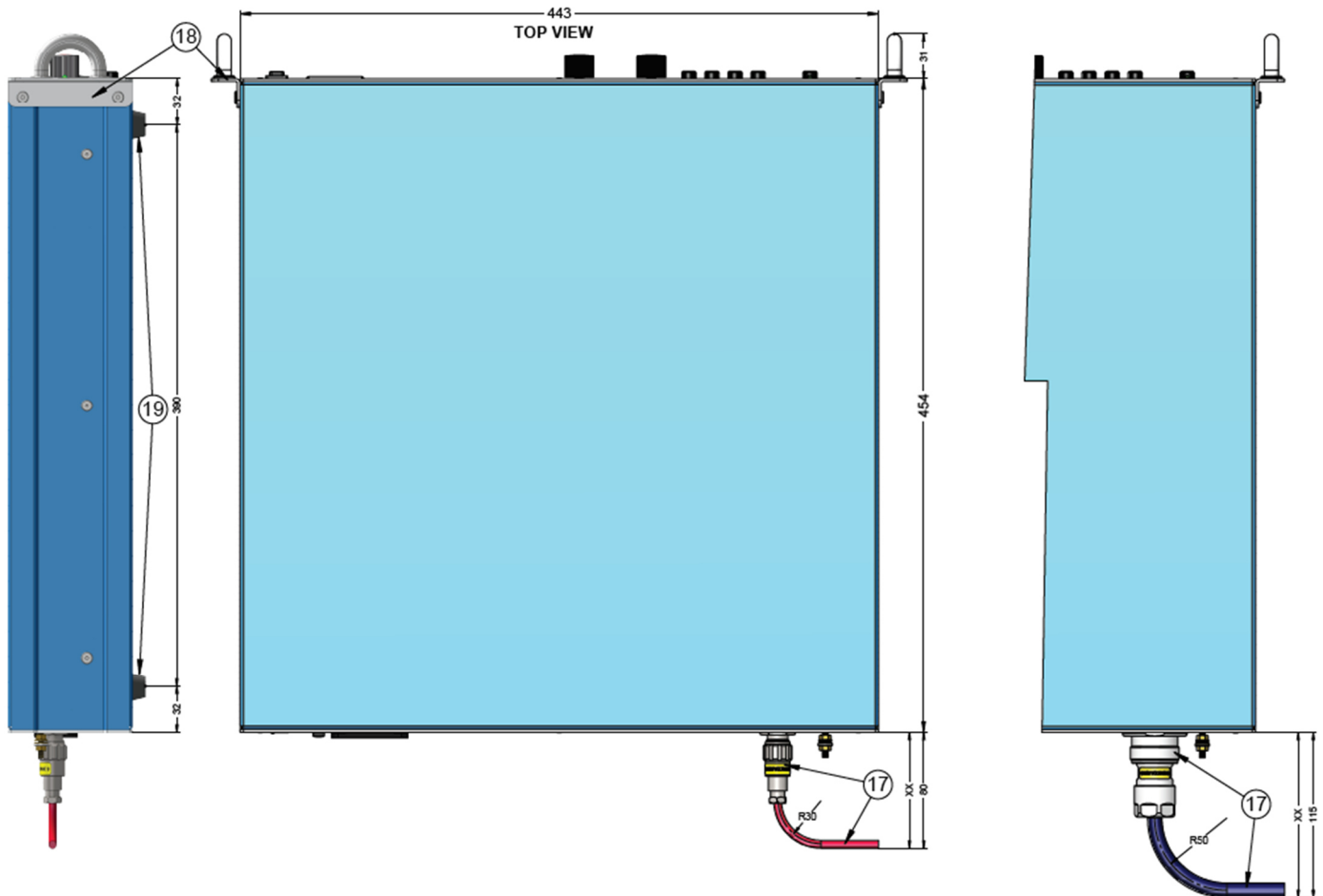
8	Interfaces (Ethernet, USB)	13	Polarity indication
9	Device fuses E1, E2 HBC 12,5T (5x20mm)	14	HV output socket 10 ... 30 kV
10	Mains connection	15	Grounding bolt /PE
11	Air outlet	16	HV output socket 50kV
12	Position of type plate		



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TOP VIEW



17	HV plug & HV cable
18	Adapter bracket for 19" rack
19	Device basis (removable)

ALL SPECIFICATIONS ARE SUBJECT TO CHANGE WITHOUT NOTICE.

