

### 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 - 3kV, 0 - 10kV, 0 - 30kV and 0 -50kV
- Low 0.1% peak-peak output ripple
- Integrated ARC counter
- HV Release socket for integration of shut down circuits
- Protected against short circuits and arcs
- Variable fan speed 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

### **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 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, overtemperature 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.

## OVERVIEW OF TYPES

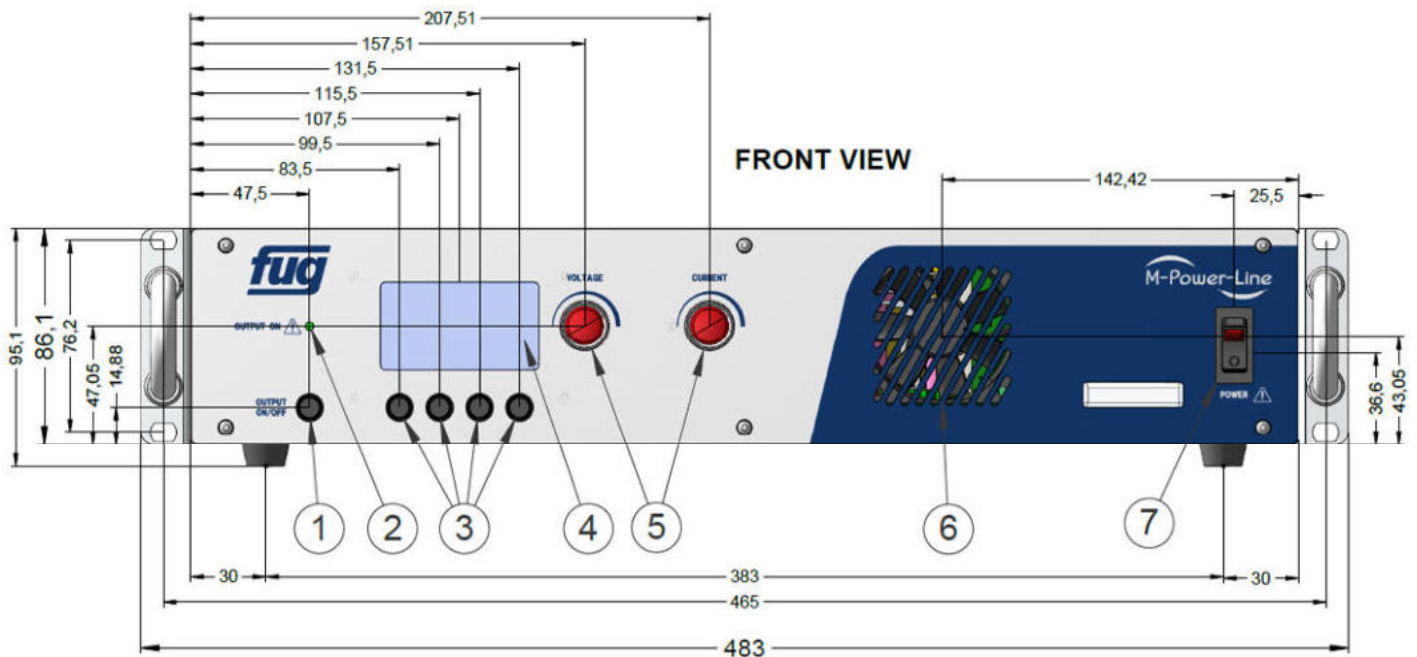
TYPE	POWER	VOLTAGE	CURRENT	RIPPLE	STORED ENERGY	DISCHARGE TIME CONSTANT
	W	kV	mA	Vp-p	J	s
MPL 1000-3000	1000	3.000	333.0	3	2.0	9.2
MPL 200-10000	200	10.00	20.00	10	2.3	4.6
MPL 500-10000	500	10.00	50.00	10	2.5	5.0
MPL 1000-10000	1000	10.00	100.0	10	4.4	8.7
MPL 200-30000	200	30.00	7.000	30	3.3	4.4
MPL 500-30000	500	30.00	17.00	30	3.3	4.4
MPL 1000-30000	1000	30.00	33.00	30	4.5	5.9
MPL 200-50000	200	50.00	4.000	50	4.8	3.1
MPL 500-50000	500	50.00	10.00	50	4.8	3.1
MPL 1000-50000	1000	50.00	20.00	50	6.6	4.2

### 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 110-230VAC ±10% 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. <b>The power supply unit may only be operated by trained and qualified personnel.</b>
→ 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 (POS) or negative (NEG) 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 fan speed
→ 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:	3kV - 10kV models – approx. 10 kg / 30kV - 50kV models – approx. 14 kg
→ Protection:	Open/short circuits, arcs, overtemperature
→ Warranty:	2 years, outside of Germany without transport and travel costs

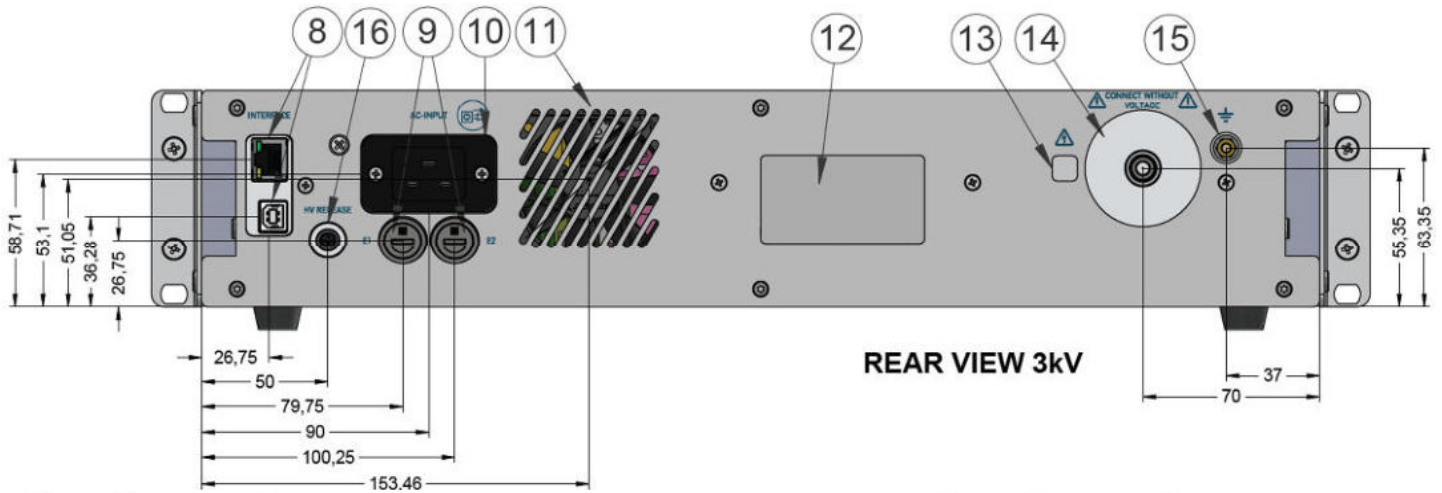
## COMPONENTS OF THE DC POWER SUPPLY

### FRONT VIEW WITH CONTROL ELEMENTS

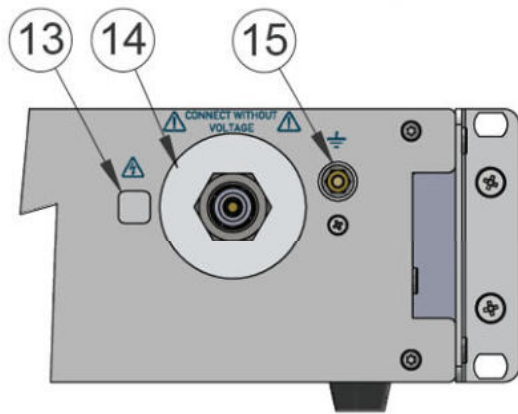


1	OUTPUT ON/OFF button	5	Rotary encoders for current and voltage control
2	OUTPUT ON LED	6	Air inlet
3	Operating buttons "softkeys"	7	Power switch
4	Display		

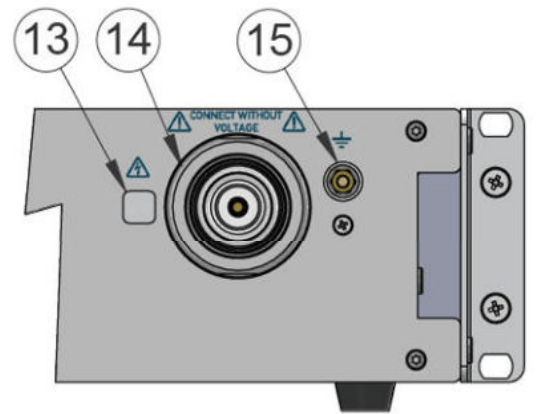
**REAR VIEW**



**REAR VIEW 3kV**



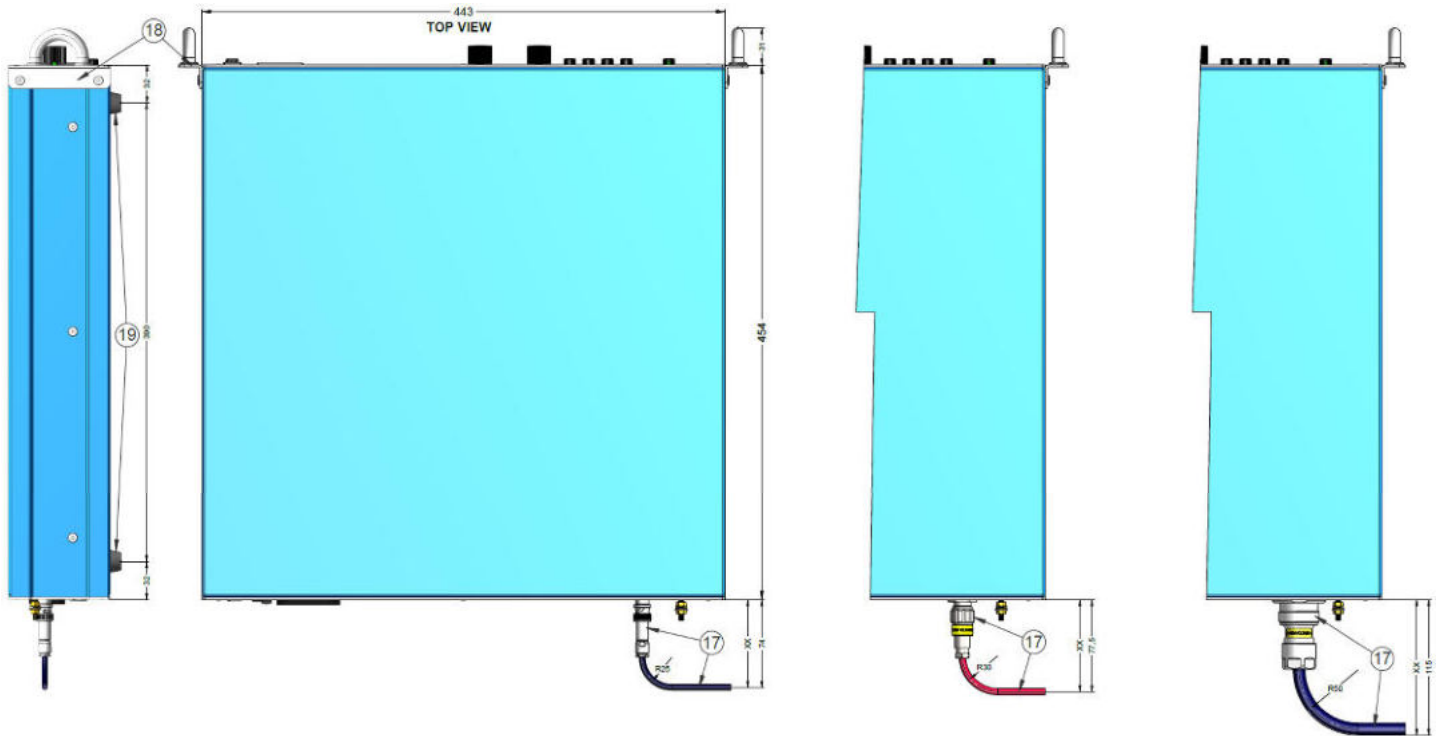
**REAR VIEW 10-30kV**



**REAR VIEW 50kV**

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

## TOP VIEW



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

Class	HV PLUG	HV CABLE	ORDERING NUMBER
3 kV	SHV	RG 58	Z0251
10 kV	HS 40	130 660	Z0249
30 kV	HS 40	130 660	Z0249
50 kV	KS 150	RG 11	Z0250

**ALL SPECIFICATIONS ARE SUBJECT TO CHANGE WITHOUT NOTICE.**