



M-Power-Line – Compact High-Voltage Power Supply Unit

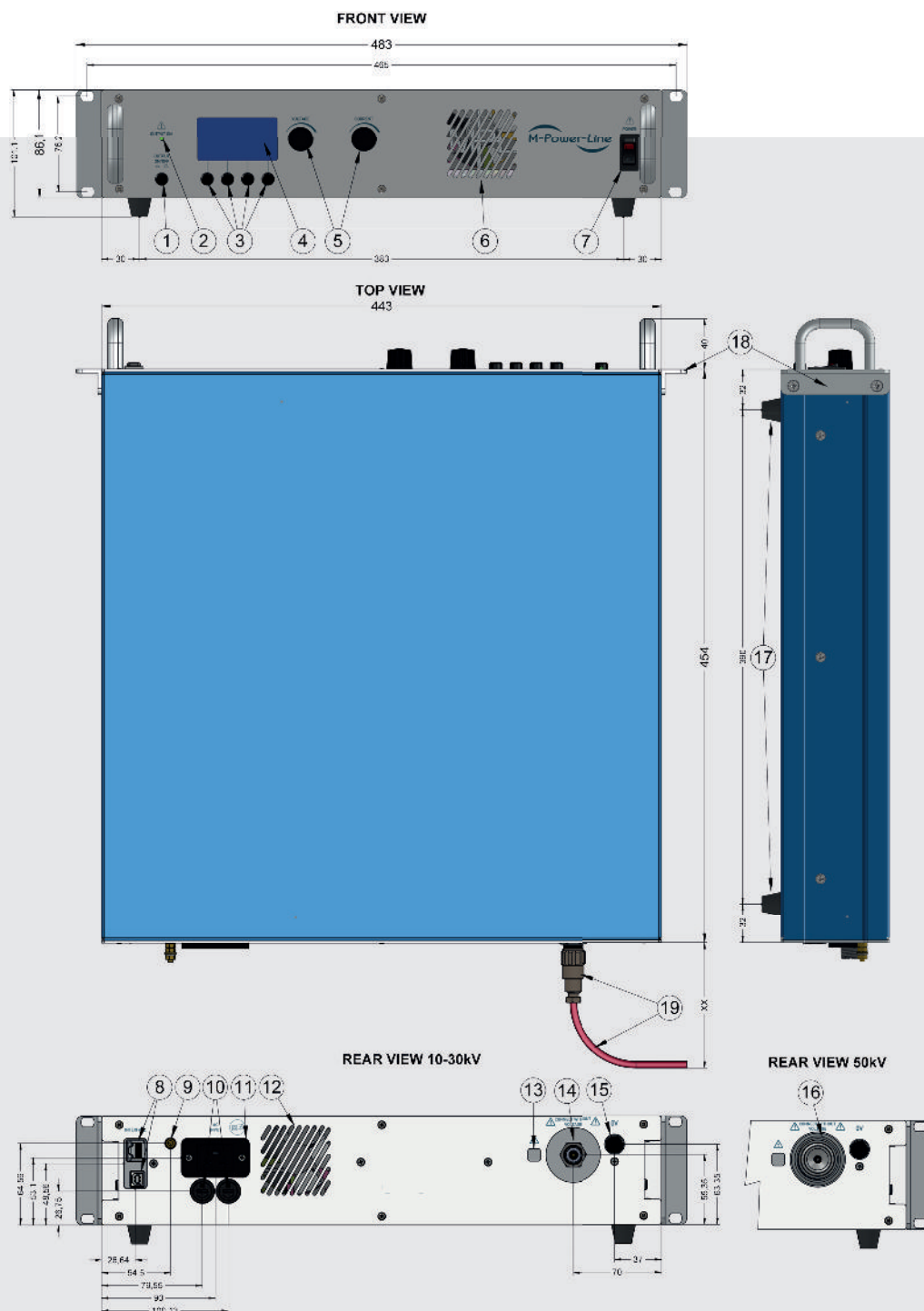
M-Power-Line – Compact High-Voltage Power Supply Unit

Robust and efficient equipment at an attractive price

Power classes of 200 W–1 kW and voltages of 10 kV–50 kV

The M-Power-Line impresses with its robust design, high efficiency, compact dimensions and outstanding price-performance ratio. Thanks to the use of a Power Factor Controller (PFC), the input voltage can vary from 100 to 254 V. This allows the device to be used anywhere in the

world, regardless of the power supply system in the specific country. With its simple operation and easy readability of relevant parameters (set/actual/status), the devices are especially attractive for use in many branches of industry, as well as in research institutes.



Laboratory power supplies
High-voltage test rigs
Electrostatic applications
Capacitor chargers
Electron beam applications
TYPICAL APPLICATIONS

DEVICE CLASSES
Voltage classes 10 30 50 kV
Power classes 200 500 1000 W
Input voltage 100 – 254 V

- 1 HV ON/OFF switch
- 2 HV release LED
- 3 Push buttons
- 4 Display
- 5 Incremental encoder for current and voltage adjustment
- 6 Air inlet
- 7 Power switch
- 8 Interfaces
- 9 Grounding bolt
- 10 Device fuses
- 11 Power connector
- 12 Air outlet
- 13 Polarity indicator
- 14 HV output socket 10–30 kV
- 15 0V output socket
- 16 HV output socket 50 kV
- 17 Device feet (unscrewable)
- 18 Adapter bracket for 19" rack
- 19 Output connector (accessory)

Very compact and lightweight construction in a 19" housing
Modern control panel with convenient, user-friendly menu navigation
Very high power density of 57.9 W/l
Operation is almost independent of environmental parameters thanks to solid insulation (30 kV, 50 kV)
Low electromagnetic emission thanks to modern power electronics
High efficiency of > 90%
Comprehensive protective functions to protect the device and connected loads
Two digital interfaces – as standard: Ethernet and USB
HIGHLIGHTS

TECHNICAL SPECIFICATION

Modern control unit with convenient menu navigation
 The device has a high-quality and easy-to-operate control unit. The set values and actual values can be read off at any time during operation, and set value adjustment is possible even with the output locked. The current and voltage are adjusted using incremental encoders, and the control unit allows the user to set the IP address and also to read off information regarding the specific device, e.g. serial number, firmware version, operating hours, MAC address and internal status information.

AC input (versatile)
 All models have a Power Factor Controller (PFC) for the purposes of power-factor correction and are therefore also suitable for use around the world with mains voltages of 100 to 254 V. The mains frequency can vary between 47 and 63 Hz.

DC output (safe and reliable operation)
 Models are available with DC output voltages of zero to 10, 30 or 50 kV and wattages of max. 200, 500 or 1000 W respectively. Voltage and current can be adjusted both manually and by remote control via the interfaces provided. All outputs are resistant to short circuits and flash-overs and allow unlimited operation in the event of a short circuit. They are suitable for both inductive and capacitive loads and for unlimited operation at both full and no load. The DC output is in an easily accessible position on the back of the unit.

Fan controller (quiet running)
 The sensors of the temperature monitoring system regulate the speed of the fans. In this way, the device's noise level is reduced to a minimum.

Protective functions (maximum safety)
 The device has numerous protective functions to protect connected loads from damage due to overvoltage and overcurrent. As soon as one of these values is reached, the DC output is switched off auto-matically. An alarm message is then appear on the display and via the interfaces. In addition, the device features temperature protection in the form of temperature sensors that monitor the power components. In the event of a fault, the power circuit is switched off automatically and a message is output via the display.

Digital interfaces as standard
 All models have two digital interfaces – 1 x USB and 1 x Ethernet – on the back. (ASCII and binary commands are implemented for device control and monitoring.) This not only ensures that the equipment can be controlled and maintained remotely but also allows multichannel communication with the unit and checksum-protected data transmission.

Other device features
 Operating hours counter, device history (fault memory), steaming of actual values and states with timestamp, flash-over counter, overtemperature device shutdown, and much more.

DEVICE TYPES (polarity must be stated on ordering)

Designation	Power (W)	Voltage (kV)	Current (mA)	Max. stored energy (J)
MPL 200 - 10000 P/N*	200	10	20	1,1
MPL 500 - 10000 P/N*	500	10	50	1,7
MPL 1000 - 10000 P/N*	1000	10	100	3,1
MPL 200 - 30000 P/N*	200	30	7	2,4
MPL 500 - 30000 P/N*	500	30	17	2,4
MPL 1000 - 30000 P/N*	1000	30	33	3,5
MPL 200 - 50000 P/N*	200	50	4	3,5
MPL 500 - 50000 P/N*	500	50	10	3,4
MPL 1000 - 50000 P/N*	1000	50	20	4,9

* P/N – Pointer/Negative

TECHNICAL DATA
INPUT

Voltage	100 ... 254 V
Frequency	47 ... 63 Hz
Power factor	>0,95

OUTPUT

Voltage	Up to 50.000 V
Current	Up to 100 mA
Power	Up to 1000 W
Adjustment accuracy	<0,1%
Efficiency	> 90% at full load
Response time at rated load:	from 10% rated output voltage to 90% or 90% rated output voltage to 10%: < 500 ms

STABILITY

With $\pm 10\%$ mains voltage variation	$\pm 0,01\%$
With no load/full load	$\pm 0,1\%$
With temperature variations	$\pm 0,1\%/K$
Over 8 hours under constant conditions and with a ½ hour warm-up phase	$\pm 0,1\%$
Voltage ripple	0,1%
Protective functions	On overvoltage, overcurrent, overload, overtemperature
Polarity	Positive or negative
Standards	Safety: EN 61010-1 EMC: EN 61000-6-1, EN 61000-6-3
Cooling	Quiet fans with speed regulation

AMBIENT TEMPERATURE

During operation	0°C ... 40°C	
During storage	0°C ... 60°C	
Humidity	0 ... 85% non-condensing	
Degree of pollution	1	
Operating height	< 2000 m above mean sea level	
Protection class	I	
IP protection rating	20	
Interfaces	USB and Ethernet as standard	
USB interface	Virtual COM port on PC side, 115 kBd	
Ethernet interface	Fully integrated, based on Cortex-M4, full duplex, 5 simultaneous connections possible via Ethernet, IP address configuration via display, transfer speed of 10/100Mb/s, protocol is TCP/IPv4	
Earthing	One output pole is earthed	
Use	In enclosed rooms	
Transport	In operating state: cannot be transported	
Dimensions (WxHxD) mm	19" housing – 2U – 443x86x454 mm Rack adapter available	
Weight	10kV	30 kV and 50 kV
	~10 kg	~17 kg



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