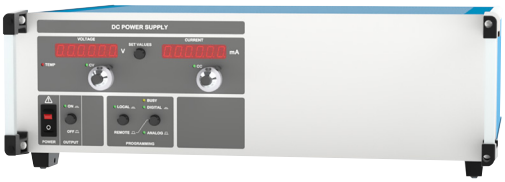
MCP700 series

XP Power

700W Bench mount

AC-HVDC power supplies

The MCP700 series are highly stable switch-mode power supplies with low ripple and a floating output. Due to the high switching frequency the power supply has a low residual ripple in the generated output voltage with high stability, good regulation dynamics, and at the same time only a low amount of stored energy.



Features

- Output voltages 0-125VDC to 0-2kVDC floating
- Single phase AC input
- Continuous operation at full rated power
- Unlimited operation with full rated current in short circuit condition
- Multi-function control panel with user friendly interface
- Digital and/or analog programming option
- Manual voltage and current control with digital display
- Set-point display via a button
- Set-point adjustment possible with disabled output
- Push-button switch for output voltage
- Low ripple
- Any load type: In principle, any passive two-terminal network is possible
- CE marked, EN61010-1 safety compliant
- Short circuit & arc protection
- 2 year warranty

Applications

- Electrostatics
- High voltage test equipment
- Insulation testing
- Ion sources
- Laboratory power

Benefits

- Provides maximum device control & flexibility
- Safe operation ensures maximum protection to the power supply
- High voltage release included for safe operation at high voltage output
- User friendly controls combined with simple terminal software gives greater flexibility
- Special solutions are available, visit our **more resources** section to see our full range of options

Dimensions

Click the link to the dimensions table

→ mechanical details

More resources

Click the link or scan the code

→ xppower.com

MCP700 series

Models & ratings

Model number	Polarity	Output voltage	Output current	Input voltage	Frequency	Connector	HV-cable
MCP125F5K0S	Floating	0 to 125V	0 to 5A	230VAC, ±10%	47 to 63Hz	/	/
MCP200F3K0S	Floating	0 to 200V	0 to 3A	230VAC, ±10%	47 to 63Hz		
MCP350F2K0S	Floating	0 to 350V	0 to 2A	230VAC, ±10%	47 to 63Hz		
MCP650F1K0S	Floating	0 to 650V	0 to 1A	230VAC, ±10%	47 to 63Hz	SHV-10	RG58
MCP1K2F500S	Floating	0 to 1.25kV	0 to 500mA	230VAC, ±10%	47 to 63Hz		
MCP2K0F300S	Floating	0 to 2kV	0 to 300mA	230VAC, ±10%	47 to 63Hz		

Notes:

1. For further information, please refer to the cables & connectors guide.

Options

- Analog programming/interface
- Analog programming/interface, floating
- Computer interfaces IEEE 488, RS 232, RS 422, RS 485, Profibus, USB, LAN (more on request)

For further information about options and special solutions, please click on any of the links below:

Special solutions & modifications

⟶ view options

Analog programming & interfaces

⟶ view options

Digital programming & interfaces

⟶ view options

Or consult XP Power Sales directly.

MCP700 series

Input

Characteristic	Minimum	Typical	Maximum	Units	Notes & conditions
Input voltage	See models and ratings table				
Efficiency		90		%	
Overvoltage category		II			
Protection class		I			
Input connector	IEC 60320-1 C14 receptacle				
Input cable	Single phase mains: with CEE-7/7				

Output

Characteristic	Notes & conditions
Output voltage range	See models and ratings table
Output current range	See models and ratings table
Output control	Continuous adjustment from 0 to rated voltage/current by front panel mounted potentiometer
Output polarity	Both output poles are floating. Either the positive or the negative pole can be earthed.
Output isolation	Devices with a rated voltage of up to 350VDC are isolated for ±500VDC. Devices with a rated voltage between 650VDC and 2000VDC are isolated for ±2000VDC.
HV output connection	Up to 350VDC: Safety laborety sockets SLB 4-G KAT III ≥650VDC: The sockets are intended for a shielded output cable with earthed shielding. Two mating HV connectors with 3m cable are supplied.
Voltage control time	<1ms with load changes from 10% to 100% or 100% to 10%, respectively
Voltage setting range	Using the VOLTAGE potentiometer, approx. 0.1% to 100% of the rated value
Current control time	<10ms with load changes that effect a change of less than 10% in the output voltage
Current setting range	Using the CURRENT potentiometer, approx. 0.1% to 100% of the rated value
Setting time at rated load	Typical 300ms, depending on type, for changes in the output voltage from 10% to 90% or 90 to 10%, respectively
Set point resolution	$<\pm 1 \times 10^{-3}$ of rated value with potentiometer on front panel $<\pm 1 \times 10^{-5}$ of rated value with option fine potentiometer with option interface 16-bit resolution incl. sign bit (max. 22bit)
Discharge time constant	With output free of load max. 10s Discharge time to <50V max. 60s
Accuracy	Voltage:<±0.2% of the nominal value Current: within the range of >5mA up to <200A: ±0.2% of the nominal value Outside the above mentioned range: <±0.5% of the nominal value Additional digital display error <±2 digits
Residual ripple	$<2 \times 10^{-4}$pp + 200mVpp (measuring bandwidth 30Hz to 10MHz) $<6 \times 10^{-5}$ + 70mV of rated value RMS
Control deviation	±10% mains voltage variation: $<\pm 1 \times 10^{-5}$ of the rated value Open circuit / full load: 1×10^{-4} of the rated value Over 8 hours: $<\pm 1 \times 10^{-4}$ of the rated value Temperature deviations $<\pm 1 \times 10^{-4}$/K of the rated value
Short circuit protection	The power supply is short circuit and arc proof. The maximum current can be drawn at any output voltage, even in the event of a short circuit.

Environmental

Characteristic	Minimum	Typical	Maximum	Units	Notes & conditions
Temperature operation	0		+40	˚C	
Storage temperature	-20		+50	˚C	
Humidity - operation			+80	%	Up to +31°C, decreasing linearly down to 50% RH at 40°C
Humidity - storage			+80	%	No precipitation, dust-free and dry
Operating altitude			2000	m	Above sea level
Pollution degree		1			
Ingress protection	IP20				
Operation location	Only for use in dry indoor areas				

Signals & controls

	Function
Front panel	Voltage and current potentiometer, power switch, HV ON/OFF switch, digital display for current and voltage. Display of the output voltage and current set points is possible with the SET VALUES push-button.
Operating modes	The HV output's polarity is floating. The power supplies can be operated in the LOCAL, ANALOG (optional) and DIGITAL (optional) operating modes.
Displays	DVM for voltage and current, range ±20000

EMC: immunity & emissions

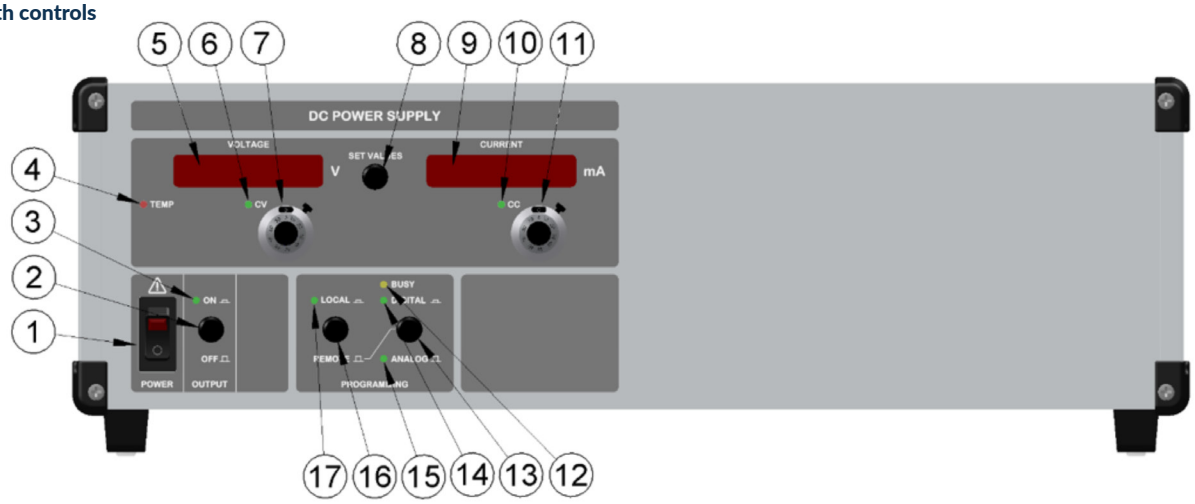
Phenomenon	Standard	Notes & conditions
Immunity	EN61000-6-1	Standard for residential, commercial and light-industrial enviroments
Emissions	EN61000-6-3	Standard for equipment in residential enviroments

Safety standard

Safety agency	Safety standard	Notes & conditions
EN	EN61010-1	
CE	Meets all applicable directives	

Mechanical details

Front view with controls



Example: MCP with dimensions: width 19"/443mm; height 3U/133mm

Front panel shown for illustrative purposes only, dimensions and layout differ by power rating - see mechanical details table.

Number	Function	Number	Function
1	POWER switch (AC) with indicator light: Disconnects the power supply from the mains, two-pole switching.	10	CC LED: Illuminated green indicating constant current control mode.
2	OUTPUT switch (DC): Disconnects the DC output. Equipment remains live!	11	Current adjustment: Ten-turn potentiometer with lockable precision dial.
3	ON LED: DC output ON. Illuminated green when the controller and power stage are ON.	12	BUSY LED: Illuminated yellow indicating data traffic on the digital interface. (Optional)
4	TEMP LED: Illuminated red indicating overtemperature. Internal temperature too high, fan failed or airflow blocked.	13	DIGITAL/ANALOG operation mode switch: Switches between REMOTE/ANALOG mode and REMOTE/DIGITAL mode. (Optional)
5	VOLTAGE display: Indicating actual value. Displays set point when flashing.	14	DIGITAL LED: Illuminated green indicating digital programming active. (Optional)
6	CV LED: Illuminated green indicating constant voltage mode.	15	ANALOG LED: Illuminated green indicating analog programming active. (Optional)
7	Voltage adjustment: Ten-turn potentiometer with lockable precision dial.	16	LOCAL/REMOTE operation mode switch: Switches between LOCAL mode and REMOTE mode. (Optional)
8	SET VALUES switch: Switches displays between actual value and set value.	17	LOCAL LED: Illuminated green indicating LOCAL control mode active. (Optional)
9	CURRENT display: Indicating actual value. Displays set point when flashing.		

Mechanical details

Rear view with single phase AC input

Example: MCP with dimension: width 19”/443mm; height 3U/133mm

Rear panel shown for illustrative purposes only, dimensions and layout differ by power rating - see mechanical details table.

Number	Function	Number	Function
1	AC input with mains fuse: IEC connector (as shown) with integrated fuse.	5	HV output positive: For power supplies up to 350VDC output voltage: HV output with laboratory safety socket. For power supplies with 650VDC or higher output voltage: Designed for screened output cable with grounded screen.
2	15-pin D-sub connector for Analog programming interface. (Optional)	6	HV output negative: For power supplies up to 350VDC output voltage: HV output with laboratory safety socket. For power supplies with 650VDC or higher output voltage: Designed for screened output cable with grounded screen.
3	Slot for digital interface (e.g.: IEEE488, RS232, USB, LAN, ...). (Optional)	7	Earth connection: is permanently connected to the protective earth (PE). Can be connected to the ground of the load.
4	Cooling air outlet. (Depending on device type)	8/9	Polarity indication labels: BLUE: NEGATIVE, RED: POSITIVE

Mechanical details

Model number	Mounting	Width		Height		Depth	Weight[2]
MCP125F5K0S	Bench mount[1]	19”	443mm	3U	133mm	350mm	10kg
MCP200F3K0S	Bench mount[1]	19”	443mm	3U	133mm	350mm	10kg
MCP350F2K0S	Bench mount[1]	19”	443mm	3U	133mm	350mm	10kg
MCP650F1K0S	Bench mount[1]	19”	443mm	3U	133mm	350mm	10kg
MCP1K2F500S	Bench mount[1]	19”	443mm	3U	133mm	350mm	10kg
MCP2K0F300S	Bench mount[1]	19”	443mm	3U	133mm	350mm	10kg

Notes:

1. Rack mount options available, click on the link below for full details.
2. All weights are approximate.

Rack mount options

⟶ view options